

**HORSE FLIES (DÍPTERA: TABANIDAE) DEL PARQUE NACIONAL NATURAL  
CHIRIBIQUETE. CAQUETÁ, COLOMBIA.**

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FACULTAD DE CIENCIAS  
ESCUELA DE BIOLOGIA  
BUCARAMANGA**

**2005**

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**Trabajo de grado presentado como requisito  
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## ABSTRACT

TITLE: Horse Flies (DIPTERA: TABANIDAE) from the “Parque Nacional Natural Chiribiquete”. Caquetá, Colombia.\*

AUTHOR: IBETHS STELLA PISCIOTTI OROZCO \*\*

KEY WORDS: Tabanidae, horse and deer flies, morphology, distribution, Chiribiquete.

### DESCRIPTION

In total, 7826 flies were collected, which included 64 morphospecies in three subfamilies and 14 genera (*Catachlorops*, *Chlorotabanus*, *Cryptotylus*, *Chrysops*, *Dasychela*, *Diachlorus*, *Dichelacera*, *Fidena*, *Leucotabanus*, *Phaeotabanus*, *Pityocera*, *Poeciloderas*, *Stypommisa* and *Tabanus*) equivalent to 46% of the genera reported for Colombia. It is include *Leucotabanus albovarius* Walker and *Tabanus occidentalis* Linnaeus in the listing of species registered, and the distribution area is enlarged to the oriental south region of our country for nine more species; *Fidena (F.) aureopygia* Kröber, *Dichelacera (D.) chocoensis* Fairchild & Philip, *Dichelacera fasciata* Walker, *Tabanus trivittatus* Fabricius, *T. unistriatus* Hine, *Catachlorops (P.) difficilis* (Kröber), *Diachlorus fuscistigma* Lutz, moderate *Stypommisa modica* (Hine) and *Stypommisa jaculator* (Fairchild). The samples were collected using Malaise traps placed in 26 sample points in five locations of the park. The collections were carried out during seven months between 2000-2001 including the dry and the rainy season. The descriptions, distribution and illustrations of adult females and two males, is provided for each species. An electronic key of the known species of the “Parque Nacional Natural Chiribiquete” is also included in <http://tux.uis.edu.co/labsist>.

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\* Work of Grade

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## RESUMEN

TÍTULO: HORSE FLIES (DIPTERA: TABANIDAE) DEL PARQUE NACIONAL NATURAL CHIRIBIQUETE". CAQUETÁ, COLOMBIA. \*

AUTOR: IBETHS S. PISCIOTTI O.\*\*

PALABRAS CLAVE: Tabanidae, horse y deer flies, morfología, distribución, Chiribiquete

### DESCRIPCIÓN

En total se colectaron 7826 moscas, las cuales incluyen 64 morfo-especies en tres subfamilias y 14 géneros (*Catachlorops*, *Chlorotabanus*, *Cryptotylus*, *Chrysops*, *Dasychela*, *Diachlorus*, *Dichelacera*, *Fidena*, *Leucotabanus*, *Phaeotabanus*, *Pityocera*, *Poeciloderas*, *Stypommisa* y *Tabanus*) equivalentes al 46% de los géneros reportados para Colombia. Este trabajo amplía el reporte de especies para Colombia, incluyendo a *Leucotabanus albovarius* Walker y *Tabanus occidentalis* Linnaeus en el listado de especies registradas y amplía el área de distribución a la región sur oriental de nuestro país a nueve especies más; *Fidena (F.) aureopygia* Kröber, *Dichelacera (D.) chocoensis* Fairchild & Philip, *Dichelacera fasciata* Walter, *Tabanus trivittatus* Fabricius, *T. unistriatus* Hine, *Catachlorops (P.) difficilis* (Kröber), *Diachlorus fuscistigma* Lutz, *Stypommisa modica* (Hine) y *Stypommisa jaculator* (Fairchild). Las muestras fueron colectadas utilizando trampas Malaise situadas en 26 puntos de muestreos en cinco localidades del parque. Las colecciones fueron llevadas a cabo durante siete meses entre 2000 y el 2001 incluyendo la estación seca y lluviosa. Para cada especie se provee la descripción, distribución e ilustraciones de hembras adultas y de dos especies de macho. También se incluye una clave electrónica de las especies conocidas del Parque Nacional Natural Chiribiquete en <http://tux.uis.edu.co/labsist>.

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## INTRODUCTION

The family Tabanidae is a diverse taxon conformed by robust true flies known as Horse or Deer flies, (Chainey 1993; Barlett et al. 2002; Ferreira & Rafael 2002). This family is worldwide distributed (Wilkerson 1985), around 4290 species are known, which approximately 1172 are from the Neotropical region (Fairchild & Burger 1994). The size ranged from 6 to 30 mm long, presenting distinct patterns of coloration, from brown, yellow to metallic colors (Chainey & Oldroyd 1980; Barreto et al. 1995). Other characters as the presence of ocelli, the pattern of stripes, spots, the number of flagellomeres, and the length of proboscis, are diagnostic characters used in determination of the subfamilies Pangoniinae, Chrysopsinae and Tabaninae (Fairchild 1969; Wilkerson 1979; Coscarón & Papavero 1993). Tabanidae is recognized mainly by the hematophagical capacity in the females, which feed mainly on big mammals, included man (Azevedo de Bassi et al. 2000; Veer et al. 2002). They have been observed attacking reptiles, amphibians and birds also (Henriques et al. 2000, Oliveira, et al. 2002, Ferreira et al. 2002), being potential mechanical vectors of diverse pathogenic agents (Krinsky 1976; Moucha 1976; Foil 1989; Papavero & Guimarães 2000) between these *Francissella tularensis*, *Bacillus anthracis* Cohn (Krinsky 1976), *Trypanosoma evansi* (Chainey & Oldroyd 1980), *T. vivax* (Medem 1981). Some publications point out females as ectoparasites of human and mammals (Moucha 1976; Foil 1989). In Colombia, the researches about this family are scarce; we remark the work of Wilkerson (1979) as the most complete. Barretto *et al.* 1995 published a review of the works carried out in our country, where they reported 245 species assigned to 30 genera and 5 subspecies, with *Tabanus*, *Scione*, *Philipotabanus*, *Chrysops*, *Dichelacera*, and *Di cladocera* as the most abundant genera. In the “Parque Nacional Natural Chiribiquete (PNNC)” there are not previous works over family; however Molina et al. 2000, in a study of hematophagous insect in the Caquetá department, reported six Tabanidae species. The main objective of the present study is to supply information about the family Tabanidae of the South-Oriental region of PNNC its species and its distribution; illustrations of some diagnostic characters are included.

## Materials and Methods

This study make part of the project “Insectos de Colombia (PIC)” that is an action between the IAvH, ICN, Kentucky University, Museum of Natural History of the Angeles county (LACM) and (UAESPNN). It was conduced in the south-west of the PNNC situated in southeast Colombia between the Caquetá and Guaviare department and it has 12.800 km<sup>2</sup>. Material was collected using Malaise traps during the months of January, February, April, October, November of 2000 and February and March 2001 by the System of national Parks and of the von-Humboldt Institute.

The descriptions are based mainly in specimens collected in 26 sample points between 250-310 m situated randomly in five localities of the park (0°4'-0°32' N and 72°24' -56' W): River Sararamano, River Mesay, Puerto Abeja, and Rivers Cuñaré and Cuñaré Amú, inside which was

defined sub areas denominated landscape units, identified by colors according to type of vegetation where they were situated (Herrera et al. 2003). The area presents a warm-humid to very humid climate, a dry season from December to February and a rainy season from March to November, in an almost unimodal pattern. The annual precipitation varies between 3,000 and 3,500 mm (the monthly mean exceeding 60 mm), the average relative humidity is of 86% and its annual median temperature is 26°C (Sánchez et al. 1996; Peñuela & Hildebrand 1999; Molina et al. 2000; Herrera et al. 2003)

Flies were pinned, labeled, and identified in some cases until species. The collections Tabanidae from Universidad Nacional de Colombia and "Colección Taxonómica Nacional de Insectos Luis Maria Murillo" were examined, additionally; specimens previously identified by J. Burger were used. We review 410 morphological characters and 93 of genitalia. The genitalia structures were obtained dissecting the abdomen last tergites and treated with techniques of Wood (1991) and González (1999). Then posterior the genitalia immersed in glycerin for examination. Descriptive terminology follows the Manual of the Nearctic Diptera McAlpine (1981), Wilkerson (1979), the terminology of the structures of the genitalia follows Coscarón & Papavero (1993). All the descriptions were carried out based on the collected material, in the possible cases the original description was revised and for the synonymies it was used mainly the catalog of Fairchil & Burger (1994). The description of the taxa follows the phylogenetic order proposed by Coscarón & Miranda (in preparation). The length of the head is taken in all the specimens, from the end of the vertex until the gena or beard

## Results

A total of 7.826 flies was collected between January 2000 and March of 2001 including 64 species in 14 genera, just 27 of them were identified until species; we can suggest with this that it could be new species or reports for the zone. Localities that present higher number of species are Mesay and Cuñaré Amú which includes forest of mainland, of flooded floors and transitional. The majority of tabanids collected (29%) were from the genus *Tabanus*, *Stypommisa* (14%), *Diachlorus* (9.3%) and *Chrysops* (9.3%). Due to the biases presented during the sampling, we do not use the abundance in this work. However, we can mention how the abundant species to *Tabanus* sp3 (95), *T. sp2* (98), *T. sp1* (132), *T. sp16* (158) *T. unistriatus* (252), *T. secundus* (436), *Diachlorus fuscistigma* (288), *Chrysops sp1* (405), *Catachlorops (P) difficilis* (2.058) and *Phaeotabanus cajennensis* (1.028), this last is present in the 76% of the units of sampled landscapes. According to this, based on the revision of Tabanidae of Colombia carried out by Barreto et al. 2005, 14 of the 30 genera are present in the PNNC, representing 47% of the report for the country (Table. 1). 22 of the species presented one specimen, hindering their identifications, in some cases for the bad state in that was the specimen, however we includes his descriptions in this monograph.

To our view, the characters that present the highest difficulty when describing and of identifying kind of a the family Tabanidae they are those that involve coloration because they are very subjective to the investigator vision, in this manuscript there is preponderant differences in this respect among very similar species of a genus, still with the original descriptions of some species; as we have mentioned in some cases, it is possible that these and other differences are

subject to the environmental conditions of the capture locality, however they are asseverations that it need a possibly phylogenetic deeper study.

## **Description of the taxa**

### **Genus *Tabanus* Linnaeus**

This genus characterized by vertex the lacking an ocellar tubercle (except for *T. pungens*) or with at most a small denuded spot. Eyes variously patterned or unicolor, bare or very rarely sparsely pilose in female, generally bare in male. Frons of female is higher than broad and without velvety-black spots. First antennal segment about as long as broad; Basal plate consolidated and with four annuli; basal part of the antennal segment usually without a dorsal, forward-projecting process but if such a process is present the eyes are bare, generally with dorsal angle obtuse or acute; if subcallus slightly swollen; gena pollinose. Frontal calli well developed, with the basal portion nearly as wide as frons; at least lower facets of eyes of male blackish in dried specimens. Proboscis short with unsclerotized labella. Unpatterned wing never banded (in Neotropical species) though they may be tinted, spotted on crossveins, veins brown margined or entirely dark or black. Basicosta with numerous setae. All tibiae slender, hind tibiae cylindrical, right and lacking a pair of apical spurs. Female: genital furca concave basally, tergite ninth divided, spermathecal ducts with cup-like expansion and cerci as long as wide (Fairchild 1965; Fairchild 1969, Wilkerson 1979, Goodwin *et al.* 1985, Coscarón & Papavero 1993).

### ***Tabanus albocirculus* Hine**

(Fig. 11 A-D)

*Tabanus albocirculus* Hine, 1907: 8 (2): 227, 9; Fairchild 1971: 28, p. 88, Syn. Goodwin & Murdoch 1974: 67(1): 128, figs. 16, 37. Wilkerson, 1979: 8 (31-32): 359-365.

*Tabanus (Bellardia) albocirculus* Fairchild, 1942a: 49 (1-2): 11-12, figs. 4, a, b; Fairchild 1947: 39(4): 575-576.

*Tabanus (Lophotabanus) albocirculus* Fairchild, 1953: 55 (5): 241.

**Diagnosis.** Thin medium to large species, eyes bicolor with bands, very narrow front, strongly darkened wings including the veins margins, R<sub>4</sub> with long appendix, dark brown mesonotum, bicolor fore tibiae and orange abdomen.

### ***Female***

**Head.** Length 3.8 mm (3.5-4.0 n=15), surface of the vertex slightly concave or plain, with spots (white very slight), incipient tubercle, black, bare or pilose, black hairiness or with shiny areas, without ocelli. Eyes slight green to brown, with iridescent bands, with microscopic hairs dispersed on all ocular area, with three stripes slight green. Frons brown, convergent below, eight or nine times higher than wide, pollinose, with yellow or grayish pruinose layer, opaque, and with transverse sulcus between frons and subcallus. Frontal index 14.8 (14-16 n=15). Frontal callus is longitudinal, strongly visible, flat, sub-rectangular (very thin and lengthened), touching the eyes in the base, with extension in ridge shape or list (narrow in the ends and the center is thicker or wider), that can or not to touch the vertex, rough, and opaque. Subcallus convex or

slightly high, opaque, bare, and with grayish pruinous layer. Antenna of same long palpus, multicolored orange and brown to yellow, scape prominent cap-like. Consolidated basal plate, monochromatic yellowish-orange, trapezoidal or hexagonal, flattened, short, with acute and short projection with curved tip, pollinose and pilose, wider than flagellomeres, without tooth. Flagellomeres free, pollinose and with one or two hairs in each flagellomere, blackish darker and short than basal plate. Frontoclypeus plane or convex, opaque, mahogany or brown, pollinose, with white and grey hairs, and grayish pruinous layer. Gena broad, black, opaque, with lengthy and moderate white hairs. Palpus geniculate and "slender" inflated basally, pointed, curved toward the base, pale-yellow, opaque, and hirsute. Proboscis 2.0 mm of length (1.8–2.2 n= 12), as long as half head, theca opaque, pilose; labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Monochromatic dark brown, with black hairiness and grayish pruinous. Notopleural lobes lighter than the scutum, sub-triangular, with black hairiness, and oval. Humeral lobes with white hairiness and of same tonality to the scutum, prealar lobes brown, with tufts with black and white hairiness, opaque. Scutellum blackish brown, opaque, bare or with scarce and short black hairiness, mesonotum without thoracic triangles, and scutum without setae, bands or stains. Scutellum without bands, with black or dark brown, oval stains between the scutellum and the hind scutum. Pleura brown, white abundant hairiness.

**Wings.** 14 mm long (13–16 n=15), dark brown, with areas hyaline on costal, apical margin and basal and marginal cell, completely fumose, with dark brown clouded areas on the border of the veins. Vein  $R_4$  near or not broadly separated from  $R_5$ , with appendix longer than segment than subtend the fork of vein  $R_4$ , and with cloudiness on base;  $R_{2+3}$  lightly curved,  $m_3$  and  $r_5$  cell open ( $r_5$  coarctate and  $m_3$  three times wider than  $m_2$ ), cell cup closed and petiolate, brown thick veins with dark margin around the cells. Basal costal cell clouded. Costa with stain in the portion subapical or fascia brown, strongly evident, Subcosta,  $R_1$  and  $A_1$  veins with macrotrichia.

**Legs.** Fore coxae monochromatic yellow to oranges, with white and black hairiness lengthy and scarce, fore femora Monochromatic brown to oranges, with chestnut hairiness. Fore tibiae multicolored beige and black, opaque, cylindrical, lightly curved, with scarce black and chestnut hairiness. Medial, hind femora, mesotibiae and metatibiae monochromatic reddish-orange, with scarce black and white hairs (tibiae, darker than the femora).

**Abdomen.** Base of abdomen constrained, sub-triangular, monochromatic reddish orange with they last tergites darker, with black hairs and of the first to fifth tergite with tufts of white hairs, opaque, with bands by overlap of the second to sixth tergite and sternite, abdomen with black middorsal spots in the first tergite, piloses, with triangles middorsal formed by the expansion of the bands.

**Genitalia, female.** Eighth sternite wider than high base, as wide as the gonapophyses, slightly concave or flat, strongly sclerotized forming bands, bifid parabasals hairs, with abundant and long (twice the height of the gonapophyses) hairiness. Gonapophyses monolobed, border distal plane, strongly sclerotized mainly in the sides, and without neckline or notch, two times wider than high, with abundant long and sclerotized hairiness (Fig. 11A). Hypoproct with the border strongly sclerotized, twice wider than high, scarcely pilose on external and distal border. Cerci not exposed sub-ovoid or sub-trapezium, as long as wide, without distal projection, with border distal rounded and concave hind border generally with heterogeneous sclerotization, long abundant, and sclerotized hairiness (Fig. 11B). Genital furca wider than high, with base concave, wide, with external neckline superficial, with two projections or branches shorter than width of base, sides acuminate, divergent basally (Fig. 11C). Comb scarcely pilose with scarce short or

long thorns. Spermatheca strongly capited or rounded, with extreme apical pointed, and with scarce porosity. Spermathecal ducts with cup-like expansion, with three or four mm long, two to five times the long genital furca, and with similar diameter in the base toward the apex (lightly thinnest in the base).

**Material examined:** Colombia: Cundinamarca, Tocaima, 1 Female, 24 October 1970; Choco, Río Sucio, 1 Female, 5 April 1975; Río Sucio Sautatá, 1 Female, 14 June 1978 (Icn); Caquetá, P.N.N. Chiribiquete, Río Mesay, 7 Females, 24–27 January 2000, 1 Female, 7–11 April 2000; R. Cuñaré-Amú 2 Females, 19–22 February 2001, 2 Females, 23 February–26 March 2001, 5 Females, 7–10 March 2001, 11 Females, 28–3 April 2001.

**General distribution.** Neotropics (Provincia Pacifica and Provincia Amazónica) Nicaragua, Costa Rica, Panamá, Peru, Ecuador, Colombia: Choco, Caldas, Caquetá, Valle del Cauca, Cauca.

**Discussion:** *Tabanus albocirculus* is very similar to other species mentioned in this monograph, as *T. sp4*, *T. sp11*, *T. sp12*, *T. sp17*, but has differences in the size, the colorations of borders of the veins, being *T. albocirculus* bigger and darker, also it has three green stripes in the eyes and a long appendix in the fork of R4 than the other species do not have. Comparing the description of *T. albocirculus* presented by Wilkerson 1979, we find only differences in the index frontal, 14.8 in this monograph and 7.4–10.3 in Wilkerson.

#### ***Tabanus occidentalis* var. *dorsovittatus* Macquart**

(Fig 1 A-D)

*Tabanus dorsiger* Wiedemann, 1821: (2): 26; Fairchild, 1971: 28: 92, Syn..

*Tabanus dorsiger* var. *modestus* Wiedemann (as species), 1828: 1: 146.

*Tabanus dorsiger* var. *dorsovittatus* Macquart (as species), 1855: p. 50; Wilkerson, 1979; 8 (31–32) 370–371.

*Tabanus occidentalis* var. *dorsovittatus* Macquart, 1855; Fairchild, 1983: (57): p, 8, 26, Figs. III-36–38; V-11, 12; VI-4–8; Tiape Gomez, Velazquez de Rios, & Gorayeb, 2004: 19 (1): 62.

**Diagnosis.** Small to medium species, with eyes with diagonal purple band, wings hyaline, veins yellowish brown with the margin not darkened. Thorax black without bands, stripes nor triangles; abdomen yellow with the tergites five to seventh darkened with a thick medial brown band and divided by faint longitudinal stripe of white pruine and a brown triangle in the sternite two.

#### ***Female***

**Head.** Length 2.1 mm (2.0–2.2 n=10), surface of the vertex lightly concave or plain, without spots neither tubercle, black, bare, completely shiny, without ocelli. Eyes slight green, iridescent, bare, with a diagonal stripe, purple (also in the border in the eyes). Frons convergent below (strongly divergent to the vertex), black, five times higher than wide, with very scarce hairiness or bare, with golden pruine layer, opaque, with transverse sulcus between frons and subcallus, frontal index 6.2 (6.0–7.0 n=10). Frontal callus flat or slightly elevated, sub-square, does not touch the eyes, with extension with does not touch the vertex (and it narrowed in the ends taking a form rhomboidal), smooth, reddish-mahogany and shiny. Subcallus flat, totally shiny, bare, and golden or faint orange pruine layer. Antenna of same long than palpus, monochromatic yellow to orange, basal plate hexagonal (Fig. 1A) (Fig 69 B, in Coscarón & Papavero 1993: 103, but scape

with cap-like more prominent). Flagellomeres sub-lobulated or cylindrical and curved up, free. Frontoclypeus plane, opaque, mahogany or brown, pollinose, and with white hairs and grayish or white pruinose layer. Gena broad, black, opaque, pilose with white lengthy hairs, thick, grayish or white pruinose layer, and with moderate white hairiness. Palpus geniculate and completely inflated, curved toward the base, pale-yellow (translucent), opaque, pruinose and pilose (Fig. 1B). Proboscis 1.8 (1.5-2.1 n=10) mm of length and does not exceed the high head, theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored, the black scutum and the Notopleural and humeral lobes yellow, with very scarce black hairiness, faint pearly pruinose. Notopleural lobes, with black hairiness (lengthy); humeral or pronotal lobes inflated, oval, with lengthy white hairiness, clearer than the scutum; prealar lobes brown, with very scarce black hairiness and shiny. Scutellum black of same intensity than the mesonotum, shiny, bare, and faint pearly pruinose layer. Mesonotum (scutum and scutellum) without thoracic triangles, setae, bands neither stains. Pleura blackish brown, with moderate white hairiness in the border of the anepisternum and of the katepisternum.

**Wings.** 8.75 mm long (8.0-9.0 n= 11), totally crystalline or hyaline, without fumosiness. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and without cloudiness on base, R<sub>2+3</sub> lightly curved, vein M<sub>2</sub> (3 times wider in the base than M<sub>1</sub>), m<sub>3</sub> and r<sub>5</sub> open cells, brown or yellow veins, margin around the cells of same intensity at the cell, basal costal cell hyaline, Costa with stain in the portion subapical or yellowish strongly evident fascia, Subcosta, R<sub>1</sub> and A<sub>1</sub> with macrotrichia.

**Legs.** Fore coxae monochromatic blackish-brown, with white arrays hairiness in the upper part. fore femora monochromatic blackish-brown, with lengthy and abundant black hairiness. Fore tibiae multicolored, beige or yellow and black, shiny, cylindrical, lightly curved, with moderate white and black hairiness. Medial femora multicolored, the half-anterior brown and yellow the rest, with laterals lengthy black hairs, mesotibiae, yellow, with black and yellow hairiness. Hind coxa monochromatic orange and with black hairs. Hind femora bicolor, they brown end previous and yellow the rest, with lengthy and slender white hairiness. Hind tibiae yellow with black arrays of thick and short hairs. Tarsomeres blackish-brown or black.

**Abdomen.** Base of abdomen not constrained, sub-triangular, yellow and in their last three tergites, black with very short and scarce black hairs; more abundant toward the last tergites, opaque, with one middorsal, longitudinal band of white pruinose on all tergites, abdomen with middorsal, continuous, brown spots, (slight from the first to fourth tergites), with one sternal brown triangle, printed in the tegument on first and second sternite.

**Genitalia, female:** Eighth sternite lightly wider than high or as high as wide, is base as wide as the gonapophyses, flat, weakly sclerotized, scarce and long (twice the height of the gonapophyses) or short hairiness. Gonapophyses monolobed, border distal without neckline or notch plane or slightly concave, two times wider than high, with abundant and long hairiness; with heterogeneous sclerotization. Ninth and tenth tergite reserved inside the seventh. Hypoproct strongly sclerotized, lightly wider than high, moderately pilose (and fine), evenly spread. Cerci slightly exposed or not exposed, sub-ovoid, higher than wide, border distal rounded and hind border concave, with homogeneous sclerotization, scarce, non sclerotized (translucent) and short hairiness (Fig. 1C). Genital furca as wide as high (short), base plane, wide, without external neckline nor projections or branches in the base, comb with thorns, long, abundant (dense) and comb without hairs (Fig. 1D). Spermathecal strongly capited, extreme apical blunt, perforated lightly visible, with scarce porosity, spermathecal ducts with cup-like expansion. Caudal

spermathecae without constrictions nor diverticles, of different diameter and as long as the high genital furca or of twice the long genital furca,

**Material examined:** Colombia: Caqueta. P.N.N Chiribiquete. Rio Sararamano, 4 Females. 14–17 April 2000; Puerto Abeja, 1 Female, 29 October–12 November 2000; Río Cuñaré, 1 Female. 1–5 November 2000, 33 Females, 5–9 November 2000, 1 Female 10–14 November 2000, 7 Females. 15–19 November 2000.

**General distribution.** Neotropics (México, Venezuela, Peru, Colombia (Caldas. Caquetá)).

**Discussion.** The species belonging to this group generate a lot of controversy; we for the determination of this species use to Wilkerson (1979) but we considered the discussion and description given by Fairchild (1983). *Tabanus occidentalis* var. *dorsovittatus* is similar to *T. sp 6* and *sp 7* but *T. sp 6* has the pale fascia almost absent, mesonotum is clearer, the frontal index is half of the *T. occidentalis* var *dorsovittatus*, the callus is rounded and orange, the abdomen has two yellow dorsolateral-bands well defined, and it is smaller. On the other hand, *T. dorsovittatus* differs of *T. sp 7* because this last is bigger, it has the mid and hind tibiae with the dark brown extreme basal, callus is orange clavate, and wings dark fumose.

### ***Tabanus secundus* Hine**

(Fig. 1 E-H)

*T. secundus* Walker, 1848: 180; Chainey 1990: 306; Fairchild & Burger 1994: 149

*Tabanus dorsiger* var. *stenocephalus* Hine, (as species), 1906: 7 (2): 27; Wilkerson, 1979: 8 (31–32): 370–371.

*Tabanus stenocephalus* Hine, 1906: 7 (2): 27; Fairchild, 1983: (57) p 28. Fig. IV-4, 43; V-15; VI-26, 27.

**Diagnosis.** This species is very similar to *T. occidentalis* var. *dorsovittatus* but it presents variations in the coloration of the abdomen, has two yellowish dorsolateral bands that arrive until the third tergite and strong different in the genitalia.

### ***Female***

**Head.** Length 2.7 mm (2.2–3.1 n=12), surface of the vertex concave or plain, without spots, black, hirsute, black hairiness, opaque, without ocelli. Eyes slight green, iridescent, bare, with one stripe diagonal, medial, purple (thick and the border of the eyes also purples), without spot or drawing. Frons convergent below or sub-parallel, black, 5 or 6 times higher than wide, golden or pearly pruinose layer, opaque, with transverse sulcus between frons and subcallus, frontal index 6.8 (6.1–8.0 n= 12). Frontal callus longitudinal, slightly elevated, sub-rectangular, does not touch the eyes, with extension in crest shape (until half of the frons), does not touch the vertex, smooth, dark brown to black, shiny. Subcallus flat or convex or slightly high, with shiny areas or bared for the expense, golden or grayish pruinose layer to the side. Antenna shorter than palpus, monochromatic orange, very prominent cap-like scape (Fig. 48 C Coscarón & Papavero 1993: 84). Frontoclypeus and Gena plane, opaque, blackish brown or black, with abundant white hairs and grayish pruinose layer (Gena broad). Palpus lightly geniculate, pale-yellow, opaque, pruinose, and hirsute. Proboscis 2.2 mm of length (1.9–2.5 n= 12), does not exceed the high head, theca opaque, pilose, labella membranous, opaque, does not surpass half of the proboscis, partially pilose and oval.

**Mesonotum** monochromatic dark brown or black, with black hairiness, light brown pruinose layer (thickest on the lobes). Notopleural lobes lighted than the scutum, sub-triangular, with black hairiness. Humeral or pronotal lobes flat, oval, black and white hairiness of same tonality to the scutum. Prealar lobes brown, with ventral white and black tufts hairs, opaque. Scutellum black, with the border clearer, opaque, with black hairiness, same than all the lobes light brown pruinose layer. Scutum and scutellum without thoracic triangles, setae, bands nor stains. Pleura black or blackish brown, moderate hairiness (white with scarce black hairs, mainly to the sides).

**Wings.** 12.8 mm long (11–13.5 n=12), light brown or grey, without areas hyaline, completely fumose, without neither clouded nor stains. Vein  $R_4$  near or not broadly separated from  $R_5$ , without appendix, without cloudiness on base.  $R_{2+3}$  lightly curved;  $M_3$  and  $r_5$  open cells lightly coarctate but open, faint brown veins, margin around the cells slightly darker than tone of cells. Basal costal cell brown fumose or translucent, Costa with stain in the portion subapical or fascia, brown strongly evident. Subcosta,  $R_1$  and  $A_1$  with macrotrichia.

**Legs.** Fore coxae, fore femora and metacoxae monochromatic blackish-brown or black, very pollinose and with white and black hairiness (abundant). Fore tibiae multicolored beige and black, shiny, cylindrical, lightly curved, with thick black and white hairiness (slender), moderate. Medial femora black and ochre, with scarce black and white hairs. Mesotibiae bicolor brown and oranges, pollinose and with black hairiness. Hind coxa with white hairs, grayish pruinose thick, hind femora bicolor black and brown, with white hairiness, grayish pruinose, hind tibiae monochromatic brown to orange, pollinose and with lengthy array black hairiness. Tarsomeres all monochromatic blackish-brown or black.

**Abdomen.** Base of abdomen not constrained, lengthened and sub-triangular, multicolored yellow and dark brown or black, with yellowish sublateral bands and a white or beige thick medial, pruinose and with "tufts" white hairs to the side of the fourth and fifth tergites, and black hairs more scarce in the rest, grayish pruinose, opaque, with three tergal bands, two yellow or beige sublaterals on first to third tergites and one white medial on first to seventh tergites; this also extends under the scutellum in the first tergite forming an Y of white pruinose and on second to third or fourth sternites, the brown bands transversal, pilose and pruinose. Abdomen without spots, with black or dark brown triangles sternals, continuous, printed in the tegument, on two and three sternites in some until the fourth or fifth sternite.

**Genitalia, female.** Eighth sternite wider than high, base as wide as the gonapophyses, concave, strongly sclerotized forming bands, simple parbasal hairs, abundant or moderate long (twice the height of the gonapophyses) hairiness. Gonapophyses monolobed (with light distal concavity), border distal without neckline or notch, two times wider than high, with abundant and long hairiness non sclerotized (translucent), lightly concave distally, heterogeneous sclerotization, with two lateral bands (Fig. 1E). Hypoproct weakly sclerotized, twice wider than high, abundantly pilose (very short and faint) on distal border (Fig. 1G). Cerci not exposed, sub-squares, as high as wide, without distal projection, distal border rounded, flat hind border, homogeneous sclerotization, scarce translucent short hairiness (Fig. 1F). Genital furca as wide as high (short), base plane, wide, without external neckline, without projections or branches in the base. Comb scarcely pilose with long and abundant thorns (Fig. 1H.). Spermathecal weakly capited, extreme apical blunt, perforated not very evident (lightly visible), spermathecal ducts with cup-like expansion. Caudal spermathecal of different diameter, with 3.0 mm long, three times the long genital furca.

**Material examined:** Colombia: Amanavén, 1 Female, May 1952; Choco, Río Sucio, Cocarica, 1 Female, 5 August 1978 (ICN); Caquetá, P.N.N. Chiribiquete, Cuñaré-Amú, 5 Females, 7–10

March 2001, 18 Females, 14–17 February 2001, 1 Females, 19–22 February 2001, 13 Females, 23–26 March 2001; Río Sararamano, 4 Females, 9–13 April 2000, 1 Female, 11–15 April 2000, 3 Females, 14–17 April 2000, 66 Females, 7–11 April 2000; Río Mesay, 140 Females, 24–27 January 2000, 5 Females, 1–4 February 2000, 156 Females, 26–28 January 2000; Río Cuñaré, 4 Females, 15–19 November 2000.

**General distribution.** Neotropics: Provincia Amazonica (Guatemala to Paraguai, Peru and Surinam, Colombia: Caquetá).

**Discussion:** *T. secundus* is very similar to *T. occidentalis* var., but it differs of the coloration of the abdomen and the mesonotum, being in *T. secundus* black, with broad cream middorsal band, and reduced or faint dorsolateral stripes. On the other hand, the orange-brown mid and hind femora and tibiae, while than *T. occidentalis* var. are completely yellow.

### ***Tabanus occidentalis* Linnaeus**

(Fig. 1 I-K)

*Tabanus occidentalis* Linnaeus, 1758: 602; Fairchild, 1983: 57: 24-25, Fig. II-34, 35; V-13; VI-13.

**Diagnosis.** Species *Tabanus occidentalis* differs of *T. dorsovittatus* and *T. secundus* for that have the callus clavate, and frons is more narrow, the wings are clearer very faint fumose, the sublateral bands are longer reaching the five tergite and the base of the genital furca than is concave and not plane

#### ***Female***

**Head.** Length 3.0 (2.8-3.3 n=25) mm (dorsal view), surface of the vertex concave or plain orange with spots or without spots, black, bare, opaque. Eyes slight green, iridescent, with microscopic hairs, dispersed, over the whole ocular area, with 1 stripe diagonal, medial, purple or black (as they border of the eyes). Frons convergent bellow, black, five times higher than wide, bare or with hairs, pearly or grayish pruinose layer, opaque, with transverse sulcus between frons and subcallus. Frontal index 5.1 (5.0-5.4 n=25). Frontal callus flat, sub-square, does not touch the eyes, with extension in ridge shape or list depressed in the union of the callus, does not touch the vertex, smooth, black or coppery and shiny. Subcallus flat, with shiny areas or bared for the expense, golden or faint orange pruinose layer. Antenna longer or of same long than palpus, monochromatic orange, with in cap-like very prominent and with abundant hairiness (Fig. 69 B and 100 C in Coscarón & Papavero, 1993: 105, 136). Frontoclypeus plane, opaque, mahogany or dark brown, with abundant white hairs, thick grayish or white pruinose layer. Gena broad, black, opaque, with chestnut hairs in the part upper and white to the subgena, white and light brown pruinose layer, with moderate white hairiness. Palpus geniculate and "slender" inflated basally finished in tip, curved toward the half, pale-yellow, opaque, pilose, hirsute (white in the base). Proboscis 2.1 mm (1.9-2.6 n=20 ) as long as the high head, theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored dark brown or black and in the lobes orange, bare, light brown pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, with black hairiness, humeral or pronotal lobes slightly inflated, oval, black hairiness and white hairiness, clearer than the scutum, prealar lobes brown, with array of with black hairiness, opaque.

Scutellum brown to black, of same intensity than the mesonotum, shiny, bare, light brown slender pruinous layer. Mesonotum scutum and scutellum without thoracic triangles, setae, bands nor stains. Pleura blackish brown, white and chestnut abundant hairiness.

**Wings.** Length 10.3 mm (10.0-10.7 n=20). Crystalline to grey, totally hyaline, without fumosiness nor clouded, without stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix nor cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open; yellow veins and margin around also hyaline. Basal costal cell hyaline, Costa with stain in the portion subapical or fascia yellowish and strongly evident. Subcosta R<sub>1</sub> and A<sub>1</sub> with macrotrichia.

**Legs.** Fore coxae and fore femora monochromatic blackish-brown, with white hairiness abundant and with black hairiness in array, lengthy and abundant in prefemora. Fore tibiae multicolored yellow and black, shiny, cylindrical, lightly curved, with abundant black hairiness. Medial femora multicolored brown and yellow, with black and white hairs. Mesotibiae yellow, with black hairiness. Hind coxae brown with white hairs. Hind femora bicolor brown and ochre, with white hairiness in lengthy array laterals, grayish pruinous. Hind tibiae yellow, with black hairiness. Tarsi brown or black.

**Abdomen.** Base of abdomen not constrained, sub-triangular, multicolored, yellow the one to three tergites and sides of the fourth and dark brown the tergites five to seven. In the ventral part, only the six and seven sternites are dark, with black and white hairs, opaque, with a thick white pruinous layer and abundant white hair. With three dorsal and longitudinal bands, one middorsal on one to six tergites forming an Y under the scutellum, and two thick dorsolateral on first to fifth tergites; the lateral bands are more thin, of yellow or beige pruinous, pruinose; abdomen with a spots brown medial on the second tergite, with brown triangles sternal, continuous on the first and second sternites, printed in the tegument.

**Genitalia, female.** Eighth sternite higher than wide (elongated) or as high as wide, with base as wide as the gonapophyses, flat, weakly sclerotized with a triangle less esclerotized in the base. Parabasals hairs presents, not bifid; moderate, long and short hairiness Gonapophyses monolobed, border distal without neckline or notch, plane, twice wider than high; moderate, long and sclerotized hairiness, heterogeneous sclerotization general clearer in the center (Fig. 1I). Hypoproct weakly sclerotized, lightly wider than high and scarcely pilose on distal border. Cerci lightly exposed, sub-ovoid, higher than wide, with weak distal projection, border distal rounded and hind border of flat, with homogeneous sclerotization, moderate short and sclerotized hairiness (Fig. 1J). Genital furca as wide as high (short), base concave, wide, with external neckline superficial, without projections or branches in the base, sides there are not branches blunt or wide or spherical, parallel, without the border distal of branches of arisen genital furca laterally, comb with thorns short or long and abundant, without hairs (Fig. 1K). Spermathecal weakly capited, extreme apical blunt, perforated not very evident, with scarce porosity, spermathecal ducts with cup-like expansion, 2–3 mm of length and two to five times the long genital furca, with different diameter thickest toward the part apex.

**Material examined:** Colombia: AMANAVEN, 3 H, May 1952; Amazonas, Leticia, El Puerto, 1 Female, 17 November 1970; Choco, Río Sucio, Tilupa, 2 Females, 4–6 June 1978, 1 Female, 13 March 1978; Río Sucio, Sautata, 1 Female, 31 March 1978, 1 Female, 8 June 1978; Magdalena, Sierra Nevada de Santa Marta, Guachaca, 500m, 1 Females, 4 November 1976; Meta, Restrepo, 1 Females, 2 September 1976; Valle del Cauca, Cali, 1 Female, 20 May 1976; Cali, Farallones de Cali, 1 Female, 2 April 1993, 1 Female, 28 April 1993, 1 Female, 1 May 1993 (ICN); Caqueta P.N.N. Chiribiquete, Río Mesay, 9 Females, 24–27 January 2000, Río Sararamano, 7 Females, 7–11 April 2000, 13 Females, 14–17 April 2000; Río Cuñaré, 3 Females, 1–5 November 2000,

54 Females, 5–9 November 2000, 1 Female, 10–14 November 2000, 18 Females, 15–19 November 2000; Cuñaré-Amú, 1 Female, 14–17 February 2001, 3 Females, 7–10 March 2001, 1 Female, 28 March–3 April 2001, 10 Females, 21–25 November 2001.

**General distribution.** Neotropics (Mexico, Provincia Amazónica: Brazil, Colombia: Caquetá, Argentina).

**Discussion.** These last three species *Tabanus occidentalis*, *T. dorsovittatus* and *T. secundus* are very difficult to differentiate by small differences of color and structure. We agree with Fairchild (1983), in that this can be due to the climatic and feeding conditions in those that carry out their cycle of life. The species described in this monograph were collecting in diverse forest types mainly in riverside areas with the conditions mentioned by Fairchild (1983). Besides the differences scored in *T. secundus*, *T. occidentalis* callus is oval in the base while than it is squared in *secundus*. The description of this species is similar to the logged in Fairchild (1983), for the varieties of *Tabanus occidentalis*; however we consider that a detailed revision should be made by specialists.

### ***Tabanus simplex* (Walker)**

(Fig. 1 P-Q)

*Tabanus sirnplex* Walker, 1850: 1: 34; Fairchild & Wilkerson 1983 22: (5): 2.

*Tabanus rufiventris* Macquart, 1846: p. 166, (preocc. Fabricius, 1805), type locality Colombia, Bogotá.

*Hybomitra indiorum* Bequaert & Renjifo-Salcedo, 1946: 53 (3-4): 75, (new name for *rufiventris* Macquart).

*Diclidocera simplex* Fairchild, 1971: 28: 74.

*Stypommisa simplex* Wilkerson, 1979: 8 (31-32): 343-345.

**Diagnosis.** Small to medium dark reddish brown species with an unstriped eyes, frons parallel, callus short globose, with reduced or vestige dark longitudinal bands, wings completely hyaline, tibiae indistinctly bicolored dark brown and yellow or cream, and abdomen with dorsal triangles.

### **Female**

**Head.** Length 2.64 mm (2.4-2.9 n=12), surface of the vertex depressed or strongly concave, black, bare, opaque, without spots, tubercle nor ocelli. Eyes unicolour slight green and brown, iridescent, bare or with microscopic hairs dispersed completely. Frons sub-parallel, black, two or three times higher than wide, with short and scarce black hairs, with thick light brown and golden pruinose layer, opaque, and with transverse sulcus between frons and subcallus. Frontal index 2.8 (2.2-3.3 n=12). Frontal callus strongly elevated to globose, (Fig 60 B or 71 B in Coscarón & Papavero, 1993: 96, 101) in gout shape, not touching the eyes with extension in ridge shape or list, until half of the frons, smooth, black or brown or reddish-mahogany, shiny. Subcallus convex or slightly high, with shiny areas or bare by space, and light brown pruinose. Antenna of same length than the palpus, orange, scape square, sub-cylindrical, as long as wide, with scarce hirsute hairs, without posterior margin in cap-like; pedicel conical, cup-like shape, as long as wide, with hirsute hairs, with posterior margin cap-like vestige. Consolidated basal plate, monochromatic orange, trapezoidal (Fig. 46 D and 69 B, in Coscarón & Papavero, 1993: 82, 105), flattened, short, with acute dorsal angle between the base and half of basal plate, with short

projection, with right tip, pollinose and pilose. With three or four flagellomeres, the three and four seem partially fused, curved up and cylindrical, pollinose and with one or two hairs in each flagellomere, shorter and of same intensity to the basal plate. Frontoclypeus plane, opaque, mahogany, pollinose and with scarce white and chestnut hairs, and with a slender grayish or orange pruinose layer; gena broad, black, opaque, fine white hairs, grayish or white pruinose, subgena or beard with scarce white hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base, pointed, oranges-yellow, shiny, and hirsute. Proboscis 2.0 mm (1.8-2.2 n=8), not exceed the high head; theca opaque, pilose, labella membranous, with shiny areas, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum** brown to reddish, with whitish hairiness, and with thick grayish pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, slightly inflated, pruinose and with black hairs, humeral lobes slightly inflated, oval, black and white hairiness, clearer than the scutum; prealar lobes brown, pruinose, opaque, and with black hairiness. Scutellum mahogany or brown, opaque, grayish pruinose, and with scarce short white hairiness. Scutum with three black bands, and pruinose. Pleura brown, pruinose and moderate hairiness, on the border of the anepisternum, a tufts white hairs and grayish pruinose.

**Wings** length 10.24 mm (9.8–10.7 n=12), crystalline, totally hyaline. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, without appendix, nor cloudiness on base. R<sub>2+3</sub> right, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed and petiolate; brown veins, hyaline basal costal cell; Costa with stain in the portion subapical or fascia brown strongly evident, Basicosta pollinose or with macrotrichia less dense than in the costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Fore coxae monochromatic brown to yellowish-oranges, with long white and grayish pruinose. Hind coxae with grayish pruinose and short white hairs. All femora brown or blackish-brown, with short black and white hairines, and medial and medial femora brown with black hairs and in the hind femora golden hairs also. All tibiae bicolor 2/3 or 1/2 basal cream or yellow and blackish-brown or brown the apex, protibiae opaque, cylindrical, markedly curved, more augmented than the medial and the hind, with scarce black hairiness, mesotibiae with black hairiness and yellow hairiness, hind tibia with black and white hairiness, cylindrical, right and all tarsomeres black.

**Abdomen.** Sub-triangular, lengthened, multicolored, tergites yellow first and second, and light brown the rest, shiny, and with short black hairs. With five dorsal and transversal bands of white and brown pruinose on posterior borders the tergites two to seven, abdomen pruinose and pilose, without spots, with dorsal and continuous white triangles on two to six tergites, big or than occupy all the high of the tergite.

**Genitalia female.** Eighth sternite wider than high, with the base as wide as the gonapophyses, flat, strongly sclerotized forming bands; parabasals hairs not bifid, and moderately pilose. Gonapophyses bilobed, with the concave border distal without neckline or notch, two times wider than high, with long and sclerotized hairiness, heterogeneous sclerotization. Hypoproct weakly sclerotized, twice wider than high, abundantly pilose on external and distal border. Cerci exposed, sub-trapezium or sub-triangular, as high as wide, distally projected and rounded, with the hind border concave, heterogeneous sclerotization, and moderate to scarce hairs. Genital furca higher two times than wide, with the base plane, wide, without external neckline, with two projections or branches shorter than width of base, sides there are not branches blunt or peaked, and convergent basally (Fig. 1P). Comb with short and abundant thorns and hairs. Spermathecal weakly capited, with the extreme apical pointed, not perforated (Fig. 1Q). Spermathecal ducts

with cup-like expansion, length eight mm, 12 times longer than the genital furca, with similar diameter in the base toward the apex and with waves toward the end apex.

**Material examined:** Colombia: Valle del Cauca, Peñas Blancas, 1750m, 10 Km W de Cali. 1 Female, 22 November 1975 (ICN), Caquetá, P.N.N. Chiribiquete, 1 Female, 24–27 January 2000, 21 Females, 1–4 February 2000, 1 Female, 5–19 November 2000.

**General distribution.** Neotropics (Peru, Colombia: Caldas, Caquetá, Cundinamarca, Valle of the Cauca).

**Discussion:** According to the characteristics of the specimens captured in the “Parque Nacional Natural Chiribiquete”, this specie has a bigger similarity with the genus *Tabanus* than with *Stypommisa*; therefore, we consider that the location *Tabanus simplex*, in this genus (Fairchild & Wilkerson 1983) is appropriate, in spite of the fact that in the moment of the determination, only did comparison with the description given by Wilkerson (1979).

### ***Tabanus trivittatus* Fabricius**

(Fig. 1 A, 11 E-H)

*Tabanus trivittatus* Fabricius, 1805: 104; Wiedemann, 1821: 1: 85; 1828. 1: 72; Walker, 1854: 5, 1, p. 199; Bequaert, 1926: 15, p. 228; Philip, 1954: 1695: 13; Fairchild, 1966c: 73 (1): 24, Fig 3; Fairchild, 1976: 19: (1-4): 258-259, Fig. 14.

**Diagnosis.** Small to medium brown species, eyes with three bands, pedicel relatively very short, wings hyaline grayish and fascia faint yellow. Thorax totally black shiny, abdomen with a longitudinal pale stripe or band, and sub-lateral bands of yellow pruinous apparently of connected triangles, with black spots in the border posterior of first to four tergite, border lateral of sternites darkened, and first and second sternite with brown triangle.

#### ***Female***

**Head.** Length 2.9 mm (2.6-3.1 n=16), surface of the vertex concave, black, pilose, hirsute, white and black hairiness, opaque, without ocelli. Eyes black, iridescent, bare, with three horizontals and diagonals slight green stripe. Frons convergent below, black, higher than wide, grayish pruinous layer, opaque, with transverse sulcus between frons and subcallus and frontal index 11.9 (10.5-20 n=16). Frontal callus flat, sub-rectangular, does not touch the eyes or vertex, with extension in ridge shape or list of the rhombic shape, rough, black, shiny. Subcallus convex or slightly high to spherical, completely shiny reddish-brown (mahogany) and bare. Antenna longer than palpus, monochromatic orange with in cap-like, strongly prominent), basal plate monochromatic orange, hexagonal (similar to the Fig, 101 C in Coscarón and Papavero 1993: 137), but the angle is below and the flagelomeres curved (Fig. 2A). Frontoclypeus plane, opaque, reddish-brown or mahogany, with faint white hairs, grayish pruinous layer. Gena broad, opaque, pilose, thick grayish pruinous layer, with abundant white hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base, pale-yellow and opaque, pollinose and pilose, hirsute and not hirsute (yellowish in the base). Proboscis 2.01 mm of length (1.8-2.2 n=16), does not exceed the high head, theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis (3/4), partially pilose and oval,

**Mesonotum** monochromatic black, with fine short black hairiness in the lower part of the hind scutum, and very fine pearly pruinous present in the all the lobes. Notopleural lobes lighted than

the scutum, pruinose and with very short golden and longer black hairiness. Humeral or pronotal lobes slightly inflated oval, pruinose, white hairiness fine and short, clearer than the scutum. Prealar lobes brown the same as the sides of the hind scutum, pruinose and with black hairiness, opaque. Scutellum black, with golden hairiness in the border. Mesonotum with two thoracic triangles or rhombuses, of pale pruinose on the sutures scutoescutelar and longitudinal. Scutum and scutellum without triangles, setae, bands nor stains. Pleura blackish brown, white abundant hairiness.

**Wings.** 9.4 mm long (8.0-10.2 n=16), grey, without areas hyaline, completely fumose (or translucent). Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix or cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, brown veins (the veins m<sub>1</sub> and m<sub>2</sub> have the same base), margin around the cells of same intensity of cell. Basal costal cell fumose or translucent (grayish), Costa with fascia vestigial, veins Subcosta, R<sub>1</sub> and A<sub>1</sub> with macrotrichia.

**Legs.** Fore coxae monochromatic yellow, with abundant white hairiness. Fore femora stouter than the tibiae, black, with black hairiness short, thick and longer to the side. Fore tibiae multicolored black and beige, shiny, cylindrical, lightly curved, with moderate black and white hairiness. Medial femora, brown (with the inferior end palest), with very short and fine black hairs or white hairs. Mesotibiae yellow (with the base or the inferior end darkest), with black and whitish hairiness. Hind coxa and femora monochromatic brown, with white and chestnut hairs and grayish pruinose. Hind tibiae yellow, with black and white hairiness. Tarsomeres monochromatic brown or black.

**Abdomen.** Base of abdomen not constrained, sub-triangular and lengthened, dark brown, with white hairs to each side of the tergites; opaque, with transversal and longitudinal bands of white and yellow pruinose and printed in the tegument. The longitudinal bands go from the first to the seventh tergite. The alone transverse bands are present in the ventral part; abdomen without spots, with brown triangles sternals, continuous printed in the tegument on sternites one and two.

**Genitalia, female.** Eighth sternite wider than high with the base narrower than gonapophyses, flat, strongly sclerotized forming bands, parabasals not bifid, with abundant long and short hairiness. Gonapophyses bilobed, with the border distal concave without neckline or notch and strongly sclerotized, two times wider than high; abundant and long hairiness, and with heterogeneous sclerotization forming two bands central (Fig. 11E). Hypoproct weakly sclerotized, lightly higher than wide, scarcely pilose on external and on distal border. Cerci not exposed, sub-ovoid or sub-triangular, higher than wide, without distal projection, border distal acuminate and hind border concave, homogeneous sclerotization, weak, and scarce short hairiness (Fig. 11F). Genital furca as wide as high (short), base concave, wide, with external neckline, deep, with two projections or branches shorter than width of base, sides blunt, parallel. Comb scarcely pilose with scarce and long thorns (Fig. 11G). Spermathecal strongly capited, apex pointed or blunt, perforated lightly visible or with scarce porosity, spermathecal ducts with cup-like expansion (Fig. 11H), with similar diameter in the base toward the apex, five mm of length eighth times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N, Chiribiquete, Río Cuñaré-Amú, 3 Females, 14–17 February 2001, 4 Females, 2 Males, 28, 7–10 March 2001, 7 Females, March-3 April 2001.

**General distribution.** Neotropics (Provincia Amazónica) Costa Rica, Panama, Colombia (Caquetá) Surinam, Guyana, Brazil (Pará, Amapá).

**Discussion.** *Tabanus trivittatus* is very similar to *T. unistriatus*, the differences consist in that *T. trivittatus* does not have a brown band that extends on all the sternites and only it presents a great triangle on the first two or three; the medial and hind femora are indistinctly bicolored with the darkened basal ends, contrary to *T. unistriatus* that has them totally black. Besides this, the wings and the abdomen of *trivittatus* are clearer than *T. unistriatus*.

### ***Tabanus unistriatus* Hine**

(Fig. 1 L-O)

*Tabanus unistriatus* Hine, 1906: 7 (2): 28; 1925: 162: 28; Kröber, 1933: 3 (3): 365; 1934, Op. cit 4 (3): 294; Dunn, 1934: 41 (3): 174; Fairchild, 1942b: 35 (2): 162, pl. 1, Fig. 2; 1946: 39 (4): 515; 1953: 55 (5): 241; Lee, Fairchild & Barreto, 1969: 19 (49): 455-456; Fairchild, 1976: 19 (1-4): 240, 242, 260-261, Fig. 15; Wilkerson, 1979: 8 (31-32): 391-392.

*Tacniotabanus unistriatus* Barreto, 1956: 8 (1): 87.

**Diagnosis.** Small black species the orange antenna with contrasting with black flagellomeres, callus touch the eyes, bare and shiny subcallus; wings grayish fumose, fore and hind coxae and femora black occasionally with color diluted to brown, mid and hind tibiae yellow and fore bicolor, abdomen black with a pale median stripe, and dorsolateral bands until the tergite five.

### ***Female***

**Head.** Length 2.6 mm (2.3-3.0 n=20), surface of the vertex concave, black, bare, completely shiny. Eyes slight green, iridescent, with microscopic hairs, conglomerates, over the whole ocular area, with three green bands in a purple bottom, the first two bands are intertwined in the ocular margin. Frons convergent bellow, black, higher than wide, light brown and pearly pruinose layer, opaque, with transverse sulcus between frons and subcallus. Frontal index 8.2 (6.6-10 n=20). Frontal callus, longitudinal, strongly visible, flat, sub-rectangular, does not touch the eyes, with extension in ridge shape or list that be narrow in the ends that does not touch the vertex, rough, black, shiny. Subcallus convex or slightly high, totally shiny, dark-brown bare. Antenna of same long than palpus, multicolored the brown flagellomeres and orange basal plate, scape and pedicel; similar to the Fig. 44 C of Coscarón and Papavero 1993 with consolidated basal plate, hexagonal, flattened, short, with dorsal angle obtuse among the base and half, pollinose, wider than flagellomeres; with four flagellomeres curved up, free, pollinose, darker and shorter than high of the basal plate. Frontoclypeus plane, opaque, black, with white hairs and pearly pruinose layer. Gena broad, black, opaque, pilose (longer hairs as in the frontoclypeus), with pearly pruinose layer and with moderate white hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base, pale-yellow, opaque, and with hirsute hairs. Proboscis 2.0 mm long (1.8-2.2 n=20), does not exceed the high head, theca opaque, pilose, labella membranous, opaque, same half the long of the proboscis, partially pilose in the ventral part and oval.

**Mesonotum.** Monochromatic black, with black hairiness, fine white pruinose layer (something blues). Notopleural lobes of same tonality to the scutum, with black hairiness. Humeral lobes flat, oval, black hairiness, reddish a little clearer than the scutum. Prealar lobes reddish, with golden and black hairiness, opaque, scutellum black, of same intensity than the mesonotum, shiny, bare, whitish pruinose layer (lightly bluish). Mesonotum (scutum and scutellum) without thoracic triangles, setae, bands, nor stains. Pleura black and pruinose.

**Wing.** Length 9.1mm (8.5-10 n=20), light brown, without areas hyaline, completely fumose lightly more accentuated on the margin apical. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells of same intensity of color, basal costal cell hyaline. Costa with fascia vestigial, veins Subcosta and R<sub>1</sub> with macrotrichia and A<sub>1</sub> without macrotrichia.

