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NEW DIPTERA FROM PANAMA ¹

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The descriptions of new species included in this paper are taken from specimens in the U. S. National Museum collection which were collected by A. Busck of the Bureau of Entomology, in 1911, while a member of the Smithsonian Biological Survey of the Panama Canal Zone.

FANNIA VITTATA, new species

Male.—Black, thickly gray-dusted; eyes distinctly separated by a velvety-black stripe, eye-margins shining silvery white, orbital bristles extending three-fourths to ocelli, frons and epistome slightly produced, face and eye-margins silvered, antennæ with the basal two joints yellow, third joint mostly brown, twice as long as second, arista pale at base, nearly bare, distinctly longer than antennæ, palpi yellow; mesonotum thickly gray-dusted, with three brown stripes, the center one very narrow, complete, the outer pair broad, ceasing at beyond middle and interrupted at suture, dorsal bristles strong, four pairs of dorso-central macrochætæ, pleuræ gray-dusted, scutellum with a small brown mark at base on each side, four strong marginal bristles and a number of discal setæ, two of which, beyond middle, are stronger; abdomen rather short, broad at base and tapering towards apex, basal three segments mostly translucent yellow, with a distinct black dorsal stripe, and a spot on each side at posterior margin which is more or less coalescent with the central stripe, last segment more or less blackened, with a distinct dorso-central stripe and two rounded spots on posterior third, all segments more or less distinctly gray-dusted, with numerous hairs, and especially the last segment with strong apical bristles, hypopygium normal, the ventral organs not prominent, ventral surface of last segment of abdomen shining black; legs brownish-black, the knee joints yellowish, trochanters yellow, mid femora with a row of bristles on

¹ This paper is the twelfth dealing with the results of the Smithsonian Biological Survey of the Panama Canal Zone.

antero-dorsal surface, the apical three or four much the strongest, antero-ventral row consisting of about seven equally strong, equidistant on the basal half and about fifteen on apical half, the first two of which are strong and widely placed and the next thirteen of which rapidly decrease in size and become closer placed till they form a comb of short setulæ on the thin apical third of femora, postero-ventral surface with a similar row, postero-dorsal surface with a row of bristles which increase in size towards the apex, mid tibiæ gradually thickened on apical two-thirds, pubescence sparse and short, especially on basal half of ventral surface, one antero-dorsal bristle at apical fourth and one at apical third and postero-dorsal surface, as well as one at very close to apex on nearly the dorsal surface and the end spurs, hind femora with a row of bristles on apical half of the antero- and postero-dorsal surfaces which increase rapidly in size on apical third, the last three being very strong, as well as three or four strong bristles on the antero-dorsal surface from apical third to tip, hind tibiæ with a very long bristle at near middle and another at near tip on dorsal surface, a series of four, the middle two of which are strongest, on antero-dorsal surface and a series of four shorter bristles on the antero- and postero-ventral surfaces; wings grayish, inner cross-vein almost directly below the end of first vein, third and fourth veins distinctly convergent at wing margin, large cross-vein slightly bent, barely its own length from inner cross-vein and less than one-fourth the distance from inner cross-vein to wing margin; under scale of calyptera distinctly longer than upper; halteres yellow.

Female.—In color and size similar to the male. Frontal stripe nearly one-third as wide as head, central stripe "matt"-black, bifid posteriorly, eye-margins silvery gray, frontal stripe slightly narrowed towards vertex, antennæ colored as in male, but the arista hardly longer than antennæ; abdomen not so pale as in male and the dorsal stripe interrupted on posterior margins of segments; legs colored as in male but the hind tibiæ are paler, the mid tibiæ have two ventral bristles at apical third, the dorsal bristling being as in male, the hind femora have two very distinct bristles at near tip on antero-ventral surface, a row of short bristles and two or three long ones on antero-dorsal surface, the latter at near tip; and the hind tibiæ have the two dorsal bristles as in male, as well as three or four on the antero-dorsal and antero-ventral surfaces from basal third to apical fourth; the outer cross-vein in wing is nearer to wing margin than in male. Length 2-3 mm.

Allied to *femoralis*, Stn., and *trimaculata*, Stn., from which it may be separated by the striped thorax, the color of the abdomen and the bristling of the hind tibiæ.

Localities.—Porto Bello, Alhajuelo and Arajan, Panama, Feb.-Apr., 1911 (August Busck). Seven males and three females.

