

OLD AND NEW ANDEAN SARCOPHAGIDAE (DIPTERA)

HUGO DE SOUZA LOPES

Instituto Oswaldo Cruz, Departamento de Biologia, Caixa Postal 926, 20001 Rio de Janeiro, RJ, Brasil

Species of the genera Notochaeta, Weyrauchimyia, and Udamopyga are redescribed; new species of the latter genus, of Cuculomyia and of Dexomyiophora are proposed, all from the Yungas Biological Province of Ecuador. Key to species of Udamopyga is given.

Key words: *Notochaeta setifacies* Lopes – *Weyrauchimyia bicoloricauda* Lopes – *Cuculomyia ecuatorina* n. sp. – *Udamopyga similis* Lopes – *Udamopyga atripennis* n. sp. – *Dexomyiophora tandapiensis* n. sp. – Sarcophagidae

Andean fauna of Sarcophagidae is well represented in the collection of the Biosystematics Research Institute, Ottawa, by fine specimens collected by L. Pena, mostly from Ecuador, Peru and Bolivia. Three new species are found among the referred material and three old species, showing some variations, are also studied; all from Ecuador.

Notochaeta setifacies Lopes, 1984

(Figs. 1 to 6)

Notochaeta setifacies Lopes, 1984: 386, figs. 40-42.

This species is easily recognized by the following characters: parafacialia with conspicuous bristles, arista short plumose on basal half; two pairs of long preacrostichal bristles; three pairs of post-dorsocentrals, anterior pair almost as long as second; legs black, at most reddish.

Two males from Ecuador, with 6 mm long show genitalia with the same structures of the holotype but the apophysis of the apical plate is somewhat variable and the spines of the spinous lobe of ventralia are stronger, the lobe being dark; in the ventral view of the penis, the styli are easily visible (Fig. 1).

Male, Cuenca, Azuay, 2200 m, 10-20.III.65; male, Canar, El Tambo, 2800 m, Ecuador, 4-7.III.65, both collected by L. Pena, in the collection of Biosystematics Research Institute, Ottawa, and Museu Nacional, Rio de Janeiro.

Work undertaken in the "Departamento de Biologia Animal, Instituto Oswaldo Cruz" and in the "Universidade Santa Ursula".

Received August 17, 1987.
Accepted October 8, 1987.

Weyrauchimyia bicoloricauda Lopes, 1969

(Figs. 7 to 10)

Weyrauchimyia bicoloricauda Lopes, 1969: 136, figs. 8-11.

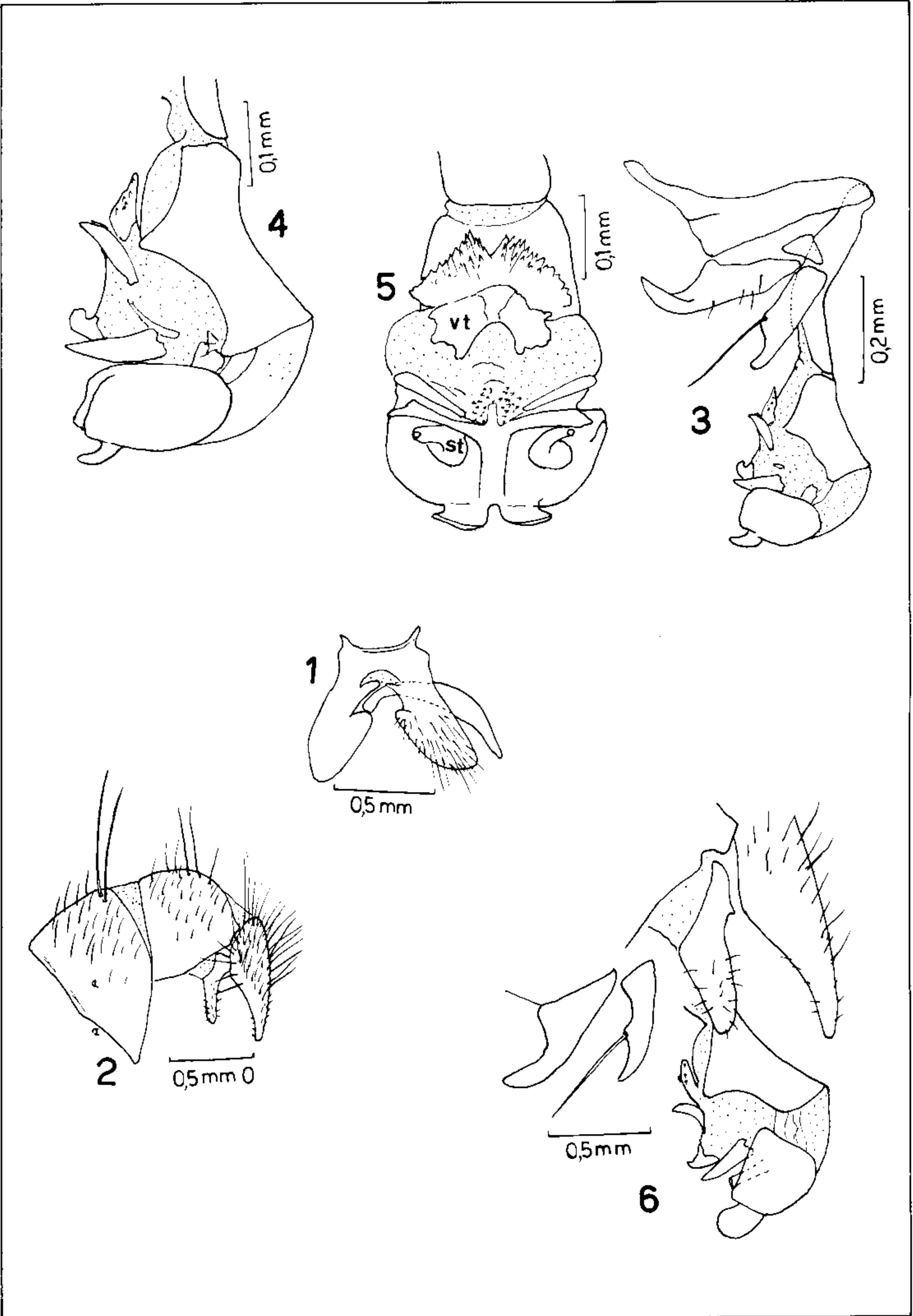
Three males from Ecuador present some small differences from the holotype, including in the genitalia: apical plate, styli and median process (Figs. 9-10) are shorter than in the specimens from Peru; ventralia a little more developed and lateral plate more complicate; specimens 9-10 mm long with 10-11 frontal bristles.