**Legs.** Fore coxae monochromatic black, with white hairiness. Fore femora blackish-brown or black, with black hairiness (long and thick). Fore tibiae multicolored black and pale yellow, shiny, cylindrical, lightly curved, with black and golden hairiness. Mid femora monochrome, black, with black and white hairs. Mid and hind tibiae yellow with black and chestnut hairiness. Hind coxae and femora Monochromatic black, with white hairs, and pruinous pearly. Tarsomeres monochromatic black.

**Abdomen.** Base not constrained, sub-rectangular or sub-triangular, multicolored, the dark ventral part, pollinose; with black hairs and fine and abundant white hairs, opaque, with five transversal bands in moist, thin of white to pearly pruinous in the base of the sternites 2 to 6. Dorsally has two laterals yellow bands pollinose at the sides since the second to the fourth tergites and with a thin longitudinal white band medial contrasting with the dark brown bottom. The abdomen has been at thick spots sternal; discontinuous that leaves the side yellowish until the fourth sternite, pilose and without triangles.

**Genitalia, female.** Eighth sternite wider than high is base wider than gonapophyses, flat, weakly sclerotized with the clearest base, parabasals hairs not bifid, moderate or abundant long hairiness. Gonapophyses bilobed, border distal concave, without neckline or notch, twice wider than high, abundant and long hairiness, with heterogeneous sclerotization (the laterals side clearest) (Fig. 1L). Hypoproct weakly sclerotized, lightly wider than high, and scarcely pilose on distal border. Cerci not exposed, sub-trapezium, higher than wide, border distal rounded slightly acuminate, hind border flat, with heterogeneous sclerotization; and moderate short translucent hairiness. Genital furca higher than wide, base concave and wide, without external neckline nor projections in the base. Comb with short abundant thorns and abundantly pilose (Fig. 1M). Spermathecal weakly capited, extreme apical pointed, perforation evident and with scarce porosity (Fig. 1 O). Spermathecal ducts with cup-like expansion (Fig. 1N) seventh mm long, with similar diameter in the base toward the apex and of 10 to 12 the long at genital furca.

**Material examined:** Colombia: Valle del Cauca, Bajo Anchicayá, 400m, 1 Female, 26 January 1976 (ICN); Caquetá, P.N.N. Chiribiquete, Río Mesay, 18 Females, 24–27 January 2000, 44 Females, 26–28 January 2000, 35 Females, 1–4 February 2000; Río Sararamano, 25 Females, 7–11 April 2000, 15 Females, 9–13 April 2000, 2 Females, 11–15 April 2000; Puerto Abeja, 22 Females, 29 October–12 November 2000, 10 Females, 12–19 November 2000; Río Cuñaré, 2 H, 1–5 November 2000, 5 Females, 10–14 November 2000, 3 Females, 15–19 November 2000; Río Cuñaré-Amu, 6 Females, 14–17 February 2001, 10 Females, 19–22 February 2001, 18 Females, 7–10 March 2001, 7 Females, 23–26 March 2001, 13 Females, 28 March–3 April 2001.

**General distribution.** Neotropics (Guatemala to Ecuador, Provincia Amazónica Colombia: Caquetá, Choco, Valle del Cauca, Cauca).

***Tabanus* sp 1**  
(Fig. 2 B-F)

**Diagnosis.** A great size blackish species, eyes unicolor black or blackish green, antenna without tooth but with short projection, wings translucent almost hyaline, fascia vestige and legs wholly blacks

***Female***

**Head.** Length 5.0 (4.8-5.2 n=12) mm, surface of the vertex concave, black, hirsute hairiness, with ocelli vestige of color yellowish on the vertex, with black setae ocellar. Eyes blackish green, not iridescent, with microscopic hairs, conglomerates, over all the ocular area, without bands. Frons divergent to vertex, higher than wide, grayish and with pale-yellow pruinose in the base of callus, opaque, and with transverse sulcus between frons and subcallus, frontal index 19.3 (18.5–20 n=12). Frontal callus, longitudinal, strongly visible, slightly elevated, claved, does not touch the eyes, and with extension in crest shape than touch the vertex, rough, black and shiny. Subcallus flat, opaque, pearly pruinose layer and with white area in the base of scape. Antenna shorter than palpus, monochromatic brown similar at the fig. 100 C and 101 B in Coscarón and Papavero (1993) but the prolongations or angle more lengthened that does not surpass half of the basal plate (Fig. 2B). Frontoclypeus convex, opaque, dark brown, with black and white hairs and grayish pruinose layer. Gena broad, black, opaque, pilose, with grayish pruinose, and abundant white hairiness. Palpus geniculate or "slender" inflated basally finished in tip, curved toward the base, brown or pale-yellow, with abundant whitish hairiness in the first segment, the second segment with the completely yellowish internal face, scarcely pilose and with black hairs (Fig. 2C). Proboscis length 3.1 (2.8-3.5 n=12) mm partially sclerotized, does not exceed the high head, theca shiny, pilose, labella membranous, with shiny areas, exceed half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored, brown and black, with black and chestnut hairiness, and grayish pruinose. Notopleural lobes lighted than the scutum, with grayish pruinose, chestnut and short black hairs. Humeral or pronotal lobes slightly inflated, oval, black and white hairiness, clearer than the scutum. Prealar lobes brown, pruinose and opaque. Scutellum black and brown in the sides, of same intensity than the mesonotum, opaque, with black and chestnut hairiness, and grayish pruinose layer. Mesonotum, scutum and scutellum without thoracic triangles, setae or stains. Pleura blackish brown, pruinose, with pruinose grays in the anepisternum, in the border with the hind basalar and the anepimeron white hairs and with a tufts black among them.

**Wings.** 16.5 (16-18 n=12) mm long, crystalline, with areas hyaline on whole wing, partially fumose on costal margin, costal cell, without clouded. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> lightly curved; cell m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells of same intensity of the cell; cell basal costal fumose or translucent. Costa with fascia strongly evident. Subcosta and veins R<sub>1</sub> with macrotrichia and in A<sub>1</sub> absent.

**Legs.** All monochromatic black, with white hairiness and black hairiness (the white longer). Fore tibiae shiny, markedly curved. Hind coxa and femora with grayish pruinose.

**Abdomen.** Lengthened or sub-triangular, monochromatic black, with thick grayish pruinose layer, black and white hairs, opaque; with six bands sternal transversals on inferior border, of beige pruinose; abdomen pilose and pruinose without spots or triangles.

**Genitalia, female.** Eighth sternite higher than wide (elongated), base as wide as the gonapophyses, flat, weakly sclerotized. Simple parabasals hairs, abundant, long (twice the height of the gonapophyses) hairiness (Fig. 2D). Gonapophyses bilobed, border distal concave, without neckline or notch, twice wider than high, abundant sclerotized and long hairiness; homogeneous sclerotization, Ninth and tenth tergite, reserved inside the seventh. Hypoproct strongly sclerotized, twice wider than high, scarcely pilose on border distal and has more than enough implanted toward the base. Cerci not exposed, sub-ovoid, lightly wider than high, border distal rounded, hind border flat; homogeneous sclerotization, short and moderate hairiness (Fig. 2F). Genital furca higher than wide, base concave, wide, with external neckline deep, with two projections or branches, shorter than width of base, parallel, without the border distal of branches of arisen laterally. Comb with short and dense thorns, and abundantly pilose (Fig. 2E). Spermathecal weakly capited, extreme apical pointed, not perforated, spermathecal ducts without projections, with cup-like expansion, caudal spermathecal ducts eighth mm long, with similar diameter in the base toward the apex and 10 to twice the long at genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 64 Females, 24–27 January 2000, 7 Females, 26–28 January 2000, 3 Females, 1–4 February 2000, 1 Female, 1–4 February 2000; Río Sararamano, 1 Female, 11–15 April 2000; Puerto Abeja, 1 Female, 29 October–12 November 2000; Cuñaré-Amu, 12 Females, 14–17 February 2001, 6 Females, 19–22 February 2001, 7 Females, 23 February–26 March 2001, 26 Females, 7–10 March 2001, 4 Females, 28 March–3 April 2001, 1 Females, 21–25 November 2001,

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** So much *T. sp 1* as *T. sp10* is very similar morphologically, some of the differences is mentioned in *T. sp 10*

## ***Tabanus sp 2***

(Fig. 2 G-J)

**Diagnosis.** A great size blackish species, eyes unicolor blackish brown or green, frons very narrow, with a short prolongations basal plate, darkened wings with the border of the veins with cloud dark brown and abdomen with triangles of the white pruiné and hairs.

### ***Female***

**Head.** Length 5.0 mm (4.5–5.8 n=22), surface of the vertex concave lightly depressed, black, incipient tubercle yellowish-oranges, pilose, scarce chestnut hairiness, opaque. Eyes blackish green, bare, without bands. Frons, convergent bellow, black, higher than wide, pollinose, grayish pruiné layer, and opaque. Frontal index 19.8 (19-21 n= 22). Frontal callus, longitudinal, strongly visible, flat, sub-rectangular (Fig. 92 J in Coscarón & Papavero 1993: 128), does not touch the eyes, with extension in ridge shape or list than touch the vertex, rough, brown (reddish as mahogany), shiny. Subcallus flat, opaque of color oranges, grayish pruiné layer. Antenna longer or of same long than palpus, monochromatic dark brown. Scape and pedicel with abundant hirsute hairs and ventrally with scarce white hairs, similar at the Fig. 54 L in Coscarón and Papavero (1993) (Fig. 2G). Frontoclypeus convex with pit-tentorial strongly depressed, opaque, blackish brown with the union to the white proboscis, with white hairs, grayish pruiné layer. Gena broad, black, opaque, pilose with scarce and short white hairs, grayish pruiné layer, with moderate white hairiness. Palpus geniculate, curved toward the base, finished in tip, ochre,

pilose, hirsute with white and black hairs. Proboscis 3.2 mm of length (2.8-3.9 n=22), does not exceed the high head.

**Mesonotum.** Bicolor or multicolored brown and black, with white and black hairiness, and white or grayish pruinose layer on the hind scutum. Lobes brown lighted than the scutum, pruinose or with black or white hairiness (Notopleural with short hairs in the center and long in the border). Prealar lobes opaque with black hairs and tufts so much black as white hairs in the inferior face. Scutellum black with brown border, opaque, with black and white hairiness, and grayish pruinose layer. Mesonotum scutum and scutellum without thoracic triangles, setae, bands nor stains. Pleura black, pruinose with thick and grey pruinose layer, have been black and white hairs scattered, between anepisternum and anepimeron have a array of abundant white hairs and among them a tufts of white hairs.

**Wings.** 16.24 mm long (15.4-17 n=15), light brown, the border of the veins is markedly more darkened brown thick veins, with areas hyaline on half of the wing, on marginal cell with a light hyaline in the base of R<sub>1</sub> between the br and bm cell, completely fumose. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>. Cell m<sub>3</sub> open and cell r<sub>5</sub> closed (coarctate) without petiole. Basal costal cell fumose or translucent; Costa with stain in the portion subapical or fascia strongly evident. Subcosta and veins R<sub>1</sub> with macrotrichia, A<sub>1</sub> without macrotrichia,

**Legs.** All monochromatic black with white or black hairiness or both and grayish pruinose, except the Fore tibiae that is bicolor white and black, opaque and lightly curved and the mesotibiae that is bicolor, black and brown. All tarsomeres are monochromatic black.

**Abdomen.** Monochromatic black, opaque, with base not constrained, sub-triangular, ventrally with two longitudinal laterals bands thick and fifth bands transverse in the base of each sternite formed of white pruinose and hairs. Dorsally with lateral triangles formed by white hairs, with the base inverted over the superior part of the tergites three to five and a medial triangle in the third tergite with the base in the inferior part. The first two tergites seem to have triangles formed by hairs.

**Genitalia, female.** Eighth sternite higher than wide (elongated), base as wide as the gonapophyses, flat, strongly sclerotized forming bands, with simple parabasals hairs, with moderate long hairiness. Gonapophyses bilobed, border distal concave without neckline or notch, twice wider than high, long abundant hairiness, homogeneous sclerotization (Fig. 2I). Hypoproct strongly sclerotized, lightly wider than high, scarcely pilose on border external and distal (Fig. 2H). Cerci not exposed, sub-squares, higher than wide, border distal truncated, hind border concave, homogeneous sclerotization, scarce, and short hairiness (Fig. 2H). Genital furca wider than high, base concave, narrow, with external neckline, deep, with two projections or branches shorter than width of base of the furca, wide and rounded, parallel, the border distal of branches of arisen laterally. Comb with dense long thorns, and abundantly pilose (Fig. 2J). Spermathecal weakly capited, extreme apical blunt, with perforation evident with numerous or abundant pores (Fig. 2J). Spermathecal ducts with cup-like expansion of six mm of length 10 to twice the long at genital furca and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Cuñaré-Amu, 4 Females, 14–17 February 2001, 6 Females, 19–22 February 2001, 5 Females, 23 February-26 March 2001, 25 Females, 7–10 March 2001, 15 Females, 28 March-3 April 2001; Río Sararamano, 19 Females, 7–11 April 2000, 3 Females, 9–13 April 2000, 5 Females, 11–15 April 2000; Río Mesay, 6 Females, 24–27 January 2000, 10 Females, 1–4 February 2000, 5 Females, 26–28 January 2000; Río Cuñaré, 1 Females, 1–5 November 2000

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** It is more related with *Tabanus* sp1, however the differences are clear, mainly in the wings that are strongly smoky with the borders of the dark veins, the abdomen presents whitish triangles to the sides and the size is bigger than in *T.* sp1.

### ***Tabanus* sp 3**

(Fig. 2 K-M)

**Diagnosis.** Large species, eyes without bands, tubercle vertex or vestige spot orange and seems not to have sulcus between the subcallus and the frons, with dark or black brown mesonotum and orange abdomen with the last tergites black and all legs black.

#### ***Female***

**Head.** Length 4.0 (3.8-4.3 n=25) mm, surface of the vertex brown, concave, incipient tubercle, pilose, hirsute, black hairiness, with shiny areas to the side (Fig. 2K). Eyes blackish green and brown, not iridescent, with microscopic hairs scattered, over the ocular area and without bands. Frons sub-parallel or slightly convergent below, brown, higher than wide generally seven times, light brown pruinose layer, opaque. Frontal index 15 (14.6-15.7 n=25). Frontal callus, flat, clavate, does not touch the eyes, with extension in ridge shape or list does not touch the vertex, rough, black and shiny. Subcallus flat, opaque, pollinose, light brown pruinose layer. Antenna multicolored brown to black scape and orange pedicel, and basal plate black with the orange base, with one tooth shorter than basal plate (Fig. 2L). Frontoclypeus plane, opaque, brown, with golden and chestnut hairs and light brown to pale yellow pruinose layer. Gena broad, brown, opaque, with grayish pruinose layer, and with moderate chestnut or golden hairiness. Palpus geniculate, curved toward the base, yellowish brown, opaque, pilose, hirsute (Fig. 2M). Proboscis 2.5 (2.3-2.6 n=25) mm does not exceed the high head, theca opaque, pilose, labella membranous, with shiny areas, not exceed half of the proboscis, partially pilose, and oval.

**Mesonotum.** Bicolor or multicolored, dark brown to orange, with black and golden hairiness, light brown or pale yellow pruinose layer. Prealar lobes light brown with golden tufts in the apex and black scattered. Mesonotum without thoracic triangles, setae, bands or stains. Pleura blackish brown and pruinose.

**Wings.** 14.4 mm long (13.2-15.2 n=25), light brown, completely fumose, without stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, and without cloudiness on base. R<sub>2+3</sub> lightly curved, cell m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells of same intensity of color at the cell, basal costal cell fumose or translucent, Costa with fascia vestigial and Subcosta with macrotrichia.

**Legs.** All the legs monochromatic black with lengthy array, black and white hairs. Fore tibiae, opaque, cylindrical, lightly curved.

**Abdomen.** Base not constrained, sub-triangular, bicolor orange and with the last tergites black, with black hairs, opaque, without spots and without triangles.

**Genitalia, female.** sternite eighth wider than high with base wider than gonapophyses, flat, strongly sclerotized forming bands, bifid parabasal hairs, with abundant long and short hairiness. Gonapophyses bilobed, two times wider than high, abundant sclerotized short hairiness, with heterogeneous sclerotization with a single central band, and with the border distal concave, strongly sclerotized, and without neckline or notch. Hypoproct strongly sclerotized, twice wider than high, moderately pilose on distal border. Cerci not exposed (wholly inner), sub-

circular, as high as wide, distal border rounded, hind border concave, with weak homogeneous sclerotization, and moderate long hairiness. Genital furca as wide as high (short), base concave, wide, without external neckline, without projections or branches; comb with long abundant thorns and scarcely pilose. Spermathecal weakly capited, extreme apical blunt or strongly curved, not perforated; spermathecal ducts with cup-like expansion, 9 mm of long 10 times the long at genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000, 1 Female, 26–28 January 2000, 1 Females, 1–4 February 2000; Río Sararamano, 27 Females, 7–11 April 2000, 9 Females, 9–13 April 2000, 6 Females, 11–15 April 2000; Puerto Abeja, 5 Females, 29 October-12 November 2000, 1 Female, 12–19 November 2000; Río Cuñaré, 4 Females, 1–5 November 2000, 1 Females, 15–19 November 2000; Cuñaré-Amú, 1 Female, 14–17 February 2001, 3 Females, 19–22 February 2001, 27 Females, 7–10 March 2001, 3 Females, 23–26 March 2001, 5 Females, 28 March-3 April 2001.

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** We could say that this species is more related with the group bigoti than with other species, however the presence of a long tooth in the basal plate and the last black tergites differentiates it strongly.

#### ***Tabanus* sp 4**

**Diagnosis.** Medium size to big species, blackish or black brown unicolor Eyes brown wings with the border of the darkened veins, black mesonotum with clearer lobes, with the abdomen totally orange pointed and black legs with the brown medial and hind tibiae.

#### ***Female***

**Head.** Length 3.8 (3.6-4.5)mm, surface of the vertex plain or lightly concave brown,, with spot orange, bare or with short and fine hairs, opaque, without ocelli or vestiges. Eyes blackish green or blues (according to the incidence of the light), iridescent, bare and without bands. Frons sub-parallel, brown, six times higher than wide, with very fine and scarce hairs, thick light brown pruinose, opaque, with transverse sulcus between frons and subcallus, frontal index 6.4 (5.6-7.0 n=8). Frontal callus, longitudinal, strongly visible, flat, clavate (similar to Fig. 92 I in Coscarón & Papavero 1993: 128), does not touch the eyes, with extension in ridge shape or list or in crest shape, than touch the vertex, rough, brown and orange, shiny. Subcallus flat, opaque, bare, and thick light brown pruinose layer. Antenna of same long than palpus, scape and pedicel yellow and basal plate orange-brown; scape conical, sub-cylindrical, wider than long, with hirsute hairs, with in cap-like very prominent. Pedicel conical, cup-like, wider than long, with hirsute hairs, with posterior margin cap-like. Consolidated basal plate, monochromatic brown, trapezoidal, flattened, short, with short projection of curved tip, pollinose and pilose, wider than flagellomeres, with four flagellomeres, curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, darker and shorter than high of the basal plate. Frontoclypeus plane lightly convex, opaque, brown to black, pollinose and with abundant black and chestnut hairs, and light brown pruinose layer. Gena broad, black, opaque, pilose, with a thick slight-brown pruinose layer, and with abundant chestnut hairiness. Palpus geniculate and "slender" inflated basally, curved toward the half, brown and oranges-yellow, opaque, pilose, hirsute. Proboscis 3.3

mm of length (3.0–4.0 n=8), as long as the high head, theca opaque, pilose, labella partially sclerotized and membranous, opaque, exceed half of the proboscis, partially pilose and oval.

**Mesonotum.** Monochromatic dark brown, with short black and chestnut hairiness, light brown pruinose layer on the lobes. Prealar lobes reddish and brown, with chestnut hairiness, opaque, scutellum brown, of same intensity than the mesonotum, opaque, bare or with scarce hairiness, light brown pruinose layer. Mesonotum without thoracic triangles, setae, bands or stains. Pleura blackish brown, pruinose, moderate long black hairiness.

**Wings.** 15.0 mm long (13.2–18 n=8), light brown, with areas hyaline on costal margin and radial or marginal cell, completely fumose, with light brown clouded areas on the border of the veins. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> lightly curved or right, cells m<sub>3</sub> and r<sub>5</sub> open lightly coarctate, cell cup closed and petiolate, brown and reddish veins, margin around the cells darker than tone of cells, basal costal cell clouded (brown), Costa with stain in the portion subapical or fascia strongly evident (dark-brown), veins R<sub>1</sub> and Subcosta with macrotrichia and A<sub>1</sub> without macrotrichia.

**Legs.** Fore coxae and femora monochromatic black, pollinose and with long black and chestnut hairiness. Fore tibiae multicolored brown and black, shiny, cylindrical, lightly curved, with scarce black hairiness. Medial femora monochrome, brown, with short black or chestnut hairs. Mid tibiae monochromatic blackish-brown, pollinose and with black hairs. Hind coxa monochromatic reddish brown, with black hairs. Hind femora brown, with thick black hairiness. Hind tibiae monochromatic orange, pollinose, with thick black hairs, cylindrical, and right. All tarsomeres monochromatic black.

**Abdomen.** Sub-triangular, thick, finished in tip, orange and dark in the last tergites, with black hairs or golden hairs very scarce and alone in the border, in the last sternite erect, shiny, without bands, with brown dorsomedial spots, bares and without triangles.

**Genitalia, female.** Sternite eighth higher than wide, with the base more narrow than gonapophyses, flat or lightly concave, strongly sclerotized forming bands, with simple parabasals hairs, abundant, long hairiness. Gonapophyses bilobed, two times wider than high, with abundant long hairiness, heterogeneous sclerotization (clearer in the center), and with the border distal concave, without neckline or notch. Hypoproct weakly sclerotized, as high as wide, and moderately pilose on distal border. Cerci not exposed, sub-circular, as high as wide, distal border rounded, hind border concave, with weak homogeneous sclerotization, and scarce short and long hairiness. Genital furca as wide as high, with the base concave, narrow, short, with external neckline deep, with two projections or branches shorter than width of base, branches blunt, wide or globose, convergent basally. Comb with long abundant thorns and scarcely pilose. Spermathecal strongly capited, with the apex blunt, perforated, with numerous pore; spermathecal ducts with cup-like expansion, 9 mm of long, 10 times the long at genital furca, with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 15 Females, 24–27 January 2000, 3 Females, 1–4 February 2000; Río Cuñaré, 1 Female, 15–19 November 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** This species is very similar to the group that we have denominated bigot, its discussion it extend in *Tabanus* sp 12.

***Tabanus* sp 6**  
(Fig. 2 N-P, 16 A)

**Diagnosis.** Small species with callus rounded with a faint keel, eyes green with the border and one thin diagonal band purple, wings hyaline with pale fascia; abdomen with a thick longitudinal white band possibly of continuous triangles of the second to fifth tergites and two yellowish dorsolateral. Similar to *T. occ.* var. *dorsovittatus* with different in the callus, the narrow of the frons and the frontal index

***Female***

**Head.** (Fig. 16A) Length 1.9 (1.5-2.1 n=8) mm, surface of the vertex lightly concave or plain, without spots, black, bare, completely shiny. Eyes slight green, iridescent, bare, with a purple diagonal medial stripe or two iridescent green bands between a thin purple medial band. Frons sub-parallel or concave, black, three times higher than wide, bare or with very scarce hairiness, golden pruinose layer, opaque, frontal index 3.1(2.5-3.6 n=8). Frontal callus globose or slightly elevated, base rounded, does not touch the eyes, with or without extension, if have it is very short and in ridge shape or list, smooth orange-brown or orange and shiny. Subcallus flat, totally shiny, bare, and golden or faint orange pruinose layer. Antenna of same long than palpus, monochromatic yellow to orange, scape with prominent dorsal margin and with abundant hairiness (Fig 69 B in Coscarón & Papavero 1993: 105), but more prominent cap-like. Frontoclypeus plane, opaque, mahogany, pollinose and with white hairs, grayish or white pruinose layer. Gena broad, black, opaque, with long white hairs, thick grayish or white pruinose; subgena with moderate white hairiness. Palpus geniculate and completely inflated, curved toward the base, pale-yellow, opaque, pruinose, and pilose. Proboscis 1.4 mm of length does not exceed the high head, theca opaque, pilose, labella membranous, opaque, longer than the half of the proboscis and partially pilose, oval.

**Mesonotum.** Bicolor or multicolored, brown and orange this last, alone in the Notopleural and humeral lobes, with black hairiness, fine or slender, light brown pruinose layer, Notopleural with long black hairiness, humeral lobes white long hairiness, prealar lobes with scarce black hairiness, opaque. Scutellum brown, shiny, bare, light brown pruinose layer very thin. Pleura blackish brown, the border of the anepisternum and the katepisternum with white and moderate hairiness.

**Wings.** 8.12 mm long (7.0-9.0 n = 8), crystalline, totally hyaline, without fumosiness, without clouded, nor stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>. R<sub>2+3</sub> markedly curved, cells m<sub>3</sub> and r<sub>5</sub> open; thin and weakly colored yellow veins, margin around the veins of same intensity to the cells, basal costal cell hyaline, Costa with fascia weakly colored and vestigial; Subcosta, veins R<sub>1</sub> and A<sub>1</sub> with macrotrichia.

**Legs.** Monochromatic, fore coxae brown, with white hairiness. Fore tibiae multicolored, beige or yellow and black, shiny, cylindrical, lightly curved, with black and white hairiness. Fore femora, medial and hind femora yellow, with long and abundant black hairs. Mid tibiae with black and whitish hairiness. Hind tibiae yellow, with long and fine chestnut and black hairiness. Tarsomeres brown or blackish-brown.

**Abdomen.** Sub-triangular, multicolored, the tergites one to three and the side of four of color yellow and dark brown the last tergites, with very short and scarce black hairs, more abundant to the last tergites, opaque; with a medial and two sublateral bands of pale yellow pruinose on tergites one to six. Abdomen with brown spots tergal over the first tergite, under the scutellum

and one in half of second tergite, with one sternal brown triangle, printed in the tegument on sternites one and two.

**Genitalia, female.** Eighth sternite as high as wide or wider than high, base as wide as the gonapophyses, flat to slightly concave, weakly sclerotized to without sclerotization. Parabasals hairs bifid (Fig. 2Ñ), with abundant (over superior half) and long hairiness. Gonapophyses weakly bilobed or monolobed, border distal concave, two times wider than high, with abundant long and sclerotized hairiness, and with homogeneous sclerotization (notoriously more sclerotized than sternite 8) (Fig. 2N). Cerci exposed, sub-ovoid, as high as wide, border distal rounded and hind border concave, homogeneous sclerotized, and with moderate short hairiness (Fig. 2O). Genital furca as wide as high (short), base lightly concave or plane with acuminate slightly sides, wide, without external neckline, without projections or branches in the base. Comb with short long thorns and without hairs (Fig. 2P). Spermathecal strongly capited, apex blunt, with perforation evident with numerous or abundant pores (Fig. 2P). Caudal spermathecal ducts of two mm long, six or seventh times the long genital furca, and of different diameter.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Cuñaré, 1 Female, 1–5 November 2000; 17 Females, Río Cuñaré 5–9 November 2000.

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** In *Tabanus occ. var. dorsovittatus* and *T. occidentalis*.

### ***Tabanus* sp 7**

(Fig. 11 I-L, 16 B, 18 A, 19 A)

**Diagnosis.** Medium yellowish-brown specie, eyes pilose, callus clavate, the wings darkened fumose; abdomen with one medial stripe and lateral stripes lack defined.

### ***Female***

**Head.** (Fig. 16B) Length 3.0 (n=1)mm, surface of the vertex lightly concave to plain, orange, without spots, black hirsute hairs, with shiny areas. Eyes slight green, iridescent, with microscopic hairs, dispersed over all ocular area, with one stripe diagonal medial purple (the same that the border of the eyes). Frons convergent bellow, brown or black, higher than wide, thick grayish pruinose layer, opaque, with transverse sulcus between frons and subcallus, and frontal index 5. Frontal callus flat, clavate or sub-rectangular, does not touch the eyes, with extension in ridge shape or list that does not touch the vertex, smooth orange, shiny. Subcallus flat, opaque, bare, golden pruinose layer. Antenna of same long than palpus, monochromatic orange, scape conical, sub-cylindrical, longer than wide, with hirsute hairs and with in cap-like (very marked and with abundant hairiness); pedicel conical, cup-like, as long as wide. Consolidated basal plate, monochromatic orange, hexagonal (hook), flattened, short, with projection with curved tip, pollinose and pilose, wider than flagellomeres. Flagellomeres sub-lobulated and curved up, free, pollinose and with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus plane, opaque, mahogany, with abundant to moderate white hairs, with thick, and grayish pruinose layer. Gena broad, black, opaque, pilose (thick chestnut hairs), with thick grayish pruinose layer. Subgena or beard with abundant white hairiness. Palpus lightly geniculate, robust or thick curved toward the half, pale-yellow or beige, opaque, pruinose and pilose. Proboscis 2.5 mm of length does not exceed the

high head, theca opaque, pilose, labella membranous, opaque; exceed the half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored, black and with brown lobes, black hairiness, and grayish pruinous. Notopleural and humeral lobes with long black hairiness; prealar lobes with tufts of black hairs, opaque. Scutellum brown, paler than the mesonotum, shiny, bare or with short and scarce black hairiness alone in the borders. Pleura black, with abundant black and white hairiness.

**Wings.** (Fig. 19A) 12.8 mm long, light brown, with hyaline areas on basal and marginal cell, completely fumose, without clouded nor stains. Vein  $R_4$  broadly separated from  $R_5$ , without appendix, without cloudiness on base.  $R_{2+3}$  lightly curved. Cells  $m_3$  and  $r_5$  open, thick brown veins, basal costal cell fumose or translucent, Costa with fascia strongly evident, Subcosta veins  $R_1$  and  $A_1$  with macrotrichia.

**Legs.** Fore coxae Monochromatic pale yellow, with long white and black hairiness. Fore femora monochromatic black, with thick and short black hairiness. Fore tibiae multicolored white and black, shiny, cylindrical, lightly curved, with black and white hairiness, moderate. Medial femora multicolored brown and orange, with laterals black and white hairs. Mid tibiae bicolor, yellow and brown alone in the inferior ends, with black hairiness. Hind femora monochrome, brown and oranges, with black and laterals white hairiness. Hind tibiae bicolor, pale yellow and brown, with black hairiness, cylindrical, right blackish-brown and tarsomeres monochromatic black or blackish-brown.

**Abdomen.** (Fig. 18A) Lengthened and sub-triangular, multicolored, yellow to dark brown in the last tergites five to seventh, with scarce black hairs, shiny, with one tergal longitudinal medial band of white pruinous on tergites one to six, abdomen pruinous, with spots tergal medial, brown over the half of each tergite, leaving yellow laterals areas, with brown sternal triangles, printed in the tegument on sternites one and two.

**Genitalia, female.** Sternite eighth higher than wide base wider or as wide as the gonapophyses, slightly concave, strongly sclerotized forming bands, simple parabasals hairs, moderate or scarce, short hairiness (Fig. 11I). Gonapophyses monolobed, border distal plane, strongly sclerotized and without neckline or notch, two times wider than high, abundant, sclerotized and long hairiness, heterogeneous sclerotization that form two laterals bands. Hypoproct weakly sclerotized, twice higher than wide, and moderately pilose. Cerci not exposed, sub-squares, as high as wide, with the border distal truncated, strong homogeneous sclerotization, and scarce short hairiness (Fig. 11J). Genital furca higher than wide, base concave, narrow, short, with external neckline superficial, without projections or branches in the base, sides blunt, parallel. Comb with abundant short thorns and scarcely pilose (Fig. 11K). Spermathecal strongly capited, extreme apical blunt, perforated evidently, with numerous pores (Fig. 11L). Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex six times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Cuñaré, 7 Females, 15–19 November 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** Differ mainly of *T. sp6* by to have vertex orange. The differences were mentioned previously so much for the morphospecie *T sp6* as *T. sp7*, in the discussion of *Tabanus occ. var. dorsovittatus* and *T. occidentalis*, however, is convenient to reiterate that these morphospecies, can be subspecies or a variety of this group, due to the climatic conditions presented in the units of landscapes and the different types of forests where these specimens were collected inside the "Parque Nacional Natural Chiribiquete".

***Tabanus sp 8***  
(Fig. 11 M-O)

**Diagnosis.** Medium size orange species, lightly wide frons, unicolor eyes basal plate generally orange angulated, with orange wings and with the border of the veins strongly darkened and orange brown monochromatic legs.

***Female***

**Head,** length 3.2 mm (3.0-3.5 n= 4), surface of the vertex concave, brown, pilose, hirsute and chestnut hairiness, opaque. Eyes blackish green, not iridescent, bare and without bands. Frons convergent bellow, brown, five or six times higher than wide, bare, grayish pruinose layer, opaque, frontal index 6.5 (6.0-7.3 n=4). Frontal callus, longitudinal, strongly visible, flat, sub-square, touching eyes, with extension in ridge shape or list does not touch the vertex, rough, orange-brown, shiny. Subcallus flat, opaque, bare, golden pruinose layer or faint orange pruinose layer. Antenna shorter than palpus, multicolored, brown and orange, scape conical, sub-cylindrical, wider than long, with hirsute hairs and with in cap-like. Pedicel circulate, as annuli, wider than long, with hirsute hairs, without salient dorsal posterior margin cap-like. Consolidated basal plate, monochromatic orange, trapezoidal, flattened, short, with obtuse dorsal angle, among the base and half, without projection, pollinose and pilose, wider than flagellomeres, with three flagellomeres (the third fused with the fourth), curved up, cylindrical, pollinose, and with one or two hairs in each flagellomere, clearer than basal plate, shorter than high of the basal plate. Frontoclypeus plane, opaque orange, with chestnut hairs orange or golden pruinose layer. Gena broad, blackish brown or black, opaque, grayish pruinose layer and with moderate golden hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base (and finished in tip), opaque, pollinose and pilose, hirsute and not hirsute. Proboscis 2.6 mm of length (2.3–3.1 n=4), as long as the high head, theca shiny, pilose, labella partially sclerotized, with shiny areas, same half of the proboscis, partially pilose and lightly clavated.

**Mesonotum.** Monochromatic dark orange, with scarce and very fine black hairiness, lobes of same tonality to the scutum, with black, white and chestnut hairiness. Scutellum orange, opaque, bare, very fine golden pruinose layer; scutum without setae, with one yellowish band, longitudinal, medial printed in the tegument. Pleura dark oranges and with moderate chestnut hairiness.

**Wings.** 14.1 (13.3-15.5 n=4) mm long, light brown, with areas hyaline on costal margin, marginal cell and costal cells, completely fumose, with dark brown clouded areas on the border of the veins. Vein  $R_4$  near or not broadly separated from  $R_5$ , without appendix, without cloudiness on base.  $R_{2+3}$  lightly curved or right, cells  $m_3$  and  $r_5$  open, cell cup closed, brown veins, margin around the cells darker than tone of cells, basal costal cell brown clouded, Costa fascia strongly evident, Subcosta veins  $R_1$  and  $A_1$  with macrotrichia.

**Legs.** All legs monochromatic oranges, pollinose, with abundant and long chestnut-colored, black or white hairiness, except the fore tibiae that is multicolored, brown and oranges, shiny, cylindrical, lightly curved, with scarce and short black hairiness and tarsomeres monochromatic orange or brown.

**Abdomen.** Sub-triangular (thick and finished in tip), monochromatic orange, with black and chestnut hairs, shiny, with six dorsal transversal bands on overlap inferior border the tergite two to seven, light brown, pilose, abdomen without spots nor triangles.

**Genitalia, female.** Eighth sternite lightly wider than high or as high as wide, base as wide as the gonapophyses, concave, weakly sclerotized, with simple parabasals hairs, and moderate long and short hairiness. Gonapophyses bilobed, with the border distal concave, and strongly sclerotized, twice wider than high, abundant and long hairiness, with heterogeneous sclerotization (Fig. 11M). Cerci not exposed, sub-circular or sub-ovoid, lightly wider than high, with the border distal rounded and flat hind border, strongly sclerotized, and moderate short hairiness (Fig. 11N). Genital furca short, as wide as high base concave, and narrow. Comb with scarce long spread thorns (Fig. 11Ñ). Spermathecal strongly capited, extreme apical blunt, perforation evident, with numerous or abundant pores (Fig. 11 O), spermathecal ducts 8 mm long 10 to twice the long at genital furca, with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 1–4 February 2000; Río Cuñaré, 1 Female, 10–14 November 2000; Cuñaré-Amú, 2 Females, 14–17 February 2001.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** This species is similar to species denominated group *bigoti* mainly *T. sp15*, however its differences reside essentially in the coloration of the wings and in the genitalia. The wings of *T. sp 8* are darker and contrary to other species of this group, has the legs oranges except the tibiae that are bicolor.

### ***Tabanus sp 10 aff. angustifrons?***

**Diagnosis.** Medium to great size species, robust, blackish, eyes unicolor black without bands or spots, basal plate of the third antennal segment with acute angle, slightly projected, legs unicolor black, with the dark brown medial femora, with abundant grayish pruinose, and wings hyaline, vaguely grayish or light brown, and dark fascia.

#### ***Female***

**Head.** Length 4.2 (n=1) mm, surface of the vertex concave, without spots, black, bare, completely shiny, with ocelli vestige. Eyes black or purple, not iridescent, bare or with microscopic hairs, dispersed over the whole ocular area, without bands. Frons sub-parallel, black, higher than wide, light brown pruinose layer, opaque, with transverse sulcus between frons and subcallus, frontal index 15. Frontal callus longitudinal, strongly visible, flat, clavate (filiform), does not touch the eyes, with extension in ridge shape or list, does not touch the vertex, smooth, black, shiny. Subcallus convex or slightly high, opaque, bare and golden pruinose layer. Antenna shorter than palpus, monochromatic blackish brown; scape sub-cylindrical, as long as wide, with hirsute hairs and with in cap-like. Pedicel conical, cup-like, wider than long, with hairs, hirsute, with dorsal posterior margin cap-like. Basal plate, brown, hexagonal, flattened, short, without dorsal angle and short projection with curved tip, pollinose, pilose, and

wider than flagellomeres. Flagellomeres, cylindrical, free, pollinose and with one or two hairs in each flagellomere, shorter than high of the basal plate. Frontoclypeus convex, opaque, of blackish brown or black color, with white and grey hairs and grayish pruinose. Gena broad, black, opaque, grayish pruinose layer, and with abundant white hairiness. Palpus geniculate, curved toward the base, brown and pale-yellow, shiny, pilose, hirsute. Proboscis 2.2 mm long, long as half head, theca opaque, pilose, labella partially sclerotized, with shiny areas, longer than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored black and reddish in the borders, with abundant black and white hairiness in the lobes, opaque. Scutellum of same intensity than mesonotum, shiny, with short black hairiness and very light grayish pruinose layer. Pleura blackish brown, moderate black and white hairiness.

**Wings.** Length 14 mm, light brown, very hyaline, and partially fumose over costal margin, in the first basal cell. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> right, m<sub>3</sub> and r<sub>5</sub> open cells lightly coarctate, cup cell closed and petiolate, thick black veins, margin around the cells of same intensity at cells, basal costal cell brown fumose or translucent, Costa with stain in the portion subapical or fascia strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia and A<sub>1</sub> without macrotrichia.

**Legs.** Fore coxae and femora monochromatic black, with black and white hairiness. Fore femora ventrally with grayish layer pruinose very fine. Fore tibiae multicolored black and brown, shiny, cylindrical, lightly curved or right, with moderate black hairiness. Mid tibiae bicolor, black and brown, with black and whitish hairiness. Medial femora, hind coxae and femora Monochromatic black or blackish-brown, with white hairs and fine ventral grayish pruinose. Hind tibiae brown, with long black hairiness and tarsomeres monochromatic black.

**Abdomen.** Rounded or oval, monochromatic blackish brown or black. Ventrally with scarce and fine white hairiness on the inferior border of each tergite which have fine white pruinose layer. Dorsally shiny with black hairs at the sides of each tergite and tufts of white hairs in the first three tergites, pruinose, without spots nor triangles.

**Genitalia, female.** Cerci not exposed,

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** This species is very nearby related with *T. sp 1*, its differences reside in the shape and coloration of the abdomen, *T. sp10* is more rounded, pilose and with abundant gray pruinose, while in *T. sp1* the abdomen is shiny, bare and lengthened, besides of having bigger size.

### ***Tabanus sp 11***

(Fig. 11 P-Q, 16 C, 19 B)

**Diagnosis.** Very similar species to *T. sp 4*, but lightly smaller, unicolor eyes clear fumose wings, blackish brown mesonotum, legs brown, medial tibiae slightly bicolor and abdomen orange without bands neither stain.

#### ***Female***

**Head.** (Fig. 16C) Length 4.4 (3.5-4.6 n=8) mm, surface of the vertex concave strongly depressed, with ocelli vestige. Eyes blackish-green or olive color, not iridescent, without bands. Frons convergent below, seven times higher than wide, frontal index 11.4 (10-13.3 n= 8).

Frontal callus longitudinal, strongly visible, flat, claved (5/7 of the long of the frons), with extension, in ridge shape or list, than touch the vertex. Antenna black with dark orange scape and pedicel. Basal plate, hexagonal, flattened, short, with projection with curved tip that does not surpass half of the basal plate. Frontoclypeus orange or reddish brown, pollinose, very scarce black hairs and golden hairs, gena broad, brown, opaque, light brown pruinose layer. Palpus geniculate and "slender" lightly, inflated basally curved toward the base, light brown. Proboscis 2.2 mm of length (2.0–2.5 n=8), labella membranous, with shiny areas, longer than half of the proboscis and oval.

**Mesonotum.** Bicolor or multicolored yellow lobes and dark brown scutum and scutellum.

**Wings.** Length 15.8 (14-17 n= 8) mm, light brown, hyaline, partially fumose over costal margin and around the veins. R<sub>4</sub> without appendix. R<sub>2+3</sub> lightly curved or right. Veins brown with margin lightly dark than tone of cells. Brown basal costal cell, fumose or translucent. Fascia yellowish vestigial (Fig. 19B).

**Legs.** All monochromatic blackish-brown fore and hind femora with array of long white hairs ventral and short black hairs dorsal. Coxae with scarce short hairs. Tarsis monochromatic blackish-brown.

**Abdomen.** Oval or sub-rectangular and lengthened, monochromatic orange.

**Genitalia, female.** Eighth sternite as high as wide, base as wide as the gonapophyses, with bifid parabasals hairs. Gonapophyses bilobed, border distal with neckline or notch, twice wider than high, concave distally, homogeneous or heterogeneous sclerotization, a single band (Fig. 11P). Hypoproct weakly sclerotized, as high as wide, moderately pilose on distal border. Cerci not exposed, sub-circular, as high as wide, border distal rounded and hind border concave, with strong homogeneous sclerotization, with short and moderate hairiness. Genital furca higher than wide, base concave, narrow, short, with external neckline, deep, with two projections or branches shorter than width of base of the furca, sides there are not the branches acuminate, and parallel. Comb with long abundant thorns, and scarcely pilose. Spermathecal weakly capited, extreme apical pointed, perforated lightly visible, with scarce porosity (Fig. 11Q); spermathecal ducts of 8 mm long, with similar diameter in the base toward the apex and of 10 to twice the long at genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 250–300m, 25 Females, 24–27 January 2000, 7 Females, 26–28 January 2000.

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** As is mentioned in other discussions, this species is strongly related to all the species mentioned as bigoti, the same as the other ones differ in the width of the frons and in the coloration, the size, and shape of the abdomen.

## ***Tabanus* sp 12**

**Diagnosis.** Medium size to small species, orange brown and thin, unicolor Eyes clear wings brown fumose and border of the slightly darkened veins, brown mesonotum, orange brown monochromatic legs with blackish tarsomeres.

### ***Female***

**Head.** Length 3.8 (3.1-4.3 n=5) mm, surface of the vertex convex, depressed, incipient tubercle, pilose, setulose, with ocelli, vestige on the ocellar tubercle. Eyes blackish green, with

microscopic hairs, conglomerates, without bands. Frons convergent bellow, more the nine times higher than wide, with transverse sulcus between frons and subcallus frontal index 11.36 (8.5-14 n=5). Frontal callus, flat, claved, does not touch the eyes, with extension in ridge shape or list, does not touch the vertex, black to brown. Subcallus flat, opaque, pollinose, yellowish pruinose layer. Scape with dorsal posterior margin cap-like, basal plate monochromatic brown, hexagonal, hook, flattened, short, with projection with curved tip, pollinose, wider than flagellomeres; flagellomeres orange and chestnut hairs. Gena broad and pilose. Palpus geniculate, curved toward the base, pointed, pale-yellow, pilose, hirsute and white hairs in the base. Proboscis 2.46 (1.8-3.0 n=5) as long as the high head, theca opaque, labella membranous, opaque.

**Mesonotum.** Monochromatic light brown, the inserts of the musculature observed, mesonotum without thoracic triangles, without bands or stains. Pleura brown.

**Wings.** Length 14.6 (14.5-15 n=7) mm, light brown, completely fumose with a light hyaline between the base of the first marginal and subcostal cells, and between the half of the first and second basal cells, without clouded or stains, brown veins, with the margin around the veins darker than tone of cells. Cell  $r_5$  very coarctate. Costa with stain in the portion subapical or fascia strongly evident, Subcosta and veins  $R_1$  with macrotrichia.

**Legs.** Fore coxae monochromatic oranges, the same that the rest of the legs including the tarsomeres.

**Abdomen.** Lengthened, monochromatic orange, without bands, abdomen without spots and without triangles.

**Genitalia, female.** Eighth sternite as high as wide, base as wide as the gonapophyses. Gonapophyses bilobed, border distal concave with neckline or notch, twice wider than high, with heterogeneous sclerotization a single band. Hypoproct weakly sclerotized, as high as wide, scarcely pilose on border distal. Cerci not exposed, sub-circular, as high as wide, border distal rounded, hind border flat, with homogeneous sclerotization. Genital furca as wide as high (short), base plane, narrow, without external neckline, without projections or branches in the base. Comb with scarce long thorns. Spermathecal weakly capited, extreme apical pointed or blunt, perforation evident with numerous or abundant pores, with similar diameter of the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Cuñaré, 1 Female, 1–5 November 2000, 1 Female, 10–14 November 2000; Puerto Abeja, 1 Female, 12–26 November 2000; Cuñaré-Amú, 1 Female, 21–25 November 2001

**General distribution.** Neotropics (Provincia Amazónica).

**Discussion:** The *T. sp 4*, *T. sp 11* and *T. sp 12* species are very similar to each other, however they present difference, not only in the size if not also in the coloration of the wing, the form and color of the abdomen and especially in the width of the frons and the length of the antenna, (than is longer in *sp 12*), permit differentiation; *T. sp 11* is also of more size and with the much darker fascia that in the other two morphospecies.

### ***Tabanus* sp 13**

(Fig. 12 A-D)

**Diagnosis.** Medium size species, antenna with acute projection, wings with margins of the veins dark and with a slightly brown cloud on the margin costal until fork R<sub>4</sub>; thorax dark brown, abdomen orange with the two last black tergites, black fore legs and mid and hind dark brown.

#### ***Female***

**Head.** Length 3.6 mm (3.2–4.0 n= 3), surface of the vertex concave, with spots orange possibly ocelli vestiges, black, pilose, hirsute, black hairiness and opaque. Eyes blackish green or brown, not iridescent, bare or with scarce hairs, and without bands. Frons lightly convergent below or sub-parallel, brown, six or seven times higher than wide, light brown pruinose layer, opaque, with transverse sulcus between frons and subcallus, frontal index 7.3 (6.2-9.0 n= 3). Frontal callus longitudinal, strongly visible, flat, clavate or elongated (as a thread), does not touch the eyes, with extension in ridge shape or list, than touch the vertex, rough, black and opaque. Subcallus flat, with shiny areas or bare for the expense, and light brown pruinose layer. Antenna of same long than palpus, multicolored, brown and orange, scape conical, sub-cylindrical, almost as long as wide, with abundant hirsute hairs, with in cap-like; pedicel conical, cup-like, wider than long, with hirsute hairs, with posterior margin cap-like. Basal plate Monochromatic brown, trapezoidal, flattened, short, with projection (short) with curved tip, pollinose and pilose, wider than flagellomeres, with 4 flagellomeres curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, blackish darker and shorter than high of the basal plate. Frontoclypeus convex, lightly shiny, mahogany or brown, with black hairs, pearly and light brown pruinose layer. Gena broad, blackish brown or black, opaque, pilose (with short and chestnut hairs), light brown pruinose layer, with scarce black hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base oranges-yellow, shiny and black hirsute. Proboscis 2.7 mm of length (2.3–3.0 n=3), does not exceed the high head, theca opaque, pilose (ventrally), labella membranous, with shiny areas, same half of the proboscis, partially pilose and oval.

**Mesonotum.** Monochromatic dark brown, with black hairiness, Notopleural lobes lighted than the scutum, with long black hairiness, humeral lobes chestnut hairiness, of same tonality to the scutum, prealar lobes brown, with tufts white hairiness in the ventral part, shiny. Scutellum brown, opaque, with scarce chestnut hairiness, and light brown pruinose layer. Pleura blackish brown or reddish, moderate black hairiness.

**Wings.** 13.5 mm long (13–14 n=3) , dark brown, with areas hyaline on basal and marginal cell, completely fumose with pattern strongly darkened; with dark brown clouded areas on the margin apical, the half of the wing and on the border of the veins (on discal and submarginal cell). Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix. R<sub>2+3</sub> lightly curved, cell m<sub>3</sub> open (three times wider in the base than m<sub>2</sub>) and cell r<sub>5</sub> open lightly coarctate, cell cup closed and petiolate, brown veins or black veins with the margin darker than tone of cells, cell Basal costal brown clouded, Costa with stain in the portion subapical or fascia dark-brown strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia and A<sub>1</sub> without macrotrichia.

**Legs.** All fore legs monochromatic blackish-brown, with scarce black hairiness; fore femora with long black hairs in row, fore tibiae with the apex ends clearer, as much the femora and

tibiae of the medial and hind legs with the basal ends darker and with black hairs and are clearer than fore. Tarsomeres black.

**Abdomen.** Sub-triangular, multicolored black or orange yellow. Ventrally orange without bands neither stain, and in the half of the fifth to seventh sternites, black. The rest of the abdomen is orange-yellow, resembles the morphospecies *Tabanus sp 3*, but does not have the black stain of the second tergite and the extent of the basal plate is not as long as in *Tabanus sp 3*. With black hairs and with tufts white hairs each side of the first tergites, opaque, abdomen without spots, bands, nor triangles.

**Genitalia, female.** Eighth sternite wider than high, base as wide as the gonapophyses, concave, strongly sclerotized forming bands. Parabasals simple, moderate long and short hairiness. Gonapophyses bilobed, twice wider than high, abundant hairiness, long sclerotized and short hairiness, border distal concave without neckline or notch, and strongly sclerotized (more than body of gonapophyses) clearer in the center (Fig. 12 A). Cerci not exposed, sub-squares, notably wider than high, border distal truncated and hind border flat, with heterogeneous sclerotization, short and scarce hairiness (Fig. 12B). Genital furca as wide as high (short), base concave, wide, with external neckline deep, with two projections or branches, shorter than width of base, sides blunt, wide or spherical, and parallel. Comb with dense long thorns, and abundantly pilose (Fig. 12C). Spermathecal strongly capited, extreme apical pointed or blunt, with scarce porosity (Fig. 12D). The spermathecal ducts eight mm of length, with similar diameter in the base toward the apex (lightly wider in the base).

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, one Female, 26–28 January 2000, Río Cuñaré, 2 Females, 10–14 November 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** *T. sp 12* and *T. sp 13* are the smallest morphos in whole this group (that we have denominated bigoti in this work); *T. sp 13* differs mainly because *T. sp 12* has the orange legs, the fore tibiae slightly darker than the medial ones and the hind ones, the wings are smoky orange with the border of the slightly dark veins, and the mesonotum is opaque with a thick grayish pruinose layer; while in *T. sp 13* the wings are grayish, the completely black fore tibiae and the tibiae and hind femora with brown pollinosity.

### ***Tabanus sp 14***

**Diagnosis.** Very similar species to *T. sp 16* of medium to great abdomen orange reddish with finished in tip, blackish brown to black mesonotum, wide front with the vertex orange, unicolor eyes without bands, wings brown fumose, R4 with short appendix, with the border of the veins slightly darkened and fore tibiae bicolor.

#### ***Female***

**Head.** Length 4.8 mm (n=1), surface of the vertex concave with orange spots, incipient tubercle, brown, opaque. Eyes brown, not iridescent, bare, without bands. Frontal index 6.6. Proboscis 3.0mm long.

**Mesonotum.** Totally orange-brown, opaque, pollinose with brown pruinose.

**Wings.** 17mm long, R<sub>4</sub> with short appendix and yellowish vestigial fascia.

**Legs.** All monochromatic orange with generally brown tarsomeres lightly contrasting.

**Genitalia, female.** Sternite eighth wider than high, with the base more narrow than gonapophyses, concave, strongly sclerotized forming bands, simple parabasals and with abundant long hairiness. Gonapophyses bilobed, with border distal concave, strongly sclerotized, and without neckline or notch; two times wider than high, with abundant long hairiness, and with homogeneous sclerotization. Cerci not exposed, sub-ovoid, notably wider than high, border distal rounded, with strong homogeneous sclerotization, and abundant non sclerotized and long hairiness. Genital furca higher than wide with the base concave, wide, short, with external neckline, deep, with two projections or branches, shorter than width of base, blunt or wide to globose and parallel. Comb with abundant long thorns and abundantly pilose. Spermathecal strongly capited with the end apical blunt, with evident and scarce perforation; Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex, 10 to 12 times the long at genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** This specimen compared with the morphospecie *T. sp 4* and is differentiated especially by the orange vertex, the short appendix in fork  $R_4$ , the fore tibiae bicolor orange and black, longer flagellomeres and dark, and mesonotum opaque.

### ***Tabanus sp 15***

(Fig. 16 D)

**Diagnosis.** Species totally oranges brown, with eyes unicolor dark green pilose, mesonotum faint darkened, margin of the veins slightly dark, all legs reddish orange with black tarsus. Differs of *T. sp8* because it is bigger

#### ***Female***

**Head.** (Fig. 16D). Length 3.7 mm (n=1), surface of the vertex black, plain, with yellow spots rounded than could be ocelli vestiges. Eyes with microscopic hairs, without bands. Frontal callus orange, sub-quadrate in the base, with crest that surpasses half of the frons but does not touch the vertex neither the eyes. Frons parallel, pollinose, with faint short golden hairs, and frontal index 7.5. Frontal callus slightly elevated, sub-square, with extension in crest shape, more of the half of the frons and does not touch the vertex, opaque, pollinose, Subcallus completely pollinose, and faint orange pruinose layer. Antenna basal plate monochromatic orange, hexagonal, slightly inflated, short, with acute dorsal angle between the base and half of basal plate, without projection, pollinose, flagellomeres, curved up. Proboscis length 3.0 mm (n=1).

**Mesonotum.** Monochromatic orange, without thoracic triangles nor setae, opaque, and with brown pruinose.

**Wings.** Length 15 mm (n=1) light brown, completely fumose, with clouded areas on the border of the veins,  $m_3$  and  $r_5$  open cells but coarctate, brown veins, margin around the cells darker than tone of cells, basal costal cell fumose or translucent yellowish brown, with a light hyaline in the base of the subcostal and first marginal cell.

**Legs.** All the legs oranges with tarsomeres more darkened.

**Abdomen.** Sub-triangular, pointed, monochromatic orange, opaque, with orange-brown pruine, with abundant short and fine black hairs; with pale dorsal bands that extend and form small faint triangles in the hind border of the all tergites.