Type.—Cat. No. 14911, U. S. Nat. Mus.

FANNIA GRANDIS, new species

Male.—Very robust; head large, eyes distinctly separated, center stripe velvet-black, eye-margins silvered, frontal bristles strong, face silvered except on the lateral ridge and lower suture dividing it from eye-margins, where it is brown, eye-margins silvered, cheeks and occiput yellow-dusted, antennæ yellow, third joint slightly browned at tip, more than twice as long as second, arista yellow, browned on apical half, thickened at base, nearly bare, palpi yellow; mesonotum yellowish gray-dusted with three broad brown stripes, the central stripe is very broad, more or less distinctly divided by two very narrow pale stripes into three stripes on the anterior half, denticulate at suture, gradually broadening to beyond middle and then abruptly reduced to one-third its previous width, lateral stripes not reaching to scutellum, pleuræ yellow-gray dusted, scutellum brown on basal half, apical half yellow-gray dusted; abdomen translucent yellow, with a distinct black-brown longitudinal dorsal stripe and a spot on each side on posterior margin of same color which is generally coalescent with the central stripe on basal segments and generally detached from it on apical two, apical segment distinctly, the others indistinctly gray-dusted, second segment with a numerous clump of hairs on basal third laterally, the last two segments with strong apical bristles, hypopygium of normal shape, the ventral surface unusually hairy; legs black, trochanters and knee joints yellow, tibiæ piceous, paler basally, anterior femora with each of the posterior surfaces armed on the apical half with long bristles, those on the ventral surface (10-11) very long and strong, those on the dorsal surface beginning before the middle and ending at one-fourth from apex, fore tibiæ with a preapical dorsal bristle, fore tarsi distinctly thickened, mid femora distinctly constricted near tip, antero-dorsal surface rather weakly bristled, antero-ventral surface with seven bristles, which are not very long and rather irregularly placed on basal half, the last two widely separated, then an equally long space followed by one strong isolated bristle and a rapidly decreasing, thickly placed series of over twenty which form a comb-

like arrangement on the constricted portion of femur, postero-ventral surface with seven bristles on basal half, the first of which is very long and the remainder rapidly decreasing in size, on the apical half the bristles are small at commencement of series then rapidly increase and form a thick closely placed series of rather curled bristles opposite to the short antero-ventral row, a group of strong bristles is situated at near to tip on posterior surface, mid tibiae with the ventral surface much thickened on apical two-thirds, ventral pubescence extremely short and close on basal third and basal half of swollen part, long and shaggy on apical third, one antero-dorsal bristle at apical third and one on dorsal surface at near tip besides the apical spurs, hind femora with a large rounded tubercle at beyond middle on ventral surface, a row of bristles on anterior surface which increase in length towards tip and finish on nearly the dorsal surface, anterior surface of the ventral tubercle with numerous long bristles of unequal lengths, ventral surface of tubercle with a fasciculus of long strong bristles which curves in a posterior direction and is somewhat curled at tip, posterior surface with long, soft hairs from base to tubercle, hind tibiae bent, the usual two dorsal bristles present, three serial bristles on antero-dorsal surface at from slightly before to beyond middle, the last of which is strongest, and an almost ventral row of seven long bristles from about basal third to beyond apical third, the first and last of which are more widely placed than the others; wings brownish, small cross-vein distinctly before end of first vein, large cross-vein less than its own length from small cross-vein, nearly straight, and slightly more than twice its own length from end of fourth vein, third and fourth veins convergent; under scale of calyptra distinctly larger than upper; halteres yellow. Length 5 mm.

Easily distinguished from any species in the group by the tuberculate hind femora. Most closely allied to *fasciculata* Lw. but very different in leg characters.

Locality.—Porto Bello, Panama, Feb.-Mar., 1911 (August Busck). Four males.

Type.—Cat. No. 14912, U. S. Nat. Mus.

