NEW OR LITTLE-KNOWN *TIPULIDAE* FROM THE ANDES MOUNTAINS

(Diptera)

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El autor estudia seis especies del Departamento de Huánuco, Perú, todas pertenecientes a *Tipula (Eumicrotipula)*, s.endo cinco de ellas nuevas. Hace preceder a las descripciones datos ecológicos de Cariapampa, donde fué recogida la mayor parte de las especies.

In the present report I am describing a few new species of craneflies that were taken by Weytkowski in the Department of Huánuco, Peru. Most of the species were taken in the fog forest at Sariapampa, under conditions that were described by the collector as follows:

"The narrow belt of the fog forest between the Torre-huasi puna and the middle zone of the tall Montañas "eyebrow forest" is situated between 3300 and 3800 meters, its vertical altitude thus extending only about some 500 meters. The one-half kilometer narrow belt has its peculiar vegetation and forest form, entirely distinct either from the adjacent grass-steppe or from the high forest of the "eyebrow" at its lower boundary. The Sariapampa dwarf wood is really a mass and labyrinth of vegetation where mosses play the foremost role, inasmuch as wherever one steps, these cover the ground and vegetation. Like a vast cobweb they extend from trunk to trunk, envelope the branches, overspread upon earth and boulders, and masking, concealing and disguising holes, pits and deep rock crevices. Moss in these woods is the collector's foe. This fog forest is full of moisture, mist and rain, and beneath everything is water-soaked. And yet, incredible as it may sound, water for either drinking or for cooking does not exist. This is due entirely to the topography, the mountain slopes having from 50 to 80 degrees of slope; water abounds and passes down continually, finding no place to stay. For the collector, the narrow belt of rain-forest is the most difficult and fatiguing terrain to work. Everything desirable proves unattainable as moving about in these woods is slow and sometimes impossible" Felix Woytkowski.

The types of the new species are preserved in my collection through the appreciated interest of Mr. Woytkowski.

Tipula (Eumicrotipula) asteria, sp. n.

Belongs to the *glaphyroptera* group; mesonotum grayish yellow, the praescutum with three reddish brown stripes, the median one broad, darkest on its central portion, the margins paler; antennae with flagellar segments beyond the first bicolored; femora yellow, with a narrow brown subterminal ring; wings yellow, the costal region more saturated, the disk with a handsome dark pattern, the anterior half more nearly free of pattern; abdomen chiefly yellow; male hypopygium with the caudal margin of the ninth tergite nearly truncate, a little produced on either side of the midline, the outer lateral angles broadly obtuse, glabrous; outer dististyle dilated on distal half; caudal margin of eighth sternite with a brush of unusually long setae on either side of a median ligulate lobe.

Male. Length about 16-17 mm.; wing 18-20 mm.; antenna about 4.9-5 mm.

Frontal prolongation of head elongate, subequal to remainder of head, obscure yellow; nasus distinct; basal segment of palpus obscure yellow, the outer three dark brown. Antennae (male) of moderate length, approximately one-fourth the wing; basal three segments yellow, succeeding ones bicolorous, brownish black at base, the remainder obscure brownish yellow, this latter color becoming somewhat more obscured on the outer segments but persisting virtually to the end; flagellar segments moderately incised, longer than the verticils. Head reddish brown, heavily yellow pollinose.

Thorax yellow, vaguely patterned with reddish brown. Mesonotal praescutum with the ground grayish yellow pruinose, with three reddish brown stripes, the broad median one dark brown on central portion, with broad paler margins, broadest in front, the stripes vaguely margined with darker, best shown in an oblique light; scutum obscure yellow, the lobes patterned with reddish brown, more expanded at the suture, the central part of scutum and the scutellum more infuscated; posterior sclerites of notum grayish yellow, the mediotergite with three longitudinal reddish brown lines. Pleura and pleurotergite buffy yellow, vaguely patterned with brown. Halteres yellow, the knob weakly darkened basally, clearer yellow at apex. Legs with coxae yellow pollinose; trochanters yellow; femora yellow, with a narrow brown subterminal ring that is subequal to or narrower than the pale apex; tibiae and tarsi obscure yellow or brownish yellow, the outer tarsal segments brownish black; claws (male) toothed. Wings yellow, more saturated in cells C, Sc and basal portion of outer radial field, handsomely patterned with brown and grayish brown; anterior half of wing more nearly-free of dark markings, the posterior half with a zigzag arrangement of brownish gray areas; the darker markings include a streak extending from h to Cu at and beyond the arculus; very small spots on vein Sc before and at origin of Rs; a narrow and irregular seam along cord; beyond cord, the bases of outer radial cells nearly clear, the remaining ones patterned with brown, leaving yellow spots in the ends of the medial cells; cell Rs almost unpatterned; base of prearcular field darkened, the outer end