Two males from Cuenca, Azuay, 2200 m, 10-20.III.65; male, Banos, Tunguragua, 1965. 2-4.VII, Ecuador, all collected by L. Pena, in the collections of Biosystematics Research Institute and Museu Nacional.

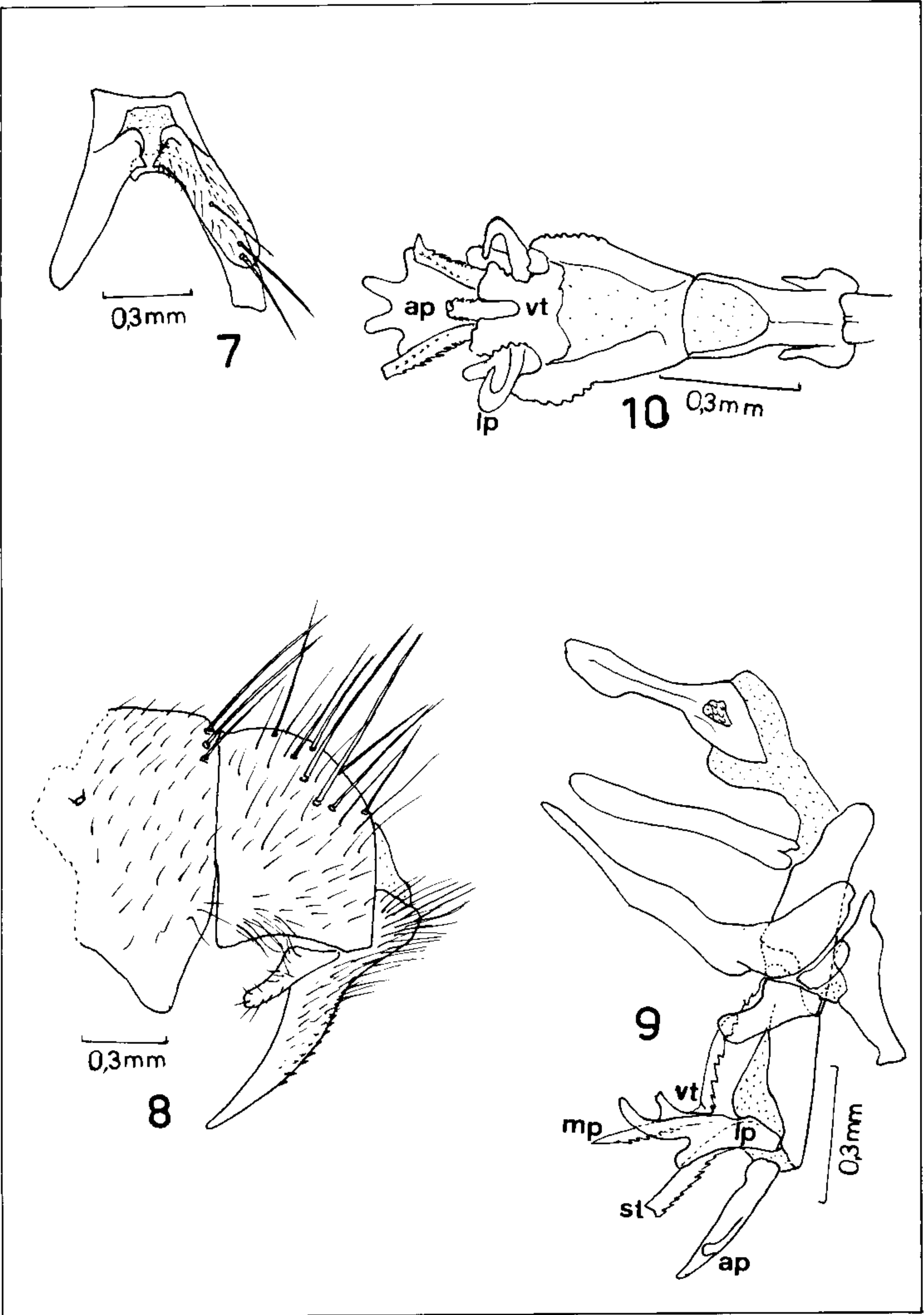
Cuculomyia ecuatoriana n. sp.

(Figs. 11 to 16)