LIMOSINA FULVA, new species

Male.—Frons yellow, darker towards vertex, opaque, bristles strong, lateral lower pairs projecting over eye, the center rows consist generally of one strong crossed lower pair, a weaker center pair and a pair of very weak, short hairs almost in line with the lower ocel-

lus, frons nearly twice as broad as long, anteriorly not more produced than at lateral angles, face and cheeks yellow, opaque, the former raised in center, concave in profile, cheeks three times as high at occiput as at anterior edge, anterior bristle long and strong, with one moderately long and a regular series of shorter hairs posterior to it, antennæ yellow, bristles on basal joint strong, black, third joint barely twice as large as basal, covered with very short whitish pilosity, arista brownish, nearly twice as long as breadth of frons, distinctly and thickly pubescent; mesonotum yellowish brown, shining, the humeri always paler, three distinct pairs of dorso-central macrochætæ, divergent and reduced in size anteriorly, pleuræ yellow, with darker, brown, marks and one very long bristle above mid coxæ, scutellum with the disc opaque black, margins brownish and slightly shining, six or eight marginal bristles—the anterior pair sometimes very much reduced or absent—the posterior pair strong, the next pair much weaker and the third (sub-basal) pair as strong as posterior pair, disc of scutellum bare; abdomen brown, basal segment elongate, as long as next two together, remaining segments decreasing in length, all segments with lateral and posterior two with hind-marginal bristles, hypopygium yellow, not very large, and with the ventral surface very hairy; legs yellow, fore femora thickened, with two to three bristles on apical half of dorsal surface and two on apical third of ventral surface anteriorly as well as the numerous short hairs present on all legs, mid coxæ with a dark spot anteriorly, mid trochanters with one long bristle anteriorly, mid femora with a preapical antero-dorsal bristle, mid tibiæ with a short dorsal bristle at near base on dorsal surface and three pairs of bristles—one of each pair on postero- and antero-dorsal surfaces—the first and weakest at about one-fifth from base, the second at about two-fifths from base and the last at about one-third from apex, on the ventral surface there is one bristle at near middle and one much stronger at near apex, as well as about five apical bristles, basal joint of mid tarsi with a noticeably long ventral bristle at near middle and all joints with end spurs, hairs on hind tibiæ very distinct, especially on dorsal surface, one bristle on same surface at near to apex, basal hind tarsal joint not very much swollen and about two-thirds as long as second joint; wings short and blunt, pale brownish, with brown veins, from humeral vein to end of first vein half as long as from end of first vein to end of second, last costal division about two-thirds as long as penultimate section, inner cross-vein at near to middle of longest costal division, basal part of third vein short of half the

length of last section of second vein, fourth vein from inner to outer cross-vein as long as basal portion of third, outer cross-vein distinctly but not greatly longer than inner, third vein distinctly and regularly upward bent on last section, finishing much in front of wing tip, costa not carried beyond end of third vein, fourth vein traceable to margin of wing, almost straight, fifth vein not distinct beyond outer cross-vein, one very long bristle at near base of costa and a double series of shorter, but widely placed bristles from beyond it to end of first vein; halteres pale yellow. Length 1.25 to 2 mm.

Locality.—Tabernilla, Canal Zone, Panama, Jan.-Feb., 1911 (August Busck). Eleven males.

Type.—Cat. No. 14942, U. S. Nat. Mus.

Closely allied to the species mentioned hereafter that was described by Williston as *scutellaris*, but the legs in that species are not entirely yellow, and the venation is different from *fulva*.

LIMOSINA FUSCINERVIS, new species

Female.—Black, subshining; frons black, about one and one-half times as broad as long, raised towards center and anterior outline centrally produced, bristles strong, lower lateral bristle projecting over eye, second projecting backward and outward, third incurved, ocellar bristles divergent, central rows of five each, the lower and upper bristles much the weakest, face gray-dusted, much produced in center, upper mouth edge not much produced, the face in profile slightly concave, cheeks brown, the anterior bristle strong, two moderately long bristles posterior to it, the second rather high on cheek, the usual shorter posterior bristles long and hair-like, antennae brownish yellow, internal apical and dorsal bristles on second joint strong, third joint not much larger than basal, thickly covered with whitish pubescence, arista brown, about one and one-half times as long as breadth of frons, distinctly pubescent; mesonotum subshining, the short hairs very distinct and all bristles strong, post-humeral bristles incurved backwardly, three pairs of dorso-central macrochætæ, the anterior pair much wider placed than posterior but not weaker, between the anterior pair there is in the type a central bristle, pleuræ brownish, sutures paler, pleural bristle strong, a smaller one anterior to it, scutellum with two posterior and two sub-basal long marginal bristles, and two basal and two sub-apical weaker bristles; abdomen opaque black, bristles weak; legs yellow, mid legs with bristles as in *M-nigrum*, hind femora with three to