**Genitalia, female.** Cerci not exposed.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Cuñaré, 1 Female, 10–14 November 2000.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** The main character that differentiates *Tabanus* sp 15 from other similar, is the lengthened triangular shape, the reddish orange color of the frontal callus, and the orange coloration of the legs that it contrasts with those of *T.* sp 4 than are completely black, and those of *T.* sp 11, *T.* sp 12 and *T.* sp 16 are bicolored or gradually colored as in *T.* sp 14.

### ***Tabanus* sp 16**

(Fig. 12 E-H)

**Diagnosis.** Medium to great size black and orange species, unicolor eyes, antenna with short sharp projection, blackish brown mesonotum, wings clear fumose with veins thick dark, fore tibiae bicolor and fat or thick reddish abdomen orange.

#### ***Female***

**Head.** Length 3.9 mm (3.6–4.3 n= 8), surface of the vertex concave, blackish green or brown. Eyes iridescent, without bands. Frons sub-parallel, light brown pruine layer, frontal index 6.45 (5.3–7.5 n= 8). Frontal callus longitudinal, strongly visible, flat, claved, does not touch the eyes, with extension in ridge shape or list than touch the vertex (Similar to 92 I in Coscarón & Papavero 1993: 128). Antenna of same long than palpus with hook shaped. Gena narrow. Proboscis 2.9 mm of length (2.7–3.1 n= 8).

**Mesonotum.** Scutellum blackish brown.

**Wings.** 14.5 mm long (13.5–15.5 n= 8). Light brown or grey almost crystalline. Vein R<sub>4</sub> broadly separated from R<sub>5</sub> and without appendix.

**Legs.** All monochromatic blackish-brown except fore tibiae that have half-anterior clearer of orange-brown color.

**Genitalia, female.** Eighth sternite wider than high, base more narrow than gonapophyses, flat or lightly concave, strongly sclerotized forming bands, parabasals not bifid, abundant long and short hairiness (scarce in the basal end). Gonapophyses bilobed, border distal concave without neckline or notch, and strongly sclerotized, as long as wide, with abundant and long hairiness, heterogeneous sclerotization (greater in the center) (Fig. 12E). Hypoproct strongly sclerotized, twice wider than high, scarcely pilose on external and distal border. Cerci not exposed, sub-trapezium, notably wider than high, border distal truncated and hind border concave, with strong, homogeneous sclerotization, moderate at scarce short, and long hairiness (Fig. 12F). Genital furca wider than high, base concave, wide, short, with external neckline deep, with two projections or branches shorter than width of base blunt, wide or spherical and convergent basally. Comb with long crisscross thorns, and scarcely pilose (Fig. 12G). Spermathecal strongly capited (rounded), extreme apical pointed, not perforated (Fig. 12H), spermathecal ducts 12 mm long, more than twice the long genital furca (approximately 15 times), with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Puerto Abeja, 25 Females, 29 October-12 November 2000, 6 Females, 12-19 November 2000, 10 Females, 12-26 November 2000; Río Sararamano, 2 Females, 7-11 April 2000; Río Mesay, 23 Females, 24-27 January 2000, 16 Females, 26-28 January 2000; 2 Females, 1-4 February 2000; Río Cuñaré, 17 Females, 1-5 November 2000, 14 Females, 10-14 November 2000, 2 Females, 15-19 November 2000; Cuñaré-Amú, 1 Female, 14-17 February 2001

**General distribution.** Neotropics (Provincia Amazónica Colombia Caquetá).

**Discussion:** This morphospecie makes part from the group bigoti to which we have denominated of this way for its resemblance to a species with which we compare in the "Colección del Instituto de Ciencias Naturales". Differs of *T. sp 4* in the coloration of the legs than in this case are bicolored, the hind scutum is clearer and is orange than yellowish. In addition, the pollinosity and the pruinous layer of the subcallus, frontoclypeus, gena, and beard are dark brown in *T. sp 16*, contrary to other belonging to the same group.

### ***Tabanus sp 17***

(Fig. 12 I-K)

**Diagnosis.** Small specie with antenna totally orange, eyes with three green bands with scarce or absent micro-hairs, mesonotum blackish brown shiny, with grayish pruinous in the borders, abdomen yellowish brown with dorsolateral bands until fifth tergite and one white medial band of pruinous that it arrives until the last tergites.

#### ***Female***

**Head.** Length 2.6 mm (2.5-2.8 n= 5), surface of the vertex black, concave, without spots, pilose, opaque. Eyes slight green and purple, iridescent, bare or with microscopic hairs, dispersed over the whole ocular area, with three stripes, horizontal and diagonal slight green (the borders are black or purple and the areas among the bands are of the same thickness that the bands). Frons convergent below, black, nine to ten times higher than wide, bare or with hairs, grayish pruinous layer, opaque, frontal index 9.4 (7-10 n=5). Frontal callus longitudinal, strongly visible, flat, sub-rectangular, touching eyes with extension in ridge, list or in crest shape not exceed the half of the frons, rough, brown, shiny. Subcallus convex or slightly high, bare totally shiny, orange-brown. Antenna longer or of same length than palpus, monochromatic orange, scape conical, sub-cylindrical, wider than long, with hairs, hirsute, with prominent cap-like; pedicel conical, cup-like, wider than long, with hirsute hairs, with cap-like. Basal plate monochromatic orange, hexagonal, flattened, short, with acute dorsal angle, among the base and half of basal plate, pollinose and pilose, wider than flagellomeres, with 4 flagellomeres, curved up, free, without projections, with one or two hairs in each flagellomere shorter and of same intensity to the plate. Frontoclypeus plane or convex, opaque, blackish brown, with white hairs, and grayish pruinous layer. Gena broad, black, opaque, with moderate white hairiness, and grayish pruinous. Palpus spatulate and "slender" inflated basally finished in fine tip and liken to small lances, curved toward the base, pale-yellow, opaque, pollinose and pilose, hirsute. Proboscis two mm long, theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Monochromatic dark brown, with black and white hairiness, with white or grayish pruinous. Lobes clearer than the scutum; prealar lobes orange, with chestnut or golden hairiness,

shiny. Scutellum black, darker than the mesonotum, shiny, bare, with faint grayish pruinose, mesonotum with reddish stains, regular on inferior and upper scutum. Pleura blackish brown, abundant or moderate white and black hairiness.

**Wings.** 9.4 mm long (8.5–10 n=5), crystalline, totally hyaline, without fumosiness. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> lightly curved; cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed, very thin brown veins margin around the cells of same intensity of colour at the cells, basal costal cell fumose or translucent, Costa with stain in the portion subapical or fascia yellowish strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia and A<sub>1</sub> without macrotrichia.

**Legs.** Fore coxae monochromatic yellow, with long, fine and scarce white hairiness, fore femora Monochromatic blackish-brown, with black hairiness (thick and long), fore tibiae multicolored, black and beige, shiny, flattened, lightly curved, with moderate black and white hairiness. Medial femora multicolored, brown and yellow, with black hairs; Mid tibiae Monochromatic ochre or yellow, with chestnut hairiness. Hind coxa Monochromatic brown, with long white hairs, pruinose grayish, hind femora bicolor, brown and yellow, pollinose and with black hairiness; hind tibiae monochromatic brown, with black and chestnut hairiness, cylindrical, right. Tarsomeres monochromatic brown.

**Abdomen.** Lengthened or sub-triangular, multicolored, yellow and light brown, ventrally is yellowish, sixth and seventh completely brown sternite. Dorsally yellowish with the tergites 6 and 7 brown completely; with black and white hairs, shiny, with three longitudinal tergal bands, two thick lateral bands of brown color and a medial thin of white and beige pruinose on tergites one to seventh. Sublaterals alone reach to the five tergite, abdomen pilose with spots medial tergal, continuous, brown on the first and second tergite, bare, without triangles,

**Genitalia, female,** Eighth sternite as high as wide, base more narrow than gonapophyses, flat, strongly sclerotized forming bands. Parabasals not bifid, moderate or scarce short hairiness (Fig. 12I). Gonapophyses bilobed, border distal without neckline or notch, twice wider than high, moderate to scarce, with long and short hairiness, plane border distal equally sclerotized than body of gonapophyses, with heterogeneous sclerotization that shape single band clearer central. Hypoproct strongly sclerotized, twice wider than high, scarcely pilose, evenly spread. Cerci not exposed, sub-ovoid or sub-trapezium, higher than wide, border distal acuminate and hind border concave, strong homogeneous sclerotization, and with scarce and short hairiness (Fig. 12J). Genital furca as wide as high base concave, wide, with external neckline, superficial, with two projections or branches shorter than width of base acuminate, and divergent basally. Comb with scarce long thorns (Fig. 12K). Spermathecal weakly to strongly capited, extreme apical blunt, perforation evident with scarce porosity. Spermathecal ducts 6.5–7 mm long, with similar diameter in the base toward the apex of ten to twice the long at genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Females, 24–27 January 2000; Río Sararamano, 2 Females, 9–13 April 2000; Río Cuñaré, 2 Females, 15–19 November 2000; Cuñaré-Amú, 6 Females, 14–17 February 2001, 1 Females, 19–22 February 2001.

**General distribution.** Neotropics (Provincia Amazónica).

**Discussion:** Among the *T. sp17* species, the closest is *T. trivittatus*. Differences in palpus shape, the callus, and the two first antenna segments, the coloration and the present triangles of the abdomen, and colorations of the thorax paler in *T. sp17*, permit differentiation.

***Tabanus sp 18***

(Fig. 12 L-Ñ, 16 E, 18 B)

**Diagnosis.** Medium size species with eyes with three green bands, wings hyaline, mesonotum blackish-brown, yellowish abdomen with dorsal banded, and fore tibiae bicolor black and yellow.

***Female***

**Head.** Length 2.8 mm, surface of the vertex black, concave, with spots whitish that seems ocelli vestige, bare, and completely shiny. Eyes blackish green or purple, iridescent, with dispersed microscopic hairs, with three stripe horizontal and diagonal, slight green. Frons convergent bellow, black, higher than wide, opaque, frontal index 20. Frontal callus, longitudinal, strongly visible, flat, sub-rectangular, touching eyes with extension in ridge shape or list does not touch the vertex, rough, black and shiny. Subcallus convex or slightly high, totally shiny. Antenna longer or of same long than palpus, multicolored ochre or yellow; scape conical, sub-cylindrical, as long as wide, with hirsute hairs, with cap-like; pedicel conical, cup-like, as long as wide, with hirsute hairs, with posterior margin cap-like; basal plate, monochromatic ochre or yellow, hexagonal, flattened, short, with acute dorsal angle among the base and half, pollinose, and pilose, wider than flagellomeres. Flagellomeres curved up, free, pollinose and with one or two hairs, darker and shorter than high of the basal plate. Frontoclypeus plane, opaque, brown, with white hairs, and pearly or grayish pruinose. Gena broad, brown, opaque, pilose, grayish pruinose layer and with moderate white hairiness. Palpus geniculate or "slender" inflated basally (finished in the tip), curved toward the base, pale-yellow, opaque, pollinose and pilose. Proboscis two mm long does not exceed the high head, theca opaque, pilose, labella membranous, opaque, longer than half of proboscis, partially pilose and oval.

**Mesonotum.** Monochromatic brown, with white and black hairiness, Notopleural lobes lighted than the scutum, with black hairs, humeral or pronotal lobes with white hairs, and clearer than the scutum, prealar lobes brown; with shiny scutellum black and mahogany of same intensity than the mesonotum, opaque, bare, with dark brown stains over the border of the scutum. Mesonotum with one medial longitudinal band pruinose or bare, and orange stains on hind scutum. Pleura brown, pruinose, moderate whitish hairiness,

**Wings.** 8.5 mm long, light brown, completely fumose, without clouded and without stains. Vein  $R_4$  broadly separated from  $R_5$ , without appendix.  $R_{2+3}$  lightly curved, cell  $m_3$  and cell  $r_5$  open, cell cup closed, brown veins, margin around the cells with same intensity of the cell, basal costal cell fumose or translucent, Costa with stain in the portion subapical or fascia yellow vestigial, Subcosta, veins  $R_1$  and  $A_1$  with macrotrichia.

**Legs.** Fore coxae monochromatic yellow, with white hairiness, fore femora monochromatic blackish-brown, with black hairiness, fore tibiae bicolored brown and beige, shiny, cylindrical, lightly curved, with scarce black and chestnut hairiness. Hind coxa and femora monochromatic brown, with pruinose grayish, and black and white hairiness; hind tibiae bicolor ochre or yellow, with black hairiness, cylindrical, and right. Tarsomeres brown or blackish-brown.

**Abdomen.** Sub-triangular with the inferior end acute, bicolored yellow and dark brown in the last tergites, with black hairs and pruinose, opaque; with one middorsal band on second to sixth tergites and two dorsolateral bands of orange-yellow color reach the four tergite, pilose. Abdomen with brown middorsal spots under the scutellum, bares and with brown continuous triangles, printed in the tegument on second tergites and first and second sternites.

**Genitalia, female.** Fig 12. L. gonapophyses, M. cerci, N. genital furca, Ñ. spermatheca. Cerci not exposed, Spermathecal not perforated.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Cuñaré-Amú, 1 Female, 07–10 March 2001.

**General distribution.** Neotropics (West of Provincia Amazónica).

**Discussion:** Only a specimen was captured, therefore it is very difficult to diagnose with clarity if is *T. trivittatus* or on the contrary it is a different species or a variety of this group, however the diagnostic characters were compared that allow to differentiate it of other species or morphospecies studied in this monograph, as they are the yellowish color of the abdomen, two clear and thick lateral bands of black hairs, and the lightly it margin of the veins more darkened.

### **Genus *Poeciloderas* Lutz**

This genus is characterized by a swollen forwars extending first antennal segment, eyes with two green bands densely pilose in males, bare and pilose in females. Abdomen bears a more or less distinct median row of pale triangles, and dorsolateral rows of oblique pale dashes, not forming connected stripes. A small ocellar tubercle is present and in the two species (Wilkerson 1979)

#### ***Poeciloderas quadripunctatus* var. *amabilinus* Philip**

(Fig. 3 A-D, 16 F, 18 D-E)

*Poeciloderas quadripunctatus* var. *amabilinus* Philip, 1960: (4), 31 (3): 89.

**Diagnosis.** A medium sized chestnut brown to blackish species with a grayish beard. Callus black to dark brown. First antennal segment usually black. Body vestiture black and white hairs, silvery gray pleura, tricolored silvery gray, light brown, black and pale legs, wing tinted brown with dark brown markings on crossveins, r5 cell coarctate, and abdomen marked above with pale sublateral and median spots with a medial band of continuous triangles and sublaterals of the second to the sixth tergite.

#### ***Female***

**Head** length 2.93 mm (2.4-3.2 n= 10) (Fig. 16F), surface of the vertex lightly concave or plain, with small circular spots of orange color, with incipient tubercle, black background, pilose, setulose and hirsute, black hairiness, opaque, and without ocelli. Eyes black or purple, iridescent, with conglomerates macroscopic hairs, over the whole ocular area, with two slight green and diagonal stripes, iridescent. Frons sub-parallel, black, four times higher than wide, with short and scarce black hairs, pearly or grayish pruline, opaque, and with transverse sulcus between frons and subcallus. Frontal index 4.45 (4.0-5.0 n= 10). Frontal callus strongly visible, slightly elevated, sub-square, does not touch the eyes, with extension separated of the callus in ridge shape or list than does not touch the vertex, smooth, black, and shiny. Subcallus wrinkly, convex or slightly high, with shiny areas or bared for the expense, without hairs and pearly pruline. Antenna of same length than palpus, multicolored black and brown or dark orange; scape

conical, sub-cylindrical, longer than wide, with hirsute hairs, with dorsal margin in cap-like prominent reaching the basal plate; pedicel conical, cup-like shape, small wider than long, with hirsute hairs, and with posterior margin cap-like. Consolidated basal plate bicolor dark-orange and black in the base, rhombic in hook form, flattened, short, with projection marked, with curved tip, pollinose and pilose, wider than flagellomeres. Flagellomeres curved up and cylindrical, free, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus plane, opaque, black or brown, with fine and long white hairs, and thick grayish pruinose layer; gena broad, black, opaque, with fine, long and short white and chestnut hairs), and a slender grayish pruinose layer; subgena or beard pilose, with abundant white hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base, pale-yellow, opaque, pilose, hirsute and not hirsute. Proboscis 2.25 mm of length (2.2–2.7 n=10), as long as the high head; theca opaque, pilose, labella membranous, opaque, same half the long of the proboscis, partially pilose and oval.

**Mesonotum** bicolor or multicolored black with lobes orange, with black and yellow hairiness very thin only in the border of mesonotum, and grayish pruinose. Notopleural lobes orange lighted than the scutum, sub-triangular, pruinose and with long and black hairiness; humeral or pronotal lobes inflated, oval, pruinose, clearer than the scutum, and black and white hairiness; prealar lobes dark oranges, with tufts of white hairs, and opaque. Scutellum black, shiny, with fine and short black hairiness in the border, and with a slender whitish pruinose layer. Scutum without setae, with three bands, two only in the upper part, a medial-longitudinal printed at tegument and dorsolateral of yellow or pale hairs. Scutellum without bands nor stain. Pleura black with orange anepisternum, and with black abundant hairiness (Fig. 18E).

**Wings** length, 12.3 mm (11.5–14 n=10), crystalline, hyaline, with blackish cloud areas or spot on the crossveins. Vein  $R_4$  broadly separated from  $R_5$ , without appendix, with cloudiness on base.  $R_{2+3}$  right, cell  $m_3$  open, cell  $r_5$  closed and with petiole, short 1/6 of the adjacent segment of cell  $m_1$  margin, brown veins, with the margin around the cells slightly darker than tone of cells, hyaline basal costal cell. Costa with stain in the portion subapical yellowish strongly evident. Basicosta with macrotrichia so dense as on costa, Subcosta, veins  $R_1$  and  $A_1$  with macrotrichia.

**Legs.** Coxae blackish-brown or black. Procoxa with abundant white and black hairiness, femora black, with grayish pruinose, particularly hind; with black hairs and white long hairs, shorter in the hind femora than in the other femora, all tibiae bicolor beige or yellowish with ends apical black or blackish-brown, fore tibiae shiny, cylindrical, lightly curved, with moderate black and yellow hairiness, hind tibiae cylindrical, and right.

**Abdomen.** Sub-triangular robust, black and reddish yellow. Ventrally is reddish brown, dry in the dorsal part, half of the first tergite and sides of the second are white, in humid, yellowish; with two black or dark circular stains on the second tergite. Tergites three to seventh black, with black hairs in the inferior border of the first tergites, and with tufts hairs at each side; the east tergites have white hairs; abdomen opaque, in dry with five transversal bands of pruinose white on inferior border of the third to fifth tergites and two to sixth sternites, abdomen pruinose, with dorsal triangles, continuous, of white pruinose on tergites three to six, two lateral and one medial of more size in each tergite (Fig. 18D).

**Genitalia female.** Sternite eighth wider than high, base as wide as the gonapophyses, flat, strongly sclerotized forming bands; bifid parabasals hairs, moderate long hairiness on the superior half (Fig. 3A). Gonapophyses monolobed, with the concave border distal, strongly sclerotized, and without neckline or notch, two times wider than high, with abundant long and sclerotized hairiness. Ninth and tenth tergites divided, reserved inside the seventh. Hypoproct

weakly sclerotized, lightly wider than high, and scarcely pilose on distal border (Fig. 3B). Cerci not exposed, sub-ovoid, lightly wider than high or as high as wide, distally acute with projection divergent and hind border concave, with heterogeneous sclerotization, and scarce and short hairiness (Fig. 3B). Genital furca higher than wide, base concave, wide, without external neckline, nor projections or branches in the base. Comb with long and abundant thorns and scarcely pilose (Fig. 3D). Spermathecal strongly capited, extreme apical blunt, with perforation evident, with numerous or abundant pores (Fig 3D). Spermathecal ducts with cup-like expansion, length 2.5 mm two to five times the long furca and of different diameter in the extreme.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 4 Females, 24–27 January 2000, 1 Female, 26–28 January 2000; Río Cuñaré. 1 Female, 1–5 November 2000; Cuñaré-Amú, 3 Females. 14–17 February 2001, 2 Females. 19–22 February 2001, 2 Females, 23 February–26 March 2001, 4 Females, 7–10 March 2001.

General distribution: Neotropics. Panamá to south Brazil, Colombia: Antioquia, Caquetá, Putumayo, Amazonas.

Discussion: The description that presented in this works is concordant with the proportionate for Wilkerson (1979), however the coloration and lateral stains that he describes on the tergos, they named here as lateral triangles. Due to the comparison with material of the “Colección del Instituto de Ciencias Naturales” (TB-198 *P. quadripunctatus amabilinus* (Philip) Guejai, Macarena 2-V-51. Det. Barreto 1995) it was determined as *P. q.* var. *amabilinus*.

### ***Poeciloderas quadripunctatus* (Fabricius)**

(Fig. 3 E-G)

*Tabanus quadripunctatus* Fabricius, 1805: 99; Wilkerson, 1979: 8 (31-32): 356-358, Fig 115.

*Tabanus (Hybomitra) quadripunctatus* Fairchild, 1943: 35 (4): 452-453, Fig. 8 (1942).

**Diagnosis.** Species of median size, the eyes present two clear green bands and microscopic hairs, dark mesonotum and abdomen, this last one with yellow lateral stains in the first and second tergite.

### ***Female***

**Head,** length 2.9 (2.7-3.1 n=17) surface of the vertex lightly concave or plain, orange with spots, incipient tubercle, black, pilose, setulose and hirsute, opaque, and without ocelli. Eyes black or purple, iridescent, with microscopic hairs, conglomerates, over the whole ocular area, with two diagonal and medial stripes, slight green. Frons lightly convergent bellow to sub-parallel, black, three or four times higher than wide, with hairs, black, pearly or grayish pruinous layer, opaque, with transverse sulcus between frons and subcallus. Frontal index 4.2 (3.6-4.8 n=17). Frontal callus strongly visible, slightly elevated, sub-square, does not touch the eyes, with extension separated of the callus in ridge shape or list, does not touch the vertex, smooth, black or brown, and shiny. Subcallus convex or slightly high, rough, with shiny areas or bared for the expense, and a thick pearly pruinous layer. Antenna equal to *P. var. amabilinus* (Philip). Frontoclypeus plane, opaque, black or brown, with fine and long white hairs, and a slender grayish pruinous layer; gena broad, black, opaque, pilose, with grayish pruinous, subgena or beard pilose, with abundant white hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base, pale-

yellow, opaque, pilose, hirsute and not hirsute. Proboscis length 2.3mm (2.1-2.5 n=17) as long as the high head; theca opaque, pilose, labella membranous, opaque, same half the long of the proboscis, partially pilose, and oval.

**Mesonotum.** Bicolor or multicolored, black and orange, with black hairiness, very thin only in the border of mesonotum with grayish pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, pruinose and with black hairiness, humeral or pronotal lobes inflated, oval, pruinose, clearer than the scutum. Prealar lobes brown to oranges, with white hairiness, opaque. Scutellum black, shiny, with very fine and short black hairiness in the border, and a slender whitish pruinose layer. Scutum without setae, with three longitudinal, medial and laterals bands; the two laterals pilose (yellow or pales), without stains. Pleura black or oranges, black, and with abundant hairiness.

**Wings** length, 11.8 (11-13 n=17) crystalline, totally hyaline, with blackish cloud areas or spot on the crossveins. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base. R<sub>2+3</sub> right, cell m<sub>3</sub> open, cell r<sub>5</sub> closed, with short petiole (1/6 of the adjacent segment (of cell m<sub>1</sub> margin)), brown veins, margin around the cells slightly darker than tone of cells, basal costal cell hyaline. Costa without stain in the portion subapical, yellowish strongly evident, Basicosta with macrotrichia, with setae so dense as on costa, Subcosta, veins R<sub>1</sub> and A<sub>1</sub> with macrotrichia.

**Legs.** Coxae blackish-brown or black. Procoxa with abundant white and black hairiness, Femora black, with grayish pruinose, particularly hind; with black hairs and white long hairs, shorter in the hind femora than in the other femora, all tibiae bicolor beige or yellowish with ends apical black or blackish-brown, fore tibiae shiny, cylindrical, lightly curved, with moderate black and yellow hairiness, hind tibiae cylindrical, and right.

**Abdomen.** Sub-triangular robust, multicolored, ventrally brown reddish, white and black hairs, with six transversal bands, so much dorsal as ventral on inferior border the tergites three to five and sternites two to six, of white pruinose, abdomen with dorsolateral black spots, in the second tergite, bares, and without triangles.

**Genitalia female.** Sternite eighth higher than wide (elongated), base wider than gonapophyses, concave, strongly sclerotized forming bands; parabasals hairs not bifid, with moderate and long hairiness. Gonapophyses bilobed, concave border distal without neckline or notch, with abundant, long and sclerotized, hairiness, with homogeneous sclerotization (Fig. 3E). Cerci not exposed, sub-squares, as high as wide, with distal projection and border rounded, with heterogeneous sclerotization, and moderate short hairiness sclerotizeds or translucent (Fig. 3F). Genital furca higher than wide, base concave, narrow, without external neckline, without projections or branches in the base and comb with long and abundant thorns (Fig. 3G). Spermathecal strongly capited, extreme apical blunt, with perforation evident, with numerous or abundant pores. Spermathecal ducts with cup-like expansion, length, 1.6 mm, as long as the high genital furca or one to two times the long g and of different diameter in the extreme.

**Material examined:** Colombia: Antioquia, Bello, 1800m, 1 Female, 8 February 1993 (Tibaitata); Valle of the Cauca, Peñas Blancas, 1750m, 10K W of Cali Bajo, Bosque Húmedo Montano, 1 Female, 12 January 1975; Tolima, Villarrica, Vda El Caribe, Finca Buenos Aires, 1 Female, 25 July 1986 (ICN); Caquetá P.N.N. Chiribiquete, Río Mesay, 5 Females, 24–27 January 2000, 2 Females, 26–28 January 2000, 2 Females, 1–4 February 2000; Río Sararamano, 5 Females, 07–11 April 2000; Cuñaré-Amú, 3 Females, 14–17 February 2001.

**General distribution.** Neotropics (Mexico to Argentina. Colombia: Antioquia?, Caldas, Caquetá, Cauca?, Meta, Valle of the Cauca).

**Discussion:** Differs mainly of *Poeciloderass quadripunctatus* var. *amabilinus* Philip, in the absence of the stains or lateral triangles on the tergites and are lightly smaller species.

**Genus *Leucotabanus* Lutz**

Characterized by the eyes unicolor, bare, greenish-black, and without pattern in life. Frons moderate to narrow a medium to narrow frons, index usually greater than four. Callus nearly always narrower than width of frons, not touching its sides, clavate or ridge-like. Tubercle at vertex well developed, usually with clear vestiges of ocelli. Short proboscis with an unsclerotized labella. Most are dark blackish species with a contrastingly pale scutellum. Basicosta setose, though setae may be paler or less numerous than on joining costa. Wing venation normal, without closed cells other than anal and without appendix at fork of third vein (R4); hyaline or rarely weakly tinted. Scutellum nearly always pale pollinose and pilose. Abdomen plain or banded never striped. Second sternite white pilose, second and fourth tergites generally with pale pilose median triangles and/or posterior bands. Terminal segments of female abdomen often laterally compressed, appearing pointed from above (Fairchild, 1969-1985; Coscarón & Papavero, 1993)

***Leucotabanus albovarius* (Walker)**

(Fig. 13 A-D, 16 G)

*Tabanus albocirculus* Walker, 1854: 206.

*Tabanus unicolor* Walker, 1857: 122 (not *T. unicolor* Loew, 1857).

*Leucotabanus leuconotum* Fairchild, 1941a: 637, Fig. 4 (nom. Nov. for *unicinctus* Walker); Fairchild, 1953: 276 (in key)

*Leucotabanus unicolor* Kröber, 1930: 260-261, Fig. 6.

*Leucotabanus albovarius* Kröber, 1934: 275; Fairchild, 1971: 82 (Syn.); Fairchild, 1985: (3): 307.

**Diagnosis.** A medium to large reddish orange specie with frons narrow, tubercle incipient and ocelli vestigial, long unicolor legs, wings yellowish translucent, abdomen pointed, and genitalia exposed.

**Female:**

**Head** length 3.8 mm (3.6–4.2 n= 3) (Fig. 16G), surface of the vertex concave, orange to brown, without spots, without tubercle or incipient, pilose, hirsute, moderately long black hairiness, opaque, and with white ocelli vestige on the vertex. Eyes slight green not iridescent, with dispersed microscopic hairs, over all the ocular area. Frons lightly convergent bellow or sub-parallel, in the superior part brown and orange the rest, 9 or 10 times higher than wide, with short and scarce black hairs, with golden pruinose layer or orange pruinose, opaque, and without protuberance. Frontal index 10 (7.5–14 n= 3). Frontal callus longitudinal, strongly visible, flat, clavate or triangular with appearance of an oar, with extension that it is sharpened until arriving to the half of the frons or in crest shape but does not touch the vertex, smooth, orange-brown or orange, shiny. Subcallus flat, opaque, bare, golden or faint orange pruinose layer with two dimples or circular white areas under scape. Antenna longer or of same long than palpus, multicolored,

brown to orange; scape conical, sub-cylindrical, longer than wide, with hirsute hairs, with a prominent dorsal projection in cap-like; pedicel conical, cup-like shape, wider than long. Consolidated basal plate, monochromatic brown or dark-orange, trapezoidal or hexagonal, flattened, short, with acute dorsal angle among the base and half of basal plate or projection with curved tip, pollinose and pilose, wider than flagellomeres; with four flagellomeres, sub-lobulated, free, pollinose and with one or two hairs in each flagellomere, darker, and shorter than high of the basal plate. Frontoclypeus plane, opaque, reddish orange, pollinose, with long black or chestnut hairs, and grayish or white pruinose as in gena. Gena broad, black, opaque, pilose, subgena or beard pilose, and with abundant white or pale yellow hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base, oranges-yellow or oranges-brown, opaque, pilose, and densely hirsute. Proboscis 2.1 mm of length (1.8–2.5 n=3), and does not exceed the high head, theca opaque, ventrally scarcely pilose, labella membranous, with shiny areas, 2/3 of long of the proboscis or almost so long as the proboscis, partially pilose, and oval.

**Mesonotum** and pleura monochromatic orange to reddish translucent, with black hairiness on the scutum and white hairiness in the borders, white or grayish pruinose layer thick, than from two whitish bands on the scutum. Notopleural lobes, sub-triangular, with black and chestnut hairiness, pronotal lobes slightly inflated, oval, white hairiness, and clearer than the scutum; prealar lobes yellow, with thick tufts white hairs to the sides, opaque. Scutellum reddish orange, darker than the mesonotum, opaque, with black and chestnut hairiness, with black or pearly pruinose layer and without bands, nor stain. Pleura with abundant black hairiness, with white tuft in the border of the anepisternum and grayish pruinose.

**Wings** length, 13 mm (12.5-13.2 n=3), translucent yellow, totally hyaline, without fumosiness, clouded, nor stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub> but not abruptly. R<sub>2+3</sub> lightly curved, thick yellow veins, margin around the cells of same intensity to the cells, basal costal cell yellowish fumose or translucent, Costa with stain in the portion subapical or fascia yellowish strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia and absent in A<sub>1</sub>.

**Legs.** All reddish oranges except by the fore tibiae than is black and oranges, the basal half of the femora brown; fore coxae and fore femora with black and white hairiness with long array white hairs to the sides. Fore tibiae shiny, cylindrical, lightly curved, and with scarce black hairiness, the rest of the legs with long array of only black and chestnut hairs. Hind tibiae cylindrical, right, and without spurs. Tarsomeres monochromatic blackish-brown.

**Abdomen.** Base constrained, sub-triangular, monochromatic orange, with black hairs in the base of each tergite and abundant in the ventral part, with white hairs to the sides of the first and second tergite. With white bands in the hind margin of each tergite, in the second tergite the band extends until forming a triangle that reaches the superior margin of the tergite.

**Genitalia female.** Sternite eighth higher than wide (elongated) with the base more narrow than gonapophyses, convex, strongly sclerotized forming bands, with moderate and short (they do not surpass the height of the gonapophyses) hairiness (Fig. 13A). Gonapophyses monolobed, elongated, homogeneously sclerotized, with moderate and short hairs, with the border distal convex, strongly sclerotized, and without neckline or notch. Hypoproct weakly sclerotized, twice wider than high, scarcely pilose, and evenly scattered. Cerci exposed, sub-ovoid (longer), double high ones than wide, border distal rounded, heterogeneous sclerotization, and with scarce sclerotizeds and short hairiness (Fig. 13B). Genital furca higher two times than wide (elongated), with the base convex, narrow, elongated, without external neckline, with one projection or branch longer than high of the genital furca (long), blunt. Comb with long and scarce thorns, without hairs (Fig. 13C). Spermathecal weak to strongly capited, apex blunt, and not perforated

(Fig. 13D). Spermathecal ducts with cup-like expansion, of different diameter, and six to nine times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 2 Females, 7–11 April 2000, 1 Female, 9–13 April 2000.

**General distribution.** Neotropics (Guyana; Guiana Francesa; Suriname; Brazil Pará, Amazonas, Rondônia; East the Peru, East the Bolivia, Colombia: Caquetá). This work enlarges the distribution for Colombia (Caquetá).

**Discussion:** This species was determined by comparison with material determined by the Doctor J. Burger. In spite of the fact that the description given by Fairchild (1985) is not very detailed, the specimens studied here, they correspond with these annotations. Pictures of the genitalia are annexed for later investigations.

### ***Leucotabanus exaestuans* (Linnaeus)**

*Tabanus exaestuans* Linnaeus, 1758: 601; Philip, 1952: 312 (female, America).

*Tabanus leucaspis* Wiedemann, 1828: 179 (female, Brazil).

*Tabanus albicans* Macquart, 1846: 165 (male, Colombia);

*Tabanus albiscutellatus* Macquart, 1850: 338, Fig. 9 (Female, male, Mexico).

*Tabanus cingulifer* Walker, 1857: 123 (female, Amazon region).

*Tabanus melanopterus* Brèthes, 1910: 479 (female, male, Argentina).

*Leucotabanus leucaspis* Fairchild, 1941a: 632-635, Fig.7a, 7b (Syn. distributions); Williams, 1971: 104 (British Honduras, distribution).

*Leucotabanus exaestuans* Fairchild, 1971: 83 (Syn.); Coscarón, 1976: 90-93, Figs. 1A-1R, (Female, male, Argentina); Wilkerson, 1979: 8 (31-32): 348-350; Fairchild, 1985: (3), 313.

**Diagnosis.** Small to medium dark brown or black species with black antenna and palpi, mesonotum dark with a white haired border and white haired scutellum, femora black and tibiae bicolored black and white, wings hyaline and abdomen with white bands on at least tergites two and four and pointed (Wilkerson, 1979, 1985)

### ***Female***

**Head** length 3.0 mm (3.1-2.9 n= 2), surface of the vertex plain, with prominent tubercle, black, pilose, with hirsute hairiness, opaque, and with ocelli functional of yellowish color on the ocellar tubercle. Eyes slight green, with microscopic hairs. Frons convergent bellow, black, higher than wide, bare, blackish pruinous, opaque, with transverse sulcus between frons and subcallus. Frontal index 5.8 (5.0-6.6 n= 2). Frontal callus longitudinal, strongly visible, slightly elevated, sub-square, with extension in ridge shape or list than does not surpass half of the frons, rough, brown to black, and opaque. Subcallus flat, opaque, bare, faint orange or ochre pruinous layer. Antenna shorter than palpus or of same length than palpus, multicolored ochre or brown; scape conical, sub-cylindrical, longer than wide, with hirsute hairs, ventrally longer, with salient posterior dorsal margin in cap-like; pedicel circulate, cup-like shape, wider than long, with hirsute hairs, with salient dorsal posterior margin cap-like. Basal plate monochromatic blackish brown, hexagonal, flattened, short, with dorsal angle obtuse, pollinose and pilose, wider than flagellomeres, and without projection nor tooth; with four flagellomeres, sub-lobulated, free, pollinose or with one or two hairs in each flagellomere, blackish-brown of same intensity and

similar length to the height of the basal plate. Frontoclypeus convex, shiny, brown or white, with the white in the base, and with black hairs, gena broad, black, opaque, pilose (short, black and chestnut hairs), blackish or grayish pruinose layer; subgena or beard pilose, black or yellow hairiness. Palpus geniculate and thin, not inflated, curved toward the base, brown, shiny, and hirsute. Proboscis 2.2 mm of length (2.2–2.3 n=2), and does not exceed the high head; theca opaque, pilose, labella membranous, ventrally partially pilose, and oval.

**Mesonotum.** Bicolor or multicolored brown or black, the lobes of ochre color, with black and chestnut hairiness, with thick tuft of golden and black hairs in the inferior face of the posterior scutum and without thoracic triangles. Notopleural lobes lighted than the scutum, sub-triangular, with black and golden hairiness, humeral or pronotal lobes flat to slightly inflated, oval, golden hairiness, and clearer than the scutum; prealar lobes light brown, with tufts of golden hairs as much in the apex as in the base. Scutellum brown borders and black in the center, opaque, and with golden hairiness. Scutum and scutellum without setae, bands nor stains. Pleura black opaque, with black hairs except together to the episternum and below of the wing where are yellow and moderate golden hairiness.

**Wings** length, 10.5 mm (10-11 n= 2), crystalline, totally hyaline, without fumosiness, stains nor clouded. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>. R<sub>2+3</sub> lightly curved, black veins, margin around the cells more pallid than tone of cell, basal costal cell hyaline, Costa with stain in the portion subapical or fascia strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia, and A1 without macrotrichia.

**Legs.** All femora dark black or blackish-brown with tibiae bicolored black and beige or white, with black and white hairiness, fore tibiae and metatibiae shiny, cylindrical, and lightly curved. Tarsomeres monochromatic black.

**Abdomen.** Monochromatic black, pruinose, with short and scarce black, white and yellow hairs, opaque, with five transversal, dorsal and ventral bands of beige or grayish pruinose, on inferior border of the two to six tergites and sternites. The bands are thin to exception of the first located in the third tergite that is most augmented with black and white hairs, these last most abundant; abdomen pilose and pruinose without spots, or triangles.

**Genitalia female.** Sternite eighth elongated, higher than wide, with the base as wide as the gonapophyses. Gonapophyses monolobed, border distal concave, without neckline or notch, two times wider than high, with homogeneous sclerotization. Ninth and tenth tergite divided, reserved inside the seventh. Hypoproct strongly sclerotized, lightly wider than high, scarcely pilose on external border. Cerci exposed, sub-ovoid, as high as wide, border distal acuminate and hind border flat, and with homogeneous sclerotization. Genital furca short as wide as high, base acute, narrow, with deep external neckline, without projections or branches in the base. Comb with long and abundant thorns, and without hairs. Spermathecal strongly capited, perforation not very evident (lightly visible), with scarce porosity. Spermathecal ducts with cup-like expansion, and of different diameter in the end.

**Material examined:** Colombia: Choco, Rio Sucio, Tilupo, 1 Female, 31 March 1978; 2 Females, 14 June 1978 (ICN); Caqueta P.N.N. Chiribiquete, Río Cuñaré, 1 Females. 15–19 November 2000; Cuñaré Amú, 1 Female, 14–17 February 2001.

**General distribution.** Neotropics (Mexico to Argentina: Salta, Chaco, Misiones; Paraguay, Brazil, Peru, Trinidad and Colombia: Antioquia, Choco, Caquetá, Valle del Cauca, Putumayo, Boyacá, Meta, Santander, Vaupes).

**Discussion:** This species was determined by comparison with material determined by the Doctor J. Burger. In spite of the fact that the description given by Fairchild (1985) is not very detailed, the specimens studied here, they correspond with these annotations.

***Leucotabanus pauculus* Fairchild**  
(Fig. 3 H-K)

*Leucotabanus pauculus* Fairchild, 1951a: 456-457, Figs. 10a-10b (female, Pará, Brazil); Fairchild, 1953: 275 in key only; Fairchild, 1985: 320

**Diagnosis.** Very similar to *L. exaestuans*, the differences reside in the size, the coloration of the antenna and the width of the frons being *L. pauculus* lightly smaller and of greater front index.

**Female**

**Head** length 2.2 mm (1.6–2.6 n=5), surface of the vertex concave, with prominent tubercle, black, bare, opaque, and with ocelli functional on the vertex. Eyes black, not iridescent, bare. Frons sub-parallel, black, higher than wide, pollinose, with chestnut hairs, blackish pruinose layer, opaque, with transverse sulcus between frons and subcallus. Frontal index 6.23 (5.5-7.6 n=5). Frontal callus strongly visible, flat, sub-rectangular, without extension, smooth, black, and shiny. Subcallus flat, opaque, light brown pruinose layer. Antenna longer than palpus or of same length than palpus, monochromatic brown to black; scape conical, sub-cylindrical, as long as wide, scape and pedicel with hirsute hairs and salient posterior dorsal margin in cap-like; pedicel conical, cup-like shape, and wider than long. With consolidated basal plate, monochromatic brown to black, hexagonal, flattened, short, with dorsal angle, right, among the base and half of basal plate, pollinose and pilose, wider than flagellomeres. Flagellomeres sub-lobulated, free, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus plane, opaque, black, with black and golden hairs, grayish to light brown pruinose layer; gena broad, black, shiny, pollinose, grayish to black pruinose layer, subgena or beard pilose, with moderate black and golden hairiness. Palpus geniculate, curved toward the base, black, opaque, pruinose and pilose. Proboscis length 2.2mm (2.0-2.6 n=5), as long as the high head; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval

**Mesonotum.** Bicolor or multicolored, black, yellow to light brown standing out the longitudinal sutures of brown color, with black or yellow hairiness, and light brown pruinose layer. Notopleural lobes lighted than the scutum, pruinose and with black and yellow hairiness, pronotal lobes flat, oval, pruinose, with golden hairiness, clearer than the scutum. Prealar lobes light brown as yellowish, opaque, pruinose and with black and yellow hairiness to the around of the lobes. Scutellum black with the brown borders, ventrally the paler border, opaque, with yellow hairiness, and with grayish pruinose layer. Scutum and scutellum without setae, thoracic triangles, bands or stains. Pleura black and yellow, with abundant black hairs in the center and array of pale-yellow hairs in the border of the anepisternum.

**Wings** length 9.3 mm (9.0-9.5 n=5), grayish with halteres brown totally, completely fumose, without neither cloud nor stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>. R<sub>2+3</sub> right, brown veins, margin around the cells of same intensity to the cell, and basal costal cell yellowish fumose or

translucent. Costa with stain in the portion subapical or fascia strongly evident, Subcosta and veins  $R_1$  with macrotrichia, absent in  $A_1$ , except in their base that has few less of seven macrotrichia.

**Legs.** Monochromatic black, with, all tibiae bicolor white or yellow and black, with black or yellow hairiness, fore tibiae shiny, cylindrical, lightly curved hind tibiae, right, and without spurs.

**Abdomen.** Sub-triangular and lengthened, monochromatic black, with black hairs, opaque, with five bands of beige to pearly pruinose, dorsal, ventral and transversal on inferior border the tergite and sternites two to six, pilose and pruinose, without spots, nor triangles.

**Genitalia female.** Sternite eighth elongated higher than wide, base as wide as the gonapophyses, flat, strongly sclerotized forming bands, simple parabasals hairs, with scarce, short and long hairiness. Gonapophyses monolobed, border distal plane or concave without neckline or notch, elongated, with sclerotized abundant and long hairiness, and heterogeneous sclerotization (Fig. 3H). Hypoproct strongly sclerotized, twice higher than wide, and scarcely pilose on distal border. Cerci lightly exposed, sub-trapezium or sub-triangular, higher than wide, with border distal lightly acute and hind border flat, with homogeneous sclerotization, and moderate and long hairiness (Fig. 3I). Genital furca elongated higher two times than wide; base convex, narrow, elongated, without external neckline, with one projections or branches, as long as the width of the genital furca, sides (there are not branches) peaked (Fig. 3J). Comb with long and scarce thorns. Spermathecal strongly capited, extreme apical blunt, perforation not very evident and with scarce porosity (Fig. 3k). Spermathecal ducts with cup-like expansion, length six mm two to five times the long genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caño Grande, Río Guaruyiba, 500–600m, 1 Female (ICN); Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female, 7–11 April 2000; Río Cuñaré. 1 Female, 1–5 November 2000; Cuñaré-Amú, 2 Females. 19–22 February 2001, 1 Females, 23–26 March 2000.

**General distribution.** Neotropics (Provincia Amazonica and Yungas or altoandina: Venezuela; Colombia: Caquetá, Vaupes; Brazil: Pará, Amazonas,).

**Discussion:** According to the observations of this species, we can reiterate the appreciations of Fairchild (1985), however this description is very short for to do greater conjectures.

## Genus *Stypommisa* Enderlein

The genus consists of small species rarely if ever exceeding a wing or body length of 13 mm though frequently considerably less than 10 mm in both dimensions. The included species possess a well-marked tubercle at vertex, often with vestiges of one or more ocelli. The frons is generally narrow, the index over 4, and usually nearly parallel sided, though there are exceptions to both conditions, well marked frontal callus with drop shaped, clavate, or linear. Eyes unbanded, green or bronzy, or light with a single dark stripe, only rarely sparsely pilose in the female, though male eyes often densely pilose. The eyes may be unicolor green or bronzy, bicolor, or with a median dark stripe, rarely otherwise. Many of the species have dark clouds on the crossveins and fork of third vein ( $R_{4+5}$ ), and often a short to long appendix at the fork, few to numerous, rarely without, setae on the basicosta, usually anterior and apically tinted, seldom entirely clear. Female: genital furca concave at base; cerci longer than wide; sternite 8 elongate, and male basistylus with an acute process apically. (Wilkerson 1979; Fairchild & Wilkerson 1986; Coscarón and Papavero 1993).

### *Stypommisa captiroptera* (Kröber)

(Fig. 4 A-D, 16 H, 19 C)

*Tabanus (Macrocornus) captiropterus* Kröber, 1930b: 87: 10, Fig. 8.

*Stenotabanus xenium* Fairchild, 1947: 39(4): 568, pl. 1, Fig. 5, a,b, female, Panama (MCZ).

*Stypommisa captiroptera* Fairchild, 1967a: 9 (1-4): 364; 1971: 28: 81; Hogue and Fairchild, 1974: 22 (1): 22; Wilkerson, 1979: 8 (31-32): 355-337, Fig. 112; Philip, 1977: 79 (1): 28; Fairchild & Philip, 1986: 22(5): 18; Fairchild & Wilkerson, 1986: 22(5): 18-19, Fig. 19-21, 74.

*Stipommisa* (sic) *flavescens* Barretto, 1957: (1956), 8(1): 82, male, British Guiana. (Not *flavescens* Kröber 1930).

**Diagnosis.** Reddish oranges, small size to medium species, with eyes unicolor iridescent slight green or bronzy, wings brown fumose, with long appendix in R4 and a faint brown cloud, and all legs orange unicolor.

### *Female*

**Head** length 3 mm (n=3), surface of the vertex concave, brown, without spots nor tubercle, bare, opaque, with ocelli vestige on the vertex, and without setae ocellar. Eyes slight green and brown, iridescent, bare or with scarce microscopic hairs, dispersed over all the ocular area, and without bands, spot or drawing. Frons lightly convergent bellow or sub-parallel, brown, six or seven times higher than wide, bare or with very short and little visible black hairs, grayish pruline, opaque, and with transverse sulcus between frons and subcallus. Frontal index 6 (5.2-7.0 n=3). Frontal callus longitudinal, strongly visible, flat, claved or triangular in the base, not touching the Eyes with extension in ridge shape or list than not touching the vertex, rough, brown, opaque. Subcallus flat, opaque, bare, and with faint golden or orange pruline layer. Antenna of same length than palpus, monochromatic orange; scape conical, sub-cylindrical, wider than long, with hirsute and chestnut hairs, scape and pedicel with posterior dorsal margin in cap-like; pedicel

conical, cup-like shape, wider than long, with hirsute hairs. Basal plate yellowish orange, flattened, short, with dorsal angle acute between the base and half of basal plate, pollinose, pilose, and wider than flagellomeres; with four flagellomeres, curved up and cylindrical, free, pollinose, with one or two hairs in each flagellomere, of same intensity to the basal plate, except apex, and equal length. Frontoclypeus plane, opaque, orange or brown, pollinose and with golden and chestnut hairs, orange or golden pruinose; gena broad, black, opaque, pollinose and pilose, light brown pruinose, subgena or beard pilose, with moderate, chestnut or golden hairiness. Palpus geniculate or thin, not inflated, curved toward the base, finished abruptly, oranges-yellow, opaque, pilose, with hirsute golden hairs in the tip. Proboscis 1.8 mm of length (1.4–2.2 n=3), does not exceed the high head; theca opaque, pilose, labella membranous, opaque, same to half the long of proboscis, partially pilose, oval.

**Mesonotum** bicolor or multicolored orange to reddish brown, with scarce black hairs only in the border and white hairs in the rest, and fine pearly pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, with black hairiness and long chestnut hairiness, humeral lobes flat to slightly inflated, oval, white hairiness, and clearer than the scutum; prealar lobes oranges to reddish, with long black hairiness, opaque. Scutellum reddish-orange or brown, opaque, with a slender orange or golden pruinose layer, bare or with short and scarce black hairiness. Scutum without setae nor bands, with a small stain in the posterior scutum. Scutellum without bands, and with a dark stain. Pleura dark oranges, moderate black and white hairiness, and with golden pruinose.

**Wings** length, 10.5 mm (10–11 n=3), brown, completely fumose, with annuli of the hyaline areas, on subcostal cells and marginal cell, with light brown cloud areas on the margin costal and apical. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, with appendix longer than segment than subtend the fork of vein R<sub>4</sub>, with darkened the base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed and petiolate, brown veins, margin around the cells darker than tone of cells, basal costal cell yellowish cloud. Costa with stain in the portion subapical or fascia yellowish strongly evident, Basicosta with macrotrichia, with less dense setae than the costa, Subcosta, veins R<sub>1</sub> and A<sub>1</sub> with macrotrichia,

**Legs.** Wholly monochromatic oranges, with white, black and chestnut hairiness, fore femora with long black hairs, fore tibiae shiny, cylindrical, lightly curved, with prickly and scarce black or chestnut hairs and hind tibiae right. Tarsomeres monochromatic orange,

**Abdomen.** Sub-rectangular and sub-triangular, pointed, monochromatic yellowish orange, pollinose and with short black hairs mainly in the borders; in the seventh sternite erect, opaque, without bands, spots nor triangles.

**Genitalia female.** Eighth sternite wider than high, base wider than or as wide as the gonapophyses, flat, weakly sclerotized; parabasals hairs simple, with abundant, long and short hairiness. Gonapophyses bilobed, concave border distal, without neckline or notch, two times wider than high, with abundant, long and sclerotized hairs, heterogeneous sclerotization, with a single band medial dark in the basal part (Fig. 4A). Hypoproct weakly sclerotized, twice wider than high, scarcely pilose on distal border. Cerci exposed, sub-ovoid, lightly wider than high, with border distal rounded, heterogeneous sclerotization, and with moderate, short and translucent hairiness (Fig. 4B). Genital furca higher than wide, base concave, narrow, without external neckline, without projections or branches in the base. Comb with long and abundant thorns (Fig. 4C). Spermathecal strongly capited, extreme apical blunt, perforated, and with scarce porosity (Fig. 4D). Spermathecal ducts with cup-like expansion, length, six mm, of six to nine times the long genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Valle Sabaletas, 4 Km E de Zabaletas, 1 Female 6 July 1975 (ICN); Caquetá P.N.N. Chiribiquete, Río Sararamano. 1 Female, 9–13 April 2000, Río Cuñaré. 1 Female, 10–14 November 2000, Cuñaré-Amú. 1 Female, 28 March–3 April 2001.

**General distribution.** Neotropics (Mexico to Bolivia; south to Ecuador west of the Andes and Bolivia, Venezuela, Guyana, Peru, Brazil, Colombia: Choco, Valle of the Cauca, Cauca, Antioquia, Caquetá).

**Discussion:** We find some differences among the description provided by Wilkerson (1979) and this manuscript, such as the coloration of the mesonotum and the abdomen, described by us as reddish-orange and yellowish orange respectively; and for Wilkerson as yellowish brown. However the biggest difference consists on the absence of the tuber in the vertex on the part of our description. These differences could be given like a variety or modification due to the geographical and climatic conditions of the collection site, but such asseveration deserves a greater investigation than the proportionate one in this monograph.

### ***Stypommisa jaculator* (Fairchild)**

(Fig. 13 E-G, 16 I-K, 19 D)

*Stenotabanus jaculator* Fairchild, 1942: 35 (3): 309, Fig 9; 1951: op. cit., 44 (3): 452-453.

*Stypommisa jaculator* Barreto, 1957: 8 (1): 82 (1956), Guyana; Fairchild, 1971: 28: 81; Fairchild & Wilkerson, 1986: 22(5): 27 Fig. 79

*Stypommisa jaculatrix* Wilkerson, 1979: 3 (31-32): 337-338, Fig. 108.

**Diagnosis.** Small dark grayish to brown species, eyes green with a diagonal purple stripe, with vaguely bicolored antennae, compared with other species of *Stypommisa*, *S. jaculatrix* has wings with faint brown clouds on crossveins (very pale), and abdomen shiny and legs unicolor brownish orange.

### ***Female***

**Head** length, 2.2mm (n=1) (Fig. 16I), surface of the vertex concave, black, incipient tubercle, bare, with shiny areas, and with ocelli vestige on the vertex. Eyes slight green and brown, iridescent, bare or with microscopic hairs, dispersed over all the ocular area, with one diagonal purple stripe. Frons lightly convergent bellow or sub-parallel, black, four or five times higher than wide, with black and pale chestnut hairs, grayish pruinose, opaque, and with transverse sulcus between frons and subcallus. Frontal index 5. Frontal callus longitudinal, strongly visible, globose in the base, sub-square or elongated (Fig. 16J) (Fig. 54 in Fairchild & Wilkerson 1986: 51), not touching the Eyes with extension in ridge shape or list, not touching the vertex, smooth, brown or reddish-mahogany, shiny. Subcallus flat or convex or slightly high, opaque, bare, and with light brown or grayish pruinose. Antenna longer than palpus, ochre or orange; scape conical, sub-cylindrical, as long as wide, with hirsute hairs, scape and pedicel with posterior dorsal margin in cap-like vestige; pedicel conical, cup-like shape, wider than long, and with hirsute hairs. Consolidated basal plate, ochre or orange, trapezoidal, flattened, short, with right dorsal angle between the base and half of basal plate, pollinose and pilose, wider than flagellomeres (Fig. 16K). Flagellomeres curved up or cylindrical, free, pollinose and with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate (Fig. 16K). Frontoclypeus plane or convex, opaque, light brown, with black and chestnut hairs, grayish

pruine layer; gena broad, black, opaque, pilose, with a thick grayish pruine layer, subgena or beard pilose, with scarce black hairiness. Palpus thin, not inflated, curved toward the base, pointed, oranges-yellow, opaque and hirsute. Proboscis two mm, does not exceed the high head; theca opaque, ventrally pilose, labella membranous, opaque, same half of the proboscis, partially pilose, and oval.

**Mesonotum.** Monochromatic dark brown, with the clearer borders and sutures, black hairiness, and with grayish or pearly pruine. Notopleural lobes of same tonality to the scutum, sub-triangular, with black hairiness; humeral or pronotal lobes flat, oval, black and chestnut-hairiness, and clearer than the scutum; prealar lobes brown, pruinose, with golden and black hairs, and shiny. Scutellum darker than the mesonotum in the base, opaque, and bare. Scutum and scutellum without setae, bands, triangles and nor stains. Pleura brown, and moderate.