yellow, in cases virtually all clear yellow; veins brownish yellow, clear yellow in the brightened fields. Venation: Rs about one-half longer than m-cu; R_1+2 entire but with the pale tip and subobsolete; m longer than the petiole of cell M_1 ; basal section of vein M_4 perpendicular.

Abdomen with basal segments chiefly yellow, the lateral border of the second and third tergites more or less darkened, in the paratype conspicuosly so on the third and base of the fourth tergite; remaining tergites and hypopygium brownish yellow; intermediate sternites yellow, more evidently darkened in the paratype. Male hypopygium (Fig. 1) with the ninth tergite, 9t, transverse, the lateral angles of the caudal margin produced into broadly obtuse glabrous lobes, the truncated central portion produced on either side of the midline into a small triangular point. Outer dististyle, d, strongly dilated on distal half. Inner dististyle with the beak relatively slender, the lower beak much stouter, triangular in outline; dorsal crest developed feebly near the region of the beak and here with a weak concentration of long yellow setae. Gonapophysis, g, of distinctive shape, as shown. Eighth sternite, 8s, relatively long, moderately sheathing, the apex narrowed, truncated, with a median lobe that is provided with numerous strong setae, the more basal ones longer than the lobe, the outer ones progressively shorter; outer ends of the truncated portion with a conspicuous brush of even longer setae, the tips pale and more or less curled.

Holotype, &, Sariapampa, Huánuco, Perú, altitude 3600 – 4100 meters, May 7, 1946 (Woytkowski). Paratopotype, 18 May 11, 1946.

The present fly is most to other Andean members of the group, including Tipula (Eumicrotipula) laterosetosa Alexander, T (E.) mithradates Alexander, T. (E). resplandens Alexander, and T (E.) riveti Edwards, all well-distinguished among themselves by the coloration and wing pattern, and especially, in all details of structure of the male hypopygium.

Tipula (Eumicrotipula) conspicillata Alexander

Tipula (Eumicrotipula) conspicillata Alexander; Ann. Mag. Nat. Hist., (11) 12: 234-236; 1945.

Male, Chinchao, Huánuco, Perú, altitude 2500 meters, September 5, 1947 (George Woytkowski). Female, Sariapampa, Huánuco, Perú, altitude 3600 — 4100 meters, May 7, 1946 (Woytkowski).

Male hypopygium (fig. 2) with the ninth tergite, 9t, transverse, the central section of the caudal margin somewhat more produced to form two rounded lobes, one on either side of a small median notch; outer lateral angles slightly but less evidently produced. Appendage of ninth sternite small, the narrowed outer end with a group of long yellow setae, the longest subequal in length to the appendage. Outer dististyle, d, a little expanded on less than the outer half, provided with very long black setae. Inner dististyle with the beak slightly pendant, lower beak very obtuse; setae of dorsal crest sparse but elongate, pale yellow.

Gonapophysis, g, appearing as a broadly flattened plate, the tip broadly obtuse. Appendage of eighth sternite very small, only about twice as long as broad, provided with about seven or eight very long setae.

Tipula (Eumicrotipula) suavissima, sp. n.

Belongs to the *glaphyroptera* group; size medium (wing, male, about 17 mm.); antenna short; flagellum bicolorous; mesonotal praescutum light gray, with four reddish brown stripes are most distinct behind; femora yellow with a brown subterminal ring, preceded by a subequal clear yellow ring, the tip more narrowly of this color; wings whitish subhyaline, conspicuously marbled with brown; R_{1+2} entire; abdomen yellow, the lateral borders of the tergites narrowly darkened; male hypopygium with the caudal margin of tergite with two glabrous lobes that are separated by a narrower U-shaped notch; outer dististyle very slender; eighth sternite without conspicuous setae, the median appendage small.

Male. Length about 12 - 13 mm.; wing 16 - 17 mm.; antenna

about 2.1 - 2.2 mm.