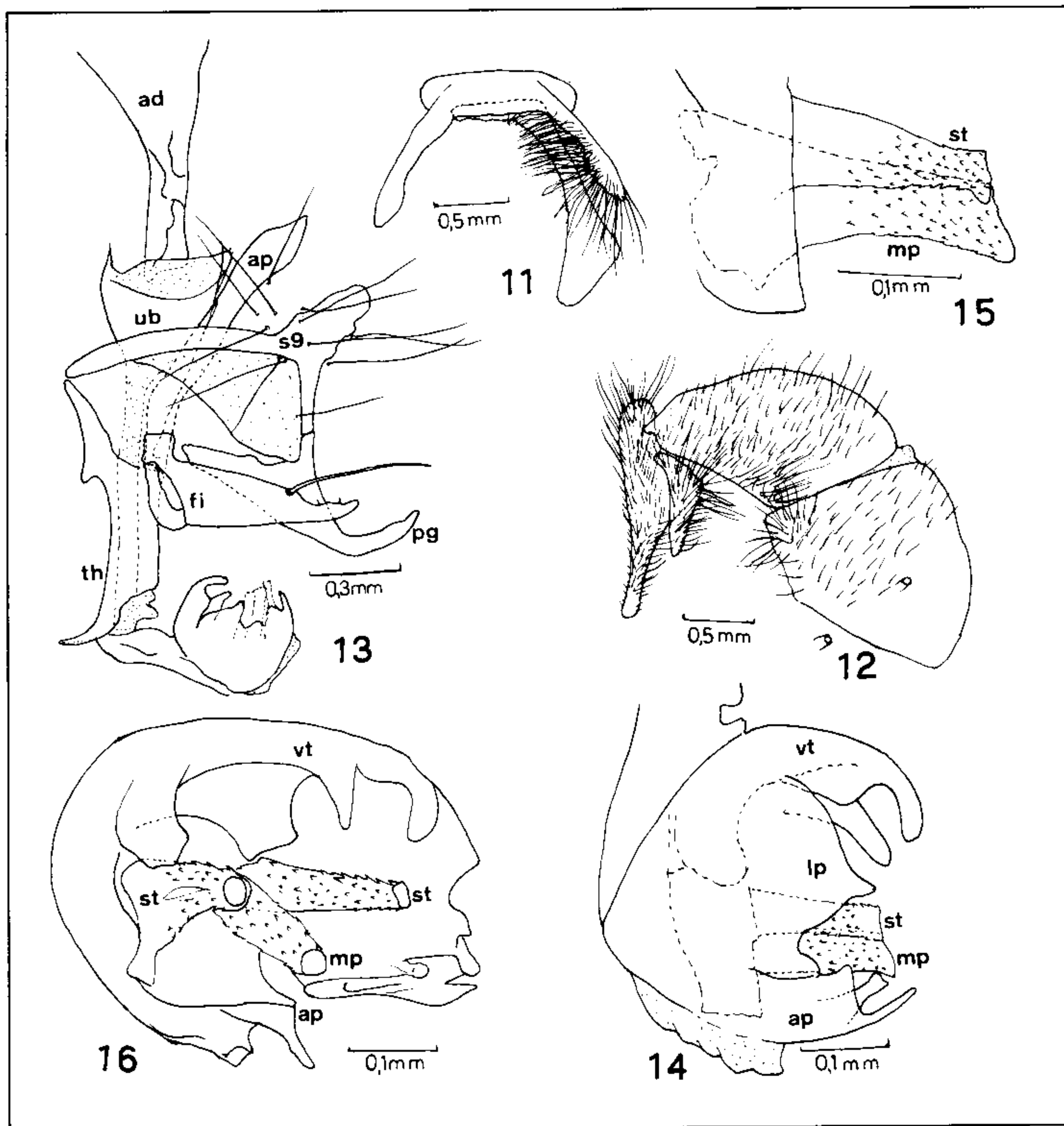
Male, length: 11.5-14 mm. Head yellow, back of head yellowish gray, genal grooves entirely covered with yellowish pollinosity; frontal vitta reddish brown; front about 0.27 of head width; 8-10 frontal bristles directed inwards, 1-2 superior ones a little backwards, only one inserted below base of antenna, reaching about the base of third segment; reclinate frontorbital bristle and outer vertical about half the length of inner vertical bristle; ocellars a little shorter than strongest frontal; one row of black hairs, besides the postocular setae, on back of head, the other hairs pale, including the hairs of gena; facial ridges hairy about the inferior third; antenna gray, basal segments blackish, reaching about 0.89 of the distance from base to vibrissal level, second segment about 0.4 of third; arista yellow with red base, long plumose on about basal three fourths; parafacialia with about 0.56 of the distance between vibrissae.



Notochaeta setifacies Lopes, male, Azuay. Fig. 1: fifth sternite. Fig. 2: genital segments. Fig. 3: phallic organs. Fig. 4: penis, lateral view. Fig. 5: idem, ventral view (vt = ventralia). Male, Canar. Fig. 6: genitalia.



Weyrauchimyia bicoloricauda Lopes, male, Azuay. Fig. 7: fifth sternite. Fig. 8: genital segments. Fig. 9: phallic organs (ap = apical plate, lp = lateral plate, mp = median process, st = styli, vt = ventralia). Fig. 10: penis, ventral view.



Cuculomyia ecuatoriana n. sp., male. Fig. 11: fifth sternite. Fig. 12: genital segments. Fig. 13: phallic organs (ad = apodema ductus, ap = apodema penis, fi = forcipes interiors, pg = palpi genitalium, s9 = ninth sternite, th = theca). Fig. 14: apex of penis, lateral view (ap = apical plate, lp = lateral plate, mp = median process, st = stylus, vt = ventralia). Fig. 15: glans. Fig. 16: apex of penis, ventral view.

Thorax gray pollinose, slightly yellowish on humeral region; acrostichals not differentiated, prescutellars moderate; seven small predorsocentrals; 5-6 post-dorsocentrals, only posterior three well developed, last one long; one preintralar bristle near humeral callus; 2 post-intralars, anterior one reduced in size; two presupralars near suture, anterior one reduced; three postintralars; katapisternum with three bristles inserted on the same level, median one reduced; 10-11 long bristles on

meron; wings with reddish brown veins; R4+5 hairy on basal third of the distance to crossvein; ctenideum with about 10 strong spines on middle femur; hind coxae with long hairs; middle tibiae with long dense tuft of hairs; hind tibiae with some long hairs and strong preapical ventral bristle.

Abdomen with yellowish gray pollinosity on three basal reddish brown tergites; fifth tergite red with golden pollinosity; median

marginal bristles on fourth tergite; sternites and ventral side of tergites, especially the fifth segment with long dense pilosity (Fig. 11); genital segments red, covered with golden pilosity, first with scattered minute hairs and four pairs of slender, long marginal hairs; cerci reddish brown, apical half shining black, surstyli long pilose, somewhat curved forwards (Fig. 12); ninth sternite short, broad, largely membranous; palpi genitalium strongly curved; theca long, apically with a slender dorsal apophysis; apical part of penis globose, apical plate and ventralia with slender apophyses, styli and median process short, spinous (Figs. 13-16).

