# Studies in Pipunculidae (Diptera) of Colombia*

D. Elmo Hardy
SENIOR PROFESSOR OF ENTOMOLOGY
COLLEGE OF TROPICAL AGRICULTURE
UNIVERSITY OF HAWAII

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This interesting collection, made available for study by Dr. Robert F. Ruppel (Research Department, Niagara Chemicals, New York; formerly with the Rockefeller Foundation, Colombia), resulted largely from his studies of the parasites of *Cicadulina pastusae* Ruppel and Delong, the vector of "enanismo" (dwarfing) disease of barley and other small grains in southern Colombia and northern Ecuador. Numerous specimens of *Pipunculus* (*Eudorylas*) *absonditus* (Hardy) were reared from this leafhopper or were collected in the barley and wheat fields and this fly is evidently an important parasite of this pest. Several new species were encountered during the studies made by Dr. Ruppel and his associates. These are being described here so that the names will be made available, and also will be included in keys to the neotropical species which I am publishing in a monographic study of Brasilian Pipunculidae, in press.

I am indebted to Drs. Ruppel and Isabel S. de Arevalo, Centro Nacional de Investigaciones Agricolas Tibaitata, Bogota, Colombia for the privilege of studying this valuable series and being able to contribute further knowledge to the literature of the economic importance of pipunculid flies.

The drawings are by Mrs. Elizabeth Twigg-Smith Pfeffer, University of Hawaii.

**Dorylomorpha reveloi,** n. sp. (fig. 1, a–d).

This species is readily differentiated from other known neotropical *Dorylomorpha* by the predominantly black legs and antennae, and by the distinctive characteristics of the male genitalia. In my key to the Nearctic *Dorylomorpha* [1943, University Kansas Sci. Bull. 29 (1) :131–132] this runs near *caudelli* (Malloch) and *uncinata* Hardy but the male genitalia are distinctly different in these species. It will be treated in a key to the South American *Dorylomorpha* which I have in press.

Male. *Head:* Compound eyes narrowly separated on front; at narrowest point, front less than width of one eye facet. Front from narrowed

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portion to ocellar triangle shining black, lower portion densely gray-white pubescent. Upper portion of occiput slightly swollen and polished black, as is ocellar triangle; lower half to three-fifths of occiput densely gray pubescent. Face gray-white pubescent. Antennal segment 3 long acuminate (fig. 1, *a*). *Thorax:* Polished black, ground color rather lightly gray-brown pollinose over dorsum, densely gray pubescent on sides; humeri black; propleura bare. Mesonotum with short yellow-gray pile along