Frontal prolongation of head brownish yellow; nasus distinct; first segment of palpi yellow, outer segments passing through brown to brownish black. Antennae short in both sexes; scape and pedicel yellow, proximal flagellar segments bicolored, black, the subequal apex yellow, the amount of the latter decreasing on the outer segments, the outer four or five more uniformly darkened; flagellar segments subfusiform, without a clearly defined basal swelling; longest verticils exceeding the segments. Head reddish brown, heavily white pruinose, especially in front; vertical tubercle very low and inconspicuous.

Pronotum testaceous vellow, marked with brown on the sides. Mesonotal praescutum with the interspaces light gray, with four reddish brown stripes, the intermediate pair becoming fainter and pruinose on the cephalic half; scutellum and ground color of scutum light gray, the scutal lobes variegated by two reddish brown areas; mediotergite light gray, with a brown central vitta. Pleura and pleurotergite chiefly gray pruinose, with a more or less distinct transverse brown area on the anepisternum; dorsopleural region buffy. Halteres elongate, yellow. Legs with the coxae yellow or brownish yellow, pruinose; trochanters yellow; femora yellow, deepening to brown outwardly, with a darker brown subterminal ring that is about twice as extensive as the yellow apex by a clearer yellow ring of approximately equal extent; tibiae brownish yellow, the tips narrowly darkened; tarsi brownish yellow, passing into black; claws simple. Wings whitish subhyaline, conspicuously marbled with brown, the dark and pale pattern subequal in extent; proximal end of prearcular field darkened, the outer end white; cell C pale brown, $\bar{S}c$ clear yellow with four brown areas, the third at the origin of Rs; the major darkenings are at arculus, at midlength of the outer radial field, on both sides of m-cu in cells M and M; in the Anal field the dark pattern more zigzag; stigmal area concolorous and confluent with a large mark at the anterior cord; a more whitened mark in cell

Ist M_2 and adjoining parts of cells M and M_3 ; veins yellow, darker in the patterned areas. Venation: R_1+_2 pale but entire; R_3 nearly two times m-cu; petiole of cell M_1 about twice m.

Abdomen, including hypopygium, chiefly yellow, the lateral tergal borders narrowly darkened; sternites yellow, the subterminal ones weakly infuscated. Male hypopygium (Fig. 3) with the ninth tergite, 9t, narrowed outwardly, its caudal margin with two glabrous lobes, their apices nearly truncated; lobes separated from one another by a narrower U-shaped notch. Appendage of ninth sternite a rounded lobe provided with relatively sparse but long yellow setae. Outer dististyle, d, an unusually slender lobe, its outer end scarcely thicker than the base, provided with sparse setae. Inner dististyle broadest across base, thence narrowed outwardly to the beak, the lower beak runded; outer margin or crest of style with unusually few and weak erect setae. Gonapophysis, g, with the margin of outer plate coarsely toothed (the apex broken). Basal shield of aedeagus densely provided with small spinous points. Eighth sternite transverse, the surface without conspicuous setae, the median appendage small.

Holotype, 3, Sariapampa, Huánuco, Perú, altitude 3600 — 4100 meters, May 8, 1946 (Woytkowski). Paratopotypes, 4 or May 2 — 11, 1946.

The most similar described Andean species include *Tipula* (Eumicrotipula) browniana Alexander, T. (E.) delectada Alexander, and T. (E.) juventa Alexander, the last named being somewhat closer than the others. All differ in coloration of the body and wings and in the male hypopygium.

Tipula (Eumicrotipula) ursula, sp. n.

Belongs to the *glaphyroptera* group; antennae short, flagellum brownish black; mesonotal praescutum gray pruinose, with four reddish brown stripes; femora light brown, the tips brownish black, preceded by a narrower yellow ring; wings whitish subhyaline, conspicuously marbled with pale brown and brownish gray; cell *Sc* clearer yellow, with four darker brown spots; abdomen reddish yellow, the lateral tergal boxders darker, more intensely so on the basal rings; male hypopygium with the tergite ending in two subglabrous blades that are separated by a U-shaped notch; outer dististyle relatively stout; surface of inner dististyle with a concentration of long black setae; eighth sternite with its caudal margin convexly rounded, with nearly the outer half provided with long erect setae.

Male. Length about 14.5 - 15 mm.; wing 18 - 19 mm.; antenna about 3 mm.