Holotype and two paratypes, males, S. Pedro, Zaruma rd., Loja, Ecuador, 1100 m, 9.IV.65, L. Pena, in the collections of Biosystematics Research Institute and "Museu Nacional".

This species, like *C. luculenta* (Lopes), don't show the patch of pale soft hairs on the sides of scutellum, but there are in the same place, numerous black hairs, some of them very slender and curved, attaining the ventral side of the scutellum. In the species of the other genera, the sides of scutellum bear sometimes, some hairs, but never so numerous, specially on ventral side. In the first couplet of the key to species of *Cuculomyia* (Lopes, 1976: 748), "the hairs numerous but black" shall be added.

C. ecuatoriana n. sp. differs from *C. luculenta* (Lopes) by the absence of apical scutellar bristles which are long and parallel in *C. luculenta*, and by the apex of penis which is very much broader in ventral view in *C. luculenta* (Lopes, 1967, fig. 43) than in *C. ecuatoriana* n. sp. (Fig. 16); male fifth sternite of *C. luculenta* presents few long, scattered hairs and short dense pile (Lopes, 1976, fig. 39); fifth sternite of *C. ecuatoriana* shows dense long hairs (Fig. 11).

Genus *Udamopyga* Hall, 1938

Udamopyga Hall, 1938: 255. Type species, *U. smagra* Hall, 1938 (Argentine, Tucuman).

Medium size (9 mm) to large species (19 mm) with large ocellar bristles, parafacialia mostly with strong bristles near eyes; facial ridges hairy from two thirds to inferior half; arista long plumose; males with strong reclinate, females

with reclinate and two proclinate frontorbital bristles; 3 or 4 strong post-dorsocentral bristles; preacrostichals small or large, always differentiated; meron with three bristles always strong and inserted on the same level; R1 hairy or bare; fifth abdominal sternite largely cleft, with parallel internal margins; cerci frequently fused, almost always contiguous to tip or narrowed separated near apices; penis with large lateral plates, apical plate conspicuous, ventralia not developed; glans composed of a pair of styli and double median process almost of the same size (Lopes, 1978, fig. 34). Female with entire syntergite VI+VII, tergite VIII entire or represented by a pair of plates; synsternite VI+VII slender; VIII very large, frequently bearing conspicuous depression; sternite IX very much reduced; anal tergite absent; first instar larvae frequently with conspicuous sclerotized and pigmented plates on median portion of ventral side of first thoracic segment; maxillae frequently fused on base, mandible absent (Lopes, 1943, figs. 17-20).

A lot of species were found to be associated with Gastropoda, living on dead Molluscs.

The known species are very similar and a key to species is given based mostly on colour. However some species present different phenotypes in some countries which are considered in the key. *U. percita* (Lopes) habitually shows a conspicuous golden yellow patch on genae but, in Argentine, specimens with gray slightly yellowish head were found. *U. neivai* Lopes, presents posterior ocular orbits grayish, like the back of head but specimens of Rio Grande do Sul (Brazil) show yellow postocular orbits.

Key for species of *Udamopyga*

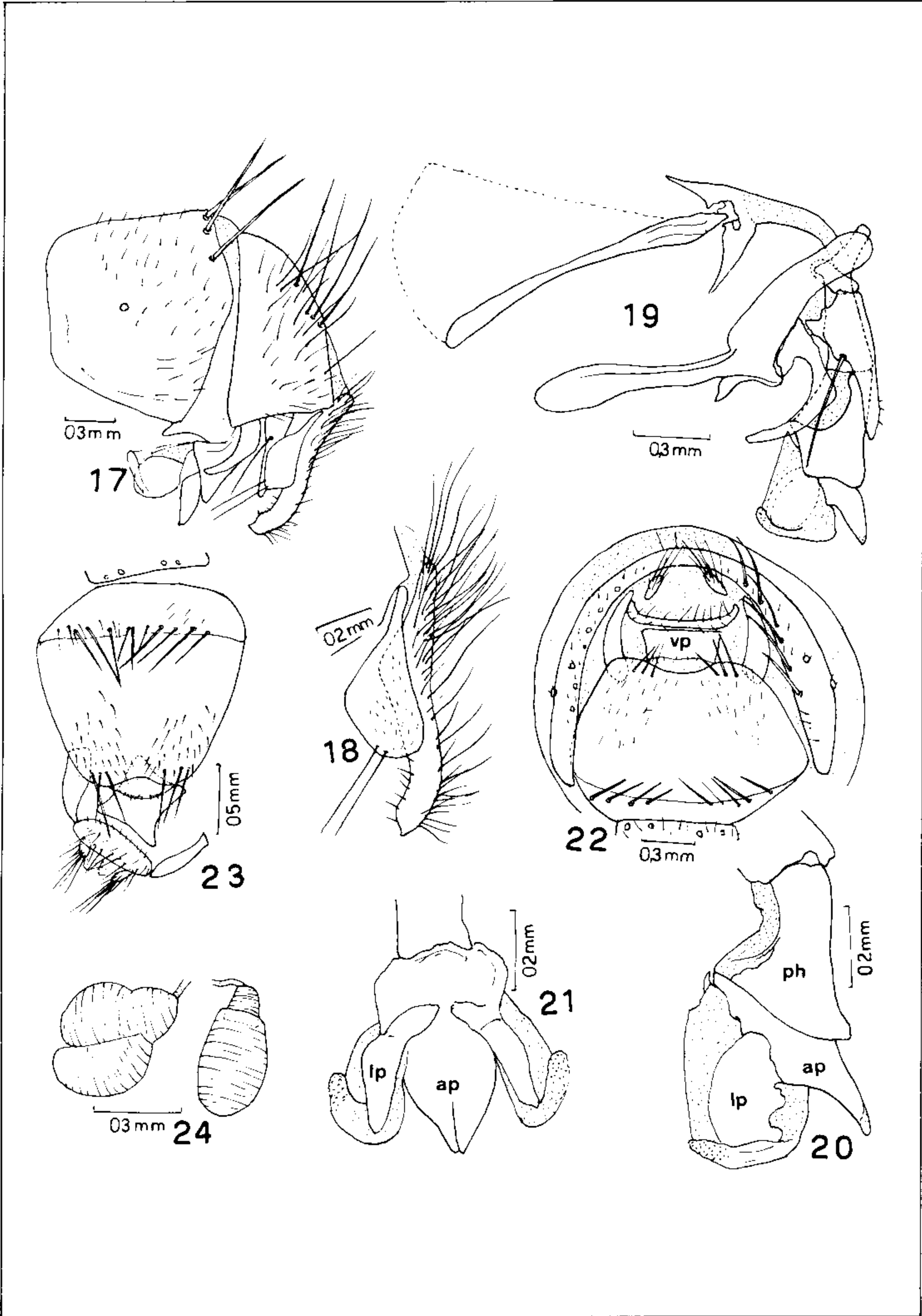
1. Three post-dorsocentral bristles, spaced for three 2
- Four post-dorsocentrals, spaced for four 8
2. Abdomen pruinose, not tessellate, apical plate of paraphallus long, largely rounded apically (Lopes, 1969: 140, figs. 20-22) (Peru) *U. pruinosa* Lopes, 1969.
- Abdomen tessellated, apical plate not elongated 3
3. Knees, apical half of femora and of fifth abdominal tergite brownish yellow (Dodge, 1965: 680, figs. E, F) (Cuba)
- *U. boniato* Dodge, 1965.
- Legs and abdomen brown, fifth tergite sometimes reddish 4