**Wings** length, 10.5 mm, light brown, completely fumose, with light brown cloud areas extending along the costal border, on the margin apical and on the crossveins but more notorious in R<sub>4</sub>, faint in the medial crossveins and absent in the basal, with the augmented fork, and with cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed, brown veins, margin around the cells of same intensity at the cell, basal costal cell fumose or translucent (Fig. 19D). Costa with stain in the portion subapical or fascia brown vestigial, Basicosta with macrotrichia, with less dense setae than the costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Coxae brown with white and chestnut hairiness, and grayish pruine, fore femora brown, with black hairiness, medial and hind femora multicolored brown and ochre, contrasting the superior part with the inferior, with short black and chestnut hairs, fore tibiae and metatibiae multicolored, brown and ochre, with the clearest superior end contrasting with the inferior, shiny, cylindrical, lightly curved or right, with moderate black hairiness, the hind totally right and tarsi brown.

**Abdomen.** Sub-rectangular, monochromatic light brown, shiny, with grayish pruine, black hairs, without bands, spots nor triangles.

**Genitalia female.** Sternite eighth wider than high, with the base wider than gonapophyses, flat or slightly convex, strongly sclerotized forming bands, moderate to scarce short hairiness. Gonapophyses monolobed two times wider than high, scarce, short hairiness, sclerotized, with the border distal strongly sclerotized, without neckline or notch, slightly and, concave (Fig. 13E). Hypoproct twice wider than high. Cerci exposed, sub-ovoid, notably wider than high, border distal rounded, with homogeneous sclerotization, strong moderate to scarce short hairiness (Fig. 13F). Genital furca wider than high, base concave, narrow, short, with external neckline superficial without projections or branches in the base, and with the sides peaked parallel. Comb with long scarce spread thorns (Fig. 13G). Spermathecal ducts without cup-like expansion, with similar diameter in the base toward the apex and 6 to 9 times the long genital furca,

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Cuñaré-Amú, 1 Female, 7–10 March 2001.

**General distribution.** Neotropics (Panama to Guyana, Colombia: Choco, Caquetá).

### *Stypommisa modica* (Hine)

(Fig. 3 L-N)

*Tabanus modicus* Hine, 1920: 20 (6): 188.

*Stypommisa modica* Fairchild, 1971: 28: 82, Syn.

*Stypommisa hypographa* var. *ruficornis* Kröber, 1930: 86: 253; Fairchild, 1967a: 9 (1-4): 350, Fig. 33; Philip, 1969: 22: 124

*Stypommisa modica* Fairchild & Wilkerson, 1986: 22 (5): 32-32, Fig. 83.

**Diagnosis.** A small to medium black species with bluish pruinose thorax and anterior abdomen according to the intensity of the light, the wings with small clouds on crossveins and fork and apically brown tinted. Fore tibiae basally with some white, antennae wholly orange yellow.

### **Female**

**Head** length, 2.7 mm (2.5-3.0 n=5), surface of the vertex plain, black, with incipient tubercle, pilose, hirsute, opaque, and with ocelli vestige or absent on the vertex. Eyes slight green and brown, iridescent, with microscopic hairs, dispersed, over the whole ocular area, and with one diagonal purple stripe. Frons sub-parallel, black, five or six times higher than wide, with black hairs, grayish pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 5.2 (5.1-5.3 n=5). Frontal callus longitudinal, strongly visible, globose or slightly elevated in the base, triangular or elongated, not touching the Eyes with extension in crest shape, not touching the vertex, smooth, black or brown, shiny. Subcallus flat, opaque, bare, pale yellow pruinose layer. Antenna shorter than palpus, orange; scape conical, sub-cylindrical, wider than long, pruinose and with hirsute hairs, with prominent salient posterior dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, with hirsute hairs, and prominent salient dorsal posterior margin cap-like. Basal plate ochre or orange, trapezoidal, flattened, short, with dorsal angle acute between the base and half of basal plate, pollinose and pilose, wider than flagellomeres. Flagellomeres, curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, darker or of same intensity to the basal plate, and equal length to the height of the basal plate. Frontoclypeus plane or convex, opaque, orange brown, with black or chestnut hairs, orange or golden pruinose; gena broad, brown, opaque, pilose, light brown or orange pruinose, subgena or beard pilose, and with moderate black hairiness. Palpus geniculate or thin, not inflated, curved toward the base, ochre or orange, shiny, pilose, hirsute, pointed. Proboscis 2mm (1.8-2.4 n=5), does not exceed the high head; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Monochromatic black with the brown borders, with short and abundant black hairiness, and grayish pruinose. Notopleural lobes of same tonality to the scutum, and black hairiness; humeral lobes slightly inflated, oval, pruinose, black hairiness, and clearer than the scutum; prealar lobes chestnut, pruinose with black hairiness, and opaque. Scutellum brown, opaque, with black hairiness, and grayish pruinose. Pleura blackish brown and moderate grayish hairiness.

**Wings** length, 11.3 mm (11-12 n=5), light brown, with hyaline areas on subcostal and radial or marginal cell, partially fumose, lightly darker margin apical, with fumose-grayish or dark brown cloud areas on the crossveins medial and basal faint contrasting with the base of R<sub>4</sub> that is very notorious. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed, brown veins, margin around the cells of same intensity at the cell, brown cloudy basal costal cell. Costa with stain in the portion subapical or fascia brown vestigial, Basicosta with macrotrichia, with less dense setae than the costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Totally blackish-brown or black, with black hairiness, except the fore tibiae than is brown and ochre, shiny, lightly flattened, lightly curved, with abundant black hairiness, hind tibiae or metatibiae cylindrical, and right.

**Abdomen.** sub-rectangular, finishes abruptly, black, pruinose for the incidence of the light can see the blue pruinose among the tergites one and two, with white hairs and black hairs the second and third tergite with tufts white hairs and the tergites five at seven with tufts black hairs in the borders, opaque, abdomen without bands, spots nor triangles.

**Genitalia female.** Eighth sternite two or three times wider than high, base wider or as wide as the gonapophyses, flat, strongly sclerotized forming bands, moderate, long and short hairiness (Fig. 3L). Gonapophyses monolobed, with the plane border distal without neckline or notch, two times wider than high, scarce and short hairiness and with homogeneous sclerotization. Cerci lightly exposed or not exposed, sub-circular, as high as wide, with distal projection or border distal acute or truncated and hind border flat, with homogeneous sclerotization, scarce sclerotized, and short hairiness (Fig. 3M). Genital furca wider than high, base concave, wide, with external neckline deep, with two projections or branches shorter than width of base, sides there are not branches blunt or narrow, divergent basally (Fig. 3N). Comb with long and scarce thorns. Spermathecal weakly capited, extreme apical pointed or blunt, not perforated. Spermathecal ducts with cup-like expansion, length eight mm, more than 12 times the long genital furca and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female, 7–11 April 2000; Cuñaré Amú, 3 Females, 19–22 February 2001, 1 Female, 28 March-3 April 2001.

**General distribution.** Neotropics (Peru, Ecuador Guyana to Bolivia; East of Andes. Colombia: Caquetá).

### ***Stypommisa pequeniensis* (Fairchild)**

(Fig. 13 H-K, 17 A, 18 F-G, 19 E)

*Stenotabanus pequeniensis* Fairchild, 1942d: 35 (3): 308-309, Fig. 13, a, b.

*Stenotabanus pequiensis* Philip (lapsus), 1960: 4, 31 (3): 77.

*Stypommisa pequeniensis* Fairchild, 1971: 28: 82; Wilkerson, 1979: 8 (31-32): 340-42, Fig. 110, 111; Hogue & Fairchild, 1974: 22 (1): 22; Fairchild & Wilkerson, 1986: 22 (5): 35-36, Fig. 83.

**Diagnosis.** A small brown species, wing length 8.5 mm to 11.0 mm. the dorsum of abdomen entirely black pilose, the venter, pleura and beard white to gray pollinose and pilose. Legs brown, the tarsi, especially fore pair, nearly black. Wings apically fumose, the dark area clearly demarcated from hyaline discal area. Costal cell brown. Fork of R4 vein appendiculate and with a distinct small dark cloud; crossveins at end of cell discal usually with faint to strong clouds. Antennae variable, yellow to brown or bicolored (Fairchild & Wilkerson 1986).

### ***Female***

**Head** length 2.9 mm (n=1) (Fig. 17A), surface of the vertex lightly concave to plain, black, with incipient tubercle, black hairs, opaque, and without ocelli. Eyes slight green and brown, iridescent, bare, without bands, spot or drawing. Frons convergent bellow, black, six or seven times higher than wide, with black hairs, and light brown pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 6.6. Frontal callus longitudinal, strongly visible,

slightly elevated, triangular, not touching the Eyes with extension in ridge shape or list than surpass half of the frons by not touching the vertex, rough, brown or reddish-mahogany, and shiny. Subcallus convex or slightly high, opaque, bare, and with light brown pruinose. Antenna longer than palpus, ochre or orange; scape conical, sub-cylindrical, as long as wide, scape and pedicel with salient posterior dorsal margin in cap-like vestige and with hirsute hairs, pedicel conical, cup-like shape, wider than long. Consolidated basal plate, monochromatic ochre or black, trapezoidal, flattened, short, with right dorsal angle between the base and half of basal plate, pollinose and pilose, wider than flagellomeres. Flagellomeres, curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, darker and shorter than high of the basal plate, opaque, chestnut or light brown, with black hairs, and a thick grayish pruinose layer; gena broad, black, opaque, pilose, with a thick grayish pruinose layer, subgena or beard with moderate black hairiness. Proboscis 1.5 mm of length; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Brown or reddish, with short and scarce black hairiness, with orange or golden pruinose. Notopleural lobes lighted than the scutum, sub-triangular, inflated or slightly inflated, with abundant black hairiness, humeral or pronotal lobes flat, oval, black hairiness, and clearer than the scutum; prealar lobes brown, with chestnut hairiness, opaque. Scutellum brown, shiny, bare, and with golden pruinose layer in the border. Scutum with one faint longitudinal and medial blackish band, and pilose. Pleura reddish brown, pruinose, moderate white hairiness and grayish pruinose (Fig. 18G).

**Wings** length, 10.2 mm, light brown, completely fumose, with light brown cloud areas along the costal margin, the margin apical and on the crossveins, most notorious in the fork of  $R_4$ , and faint on the medial, basal and discal cell. Vein  $R_4$  near or not broadly separated from  $R_5$ , with appendix longer than segment than subtend the fork of vein  $R_4$ , with cloudiness on base.  $R_{2+3}$  lightly curved, cells  $m_3$  and  $r_5$  open, cell cup closed, brown veins, margin around the cells of same intensity at the cells, basal costal cell cloud, Basicosta with macrotrichia so dense as on costa, Subcosta and veins  $R_1$  with macrotrichia in  $A_1$  absent (Fig. 19E).

All legs unicolor ochre or orange-brown, with short black hairiness, coxae with white hairs in the basal extreme, femora with chestnut or golden hairs, all tibiae slender cylindrical, right and all tarsomeres monochromatic blackish-brown.

**Abdomen.** Sub-triangular and lengthened, monochromatic orange, with black and white hairs these last over the side of the first two tergites, opaque, apparently with four light brown, dorsal and transversal bands, on inferior border the tergites three to six, and overlap with the following tergites (Fig. 18F).

**Genitalia female.** Sternite eighth wider than high with the base as wide as the gonapophyses, flat, strongly sclerotized forming bands, simple parabasal hairs, abundant long and short hairiness (Fig. 13H). Gonapophyses monolobed, border distal without neckline or notch, two times wider than high, with abundant sclerotized, and long hairiness, border distal strongly sclerotized concave more than body of gonapophyses, with homogeneous sclerotization than shaped two laterals dark bands. Hypoproct weakly sclerotized, lightly wider than high, and scarcely pilose on distal border. Cerci exposed, sub-ovoid or sub-trapezium, as high as wide, with border distal truncated or rounded, homogeneous sclerotization, and strong moderate and short hairiness (Fig. 13I). Genital furca as wide as high (short), base plane; narrow, short, without external neckline, without projections or branches in the base (Fig. 13J). Comb with scarce spread short and long thorns, scarcely pilose. Spermathecal weakly capited, with the apex

pointed, not perforated (Fig. 13K). Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex and 10 to 12 times the long at genital furca.

**Material examined:** Colombia: Valle of the Cauca, Bajo Anchicayá 400m, Bosque Muy Húmedo Tropical, 1 Female 2 April 1976; Cauca, Río Micay, San Antonio, 90m, 1 Female, 19 August 1977 (ICN); Caquetá P.N.N. Chiribiquete, Río Sararamano, 1 Female, 9–13 April 2000.

**General distribution.** Neotropics (Costa Rica to Bolivia. Colombia: Antioquia, Choco, Caquetá, Valle del Cauca, Cauca, Putumayo, Meta).

### ***Stypommisa* sp1**

(Fig. 13 L-M)

**Diagnosis.** Small size species, eyes unicolour bronzy or green, wings fumose with the apical and costal margin dark, fork of R4 with short appendix, dark brown mesonotum and orange-brown abdomen with the last tergites strongly darked and triangles middorsal vaguely visible, since third to sixth tergite, legs with the fore tibiae bicolored.

#### ***Female***

**Head** length 2.1mm (n=1), surface of the vertex concave, brown, incipient tubercle, bare, opaque, and without ocelli if they are present they are not very evident. Eyes slight green and brown, iridescent, bare or with microscopic hairs, and dispersed over the whole ocular area. Frons convergent bellow, black, eight or nine times higher than wide, with very short black hairs, grayish or light brown pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 9. Frontal callus longitudinal, flat, triangular in the base, not touching the Eyes with extension in ridge shape or list than surpass half of the frons, rough, brown, and shiny. Subcallus flat, with shiny areas or bare by the spend, light brown pruinose layer. Antenna longer or of same length than palpus, brown to black; scape conical, sub-cylindrical, as long as wide, with hirsute hairs, without posterior dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, with hirsute hairs, with posterior margin cap-like vestige. Consolidated basal plate monochromatic yellow, trapezoidal, flattened, short, with acute dorsal angle between the base and half, pollinose and pilose. Flagellomeres curved up, cylindrical, free, pollinose and with one or two hairs in each flagellomere, shorter and darker than basal plate. Frontoclypeus plane, opaque, mahogany or blackish-brown, with chestnut hairs, and orange or golden pruinose; gena broad, black, opaque, pilose, with pearly or light brown pruinose; subgena or beard pilose, with moderate black and white hairiness. Palpus lightly geniculate and "slender" inflated basally, pointed (Fig 69 C in Coscarón & Papavero 1993: 105), oranges-yellow, opaque, and hirsute. Proboscis 1.8 mm, does not exceed the high head; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum** brown or reddish with the clearer lobes, light brown or orange pruinose, and with fine and very scarce black hairiness. Notopleural lobes sub-triangular, pruinose and with black hairiness, humeral or pronotal lobes inflated, oval, pruinose, and white hairs; prealar lobes oranges, opaque, and with chestnut and black hairs. Scutellum brown with clearer borders and the base blackish attached to the scutum, opaque, with black hairiness and light brown pruinose. Scutum with one longitudinal and medial band. Pleura reddish brown, pruinose, and moderate hairiness.

**Wings** length 8.9 mm, light brown, completely fumose, with light brown cloud areas on the margin apical and on the margin costal. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, with appendix similar of long segment than subtend the fork of vein R<sub>4</sub>, and with cloudiness on base. R<sub>2+3</sub> right, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed and petiolate, brown veins, margin around the cells of same intensity at the cells, brown basal costal cell, fumose or translucent. Costa with stain in the portion subapical or fascia, brown strongly evident, Basicosta with macrotrichia as dense as on costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Totally brown or dark oranges, and with scarce black or chestnut hairiness, except the fore tibiae blackish-brown and beige. Femora with pearly or grayish pruinose, medial femora with the superior end a little darker, fore tibiae shiny, cylindrical, lightly curved, with scarce black and white hairs, Mid tibiae monochromatic brown with the upper extreme slightly clearer and grayish pruinose. Hind tibiae or metatibiae monochromatic brown with the yellowish superior end, pruinose, cylindrical, and right. Tarsomeres monochromatic brown or black.

**Abdomen.** Sub-rectangular, multicolored yellow and light brown. First and second tergites and all sternite, yellow with the sides of the sternites two to seventh, brown, Dorsally is brown with first and second tergites yellow, opaque, with black hairs, with five ventral and transversal bands on inferior border the tergites two to six, overlap with the following tergites, light brown, pilose, abdomen without spots, with inverse white triangles, as high as the width of the tergites, dorsal, continuous on tergites three to six.

**Genitalia female.** Sternite eighth two times wider than high, with the base as wide as the gonapophyses, flat to convex, weakly sclerotized (considering the strong sclerotization of the gonapophyses), with simple parabasals hairs and abundant long and short hairs. Gonapophyses monolobed, two times wider than high, with scarce long and sclerotized hairs, with the border distal convex, strongly sclerotized, and without neckline or notch (Fig. 13L). Hypoproct strongly sclerotized, lightly wider than high, and moderately pilose on border external and distal. Cerci lightly exposed, sub-circular, as high as wide or higher than wide, with the border distal rounded, strong homogeneous sclerotization, and moderate, sclerotized, and short hairiness (Fig. 13M). Genital furca wider than high, base concave, narrow, with superficial external neckline, with two projections or branches, shorter than width of base, sides parallel. Comb with scarce long thorns and without hairs. Spermathecal strongly capited, with apex pointed and perforation lightly visible. Spermathecal ducts with cup-like expansion, 8 mm of long 10 to 12 times the long at genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 26–28 January 2000.

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** The species S. sp1, S sp2 and S sp3 are very similar to each other. S sp1 is an unique specimen therefore the presented description can be premature. The fumosity of the apical margin of the wing is fainter than in the other 2 species, and it does not present appendix in R<sub>4</sub>, the abdomen is more yellowish, thin and as important characteristic it presents medial triangles on the tergites 2 to 5.

***Stypommisa* sp 2**  
(Fig. 4 E, 13 N-Q)

**Diagnosis.** Small brown species, with eyes unicolor dark green and bare, callus frontal clavate, frons narrow; orange antenna, with wings fumose with a vague small dark cloud in fork R4 and costal margin. With medial and hind femora with the darker base.

***Female***

**Head** length 2.7mm (2.5-3.1 n=8), surface of the vertex concave to plain, without tubercle, black, bare, opaque, without ocelli, if they are present they are not very evident. Eyes blackish green, not iridescent, bare or with microscopic hairs, dispersed over facets size. Frons convergent bellow, black, seven or eight times higher than wide, with thick and short black hairs, golden or pearly pruinose, opaque and with transverse sulcus between frons and subcallus. Frontal index 10.2 (10-11 n=8). Frontal callus longitudinal, strongly visible, slightly elevated, clavate, not touching the Eyes with extension in ridge or in crest shape than not touching the vertex, rough, black or brown, and shiny, (Fig. 4E). Subcallus convex or slightly high, opaque, bare, and with faint golden or orange pruinose layer. Antenna longer or of same length than palpus, monochromatic orange; scape conical, sub-cylindrical, as long as wide, with hirsute hairs, without posterior dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, with hirsute hairs, and with salient dorsal posterior margin cap-like vestige. Consolidated basal plate, trapezoidal, flattened, short, with acute dorsal angle between the base and half of basal plate, pollinose and pilose. Flagellomeres, curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, shorter and of same intensity to the basal plate. Frontoclypeus plane, opaque, orange-yellowish, with chestnut hairs, and orange or golden pruinose; gena broad, black, opaque, pilose, grayish pruinose, and subgena or beard with moderate black and white hairiness. Palpus lightly geniculate and "slender" inflated basally, pointed (Fig. 69 C in Coscarón & Papavero, 1993: 105), oranges-yellow, opaque, and hirsute. Proboscis 2.2mm (1.8-2.4 n=8), does not exceed the high head; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Monochromatic light brown, the borders most yellowish, with fine and very scarce golden hairiness, light brown or orange pruinose layer. Notopleural lobes sub-triangular, pruinose and with black hairiness, humeral lobes inflated or slightly inflated, oval, pruinose, white hairiness. Prealar lobes yellow, shiny with golden and black hairiness. Scutellum brown with clearer borders and the base attached to the blackish scutum, opaque, with black hairiness, and light brown or golden pruinose layer, scutum with one longitudinal and medial band. Pleura brown or oranges, pruinose, and with moderate black and white hairs.

**Wings** length, 9.5mm (9.2-10.5 n=8), light brown or grey, completely fumose, with cloud areas, on the margin apical and on the margin costal, faint light brown cloudiness, without stains. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base faint. R<sub>2+3</sub> right, cells m<sub>3</sub> and r<sub>5</sub> open, cell cup closed and petiolate, brown veins, margin around the cells of same intensity, basal costal cell fumose or translucent. Costa with stain in the portion subapical or fascia brown strongly evident, Basicosta with macrotrichia as dense as on costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Fore and hind coxae yellow with white and black hairs, and whitish pruinose, fore femora totally blackish-brown with moderate black and short hairiness and faint grayish pruinose, medial

and hind femora orange with the basal extreme darker, and with black and white hairs. Fore yellow tibiae with the base black opaque, cylindrical, lightly curved, with scarce black and white hairiness, hind tibiae equal than fore clearer; hind tibiae monochromatic yellow, with long and short black and chestnut hairiness, and right. Tarsomeres black or brown.

**Abdomen.** Sub-rectangular, yellow and reddish, ventrally with whitish pollinosity and with abundant black hairs, opaque, with five dorsal and transversal brown bands, on inferior border the tergite two to six, overlap with the following tergite, abdomen without spots nor triangles.

**Genitalia female.** Eighth sternite two times wider than high, with base as wide as the gonapophyses, flat to convex, weakly sclerotized (considering the strong sclerotization of the gonapophyses); parabasals hairs not bifid, and with abundantly pilosity. Gonapophyses monolobed, with the border distal convex, strongly sclerotized and without neckline or notch, two times wider than high, with scarce long hairiness (Fig. 13N). Hypoproct strongly sclerotized, lightly wider than high, and moderately pilose on borders external and distal. Cerci lightly exposed, sub-circular, as high as wide as or higher than wide, border distal rounded and hind concave, with strong homogeneous sclerotization, and moderate and short hairiness (Fig. 13Ñ). Genital furca wider than high, base concave, narrow, with external neckline superficial, with two projections or branches shorter than width of base, narrow, parallel (Fig. 13O). Comb with scarce long thorns. Spermathecal strongly capited, with the apex pointed, and with perforation not evident (Fig. 13P). Spermathecal ducts with cup-like expansion, length 8 mm 10 to 12 times the long at genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000; Cuñaré-Amú, 14 Females, 19–22 February 2001.

**General distribution.** Neotropics (West of Provincia Amazónica, Colombia: Caquetá).

**Discussion:** Structurally the species *S. sp2* and *S. sp3* are quite similar, but they differ among themselves in color and the size, *S. sp2* is bigger, darker (brown) and it presents traverse dark bands in the abdomen, they also has a very marked appendix in  $R_4$ , in some specimens is long.

### ***Stypommisa sp 3***

(Fig. 4 F-J)

**Diagnosis.** Orange brown of size small species, eyes unicolor green iridescent, with tubercle very reduced and pale yellow ocelli vestige, pruinose with a faint, slender and pale middorsal band. Wings brown totally fumose, with or without appendix in  $R_4$ , however, it can be presented well marked, legs orange yellow, with the fore tibiae bicolor, and the medial and hind tibiae dark in the base. Abdomen ochre or yellowish brown, with transversal bands.

#### ***Female***

**Head** length 3.0 mm (2.0–3.1 n= 20), surface of the vertex concave, with incipient tubercle or not tuberculated, brown, bare, opaque, and with ocelli vestige. Eyes slight green, iridescent, and bare. Frons sub-parallel, brown or black, more wide than high, with very short chestnut hairs, pale yellow or orange pruinose, opaque, and with transverse sulcus between frons and subcallus. Frontal index 5.5 (5.0-6.6 n=20). Frontal callus longitudinal, strongly visible, flat, claved, not touching the Eyes rough or smooth, black or brown, shiny, and with extension in ridge shape or list than not touching the vertex. Subcallus convex or slightly high, opaque, pollinose, and faint orange pruinose layer (Fig. 4G). Antenna shorter or of same length than palpus, multicolored

yellow and brown; scape conical, sub-cylindrical, longer than wide, pollinose, scape and pedicel with with hirsute hairs and dorsal margin in cap-like; pedicel conical, cup-like shape, and wider than long. Consolidated basal plate, monochromatic ochre or yellow, trapezoidal or hexagonal, flattened, short, with acute dorsal angle between the base and half, pollinose and pilose. Flagelomeres cylindrical, curved up, free, with one or two hairs in each flagellomere, of same intensity or darker and with similar length to the height of the basal plate (Fig. 4F). Frontoclypeus plane or convex, opaque, black, mahogany or slightly brown, with black or chestnut hairs longer in the base, and with grayish or orange pruinose; gena broad, blackish brown, opaque, with chestnut hairs, and grayish pruinose, subgena or beard pilose, with moderate, black, white and chestnut hairiness. Palpus geniculate or thin, not inflated, curved toward the base, pale-yellow, opaque, hirsute and in the base fine golden hairs. Proboscis 2.6 mm of length (2.2–3.1 n=20) exceeding the high head; theca opaque, pilose, labella partially sclerotized or membranous, opaque, longer than half of the proboscis, partially pilose, and oval.

**Mesonotum.** Bicolor or multicolored brown to reddish or orange, with white or black hairiness, and slender light brown pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, pollinose, with black hairiness and pruinose; humeral lobes slightly inflated, oval, pruinose, with white and golden hairs, and clearer than the scutum; prealar lobes chestnut or light brown, with chestnut or black hairs, and opaque. Scutellum shiny, brown, with orange to the border, with thick black hairs, and light brown pruinose. Scutum with one pale, very slender longitudinal band. Pleura brown to oranges, pollinose with moderate, fine and thin chestnut hairs.

**Wings** length, 9.5 mm (9.0-9.8 n=20) grey, completely fumose, with light brown cloud areas on the single over crossveins R<sub>4</sub>. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, with or without appendix, if present is shorter than segment than subtend the fork of vein R<sub>4</sub>, and with cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells darker than tone of cells, basal costal cell fumose or translucent. Costa with stain in the portion subapical or fascia strongly evident. Basicosta with macrotrichia less dense than in the costa, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

**Legs.** Fore and hind coxa monochromatic yellow, with white, black and chestnut hairs. Fore femora monochromatic brown, with black and white hairiness, and light brown pruinose. Medial and hind femora yellow to orange, with black and chestnut hairs. Fore tibiae multicolored, pale yellow or ochre, and blackish-brown, shiny, cylindrical, lightly curved, and with scarce black and chestnut hairs, mesotibiae and metatibiae yellow to oranges or brown, with array of black to chestnut hairs and right. Mesotarsi yellow and brown, protarsi and metatarsi monochromatic blackish-brown.

**Abdomen.** Narrow, sub-rectangular or sub-triangular, multicolored, ochre and light brown, with the tergites five to seven darker brown, with a light ochre between tergites the five and six, with black and chestnut hairs, opaque, with five dorsal and transversal bands, on inferior border the tergites two to five, printed in the tegument, brown or light brown, and pilose.

**Genitalia female.** Eighth sternite wider than high, base as wide as the gonapophyses, flat, strongly sclerotized forming bands; parabasals hairs absent, abundant long and short hairiness. Gonapophyses monolobed, with the border distal convex and without neckline or notch, two times wider than high, scarce, long and short hairiness, with notoriously homogeneous sclerotization more sclerotized that the eighth sternite (Fig. 4H). Hypoproct weakly sclerotized, twice wider than high, moderately pilose on borders external and distal. Cerci lightly exposed, sub-trapezium, lightly wider than high, border distal truncated and hind border flat, homogeneous sclerotization, and with abundant short or long hairs (Fig. 4I). Genital furca wider

than high, base concave, wide, with external neckline deep, with two projections or branches shorter than width of base of the furca, sides peaked or wide or globose, divergent basally, without the border distal of branches of arisen genital furca laterally (Fig. 4J). Comb with long and abundant thorns. Spermathecal weakly capited, with the blunt apical extreme, not perforated. Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex, and two to five times the long furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 97 Females, 24–27 January 2000, 54 Females, 26–28 January 2000, 69 Females, 1–4 February 2000; Río Sararamano, 37 Females, 7–11 April 2000, 33 Females, 9–13 April 2000, 7 Females. 11–15 April 2000; Puerto Abeja, 2 Females, 29 October–12 November 2000; Cuñaré-Amú. 1 Female, 14–17 February 2001, 1 Female. 19–22 February 2001, 42 Females, 7–10 March 2001, 30 Females, 23–26 March 2001, 16 Females 28 March–3 April 2001.

**General distribution.** Neotropics (West of Provincia Amazónica Colombia: Caquetá).

**Discussion:** Very similar to the 2 previous species, but *Stypommisa* sp3, differs by to be smaller species with the orange-yellowish abdomen and they can or not to have a short appendix in R4. The species *S.* sp 2 and *S.* sp3 were analyzed for J. Burger who suggests that they can be new species.

### **Genus *Chlorotabanus* Lutz**

This genus is easily recognized by its pale coloration, frontal callus absent. Basal plate of antennal flagellum broad with obtuse angle. Labella of proboscis wholly sclerotized. Pale-yellowish or greenish unicolor stout flies with wing hyaline or with small discrete black spots, basicosta pollinose. Legs without spurs. Female: cerci sub circularly shaped, sternite 8 al base wider than gonapophyses. Genital furca with projections below (Coscarón & Papavero 1993).

#### ***Chlorotabanus inanis* (Fabricius)**

(Fig. 5 A-C)

*Tabanus inanis* Fabricius, 1787: 356, 1794: 4, 368.

*Chlorotabanus inanis* Fairchild, 1940: 11(3):714-715, Fig. 1; Philip and Fairchild 1956: 49 (4): 316-317, Fig 1, Syn.; Goodewin and Murdoch, 1974: 67(1): 102, Fig. 13, 25; Wilkerson, 1979: 8 (31-32): 239.

**Diagnosis.** A medium sized yellowish brown species, with hyaline unmarked wings and wholly pale haired tibiae, unicolors eyes without tubercle or ocelli.

#### **Female**

**Head** length 3.8 (3.6-4.0 n=12) mm; vertex pale yellow, bare, and opaque. Eyes purple to reddish, not iridescent, bare, without bands, spot or drawing. Frons sub-parallel, pale yellow, higher than wide, pilose, with pale yellow pruinose, opaque, and with transverse sulcus between frons and subcallus; frontal index 6.2 (5.5–8.0 n= 12). Frontal callus absent, lightly lengthened, in sulcus shape. Subcallus convex or slightly high, opaque, bare, and with pale yellow pruinose.

Antenna as long as the palpus, monochromatic yellow. Scape conical, sub-cylindrical, as long as wide, with golden, fine and very short hairs, without posterior dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, not hirsute hairs, and with cap-like. Consolidated basal plate, pale, hexagonal, flattened, short less than two times the scape and the pedicel together, with right dorsal angle among the base and half of basal plate; pollinose, pilose, and wider than flagellomeres. With four flagellomeres, the apical seems to be fused with the fifth, sub-lobulatted, free, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus convex, opaque, yellow, with lengthy yellow and golden hairs, and pale yellow pruinose; gena broad, pale yellow, opaque, with golden scarce oculogenals hairs, pale yellow pruinose, with abundant pale yellow or golden hairiness. Palpus geniculate or "slender" inflated basally, curved toward the base pointed, pale-yellow, shiny, and with golden and short hairs. Proboscis 2.6 (2.3-3.0 n=12) mm of length than does not exceed the high head, theca shiny, chestnut and short, brown labella totally sclerotized, shiny, less long than half of proboscis (1/3 long of the proboscis), partially pilose, and clavated.

**Mesonotum** bicolor or multicolored pale yellow and brown, with yellow hairs, thick, pale yellow pruinose layer over all the mesonotum the lobes including, and without thoracic triangles. Notopleural lobes lighted than scutum, sub-triangular, with long and abundant yellow hairiness in the border, humeral lobes flat, oval, pruinose, with white hairs, and clearer than scutum; prealar lobes yellow, pruinose, with golden hairiness, and opaque. Scutellum pale yellow, darker than mesonotum, opaque, with yellow and golden hairiness, in the inferior face. Scutum without setae, with one thin longitudinal band, with low evident, irregular light brown to black stains, on upper and inferior scutum (in dry). Pleura yellow, abundantly pilose and pruinose.

**Wings** length 11.2 (10.8-12 n=12) mm, translucent yellow. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, without cloudiness on base. R<sub>2+3</sub> lightly curved, cell m<sub>3</sub> and r<sub>5</sub> open, veins yellow, with the darkened crossveins, cell basal costal fumose or translucent, yellowish, Costa with stain in the portion subapical or fascia strongly evident, Subcosta and vein R<sub>1</sub> with macrotrichia, absent in A<sub>1</sub>.

All Legs totally yellow or almost orange, except the fore coxae than is brown, with moderate to scarce yellow or golden hairs, hind femora with pale yellow, fore tibiae shiny, flattened, lightly curved, and hind tibiae cylindrical, and right.

**Abdomen** pale yellow, with the base not constrained, sub-triangular, with yellow hairs and black hairs to the sides, mainly toward the genitalia, opaque, abdomen without bands, spots nor triangles.

**Genitalia, female:** Sternite eighth wider than high, is base 1.5 or wider 2 times than gonapophyses, concave, weakly sclerotized or without sclerotization, parabasals hairs not bifid, with abundant, long and short hairiness (Fig. 5A). Gonapophyses bilobed, concave border distal without neckline or notch, two times wider than high, with moderate, long and translucent hairiness, and with homogeneous sclerotization. Ninth and tenth tergite divided, reserved inside the seventh. Cerci not exposed, sub-triangular, lightly wider than high or as high as wide, distally pointed with border rounded, hind border flat, with homogeneous sclerotization, and moderate, translucent and short hairiness (Fig. 5B). Genital furca wider than high, with the base concave, wide, with external neckline, superficial, with two projections or branches, shorter, with the sides acuminate, wide or globose, divergent, with the border distal of branches of lifted genital furca laterally (Fig. 5C). Comb with long, scarce thorns and scarcely pilose. Spermathecal strongly capited, with extreme apical blunt, with perforation evident, with numerous or abundant pores.

Spermathecal ducts with cup-like expansion, length ducts 2.8 mm long, of two to five times the long furca and of different diameter in the ends.

**Material examined:** Colombia: Meta, Pto Lopez, vereda Menegue, 280m, 1 Female, 12 April 1984 (ICN); Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000; Río Sararamano, 12 Females, 7–11 April 2000, 3 Females, 14–17 April 2000; Río Cuñaré, 8 Females, 5–9 November 2000, 3 Females. 10–14 November 2000; Cuñaré-Amú, 1 Female, 14–17 February 2001, 1 Female, 23 February–26 March 2001, 1 Female, 7–10 March 2001.

**General distribution:** Neotropics (Mexico to South of Peru and Brazil. Puerto Rico, Venezuela, Guyana, Colombia: Antioquia, Caquetá, Meta and Putumayo)

**Discussion:** In this study, alone three species of *Chlorotabanus* were collected, the presented description of *C. inanis* this supported by specimens revised by J. Burger for the Institute von Humboldt, the specimens that we observe are completely yellowish, with hyaline wings, yellow veins and without stains

### ***Chlorotabanus* sp 1**

(Fig. 5 D-G)

**Diagnosis.** This species is very similar to *C. inanis* but coloration is more orange and scutum with bands.

#### ***Female***

**Head** length 3.7(3.5-4.0 n=9) mm, vertex pale yellow, bare, and opaque. Eyes dichoptic, unicolor, reddish to purple, not iridescent, and bare. Frons sub-parallel, pale yellow, higher than wide, pilose, pruinose pale yellow, opaque, with transverse sulcus between frons and subcallus, frontal index 5.2(4.4-6.0 n=9). Frontal callus absent or in sulcus shape, golden pollinose, lengthened but not exceed the half of the frons. Subcallus convex or slightly high, opaque, with yellow hairs in the borders, and pale yellow pruinose. Antenna shorter than palpus, or of same length, monochromatic yellow. Scape conical, sub-cylindrical, as long as wide, with yellow hairs, and without posterior dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, with short and fine yellow hairs, with salient dorsal posterior margin cap-like. Consolidated basal plate hexagonal, flattened, short, with right dorsal angle among the base and half of basal plate, pollinose and pilose, wider than flagellomeres. Flagellomeres, curved up, free, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus convex, opaque, faint yellow to orange, with short yellow hairs, and pale yellow pruinose; gena broad, orange-yellow, opaque, pilose and with pale yellow pruinose; subgena with moderate white hairs. Palpus geniculate, or "slender" inflated basally, curved toward the base, pale-yellow, opaque, pilose. Proboscis 2.6(2.3-3.0 n=9) mm long, does not exceed the high head, theca shiny, pilose, labella totally sclerotized, shiny, less long than half of proboscis (occupies 1/3 of the proboscis), bare, and clavated.

**Mesonotum** yellow, with very short yellow hairiness, pale yellow pruinose and without thoracic triangles. Notopleural lobes of same tonality to the scutum, sub-triangular, with yellow hairs in the border, humeral lobes triangular, pruinose, and with white to golden hairs; prealar lobes yellow, pruinose, yellow hairs, and opaque. Scutellum pale yellow, paler than mesonotum, opaque, with yellow and chestnut-colored hairiness, with a thick of pale yellow pruinose layer.

Scutum and scutellum without setae, without bands, without stains. Pleura yellow, with abundant hairiness.

**Wings** length, 11(11-12 n=9) mm, yellow, completely fumose, with blackish clouded areas over the axillary cell. Vein R<sub>4</sub> broadly separated from r<sub>5</sub>, without appendix nor cloudiness in base. R<sub>2+3</sub> markedly curved, cell m<sub>3</sub> and r<sub>5</sub> open, with orange veins and brown crossveins, cell basal costal fumose or translucent, yellow, costa with stain in the portion subapical or fascia vestigial, Basicosta pollinose or with scarce macrotrichia, Subcosta and vein R<sub>1</sub> with macrotrichia, in A<sub>1</sub> absent.

**Legs.** Generally yellowish to orange with golden or yellow hairs; fore tibiae monochromatic yellow to oranges, shiny, cylindrical, lightly curved, with scarce hairiness, hind tibiae with moderately long golden hairs and black hairs in the base, cylindrical, and right.

**Abdomen.** With the base not constrained, robust, sub-triangular, dark-yellow, with black and yellow hairs, opaque, abdomen without bands, spots neither triangles.

**Genitalia, female.** Sternite eighth wider than high, is base wider than gonapophyses, parabasals hairs not bifid. Gonapophyses monolobed, with plane border distal without neckline or notch, two times wider than high, with heterogeneous sclerotization (Fig. 5D). Ninth and tenth tergite divided, reserved inside the seventh. Hypoproc strongly sclerotized, twice wider than high, scarcely pilose over external and distal border (Fig. 5G). Cerci not exposed, sub-circular, as high as wide, with the border distal rounded, and homogeneous sclerotization (Fig. 5E). Genital furca short, as wide as high, base concave, narrow, with external neckline deep, with two projections or branches, as long as the width of genital furca, sides there are not branches peaked and narrow, divergent basally, with the border distal of branches lifted of furca laterally (Fig. 5F). Comb with long and dense thorns. Spermathecal strongly capited, not perforated. Spermathecal ducts with cup-like expansion, length 1.6 mm, two to five times the long genital furca, and with similar diameter in the base toward the apex,

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 3 Females, 11–15 April 2000, Malaise, 6 Females 7–11 April 2000.

**General distribution:** Neotropics (West of Provincia Amazónica, Colombia: Caquetá)

**Discussion:** Very similar to the other 2 species, but *C. sp1*, differs mainly by their coloration dark-yellow and not pale yellow as *C. inanis*, their wings are lightly smokier and it presents augmented and darkened the crossveins, the genitalia is very similar to that of *C. inanis* but the gonapophyses it is more lengthened.

### ***Chlorotabanus sp 2***

(Fig. 13 Q-R)

**Diagnosis.** Dark reddish-orange species, with fascia faint or absent, with unicolor eyes; frontal callus often absent or sulcus shape.

#### ***Female***

**Head** length 4.44 mm (3.8–4.8 n=6); vertex concave, orange, and bare. Eyes reddish or coppery, not iridescent and bare. Frons sub-parallel, orange, seven or eight times higher than wide, bare, with pale yellow pruinose, opaque, and with transverse sulcus between frons and subcallus; frontal index 8.7 (7.5-10 n=6). Frontal callus absent or in sulcus shape. Subcallus flat, opaque, bare and with pale yellow pruinose. Antenna longer than palpus, pale yellow. Scape conical, as long as wide, with pale yellow hairs, without posterior dorsal margin in cap-like; pedicel conical, cup-

like shape, wider than long, and with salient dorsal posterior margin cap-like. Consolidated basal plate, yellow or orange, trapezoidal, flattened, short, with right or acute dorsal angle strongly marked among the base and half of basal plate, flagellum pollinose and pilose, wider than flagellomeres. With three flagellomeres, the third and four or apical fused partially, curved up, cylindrical, pollinose, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus plane, or convex, opaque, yellow, with pale yellow hairs, and pale yellow pruinose; gena broad, yellow, opaque, pilose, pale yellow pruinose, subgena with moderate pale yellow and golden hairiness. Palpus geniculate and thin, not inflated, curved toward the base, pale-yellow, opaque, pilose, with hirsute and golden hairs. Proboscis 3.0(2.8-3.1 n=6) mm long, does not exceed the high head, theca shiny, bare, labella totally sclerotized, with shiny areas, less long than half of proboscis (1/3), partially pilose, and clavated.

**Mesonotum** orange with yellow lobes, with dense yellow hairiness, fine grayish or pearly pruinose layer. Notopleural lobes lighted than scutum, sub-triangular, and with abundant, white and golden hairiness; humeral lobes oval, with white or golden hair, clearer than scutum; prealar lobes oranges, shiny, and with tufts of white hairs. Scutum and scutellum without bands, nor stain. Scutellum yellow, paler than mesonotum, shiny, whitish pruinose, and with long and abundant yellow and golden hairs, curved over the inferior border on first tergite. Pleura oranges, pruinose and moderately pilose (white hairs and pruinose fine whitish).

**Wings** length, 13 (12.5-13.6 n=6) mm, yellow, completely fumose with areas hyaline on cells radial or marginal (between r<sub>1</sub> and br). Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, and without appendix or vestige. R<sub>2+3</sub> lightly curved, cell m<sub>3</sub> and r<sub>5</sub> open, cell cup closed and petiolate, veins yellow with the crossveins slightly more thick and dark, cell basal costal fumose or translucent, yellow, Costa with stain in the portion subapical or fascia vestigial yellow, Subcosta and vein R<sub>1</sub> with macrotrichia, absent in A<sub>1</sub>.

**Legs** fore coxae monochromatic brown, the rest of the legs, yellow with golden hairiness, and in some cases white. Fore tibiae shiny, cylindrical, lightly curved, with scarce hairiness; hind tibiae with black and chestnut hairiness, cylindrical, and right.

**Abdomen**, base not constrained, sub-triangular, robust, monochromatic yellow to orange, with black and golden hairs, opaque, without bands, spots neither triangles.

**Genitalia, female**, Sternite eighth wider than high, base 1.5 or wider two times than gonapophyses, concave, weakly sclerotized, parabasals hairs not bifid, with long and moderate hairiness. Gonapophyses bilobed, with the concave border distal, without neckline or notch, two times wider than high, moderate translucent and short hairiness, border distal strongly sclerotized more than body (Fig. 13 Q). Hypoproct strongly sclerotized, twice wider than high, scarcely pilose on distal border. Cerci exposed, sub-trapezium, notably wider than high, border distal rounded and hind flat, with weak homogeneous sclerotization, and with scarce translucent and short hairiness (Fig. 13R). Genital furca wider than high, with base concave, wide, short, with deep external neckline, with two projections or branches, shorter than width of base of genital furca, sides there are not branches narrow, divergent basally, with the border distal of branches of lifted furca laterally. Comb with long abundant thorns and scarcely pilose. Spermathecal weakly capited, perforation evident, with numerous or abundant pores. Spermathecal ducts with cup-like expansion, length two mm of length of two to five times the long genital furca, and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano.2 Female, 7–11 April 2000; Cuñaré-Amú, 1 Female, 19–22 April 2001, 1 Female, 7–10 March 2001, 1 Female, 28 March-3 April 2001; Río Cuñaré, 1 Female, 10–14 November 2000.

**Discussion:** There is not a marked difference among this species (*C. sp2*) and *C. Inanis* and *C. sp1*, the specimens are of more size and more orange than the other species, seems to have only three fused flagellomeres the third and the fourth, also presents some differences in the shape of the antenna, and their wings are similar to those of *C. sp1* but hyaline.

### **Genus *Cryptotylus* Lutz**

*Cryptotylus* can be recognized by its frontal callus reduced to a short, narrow ridge small streak, or virtually absent. Wing glass clear to fumose, the costal cell yellowish. Yellow, greenish, or brown unicolors flies, the legs unicolor, the body without contrasting hair patterns. It differs from the similar *Chlorotabanus* (Lutz) in having antennae with a strong dorsal tooth or spine and with robust basal plate. Female: genital furca with acuminate branches basally; sternite8 with base approximately as wide as gonapophyses, and cerci subcircular. (Coscarón & Papavero 1993)

### ***Cryptotylus unicolor* (Wiederman)**

*Tabanus unicolor* Wiedemann, 1828: 1:141.

*Cryptotylus unicolor* Fairchild, 1940: 11 (3): 719-720, Fig. 4; Wilkerson, 1979: 8 (31-32): 315-316; Tiape Gomez, Velazquez & Gorayeb. 2004: 19(1): 61.

*Chlorotabanus (Cryptotylus) unicolor* Philip & Fairchild, 1956: 49 (4): 318-320, Syn.

**Diagnosis.** Medium to large, robust, yellowish-orange species, eyes unicolor coppery, basal plate of the third antennal segment broad and angle below, legs unicolor yellowish orange and wings vaguely yellowish hyaline.

### ***Female***

**Head.** Length 3.1 (3.0-3.2 n=2) mm, surface of the vertex weakly concave, of orange color, without spots nor tubercle, bare or hirsute hairiness, opaque, without ocelli. Eyes not iridescent, bare, without bands and without spot or drawing. Frons orange, three times higher than wide, parallel sided or slightly convergent below, bare or with black very fine hairs, golden pruinose or orange pruinose layer, opaque, with transverse sulcus between frons and subcallus, and frontal index 2.9 (2.7-3.1 n=2). Frontal callus absent or very reduced like a crest. Subcallus flat, opaque, bare, with golden or tenuous orange pruinose layer. Antenna shorter or of same length than palpus, monochromatic orange; scape conical, sub-cylindrical, wider than long, with golden hairs, scape without posterior dorsal margin in cap-like, pedicel conical, cup-like shape, wider than long, with salient dorsal posterior margin cap-like; consolidated basal plate, monochromatic orange (robust Fig. 61 C, Coscarón & Papavero 1993), with short projection and with four flagellomeres, curved up and cylindrical, free and short. Frontoclypeus plane, opaque, of orange color, pollinose, with golden hairs and orange or golden pruinose layer. Gena broad, opaque, with orange pruinose layer, pollinose, and pilose. Subgena or beard with moderate, chestnut or golden hairiness. Palpus geniculate, slightly inflated, finished in tip, curved toward the base, orange-yellow of color, shiny, with chestnut or golden, very low in the tip hairs. Proboscis 2.3 mm of

length (2.2–2.3 n=2), does not exceed the high head; theca shiny, pilose, labella totally sclerotized, shiny, less long than half of the proboscis (1/3), partially pilose and clavated.

**Mesonotum** monochromatic orange to reddish, with golden hairiness and with orange or golden pruite, mainly on the lobes. Notopleural lobes lighted than the scutum, sub-triangular, all lobes with long golden hairiness, pronotal lobes slightly inflated, oval, clearer than the scutum, prealar lobes oranges, opaque. Scutellum orange of same intensity than the mesonotum, opaque, with golden hairiness and orange pruite layer, with pleura oranges with abundant golden hairiness.

**Wings** with an average 11.5 mm long (11–12 n=2), yellow or crystalline, totally hyaline. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix nor cloudiness on base; R<sub>2+3</sub> lightly curved; cell m<sub>3</sub> and r<sub>5</sub> open, cell cup closed, yellow veins with the margin around the cells of same intensity. Basal costal cell yellowish fumose or translucent, Costa with stain in the portion subapical or fascia vestigial, yellowish; Basicosta pollinose, Subcosta and veins R<sub>1</sub> with macrotrichia absent in A<sub>1</sub>. With white halteres.

**Legs.** All yellow to orange, with the fore coxae slightly brown to oranges, with long golden hairiness; fore tibiae shiny, cylindrical, lightly curved and hind tibiae cylindrical, right and slender.

**Abdomen.** With the base not constrained, lengthened and sub-rectangular pointed, monochromatic totally yellow to orange, with very fine black and golden hairs and shiny, without bands, spots neither triangles.

**Genitalia, female.** Cerci exposed.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Cuñaré, 2 Females 5–9 November 2000.

**General Distribution.** Neotropics (Panamá, to Brazil: Mato Grosso; Peru, Paraguay, Argentina: Chaco; Colombia: Caldas, Caquetá, Choco and Meta).

**Discussion:** Very similar to the genus *Chlorotabanus*, however the basal plate antenal is robust with a long projection with curved apex, the very short flagelomeres, and the wide frons, the hyaline wings of thin veins without any type of stains or enlargement, and the abdomen is thinner and lengthened.

## Genus *Dichelacera* Macquart

Members of *Dichelacera* are generally small and slender with bright body markings and a dark wing pattern. The callus is usually as wide as the frons, the labella usually sclerotized. Eyes with one or more transverse bands except in *D. (D.) ochracea* (Hine). Antenna not usually long, the scape noticeably shorter than basal plate of flagellum; dorsal projection of flagellum short to very long; free flagellomeres not unusually hirsute, rarely longer than basal plate, slender. Labella of proboscis wholly sclerotized and shining. Scutellum nearly always darker than adjoining mesonotum, the latter usually transversely banded. Wing with a diagonal dark fascia from apex to fifth posterior cell. Abdomen slightly, if at all, constricted. Female cerci long than wide (Wilkerson 1979; Coscarón & Papavero 1993).

### *Dichelacera (Dichelacera) chocoensis* Fairchild & Philip

(Fig. 5 H-K)

*Dichelacera chocoensis* Fairchild & Philip, 1960: 3 (1-4): 26, pl. 2, Fig. 8, pl. 8, Fig. 8; Wilkerson, 1979: 8 (31-32): 249, Fig. 68.

**Diagnosis.** A small to medium yellow species usually with a brownish scutellum and band interalar, most examples with yellow haired bands on tergites 1-4, yellowish legs with dark metatibiae, and brown wing fascia (Wilkerson 1979).

#### *Female*

**Head.** Length 2.56 (2.5-2.8 n=4) mm, surface of the vertex lightly concave, with tiny and black spots, incipient tubercle, brown, bare, opaque and with ocelli vestige. Eyes dichoptic, blackish green, not iridescent, with microscopic hairs, dispersed over the whole ocular area, with Idiagonal, medial and purple stripe, without spot or drawing. Frons sub-parallel, brown 3 times higher than wide, bare or with very scarce white hairs, pale yellow or golden pruinose layer, opaque, with small laterals groove but and with transverse sulcus between frons and subcallus; frontal index 4 (3.8-4.2 n=4). Frontal callus strongly visible, globose (or elevated), sub-square, touching eyes with extension in ridge shape or list, does not touch the vertex, smooth, orange-brown and shiny. Subcallus flat, with shiny areas or bare for the expense, bare and with pale yellow pruinose layer. Antenna longer than palpus, multicolored yellow and brown, scape conical, sub-cylindrical, longer than wide, with hirsute chestnut and golden hairs, without dorsal posterior margin in cap-like, pedicel conical, cup-like shape, wider than long, with hirsute hairs and with salient dorsal posterior margin cap-like. Basal plate consolidated, bicolor brown and yellow, rectangular, or cylindrical, slightly inflated, lightly elongated or lengthened, pollinose and pilose, as wide as flagellomeres, with one tooth curved in their part apical, pilose, longer than basal plate surpasses to the first flagellomere. Flagellomeres cylindrical and curved up, free, without projections, pollinose and with one or two hairs in each one, darker than basal plate and longer than high of the basal plate. Frontoclypeus globose, opaque, yellow, with golden and chestnut hairs, pale yellow pruinose layer; gena broad, yellow, opaque, pilose, thick, with pale yellow pruinose layer; subgena or beard pilose, with abundant yellow or golden hairiness. Palpus thin not inflated, cylindrical, lightly curved toward the base, of pale-yellow color, opaque, and with golden hairs not hirsute. Proboscis two mm of length (n=4), does not exceed the high head, theca

opaque, pilose, labella partially sclerotized, with shiny areas, less long than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored ochre and dark brown, with golden hairiness on the previous scutum and borders of the later. Scutum pruinose with a brown band on the inferior part of the posterior scutum and a band of pearly and pale yellow pruinose in all the lobes. Notopleural lobes lighted than the scutum, sub-triangular, pruinose and with long and golden hairiness; humeral or pronotal lobes slightly inflated, oval, pruinose, with golden hairiness and clearer than the scutum; prealar lobes yellow, with dense yellow hairiness and pruinose, opaque. Scutellum brown of same intensity than the mesonotum, opaque, light brown pruinose layer and without bands nor stain. Pleura yellow, abundant golden hairiness.

**Wings.** Length 9.25 (9.0-9.5 n=4) mm yellow or light brown, with hyaline areas on discal, anal, basal and marginal cells (Fig. 65 Wilkerson 1979); with fumose-grayish or dark brown clouded areas on the margin apical, happening by R<sub>4</sub> without including the fork, it surpasses the 1/2 of R<sub>5</sub> happening by the apex of the cell discal, reaching the fifth later cell and half of the anal cell. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix nor cloudiness on base; R<sub>2+3</sub> right, cells m<sub>3</sub> and r<sub>5</sub> open, yellow veins with margin around the cells of same intensity; basal costal cell brown clouded, Costa with stain in the portion subapical or fascia vestigial, basicosta pollinose, Subcosta and veins R<sub>1</sub> with macrotrichia and A1 without macrotrichia.

**Legs.** Fore coxae monochromatic ochre or oranges, fore femora Monochromatic yellow, with long array golden hairiness, fore tibiae multicolored, beige and brown, shiny, cylindrical, lightly curved, and with scarce yellow hairiness. Medial femora and tibiae, monochromatic yellow, with golden hairs. Hind coxa monochromatic ochre, with golden hairs and pale yellow pruinose, hind femora Monochromatic yellow, with chestnut and golden hairiness; hind tibiae Monochromatic brown, with black and chestnut hairiness, light brown pruinose, cylindrical and right. Tarsomeres brown to blackish-brown.

**Abdomen.** With the base not constrained, of shape lengthened and sub-triangular, yellow and dark brown. Ventrally yellow totally without bands nor stains, with black hairs, opaque, with four brown, dorsal and transversal bands on upper border and printed in the tegument on tergites two to five leaving the inferior border of these clearer tergites, abdomen without spots neither triangles.

**Genitalia, female.** Sternite eighth wider than high, with the base wider or as wide as the gonapophyses, concave, strongly sclerotized forming bands, parbasals hairs presents, not bifid or undivided, with abundant, long and short hairiness (Fig. 5H). Gonapophyses bilobed, border distal concave without neckline or notch, two times wider than high, with abundant and long hairiness, non sclerotized (translucent) and with homogeneous sclerotization. Ninth and tenth tergites divided, reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high, abundantly pilose on external border, border distal and implanted toward the base (Fig. 5J). Cerci lightly exposed, sub-triangular, higher than wide, with distal projection or border distal acute, hind border concave, with heterogeneous sclerotization, with moderate to scarce and short hairiness (Fig. 5I). Genital furca as wide as high, base concave, wide, without external neckline nor projections or branches in the base; sides peaked and lightly divergent basally (Fig. 5K). Comb with long, abundant or dense thorns and with scarcely pilose. Spermathecal non-capited, with the extreme apical pointed, with perforation not very evident (lightly visible), with scarce porosity. Spermathecal ducts with cup-like expansion, caudal spermathecal ducts with five mm long, with similar diameter in the base toward the apex and of six to nine times the long genital furca.