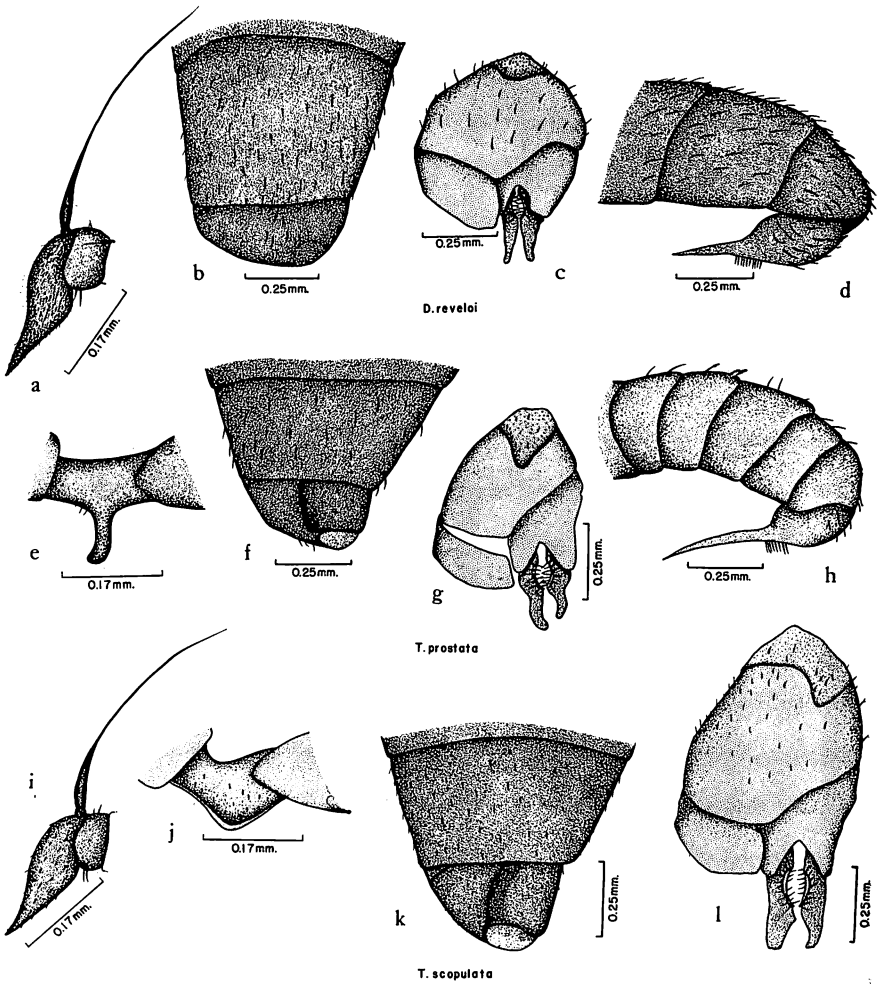


FIGURE 1.—**a-d**, *Dorylomorpha reveloi*, n. sp.: *a*, antenna; *b*, male genitalia, dorsal; *c*, male genitalia, ventral; *d*, female ovipositor, lateral. **e-h**, *Tomosvaryella prostata*, n. sp.: *e*, hind trochanter of male; *f*, male genitalia, dorsal; *g*, male genitalia, ventral; *h*, female ovipositor, lateral. **i-l**, *Tomosvaryella scopulata*, n. sp.: *i*, antenna; *j*, hind trochanter of male; *k*, male genitalia, dorsal; *l*, male genitalia, ventral.

lateral margins and down dorsocentral rows, pale pile also rather sparsely scattered over scutellum. Halteres brown at their bases, yellow at their apices. *Legs:* Coxae, trochanters, and femora, except for extreme apices, shining black, lightly gray pollinose. Tibiae yellow at their bases, and brown to black on apical halves. Tarsi yellow, tinged with brown at their apices. *Wings:* Slender, subhyaline, with no brown markings. Third costal section (cell Sc) very short, one-fifth to one-sixth as long as fourth costal section. Fourth section about 1.2 times longer than fifth. R-m crossvein situated at basal fifth of cell 1st $M_2$. Last section of vein $M_{1+2}$ rather distinctly curved. Last section of vein $M_{3+4}$ about three-fifths as long as m crossvein. *Abdomen:* Polished black in ground color, faintly gray-brown pollinose and slightly enlarged posteriorly as is typical of members of this genus. Entire abdomen densely white pilose. In dorsal view, male genitalia scarcely over half as long as abdominal segment 5; a large membranous area covers entire right side of apex (fig. 1, *b*). In direct ventral view, claspers nearly symmetrical and rather slender (fig. 1, *c*); in side view, each rather broad and flattened. Length: Body, 3.2 mm.; wings, 4.3 mm.

Female: Front rather broad, equal in width to ocellar triangle, upper three-fifths polished black, lower two-fifths gray-white pubescent. Ovipositor base oblong, piercer slender and straight, extending almost to base of abdominal segment 4 and slightly longer than base of ovipositor (fig. 1, *d*). Length: Body, 3.0 mm.; wings, 3.9 mm.

Holotype male, allotype female, and nine paratypes (eight males and one female) from Bonza (Boy), Colombia, April 5, 1960, "pastos" (in grassland) (M. Revelo); also one male, Funza (Cund.), Colombia, May 26, 1959, on "Papa" (potato) (G. Braro).

Type and allotype in the United States National Museum; paratypes in the Coleccion Nacional Central de Entomologia, Bogota, and at the University of Hawaii.

**Tomosvaryella prostata,** n. sp. (fig. 1, *c–h*).

This species runs near *T. ornatitarsalis* Hardy because of the strong process developed on the under side of the hind trochanter of the male. It differs by having this process differently shaped as in figure 1, *e* and the hind tarsi lacking the platelike projections which are typical of *ornatitarsalis*. The presence of long conspicuous dorsocentral hairs will also differentiate *prostata*. This species also shows relationship to *T. sachtlebeni* (Aczél) but the male genitalia are very different in the two.