4. Cheek grooves red, without pollinosity (Lopes, 1969: 143, figs. 26-32) (Peru)
U. weyrauchi Lopes, 1969.
- Cheek grooves more or less reddish but covered with pollinosity 5
5. Fifth abdominal tergite more or less light red, first genital tergite of male without or with reduced marginal bristles 6
- Fifth abdominal tergite at most reddish brown; first genital tergite of male always with strong bristles 7
6. Fifth sternite of male with dense hairs on base internally (Lopes, 1978, fig. 29); middle tibiae with ventral bristle (Lopes, 1978: 509, figs. 30-34) (Mexico)
U. batemani Dodge, 1965.
- Fifth sternite with short sparse hairs on base internally; middle tibiae without ventral bristle (Lopes, 1940: 948, figs. 4, 5, 33, 34) (Brazil, Rio de Janeiro)
U. diversa Lopes.
7. Hind femora of male with long ventral hairs; cerci concave posteriorly in side view (figs. 25-29) (Ecuador) . . . *U. atripennis* n. sp.
- Hind femora without long ventral hairs; cerci almost straight in side view (Lopes, 1938: 255, pl. 6, figs. 6, 7) (Colombia)
U. apolinari (Lopes, 1938).
8. First vein hairy 9
- First vein bare 10
9. Parafacialia with bristly hairs near eyes; scutellum of males with small apical bristles (Aldrich, 1916: 179, fig. 81) (Mexico)
U. cabensis (Aldrich, 1916).
- Parafacialia without bristly hairs; scutellum of males without apical bristles (Dodge, 1967: 686, figs. H, D) (USA)
U. palomarana Dodge, 1967.
10. Legs mostly reddish yellow, male hind trochanters with tuft of long hairs (Lopes, 1940: 946, figs. 7-9, 37, 38) (Cuba)
U. cubana Lopes, 1940.
- Legs black, at most tibiae reddish yellow; hind trochanters with short spines 11
11. Head bicolor 12
- Head unicolor 14
12. Genae golden yellow, rest of head silvery pollinose (Lopes, 1940: 941, figs. 19-21, 31, 32) (Brazil, Espirito Santo, Rio de Janeiro, S. Paulo, Parana; Argentine)
U. percita (Lopes, 1939).
- Genae silvery pollinose 13
13. Front and face golden yellow pollinose; cerci bare on median region; lateral plates of paraphallus rounded in dorsal view (Lopes, 1940: 932, figs. 16-18) (Argentine, Brazil: Sta. Catarina)
U. provecta (Lopes, 1939).
- Front gray, face golden yellow; cerci without bare median region; lateral plates angulated in dorsal view (Hall, 1938: 255, fig. 2) (Argentine) . . . *U. smagra* Hall, 1938.
14. Head gray, at most slightly yellowish. . . 15
- Head intense yellow 17
15. Preacrostichal bristles small, fifth sternite of male with conspicuous internal basal lobes (Lopes, 1975: 579, figs. 26-31) (Peru, Ecuador) *U. similis* Lopes, 1975.
- Preacrostichals strong, fifth sternite of male without internal lobes 16
16. Cerci with bare median region (Lopes, 1940: 941, figs. 19-21) (Argentine)
U. percita (Lopes, 1939).
- Cerci without bare median region (Dodge, 1965: 683, figs. A-D) (USA)
U. niagarana (Parker, 1918).
17. Posterior ocular orbits intense yellow, the same colour of face 18
- Posterior ocular orbits gray, slightly yellowish, the same colour of back of head. . 21
18. Some of the hairs of posterior part of genae pale; cerci without median bare region (Lopes, 1940: 942, figs. 13-15, 29, 30, 45-48) (Brazil: Rio de Janeiro, Ceara)
U. neivai Lopes, 1940.
- All hairs of genae black 19
19. Male hind tibiae long villous (Lopes, 1940: 944, figs. 1-3, 25, 26, 49) (Brazil: Rio de Janeiro, Goiaz, Sta. Catarina)
U. malacophaga Lopes, 1940.
- Male hind tibiae without long villosity . . 20
20. Cerci with rounded apices (Curran & Walley, 1938: 485, fig. 48) (Guyana)
U. bartica (Curran & Walley, 1938).
- Cerci pointed at apices (Lopes, 1940: 940, fig. 11) (Brazil: Rio Grande do Sul)
U. setigena (Enderlein, 1928).
21. First genital segment of male without marginal bristles; female tergite VIII entire (Lopes, 1940: 940, figs. 10-20, 27, 28) (Argentine, Paraguay, Brazil: Rio de Janeiro, S. Paulo, Goiaz)
U. setigena (Enderlein, 1928).
- First genital segment of male with a series of marginal bristles; tergite VIII of female represented by a pair of plates (Lopes, 1969: 144, figs. 33-39) Uruguay)
U. helicivora Lopes, 1969.