**Material examined:** Colombia: Río Escarlareta, 100m, 5 Females, July 1954; Cauca, Río Micay Lopez, 1 Female, 19 August 1977; Valle del Cauca, Restrepo, Campamento Río Azul, 500m, 1 Female, 7 February 1984, Restrepo, road Río Bravo-Río Azul, 900m, 1 Female, 9 February 1984, (ICN); Caquetá P.N.N. Chiribiquete, Río Sararamano, 1 Females, 9–13 April 2000 480, 1 Female, 7–11 April 2000; Cuñaré Amú, 3 Females, 7–10 March 2001, 1 Females, 28 March–3 April 2001.

**General distribution.** Neotropics Colombia (Choco, Cauca, Antioquia, Valle, Provincia Pacífica and Amazónica, Caquetá, Valle del Cauca).

**Discussion:** The analyzed material corresponds with the description presented by Wilkerson (1979), the same as in its work; we observe variability in the tonality of the fascia in some specimens and also a minimum difference the shape of the genital furca.

### ***Dichelacera (Dichelacera) fasciata* Walker**

(Fig. 5 L-Ñ)

*Dichelacera fasciata* Walker, 1850: 1: 68; Fairchild & Philip, 1960: 3 (1-4): 32-33, pl. 3, Fig 9; Wilkerson, 1979: 8 (31-32): 251-253, Fig. 63.

**Diagnosis.** A small to medium dark brown species with pale yellow and white markings above and wholly pale yellow below. Palpus long and thread-like, legs bicolored, wings with irregular step like dark fascia and abdomen with completely pale first tergite and narrow pale bands on tergites three and four (Wilkerson 1979).

#### ***Female***

**Head.** Length 2.2 mm (2.0-2.5 n=10), surface of the vertex concave, without spots, incipient tubercle circular, black or brown, bare, opaque, without ocelli or vestige. Eyes of olive or blackish green color, not iridescent, with microscopic hairs dispersed over the whole ocular area and with 1 diagonal and medial, purple stripe. Frons lightly divergent below or sub-parallel, brown or black, two or three times higher than wide, with scarce, very fine and short white hairs, with golden or pearly pruinous layer, opaque, without protuberance and with transverse sulcus between frons and subcallus, frontal index 4.05 (3.6-4.2 n=10). Frontal callus strongly visible, globose, sub-square, touch the eyes, with a extension small in crest shape and with golden pruinous to the sides and in the union with the callus, does not touch the vertex, mahogany-brown, shiny. Subcallus flat, with shiny areas or bare for the expense, pale yellow or golden pruinous layer. Antenna of same length than palpus, multicolored yellow to light brown and black; scape rectangular, sub-cylindrical, longer than wide, with hirsute hairs, without dorsal posterior margin in cap-like, pedicel circulate, as a annuli, wider than long, with hirsute hairs and with salient dorsal posterior margin cap-like (vestige). Basal plate consolidated, bicolor ochre and brown, cylindrical or rectangular, slightly inflated, elongated or lengthened almost twice the scape and the pedicel together, pollinose and pilose, as wide as flagellomeres; with dorsal tooth without bend apical, pilose and shorter than basal plate; with 4 flagellomeres, sub-lobulated and curved up, free, pollinose and with one or two hairs in each flagellomere, darker than basal plate and similar length to the height of the basal plate. Frontoclypeus opaque, yellow, bare and with pale yellow pruinous layer; gena broad, yellow, opaque with pale yellow pruinous layer; subgena or beard pilose, with abundant yellow or golden hairiness. Palpus thin, not inflated, lightly curved

toward the base (Fig. 55 C, E, P and 59 D, Coscarón & Papavero 1993), pale-yellow, opaque, pilose and with very few black hairs in the tip and yellow not hirsute in the rest. Proboscis 2.2 (2.0-2.3 n=10) mm long, not exceeds or equal the high head, theca shiny, pilose, labella partially sclerotized, with shiny areas, less long than half of the proboscis (1/3), partially pilose and oval.

**Mesonotum.** Bicolor or multicolored light brown with dark brown the posterior part of scutum, with black hairiness on the sides of the dark brown fringe and very scarce golden hairiness on the scutum, with very fine and slender light brown pruinose layer. Notopleural lobes lighter than the scutum, with pale yellow pruinose as in all the lobes and golden hairiness; humeral or pronotal lobes flat, oval, with golden hairiness and clearer than the scutum, prealar lobes brown, with golden or yellow hairiness, opaque. Scutellum brown of same intensity than the mesonotum, opaque, with light brown pruinose layer, scutum without setae, with 1 transversal and medial band of dark brown pruinose, scutellum and scutum without bands, without stain, nor thoracic triangles. Pleura yellow and with moderate golden hairiness.

**Wings.** Length 8.75 (8.5-9.5 n=10) mm, light brown, with areas hyaline in half and the base, over the cells discal, medial, anal and basal occupying along the half (Fig. 63 Wilkerson 1979), with light brown clouded areas, on the crossveins m-cu and r-m. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base, R<sub>2+3</sub> right, cells m<sub>3</sub> and r<sub>5</sub> open, yellow veins with margin around the cells of same intensity (Fig. 19F), basal costal cell clouded, Costa with stain in the portion subapical or fascia strongly evident, Basicosta pollinose. Veins Subcosta and R<sub>1</sub> with macrotrichia, and in A<sub>1</sub> absent.

**Legs.** Fore medial and hind coxae totally yellow, bare or with very scarce golden hairiness, fore femora and fore tibiae bicolor brown and yellow, with moderate black and chestnut-colored hairiness, fore tibiae shiny, cylindrical, and lightly curved; legs medial and Monochromatic yellow, except hind tibiae than is Monochromatic darker brown but not blackish, with array black hairiness, cylindrical and right, the rest with yellow, golden hairs and black hairs that it gives him a dark tone at the mesotibiae. Tarsomeres monochromatic brown to blackish-brown.

**Abdomen.** Base not constrained, sub-rectangular, multicolored beige and dark brown, with very scarce black hairs, opaque, with three dorsal and transversal brown bands, on upper border and printed in the tegument on tergites two-four, leaving the clearest inferior border or of beige color; the band of the second tergite is pale brown and the last tergites are dark with the slightly clearer later borders, but bands do not differ; abdomen without spots nor triangles.

**Genitalia, female.** Sternite eighth wider than high, base more narrow than gonapophyses, flat, weakly sclerotized, with parabasals hairs not bifid, and with moderate, short (they do not surpass the height of the gonapophyses) hairiness. Gonapophyses weakly bilobed, border distal concave without neckline or notch, two times wider than high (Fig. 5L), with scarce and short hairiness, non sclerotized (translucent), homogeneously sclerotized. Ninth and tenth tergite not reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high and scarcely pilose in distal border. Cerci exposed, sub-triangular, higher than wide, with distal projection and the border distal acute, hind border convex, with heterogeneous sclerotization and moderate and long hairiness (Fig. 5M). Genital furca as wide as high (short), base lightly concave or plane, wide, without external neckline and without projections or branches in the base, sides peaked and narrow, divergent basally, with the border distal of branches of lifted genital furca laterally (Fig. 5N). Comb with long, abundant thorns. Spermathecal weakly capited, extreme apical pointed, and not perforated (Fig. 5Ñ), spermathecal ducts with cup-like expansion and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Choco, without the Río San Juan and the Río Baudó, 14 Females 23 November 1976 (ICN); Caquetá, P.N.N. Chiribiquete, Cuñaré Amú, 3 Females, 7–10 March 2001, 1 Female, 19–22 February 2001, 2 Females, 23 February–26 March 2001, Río Mesay, 2 Females, 1–4 February 2000, 2 Females, 26–28 January 2000.

**General distribution.** Neotropics (Provincia Amazónica) Nicaragua to Ecuador; Colombia: Cauca, Caquetá, Choco and Valle del Cauca.

**Discussion:** The description proposed in this work is similar to that of Wilkerson (1979), differences exist in the number of ocular bands and this can be due to the shape as the material was managed (humid in this investigation). Considering the discussion of Wilkerson, the number of captured specimens is low compared with the examined material that it is shown in their work, however present should be had the differences in the sampling.

### **Genus *Catachlorops* Lutz**

This genus includes most of the small to medium species with basicosta smoothly pollinose, without setae. Tubercle at vertex generally distinct and prominent, rarely obsolete. Frons usually narrow, the callus clavate or ridge-like. Antenna slender, the dorsal tooth of the flagellum slender, pointed, rarely shorter than the basal plate of flagellum. Palpus slender to thread-like. Proboscis generally with small compact labella, wholly or partly sclerotized, rarely wholly membranous. Wing nearly patterned, rarely tinged, never wholly clear. All tibiae slender. Female: genital furca without projections basally; bases wider than long (Fairchild 1969, Coscarón & Papaverio 1993)

### ***Catachlorops* (*Catachlorops*) Lutz**

#### ***Catachlorops* (*Catachlorops*) sp 1**

(Fig. 14 A, 19G)

**Diagnosis.** Dark brown, medium size species, eyes unicolor without stripe, spot neither drawing, wings cloudy.

#### ***Female***

**Head.** Length 3.0 mm (n=1). Vertex without spots, brown, with incipient tubercle, setulose and with black and short hairiness; with ocelli vestige on the ocellar tubercle. Frons brown, higher than wide, pilose, with black spot under the ocelli and with transverse sulcus between frons and subcallus. Frontal index 4.6 Frontal callus slightly elevated, oval lightly rounded (sub-circular), does not touch the eyes, with prolongations in crest shape depressed at the base, does not touch the vertex, callus with rough, brown to reddish-mahogany and shiny surface. Subcallus convex or slightly high, with shiny areas or bare, and orange thin pruinous layer. Antenna shorter than palpus, ochre to orange; scape conical, sub-cylindrical, as long as wide, pollinose, black hairs, and with cap-like, pedicel conical, cup-like, wider than long, pollinose and with hirsute hairs, with a dorsal projection in cap-like. Consolidated basal plate ochre, trapezoidal, flattened, narrow, short, pollinose and pilose. With the tooth curved in apex, pilose, longer than basal plate. Flagellomeres, curved up, free, with one or two hairs in each flagellomere, and shorter than the

basal plate (Fig 2B). Frontoclypeus plane, opaque, light brown, pollinose, with chestnut hairs, a light brown pruinose layer in the base. Gena brown, opaque, pilose, and light brown pruinose layer; subgena with moderate chestnut hairiness. Palpus geniculate and thin, not inflated, lightly curved toward the base, brown, pruinose, pollinose and with hirsute hairs. Proboscis 3.0 mm of length. Theca shiny and pilose; labella partially sclerotized with shiny areas, 1/3 of the long of the proboscis and partially pilose.

**Mesonotum.** Bicolor scutum, reddish brown, and yellowish brown scutellum, slightly brown pruinose layer, with black hairiness. Notopleural lobes darker than the scutum (blackish), subtriangular pruinose and with black hairiness. Humeral lobes triangular, with golden hairs, clearer than the scutum. Prealar lobes brown with an array of black ventral hairs and slightly brown pruinose, opaque. Scutellum yellow or brown paler than mesonotum, opaque, bare, with light brown pruinose. Mesonotum without thoracic triangles, without setae, bands or stains. Pleura blackish brown, pruinose and with black abundant hairiness.

**Wings.** Length of 12 mm, light brown, without areas hyaline, partially fumose on margin apical and the base or axillary, including the cells radial, basal and on combined cells, with dark brown clouded areas on the half of the wing. Vein  $R_4$  broadly separated from  $R_5$ , without appendix or cloudiness on base.  $R_{2+3}$  lightly curved, cell  $m_3$  and  $r_5$  open, veins of brown color, cell basal costal fumose or translucent (Fig. 19G). Costa with stain in the portion subapical or fascia vestiges, not very notorious by cloudy. Subcosta, veins  $R_1$  with macrotrichia in  $A_1$  absent.

**Legs.** Blackish-brown or brown with grayish pruinose layer. Fore tibiae shiny, cylindrical, lightly curved, with scarce hairiness. Hind coxa and femora with long black and yellow hairs. Hind tibiae black hairiness, cylindrical, and right.

**Abdomen.** Base not constrained, oval, multicoloured black and dark brown, pruinose and with scarce black and chestnut-colored hair and pruinose layer is thin grayish, opaque, with one band sternal, medial and longitudinal of yellow pruinose in all sternites. Abdomen without spots or triangles.

**Genitalia, female.** Sternite eighth wider than high, with the base as wide as the gonapophyses, flat, strongly sclerotized with moderate, long or short hairiness. Gonapophyses monolobed, with the convex border distal strongly sclerotized and without neckline or notch, two times wider than high, with homogeneous sclerotization and with abundant, and long hairiness. Ninth tergite reserved inside the tergite seventh and tenth not reserved. Hypoproct weakly sclerotized, twice higher than wide, and moderately pilose on the base and distal border. Cerci exposed, subtrapezium, lightly wider than high, with border distal truncated, heterogeneous sclerotization, and scarce and short hairiness (Fig. 14A). Genital furca higher than wide with base concave, narrow, and short, with superficial external neckline, and without projections. Comb with short, scarce thorns. Spermathecal ducts without projections, with cup-like expansion, with similar diameter in the base toward the apex, and more than 12 times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 1–4 February 2000.

**Distribution.** Neotropics (Provincia Amazonica) Colombia: Caquetá.

**Discussion:** The species of this genus present characteristic similar, like are the pattern of stains in the wings and the long tooth in the basal plate. *Catachlorops* sp1 differs clearly of the other ones by its great size, the antenna is orange, contrary to *C. sp2* that is brown almost black, has a stain that occupies almost everything half of the wing, and the coloration of the mesonotum and of the abdomen it is darker

***Catachlorops (Catachlorops) sp 2***  
(Fig. 18 H-I)

**Diagnosis.** Black or blackish-brown, of medium at small size species, eyes without bands, antenna with long tooth and wings black with hyaline apex.

***Female***

**Head.** Length 3.0 mm (3.0 n=3) without spots, with prominent tubercle, brown, bare, with shiny areas, without ocelli. Eyes dichoptic, purple, not iridescent, and bare. Frons brown, convergent toward the base, higher than wide, bare, pruinose light brown or most dark, opaque, with transverse sulcus between frons and subcallus. Frontal index 5.4 (5-5.75 n=3) frontal callus strongly visible, globose in gout shape, with prolongations in crest shape, does not touch the vertex, rough, brown to reddish-mahogany, shiny. Subcallus convex or slightly high, with shiny areas or bared for the expense and with brown pruinose. Antenna as long as the palpus, monochromatic blackish brown, scape conical, sub-cylindrical, longer than wide, with hirsute hairs, with cap-like. Pedicel circulate, cup-like, wider than long, with hirsute hairs and with cap-like. Consolidated basal plate, monochromatic blackish brown, hexagonal, flattened, short, pollinose, as wide as flagellomeres, with one tooth curved in their part apical, pilose, longer than basal plate exceeding the first flagellomere. Flagellomeres, sub-lobulated, free, with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus convex, opaque, brown, with black and chestnut hairs, and with pearly pruinose layer. Gena broad, black, opaque, with black and short hairs, grayish pruinose layer; subgena with moderate white hairiness. Palpus thin, not inflated, lightly curved toward the base, blackish-brown, opaque and with hirsute hairs. Proboscis 2.5 mm of length (2.3-2.8 n= 3), than does not exceed the high head, theca shiny and pilose, labella totally sclerotized, bare, clavated, shiny and short (1/3 of the proboscis).

**Mesonotum.** Monochromatic dark brown almost black lobes, with black hairiness and with black pruinose layer. Notopleural lobes darker than scutum, sub-triangular, with scarce black and longer hairiness, of shape polygonal, with thin and short black hairs and of same tonality to the scutum. Prealar lobes dark brown, with black hairiness, opaque. Scutellum of same intensity than mesonotum, opaque, with black hairiness, light brown pruinose. Mesonotum without thoracic triangles. Scutum without setae neither bands nor stains. Pleura brown, moderate hairiness with arrays of hairs in the union of the anepisternum and the anepimeron and an array of setae or long hairs in the nearer opposed side to the notopleural lobes (Fig. 18I).

**Wings.** Length 12 mm (n=1), black, with areas hyaline on apical margin and on the cell subcostal and in the base of the marginal cell and lightly circular between the crossveins br and cbm, with blackish clouded areas than extends on the margin apical, the half, the base of wing, the border of the veins and on the crossveins. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base. R<sub>2+3</sub> lightly curved, m<sub>3</sub> and r<sub>5</sub> cell open, black veins, margin around the cells of same intensity. Basal costal cell clouded. Costa with stain in the portion subapical or fascia strongly evident, basicosta pollinose. Veins R<sub>1</sub> with macrotrichia in the Subcosta and in A<sub>1</sub> absent.

**Legs.** Monochromatic blackish-brown, pilose. Fore tibiae shiny, cylindrical, lightly curved, and with moderate hairiness. Hind coxa, femora and tibiae with black hairs, tibiae cylindrical and right.

**Abdomen.** Base not constrained, sub-triangular, monochromatic dark brown to black, with black hairs, shiny, without bands, spots or triangles (Fig. 18H).

**Genitalia, female.** Sternite eighth higher than wide (elongated), is base as wide as the gonapophyses. Gonapophyses monolobed, border distal without neckline or notch, two times wider than high, sclerotized, lightly convex distally, with homogeneous sclerotization. Ninth and tenth tergite divided, reserved inside the seventh. Hypoprocto weakly sclerotized, lightly wider than high, scarcely pilose on external border or implanted toward the base. Cerci slightly exposed, sub-ovoid, as high as wide, with distal projection or border distal acuminate, hind border flat, with homogeneous sclerotization. Genital furca short as wide as high, base concave, plane and narrow, with external neckline, superficial (not very deep), without projections or branches in the base. Comb with thorns, short and scarce (spread), without hairs. Spermathecal non-capited neither perforated. Spermathecal ducts with cup-like expansion and caudal spermathecal ducts of different diameter.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female 7–11 April 2000; Río Cuñaré, 1 Female, 10–14 November 2000.

**Distributions.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion:** This species differs of the other species of the subgenus because its wings are completely dark, leaving only the apex hyaline, contrary to *Catachlorops* sp 1, its abdomen is more lengthened and pointed.

### *Catachlorops (Catachlorops) sp 3*

**Diagnosis.** Brown, with scutellum beige or clearer, small species, with eyes unicolors black or dark green, wings hyaline with a dark medial cloud.

#### *Female*

**Head.** Length 2.5 mm. Vertex with spots, incipient tubercle or absent, black, opaque, with ocelli vestige and without setae ocellar. Eyes dichoptic, blackish green or black, not iridescent and bare or with hairs microscopic. Frons sub-parallel, brown to black, higher than wide, pilose and with grayish pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 5.6 (n=1). Frontal callus longitudinal, strongly visible, triangular and elongated, nearly so wide as the frons but does not touches the Eyes with prolongations in crest shape does not touch the vertex, smooth, brown and shiny. Subcallus flat or convex or slightly high, with shiny areas or bare by use and with golden pruinose or light brown. Antenna shorter than palpus, monochromatic brown; scape slightly conical or square, sub-cylindrical, as long as wide, pruinose and with hirsute hairs, pedicel conical, cup-like, wider than long, pruinose and with hirsute hairs, scape and pedicel without dorsal posterior margin cap-like or vestiges. Consolidated basal plate, monochromatic brown hexagonal as hook, flattened, short, pollinose and pilose, wider than flagellomeres, and with tooth without bend apical, pilose, shorter than basal plate. With three flagellomeres, cylindrical, third and the fourth partially fused, without projections; with one or two hairs in each flagellomere, darker and shorter than high of the basal plate. Frontoclypeus brown, plane or convex, opaque, with black hairs and with grayish pruinose layer. Gena broad, blackish brown, opaque and with scarce oculogenals white hairs. Palpus thin, not inflated, elongated, brown, shiny, pilose not hirsute, and white hairs. Proboscis 1.6 mm long, long as half

head and does not exceed the high head, theca shiny, pilose, labella partially sclerotized or membranous, with shiny areas and oval.

**Mesonotum.** Monochromatic brown to reddish, pilose, with grayish pruinous layer attached to the notopleural lobes, without thoracic triangles. Notopleural lobes of same tonality to the scutum, sub-triangular and with long black hairiness. Humeral lobes oval, with very fine white hairs and clearer than scutum. Prealar lobes brown, black hairiness in the borders, opaque. Scutellum light brown to lightly yellow, darker than mesonotum in the base, shiny, bare, with grayish pruinous. Scutum with one black band, longitudinal and medial. Scutellum without bands, without stain. Pleura brown and with moderate white hairiness.

**Wings.** 8.5 mm long, light brown, with areas hyaline on apical margin, on anal cells and apex of the fifth posterior cell, without clouded, with spot on the half including half of the marginal cells, the half apex of the cell discal and the medial cells. Vein  $R_4$  broadly separated from  $R_5$ , without appendix and  $R_{2+3}$  right,  $m_3$  and  $r_5$  cell open, cup cell closed and petiolate, margin around the cells of same intensity at rest of the wing. Basal costal cell slightly brown clouded. Costa with stain in the portion subapical or black fascia strongly evident. Basicosta pollinose, Subcosta and veins  $R_1$  with macrotrichia, in  $A_1$  absent.

**Legs.** Variedly colored, with general black and white hairiness. Fore coxae monochromatic yellow. Fore femora brown and grayish pruinous. Fore tibiae and Mesotibiae multicolored blackish-brown and beige, thin, cylindrical, lightly curved or right. Medial femora, hind coxa, femora and all tarsi monochromatic brown. Hind femora with grayish pruinous. Hind tibiae brown, with grayish pruinous, cylindrical and right.

**Abdomen.** With the base not constrained, monochromatic dark brown, with white hair, ventrally pollinose, shiny; with 6 bands transversals on inferior border of the tergites 2 to 7, of pearly or white pruinous, abdomen without spots, without triangles.

**Genitalia, female.** Sternite eighth wider than high, with base concave, strongly sclerotized forming bands, parbasals hairs simple, and with moderate to scarce, short hairiness.

Gonapophyses monolobed with concave border distal without neckline or notch and strongly sclerotized, two times wider than high, with moderate and long hairiness, with heterogeneous sclerotization, with a clearer area in the center. Cerci exposed. Genital furca as wide as high (short) or slightly wider than high with the base concave, narrow, short, with superficial (not very deep) external neckline, with 2 projections or branches, shorter than width of base, blunt, divergent basally, with the border distal of branches of lifted laterally. Comb with long and scarce thorns, (spread). Spermathecal weakly capited with extreme apical blunt, not perforated. Spermathecal ducts without projections, with cup-like expansion, with similar diameter in the base toward the apex and 6 to 9 times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, one Female, 24–27 January 2000.

**Distributions.** Neotropics (Provincia Amazónica) Colombia Caquetá.

**Discussion:** *Catachlorops* sp 3 is the smallest species in the subgenus, the equal that *C. sp1* presents a stain in half of the wing, including the fork of the vein R<sub>4</sub>, its abdomen is shiny as in the other species (*C. sp 1*, *Csp 2*), but more flattened and short. Another aspect than the deference is its bicolor legs.

***Catachlorops (Anphiachlorops) sp1***  
(Fig. 14 B-D)

**Diagnosis.** Yellowish with brown bands in the abdomen, medium to great size species, with eyes unicolors and wings with a pattern determined of grayish to brown stains or clouds.

***Female***

**Head.** Length 3.6 mm (3.5–3.8 n=2). Vertex with spots of black color in the center, with incipient tubercle or absent, orange, with hirsute, chestnut or pale yellow hairiness, opaque and with ocelli vestige. Eyes slight green, not iridescent, bare or with microscopic hairs conglomerates over the whole ocular area. Frons convergent toward the base, dark orange, 10 times higher than wide, pollinose and pilose, with grayish pruite, opaque, with transverse sulcus between frons and subcallus. Frontal index 15 (n=2). Frontal callus longitudinal, strongly visible, flat, claved or triangular, touching eyes with prolongations in ridge shape or list does not touch the vertex, rough, orange and shiny. Subcallus flat, opaque, bare and with pruite golden. Antenna as long as the palpus, monochromatic orange. Scape square, sub-cylindrical, as long as wide, with hirsute hairs, without posterior dorsal margin in cap-like. Pedicel conical, cup-like, wider than long, with hirsute hairs, with salient dorsal posterior margin cap-like; with consolidated basal plate, monochromatic orange, hexagonal in hook shape, flattened, elongated or lengthened, pollinose and pilose, almost as wide as flagellomeres or wider than flagellomeres; with a tooth curved in their part apical, pilose, longer than basal plate reaching the third flagellomeres. Flagellum with four flagellomeres curved up and cylindrical, free, pollinose and with one or two hairs in each flagellomere, of same intensity and shorter than high of the basal plate. Frontoclypeus plane or convex, opaque, orange, with black hairs on the bases of scape, orange or golden pruite layer. Gena broad, orange-yellow, opaque, pilose, with orange pruite layer and moderate white hairiness. Palpus geniculate, curved toward the base pointed, oranges-yellow, shiny and with hirsute hairs. Proboscis 3.1 (n=2) mm long, as long as the high head or does not exceed the high head. Theca opaque, pilose, labella membranous, with shiny areas, less long than half of proboscis (1/3 longer of the proboscis), partially pilose and oval.

**Mesonotum.** Monochromatic orange, with black hairiness and chestnut, without thoracic triangles. Notopleural lobes of same tonality to the scutum, sub-triangular, with black hairiness, oval, with golden hairs, clearer than scutum. Prealar lobes oranges, black hairiness, shiny, scutellum orange of same intensity than mesonotum, shiny, with abundant and thick black or chestnut-colored hairiness. Scutum and Scutellum without setae, bands nor stains. Pleura yellow, and with abundant golden hairiness.

**Wings.** 13 mm long (12–14 n= 2), light brown, with areas hyaline on discal, radial and marginal cells, completely fumose, with dark brown clouded areas on the half and on the base, with a pattern of clouds or dark brown stains on the medial, basal cells, in part of the anal cells and over half of the marginal cells. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix. R<sub>2+3</sub> lightly curved, m<sub>3</sub> and r<sub>5</sub> cell open, cell cup closed and petiolate), veins brown, margin around the cells

lightly darker than tone of cells, basal costal cell clouded. Costa with stain in the portion subapical or fascia vestigial, Basicosta pollinose, Subcosta and veins  $R_1$  with macrotrichia and  $A_1$  without macrotrichia.

**Legs.** General hairiness yellowish except by the fore tibiae than is scarce black and white. Fore coxae monochromatic oranges to brown, fore femora Monochromatic yellow to oranges and blackish layer pruinose; fore tibiae multicolored white and blackish-brown, shiny, cylindrical, lightly curved; medial femora, mesotibiae, hind femora and tibiae monochromatic yellows; hind tibiae, cylindrical, right, without spurs, all tarsomeres orange.

**Abdomen.** base not constrained, sub-triangular and lengthened, monochromatic orange, with abundant black hairs, shiny, with five tergal, sternal, and transversal bands on inferior border the each tergite, overlap with the following tergite, of dark yellow color and on sternites two to six, pilose, abdomen without spots and without triangles.

**Genitalia, female.** Sternite eighth wider than high, with the base as wide as the gonapophyses, slightly concave or flat, weakly sclerotized, with simple parabasals hairs abundant to moderate and with hairiness so much long as short. Gonapophyses bilobed, with concave border distal and with neckline or notch as deep as half of height of gonapophyses, two times wider than high, moderate to scarce hairiness (Fig. 14B). Hypoproct weakly sclerotized, twice wider than high, and moderately pilose on distal border. Cerci exposed, sub-ovoid or sub-triangular, lightly wider than high, with homogeneous weak sclerotization and scarce and short hairiness. Genital furca as wide as high (short) with base concave, narrow, short and with superficial external neckline, without projections or branches (Fig. 14C). Comb with long and scarce thorns and without hairs. Spermathecal weakly capited with extreme apical blunt and not perforated (Fig. 14D). Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex, and more than 12 times the long genital furca.

**Material examined:** Colombia: Caquetá, N.N.P, Chiribiquete, Río Cuñare, 1 Female, 1–5 November 2000.

**Distributions.** Neotropics (Provincia Amazonica) Colombia: Caquetá.

**Discussion:** *Catachlorops* (*Anphiachlorops*) sp1, is very different to sp2, it is kind of a great size, orange-yellowish with a defined pattern of stains and clouds in the wings contrasting with *C. sp2*.

### *Catachlorops* (*Amphichlorops*) sp 2

**Diagnosis.** A small slender species of dark brown color, unicolor eyes without bands, basal plate with long tooth, wings totally smoky, slightly brown with dark area around of the veins, and strong fascia, legs unicolour blackish brown, with darkened last tergites.

#### *Female*

**Head** length, 2.7 mm (2.6–2.8 n= 4), surface of the vertex concave, black, with prominent tubercle, bare, opaque, with ocelli, and without setae ocellar. Eyes not iridescent brown and bare. Frons divergent bellow, brown, higher than wide, pollinose, with chestnut hairs, pale yellow or light brown pruinose, opaque, and with transverse sulcus between frons and subcallus. Frontal index 5.2 (4.0-6.0 n=4). Frontal callus strongly visible, slightly elevated, triangular, does not touch the eyes, with extension in crest shape than touch the tubercle of the vertex, rough, brown, and shiny. Subcallus yellow, convex or slightly high, opaque, bare, and with yellowish pruinose.

Antenna longer than palpus, multicolored yellow to dark brown; scape conical, sub-cylindrical, as long as wide, with hirsute hairs, without posterior dorsal margin in cap-like; pedicel conical, cup-like, wider than long of yellowish color, pollinose, with hirsute hairs, and with salient dorsal posterior margin cap-like. Consolidated basal plate, monochromatic brown to black, hexagonal, flattened, short, pollinose and pilose, wider than flagellomeres, with one tooth without bend apical, bare, and shorter than basal plate. Flagellomeres curved up, free, pollinose, of same intensity and shorter than high of the basal plate. Frontoclypeus concave, opaque, light brown with the darker border, grayish pruinose, and chestnut and black hairs. Gena broad, brown, opaque, pilose, and grayish pruinose layer; subgena or beard pilose, with moderate white or pale yellow hairiness. Palpus geniculate or thin, not inflated, lightly curved toward the base, orange-yellow, opaque, pollinose and pilose. Proboscis length 2.4 (1.8-2.2 n=4) mm, does not exceed the high head, theca opaque, pilose, labella partially sclerotized, with shiny areas, short (1/3 of proboscis), partially pilose and oval.

**Mesonotum** brown, with short black hairs, and a light brown pruinose layer. Notopleural lobes lighter than the scutum, sub-triangular, with long and scarce black and chestnut hairiness, humeral or pronotal lobes inflated, oval, with long, black and white hairiness, clearer than the scutum. Prealar lobes light brown, shiny, with scarce chestnut hairiness in the inferior border. Scutellum brown, shiny, bare without bands nor stain. Scutum without setae, with two dorsolateral, and one medial bands, pruinose and pilose. Pleura black and moderately pilose.

**Wings** length 9.9 (9.8-10 n=4) mm, light brown, with hyaline areas or with a light hyaline on the base of the marginal and half of the subcostal cells, completely fumose and more dark over the anterior margin of the wing. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells darker than tone of cells, basal costal cell fumose or translucent. Costa with stain in the portion subapical or brown fascia strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia in A<sub>1</sub> absent.

All legs monochromatic brown or blackish-brown, with chestnut-colored and black hairiness; fore tibiae opaque, cylindrical, lightly curved and the hind tibiae or metatibiae, cylindrical, and right.

**Abdomen.** Sub-triangular, monochromatic dark brown, with scarce black and white hairs, shiny, with 6, dorsal, ventral and transversal bands, on inferior border the second to sixth tergites and until seven sternite, of hairs and of white pruinose, pilose, abdomen without spots nor triangles.

**Genitalia female.** Sternite eighth wider than high, base 1.5 or wider 2 times than gonapophyses, concave, strongly sclerotized forming bands; parabasals hairs simple, with abundant, long and short hairiness. Gonapophyses monolobed, plane border distal without neckline or notch, as long as wide or lightly wider than high, with sclerotized, abundant and long hairiness, and strongly sclerotized with the clear center. Ninth and tenth tergites divided, reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high, and moderately pilose on external and distal border. Cerci lightly exposed, sub-squares, as high as wide, border distal truncated and hind border concave, with heterogeneous sclerotization, and moderate short hairiness. Genital furca higher two times than wide (elongated), base concave, narrow, with external neckline, superficial not very deep, without projections or branches in the base. Comb with long and scarce thorns, without hairs. Spermathecal strongly capited, extreme apical blunt, evident perforation, with numerous or abundant pores. Spermathecal ducts with cup-like expansion, length 5.5 (n=2) mm of six to nine times the long furca, with similar diameter in the base toward the apex (slightly wider in the apex).

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 3 Females, 24–27 January 2000, 1 Female, 1–4 February 2000.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion:** *Cataclorops* sp2 is a small species of wings fumose, lightly more darkened under the fascia, it presents a tooth that does not surpass the basal plate, the palpus they are filiform thin and lengthened, and it does not present appendix in R4, it is similar to *Stypommisa* but of darker wings, monochromatic eyes without bands and tubercle in the vertex.

*Cataclorops (Psarochlorops) difficilis* (Kröber)  
(Fig. 5 O-R, 17 B-C, 19 H)

*Cataclorops (Psarochlorops) difficilis* Kröber, 1931: 93

**Diagnosis.** Brown with yellow border and abdomen medium to small size species, present the eyes unicolor iridescent. Wings fumose with brown clouds, callus with long ridge.

#### *Female*

**Head.** Length 3.0 (2.8-3.2 n=30) mm (Fig. 17B). Vertex brown, pilose with short, fine and black hairiness, completely shiny and with ocelli vestige. Eyes dichoptic slight green or coppery, iridescent, with microscopic hairs conglomerates. Frons slightly convergent toward the bases or sub-parallel, brown, higher than wide, light brown pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 6.6 (6.0-7.3 n=30). Frontal callus longitudinal, strongly visible, flat, clavate or triangular in the base, touched Eyes with prolongations in ridge shape or list than it extends until to touch the vertex, smooth with the base is brown, in some yellow cases and the crest is clearer than the base and shiny. Subcallus convex or slightly high, with shiny areas or bare, with hairs in the borders, and light brown pruinose. Antenna shorter than or as long as the palpus, yellow and brown. Scape conical, sub-cylindrical, longer than wide, with hirsute hairs, in cap-like. Pedicel conical, cup-like, wider than long, with hirsute hairs, with dorsal margin cap-like, basal plate in the base orange and the rest brown, rhombic, flattened, short, pollinose, wider than flagellomeres, dorsal tooth without bend apical, pilose, long exceeding the first flagellomere. Flagellomeres curved up, free, without projections, with tufts of prominent hairs (apex mainly), of same intensity and shorter than high of the basal plate (Fig. 17C). Frontoclypeus convex, opaque, orange-yellowish, pollinose, with white scarce hairs and pearly pruinose. Gena broad, blackish brown, opaque, pilose or oculo-genal hairs, pearly pruinose and with scarce white hairiness. Palpus thin, not inflated, elongated, orange-yellow, opaque, with golden and with hirsute hairs. Proboscis 2.4 (2.2-3.0 n=30) mm long, as long as the high head, pilose; labella membranous, with shiny areas, less long than half of proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored lobes yellow and the scutum orange or brown, with golden hairiness and light brown pruinose layer. Notopleural lobes lighted than scutum, globose, sub-triangular, with black and golden hairiness. Humeral lobes triangular, with white and chestnut-colored hairs, clearer than scutum the same as the notopleural of color yellow-orange, with yellowish pruinose. Prealar lobes brown, opaque, with scarce, long and white hairiness. Mesonotum with a thoracic triangle of pruinose, formed by the expansion of the base of medial band about hind scutum. Scutellum brown, darker than mesonotum, opaque, with golden

hairiness and light brown pruinose in the borders and with black stain adjacent to the scutum. Scutum without setae, with one band longitudinal and medial, pruinose, without stains. Pleura brown, pruinose and with scarce white hairiness.

**Wings.** Length 11 (9.6-11 n=30) mm, light brown, without areas hyaline, with light brown clouded areas on the margin apical and on the medial crossveins. The apical cloud extends until the  $r_4$  cell leaving a clear-fumose light in half of the marginal cells. Vein  $R_4$  broadly separated from  $R_5$ , without appendix, with cloudiness on base.  $R_{2+3}$  right. The cells  $m_3$  and  $r_5$  open, veins brown, margin around the cells lightly darker than tone of cells, basal costal cell fumose or translucent (Fig. 19H), Costa with stain in the portion subapical or fascia vestigial, Basicosta pollinose, Subcosta and  $R_1$  veins with macrotrichia,  $A_1$  without macrotrichia,

**Legs.** Fore coxae and fore femora monochromatic brown, with black and chestnut hairiness, fore tibiae multicolored pale yellow and beige, shiny, cylindrical, lightly curved, Medial femora monochromatic brown to orange, with white hairs, mesotibiae bicolor yellow or oranges and brown base. Hind coxa monochromatic yellow, with white hairs, hind femora and tibiae monochromatic brown, femora with black and golden hairiness, light brown pruinose, metetibiae with black hairiness, cylindrical and right. Tarsomeres monochromatic black or blackish-brown.

**Abdomen.** base not constrained, sub-triangular, monochromatic the first tergites yellow of orange tonality at light brown of the fourth to seventh tergites, with black and yellow hairs to the sides and borders of the tergites last, without bands, abdomen without spots, with triangles tergal discontinuous on tergites first to sixth, printed in the tegument of pale-yellow pruinose.

**Genitalia, female.** Sternite eighth higher than wide (elongated), is base as wide as the gonapophyses, concave, strongly sclerotized forming bands, moderate or scarce and long or short hairiness. Gonapophyses bilobed, border distal concave without neckline or notch, 2 times wider than high, with scarce long or short hairiness, and with heterogeneous sclerotization than shapes two bands laterals (Fig. 5O). Cerci lightly exposed, sub-squares, as high as wide or higher than wide, without distal projection, border distal truncated, hind border concave, heterogeneous sclerotization, moderate and short hairiness non sclerotized (translucent) (Fig. 5P). Genital furca as wide as high (short), base lightly concave to plane, wide, without external neckline, without projections or branches in the base (Fig. 5Q). Comb with thorns, long, scarce (spread) and without hairs. Spermathecal weakly capited, with the extreme apical pointed, and with perforation lightly visible (Fig. 5R). Spermathecal ducts with cup-like expansion and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Cabañas Pauriles, Pinalito (La Marena), 2 Females (ICN); Caquetá, P.N.N. Chiribiquete, Río Sararamano, 646 Females, 7–11 April 2000, 424 Females, 9–13 April 2000, 94 Females, 11–15 April 2000, 5 Females, 14–17 April 2000; Cuñare-Amu 94 Females, 19–22 February 2001, 238 Females, 7–10 March 2001, 55 Females, 23–26 March 2001, 502 Females, 28 March-3 April 2001.

**Distributions.** Neotropics (Provincia Amazonica). Guyana, Brazil, Colombia: Caqueta.

**Discussion:** This species presents a great number of specimens collected in this study (2058), its description was corroborated with specimens of the “Colección del Instituto de Ciencias Naturales” (Colombia) and material of the “Instituto von-Humboldt” examined by the Dr. J. Burger.

## Genus *Chrysops* Meigen

The genus *Chrysops* may be distinguished from regional Pangoniinae by the broad frons and wide protuberant callus and from Colombian Tabanini and Diachlorini by having hind tibia spurs. In addition, species of *Chrysops* usually have bare face, lengthened first and second antennal segments, basal plate, without projection neither tooth, variably sclerotized proboscis and labella, eyes usually with purple bands and or spots, and wings with a strong to faint crossband, basicosta pollinose. Wing with more or less distinct pattern having some hyaline areas and other areas distinctly and darkly infuscated, including in the latter in most species a distinct band of infuscations crossing or nearly crossing wing near middle; spur vein absent or present only adventitiously, cell r5 open. Genital furca basally with outwardly directed small projections (Wilkerson 1979; Goodwin *et al*, 1985; Coscarón & Papavero 1993).

### *Chrysops varians* var. *tardus* Wiederman

(Fig. 14 E-H, 17 D, 18 C, 19 I)

*Chrysops tardus* Wiedmann, 1828: 1: 577

*Chrysops varians* var. *tardus* Fairchild, 1971: 28: 34.

**Diagnosis.** Small dark brown species with distinctive yellowish stripes on the scutum and yellow triangles on the tergites two to four. Eyes with pattern of bands and stripes, and wings pattern well defined dark brown with a hyaline spot in fifth posterior.

### *Female*

**Head.** Length 1.5 (n=1) mm (Fig. 17D), surface of the vertex slightly convex or plain, black, without spots, with prominent tubercle, bare, opaque, with ocelli functional on the vertex, without setae ocellar. Eyes dichoptic, slight green and black, iridescent, bare, with black color 1–2 stripe in zig-zag, with spot or drawing or with a defined pattern over all eyes. Frons slightly divergent bellow, black, as wide as high, with black hairs, pearly or grayish pruinose layer, opaque, with transverse sulcus between frons and subcallus (curved), frontal index 0.8. Frontal callus transverse, strongly visible, globose with heart shape (inverted), does not touch the eyes, without extension, smooth, black, shiny. Antenna longer than palpus, monochromatic yellow or orange, scape rectangular, sub-cylindrical, with chestnut hairs, pedicel rectangular, with chestnut hairs. Pseudoplate monochromatic brown, rhombic or cylindrical, flattened, short, with dorsal angle obtuse over the half of basal plate, pollinose, as wide as flagellomeres or wider; with 4 flagellomeres flattened, free, pollinose and with one or two hairs in each flagellomere, similar length to the height of the basal plate. Frontoclypeus globose, shiny, yellow and brown at the sides, bare or with very scarce yellow hairs. Subgena or beard with scarce black hairiness. Palpus thin, not inflated (fig 38A, Coscarón & Papavero 1993), slightly curved toward the base, brown, with evident sensorial organ, pollinose and pilose, hirsute. Proboscis 1.5 mm long, as long as the high head, theca opaque, pilose, labella partially sclerotized, with shiny areas, 1/3 or long less long than half of the proboscis, partially pilose and clavate.

**Mesonotum.** Monochromatic totally black, with grayish pruinose layer. Notopleural lobes of same tonality to the scutum, mesonotum without thoracic triangles, scutum without setae nor stains,

with two longitudinal and laterals bands, pruinose. Scutellum without bands nor stain. Pleura are blackish brown, with scarce and short black hairiness.

**Wings.** 6.8 mm long, with areas hyaline on apical margin, base or axillary cell and radial or marginal cell with a light hyaline tiny in the cell discal and triangular in the fifth posterior cell, without fumosiness, with dark brown clouded areas on the half, with spot on the half. Vein  $R_4$  near or not broadly separated from  $R_5$ , without appendix, with cloudiness on base,  $R_{2+3}$  markedly curved, cell  $m_3$  and  $r_5$  open, cell cup closed; brown veins, margin around the cells of same intensity, basal costal cell clouded (Fig. 19I), Subcosta and  $A_1$  without macrotrichia in veins  $R_1$  present.

**Legs.** Monochromatic black, except fore tibiae bicolor brown and black, hind femora bicolor black and yellow and hind tarsomeres yellow and blackish-brown, all with black hairiness, fore tibiae and metatibiae shiny, flattened and markedly curved.

**Abdomen.** Base not constrained, lengthened and sub-triangular, monochromatic blackish or dark brown, with black and yellow hairs, with six transversal bands of pale yellow pruinose and pilose, on inferior border the two to six tergites and on second to seventh sternites. With yellowish or chestnut sublateral tergal spots, continuous only in the second tergite, pilose, with tergal triangles, continuous, printed in the tegument on tergites two to five (narrow and under, alone the two thirds strongly evident), pale-yellow (Fig. 18C).

**Genitalia, female.** Sternite eighth wider than high with the base more narrow than gonapophyses, convex or wavy, strongly sclerotized forming bands, parabasals hairs simple, with scarce short hairs. Gonapophyses monolobed, with concave and strongly sclerotized border distal, without neckline or notch, two times wider than high, moderate to scarcely hairiness, and with heterogeneous sclerotization (Fig. 14E). Hypoproct lightly wider than high, and scarcely pilose on distal border. Cerci partially exposed, sub-ovoid, lightly wider than high, with the border distal rounded, strong and homogeneous sclerotization, with short scarce and hairs (Fig. 14H). Genital furca as wide as high, with the base convex, wide, short, and without external neckline (Fig. 14F). Comb with long and scarce thorns and abundantly pilose (Fig. 14G). Spermathecal strongly capited, with the extreme apical pointed, perforated, with numerous or abundant pores. Spermathecal ducts without cup-like expansion, with diameter narrow in the base and of two to five times the long genital furca.

**Material examined:** Colombia: Cauca, Guapi, 10m, 1 Female, 9 February 1976 (ICN); Caquetá P.N.N. Chiribiquete, Río Cuñaré, 1 Female, 15–19 November 2000.

**General distribution.** Neotropics (East of Panamá to South Brazil, Trinidad, Paraguay; Bolivia; Guyana; Ecuador; Peru; Argentina; Colombia: Amazonas, Antioquia, Caldas, Caquetá, Choco, Meta, Putumayo, Santander and Valle del Cauca).

**Discussion:** The description of *C. varians* var. *tardus* is very similar to the one mentioned by Wilkerson 1979, however we observe clearly only two longitudinal bands, the sides or lobes are clearer possibly by vestiges of bands.

***Chrysops variegatus* (De Geer)**

(Fig. 6 A-D, 17 E, 18 L-M, 19 J)

*Tabanus variegatus* De Geer, 1776: 6: 230, Fig. 7, 8; Wilkerson, 1979: 8 (31-32): 199-202, Fig. 50.

*Chrysops variegata* Bequaert, 1940: 11 (1-2): 276-279; Fairchild, 1942: 44 (1): 4-5, Fig 1; Philip, 1955: 3: 66, 85 in key; Fairchild, 1971: 28: 35; Wilkerson & Fairchild, 1984: 27, 46; Strickman & Hagan, 1986: 2 (2): 212-216.

**Diagnosis.** Small yellow species, mesonotum with a fine brown medial stripe; wings pattern well defined dark brown with a hyaline spot in first submarginal, discal and fifth posterior cell, and with brown triangles on tergites two and three.

***Female***

**Head.** Length 1.9 mm (1.8–2.1 n= 3) (Fig. 17E), surface of the vertex convex, with brown spots, prominent tubercle, pale yellow, bare, with shiny areas, with ocelli functional on the ocellar tubercle, without setae ocellar. Eyes dichoptic, black and slight green, iridescent, bare, with spot or drawing with a defined pattern over all eye than form four horizontal, vertical, or in zig-zags black stripe. Frons slightly divergent toward the base or sub-parallel, pale yellow to orange, as wide as high, bare or with hairs, pale yellow pruinose layer, opaque, without protuberance and with transverse sulcus between frons and subcallus. Frontal index 1.1 (0.9-1.28 n=3). Frontal callus transverse, strongly visible, globose, with heart shape, does not touch the eyes, without extension, smooth, yellow, shiny. Antenna three or four times longer than palpus, multicolored, brown and yellow, or orange, scape rectangular, elongated four or five times longer than wide, with chestnut hairs, the same that the pedicel, without posterior dorsal margin in cap-like. Pseudoplate (five or six flagellomeres fused), monochromatic yellow, rhombic or cylindrical and flattened, short, with dorsal angle obtuse over the half of basal plate, pollinose (as black velvet), with four flagellomeres curved up, free, pollinose and with one or two hairs in each one, with the same intensity and longer than high of the basal plate. Frontoclypeus spherical with tuberos, shiny, yellow and bare. Gena absent; Subgena or beard with scarce golden and reddish hairiness. Palpus "slender" inflated basally (similar at the Fig, 38 C, Coscarón & Papavero 1993), curved toward the half, oranges-yellow, opaque, pollinose and pilose, not hirsute chestnut hairs. Proboscis 1.8 mm of length (1.5–2.0 n=3), as long as the high head, theca shiny, pilose, labella partially sclerotized, with shiny areas, less long than half of the proboscis, partially pilose, oval,

**Mesonotum.** Monochromatic yellow to slightly brown, with scarce golden hairiness, pale yellow pruinose layer in the center and leaving areas shiny or bare in the side. Notopleural lobes of same tonality to the scutum, sub-triangular, with yellow hairiness; humeral or pronotal lobes flat, oval, golden hairiness and of same tonality to the scutum; prealar lobes yellow, pruinose and with golden or yellow hairiness, opaque. Scutellum yellow of same intensity than the mesonotum, shiny, bare or with very scarce and short yellow hairiness, very slender pale yellow pruinose layer. Mesonotum without thoracic triangles, scutum without setae, with four yellowish longitudinal bands, bare. Scutum and scutellum without bands nor stain. Pleura orange-yellow, scarce yellow hairiness (Fig. 18M).

**Wings.** 8.36 mm long (8.0–8.8 n=3). yellow and light brown, with areas hyaline on half, in the base, in discal, anal and radial or marginal cells (this last with a light hyaline in the half),

partially fumose on margin apical, radial and on all the cells and with light brown clouded areas on the margin apical and faint in the half. Vein  $R_4$  near or not broadly separated from  $R_5$ , without appendix nor cloudiness on base;  $R_{2+3}$  lightly curved. Cell  $m_3$  and  $r_5$  open, brown veins with the margin around the cells of same intensity, except  $A_1$  that is strongly infuscate (Fig. 19J). Costa with stain in the portion subapical or fascia strongly evident. Veins  $R_1$  with macrotrichia and Subcosta and  $A_1$  absent.

**Legs.** Fore coxae monochromatic orange- brown, with yellow and golden hairiness, fore femora and fore tibiae monochromatic yellow to oranges, with scarce chestnut-colored or golden hairiness, fore tibiae shiny, flattened and markedly curved. Legs medial and hind monochromatic yellow, with golden or chestnut-colored hairs except mesotibiae that is monochromatic yellow to oranges. Hind tibiae or metatibiae flattened, right and with vestige spurs.

**Abdomen.** Base not constrained, lengthened sub-triangular, multicolored yellow and light brown, with black and yellow hairs, shiny, without bands, with continuous tergal or sternal spots, the dorsolateral on the fourth tergite and ventrally on the second sternite, brown, pilose, with brown tergal triangles continuous, printed in the tegument on second and fourth tergites (Fig. 18L).

**Genitalia, female.** Sternite eighth wider than high, base 1.5 or 2 times wider than gonapophyses, flat, without sclerotization, parabasals absent, scarce, short (they do not surpass the height of the gonapophyses) hairiness. Gonapophyses bilobed, border distal concave without neckline or notch, two times wider than high, moderate, short and translucent hairiness, homogeneous sclerotization (Fig. 6A). Hypoproct weakly sclerotized, twice wider than high and scarcely pilose on external and distal border. Cerci not exposed, sub-circular, as high as wide, border distal rounded and hind border flat, without sclerotization, with short translucent and moderate to scarce hairiness (Fig. 6B). Genital furca wider than high, base convex, wide, without external neckline, without projections or branches in the base, sides narrow divergent basally, with the border distal of branches of lifted genital furca laterally (Fig. 6); comb with long, dense thorn and abundantly pilose. Spermathecal strongly capited, extreme apical blunt, with perforation or not very evident (lightly visible), with numerous or abundant pores; spermathecal ducts without cup-like expansion (Fig. 6D), of 0.6 mm of length as long as the high genital furca and of different diameter, augmenting its thickness to they spermathecal.

**Material examined:** Colombia: Palmira, 1 Female, July 1942; Zarzal, 1 Female, 23 December 1943, (Tibaitata Coorpoica); Cauca, Hacienda San Julian, 2 Females, 110m, Bosque Humedo Tropical (ICN); Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female, 7–11 April 2000; Cuñaré-Amú, 14–17 February 2001.

**General distribution.** West Indies; Neotropics (Mexico to Argentina, Cuba, Paraguay, Colombia: Antioquia, Caldas, Cauca, Caquetá, Choco, Magdalena, Meta, Putumayo, Santander, Valle del Cauca and Vaupes).

**Discussion:** The description of *C. variegatus* presented in this monograph was carried out with humid specimens, however with dry material it is possible to visualize the four yellow bands of the mesonotum that Wilkerson mentions (1979) in the description of this species.

***Chrysops* sp 1 aff. *renjioi***

(Fig. 6 E-H, 14 I, 19 K)

**Diagnosis.** A small brown species, eyes with pattern defined, iridescent; Wings hyaline with clouds grayish on crossveins, legs bicolor, abdomen black with hyaline areas on tergites one and two, very similar to *C. sp4*.

***Female***

**Head.** Length 2.2 (1.8-2.3 n=30) mm, surface of the vertex concave (in both sexes), prominent ocellar tubercle black, bare, completely shiny, without ocelli. Eyes dichoptic, slight green, iridescent, bare or with microscopic hairs, with spot or drawing and with a defined pattern over all eye. Frons sub-parallel black, 5 times higher than wide, with thick grayish pruinose layer, with transverse sulcus between frons and subcallus, frontal index 5.3(5.0-6.1 n=30). Frontal callus presents transverse, strongly visible, sub-square than touching eyes with extension in crest shape than does not touch the vertex, smooth, ochre or black in the upper border, shiny. Subcallus brown opaque, bare and with grayish pruinose layer. Antenna longer than palpus, multicolored ochre or brown (flagellomeres mahogany); scape rectangular, sub-cylindrical, longer than wide or as long as wide, with not hirsute hairs, without posterior dorsal margin in cap-like; pedicel circulate as a annuli, wider than long (1/3 of the long is scape), with not hirsute hairs, without salient dorsal posterior margin cap-like; with pseudoplate basal plate, monochromatic ochre, rectangular, flattened, short, without dorsal angle, without projection, pollinose and pilose, as wide as flagellomeres; with 4 flagellomeres, flattened, free, pollinose and with one or two hairs in each flagellomere, darker than basal plate and similar length to the height of the basal plate (Fig.). Frontoclypeus spherical, shiny, mahogany, bare, grayish pruinose layer only in the base; gena narrow, opaque, pilose, grayish pruinose layer and with scarce white hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base, ochre, opaque, without evident sensorial organ and pilose hirsute. Proboscis 1.3 (1.0-1.5 n=30) mm of length does not exceed the high head, theca opaque and pilose, labella membranous, with shiny areas, as longer as than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored, dark brown and black with white hairiness, white pruinose layer in females is slender and thin. Notopleural lobes lighted than the scutum, sub-triangular, pruinose, with scarce white hairiness; humeral or pronotal lobes slightly inflated, oval, pruinose, chestnut-colored hairiness, clearer than the scutum; prealar lobes blackish brown (slightly light than scutum with a thick band of grayish pruinose), opaque. Scutellum mahogany, paler than the mesonotum, opaque, bare, with a thick pale yellow or light brown pruinose layer. Mesonotum without thoracic triangles, without setae, without bands nor stains. Pleura blackish brown, pruinose and scarce blackish hairiness.

**Wings.** 7 mm long (6.8-8.0 n=30), crystalline, with areas hyaline on whole wing and on all the cells, with fumose-grayish or blackish or dark brown cloudiness clouded areas on the border of the veins and on the crossveins, without stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix, with cloudiness on base; R<sub>2+3</sub> markedly curved. Cell m<sub>3</sub> and r<sub>5</sub> open, brown veins with

margin around the cells of same intensity (over the A<sub>1</sub> vein is more darkened) (Fig. 19K). Basal costal cell fumose or translucent, Costa with stain in the portion subapical or fascia, veins R<sub>1</sub> with macrotrichia and absent in A<sub>1</sub>.