Male. *Head:* Similar to that of most *Tomosvaryella* except that compound eyes very narrowly separated on front; at narrowest point front slightly less than width of one eye facet. Front polished black on upper portion below ocelli, densely gray-white pubescent in area just above antennae and shining black, sparsely gray pubescent over remainder of

front. Face gray-white pubescent, about equal in width to lower portion of front. Antennae dark brown to black, segment 3 is acuminate. *Thorax:* Polished black in ground color, gray pollinose on sides and gray-brown pollinose on dorsum. Moderately long conspicuous hairs present down each dorsocentral row and along lateral margins of mesonotum. Humeri and knobs of halteres yellow. *Legs:* Predominantly black, yellow at bases and apices of tibiae, and yellow brown on tarsi. Ventral process of hind trochanter rather slender, slightly curved and blunt at apex (fig. 1, *e*). *Wings:* Entirely hyaline. Third costal section about one-half as long as fourth and fifth section slightly more than twice length of third and fourth combined. Crossvein r-m situated near middle of cell 1st $M_2$ and last section of vein $M_{1+2}$ moderately curved. *Abdomen:* Polished black in ground color, rather lightly gray to gray-brown pollinose. Hypopygium nearly symmetrical, just slightly compressed to the right and with a moderately large subapical membranous area on right side (fig. 1, *f*). In ventral view, membranous portion covers entire apex of segment 8. Claspers rather slender, gently curved on their inner surfaces (fig. 1, *g*). Length: Body and wings, 2.85 mm.

Female: Front about one-half wider than face and predominantly silvery gray pollinose, only upper one-fifth of front polished black. Hind trochanters not ornate. Ovipositor base globose, the piercer long and slender, nearly two times longer than base and extending almost to base of abdominal segment 2 (fig. 1, *h*). Length: body and wings, 2.5 mm.

Holotype male and allotype female, Funza (Cund.), June 20, 1960, "Trébol" (Clover) (I. de Arévalo). Five male paratypes, four same data as type, except one from wheat ("Trigo") (R. F. Ruppel), and one from Bonza (Boy), April 5, 1960, "Pastos" (grasses) (M. Revelo).

Type and allotype deposited in the United States National Museum; paratypes in the Coleccion Nacional Central de Entomologia, Bogota, and the University of Hawaii collection.

**Tomosvaryella scopulata,** n. sp. (fig. 1, *i–l*).

This species appears to be related to *T. lepidides* Hardy but differs in having a small inconspicuous ventral ridge on the hind trochanter of the male (fig. 1, *j*); and in having the claspers of the male not enlarged apically, and rather truncate at their tips (fig. 1, *l*).

Male. *Head:* Junction of compound eyes about equal in length to six or seven rows of eye facets. Lower portion of front mostly subshining black, faintly gray pubescent, lower margin just above antennae densely gray-white pubescent. Face silvery gray pubescent and approximately equal in width to lower portion of front. Occiput shining black, rather lightly dusted with gray-brown pollen on upper half, silvery gray below. Antennae brown, segment 3 acuminate (fig. 1, *i*), and densely fringed with gray pubescence along upper edge. *Thorax:* Polished black in ground color, rather densely gray-brown pollinose. Humeri yellow. Stems of

halteres brown, knobs yellow. *Legs:* Predominantly black, hind trochanters each with a small, slightly pointed ventral keel (fig. 1, *j*). *Wings:* Entirely hyaline. Third costal section one-third as long as fourth. Crossvein r-m situated near middle of cell 1st $M_2$. *Abdomen:* Polished black, lightly gray pollinose. In direct dorsal view, hypopygium is two-thirds to three-fourths as long as abdominal segment 5 and has a conspicuous seam on left side and a large membranous area at apex (fig. 1, *k*). In ventral view, segment 9 has a deep V-shaped cleft in middle of hind margin. Claspers rather slender, almost truncate at their apices (fig. 1, *l*). Length: Body and wings, 2.8–3.0 mm.

Female unknown.

Holotype male, Palmira (Valle), Colombia, June 6, 1958 (G. Bravo). Two male paratypes from the following localities in Colombia: Pedrega (Nar.), May 8, 1960, "Malezas" (weeds) (M. Revelo), and Espinal (Tol.), alt. 332 meters, February 1, 1961, alfalfa (M. Revelo).

Type in the United States National Museum. Paratypes in the Coleccion Nacional Central de Entomologia, Bogota, and the University of Hawaii collection.

**Pipunculus (Eudorylas) absonditus** (Hardy). (Figure 2, *a–c.*)

*Dorilas* (*Eudorylas*) *absonditus* Hardy, 1954, Bol. Do Mus. Nacional, Nova. ser. Rio de Janeiro, Zoologia 123:14, figs.2, *a-b*.