Udamopyga similis Lopes, 1975

(Figs. 17 to 24)

Udamopyga similis Lopes, 1975: 579, figs. 26-30. (Torgopampa, Peru)



Udamopyga similis Lopes, male. Fig. 17: genital segments. Fig. 18: cercus and surstylus. Fig. 19: phallic organs. Fig. 20: penis, lateral view (ap = apical plate, lp = lateral plate, ph = paraphallus). Fig. 21: idem, ventral view. Female. Fig. 22: genitalia. Fig. 23: genital sternites. Fig. 24: spermatheca.

Differs from the holotype as follows: length, 11 mm; front about 0.26 of head width; 8 frontal bristles reaching apical third of second antennal segment, two bristles inserted below base of antenna, largely divergent anteriorly; ocellar bristles longer than strongest frontal and reclinate frontorbital bristle; parafacialia with 1-2 bristles, with about 0.25 of the distance between vibrissae; antenna reaching about 0.87 of the distance from base to vibrissal level, second antennal segment about 0.41 of third, facial ridges with a few long slender hairs on a little less than inferior half.

Scutellum with two large and a small marginal bristle, apical bristles long and crossed, preapical reduced; meron with 9 bristles. Wings with yellow brown veins, legs brown, tibiae reddish; middle tibia without ventral bristle.

Abdomen with sternites I-II bearing abundant long hairs; sternite V yellow; cerci a little more curved, surstyli broader (Figs. 17, 18); membranous projection of lateral plate more evident (figs. 20, 21).

Female, length: 9 mm. Front about 0.3 of head width; 8 frontal bristles, anterior proclinate and reclinate frontorbital bristles smaller than superior one; scutellum without apical bristles. Syntergite VI+VII entire, tergite VIII represented by a pair of small plates; systernite VI+VII short, with some marginal small bristles, sternite VIII broad and long, almost trapezoid, with concave hind margin and small marginal bristles, sternite IX membranous with few hairs; vaginal plate very large; anal sternite with long and short hairs, anal tergite absent (Figs. 22, 23); spermatheca with differentiated proximal part, finely striated; two spermatheca coalescent, an evident anomaly (Fig. 24).

Redescribed from male and female collected in S. Pedro, Loja Depart., W of Catamayo, Ecuador, 1500 m, Desert area, Apr. 7-8, 1965, L. E. Pena, Biosystematics Research Institute, Ottawa.

Udamopyga atripennis n. sp.
(Figs. 25 to 29)

Male, length: 10-11 mm. Head gray, parafacialia, parafacialia and posterior ocular orbits very slightly yellowish, frontal vitta gray, slightly reddish, front about 0.24 of head width; 9-10 frontal bristles, superior two directed backwards, reaching the level of the middle of second antennal segment; reclinate frontorbital bristle and ocellars a little longer than

strongest frontal; outer vertical bristle a little longer than postocular setae; parafacialia with 4-5 bristles with about the same length of small frontals; back of head and genae with black hairs, having some pale hairs around neck and below; facial ridges with sparse hairs a little less than inferior half; antenna reddish gray, basal segments dark, reaching about 0.82 of the distance from base to vibrissal level, second segment about 0.41 of third; arista long plumose a little more than basal half; parafacialia with about 0.36 of the distance between vibrissae.

Thorax gray, very slightly yellowish; three long post-dorsocentral bristles, spaced for three; three predorsocentrals, posterior 2 long; 2-3 pairs of reduced preacrostichals; prescutellar small to moderate; scutellum with two long and a small marginal bristles; preapicals moderate, apicals absent; meron with three strong bristles inserted on the same level; katepisternum with 8-9 bristles. Wings with yellowish brown veins; R4+5 with sparse hairs on about two thirds of the distance from base to transverse vein. Legs black, hind tibiae reddish; middle and hind femora with long sparse hairs; hind tibia with some long hairs, middle and hind tibiae with preapical ventral bristle.