**Legs.** Fore coxae and femora monochromatic ochre, with black hairiness and chestnut-colored hairiness; fore tibiae brown (mahogany), flattened, markedly curved, with moderate and short black hairs in the ventral part and long whitish in the dorsal part; medial femora blackish-brown, with black hairs; mid tibiae white, with whitish hairiness; hind coxa monochromatic brown (mahogany), hind femora blackish-brown, with white and chestnut-colored hairiness, hind tibiae or metatibiae bicolor, blackish-brown and white, with white and chestnut hairiness, hind tarsomeres bicolor brown and yellow, the other tarsomeres Monochromatic mahogany or brown.

**Abdomen.** Base not constrained, sub-rectangular, multicolored beige and dark brown, the first tergite is dark brown as chocolate with sides hyaline, the second tergite is dark brown same as the fore, with the beige base and the third tergite with part beige upper the rest brown chocolate, this way seems to have two bands in the anterior part of the abdomen, the abdomen does not have spots neither triangles.

**Genitalia, female.** Sternite eighth wider than high, base as wide as the gonapophyses, flat, strongly sclerotized forming bands, parabasals hairs absent, with moderate to scarce, long (twice the height of the gonapophyses) hairiness. Gonapophyses bilobed, concave border distal without neckline or notch and weakly sclerotized less than body of gonapophyses than is two times wider than high, with abundant long hairiness, heterogeneous sclerotization (shape a clock the sand with the sternite eighth) (Fig. 6E). Hypoproct weakly sclerotized, as high as wide, scarcely pilose, evenly spread. Cerci exposed, sub-trapezium, as high as wide, without distal projection, border distal rounded and hind border concave, without sclerotization, moderate short hairiness (Fig. 6F). Genital furca wider than high, base concave, wide, with external neckline, or without external neckline superficial not very deep (Fig. 6G), with two projections or branches shorter than width of base, sides there are not branches peaked, divergent basally; comb with short, dense thorns and without hairs. Spermathecal weakly capited, extreme apical blunt, not perforated, spermathecal ducts with projections, with cup-like expansion, caudal with similar diameter in the base toward the apex (Fig. 6H).

**Male.** Very similar to the female with ocellar tubercle reduced. Eyes holoptic, with the half upper with omatids the greater size, brown and inferior part with stains or drawing as female with microscopic. Scape with black and short hairiness, pedicel with long black hairs. Frontoclypeus shiny, without pruinose, with scarce fine and whitish hairs, gena narrow, black, opaque, pilose fine, chestnut and scarce hair. Palpus geniculate totally inflate, dark brown. Proboscis as in the female. Mesonotum black upper scutum anterior but light, the pruinose forms thick bands on the suture scutum-scutelar. Notopleural lobes lighted than the scutum and lightly inflated with a thick pruinose layer that extends to the suture scutoescutelar, sub-triangular, pruinose, white scarce hairs; humeral or pronotal lobes slightly inflated, lightly triangular, pruinose, with whitish and long hairiness, clearer than the scutum; prealar lobes blackish brown slightly light that scutum with a thick band of grizzly pruinose and opaque. Scutellum the attached part to the scutum is brown and the inferior yellowish, paler than the mesonotum, opaque, bare, pale yellow or light brown pruinose layer. Pleura blackish brown, pruinose with scarce blackish hairiness. Wings contrary to the female with 12 mm of lengthitude and A<sub>1</sub> with macrotrichia. Legs. Fore coxae bicolor brown and yellow; medial femora Monochromatic blackish-brown, with black hairs, hind femora monochromatic blackish-brown, with black hairiness in male. Abdomen at equal in female.

**Genitalia, male.** Paraproct subtriangular, without waves, scarce hairiness (bare in the inferior part), without sclerotization or weakly sclerotized). Aedeago funnel, thick (taken of the half), basistylus longer than wide (elongated), partially sclerotized, bare or with scarce hairiness, base wide, apically rounded (Fig. 14I), iprocess or apical projection absent, process basal absent, without tuberosity in the internal half surface. Dististylus or apical style presents, simple, truncated in the apex, with internal sclerotization, thin (taken of half), less than half of thick of basistylus, short less than half of long of basistylus, projection apical absent. Cerci subtriangular, border distal convex (rounded border), neckline of the border distal absent,

**Material examined:** Colombia: Caquetá, P.N.N Chiribiquete, Río Mesay, 40 Females, 24–27 January 2000; Cuñaré-Amú, 24 Females, 23 February–26 March 2001, 1 Female, 28 March–3 April 2001, 9 Females, 14–17 February 2001, 6 Females, 19–22 February 2001, 315 Females, 3 Males, 7–10 March 2001, 21–25 November 2001.

**General distribution.** Neotropics (Provincia Pacífica and Amazónica). Colombia: Valle de Cauca, Rio Yurumanguí, Veneral, Caquetá.

**Discussion:** The species *T. sp1* and *T. sp4* are very similar to each other; they vary mainly in the tonality of the clouds of the crossveins of the wing and the mesonotum.

### ***Chrysops sp 2***

(Fig. 6 I-M, 17 F, 18 J-K, 19 L)

**Diagnosis.** Small blackish species with clouds in the wings, strongly fascia, abdomen blackish–brown or black pointed as wasp.

### ***Female***

**Head.** Length 1.9 mm (1.8–2.0 n= 3) (Fig. 17F), surface of the vertex plain, black, without tubercle, bare, completely shiny, without ocelli. Eyes dichoptic, slight green and purple, iridescent, bare, with purple in zig-zags, band, with a defined pattern of spot or drawing over all eye. Frons black, higher than wide, pollinose, with thick grayish pruinose layer, opaque, with protuberance, the half calli sunken leaving the frons with two lobes or lateral crest not prominent, with transverse sulcus between frons and subcallus; frontal index 2.2 (1.8–2.4 n=3). Frontal callus strongly visible, globose, triangular, with extension in ridge shape or list (thin and fine depressed in the base) than touch the vertex, rough, brown to reddish-mahogany the superior part of the callus and darkened until black the half callus), shiny. Subcallus convex or slightly high, in the center opaque and sides shiny, grayish pruinose layer in triangular shaped with the base toward the transverse suture until the internal ends of the scape. Antenna multicolored yellow and black, pseudoplate monochromatic ochre or yellow, with four flagellomeres, flattened, partially fused, pollinose and abundant hairs that give them a darker coloration than the basal plate. Frontoclypeus spherical, shiny, mahogany or reddish-brown and bare; gena broad, brown, opaque, pilose, grayish pruinose layer, with scarce white hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base pointed, black to blackish-brown, shiny, pollinose and pilose hirsute, with chestnut and black hairs (Fig. 6I). Proboscis 1.5 (n=3) mm long, long as half head; theca opaque, pilose, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval

**Mesonotum.** Bicolor or multicolored, beige and black, shiny, with black, chestnut and golden hairiness, pearly pruinose layer only in the lobes, that has a beige coloration. Notopleural lobes

lighted than the scutum, pruinose and with golden hairiness, with a thick pearly of pruinose layer that arrives until the suture scutoescutelar and he extends until the superior part of the longitudinal suture, in the base of the later scutum, in the margin with the scutellum, it presents a band of pearly pruinose that skirts it until the lobes prealar); humeral or pronotal lobes slightly inflated, pruinose, golden hairiness and clearer than the scutum; prealar lobes reddish, pearly pruinose and pilose or bare and opaque. Scutellum beige and black with a pearly pruinose layer in the union with the scutum, paler than the mesonotum, opaque, mesonotum without thoracic triangles, scutum, with stains. Pleura black, with fine and pearly pruinose and abundant pale and spread hairs (Fig. 18K).

**Wings** length 6.0 (5.5-7.0 n=3) mm, crystalline, with areas hyaline on apical margin, base, discal cell, anal and radial or marginal cell, partially fumose on costal margin and costal cell. With dark brown clouded areas on the half and on the crossveins, also a thick cloudy band on the base of R<sub>4</sub>, R<sub>5</sub>, half of M<sub>1</sub> and on the bend of R<sub>2+3</sub>, almost cover the whole apical margin, without stains (Fig). Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and with cloudiness in base; R<sub>2+3</sub> lightly curved, brown veins, margin around the cells darker than tone of cells, Costa with stain in the portion subapical or fascia strongly evident (Fig. 19L), Subcosta, R<sub>1</sub> and A<sub>1</sub> veins with macrotrichia, cell m<sub>3</sub> and r<sub>5</sub> open and basal costal cell fumose or yellow translucent.

**Legs.** Coxae and femora blackish-brown or black, scarcely with black, chestnut-colored or yellow hairiness hind femora whitish pruinose, the tibiae are bicolor pale yellow and brown except the fore tibiae than is monochromatic blackish brown or black, shiny, slightly flattened, lightly curved, with scarce black and chestnut-colored hairiness. Hind tarsomeres monochromatic black and pale yellow, the rest monochromatic brown.

**Abdomen**, base constrained, sub-triangular, monochromatic dark brown to black, bare or with black hairs on the sternite and most abundant on tergites six and seventh, opaque, without bands neither spots or triangles (Fig. 18J).

**Genitalia, female.** Sternite eighth as high as wide or wider than high (square), base wider than gonapophyses, flat, strongly sclerotized forming bands, simple parabasals hairs, with moderate, short (they do not surpass the height of the gonapophyses) hairiness (Fig. 6J). Gonapophyses bilobed, border distal concave without neckline or notch, two times wider than high, moderate and short hairiness, sclerotized, homogeneous sclerotization. Ninth and tenth tergites divided, reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high, abundantly pilose (short and fine hairs) and evenly spread. Cerci exposed, sub-circular, as high as wide, without distal projection, border distal rounded, homogeneous sclerotization, short and moderate hairiness sclerotizeds and non-sclerotizeds (translucent) (Fig. 6K). Genital furca as wide as high, base concave, wide, with external neckline deep, with two projections or branches shorter than width of base of the furca; sides peaked and wide or globose, parallel, without the border distal of branches of arisen genital furca laterally (Fig. 6M). Comb with thorns, long, scarce or spread and without hairs. Spermathecal strongly capited, globose, extreme apical pointed, not perforated (Fig. 6L); spermathecal ducts, with cup-like expansion, caudal spermathecal ducts, with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 1–4 February 2000; Cuñaré-Amu, 1 Female, 23 February-26 March 2001, 1 Female, 7–10 March 2001.

**General distribution.** Neotropics (Provincia Amazónica). Colombia: Caquetá.

**Discussion:** The pattern of eyes this species consists in triangles to each side of the frons, besides the notorious differences with the rest of the chrysops species here mentioned, their description is not consistent with none of the descriptions of chrysops cited by Wilkerson the 1979, neither by those of Woodwin 1985, mentioned in this monograph by be the only keys to that we had access.

***Chrysops sp 3 aff. mexicanus***  
(Fig. 7 A-F)

**Diagnosis.** Small blackish brown species with two longitudinal yellowish bands fine in the scutum and yellow or brown scutellum with an attached stain black to the scutum. Abdomen brown with transversal band in the first tergite and triangles wings with medial brown cloud.

***Female***

**Head.** Length 1.72 mm (1.6–1.8 n=6), surface of the vertex lightly plain to convex, without spots, prominent tubercle, brown (mahogany), bare, completely shiny, the border with pearly pruinose, with large yellowish functional ocelli on the ocellar tubercle and without setae ocellar. Eyes dichoptic, slight green and black, iridescent, with microscopic hairs, dispersed over the whole ocular area, without bands, with a defined pattern of spot or drawing over all eye. Frons slightly divergent toward the base or sub-parallel, brown (mahogany), as wide as high, pilose, pale yellow pruinose layer, opaque, with strongly curve transverse sulcus between frons and subcallus; frontal index 1.1 (1-1.14 n=6). Frontal callus transverse, strongly visible, globose, rhomboidal (higher than wide), does not touch the eyes, without extension, rough, with brown spotted area and yellow the rest, shiny (Fig. 7A). Subcallus or reduced to two annuli. Antenna multicolored yellow and brown, pollinose or with black velvet, with 4 flagellomeres, flattened, or curved up. Frontoclypeus globose, shiny, yellow, bare or with very scarce chestnut hairs. Gena broad, yellow, opaque, bare or pilose with few hairs in the anterior end; subgena or beard with scarce yellow hairiness. Palpus "slender" inflated basally, lightly curved toward the half, pointed, oranges-yellow or dark, pilose, (chestnut not hirsute). Proboscis 1.7 mm of length (1.6-2.1 n=6), as long as the high head, theca shiny, pilose; labella partially sclerotized, with shiny areas, less long than half of the proboscis, partially pilose and oval.

**Mesonotum:** Monochromatic dark brown, with black hairiness, very fine pearly pruinose layer; Notopleural lobes lighted than the scutum, sub-triangular, with scarce chestnut hairiness, humeral or pronotal lobes flat or slightly inflated, oval, chestnut-colored hairiness, with the same tonality to the scutum; prealar lobes brown, with chestnut-colored hairiness. Scutellum totally brown or yellow if it thus with a brown spot adjunct the scutum, paler than the mesonotum or of same intensity than the mesonotum, shiny, bare or with very scarce black or chestnut-colored hairiness scutellum in some with light brown stains. Scutum with two longitudinal and laterals bands, pale yellowish pruinose. Pleura blackish brown and with scarce pale hairiness (Fig. 7B).

**Wings** Length of 6.17 mm (6.0-6.5 n=12), light brown, with areas hyaline on half, on anal cell and on basal or axillary cell, partially fumose on the margin apical; with dark brown clouded areas on the half and on the border of the A<sub>1</sub> veins and it is prolonged like a crossed band on the base of the cell r<sub>2+3</sub>, r<sub>5</sub>, cell discal and the entirety of m<sub>3</sub> leaving a triangular light on the cell cua1 and between the marginal fumosed and the cloudiness. Vein R<sub>4</sub> near or not broadly separated from R<sub>5</sub>, without appendix, with very tenuous cloudiness on base. R<sub>2+3</sub> markedly curved, cell m<sub>3</sub>

open by lightly coarctate, cell  $r_5$  and cell cup open, brown veins, margin around the cells of same intensity of color (except by  $A_1$ ), basal costal cell clouded, Costa without stain in the portion subapical, veins Subcosta and  $A_1$  without macrotrichia, and  $R_1$  with macrotrichia.

**Legs.** Fore coxae monochromatic brown mahogany, bare or with scarce black hairiness. All femora monochromatic yellow, with black and chestnut hairiness. Fore tibiae Monochromatic yellow darkened by hairiness, opaque, flattened augmented (Fig. 7C), lightly curved, with scarce, black hairiness. Mid tibiae monochromatic blackish-brown, with black hairiness. Hind coxa Monochromatic brown and hind tibiae or metatibiae monochromatic blackish-brown, with black hairiness, flattened slightly augmented most that the fore, markedly curved as much the medial as the hind. All tarsomeres monochromatic yellow.

**Abdomen,** base not constrained, sub-triangular, multicolored yellow and dark brown; ventrally with the blackish-brown fifth to seventh sternites and the side of the third, fourth and part of second sternites with brown stains and without erect hairs in the sternite seventh, with chestnut and golden hairs, opaque. With four tergal, transversal and longitudinal bands; dorsally with a blackish-brown transversal band on the inferior border of the first tergite and dark brown sublateral bands printed in the tegument on first to seventh tergites, pilose, abdomen with brown tergal and sternal spots continuous, pilose. With two brown laterals triangles high and wide tergal, printed in the tegument on the second tergites (Fig 7B).

**Genitalia, female.** Sternite eighth wider than high, base wider than gonapophyses, slightly convex, strongly sclerotized forming diagonals bands curved, parabasals hairs presents, not bifid, with scarce and long hairiness. Gonapophyses bilobed, border distal with neckline or notch as deep as the height of gonapophyses (with a deep notch medial), two times wider than high, moderate and long hairiness, sclerotized, concave and subacute distally, heterogeneous sclerotization (Fig. 7D). Hypoproct weakly sclerotized, twice wider than high, abundantly pilose, evenly spread. Cerci not exposed, sub-squares, as high as wide, border distal truncated, and hind border of cerci concave, with homogeneous sclerotization, short, moderate hairiness and translucent (Fig. 7C). Genital furca as wide as high, base convex, narrow, without external neckline, sides there are not branches laterally peaked and acuminate, divergent basally (Fig. 7F). Comb with long and dense thorns and abundantly pilose. Spermathecal strongly capited, extreme apical pointed or blunt, perforated, not very evident (lightly visible), with scarce porosity, spermathecal ducts 1–2 mm long, of two times the long genital furca and of different diameter.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 4 Females, 1–4 February 2000, Cuñaré Amú, 3 Females, 7–10 March 2001, 4 Females, 14–17 February 2001, 9 Females, 23 February–26 March 2001, 3 Females, 28 March–3 April 2001.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion:** *C. sp3* presents likeness especially with *C. mexicanus* in the stains or clouds of the wing, however they differ in the bands or abdominal stains, according to the description of Wilkerson 1979, it presents triangles or triangular stains on the 3 and 4 tergite, we observe mainly longitudinal bands united in 2 and 6 tergites.

***Chrysops sp 4***  
(Fig. 14 J-L)

**Diagnosis.** Small black species, with faint cloud in the wings and hyaline bands in the abdomen. Legs bicolor.

***Female***

**Head.** Length 2.15 mm (2.1-2.2 n=3), surface of the vertex concave, prominent tubercle, black, bare, completely shiny, without ocelli. Eyes dichoptic, slight green, iridescent, bare, without bands, with a defined pattern spot or drawing over all eye. Frons sub-parallel, black, five times higher than wide, pollinose, grayish pruinose layer, opaque, with transverse sulcus between frons and subcallus; frontal index 6.55(5.0-7.3 n=3). Frontal callus strongly visible, sub-square, touching eyes with extension in crest shape, does not touch the vertex, smooth, ochre and black in the superior border, shiny. Subcallus opaque or reduced of brown color, bare, with grayish pruinose layer. Antenna multicolored ochre and brown, scape sub-cylindrical, longer than wide or as long as wide; pedicel circulate, as a annuli, wider than long (1/3 of the long of the scape); with pseudoplate monochromatic and ochre. Frontoclypeus globose, shiny, mahogany, bare, with grayish pruinose layer; gena narrow, opaque, pilose, with grayish pruinose layer, with scarce white hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base, ochre, opaque and with hirsute hairs. Proboscis 1.5 mm of length (1.4-1.6 n=1), does not exceed the high head, theca opaque, labella membranous, with shiny areas, longer than half of the proboscis, partially pilose, oval,

**Mesonotum.** Bicolor or multicolored dark brown and black, with white pruinose layer on the suture. Notopleural lobes lighted than the scutum (fundamental to differentiate this species of *Chrysops sp1 renjifo?* is the coloration of the lobes notopleural in *sp1* are blackish brown, in *C. sp4* are white), sub-triangular, pruinose and with scarce white hairiness; humeral or pronotal lobes slightly inflated, oval, pruinose, chestnut-colored hairiness, white, clearer than the scutum; prealar lobes brown, pruinose, pilose and opaque. Scutellum mahogany, paler than the mesonotum, opaque, bare, with pale yellow and light brown pruinose layer. Pleura blackish brown, pruinose and moderate hairiness.

**Wings** of 7.2 mm long (7.0-7.4 n =3), light brown, without areas hyaline, completely fumose, with clouded areas very faint, contrary to the *Chrysops sp1* that the wings are hyaline with light brown clouds strongly marked on the crossveins, without stains. Vein  $R_4$  broadly separated from  $R_5$ , without appendix, with cloudiness on base;  $R_{2+3}$  markedly curved; cell  $m_3$  and  $r_5$  open, brown veins with the margin around the cells of same intensity of color, Costa with stain in the portion subapical or fascia strongly evident, basicosta pollinose, vein  $R_1$  with macrotrichia and in  $A_1$  absent.

**Legs**, variedly colored, fore legs monochromatic ochre with tibiae markedly curved, brown, with white, black and chestnut-colored hairiness with short black hairs in the ventral part and long, white in the dorsal part of the tibiae. Medial femora monochromatic blackish-brown, with black

hairs, medial tibiae monochromatic white, with whitish hairiness; hind legs brown (mahogany) or blackish-brown, with white hairiness and chestnut-colored hairiness, metatibiae bicolor, blackish-brown and white, with white and chestnut hairiness. Tarsomeres brown mahogany, except the hind than is bicolor brown and beige.

**Abdomen**, base not constrained, sub-rectangular finished is rounded, multicolored, beige and dark brown, first tergite is dark brown as chocolate with sides hyaline, the second tergite dark brown equal as the previous with the beige base, the superior part of the third tergite is beige the rest brown chocolate, this seems to have two bands in the superior part.

**Genitalia, female.** Sternite eighth as high as wide with the base wider than gonapophyses, flat, strongly sclerotized forming bands, parabasals hairs simple, with moderate to scarce, long and short hairs. Gonapophyses bilobed, with concave, strongly sclerotized and without neckline or notch distal border, two times wider than high, with abundant and long hairiness, with heterogeneous sclerotization and a single central band (Fig. 14J). Hypoproct weakly sclerotized, twice wider than high, moderately pilose. Cerci sub-ovoid, higher than wide, border distal rounded, hind border concave, with weak homogeneous sclerotization, and moderate translucent short hairs (Fig. 14K). Genital furca higher than wide, with base concave, wide, short, with external neckline, deep, with two projections or branches shorter than width of base, sides divergent basally (Fig. 14L). Comb with long and abundant thorns and scarcely pilose. Spermathecal non capited, extreme apical blunt, not perforated. Spermathecal ducts with cup-like expansion, 6 times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 1–4 February 2000, Cuñaré-Amú, 1 Female, 28 March–3 April 2001.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion.** Specie very similar to *C. sp 1*, the differences consist in that the clouds of the crossveins is more faint and the wings are more fumose, the fascia is very marked and it presents differences in the coloration of the mesonotum; being black in *T. sp1* and beige or whitish in *T. sp4*.

## Genus *Fidena* Walker

Members of this genus in the study, have Vertex with prominent tubercle, with ocelli functional and with black setae ocellar Eyes unicolour, not iridescent, pilose, without bands, spot or drawing, with transverse sulcus between frons and subcallus. Generally, frontal callus and basal plate absent, a subulate antenna with eight flagellomeres fused, almost always without projections or prominent hair tuft, with scape and pedicel without posterior dorsal margin in cap-like and without projections. Frontoclypeus globose. Palpus flattened foliaceous, lanceolate and thin a long slender proboscis, labella totally sclerotized, bare and clavated. The  $r_5$  cell is usually closed or coarctate and  $m_3$  cell the fourth always open. Wing and mesonotum patterned. Legs all generally blackish-brown or black with spurs in the hind tibiae. Female genital furca without basal projections, or very small (Fairchild 1969, Coscarón & Papavero 1993, and personal observations)

### *Fidena (Fidena) aureopygia* Kröber (Fig. 8 A, 15 A-D, 17 G)

*Fidena aureopygia* Kröber, 1931: 95: 24, Fig. 9; Fairchild 1967: 346, Fig. 21; Wilkerson, 1979: 8 (31-32): 144.

**Diagnosis.** Small to medium yellowish brown specie, with long proboscis and globose frontoclypeo, this specie has the palpus flattened outer aspect. Mesonotum brown with two pale bands and abdomen rounded with spots and legs unicolor.

### *Female*

**Head** of 2.5 ( n=1) mm (Fig. 17G), surface of the vertex convex or plain, brown, pilose, setulose, with black hairiness, and opaque. Eyes dichoptic, of blackish green, not iridescent and pilose. Frons convergent bellow or sub-parallel, black, three or four times higher than wide, with chestnut hairs, with light brown pruinose layer, opaque, without protuberance but with two lateral grooves, and with transverse sulcus between frons and subcallus. Frontal index 4.5 ( n=1). Frontal callus absent or as a black spot. Subcallus globose, opaque, bare, and with a light brown pruinose layer. Antenna longer than palpus, monochromatic reddish brown; scape square, sub-cylindrical, as long as wide, pruinose and with hirsute hairs; pedicel circulate, as an annuli, wider than long, pruinose and with hirsute hairs. Flagellomeres sharpened sub-lobulated and lightly curved up, and with one or two hairs in each flagellomere. Frontoclypeus shiny, mahogany translucent or reddish, bare, very slender and with grayish pruinose layer only in the inferior part, gena very narrow, black, opaque, and with very slender grayish pruinose layer, subgena or beard pilose, with abundant white hairiness. Palpus flattened foliaceous, lanceolate and thin, not inflated (Fig. 8A) (Fig.32 C Coscarón & Papavero 1993), brown, opaque, pollinose and pilose, and hirsute and not hirsute. Proboscis 8.5 mm long, four or five times exceeds the high head; theca shiny, bare, labella shiny, short (1/9 of the long of the proboscis), and bare.

**Mesonotum.** Monochromatic dark brown or black, laterally with longer white and black hairiness, and thick grayish pruinose layer of same tonality to the scutum, with long and abundant

black and most scarce white hairiness. Humeral or pronotal lobes slightly inflated, with white hairiness and of same tonality to the scutum. Prealar lobes brown, with tuft of with white hairiness in the inferior border, opaque. Scutellum brown, of same intensity than the mesonotum, opaque, with black hairiness and very fine grayish pruinose layer or pearly pruinose layer, without bands nor stain. Scutum with two longitudinal and laterals bands, with white pruinose and without stains. Pleura brown, with abundant, long and white hairiness.

**Wings** length, 11 mm, light brown, completely fumose, without clouded nor stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and without cloudiness on base. R<sub>2+3</sub> right; cell m<sub>3</sub> open and r<sub>5</sub> closed with long petiole, yellow veins with margin around the cells of same intensity at the cells, basal costal cell yellowish cloudy, Costa with fascia vestigial, Subcosta without macrotrichia, and Veins R<sub>1</sub>, A<sub>1</sub> and R<sub>5</sub> with arrays of macrotrichia.

**Legs.** All generally monochromatic blackish-brown or black, with grayish layer pruinose and abundant black hairiness except fore coxae than have long white hairiness, protibiae and hind tibiae, opaque, cylindrical, and right.

**Abdomen.** Rounded or oval, pointed, multicolored, yellow and dark brown. The first two yellow tergites, the second with a brown stain, of the three at the seventh darkened gradually with abundant black hairs and white hairs to the sides, shiny, without bands, abdomen with dorsal or ventral black spots, discontinuous, irregular, with dorsal triangles, continuous, and of white pruinose on tergites two to six.

**Genitalia female.** Sternite eighth wider than high with the base wider than gonapophyses, flat, strongly sclerotized forming bands, simple parbasals hairs; with abundant and short hairiness. Gonapophyses bilobed, with the border distal strongly sclerotized with neckline or notch, as deep as the height of gonapophyses, two times wider than high, abundant, short and sclerotized hairiness, with heterogeneous sclerotization that shape a single central band (Fig. 15A). Ninth tergite not divided and tenth tergite divided. Hypoproct strongly sclerotized, twice wider than high, and moderately pilose on distal and external border. Cerci exposed, sub-squares, notably wider than high, border distal truncated, with strong homogeneous sclerotization, and moderate and short hairiness (Fig. 15B). Genital furca wider than high, with the base plane, wide, short, without external neckline, and without projections or branches in the base (Fig. 15C). Comb with short and abundant thorns. Spermathecal non capited, extreme apical pointed, not perforated (Fig. 15D); spermathecal ducts without projections, with similar diameter in the base toward the apex, of 6 to 9 times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female, 7–11 April 2000.

**General distribution.** Neotropics (Colombia: Choco, Caquetá, Valle of Cauca).

**Discussion:** *Fidena (Fidena) aureopygia* differs quickly of (*Fidena Neopangonia*) sp1, described in this work, to present the cell closed r<sub>5</sub> and with petiole, very few specimens of these species were collected (4). The specimen of *F. (F.) aureopygia* does not present the expensive gray pollinose that mentions (Wilkerson 1979).

***Fidena (Neopangonia) sp 1***

(Fig. 15 E-G, 17H)

*Fidena (Neopangonia)* Lutz, 1909a: 4 (10): 619-692; Coscarón & Papavero, 1993: 19, pl. 65, Fig 29 (*Fidena (Neopangonia) pusilla* (Lutz)).

This subgenus characterized by cell  $r_5$  broadly open. Face pollinose and abundant long hairs, are small flies, usually with strongly patterned mesonotum and long and slender proboscis.

***Fidena sp1 (Neopangonia?) Lutz***

**Diagnosis.** The species described in this article it presents a dark or reddish brown coloration, with one black medial line in the thorax and sutures well marked, the abdomen is blackish brown rounded and shiny; the wings are slightly fumose, the fifth later cell open, and with vestigial fascia.

***Female***

**Head** of 2.2mm (2.1-2.3 n=3) (Fig. 17H). Surface of the vertex convex, without spots, of brown color, pilose, setulose, with black hairiness, ocelli functional on the tubercle and black ocellar setae. Eyes dichoptic, purple to black, not iridescent, and pilose. Frons divergent bellow, brown, three or four times higher than wide, with very scarce chestnut hairs, light, grayish pruinose layer, shiny, and with small protuberance under tubercle. Frontal index 3.6 (3.5-3.8 n=3). Frontal callus, absent. Subcallus lengthened and flat, opaque, bare and golden pruinose layer. Antenna longer than palpus, monochromatic yellow to orange; scape conical, sub-cylindrical, as long as wide, with hirsute and chestnut hairs; pedicel circulate, as an annuli, wider than long, and with chestnut and hirsute hairs. Flagellomeres flattened or curved up, and with tufts of prominent hairs, mainly in the apex. Frontoclypeus shiny, orange-yellowish, with very scarce black hairs; gena absent and subgena or beard pilose, with abundant chestnut or golden hairiness. Palpus flattened foliaceous, lanceolate and thin, not inflated (Fig.27 B, 30 C, Coscarón & Papavero), pale-yellow, opaque, and pilose hirsute mainly in the border. Proboscis 8.3mm (8.0-9.0 n=3) long, four times exceeds the high head; theca shiny, bare, labella shiny, short (1/6 of the theca), and bare.

**Mesonotum.** Monochromatic dark brown, with the black longitudinal sutures, black and golden hairiness and very fine pale yellow pruinose layer. Notopleural lobes of same tonality to the scutum, sub-triangular, with yellow and chestnut hairiness; humeral or pronotal lobes slightly inflated, oval, with golden and chestnut hairiness, clearer than the scutum. Prealar lobes brown, with chestnut and yellow hairiness. Scutellum brown, of same intensity than the mesonotum, opaque, with long and black hairiness, with fine light brown pruinose layer, scutum with one, very thin as a thread, longitudinal and medial band, pruinose. Pleura blackish brown, with long, abundant chestnut and reddish hairiness.

**Wings** length, 8.5mm (n=3), light brown, completely fumose, without clouded nor stains. Vein  $R_4$  broadly separated from  $R_5$ , with appendix as a point, shorter than segment than subtend the fork, without cloudiness on base.  $R_{2+3}$  right; cell  $m_3$  open and  $r_5$  lightly coarctate but open, brown veins with margin around the cells of same intensity of the cells, basal costal cell brown fumose

or translucent, Costa with stain in the portion subapical or fascia vestigial, Veins R<sub>1</sub> with macrotrichia and Subcosta and A<sub>1</sub> without macrotrichia.

**Legs.** Fore coxae monochromatic dark brown as the entirety of the legs, with black and chestnut hairiness, shiny, with array black and chestnut hairiness, long and abundant and so much the fore tibiae as metatibiae cylindrical, right and without spurs.

**Abdomen.** Rounded, monochromatic dark brown (mahogany), with black hairs to the sides and bare in the center, shiny; with six, dorsal-ventral and transversal bands, on inferior border and overlap with the following tergite, black or brown, on tergites two to six and on sternites two to seven, bare, abdomen with spots, dorsal or ventral, discontinuous, irregular, black, bares and without triangles,

**Genitalia female.** Sternite eighth wider than high with the base more narrow than gonapophyses, flat, strongly sclerotized forming bands, with simple parabasals hairs, and moderate to scarce, short hairs. Gonapophyses bilobed, two times wider than high, moderate short hairiness, concave border distal with neckline or notch, as deep as the height of gonapophyses, and strongly sclerotized sclerotized, and in general present homogeneous sclerotization (Fig. 15E). Ninth tergite not divided, reserved inside the tergite seventh, tenth tergite divided. Hypoproct strongly sclerotized. Cerci exposed, sub-triangular, lightly wider than high, with acute border distal, with strong homogeneous sclerotization, and scarce, non-sclerotized and short hairiness (Fig. 15F). Genital furca as wide as high (short), with the base slightly convex or plane, wide, short, without external neckline, without projections or branches. Comb with scarce, short or long thorns and scarcely pilose. Spermathecal strongly capited, with the extreme apical blunt, with numerous or abundant pores (Fig. 15G); spermathecal ducts without projections, of different diameter in the apex, and six to nine times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Sararamano, 1 Female, 7–11 April 2000; Río Cuñaré, 2 Females, 1–5 November 2000.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

### **Genus *Dasychela* (*Daychela*) Enderlein**

Genus *Dasychela* is characterized by long slender palpus and proboscides, the labella compact but unsclerotized. The frons is of the medium to narrow width with a ridge-like to clavate callus. Basal plate of the antenna is quite long with a very long dorsal tooth. Wings patterned, with a discal and basal band infuscation with the apices of the basal cells and the apex of the wing hyaline (Wilkerson 1979)

#### ***Dasychela* (*Dasychela*) sp1**

(Fig. 14 M-Ñ)

**Diagnosis.** Medium to great size species, darks, with long tooth, mesonotum blackish-brown, wings black totally except by the marginal apex than is hyaline, legs all black and with the fore tibiae flattened and black abdomen.

### *Female*

**Head.** Length 4.0 mm (n=1). Surface of the vertex concave, without spots, with incipient tubercle, black, bare, completely shiny, and with vestige ocelli on the vertex. Eyes dichoptic, slight green, not iridescent, bare, or with microscopic hairs, dispersed, over the whole ocular area, without bands, spot neither drawing. Frons black, four or five times higher than wide, bare or with very short and fine black hairs, with grayish pruinose layer, opaque, and with transverse sulcus between frons and subcallus. Frontal index 9.3 (n=1). Frontal callus longitudinal, strongly visible, flat or slightly elevated, triangular and elongated (divided lengthwise), touching eyes with extension in crest shape or simply sharpened until that touch the vertex, rough, blackish brown, and opaque. Subcallus convex or slightly high, totally shiny, with hairs in the borders. Antenna shorter than palpus, monochromatic orange, scape square or sub-cylindrical, as long as wide, with hirsute hairs, without posterior dorsal margin in cap-like, pedicel conical, cup-like shape, wider than long, with hairs, hirsute, with cap-like. Consolidated basal plate, monochromatic orange, hexagonal (in hook shape), flattened, elongated or lengthened, pollinose and pilose, as wide as flagellomeres or more than flagellomeres, with one tooth, without bend apical, pilose, shorter or of same length at basal plate. Flagellomeres cylindrical, free, pollinose, with one or two hairs in each flagellomere and shorter than the basal plate. Frontoclypeus plane, opaque, orange, with chestnut hairs, and orange or golden pruinose layer. Gena broad, orange-yellow, opaque, alone pilose in the superior ends, subgena or beard pilose, with abundant golden hairiness. Palpus cylindrical, curved toward the base, blackish-brown, opaque, hirsute. Proboscis 3.3mm long, does not exceed the high head, with theca opaque, pilose and labella totally sclerotized, shiny, less long than half of the proboscis, partially pilose, and clavated.

**Mesonotum** brown to reddish, with black hairiness, and pearly pruinose layer in the anterior part. Notopleural lobes of same tonality to the scutum, sub-triangular, and with black hairiness; humeral or pronotal lobes slightly inflated, oval, with golden hairiness, and clearer than the scutum; prealar lobes brown to reddish, pruinose, with chestnut hairiness, and opaque. Scutellum brown, paler or darker than the mesonotum in the base, shiny, and bare. Scutum and scutellum without setae, bands, stains neither triangles. Pleura oranges anepisternum and anepimeron with abundant golden hairs.

**Wings.** Length 15mm black, with areas hyaline on apical margin, basal and marginal cells, as little or small circle, completely clouded or completely spotted. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix. R<sub>2+3</sub> lightly curved, m<sub>3</sub> and r<sub>5</sub> cells open, black veins with the margin around the cells of same intensity of the cells, basal costal cell with black clouded, costa without stain in the portion subapical or very vestigial, basicosta pollinose, subcosta, and veins R<sub>1</sub> with macrotrichia, and in A<sub>1</sub> absent.

**Legs.** Totally black with long and abundant black hairiness, fore tibiae shiny, flattened, strongly augmented, markedly curved, with short black hairiness, metatibiae with blackish pruinose, flattened, lightly curved, and without spurs.

**Abdomen** with the base not constrained, sub-triangular, monochromatic black, with black hairs (only in the border of the tergite), shiny, without bands, abdomen without spots, without triangles,

**Genitalia, female.** Sternite eighth wider than high, with the base wider than gonapophyses, flat, strongly sclerotized forming bands, with parbasal hairs simple, with abundant, long and short hairs. Gonapophyses monolobed two times wider than high, with abundant, sclerotized, and long hairiness, homogeneous sclerotization, and with border distal plane, weakly sclerotized without

neckline or notch, border (Fig. 14M). Hypoproct weakly sclerotized, twice higher than wide, scarcely pilose on external border and on distal border. Cerci not exposed, sub-circular or sub-ovoid, as high as wide, border distal rounded, hind border flat, with strong homogeneous sclerotization, and scarce, translucent and short hairiness (Fig. 14N). Genital furca as wide as high, base concave, narrow, short, without external neckline, and without projections. Comb with short and scarce thorns, and scarcely pilose. Spermathecal weakly capited, with the extreme apical pointed and not perforated (Fig. 14Ñ). Spermathecal ducts with cup-like expansion, with similar diameter in the base toward the apex and 10 to 12 times the long at genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Puerto Abeja, 1 Female, 29 October-12 November 2000.

**General distribution.** Neotropics (Provincia Amazónica) Colombia Caquetá.

*Dasychela (Dasychela)* sp1 is similar to *Catachlorops (C.)* sp2 but its size is much greater, blackish brown, with brown hair, the antenna is orange with long tooth, as in *Catachlorops (C.)* sp2, has the wings completely dark brown with the hyaline apex, and the orange pleura.

### Genus *Diachlorus* Osten Sacken

The species of *Diachlorus* is characterized by eyes generally bare, with characteristic pattern of slight green or purple spots and stripes, resembling *Chrysops*; vertex concave. Frons divergent with prominent callus, generally touching eyes. All the *Diachlorus* species in this study present a great similarity in their antennae, longer than palpus, monochromatic yellow, scape rectangular, sub-cylindrical, longer than wide, and so much the scape as the pedicel without salient dorsal posterior margin cap-like and with hirsute hairs; pedicel circulate, as a annuli and wider than long. Basal plate pseudoplate, monochromatic yellow, with border wavy hexagonal or rectangular, narrow, flattened, short, with dorsal angle obtuse (almost absent) among the base and half of basal plate, and with black velvet or pollinose, wider than flagellomeres. With four flagellomeres free, flattened and curved up, pollinose, with one or two hairs in each flagellomere, and of same intensity and similar length to the height of the basal plate. Frontoclypeus globose, generally shiny, mahogany and bare. Palpus geniculate often completely inflated and curved toward the base. Mesopleuron and mesosternum darker than adjoining sclerites, the mesopleuron shining pearly pollinose and pleura with a patch of pearly pollinosity. Wing usually with dark marking, the apex often blackish, Basicosta pollinose, Subcosta, veins R<sub>1</sub> and A<sub>1</sub> with macrotrichia. R<sub>2+3</sub> markedly curved and cells m<sub>3</sub> and r<sub>5</sub> open. Female: Genital furca more or less concave basally and sternite 8 at base wider than gonapophyses.

***Diachlorus curvipes* (Fabricius)**

(Fig. 10 H-J)

*Haematopota curvipes* Fabricius, 1805: 107.

*Diachlorus curvipes* Lutz, 1913: 5 (2): 145, pl. 12, Fig. 1; Fairchild, 1942d: 35 (3): 296-297, Fig. 3, Full references; 1946 op. cit., 39 (4): 567.

**Diagnosis.** A small yellow species with blackish markings. Frons narrow 4-5 times higher than wide, thorax marked with middorsal yellow line but without anterior sublateral dark spots, legs bicolor pale yellowish-brown and black, and wings with large apical spots (Wilkerson 1979).

**Female**

**Head** length 2.2 (1.8-2.5 n=3) mm (species of more size than the species morfos *Diachlorus* sp2 and sp3), surface of the vertex concave to plain, black, without spots, nor tubercle, opaque and without ocelli. Eyes slight green, iridescent, with two stripes in zigzags, apical and basal, slight green or coppery, with a pattern of spot or drawing that form a triangle with base in the sides of the frons. Frons sub-parallel to concave in the center, brown or black, six times higher than wide, with short, fine and scarce, golden hairs, pale yellow pruinose, opaque, with protuberance with a furrow in the half, as the extension of the callus but sunken and with transverse sulcus between frons and subcallus, frontal index 4.2 (3.6-5.0 n=3). Frontal callus strongly visible, slightly elevated, small sub-square, touching eyes to seem with extension very short, little visible and separated from the callus, in ridge shape or list does not touch the vertex, rough, of brown to yellow color and shiny. Subcallus flat, opaque, bare and with yellowish pruinose layer. Antenna Fig 71 C (Coscarón & Papavero, 1993). Frontoclypeus shiny, mahogany and bare with of pale yellow color pruinose layer present only in the inferior part. Gena narrow, brown, opaque, pilose, with pearly pruinose layer; subgena or beard pilose and with scarce golden hairiness. Palpus geniculate and completely inflated, pointed, as Fig. 68 C (Coscarón & Papavero, 1993), curved toward the base, pale-yellow, shiny, pilose, hirsute. Proboscis 1.8 (1.5-2.0 n=3) mm long, does not exceed the high head, theca opaque, ventrally pilose, labella membranous, opaque, same half the long of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored yellow lobes and brown the borders and the scutum, the darker posterior; with black and golden hairiness, light brown pruinose layer with some shiny areas without pruinose; Notopleural lobes lighted than the scutum, sub-triangular, with golden hairiness; humeral or pronotal lobes slightly inflated, oval, golden and chestnut hairiness and clearer than the scutum; prealar lobes pale yellow, pruinose and with scarce golden hairiness, opaque. Scutellum yellow to light brown, paler than the mesonotum, shiny, almost bare or with black hairiness, without bands and with light brown stains. Scutum with a longitudinal and medial band, pruinose, without stains. Pleura brown, with yellowish borders, with a light of grizzly pruinose layer and scarce golden hairiness.

**Wings.** Length 9.7(9.5-10 n=3) mm, yellow, without hyaline areas, completely fumose, with dark brown clouded areas on the margin apical. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and without cloudiness on base. Brown veins with margin around the cells of same intensity, basal costal cell yellowish fumose or translucent and Costa with stain in the portion subapical or fascia vestigial.

**Legs.** Generally yellow except by the fore coxae brown, fore and hind tibiae than are brown and beige, and brown respectively. The fore tibiae is shiny, flattened, markedly curved and with moderate black hairiness, by the contrary the hind tibiae is cylindrical, right, without spurs and with black and chestnut hairiness; with golden hairiness except fore femora with black hairiness and yellow hairiness. Protarsi blackish-brown; medial and hind tarsomeres bicolour beige and brown.

**Abdomen.** With the base not constrained, lengthened and sub-triangular, monochromatic yellow to orange, with black hairs thick that form two wide bands to the sides, shiny or with a lightly pale-yellow pruinose layer, with five dorsal, transversal and longitudinal bands, the longitudinal band is thick pale-yellow and it is observed better in dry. The bands are on inferior border the tergite of the two to six, of pale yellow pruinose and overlap with the following tergite, pruinose; abdomen without spots nor triangles.

**Genitalia, female.** Sternite eighth wider than high, with base wider than gonapophyses, concave, weakly sclerotized, with parabasals hairs not bifid, and with moderate long hairiness. Gonapophyses bilobed with border distal with neckline or notch as deep as half of height of gonapophyses, two times wider than high, with dense and long hairiness translucent and with heterogeneous sclerotization (Fig. 10H). Cerci not exposed, sub-ovoid, as high as wide, border distal rounded, hind border flat, with homogeneous sclerotization and moderate, translucent and short hairiness (Fig. 10I). Genital furca higher than wide, base concave, narrow, with external neckline deep, with two projections or branches shorter than width of base, branches blunt, parallel (Fig. 10J). Comb with short or long abundant dense thorns and without hairs. Spermathecal strongly capited, extreme apical pointed or blunt, not perforated (Fig. 10J). Spermathecal ducts with cup-like expansion, with 6.5 mm long, 10 to 12 times the long at genital furca and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Boyacá, Pto Boyacá, Hda Cocomono, 1 Female on bovine (ICN); Caquetá, P.N.N. Chiribiquete, Cuñaré Amú, 3 Females, 23 February-26 March 2001.

**General distribution.** Neotropics (Provincia Pacífica and Amazónica) Costa Rica; Panama to Peru; Bolivia; Brazil: Pará, Rondonia, Mato Grosso; Minas Gerais?); Trinidad; Suriname; Colombia: Antioquia, Boyaca, Caquetá, Cauca, Choco and Valle)

**Discussion:** All the species of this group are very related among if, *Diaclorus curvipes* presents a black shiny stain on the posterior scuto that extends a little on the previous one as main characteristic that separates it of the other species of this genus described in this manuscript, it is lightly bigger, with the strongly inflated palpus, and the nubosidad of the apical margin of the wing is fainter.

***Diachlorus fuscistigma* Lutz**  
(Fig. 10 A-G, Male: D & E)

*Diachlorus fuscistigma* Lutz, 1931: 148, pl 12 Fig. 9.

**Diagnosis.** Small yellow species, eyes with one stripe, mesonotum with two yellow longitudinal stripes, wings with a grayish-brown cloud that it does not surpass the fork of R<sub>4</sub>. Abdomen yellow with the two last blackish brown tergites. Fore legs bicolor brown and yellow and the medial and hind legs completely yellow.

**Female**

**Head** length 2.2mm (2.0-2.6 n=20). Surface of the vertex lightly sunken or concave, without spots nor tubercle, black, completely shiny and without ocelli. Eyes dichoptic slight green and purple, iridescent, bare or with microscopic hairs, dispersed over the whole ocular area, with two diagonal stripe, slight green and with a defined pattern of spot or drawing over all eye forming an invested triangle. Frons convergent below or sub-parallel, black, nine to ten times higher than wide, with white hairs, light brown pruinose layer, opaque, and with transverse sulcus between frons and subcallus. Frontal index 10.5 (10-11.1 n=15). Frontal callus strongly visible, small 1/7 of the frons, robust, elevated to globose, sub-rectangular, touching eyes and with extension very thin with the sunken basal end, in ridge shape or list than does not touch the vertex, rough, brown to reddish-mahogany, shiny, opaque, pollinose and pale yellow pruinose layer. Antenna Fig 71 C (Coscarón & Papavero, 1993). Frontoclypeus shiny, mahogany and bare; gena narrow, black, shiny, scarcely pilose and grayish pruinose layer; subgena or beard pilose, with scarce white and grey hairiness. Palpus geniculate and completely inflated or "slender" inflated basally, curved toward the base, in the base pale-yellow and blackish-brown the rest, shiny, pilose and hirsute. Proboscis 1.2 mm (1.0-1.3 n=20) as long as the high head or does not exceed, theca opaque, ventral face bare, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored lobes and borders yellow and brown the rest, with golden hairiness, thick of color pale yellow pruinose layer (only on the border and lobes). Notopleural lobes lighted than the scutum, sub-triangular, with black and in the border golden hairiness, humeral or pronotal lobes flat, oval, pruinose, golden hairiness and clearer than the scutum; prealar lobes yellow, pruinose, with golden hairiness, opaque. Scutum without setae, without bands or with vestiges of a very fine medial longitudinal band, the sutures scutoescutelar and longitudinal are yellowish forming two L, one of them inverted (┘ ┘). Scutellum yellow, paler than the mesonotum, shiny; without bands, with or without stains, if present are light brown, attached to the base of the scutum. Pleura brown with the border yellow and scarce golden hairiness.

**Wings.** Length 8.2mm (8.0-8.8 n=20), yellow translucent, completely fumose, with fumose-grayish cloudiness to light brown clouded areas, happening for half of the first marginal cell until half of the cells m<sub>1</sub>, m<sub>2</sub>, the margin inferior and on the margin apical it does not surpass the fork of the vein R<sub>4</sub>. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and without cloudiness on base, brown veins and margin around the cells of same intensity than cells. Basal costal cell yellowish fumose or translucent and Costa with stain in the portion subapical or fascia brown strongly evident.

**Legs.** Fore coxae monochromatic brown, with yellow or golden hairiness, fore femora bicolor, yellow in the base and blackish-brown the rest, with black and yellow hairiness, fore tibiae monochromatic black, shiny, strongly flattened, markedly curved, with abundant black hairiness, medial femora and tibiae. Medial femora and tibiae and hind coxa and femora monochromatic yellow, with in array chestnut hairs and scarce yellow hairs and black in the hind femora, hind tibiae bicolor brown and yellow, with in thick array of black hairiness, cylindrical and right (Fig. 10A). Protarsi monochromatic black, and meso and metatarsi bicolor brown and beige.

**Abdomen.** Base not constrained, lengthened and sub-rectangular, multicolored yellow and dark brown only in the tergites six and seven and with black hairs to the sides of the tergites, shiny, without bands, nor spots, with a invested triangle dorsal, printed in the tegument, yellow on the six tergite.

**Genitalia female.** Sternite eighth wider than high, base as wide or more narrow than gonapophyses, slightly concave or flat, strongly sclerotized-forming bands, parabasals hairs presents not bifid, with moderate and short hairiness. Gonapophyses bilobed border distal concave, without neckline or notch, two times wider than high, with moderate, long and short hairiness and with homogeneous sclerotization (Fig. 10B). Ninth and tenth tergites divided, reserved inside the seventh. Hypoproct strongly sclerotized, twice wider than high and with abundant hairiness on distal border. Cerci exposed, sub-ovoid or sub-triangular, higher than wide, with distal projection, with border distal rounded, hind border flat, with homogeneous sclerotization weak and moderate to scarce and short hairiness (Fig. 10C). Genital furca as wide as high, with the base concave, wide, without external neckline, without projections or branches in the base, sides peaked and divergent basally, with the border distal of branches of lifted genital furca laterally (Fig. 10F). Comb with long, abundant thorns and without hairs. Spermathecal weakly capited, extreme apical pointed, not perforated, with cup-like expansion and with similar diameter in the base toward the apex (Fig. 10G).

### **Male**

Contrary to the female the male presents the completely inflated palpuses, non geniculated like in the female, brown blackish very shiny, the eyes are holoptic with an only basal band, the clouds of the apical margin and fascia they are very pale and the genitalia is exposed. The rest of the structures is very similar **Genitalia male.** Paraprocts subtriangular, with waves, scarce hairiness and partially sclerotized. Aedeago funnel, thick (taken of the half) (Fig. 10D). Basistylus as long as wide, totally sclerotized, with scarce hairiness, base wide, apically rounded, without process or apical projection or basal nor tuberosity in the internal half surface (Fig. 10D). Dististylus or apical style presents, simple, truncated in the apex, with internal sclerotization, slightly thinner than thickness of basistylus (taken of half); short less than half of long of basistylus and without projection apical. Epandriun and cerci (Fig. 10E).

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 98 Females, 33 Males, 24–27 January 2000, 8 Females, 3 Males, 26–28 January 2000, 48 Females, 1–4 February 2000, Puerto Abeja, 1 Female, 29 October–12 November 2000; Río Cuñaré, 3 Females, 10–14 November 2000; Cuñaré-Amú, 12 Females, 14–17 February 2001, 12 Females, 19–22 February 2001 1389, 17 Females, 1 Macho, 23 February–26 March 2001, 45 Females, 5 Males, 7–10 March 2001, 2 Females, 28 March–3 April 2001.

**General distribution.** Neotropics (Provincia Amazónica) Suriname; Brasil: Amazonas, Pará, Rondonia, Bahia; Colombia: Caquetá; East of Peru; Bolivia.

**Discussion:** *Diachlorus fuscistigma* differs mainly of to present a longitudinal whitish band on the abdomen, black tergites 6 to 7, the sixth with a medial triangular light, the legs also present a different coloration.

### ***Diachlorus* sp 1**

(Fig. 10 K-M)

**Diagnosis.** Small black and yellow species with the abdomen yellow with dorsolateral bands of black hairs. Eyes with a frontal triangle and black border and wings hyaline with a brown cloud on the apical margin.

#### ***Female***

**Head** of 2.4mm (2.3-2.5 n=5). Surface of the vertex concave, without spots, without tubercle, black, bare, completely shiny and without ocelli. Eyes dichoptic, light green or purple, iridescent, bare or with few and scarce microscopic hairs over the whole ocular area; with two diagonal, apical or basal light green stripe united in the end of the eye, leaving a purple triangle with the base on each side of the frons, the basal band is thicker than the apex. Frons slightly convergent bellow or sub-parallel, black, nine to ten times higher than wide, with white scarce, fine and little visible hairs, grayish pruinose layer, opaque, without protuberance and with transverse sulcus between frons and subcallus; frontal index 9.5 (9.0-10 n=5). Frontal callus strongly visible, small 1/7 of the frons, robust, high to globose, sub-rectangular, touching eyes with extension in ridge shape or list very slender with the sunken basal end than is prolonged until half of the frons but does not touch the vertex, rough, brown to reddish-mahogany and shiny. Subcallus flat or convex to slightly high, opaque, pollinose with pale yellow pruinose layer. Frontoclypeus shiny, mahogany or reddish-brown, bare; gena narrow, black, opaque, very little pilose and with grayish pruinose layer; subgena or beard pilose, with scarce white or grey hairiness. Palpus geniculate and "slender" inflated basally, curved toward the base, blackish-brown, shiny, pilose, with hirsute and chestnut hairs. Proboscis 1.7mm (1.5-2.0 n=3) long, as long as the high head, or does not the exceed, theca opaque, ventrally pilose, labella membranous, opaque, longer than half of the proboscis, as much dorsal as ventrally partially pilose and oval.

**Mesonotum.** bicolor or multicolored black mainly the scutum, leaving the yellow borders and the lobes, with very scarce golden hairiness and pale yellow pruinose layer; lobes totally yellow, with golden and chestnut hairiness only in the border, pronotal lobes slightly inflated and oval; prealar lobes yellow and opaque. Scutellum yellow, paler than the mesonotum, the same as the scutum and shiny. Pleura blackish brown and yellow skirting the anepisternum and moderate or scarce chestnut and golden hairiness.

**Wings** of 9.8 mm long (9.0-10.5 n=3), translucent light brown, completely fumose, with dark brown clouded areas, happening for half of the cell first marginal until half of the medial cells  $m_1$  and  $m_2$ , including the fork of the vein  $R_4$ , the inferior margin on the margin apical and on the crossveins  $bm-cu$  and  $rm$  (According to Nearctic diptera) and without stains. Vein  $R_4$  broadly separated from  $R_5$ , without appendix, with cloudiness on base. Thick brown veins with margin around the cells almost all of same intensity of color, basal costal cell yellow fumose or translucent and Costa with stain in the portion subapical or fascia strongly evident.

**Legs.** All coxae yellow except the medial with the anterior ends brown, with very short chestnut-colored and golden hairiness (with the appearance of being bare). Fore femora and hind femora

bicolor, blackish-brown and yellow, with black and yellow hairiness and medial femora monochromatic yellow, with golden hairs. Fore tibiae and hind tibiae monochromatic black, the fore shiny, lightly flattened, lightly curved, with black hairiness, abundant, Mid tibiae bicolor, black and yellow, with black hairiness (thick), the hind tibiae with black hairiness (dense), cylindrical, right, without spurs. Protarsi monochromatic black, mesotarsi bicolor yellow and beige and hind tarsomeres bicolor, beige and black,

**Abdomen** with the base not constrained, lengthened or sub-rectangular, multicolored dark brown and pale yellow; the tergites two at four with brown stains to each side, continuous but not together to the previous, giving the appearance of two dorsolateral bands, the tergites five, six and seven are completely dark brown, the bands or stains do not arrive the border of each tergite as if it passes ventrally in the morpho *Diachlorus sp2* it is completely yellow, the four tergites leaves a yellow light in the center giving the form of an U, with black hairs mainly abundant to each side of the tergite, shiny. Spots dorsal present, continuous not together to the following tergite, sublateral, brown.