This species was described from the type female from Grajahu, Brazil. In the type the basal portion of the piercer of the ovipositor was hidden by the overlapping edges of the sixth abdominal tergum; this is apparently not a reliable character. A large series of specimens, which quite obviously belong to *absonditus*, are on hand from several localities in Colombia. Following is the first description of the male and additional notes on the female. Compound eyes joined on front for a distance about equal in length to six or seven rows of eye facets. Lower portion of front densely gray-white pubescent. Face silvery gray, slightly wider than lower part of front. Antennal segment 3 yellow brown in ground color, densely yellow-gray pubescent and long acuminate, drawn out into a long point ventrally. Occiput entirely gray pollinose. Abdomen brown pollinose on dorsum, gray on sides and on venter. In dorsal view, hypopygium almost as long as fifth abdominal segment. Terga 6 and 7 plainly visible from above and the basal portion of segment 9 also visible from a dorsal view. Segment 8 has a large membranous area at apex (fig. 2, *a*). Claspers rather strongly bilobed, a prominent basal lobe developed in addition to slender apical lobe as in figure 2, *b*. Segment 6 well developed, greatly enlarged on venter (fig. 2, *b*). Length: Body, 3.0 mm.; wings, 3.8 mm.

Female: Sixth tergum well developed but not overlapping at base of piercer in the specimens on hand. In ventral view lateral margins of tergum 6 distinctly separated (fig. 2, *c*).

Forty-six specimens are on hand from the following localities in Colombia: Pasto (Nar.), July, 1960, "Cebada" (in barley field), (Yanguatin), "Parasite de *Cicadulina" pastusae* Ruppel and DeLong; El Rosal (Nar.), April, 1960, "Trigo" (G. Bravo), and February, 1960, "Trigo" (wheat) (M. Revelo); Bello (Ant.), February, 1949, "Maiz" (corn) (C. Rios); and Yacuanquer (Nar.), July, 1957, "Avena" (oats) (A. Unigarro).

Most of these specimens are in the Coleccion Nacional Central de Entomologia, Bogota; others have been deposited in the collection of the United States National Museum and the University of Hawaii.

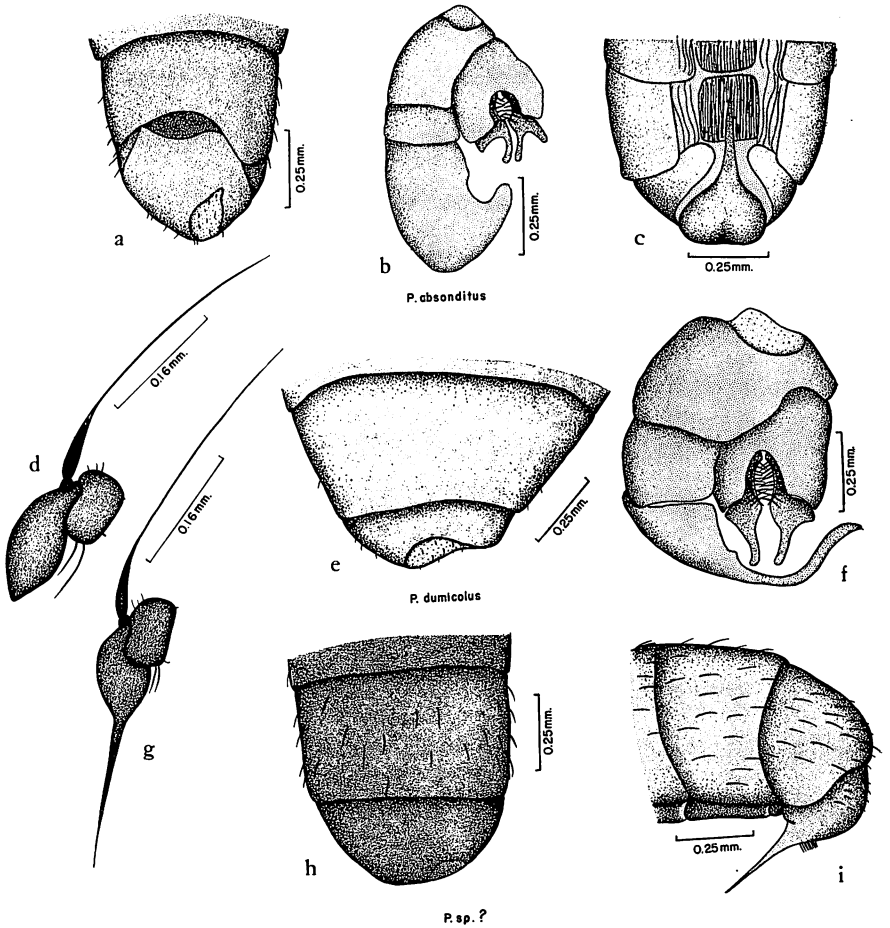


FIGURE 2.—**a-c**, *Pipunculus* (*Eudorylas*) *absonditus* (Hardy): *a*, male genitalia, dorsal; *b*, male genitalia, ventral; *c*, female ovipositor, ventral. **d-f**, *Pipunculus* (*E.*) *dumicolus*, n. sp.: *d*, antenna; *e*, male genitalia, dorsal; *f*, male genitalia, ventral. **g-i**, *Pipunculus* (*E.*) sp.?: *g*, antenna; *h*, male genitalia, dorsal; *i*, female ovipositor, lateral.