Frontal prolongation of head light brown, yellow pollinose; nasus distinct; palpi with the first segment obscure yellow, the remainder brownish black. Antennae short; scape and pedicel yellow, flagellum brownish black, passing into black; flagellar segments with basal swellings poorly indicated; segments subequal in length to the longest verticils. Head reddish brown, the surface chiefly whitish pruinose, leaving areas

of the ground exposed on the sides of the posterior vertex; vertical tubercle low.

Pronotum medium to darker brown, sparsely pruinose. Mesonotal praescutum with the restricted ground gray pruinose, with four reddish brown stripes, the intermediate pair a little more darkened at cephalic end; posterior sclerites of notum light gray, each scutal lobe with two separate to confluent reddish brown areas; central portion of mediotergite extensively darkened, of the scutum and scutellum less evidently so. Pleura and pleurotergite gray pruinose, variegated with more reddish brown areas; dorsopleural region in part darkened; katapleurotergite more heavily silvery. Halteres long, yellow. Legs with the coxae gray pruinose; trochanters brownish yellow; femora light brown, more yellowed basally, the tips rather broadly brownish black, preceded by a narrower yellow ring; tibiae and tarsi gradually passing into black; claws (male) simple. Wings whitish subhyaline, conspicuously marbled with pale brown and brownish gray; costal border more brightened, cell C brownish yellow, Sc clearer yellow, the latter with four dark areas, the third and largest at origin of Rs; stigma pale brown, darker only at outer end in vicinity of R 2; most cells of wing with a heavy pattern, including paler brownish gray, clouds that are subequal in extent to the ground, in the cubital and anal cells becoming more irregular and zigzag; veins brown, brownish yellow in the costal interspaces. Venation: R_{1+2} pale at tip; Rs a little less than twice m-cu; petiole of cell M_{1} slightly longer than m.

Abdomen obscure reddish yellow, the tergites with narrow darker lateral borders, heaviest on the basal rings of the segments to produce a spotted appearance; basal tergite pruinose, narrowly darkened medially; sternites and hypopygium reddish yellow. Male hypopygium (Fig. 4) with the ninth tergite, 9t, extensive, narrowed outwardly, the caudal margin with two rounded subglabrous blades that are separated by a U-shaped notch. Outer dististyle, d, relatively stout, slightly sinuous on proximal half. Inner dististyle with a conspicuous grouping of long black setae along the face of the style, extending over most of the length, toward the lower beak becoming small and inconspicuous. Gonapophysis, g, shaped about as figured; apical beak decurved. Eighth sternite with the caudal margin convexly rounded, with nearly the outer half bearing long erect setae, dense and erect near outer end, more sparse behind.

Holotype, &, Sariapampa, Huánuco, Perú, altitude 3600 – 4100 meters, May 4, 1946 (Woytkowski). Paratopotype, 10⁷, May 11, 1946.

The present fly is most similar in its general appearance to species such as *Tipula (Eumicrotipula) suavissima*, sp. n., differing very conspicuously in all details of the male hypopygium, particularly the ninth tergite, both dististyles, and in the vestiture of the eighth sternite.

Tipula (Eumicrotipula) quadrisetosa, sp. n.

Belongs to the *glaphyroptera* group; mesonotal praescutum yellow, with three brown stripes, the broad median one with a pale enclosed

area at near midlength; femora obscure brownish yellow, with a narrow brown subterminal ring; wings pale yellowish white, extensively marbled with brown and brownish gray; vein R_{1+2} entire; basal abdominal segments reddish yellow, the outer segments more darkened; male hypopygium with the ninth tergite transverse, the median part of the caudal border produced beyond the level of the slender lateral lobes, its tip with a U-shaped notch; ninth sternite with two unequal lobes on either side, both tipped with long setae; gonapophysis with a small fingerlike lobule on inner margin; appendage of eighth sternite long and narrow.

Male. Length about 16 mm.; wing 17 mm.

Frontal prolongation of head obscure yellow, somewhat darker above, longer than the remainder of head; nasus distinct; palpi with the proximal two segments pale, the outer ones passing into dark brown. Antennae destroyed by Corrodentia. Head above yellow, with a narrow brown median vitta, the sides behind the eyes vaguely darkened.