**Genitalia female.** Sternite eighth wider than high, base wider or as wide as the gonapophyses, lightly concave or flat, strongly sclerotized forming bands, parbasals hairs presents, not bifid, with moderate, long and short hairiness. Gonapophyses bilobed, border distal concave without neckline or notch, two times wider than high, with moderate and long hairiness, homogeneous sclerotization. Tenth tergite divided, not reserved inside the seventh (Fig. 10K). Hypoproct weakly sclerotized, as high as wide, scarcely pilose on external and distal border. Cerci lightly exposed, sub-trapezium, as high as wide, with distal projection and border distal rounded, hind border flat, with homogeneous sclerotization, and short and long hairiness (Fig. 10L). Genital furca as wide as high as or wider than high, base concave, narrow, with external neckline deep, with two projections or branches shorter than width of base of the furca, branches acuminate, divergent basally, without the border distal of branches arisen laterally (Fig. 10M). Comb with short long and, abundant thorns. Spermathecal strongly capited, extreme apical pointed, not perforated (Fig. 10M). Spermathecal ducts with cup-like expansion, with fourth mm of long of six to nine times the long genital furca and with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 2 Females 24–27 January 2000, 1 Female, 1–4 February 2000.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion:** *Diachlorus sp1* is very similar to *D. fuscistigma* they differ in the appearance of the fore tibiae, the coloration of the medial tibiae and the hind femora and strong differences can be observed in the genitalia (Fig. 9-10).

## ***Diachlorus sp 2***

**Diagnosis.** Small species, blackish brown and yellow, differs of the other species of *Diachlorus* to presents the shiny brown or black escutellum. Eyes pilose with pattern defined of spots and drawings, wings cloudy in the apical border until half of the marginal cell; strongly notorious fascia. Legs bicolor

### ***Female***

**Head.** Length 1.65 mm (1.5–1.8 n= 8). Surface of the vertex concave, without tubercle, black, pilose, as with small ocellar setae, setulose, with shiny areas and without ocelli. Eyes dichoptic,

slight green and purple, iridescent, with microscopic hairs conglomerates, with two diagonal, apical and basal stripe or with a specific patter of the spots or bands. Frons sub-parallel, black, five to six times higher than wide, with very fine hairs, short and scarce of black and white color, blackish pruinose layer, opaque, with protuberance not very marked or slightly elevated, in the medial part of the frons, with transverse sulcus between frons and subcallus. Frontal index 7.25 (5–12 n= 8). Frontal callus strongly visible, slightly elevated, rounded sub-circular or in gout shape than touching eyes with a extension very slender in ridge shape or list, than does not touch the vertex, smooth, brown, or reddish-mahogany and shiny. Subcallus convex or slightly high, of yellow color with shiny areas or bared for the expense, without hairs and with pearly pruinose layer. Frontoclypeus shiny, brown or mahogany, bare or with very fine hairs toward the inferior part and with grayish pruinose; gena narrow, black, opaque, pilose, pearly pruinose layer; subgena or beard pilose, with moderate black and white hairiness. Palpus brown, shiny, pilose and hirsute. Proboscis 1.3mm (1.2-1.5 n=8) long, as long or does not exceed the high head, theca opaque and pilose in the ventral part; labella membranous, opaque, same half the long of the proboscis, partially pilose and oval.

**Mesonotum.** bicolor or multicolored, all the lobes yellow and the scutum black, with golden hairiness, very light brown pruinose layer. Scutellum dark brown or black, of same intensity than the mesonotum, shiny; mesonotum (scutum and scutellum) without thoracic triangles, setae, bands nor stains. Pleura yellow and blackish brown in the border, with a slender pearly pruinose layer and golden moderate hairiness.

**Wings** 8mm (7.5-8.0 n=8) long, light brown, without hyaline areas, completely fumose and with light brown clouded areas on the margin apical until half of the marginal cell happening by the base of the vein R<sub>4</sub>. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix and with cloudiness on base. Brown veins with margin around the cells basal and discal darker, basal costal cell yellow fumose or translucent and Costa with stain in the portion subapical or fascia vestigial.

**Legs.** All the coxae blackish-brown or black without pruinose and very scarce chestnut and golden hairiness. Fore, medial and hind femora bicolor with the inferior end yellow and brown the rest, with black and yellow hairiness except the fore than have chestnut and black hairs fore tibiae monochromatic totally black, shiny, flattened, lightly curved and with abundant black hairiness. Mid tibiae monochromatic pale yellow, with very scarce black hairs and abundant yellow hairiness. Hind tibiae bicolor with the base pale yellow and blackish-brown the anterior end, with black and yellow hairiness, cylindrical and right. Protarsi monochromatic black, mesotarsi and hind tarsomeres bicolor blackish-brown and pale yellow.

**Abdomen** with the base not constrained, lengthened and sub-rectangular, multicolored the first completely yellow tergites, of the second at the fifth brown leaving a yellow thick band in the center, the sixth and seventh tergites are completely blackish-brown, with black hairs, shiny and with a dorsal, longitudinal and medial yellow bands, on tergites two to five.

**Genitalia, female.** Sternite eighth as high as wide, base wider or as wide as the gonapophyses, concave, weakly sclerotized with the base and center clearer, parbasals hairs presents, not bifid, with moderate and long hairs. Gonapophyses bilobed, border distal with neckline or notch, two times wider than high, with heterogeneous sclerotization (base, lightly clearer). Ninth and tenth tergite divided, reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high and moderately pilose on external border. Cerci exposed, sub-squares, as high as wide, border distal lightly truncated and hind border concave, homogeneous sclerotization, scarce, short hairiness. Genital furca as wide as high, base concave, wide, with external neckline, superficial not very deep, without projections or branches in the base, without the border distal of branches

of arisen genital furca laterally. Comb with short and abundant or dense thorns and without hairs. Spermathecal weakly capited, with the extreme apical pointed, not perforated. Spermathecal ducts with cup-like expansion, caudal spermathecal ducts of 3.5 mm long, six to nine times the long genital furca, with similar diameter in the base toward the apex.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 1–4 February 2000; Cuñaré Amú, 1 Female, 14–17 February 2001, 2 Females, 7–10 March 2001, 8 Females, 23 February–26 March 2001.

**General distribution.** Neotropics (Provincia Amazónica) Colombia: Caquetá.

**Discussion:** The main characteristic that separates this species of the other ones is two abdominal black dorsolateral bands that unite in the sixth and seventh tergite, and the wings translucent with the very faint clouds.

### ***Diacholrus* sp 3**

(Fig. 9 G-I)

**Diagnosis:** Small species, presents a brown and yellow coloration, the abdomen is yellow except by the last two tergites that are black with a yellow triangle in the half. This specie differs of the previous species by the fascia and apical cloud of the wings that are vestigial.

#### ***Female***

Head length 2.35 (2.0–2.5 n=22) mm, surface of the vertex slightly depressed or concave, without spots nor without tubercle, black, pilose, hirsute, opaque and without ocelli. Eyes dichoptic, slight green and purple, iridescent, with two stripes in zigzags, apical and basal, slight green, with spot or drawing brown, than formed a triangle with base in the side of the frons. Frons sub-parallel to convex in the center, black, 8 times higher than wide, with very fine black and golden hairs and yellow to orange pruinose, opaque, with transverse sulcus between frons and subcallus. Frontal index 9.3 (8.5–10 n=22). Frontal callus strongly visible, slightly elevated, very small sub-rectangular, does not touch the eyes, with extension longer, fine and depressed in the base in ridge shape or list, that does not touch the vertex, smooth, with long keel, shiny and very fine of orange-brown color. Subcallus convex or slightly high, with bare or shiny areas or bared for the expense, pale yellow pruinose layer. Frontoclypeus shiny, lightly orange to mahogany and bare; gena narrow, black, opaque, pilose, with fine and very short white hairs and with pale yellow to pearly pruinose; subgena or beard pilose, with scarce chestnut hairiness. Palpus pale-yellow, opaque, pilose, with golden and long not hirsute hairs. Proboscis 1.9 mm (1.8–2.1 n=22) long, does not exceed the high head, theca opaque, with ventral golden hairs, labella membranous, opaque, longer than half of the proboscis, partially pilose and oval.

**Mesonotum.** Bicolor or multicolored, alone the border of the mesonotum including the lobes are yellow and the scutum brown, with very scarce and sort golden hairiness, thick pale yellow pruinose layer (only in the border and lobes). Lobes lighted than the scutum, pruinose, with scarce golden and black hairiness in the border. Mesonotum without thoracic triangles, scutum without setae nor bands or with vestiges of a very fine medial longitudinal band; the sutures scutoescutelar and longitudinal are yellowish forming two L one of them invested (∟ L), scutellum with medial of color dark brown stains, pleura brown with the borders yellow, with a slender grayish pruinose layer and golden scarce hairiness.

**Wings.** 9.5mm (9.0-10.5 n=22) long, yellow, without hyaline areas, completely fumose, with clouded areas, on the margin apical, dark brown cloudiness. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, without appendix nor cloudiness on base. Brown veins, margin around the cells of same intensity of color to the cell, basal costal cell fumose or translucent yellowish and Costa with stain in the portion subapical or fascia vestigial yellowish.

**Legs.** Fore coxae monochromatic brown, with golden hairiness and pale yellow pruinose; all femora yellow except the fore than is yellow and brown, with golden hairiness; fore tibiae monochromatic blackish-brown, shiny, wider than the femora or flattened, markedly curved and with moderate black hairiness; mesotibiae monochromatic yellow, with golden hairiness and the hind tibiae bicolor, brown and yellow, shiny, with black hairiness, cylindrical and right, without spurs. Protarsi monochromatic blackish-brown, medial and hind tarsomeres bicolor beige and brown

**Abdomen** with the base not constrained, lengthened and sub-rectangular, multicoloured, the sternites and the firsts four tergites of yellow color and the fifth and the sixth dark brown, leave a square space in the center of these tergites, of yellow color, the seventh is completely blackish-brown the same than the sternites six and seven. With black and golden hairs, shiny or with a light of pale yellow pruinose layer, without bands, spots nor triangles.

**Genitalia, female.** Sternite eighth elongated, higher than wide, base wider than gonapophyses, flat, strongly sclerotized forming bands, parabasals hairs presents not bifid, and moderate, long hairiness. Gonapophyses weakly monolobed or bilobed, border distal concave without neckline or notch, two times wider than high, with abundant and long hairs, sclerotized, with heterogeneous sclerotization (Fig. 9G). Hypoproct weakly sclerotized, twice wider than high, scarcely pilose, evenly spread (Fig. 9I). Cerci exposed, sub-ovoid, higher than wide, without distal projection, border distal rounded, hind border of cerci concave, homogeneous sclerotization, moderate, non sclerotized (translucent), short hairiness (Fig. 9H). Genital furca higher than wide, or as wide as high (short), base concave, narrow, with external neckline, deep, with two projections or branches, shorter than width of base, sides there are not branches blunt and narrow, divergent basally, without the border distal of branches of arisen genital furca laterally, comb with thorns, short, abundant (dense), without hairs, spermathecal weakly capited, extreme apical blunt, not perforated, spermathecal ducts without projections, with cup-like expansion, caudal spermathecal ducts does not twisted sclerotization of second portion, without constrictions, without diverticles, long of the spermathecal ducts 5,5 mm long, with similar diameter in the base toward the apex, of 6 to 9 times the long genital furca.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 6 Females, 24–27 January 2000, 2 Females, 1–4 February 2000; Cuñaré Amú, 4 Females, 14–17 February 2001, 3 Females, 19–22 February 2001, 2 Females, 7–10 March 2001, 5 Females, 23–26 March 2001, 2 Females, 28 March–3 April 2001.

**General distribution.** Neotropics (Provincia Amazónica) Colombia Caquetá..

**Discussion:** *Diachlorus* sp3 is very similar to the other species, however differs basically by present a pattern of drawings and stains different to the other ones, the wings are darker than in *D.* sp2

#### *Diachlorus* sp 4

**Diagnosis:** This species is very similar to the previous but differs by the shape of frons and pattern of stains and bands of eyes which it consists on a thick diagonal black band that does not form triangles and a green band in zigzag, intermediate.

#### *Female*

**Head** length 2.3mm (n=1), surface of the vertex concave or plain, without spots nor tubercle, of black color, bare, opaque and without ocelli. Eyes dichoptic, slight green and in the border of the eyes purple, iridescent, with one or two stripe, diagonal and in zigzags or can be a single thick purple band that leaves two iridescent green areas one in form of zigzag medial and the other oval in the inferior part of the eyes. Frons divergent bellow, brown, three or four times higher than wide, with white very scarce and fine hairs, grayish pruinous layer, opaque, without protuberance and with transverse sulcus between frons and subcallus. Frontal index 6.8. Frontal callus strongly visible, slightly elevated, sub-square, touching eyes with extension in crest shape than does not touch the vertex, rough, brown or reddish-mahogany and shiny. Subcallus convex or slightly high, opaque, bare and with pale yellow pruinous. Frontoclypeus shiny, mahogany and bare; gena broad, black, opaque, bare, with a thick grayish pruinous layer. Palpus pointed, pale-yellow, shiny, pilose. Proboscis 1.6 mm long, does not exceed the high head; theca opaque, pilose, labella partially sclerotized, with shiny areas, longer than half of the proboscis, partially pilose, oval.

**Mesonotum.** Bicolor or multicolored, in the border and the sutures yellow and the scutum black, with pale yellow pruinous layer. All the lobes with pale yellow pruinous, lobes lighted than the scutum, and with very scarce golden hairiness. Mesonotum without thoracic triangles, setae, bands or stains. Pleura brown with yellow border, with a slightly grayish pruinous layer and scarce golden hairs.

**Wings.** Length 10 mm, yellow, without hyaline areas, completely fumose, with dark brown clouded areas on the margin apical. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, with appendix vestige or shorter than segment than subtend the fork of vein R<sub>4</sub> and without cloudiness on base. Brown veins to yellow veins, margin around the cells of same intensity to the cells, basal costal cell yellowish fumose or translucent and Costa with stain in the portion subapical or fascia vestigial.

**Legs.** Fore coxae monochromatic brown, bares or with very scarce golden hairiness, fore tibiae monochromatic black or blackish-brown, shiny, flattened, markedly curved, with black hairiness, abundant; Mid tibiae monochromatic yellow, with yellow hairiness and hind tibiae bicolor, brown and yellow, with black hairiness and yellow hairiness, cylindrical and right. Fore femora yellow and brown, with chestnut and yellow hairiness; medial and hind femora monochromatic yellow, with fine and scarce yellow hairs in array short and protarsi monochromatic blackish-brown, hind and mesotarsi bicolor yellow to beige.

**Abdomen.** With the base not constrained, lengthened and sub-rectangular, multicolored yellow and dark brown alone the tergites five, six and seven, the fifth with a square space in the center, yellow similar to the superior tergites, with very scarce golden and black hair, shiny, without bands, spots or triangles.

**Genitalia, female.** Cerci exposed.

**Material examined:** Colombia: Caquetá, P.N.N. Chiribiquete, Río Mesay, 1 Female, 24–27 January 2000.

**General distribution.** Neotropics (Provincia Amazónica) Colombia Caquetá.

**Discussion:** *Diachlorus* sp4 the same as *D.* sp3 is very similar to the other species, however differs basically by to present a pattern of drawings and stains different to the other ones, it presents a thick black band that leaves from half of the frons until the inferior margin of the eye and in the superior part one leaves a thin green band in zig zag.

### Genus *Phaeotabanus* Lutz

Larger (wing length 9.6-14mm) flies, is characterized by a narrow frons and callus. Frontal callus small and rounded, usually with a slender upper ridge-like extension; subcallus bare or pollinose. Eyes unicolor, green or bronzy in life, basal plate with obtuse dorsal angle. Palpus slender, pointed, over half length of proboscis. Labella largely or wholly sclerotized. With unstriped thorax and not mimetic. Wing generally with dark pattern, sometimes hyaline usually. Basicosta pollinose. Abdomen of female not acutely pointed; genital furca with long projections below, the branches acutely pointed outwards; sternite eighth with gonapophyses concave distally; and cerci approximately as long as wide (Fairchild 1969, Coscarón & Papavero 1993).

### *Phaeotabanus cajennensis* (Fabricius)

(Fig. 8 B-G)

*Phaeotabanus cajennensis* Fabricius, 1787: 335; Kröber, 1951: 2: 184-192; Barros, 2001: 96 (7): 917-923; Barros *et al.* 2003: 487: 10-18; Ferreira & Rafael, 2004: 48 (2): 283-286, Fig. 3b.

**Diagnosis.** Small species, with eyes unicolor green, thorax blackish brown with golden pruinose layer and golden hairs, wings wholly fumose. Abdomen of this specie is orange in first and second tergites, with white transversal bands and pale triangles only over first to four; all sternites are wholly yellow. Legs bicolor.

### *Female*

**Head** length 3.0 mm (2.8-3.2 n=20). Surface of the vertex plain, with orange spots instead of tubercle, pilose, with black hairiness, opaque, and without ocelli. Eyes slight green or coppery to purple, iridescent and bare. Frons sub-parallel or divergent below, brown, higher than wide, with short black hairs, opaque with yellow pruinose, and with transverse sulcus between frons and subcallus. Frontal index 6.3 (4-10 n=20). Frontal callus longitudinal, strongly visible, slightly elevated, in gout shape, does not touch the eyes, with extension in ridge shape or list than touch the vertex, smooth, brown to black or orange-brown, and shiny. Subcallus convex or slightly high, opaque, pollinose, with golden pruinose and bare areas. Antenna of same long than palpus, monochromatic orange-brown; scape conical, sub-cylindrical, longer than wide, with hirsute hairs, without dorsal margin in cap-like; pedicel conical, cup-like shape, wider than long, with hirsute hairs, and dorsal posterior margin cap-like. Basal plate monochromatic orange-brown, (Fig. 46 D in Coscarón & Papavero 1993: 46), flattened; short, with dorsal angle acute between the base and half of basal plate, pilose, pollinose and wider than flagellomeres. With four flagellomeres curved up, free, with one or two hairs in each flagellomere, shorter and darker or

of same intensity than basal plate. Frontoclypeus convex, opaque, orange, with long golden hairs, and pale yellow pruinose; gena broad, brown, opaque, pilose, with pale yellow pruinose, subgena or beard pilose, with moderate, yellow and golden hairiness. Palpus geniculate (Fig 46 E in Coscarón & Papavero 1993: 82), curved toward the base, pale-yellow, pruinose and pilose. Proboscis 2.2 mm of length (1.8-3.0 n=20), does not exceed the high head; theca shiny, pilose, labella partially sclerotized, with shiny areas, 1/3 long of the proboscis, partially pilose and oval.

**Mesonotum.** Monochromatic dark brown, with short and fine golden hairiness, with a orange or golden pruinose layer. Notopleural lobes lighted than the scutum, sub-triangular, with black and golden hairiness, humeral or pronotal lobes flat to slightly inflated, oval, pruinose, with white hairs, and clearer than the scutum. Prealar lobes reddish, with tuft in the apex end golden hairiness. Scutellum black, darker than the mesonotum, opaque, with golden hairiness in the borders, and golden pruinose. Scutum and scutellum without setae, bands nor stains. Pleura blackish brown, abundant yellow and chestnut hairiness, pale-yellow pruinose, mesonotum without thoracic triangles

**Wings** length 9.78 mm (8.5-10.5 n=20), light brown, with a light hyaline between the first radial and medial cells, partially fumose. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, with appendix very short or absent, if present is shorter than segment than subtend the fork of vein R<sub>4</sub>. R<sub>2+3</sub> lightly curved, cells m<sub>3</sub> and r<sub>5</sub> open, brown veins, margin around the cells of same intensity, basal costal cell yellowish fumose or translucent. Costa with stain in the portion subapical or fascia yellowish strongly evident, Subcosta and veins R<sub>1</sub> with macrotrichia,

**Legs.** Fore coxae in general are blackish-brown or completely yellow but also observed specimens with the apical half the yellow and brown the rest. Fore femora and fore tibiae yellow or brown, their ventral face can be completely brown or to present a yellowish color. Medial femora and hind tibiae, brown and yellow; as much the medial as the hind present the base of the brown femora and the yellow rest. Mesotibiae orange-yellow. Tarsi monochromatic blackish-brown, with abundant golden hairiness,

**Abdomen.** Subsquare or sub-triangular, yellow or orange and dark brown. Ventrally is yellow and dorsally orange with the tergites five at seven blackish brown, pruinose and with golden or yellow hairs; with tufts of black hairs to each side of the last tergites. With seven dorsal ventral and transversal bands on inferior border the tergites and sternites two to seven, of beige or pale yellow pruinose, abdomen without spots and nor triangles.

**Genitalia female.** Sternite eighth lightly wider than high or as high as wide, base wider than gonapophyses, flat salient basal sides, strongly sclerotized forming bands, with an area less sclerotized in the center that forms a clock of sand; simple parabasals hairs (Fig. 8D), with abundant, long and short hairiness. Gonapophyses bilobed, with concave border distal without neckline or notch, two times wider than high, with moderate long sclerotized or non-sclerotized hairiness (Fig. 8E), with heterogeneous sclerotization clearer in the center (Fig. 8B). Ninth and tenth tergites reserved inside the seventh. Hypoproct weakly sclerotized, twice wider than high, and moderately pilose on distal border (Fig. 8F). Cerci exposed, sub-ovoid, higher than wide, border distal rounded, with homogeneous sclerotization, with moderate sclerotized short hairiness (Fig. 8C). Genital furca wider than high, base concave, wide, with external neckline deep, with two projections or branches shorter than width of base, sides wide or globose, parallel (Fig. 8G). Comb with scarce short or long thorns and without hairs. Spermathecal strongly capited, extreme apical pointed, not perforated. Spermathecal ducts with cup-like expansion, length, 2.5 mm, two to five times the long genital furca, and with similar diameter in the base toward the apex (Fig. 8G).

**Material examined:** Colombia: Boyacá, Pto Boyacá, 3 Females, 4 November 1952; Meta, San Juan Arama Caño Guaraya, trocha, 28 September 1987 (ICN); Caquetá, P.N.N. Chiribiquete, Río Mesay, 381 Females, 24–27 January 2000, 6 Females, 26–28 January 2000, 10 Females, 1–4 February 2000; Río Sararamano, 109 Females, 14–17 April 2000, 7 Females, 7–11 April 2000; Puerto Abeja, 31 Females, 29 October–12 November 2000; Río Cuñaré, 1 Female, 1–5 November 2000, 3 Females, 10–14 November 2000; Puerto Abeja, 5 Females, 12–26 November 2000; Río Cuñaré, 10 Females, 15–19 November 2000; Cuñaré-Amú, 30 Females, 14–17 February 2001, 10 Females, 19–22 February 2001, 1 Female, 23 February–26 March 2001, 6 Females, 7–10 March 2001, 2 Females, 28 March–3 April 2001, 1 Female, 21–25 November 2001.

**General distribution.** Neotropics (Trinidad to East of Colombia: Caqueta; Brazil: Sao Paulo; Peru and Bolivia).

**Discussion:** The description presented in this monograph of this species is very similar to its original description, and it is one of the species with bigger number of species collected during this investigation.

### **Genus *Pityocera* Giglio-Tos**

This genus is characterized by a shiny well produced face, third antennal segment with projections or hairs tufts on one or more flagellomeres, and cell  $m_3$  open, cell  $r_5$  closed or open. If the first posterior cell is closed, have a very long petiole. Wing and mesonotum patterned. Female: genital furca with basal projection. The two Colombian species have pectinate and bipectinate antennae. (Wilkerson 1979, Coscarón and Papavero 1993)

#### ***Pityocera (Elaphella) cervus* (Wiedemann)**

(Fig. 9 A-F)

*Pangonia cervus* Wiedemann, 1828: 1 (32): 94.

*Elaphella cervus* Kröber, 1930: 88: 390, Fig. 4.

*Pityocera (Elaphella) cervus* Fairchild, 1971: 28 pl. 28. Syn.

**Diagnosis.** A medium to large brownish species, with pectinate antennae, shiny and bulbous frontoclypeus, and unpatterned smoky brown wings.

#### ***Female***

**Head** length 2.8mm (2.4–3.0  $n=7$ ) (Fig. 9A), surface of the vertex convex or plain, brown, with prominent tubercle, ocelli functional on the tubercle, and with black setae ocellar. Eyes unicolors, blackish green, not iridescent, with conglomerates macroscopic hairs over all the ocular area. Frons divergent below to sub-parallel, reddish brown, three times higher than wide, with chestnut hairs, light brown pruinous layer, opaque, but with the rough base, without transverse sulcus or united to the subcallus. Frontal index 3.12 (3.0–3.5  $n=7$ ) (Fig. 9B). Frontal callus absent or as a rough area, striated in the base of the frons. Subcallus globose, opaque, bare, and with a light brown pruinous layer (Fig. 9B). Antenna longer than palpus, yellowish orange; scape

rectangular, sub-cylindrical, longer than wide, with hirsute hairs, pedicel circulate, as a annuli, wider than long, with hirsute hairs, without salient dorsal posterior margin cap-like. Pseudoplate basal plate, reduced or absent, rectangular, slightly inflated, short, pollinose, more narrow than flagellomeres or as wide as flagellomeres, with one tooth curved in their part apical, pilose, than surpasses the third flagellomere and longer than basal plate, with six flagellomeres, sub-lobulated or cylindrical, free, with dorsal projections or tooth and with tufts of prominent hairs (Fig. 9C). Frontoclypeus lengthened globose, shiny, mahogany (translucent), bare; gena very narrow, black, opaque, and pilose, subgena or beard pilose, with scarce white and yellow hairs. Palpus flattened foliaceous, lanceolate (Fig. 35 B in Coscarón & Papavero 1993: 71), brown, opaque, pilose, with thick black hairs hirsute in the borders. Proboscis 8 mm (8.0-8.6 n=7), three or four times exceeds the high head; theca shiny, bare, labella totally sclerotized, shiny, 1/6 of long proboscis, partially pilose and clavated.

**Mesonotum** light brown the longitudinal sutures very marked, with dense black hairiness, and light brown pruinose layer. Notopleural lobes of same tonality to the scutum, sub-triangular, with black and chestnut hairs; humeral lobes flat or slightly inflated, oval, black and chestnut-colored hairs; prealar lobes light brown, with long black hairiness, opaque. Scutellum brown of the same intensity than mesonotum and with black hairs only in the borders. Scutum with one longitudinal and medial band, pruinose, without setae nor stains. Pleura yellow to oranges, with long and abundant chestnut hairs.

**Wings** length 11 mm (10.7-11.5 n=7), light brown, without hyaline areas, completely fumose, without cloud nor stains. Vein R<sub>4</sub> broadly separated from R<sub>5</sub>, with appendix shorter than segment than subtend the fork of vein R<sub>4</sub>. R<sub>2+3</sub> lightly curved, cell m<sub>3</sub> open, cell r<sub>5</sub> closed, with petiolate as long as the margin of the m<sub>1</sub> cell, cell cup open, yellow veins, margin around the cells of same intensity. Costa with stain in the portion subapical or fascia vestigial, Basicosta pollinose, R<sub>5</sub> with scarce macrotrichia, Subcosta veins R<sub>1</sub> and A<sub>1</sub> without macrotrichia.

All legs oranges or orange-yellow and with chestnut and golden hairiness. Fore coxae with very long golden hairs, hind femora with tufts of long black hair in the superior end, fore tibiae and metatibiae shiny, cylindrical, right, with spurs in hind tibiae.

**Abdomen** rounded to oval, monochromatic light brown, with abundant and not long black hairs, opaque, with one dorsal, medial and longitudinal band, of yellow pruinose on tergites two to six, pruinose, abdomen with black spots, dorsal or ventral, discontinuous, irregular, and without triangles.

**Genitalia female.** Sternite eighth wider than high, with the base more narrow than gonapophyses, flat, weakly sclerotized, with scarce and short hairiness. Gonapophyses bilobed, border distal with neckline or notch, as deep as the height of gonapophyses, as long as wide, with scarce translucent and short hairs, subacute distalmently, and heterogeneous sclerotization (Fig. 9D). Hypoproct strongly sclerotized, twice wider than high, fine and scarcely pilose on distal border. Cerci exposed, sub-squares, lightly wider than high, with border distal wavy, and hind border concave, homogeneous sclerotization, moderate, translucent and short hairiness (Fig. 9E). Genital furca wider than high, with the base concave, wide, without external neckline, without projections or branches in the base (Fig. 9F). Comb with short and abundant thorns. Spermathecal weakly capited, extreme apical pointed or blunt. Spermathecal ducts without cup-like expansion, length four mm, of two to five times the long genital furca, and with similar diameter in the base toward the apex (Fig. 8F).

**Material examined:** Colombia: Caquetá, PNN Chiribiquete, 7 Females, Río Sararamano 7–11 April 2000.

**General distribution.** Neotropics (Surinam; Guyana; North of Brazil; Colombia: Caquetá and Meta; Peru and Bolivia).

**Discussion.** The genus is similar to *Fidena* species but differs in antennal and wing characters.

### Remarks

To our view the characters that present bigger difficulty when describing and of identifying kind of a the family Tabanidae they are those that involve coloration because they are very subjective to the investigator's vision, in this manuscript they are preponderant differences in this respect among very similar species of a gender and still with the original descriptions of some species; as we have mentioned in some cases, it is possible that these and other differences are subject to the environmental conditions of the capture towns, however they are asseverations that you/they need a possibly phylogenetic deeper study. On the other hand 22 of the 64 species present alone a specimen what hindered their identification, in some cases for its not well state, however we include their descriptions in this monograph.

From the list of species of Tabanidae presented 34.3% has not been determined at specific level, and around 17% of the species (including just the determinate until species) found in the Natural National park Chiribiquete they are reported for Colombia, according to the listings suggested by Barreto et al. (1995). These percentages allow us to point out a positive relationship between the diversity of the area and the fauna of existent Tabanidae. Finally, this work enlarges the report of species for Colombia, including *Leucotabanus albovarius* Walker and *Tabanus occidentalis* Linnaeus in the listing of species registered and the distribution area is enlarged until the oriental south region of our country for nine more species; *Fidena (F.) aureopygia* Kröber, *Dichelacera (D.) chocoensis* Fairchild & Philip, *Dichelacera fasciata* Walker, *Tabanus trivittatus* Fabricius, *T. unistriatus* Hine, *Catachlorops (P.) difficilis* (Kröber), *Diachlorus fuscistigma* Lutz, moderate *Stypommisa modica* (Hine) and *Stypommisa jaculator* (Fairchild).

It is necessary to mention that *Catachlorops (Psarochlorops) difficilis*, *Diachlorus fuscistigma* Lutz and moderate *Stypommisa modica* (Hine) are mentioned by Wilkerson (1979) as new reports for Colombia; however he does not make mention to the capture places, examined material neither distribution in Colombia. Equally, in later works as in Fairchild and Wilkerson (1986) they do not include to our country in the area of distribution of moderate *Stypommisa modica*.

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### Explanation of Figures 1-5

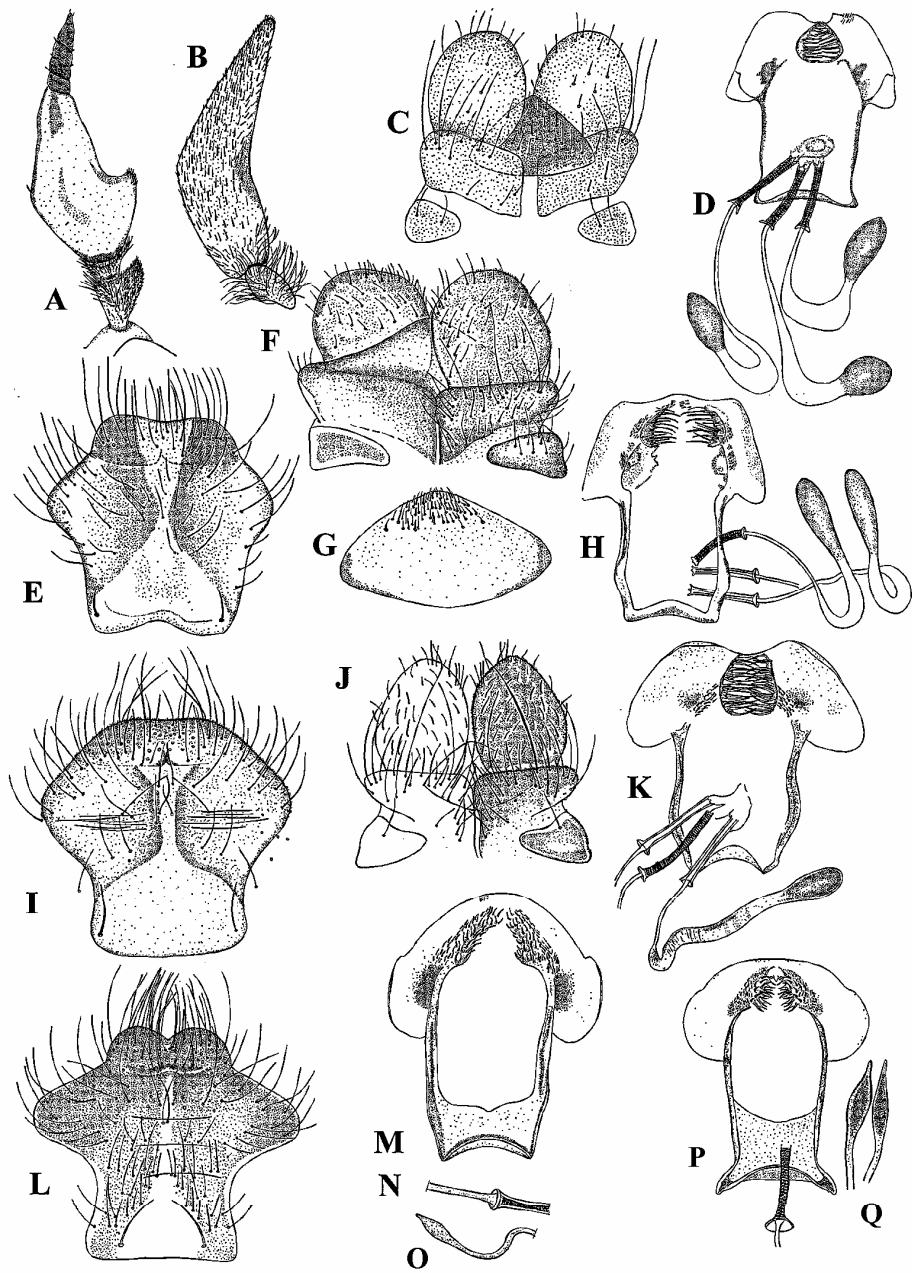
**FIGURE 1.** Female: dorsal view and ventral view, A-D. *Tabanus occidentalis* var. *dorsovittatus*, A. antenna, B. palpus, C. cercus, D. genital furca, spermathecal ducts, and spermatheca. E-H, *T. secundus*, E. sternite eighth and gonapophysis, F. cercus G. hipoproct, H. genital furca. I-K, *T. occidentalis* var., I. gonapophysis, J. cercus, K. genital furca and spermatheca. L-O. *T. unistriatus*, L. gonapophysis, M. genital furca, N. spermathecal ducts, O. spermatheca. P-Q *T. simplex*, P. genital furca, Q. spermatheca

**FIGURE 2.** Female: dorsal view and ventral view, A. *Tabanus trivittatus*, antenna. B-F. *T. sp 1*, B. antenna, C. palpus, D. sternite eighth and gonapophysis, E. genital furca and spermatheca, F. cercus. G-J, *T. sp 2*, G. antenna, H. cercus and hipoproct, I. gonapophysis, J. genital furca and spermathecal ducts. K-M, *T. sp 3*, K. head L. antenna, M. palpus. N-Q. *T. sp 6*, N. gonapophysis, O. bifid parbasal hair, P. cercus, Q. genital furca and spermathecal ducts.

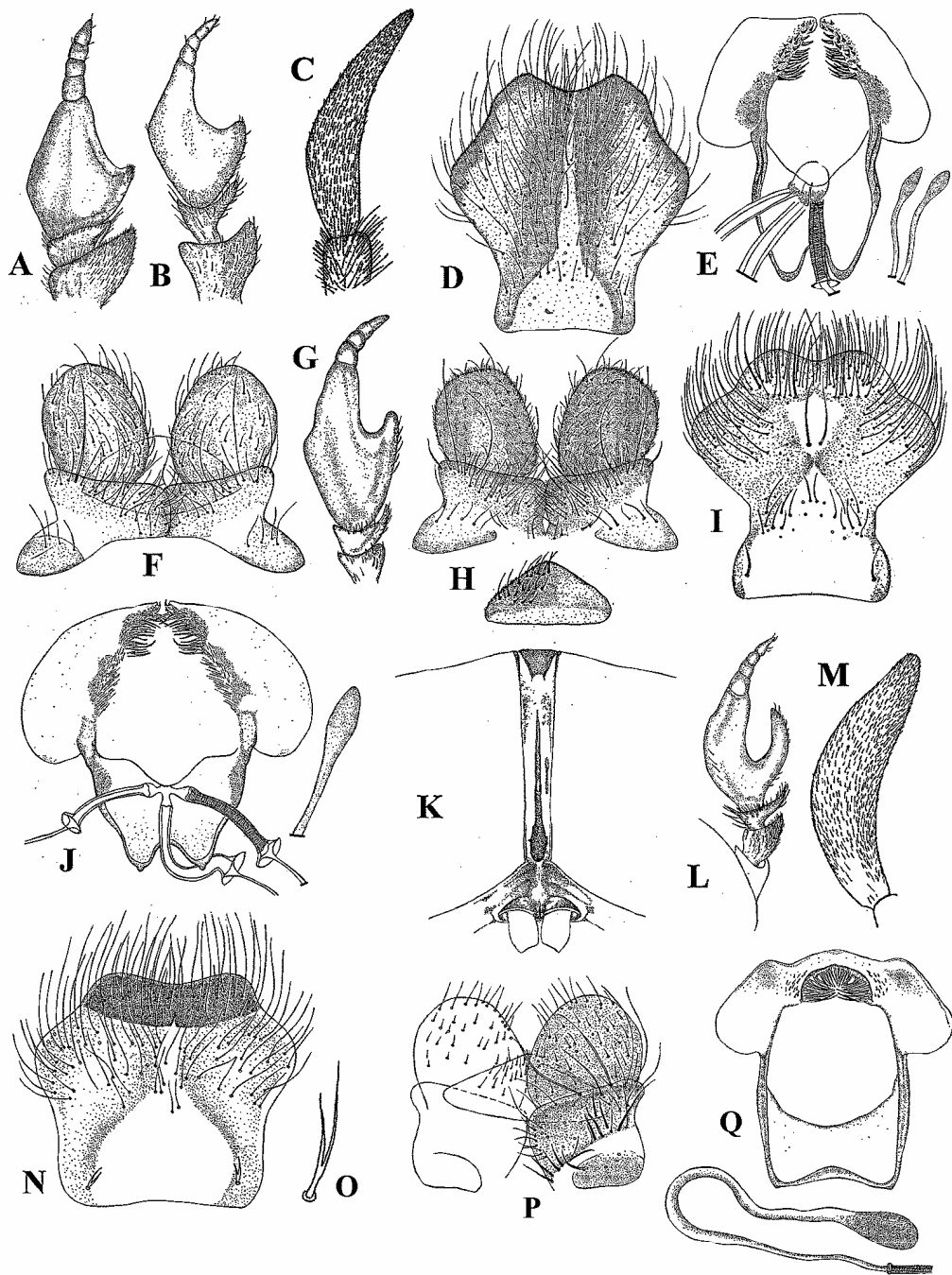
**FIGURE 3.** Female: dorsal view and ventral view, A-D, *Poeciloderas quadripunctatus* var. *amabilinus*, A. sternite eighth and gonapophysis, B. cercus, C. hipoproct, D. genital furca and spermathecal ducts. E-G, *Poeciloderas quadripunctatus*, E. gonapophysis, F. cercus, G. genital furca. H-K, *Leucotabanus pauculus*, H. gonapophysis, I. cercus, J. genital furca and spermathecal ducts, K. spermatheca. L-N, *Stypommisa modica*, L. eighth sternite, M. cercus, N. genital furca..

**FIGURE 4.** Female: dorsal view and ventral view, A-D. *Stypommisa captiroptera*, A. gonapophysis B. cercus, C. genital furca, D. spermatheca. E *Stypommisa sp 2*, callus. F-J, *Stypommisa sp 3*, F. antenna, G. callus H. gonapophysis, I. cercus, J. genital furca.

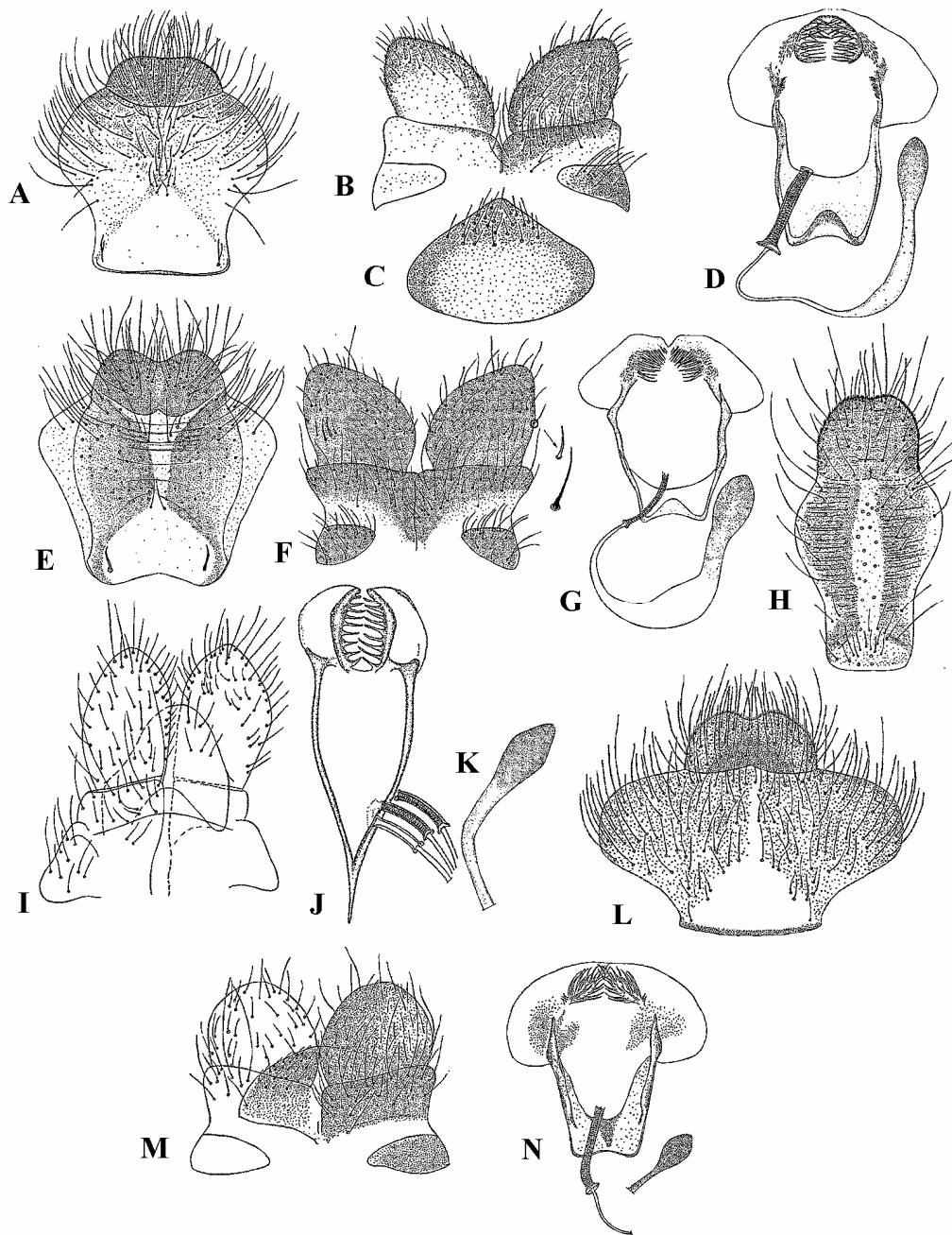
**FIGURE 5.** Female: dorsal view and ventral view, A-C, *Chlorotabanus inanis*, A. gonapophysis, B. cercus, C. genital furca. D-G, *C. sp1*, D. gonapophysis, E. cercus, F. genital furca, G. hipoproct. H-K, *Dichelacera (Dichelacera) chocoensis*, H. gonapophysis, I. cercus, J. hipoproct, K. genital furca and spermatheca. L-O. *Dichelacera (Dichelacera) fasciata*, L. gonapophysis, M. cercus, N. genital furca, and O. spermatheca. P-S, *Catachlorops (Psarochlorops) difficilis*, P. gonapophysis, Q. cercus, R. genital furca, S. spermatheca.



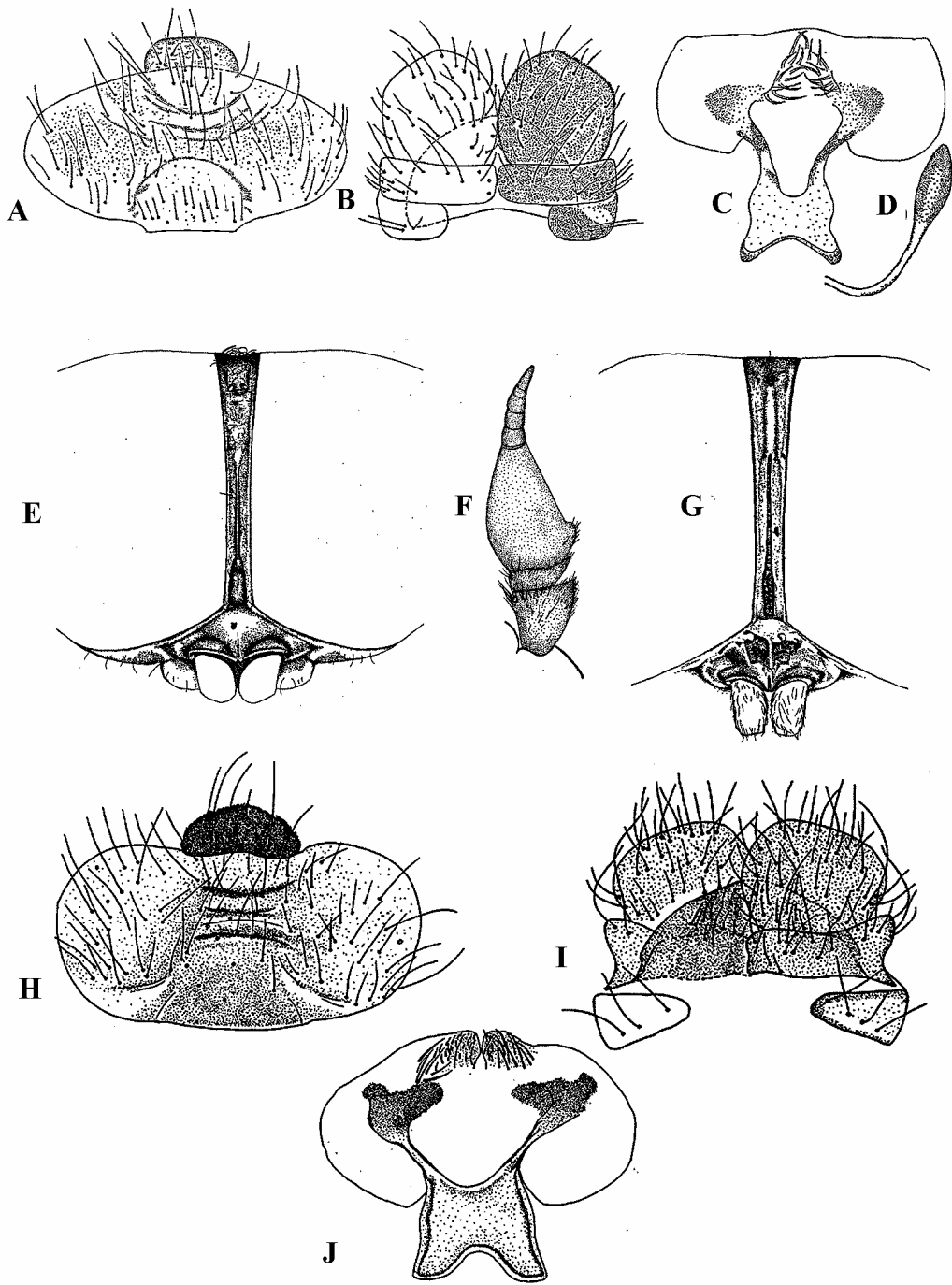
**Figure 1**



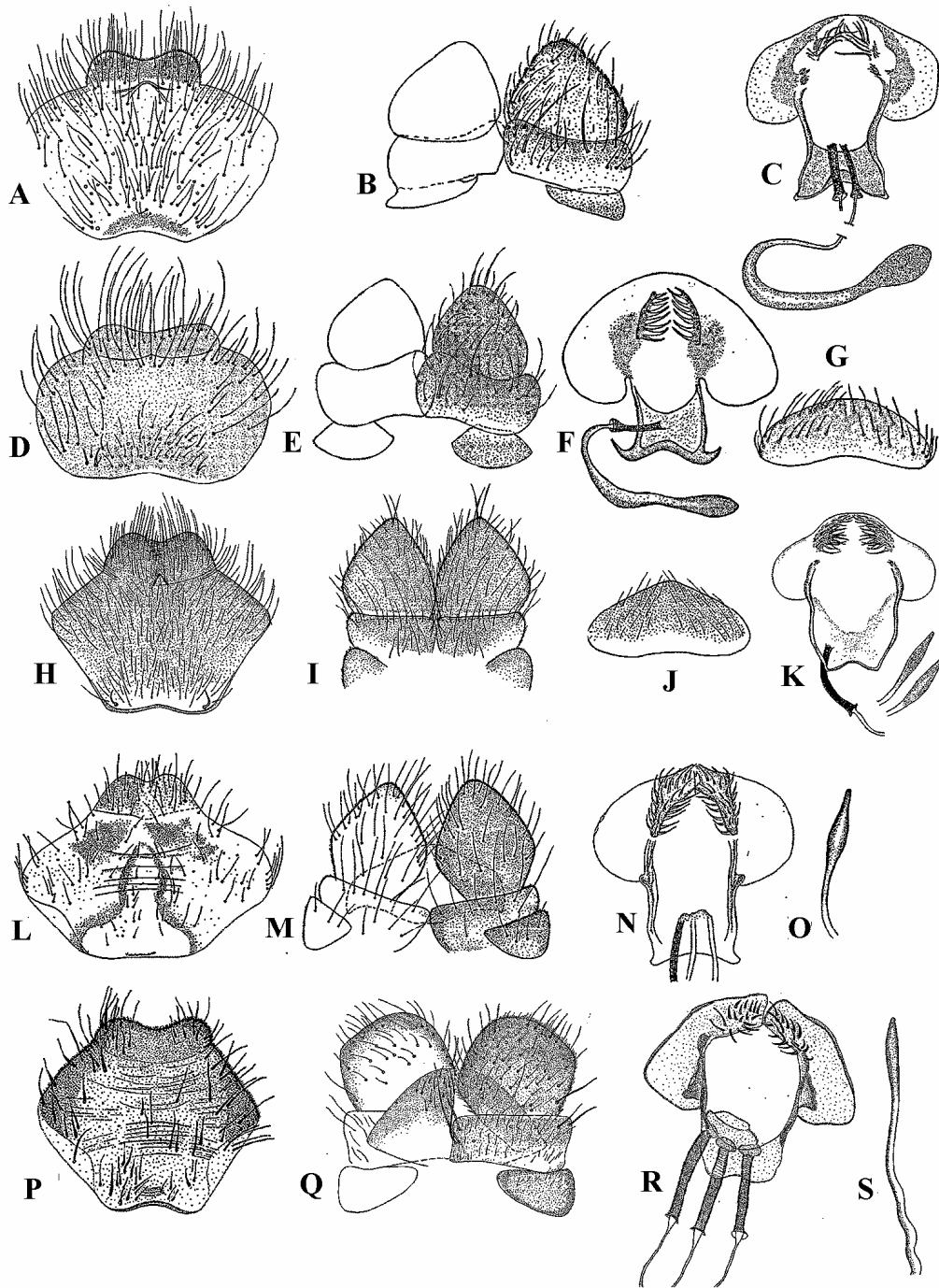
**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**

### Explanation of Figures 6-10

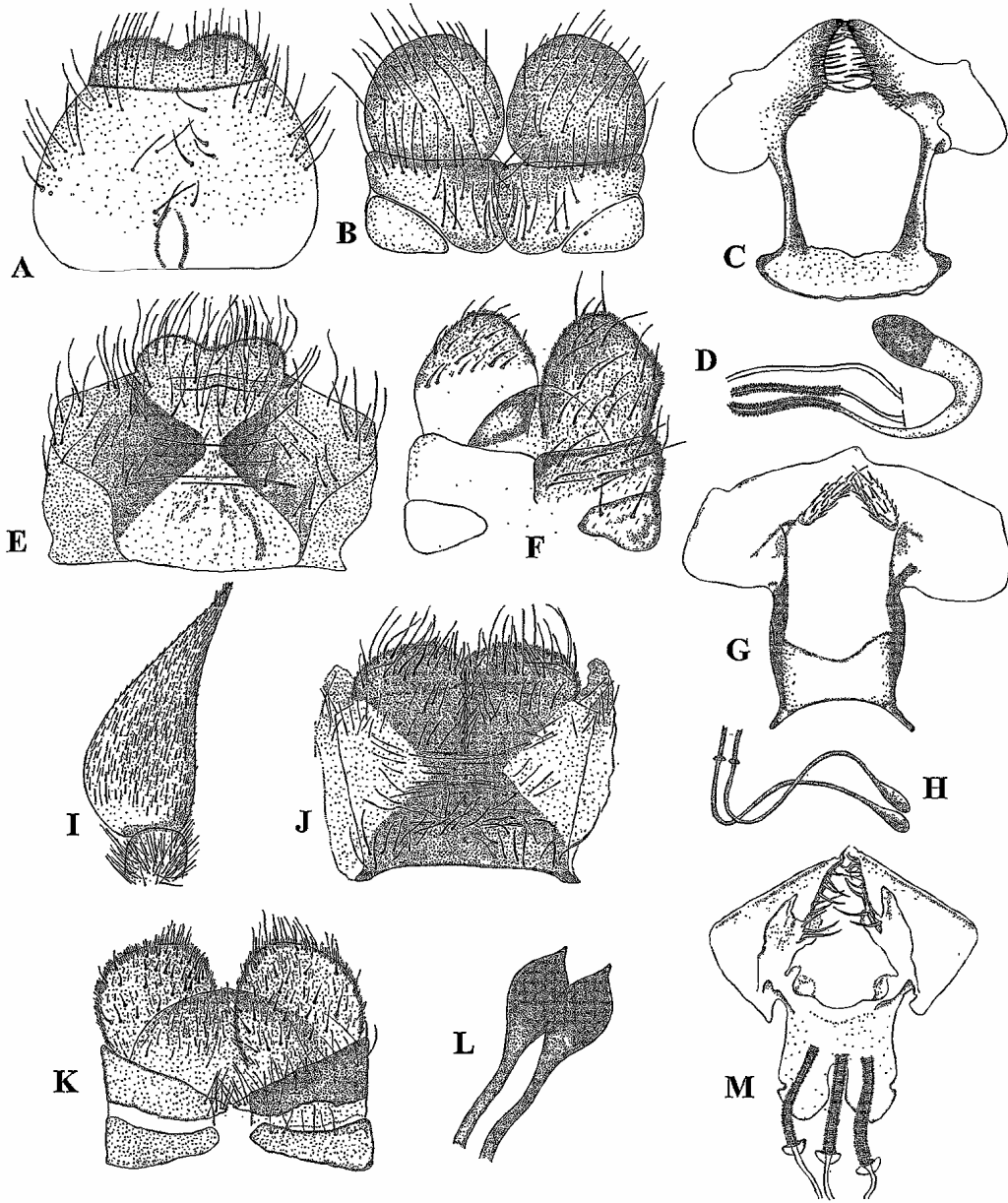
**FIGURE 6.** Female: dorsal view and ventral view, A-D *Chrysops variegatus*, A. gonapophysis, B. cercus C. genital furca, D. spermatechal ducts. E-H, *Chrysops* sp 1, E. gonapophysis, F. cercus, G. genital furca, H. spermatechal ducts. I-M, *Chrysops* sp 2, I. palpus, J. eighth sternite and gonapophysis, K. cercus, L. spermatheca. M. genital furca and spermathecal ducts.