**Pipunculus (Eudorylas) dumicolus** n. sp. (fig. 2, *d–f*).

In my key to the known species of *Pipunculus* from the neotropical region (Hardy, 1954, Bol. do Mus. Nac., Nova Ser. Rio de Janeiro, Zoologia 123: 1–60) this runs to couplet 44 and appears to fit nearest *P. occultus* (Hardy) because of the bare propleura. It is very different from this species, however, and the large membranous area at the apex of the male hypopygium, the black tibiae, and other details will readily differentiate it.

Male. *Head:* Junction of compound eyes about equal in length to 10 rows of eye facets. Lower portion of front shining black in ground color, densely gray-white pubescent just above antennae and more sparsely gray pubescent over remainder of frontal triangle. Face silvery gray pubescent and approximately equal in width to lower portion of front. Antennae dark brown to black, third segment acute ventrally (fig. 2, *d*). *Thorax:* Entirely shining black in ground color, rather lightly gray-brown pollinose on dorsum, densely gray on sides. Humeri black in ground color and densely gray pollinose. Knobs of halteres dark brown to black, tinged with yellow on under sides. Setae of mesonotum short and very sparse. Propleura bare. *Legs:* Predominantly black, yellow on extreme apices of femora and on apices and bases of tibiae; tarsi yellow, tinged with brown. Each hind trochanter with several short pale hairs on ventral surface. *Wings:* Entirely hyaline. Third costal section approximately equal in length to fourth and stigma fills almost all of third costal section. Crossvein r-m near basal two-fifths of cell 1st $M_2$. Last section of vein $M_{1+2}$ strongly curved, sinuate; last section of vein $M_{3+4}$ almost equal in length to m crossvein. *Abdomen:* Shining black in ground color. Tergum 1 and base of 2 silvery gray pubescent, the remainder of abdomen lightly brown pollinose on dorsum, gray on lateral margins. Abdomen rounded on sides, broadest at junction of segments 3 and 4. In direct dorsal view hypopygium approximately one-half as long as abdominal segment 5, with a large membranous area extending over apical portion (fig. 2, *e*). Claspers simple, expanded at their bases and straight-sided on apical portion, as in figure 2, *f*. *Length:* Body, 4.3 mm.; wings, 3.7 mm.

Female unknown.

Holotype male and one male paratype, Pedregal (Nar.), May 8, 1961, "Malezas" (weeds) (M. Revelo).

Type in the United States National Museum; the paratype in the Coleccion Nacional Central de Entomologia, Bogota.

**Pipunculus (Eudorylas)** species? (fig. 2, *g–i*).

A male and a female are on hand from Pasto (Nar.), Colombia, February 16, 1960, "Papa" (potatoes) (M. Revelo) and September 21, 1960, "Malezas" (weeds) (G. Bravo) which run to couplet 47 of my key to neotropical species (Hardy, *op cit.*, 9). They may possibly be *peruensis* Hardy, which is a change of name for *P. umbrinus* Becker (1900, Berlin.

ENT. ZEITSCHR. 45:245), nec *P. umbrinus* Loew (1857, OFVERS. K. VET. AKAD. FORH. 14:374). Becker described what he thought was the female of *umbrinus* from Peru. I have studied the female of Loew's species from Africa and it is quite distinct from that which Becker described from South America. The female at hand appears to differ from Becker's description by having the lateral margins of the abdominal terga yellow. Also the humeri and the halteres are yellow. The long slender bristle-like extension of the apex of the third antennal segment (fig. 2, *g*) is distinctive although *longipilus* Hardy from Equador also possesses this character. The male specimen on hand apparently differs from *longipilus* by having the hypopygium symmetrical, semihemispherical, and lacking a well-developed apical membranous area (fig. 2, *h*). The female ovipositor is as in figure 2, *j*. Additional specimens will have to be studied before we can be sure of the placement of this species.

It should be noted that Aczél (1952, REV. SOC. ENT. ARG. 15:241) placed *peruensis* in the genus *Dorylas* [equals *Pipunculus* (*Pipunculus*) — those species having a fan of hairs on the propleuron]. I have not been able to confirm whether or not this actually belongs in this subgenus but I suspect that this is a *Eudorylas*.

The above specimens have been returned to the Coleccion Nacional Central de Entomologia, Bogota.