Pronotum vellow, narrowly brown on central portion and less distinctly so on the sides below; lateral pretergites with a dark brown spot. Mesonotal pralscutum with the ground sericeous yellow, with three brown stripes, the broad median one still darker brown in front, at midlength dividing and enclosing an elongate area of the ground color; lateral stripes more nearly entire; scutum with the lobes chiefly infuscated, the central portion yellow, with a brown median line that continues caudad over the scutellum and mediotergite, broadest on the latter; ground co'or of the posterior sclerites of the notum yellow, including the parascutella and pleurotergite, the latter weakly infuscated below. Pleura chiefly yellow, vaguely patterned with darker, including the propleura, dorsopleural membrane, dorsal anepisternum and meron. Halteres with stem obscure yellow, knobs broken. Legs with the coxae and trochanters yellow, the fore coxae weakly infuscated, more intensely so at base; femora obscure brownish yellow, with a narrow brown subterminal ring, about equal in extent to the apex; remainder of legs yellowish brown, passing into darker brown outwardly; claws (male) small, simple. Wings with the ground pale yellowish white, extensively but rather faintly marbled with brown and brownish gray, the dark pattern most extensive in the cells beyond the cord and behind vein Cu, cells R and M clearer; basal half of prearcular field darkened; cells C and Sc brownish yellow, the latter with four small brown areas, as common in the subgenus; outer ends of cells R and R conspicuously yellowed; a clearer white discal area extending from the outer end of cell R across the basal half of Ist M z into the base of M z; small pale marginal spots in cells M_1 to 2nd A, inclusive; veins brownish yellow to pale brown. Venation: R_{1+2} entire, the distal half pale; R_{s} nearly twice as long as m-cu, the latter on the basal angulated part of vein M_i .

Abdomen at base reddish yellow, the proximal tergites vaguely more darkened laterally; sternites clearer yellow; outer segments, including hypopygium, more infuscated. Male hypopygium (Fig. 5) with the ninth tergite, 9t, transverse, the outer lateral angles produced into slender

glabrous lobes, the median region still more produced into a central lobe, the apex of which bears a U-shaped notch. Region of ninth sternite on either side produced into two unequal lobes, 9s, the longer several times larger than the small lobe, both pairs tipped or tufted with long yellow setae, two on the small lobe being unusually long and powerful. The inner dististyle is broken and the outer part lost; before this happened the part was observed and showed a strong group or crest of long setae on outer margin before the beak. Gonapophysis, g, appearing a flattened blade, on mesal edge at near midlength a small triangular or fingerlike lobule. Eighth sternite with the appendage long and narrow, at least five times as long as wide.

Holotype, &, Carpish, Huánuco, Perú, altitude 2800 meters, October 8, 1946 (Woytkowski).

The present fly is readily told from all other generally similar forms by the structure of the male hypopygium, particularly the tergite and lobes of the ninth sternite. The species having the tergite most similar include *Tipula* (Eumicrotipula) osculata Alexander and T. (E.) runtunensis Alexander, both of which are entirely distinct in all other respects.

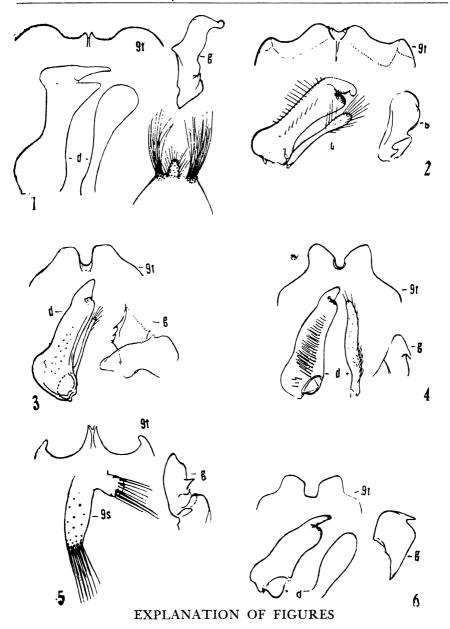
Tipula (Eumicrotipula) zeugmata, sp. n.

Belongs to the *glaphyroptera* group; antennae short, bicolored; general coloration of praescutum buffy, with four inconspicuous gray stripes, the intermediate pair separated on anterior half by a capillary brown line; posterior sclerites of notum gray, with a continuous reddish brown central line; femora yellow, with a pale brown subterminal ring; wings pale yellow, with a restricted pale brown pattern, including especially a longitudinal stripe at near midwidth of wing, virtually unbroken; other pale brown areas in apical and posterior parts of the wing; male hypopygium with the ninth tergite produced into two conspicuous flattened lobes; outer dististyle unusually broad.