four short bristles on apical third of ventral surface, dorsal surface of hind tibiæ with long hairs and one long bristle at about apical third on same surface, hind tarsi with basal joint dilated, half as long as second, basal and second joint with yellow ventral brush-like hairs; wings brownish, all thick veins distinctly infuscated along margins, the large cross-vein most distinctly so, from humeral cross-vein to end of first vein not one-half as long as from end of first vein to end of second, last division of costa three-fourths as long as penultimate, basal portion of third vein about one-half as long as last portion of second, and distinctly, but not greatly, longer than fourth vein between cross-veins, last portion of third vein very slightly curved upward parallel with fourth and ending near to wing tip, costa not extending beyond end of third vein, outer cross-vein twice as long as inner, fifth vein very distinct before cross-vein and carried half as far as the length of cross-vein beyond it, fourth vein thick at extreme base beyond cross-vein and last portion and rather distinct to wing margin, costal bristles long to end of first vein; halteres brown. Length 1.5 mm.

Locality.—Tabernilla, Canal Zone, Panama, Feb. 6, 1911 (August Busck). One female.

Type.—Cat. No. 14943, U. S. Nat. Mus.

LIMOSINA M-NIGRUM, new species

Male.—Shining black; frons subshining on stripes where the bristles are situated, the usual two divergent opaque stripes divided by the subshining stripe where the central frontal bristles are inserted leaving an M-shaped velvet black frontal mark, lateral bristles strong, the lower pair directed outwardly over eye, central rows of three each inwardly directed, the lower bristles slightly the longest, basal antennal joint black with the usual bristles strong, third joint brown, half as large again as basal joint, covered with short, thick pubescence, arista dark brown, about one and one-half times as long as breadth of frons, distinctly but sparsely pubescent, face brown, distinctly produced in center, slightly concave in profile just above mouth margin which is produced, cheeks opaque, pale brownish, the anterior and second marginal bristles strong, the posterior bristles much smaller, cheek at occiput more than twice as high as at face margin; mesonotum slightly gray-dusted, dorsal hairs long and numerous, three pairs of dorso-central macrochætæ, the anterior pair very widely placed, post-humeral bristles strongly incurved, scutellum with two strong posterior marginal, two weaker median,

almost discal, and two long and strong sub-basal marginal bristles and usually two weak basal hairs on the margin, pleuræ opaque black, yellowish on sutures and posteriorly low down, pleural bristle strong; abdomen with basal segment as long as next two, all segments with lateral bristles and the apical two with posterior marginal bristles, hypopygium yellowish, not very large, with central posterior depression and numerous hairs; legs brown, knee joints, bases of femora and tarsi yellowish, mid trochanters with a long bristle on anterior surface, mid femora with preapical posterior bristle and a series of about five regular short bristles, the apical one slightly longer, on the anterior surface at from about middle to apex, mid tibiae with two ventral bristles, and dorsal bristles situated as in *fulva*, hind femora with two short preapical anteroventral bristles, hind tarsi with the basal joint not much dilated and slightly more than half as long as second; wings brownish, veins brown, from humeral vein to end of first vein half as long as next costal division, the last costal division two-thirds as long as second, basal portion of third vein barely two-fifths as long as last portion of second and equal to fourth vein between cross-veins, outer cross-vein twice as long as inner, third vein regularly bent upward and finishing at distinctly, but not greatly, in front of wing tip, costa not extending beyond end of third vein, the base of costa long fringed to end of first vein, fourth vein indistinct, but traceable to margin beyond outer cross-vein, fifth vein not traceable beyond outer cross-vein; halteres yellow. Length 1 mm.

Locality.—Three specimens, one from Paraiso and two from Tabernilla, Canal Zone, Panama, Jan.-Feb., 1911 (August Busck).

Type.—Cat. No. 14944, U. S. Nat. Mus.

PREOCCUPIED NAMES IN LIMOSINA

L. scutellaris, Williston, Trans. Ent. Soc. Lond., p. 432 (1896) non Haliday, Entom. Mag., III, 329, 8 (1836).

I propose for this species *discalis*, nov. nom.

L. lugubris, Williston, Trans. Ent. Soc. Lond., p. 433 (1896) non Haliday, Entom. Mag., III, 332, 18 (1836).

I propose for this species *sublugubrina*, nov. nom.

Both species from St. Vincent, W. I.