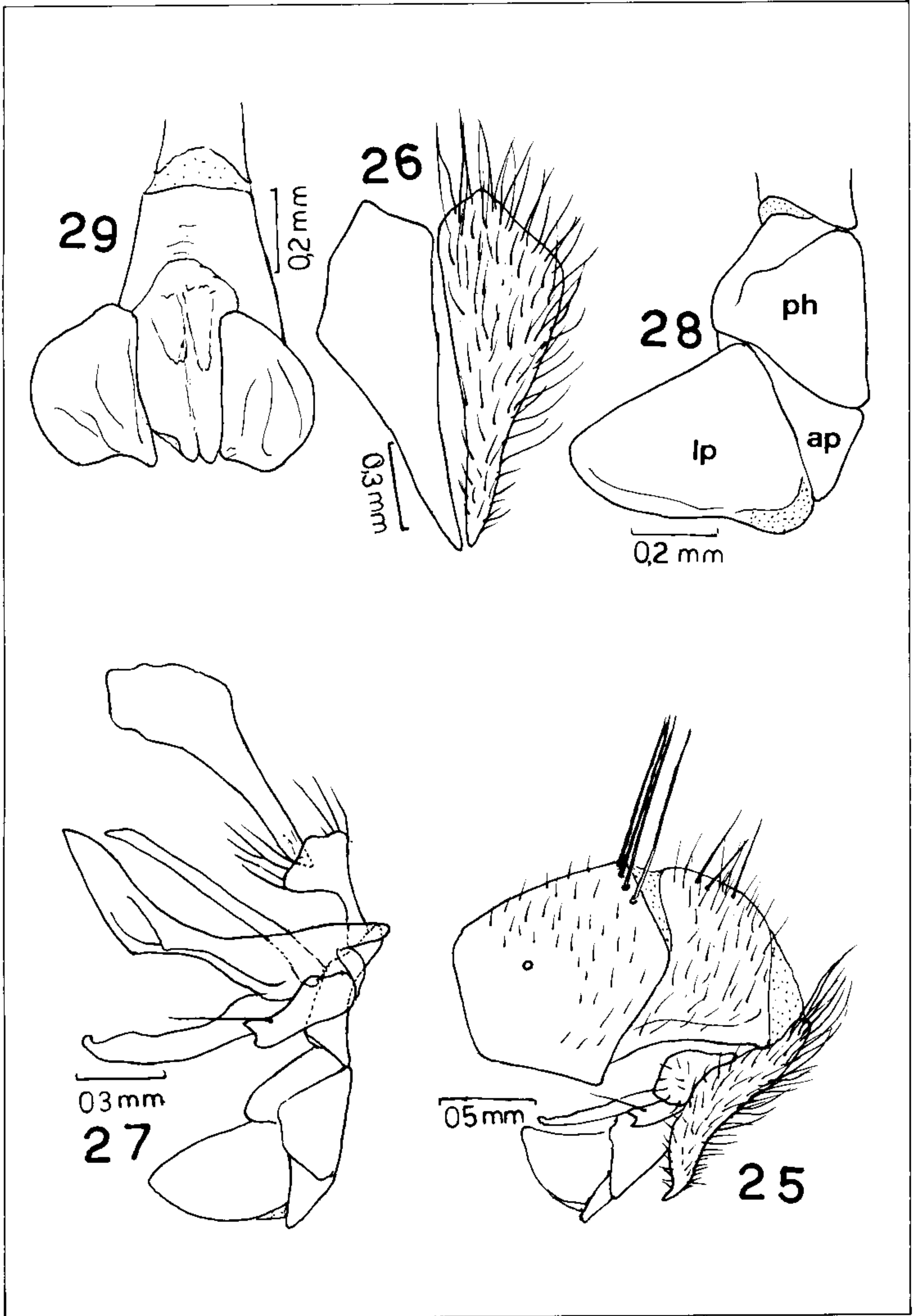
Abdomen brown, a little reddish on sides, gray pollinose; moderate median marginal bristles on fourth tergite; first and second sternites with long dense black hairs, third with sparse, moderately long hairs, fourth with small decumbent hairs, fifth sternite reddish with largely separated, almost parallel arms bearing short black hairs in internal margins; genital segments intense orange, first and intersegmental membrane covered with golden pollinosity; cerci orange red with blackish extremity; surstyli with brown anterior and terminal margins (Figs. 20, 22); forcipes interiores with bifid apices and long bristle; palpi genitalium very much elongated, penis mostly black, lateral plate very large (Figs. 27, 29).

Holotype and paratype, males, Pomesqui, Pichincha, Ecuador, 6.VI.1965, 2200 m, L. E. Pena, in the collections of Biosystematics Research Institute, Ottawa and "Museu Nacional", Rio de Janeiro.

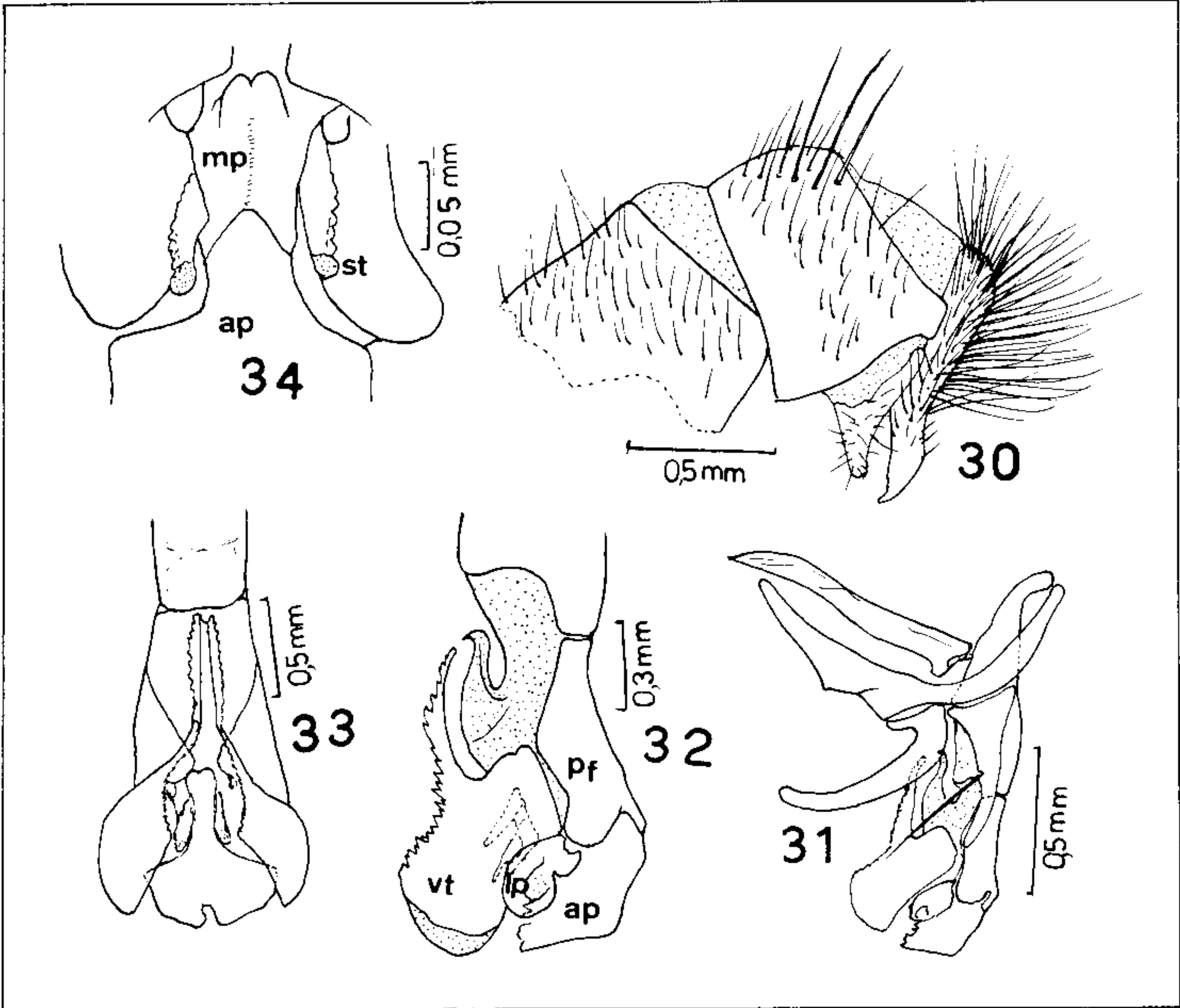
Dexomyiophora tandapiensis n. sp.