**FIGURE 7.** Female: dorsal view and ventral view, A-F, *Chrysops* sp 3, A. head, B. thorax and abdomen, C. fore leg, D. gonapophysis, E. cercus, F. genital furca and spermathecal ducts.

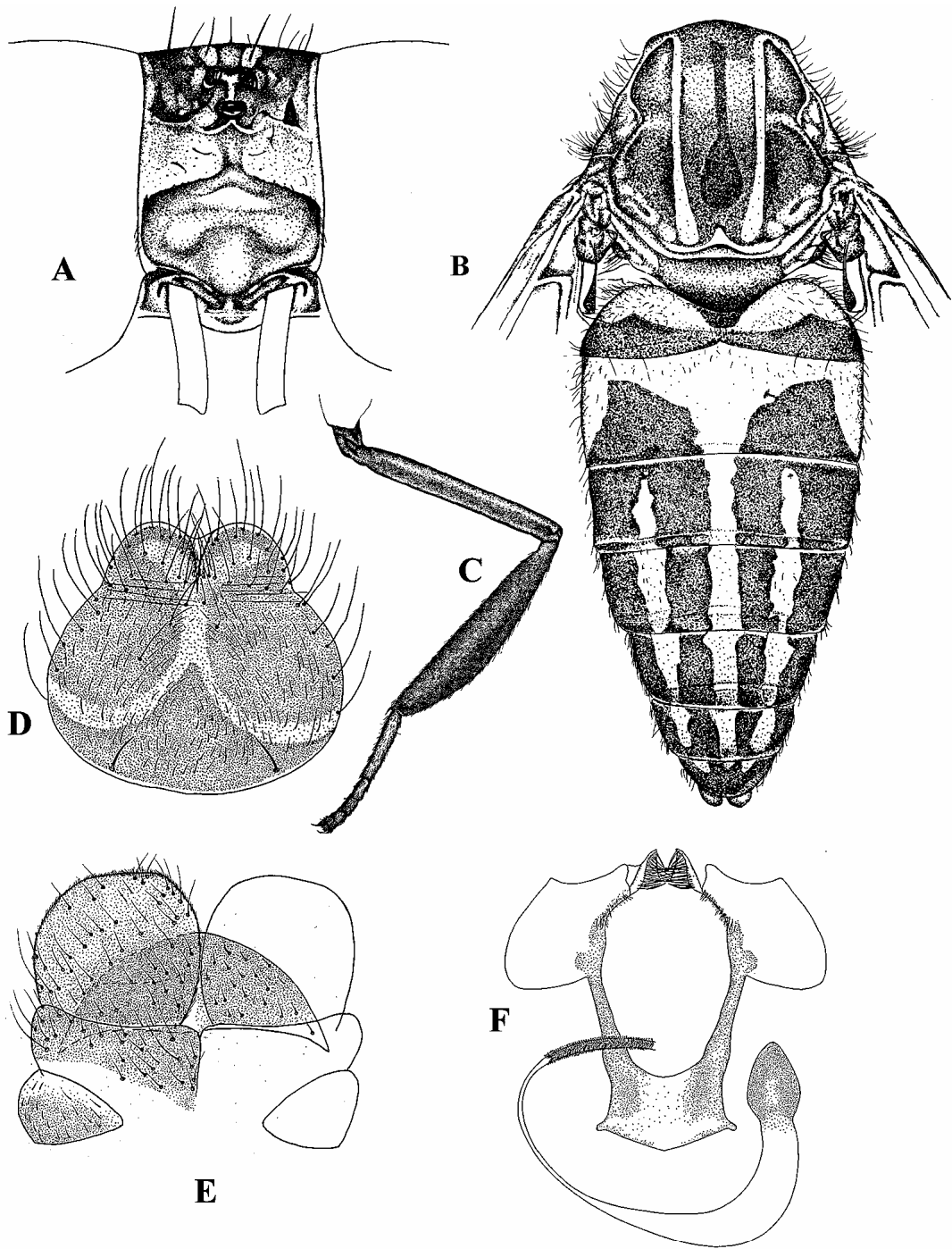
**FIGURE 8.** Female: dorsal view and ventral view, A. *Fidena (Fidena) aureopygia*, palpus. B-G, *Phaeotabanus cajennensis*, B. gonapophysis, C. cercus, D. sclerotized and simple parabasal hair, E. non sclerotized hairs, F. hipoproct, G. genital furca and spermathecal ducts.

**FIGURE 9.** Female: dorsal view and ventral view, A-F. *Pityocera (Elaphella) cervus*, A. head, B. frons and callus, C. antenna, D. eighth sternite, E. cercus, F. genital furca and spermathecal ducts. G-I, *Diachorus* sp 3, G. eighth sternite, H. cercus, I. hipoproct,

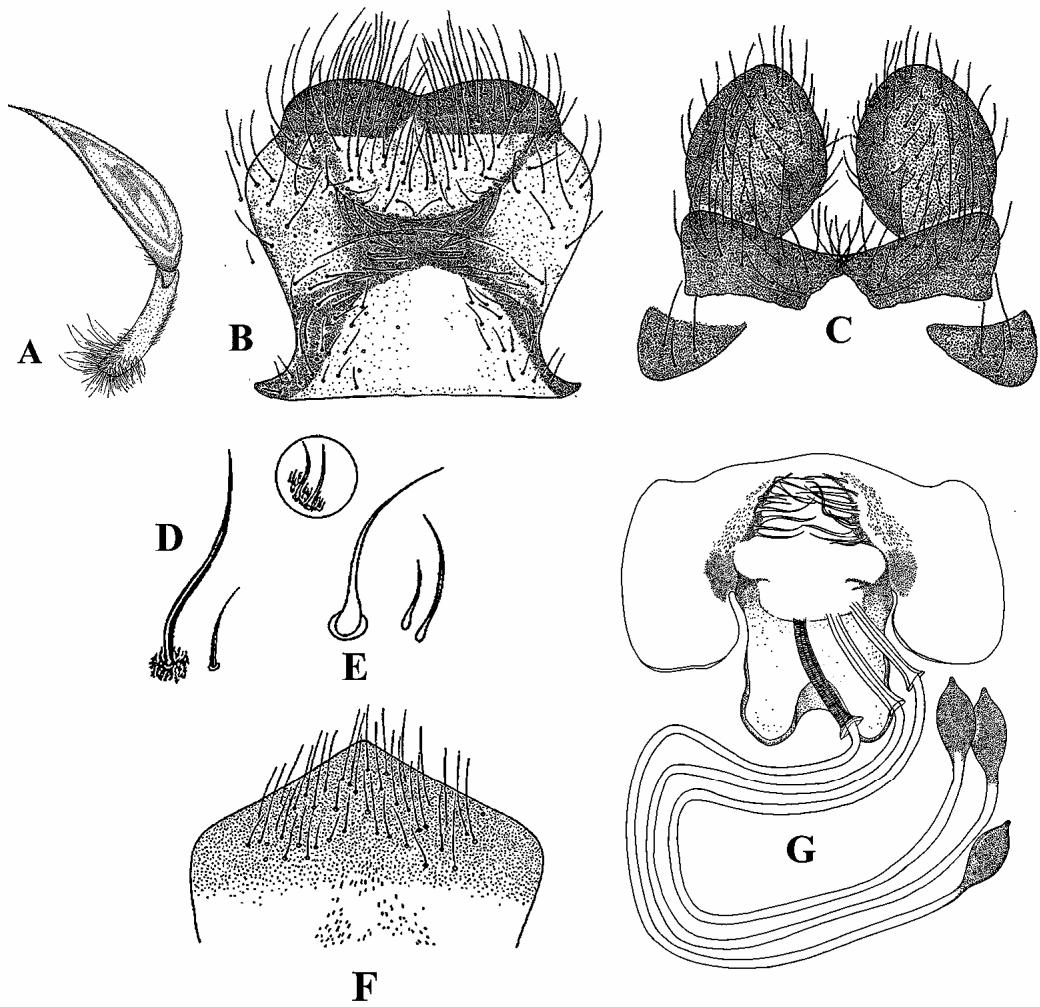
**FIGURE 10.** Female: dorsal view and ventral view, A-C, F-G. *Diachlorus fuscistigma*, A. hind leg, B. gonapophysis, C. cercus. Male: D. aedeagus and gonostilo, E. cercus, F. genital furca, G. spermathecal ducts, H-J, *D. curvipes*, H. eighth sternite, I. cercus, J. genital furca and spermatheca. K-M, *D.* sp 1, K. gonapophysis, L. cercus, M. genital furca and spermatheca.



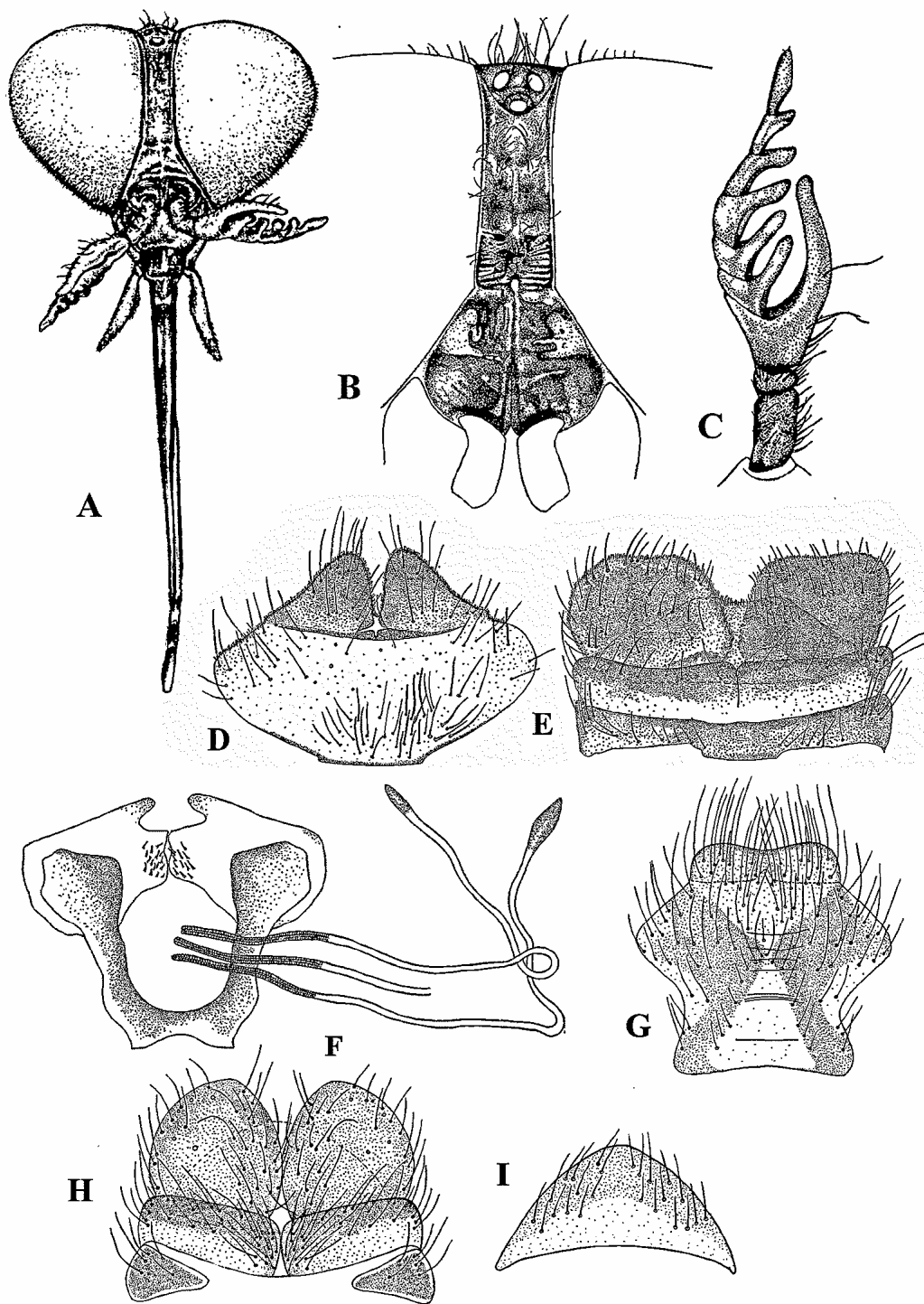
**Figure 6**



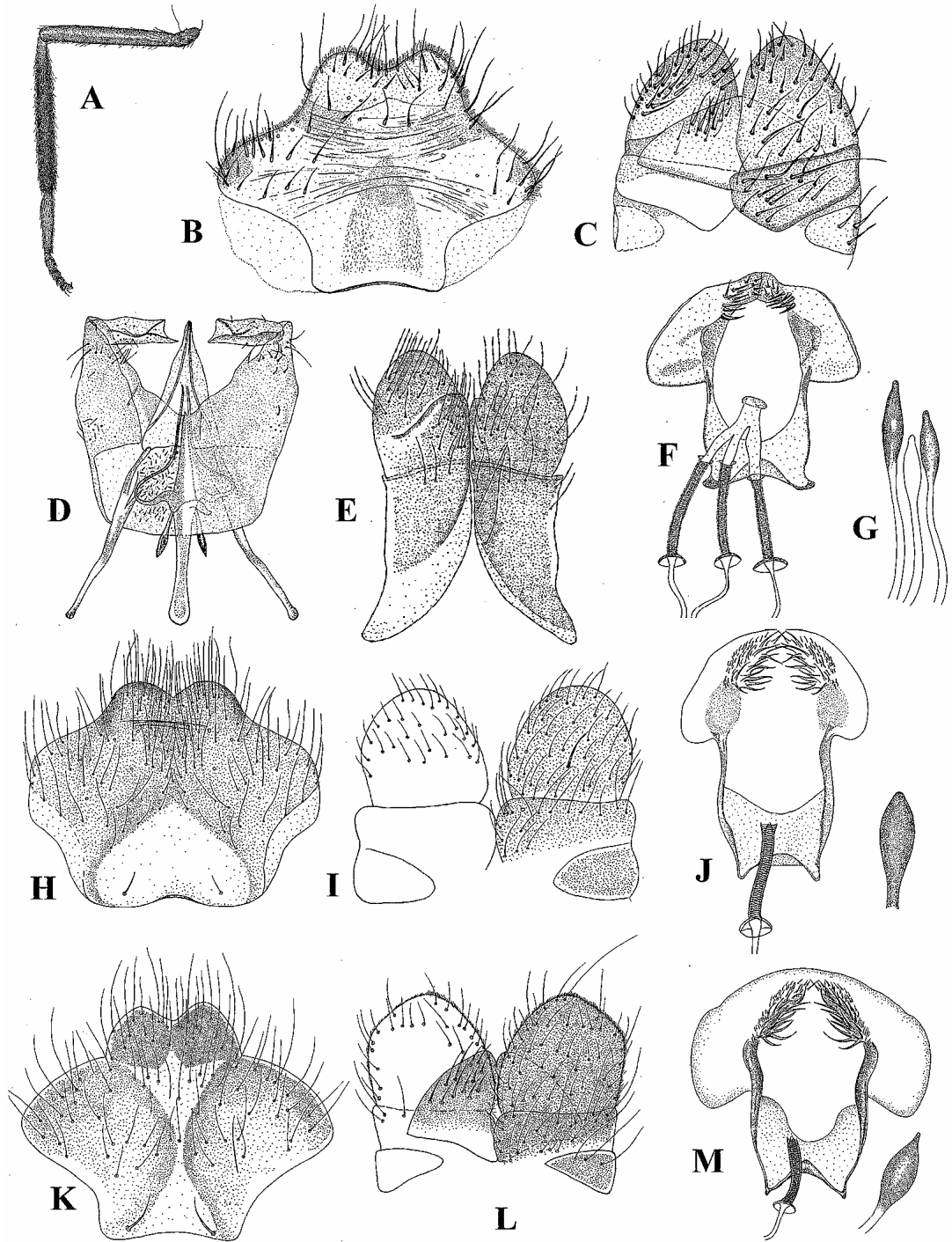
**Figure 7**



**Figure 8**



**Figure 9**



**Figure 10**

### Explanation of Figures 11-15

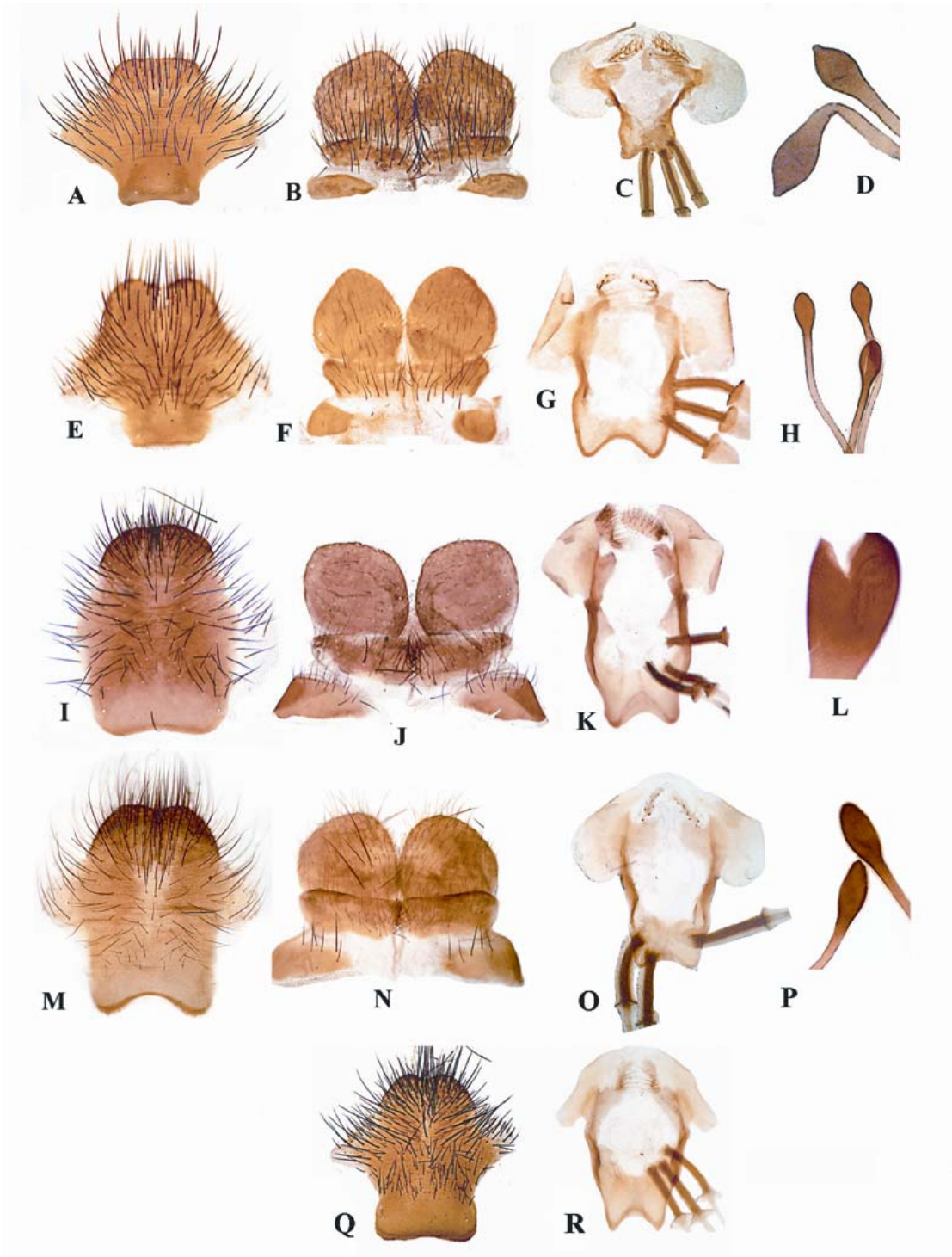
**FIGURE 11.** Female: dorsal view and ventral view, A-D, *Tabanus albocirculus*, A. gonapophysis, B. cercus, C. genital furca, D. spermatheca. E-H. *T. trivittatus*, E. gonapophysis, F. cercus, G. genital furca, H. spermathecal ducts. I-L, *T. sp 7*, I. eighth sternite, J. cercus, K. genital furca, L. spermatheca. M-O, *T. sp 8*, M. gonapophysis, N. cercus, O. genital furca, P. spermatheca. Q-R, *T. sp 11*, Q. gonapophysis, R. spermatheca.

**FIGURE 12.** Female: dorsal view and ventral view, A-D, *Tabanus sp 13*, A. gonapophysis, B. cercus, C. genital furca, D. spermatheca. E-H. *T. sp 16*, E. gonapophysis, F. cercus, G. genital furca, H. spermathecal. I-K, *T. sp 17*, I. eighth sternite, J. cercus, K. genital furca. L-O. *T. sp 18*, L. gonapophysis, M. cercus, N. genital furca, O. spermatheca.

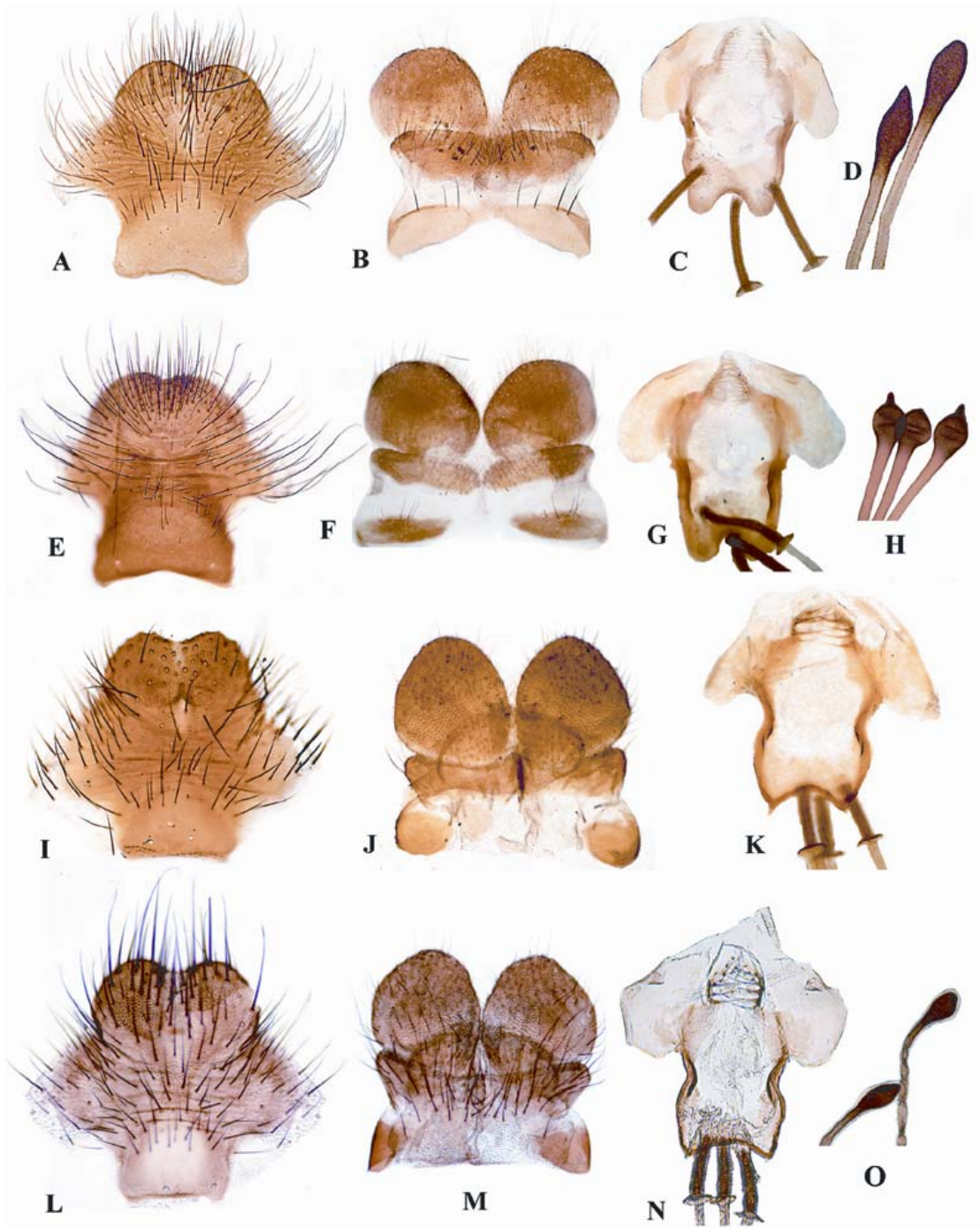
**FIGURE 13.** Female: dorsal view and ventral view, A-D, *Leucotabanus albovarius*, A. gonapophysis, B. cercus, C. genital furca, D. spermatheca. E-G. *Stypommisa jaculator*, E. gonapophysis, F. cercus, G. genital furca, H-k, *Stypommisa pequeniensis*, H. sternite 8, I. cercus, J. genital furca, K. spermatheca. L-M, *Stypommisa sp 1*, L. gonapophysis, M. cercus. N-Q, *Stypommisa sp 2*, N. gonapophysis, O. cercus, P. genital furca, Q. spermatheca. R-S, *Chlorotabanus sp 2*, R. gonapophysis, S. cercus.

**FIGURE 14.** Female: dorsal view and ventral view, A. *Catachlorops (Catachlorops) sp 1*, cercus. B-D, *Catachlorops (Amphichlorops) sp 1*, B. gonapophysis, C. genital furca, D. spermatheca. E-H, *Chrysops varians var. tardus*, E. gonapophysis, F. genital furca, G. detail of the thorns of the comb, H. cercus. I. Male: *Chrysops sp 1*, aedeagus and gonostylus. Female: J-L *C. sp 4*. J. eighth sternite, K. cercus, L. genital furca. M-O, *Dasychela (Dasychela)*, M. gonapophysis, N. cercus, O. spermatheca.

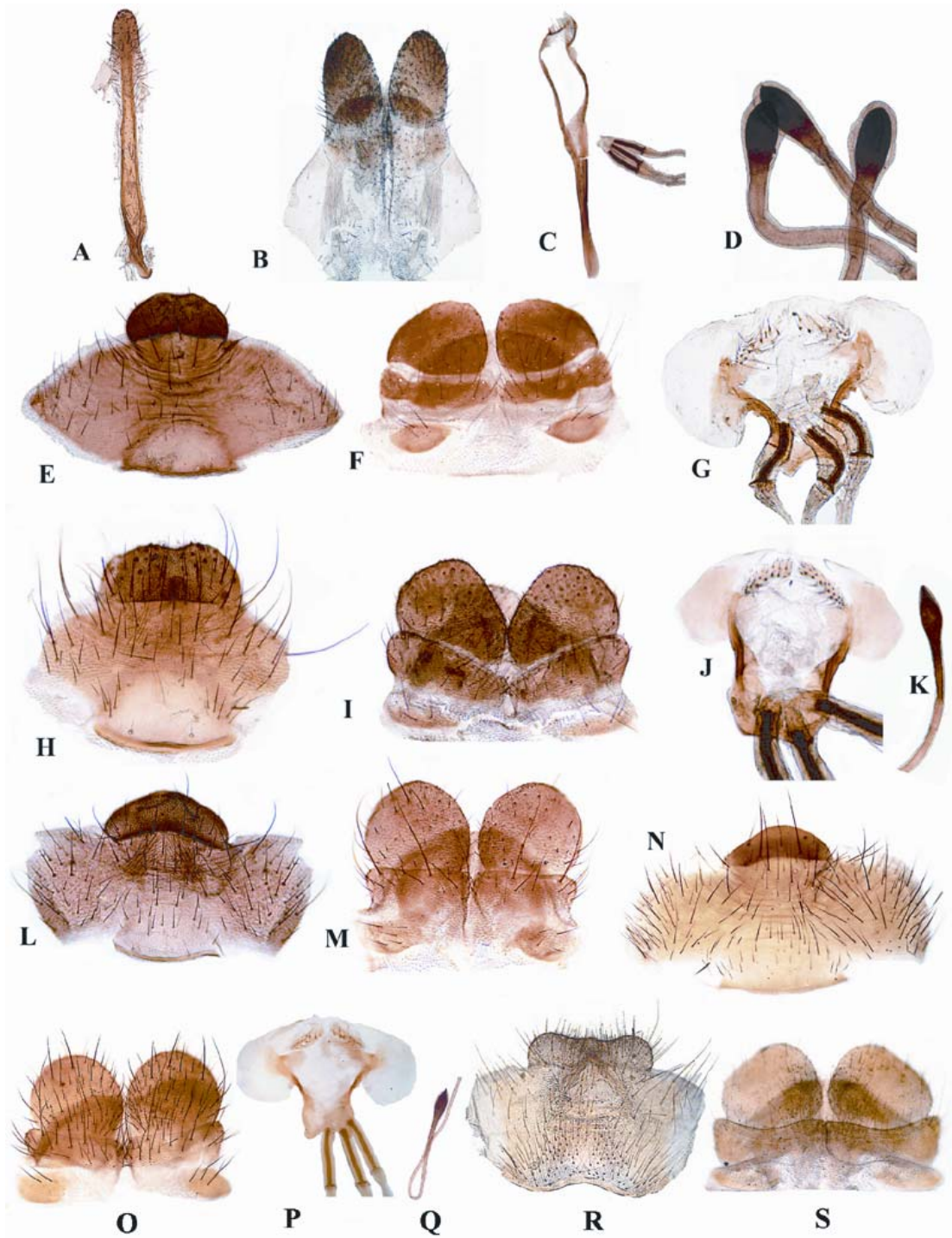
**FIGURE 15.** Female: dorsal view and ventral view, A-D, *Fidena (Fidena) aureopygia*, A. gonapophysis, B. cercus, C. genital furca, D. spermatheca. E-G. *Fidena (Neopangonia)*, E. gonapophysis, F. cercus, G. spermatheca.



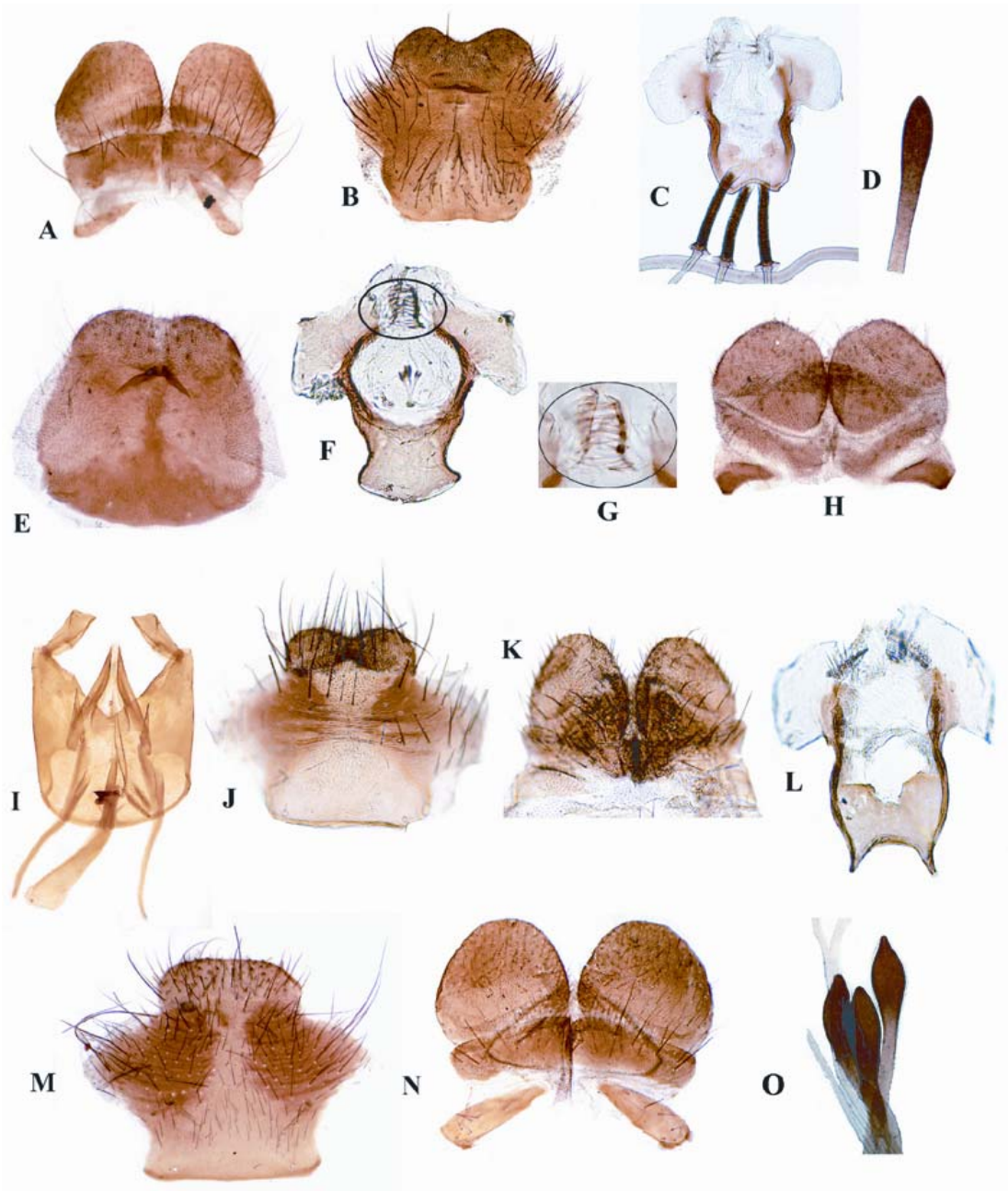
**Figure 11**



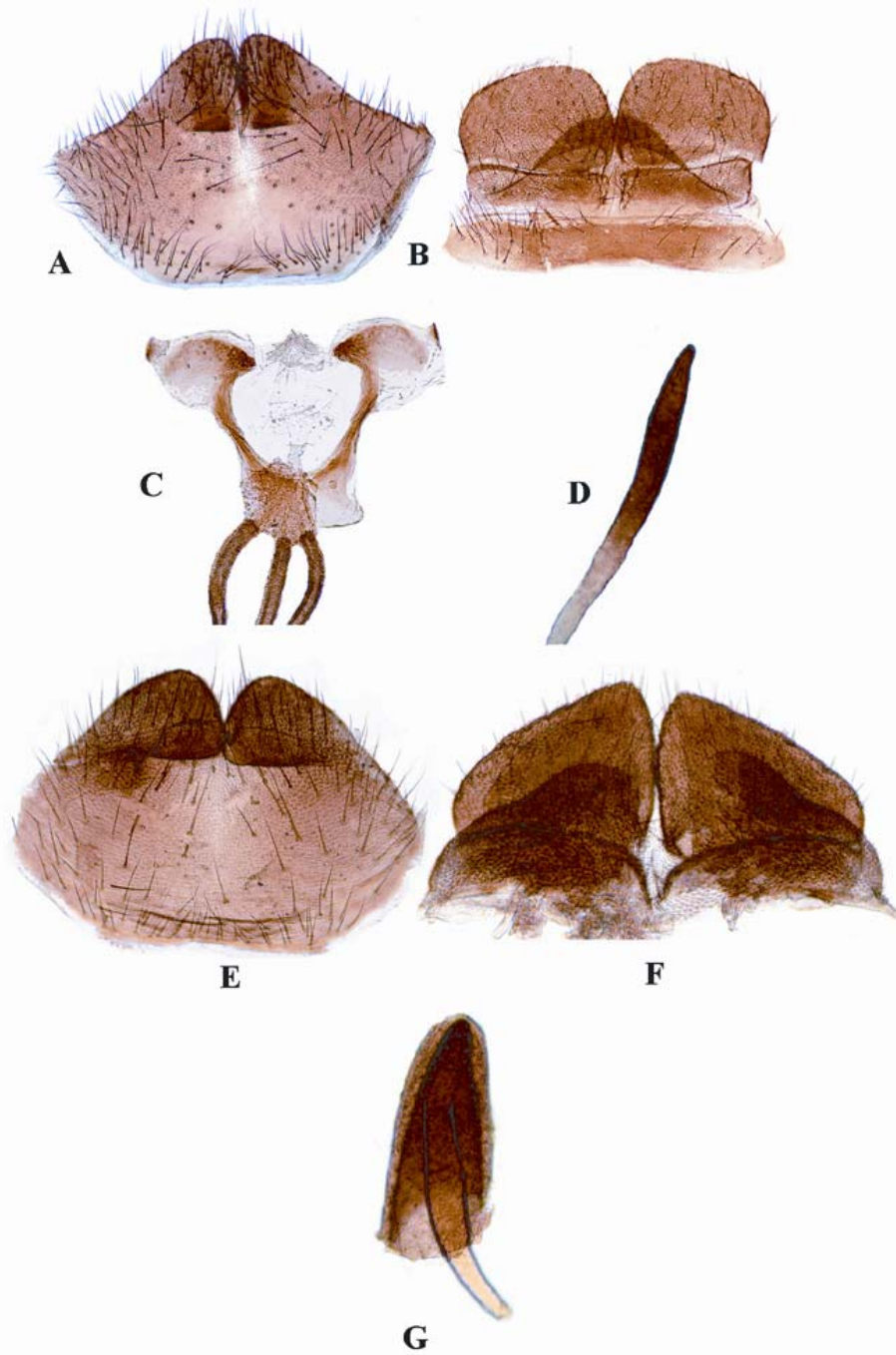
**Figure 12**



**Figure 13**



**Figure 14**



**Figure 15**

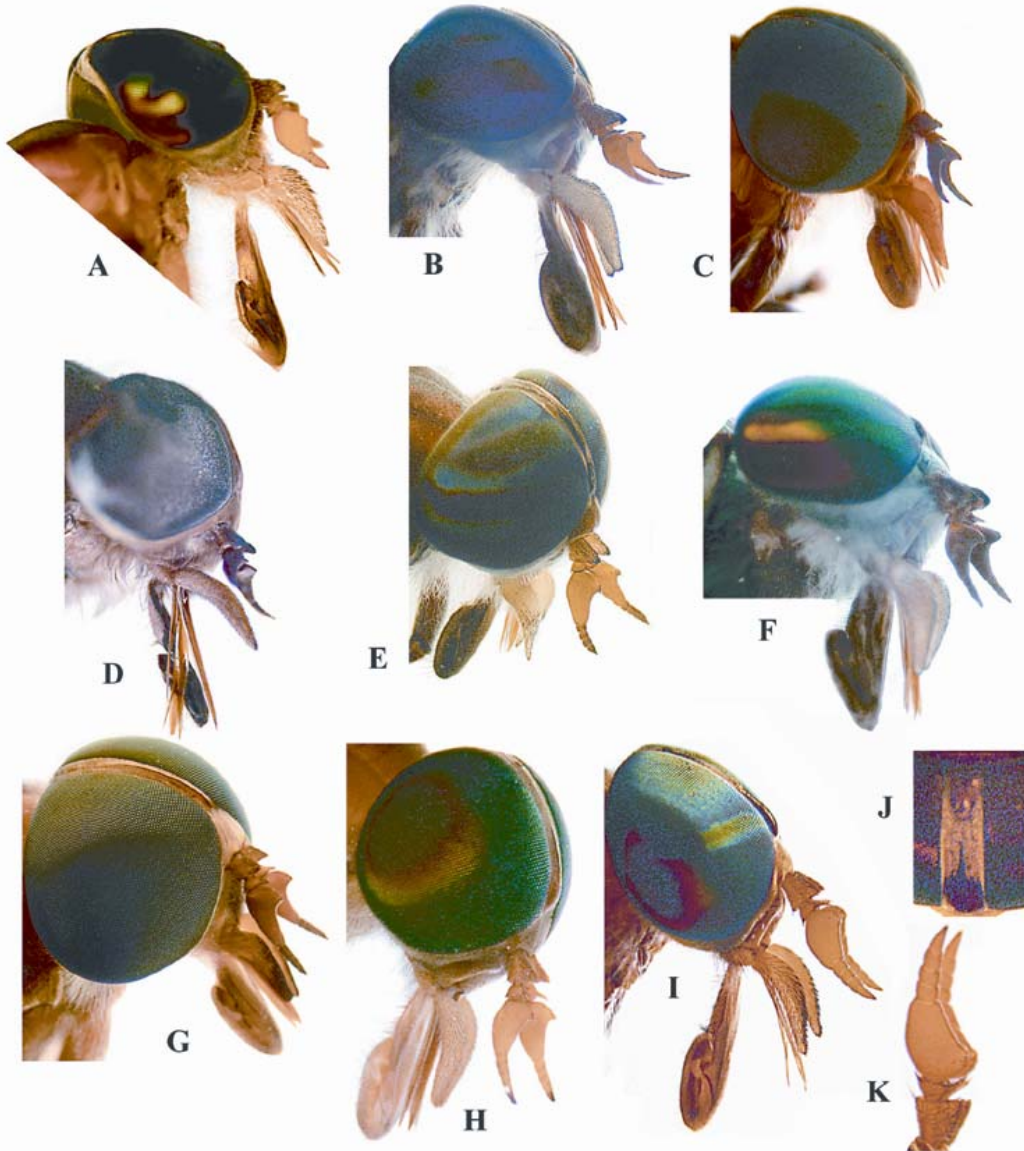
### Explanation of Figures 16-19

**FIGURE 16.** Head: dorsolateral view, A. *Tabanus* sp 6, B. *T.* sp 7, C. *T.* sp 11, D. *T.* sp 15, E. *T.* sp 18, F. *Poeciloderas quadripunctatus (amabilinus)*, G. *Leucotabanus albovarius*, H. *Stypommisa captiroptera*, I-K. *Stypommisa jaculator*, I. head, J. callus, K. antenna.

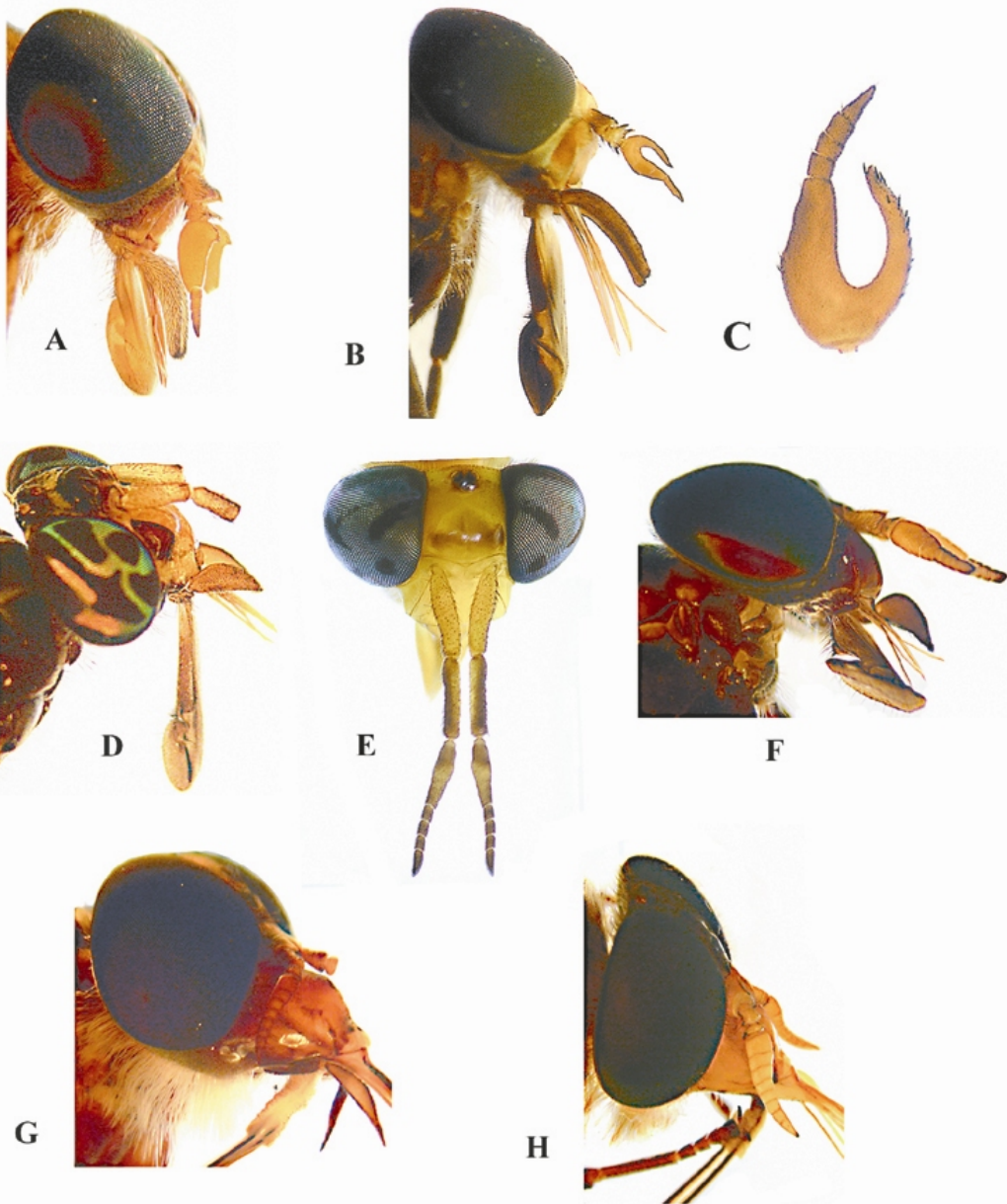
**FIGURE 17.** Head: dorsolateral view, A. *Stypommisa pequeniensis*, B-C *Catachlorops (Psarochlorops) difficilis*, B. head, C. antenna. D. *Chrysops varians* var. *tardus*, E. *Chrysops variegatus*, F. *C.* sp 2, G. *Fidena (Fidena) aureopygia*, H. *Fidena (Neopangonia)*.

**FIGURE 18.** Mesomotum and Abdomen: dorsal view, A. *Tabanus* sp 7, B. *T.* sp 18, C. *Chrysops varians* var. *tardus*, D-E *Poeciloderas quadripunctatus (amabilinus)*, D. abdomen, E. thorax. F-G, *Stypommisa pequeniensis*, F. abdomen, G. mesonotum. H-I *Catachlorops (Catachlorops)* sp 2, H. abdomen, I. thorax. J-K, *Chrysops* sp 2, J. abdomen, K. thorax. L-M, *Chrysops variegatus*, L. abdomen, M. thorax.

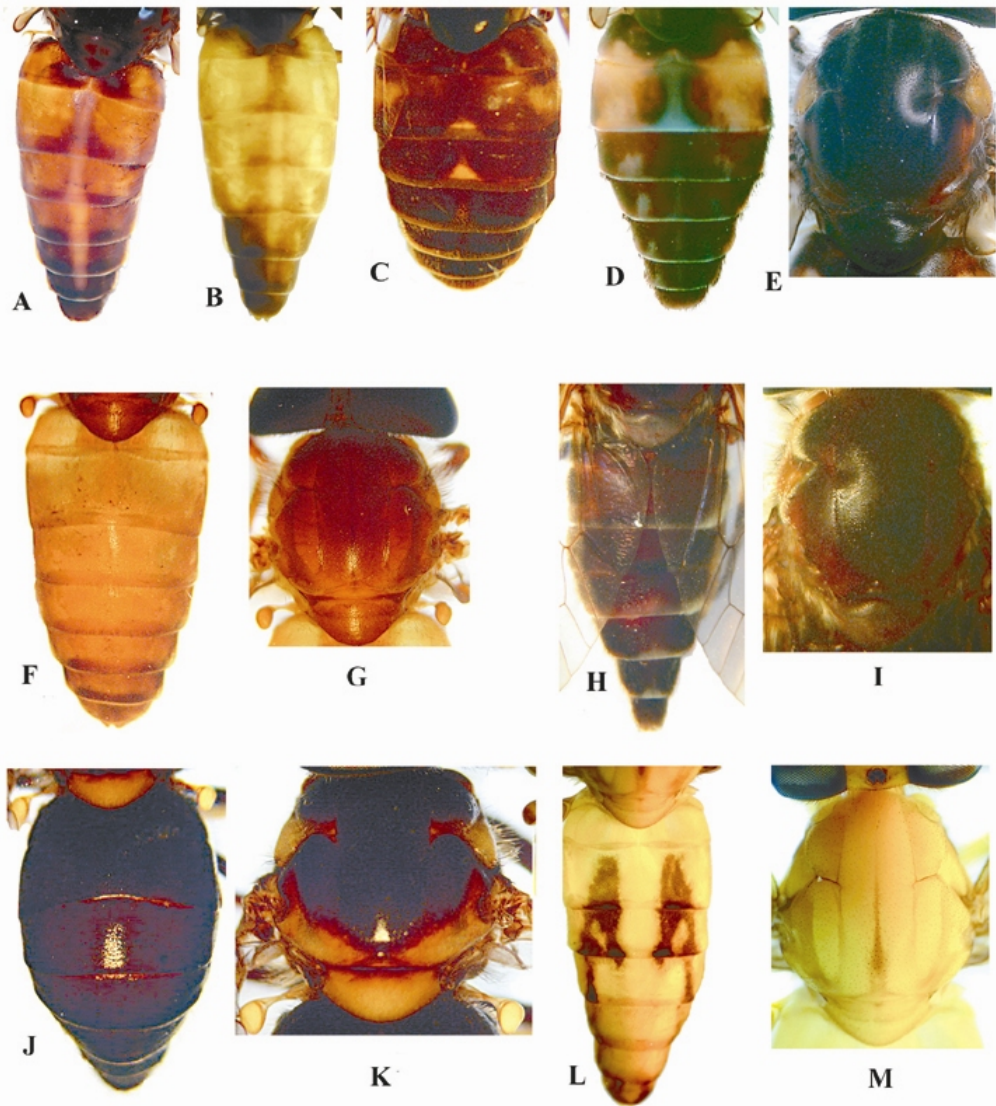
**FIGURE 19.** Wings: A. *Tabanus* sp 7, B. *T.* sp 11, C. *Stypommisa captiroptera*, D. *Stypommisa jaculator*, E. *Stypommisa pequeniensis*, F. *Dichelacera (Dichelacera) fasciata*, G. *Catachlorops (Catachlorops)* sp 1, H. *Catachlorops (Psarochlorops) difficilis*, I. *Chrysops varians* var. *tardus*, J. *Chrysops variegatus*, K. *Chrysops* sp 1, L. *Chrysops* sp 2.



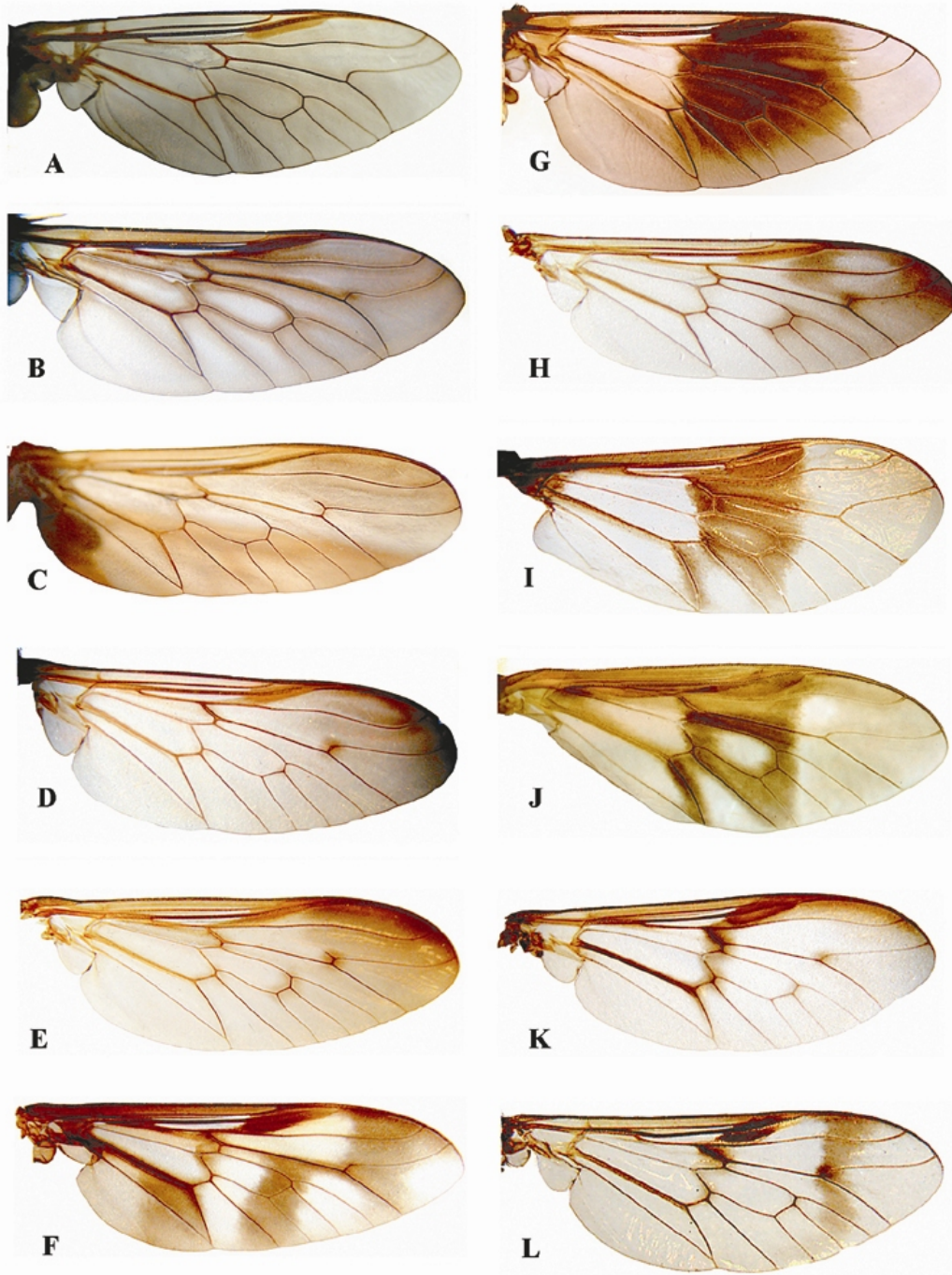
**Figure 16**



**Figure 17**



**Figure 18**



**Figure 19**

**TABLE 1.** Genera and number of the species of the Tabanidae of the South-Oriental region of PNNC

<b>Subfamily</b>	<b>Tribu</b>	<b>Genera</b>	<b>No of species</b>	
Chrysopsinae	Chrysopsini	<i>Chrysops</i>	6	
		<i>Fidena</i>	2	
Pangoninae	Scionini	<i>Pityocera</i>	1	
Tabaninae	Diachlorini	<i>Catachlorops</i>	6	
		<i>Chlorotabanus</i>	3	
		<i>Cryptotylus</i>	1	
		<i>Dasychela</i>	1	
		<i>Diachlorus</i>	6	
		<i>Dichelacera</i>	2	
		<i>Leucotabanus</i>	3	
		<i>Phaeotabanus</i>	1	
		<i>Stypommisa</i>	7	
		Tabanini	<i>Poeciloderas</i>	2
			<i>Tabanus</i>	23
		64		