Male. Length about 16 mm.; wing 19 mm.; antenna about 3.2 mm. Female. Length about 18 mm.; wing 19.5 mm.; antenna about 3 mm.

Frontal prolongation of head yellow, somewhat darker on sides; nasus long and conspicuous; palpi with first segment yellow, the remainder brown to dark brown. Antennae short in both sexes; basal three segments yellow, the remainder bicolored, the small and inconspicuous basal swellings black, the stems yellow; longest verticils subequal to the segments. Head buffy yellow, unpatterned; vertical tubercle low, entire.

Pronotum buffy, with a narrow central darkening. Mesonotal praescutum buffy with four inconspicuous grayish stripes, the intermediate pair separated on the anterior half by a capillary brown vitta; posterior sclerites of notum clear gray, with a continuous reddish brown central line, the disk of each scutal lobe with two vague darker gray areas. Pleura and pleurotergite reddish brown, sparsely pruinose. Halteres elongate, yellow. Legs with coxae pale brownish gray; trochanters yellow; femora



- Fig. 1. Tipula (Eumicrotipula) asteria, sp. n.; details of the male hypopygium.
- Fig. 2. Tipula (Eumicrotipula) conspicillata Alexander; the same.
- Fig. 3. Tipula (Eumicrotipula) suavissima, sp. n.; the same.
- Fig. 4. Tipula (Eumicrotipula) ursula, sp. n.; the same.
- Fig. 5. Tipula (Eumicrotipula) quadrisetosa, sp. n.; the same.
- Fig. 6. Tipula (Eumicrotipula) zeugmata, sp. n.; the same.

(Symbols: d, inner and outer dististyles; g, gonapophysis; s, sternite; t, tergite).

yellow, with a pale brown subterminal ring that is about twice as broad as the yellow tip; remainder of legs yellow, the terminal three tarsal segments brownish black; claws simple. Wings pale yellow, the prearcular and costal fields more brownish yellow; stigma pale yellowish brown; a restricted pale brown pattern, most evident as a nearly continuous longitudinal stripe at midwidth of wing, beginning at the axilla, continued over the base of cell Cu, near midlength of vein Cu in cell M, in outer end of cell M, continued as a seam over the lower and outer part of cell 1st M_2 , fork of M_1+2 , near outer end of cell R_3 to the wing tip in outer end of cell R_3 ; very small brown spots at origin of R_3 and on anterior cord; vague seams at ends of the longitudinal veins and as pale central streaks in the same cells, more distinct and connected in the female; a vague zigzag pattern in outer ends of cells Cu, 1st A and 2nd A; veins yellow, a trifle darker in the patterned areas. Venation: Rs somewhat less than twice m-cu; R_1+2 entire but pale on distal end; msubequal to petiole of cell M_1 , either a trifle longer or shorter.

Abdomen brownish yellow, vaguely patterned with darker, most evident on the tergites as a narrow middorsal pale brown line and as broader lateral margins; hypopygium chiefly brownish yellow. Ovipositor with hypovalvae pointed at tips. Male hypopygium (Fig. 6) with the ninth tergite, 9t, transverse, the caudal border with two conspicuous lobes that are separated by a narrower quadrate notch, the apices of the lobes suboblique. Ninth sternite with the appendage broadest at near midlength, tipped with long yellow setae that are subequal in length to the lobe. Outer dististyle, d, broadly flattened, conspicuously setiferous. Inner dististyle relatively narrow, broadest at base, thence narrowed outwardly, the outer margin with unusually sparse and scatered setae, particularly those of the region of the beak. Gonapophysis, g, appearing as a flattened dark-colored plate, the outer apical angle produced into a slender beaklike point. Eighth sternite with a concentration of setae near the midregion of the posterior portion but with no distinct lobe visible in the type.

Holotype, δ, Sariapampa, Huánuco, Perú, altitude 3600 – 4100 meters, May 2, 1946 (Woytkowski). Allotopotype, Q.

The superficially similar species such as Tipula (Eumicrotipula) cristata Alexander, T (E.) scriptella Alexander, and T (E.) unistriata Alexander, are entirely distinct when carefully compared. Both the details of the wing pattern and the structure of the male hypopygium are entirely distinct.