(Figs. 30 to 34)

Similar to the type species (*D. facialis* Townsend) differing mostly by the male genitalia, especially by the shape of the ventralia.



Udamopyga atripenis n. sp., paratype, male. Fig. 25: genital segments. Fig. 26: cerci, dorsal view. Fig. 27: phallic organs. Fig. 28: penis, lateral view (ap = apical plate, lp = lateral plate). Fig. 29: idem, ventral view.



Dexomyiophora tandapiensis n. sp., male. Fig. 30: genital segments. Fig. 31: phallic organs (ap = apical plate, lp = lateral plate, pf = paraphallus, vt = ventralia). Fig. 32: penis, lateral view. Fig. 33: idem, ventral view. Fig. 34: glans, ventral view (ap = apical plate, mp = median process, st = stylus).

Male, length: 12 mm. Head, including posterior orbits yellow, back of head and posterior part of gena gray; frontal vitta reddish brown; front about 0.24 of head width; 8 frontal bristles, superior two somewhat backwards directed, reaching the middle of second antennal segment, two bristles inserted below base of antenna; reclinate frontorbital bristle stronger than frontals; ocellar bristles slender, with about the size of smallest frontal; frontal vitta with some slender hairs; parafrontalia with a series of minute hairs, parafacialia without hairs; back of head with 3-4 series of irregular black hairs above, the remaining hairs pale; gena with few long black hairs; facial ridges hairy on inferior two thirds; antenna reddish gray, basal segments darkened, reaching about 0.85 of the distance from base to vibrissal level, second segment about 0.32 of third, arista

long plumose almost to tip, dorsally a second row of hairs on median third; parafacialia about 0.25 of the distance between vibrissae.

Thorax yellowish gray pollinose, a little more intense yellow on humeral region; acrostichal bristles, including prescutellars absent; two strong pre-dorsocentrals and a small additional one anteriorly; two strong post-dorsocentrals and a small additional one near anterior bristle; 1:2 intralars; 1:3 supralars; two strong marginal scutellars besides 1-2 additional small bristles near posterior one; a pair of small bristles on disc near apex of scutellum; meron with three bristles, posterior one a little more stronger than others. Wings with reddish brown veins, costal spine not differentiated; R4+5 hairy on a little more than half of the distance from base to cross vein. Legs reddish black.

middle femora without ctenideum; middle tibiae without, hind tibiae with ventral bristle.

Abdomen black with gray pollinosity, more or less reddish on sides and on fifth tergite; median marginal bristles of fourth tergite strong, the apices reaching the hind margin of fifth tergite; sternites I and II covered with long dense pale hairs, III and IV with short hairs, fifth sternite very similar to that of *D. facialis* Townsend (Lopes, 1969: 55, figs. 23-24); genital segments reddish black, with long hairs, the second with some bristly hairs; cerci reddish black, the apices darkened, pointed; surstyli long with short hairs (Fig. 30); theca well separated from paraphallus, with long dentate apophysis of ventralia, styli with hyaline apices (Figs. 30-34).

Holotype and paratype, males, Tandapi, 40 km S W Quito, 1300-1500 m, Ecuador, 15-21.VI.65, Pena, in the collections of Biosystematics Research Institute, Ottawa and "Museu Nacional", Rio de Janeiro.

RESUMO

Antigas e novas espécies de Sarcophagidae (Diptera) dos Andes — Espécies dos gêneros

Notochaeta, *Weyrauchimyia* e *Udamopyga* são redescritas; novas espécies deste último gênero, de *Cuculomyia* e *Dexomyiophora* são descritas, todas provenientes da Província Biológica de Yungas, no Equador.

Palavras-chave: *Notochaeta setifacies* Lopes — *Weyrauchimyia bicoloricauda* Lopes — *Cuculomyia ecuatoriana* n. sp. — *Udamopyga similis* Lopes — *Udamopyga atripenis* n. sp. — *Dexomyiophora tandapiensis* n. sp. — Sarcophagidae

REFERENCES

- LOPES, H. S., 1968. Notes on paratypes of some Sarcophagidae described by C. H. T. Townsend (Diptera). *Revta. Brasil. Biol.*, 28 (1): 51-60, 32 figs.
- LOPES, H. S., 1968. Neotropical Sarcophagidae reared from Gastropoda by W. Weyrauch (Diptera). *Stud. Entom.*, 12 (3/4): 133-160, 73 figs.
- LOPES, H. S., 1975. Some new Sarcophagidae from Peru (Diptera). *Revta. Brasil. Biol.*, 34 (4): 573-580, 31 figs.
- LOPES, H. S., 1976. On the genus *Cuculomyia* Roback (Diptera, Sarcophagidae). *Revta. Brasil. Biol.*, 36 (4): 745-757, 56 figs.
- LOPES, H. S., 1984. On some species of *Notochaeta* (Diptera, Sarcophagidae) with descriptions of seven new species. *Revta. Brasil. Entom.*, 28 (4): 379-387, 42 figs.
- TOWNSEND, C. H. T., 1927. Synopse dos generos muscoideos da região humida tropical da America, com generos e especies novas. *Revta. Mus. Paulista*, 15: 205-385, 4 pls.