

- 12.—Mesonotum and scutellum wholly tawny or golden yellow pilose. 13.
 Mesonotum mostly black pilose, the sides sometimes with white hair. 14.
- 13.—Legs black pilose. 17.
 Femora and tibiae tawny pilose.
 *baramus*, new species.
- 14.—Abdomen with white or yellowish pilose areas. 15.
 Abdomen wholly black haired.
 *stilboides* Walker.
- 15.—Anterior four tibiae and scutellum wholly white pilose.
 *alboscutatus* Curran.
 Tibiae and scutellum black pilose. . . 16.
- 16.—Face white pilose.
 *latiscutellaris* Curran.
 Face tawny pilose.
 *beatus*, new species.
- 17.—Abdomen reddish beyond the second segment; pleural pile yellow in front
 *lundura*, new species.
 Abdomen green, the male genitalia reddish; pleural pile wholly black.
 *aeneoviridis* Curran.
- 18.—Color bright metallic blue.
 *sumatranus* Wulp.
 Color not bright metallic blue. . . . 19.
- 19.—Abdomen wholly red, wider than the thorax; wings almost uniformly brown. *rufiventris*, new species.
 Abdomen not wholly red, or if so the wings with contrasting colors. . . . 20.
- 20.—Wings black basally, pale orange on more than the apical half.
 *pretiosa* Curran.
 Wings differently colored. 21.
- 21.—Antennae shorter than the head.
 *minuticornis* Curran.
 Antennae longer than the head. . . . 22.
- 22.—Wings whitish with brown apical spot
 *pendleburyi* Curran.
 Wings not whitish, if with brown apical spot, the marginal cell is almost all brown. 23.
- 23.—Wings with brown spot occupying the apical fourth, the marginal cell mostly brown. *wulpi* Mik.
 Wings differently colored. 24.
- 24.—Legs wholly black or brown in ground color. *stenogaster* Curran.
 Legs with extensive yellowish or reddish areas. 25.
- 25.—Wings with transverse brownish markings on the crossveins.
 *klossi* Curran.
 Wings almost uniformly brownish. 26.
- 26.—Second and third abdominal segments mostly yellowish.
 *auroscutatus variventris* Curran.
 Abdomen practically all dark. 27.
- 27.—Short, compact species.
 *fulvipes* de Meijere.
 More elongate, moderately slender species. *auroscutatus* Curran.

Microdon laxiceps, new species

Brown, mostly brown pilose; face and front very wide; wings luteous on basal three-fifths, whitish hyaline apically. Length, about 9 mm.

FEMALE.—Head shining dark brown, the face and front half as wide as the head. Vertex rather strongly swollen, the swelling extending to the transverse depression before the middle of the front but narrowing toward the sides to the upper corners of the eyes and concave on either side of the ocellar triangle. Face with a large swelling on either side and convex in the middle, the median, longitudinal convexity hour-glass shaped. Hair pale brassy yellow, brighter on the lower half of the narrow occiput. Antennae elongate, the first segment five-eighths as long as the third, gently arcuate, second one-fifth as long as the first; third segment very long, the apical fifth rather strongly swollen; arista about one-fourth as long as the third segment.

Thorax dark brown, clothed with brown pile, a short band of reddish yellow pile extending inward along the suture on either side. Scutellum with the apex emarginate, densely black pilose, the apex bare in the middle. Humeri bare.

Legs brown, black haired; tarsi broadened, the anterior four bright reddish.

Wings luteous on about the basal three-fifths, paler behind and rather whitish apically; veins reddish, becoming yellow apically. Apical crossvein transverse. Squamae pale brownish. Halteres reddish yellow.

Abdomen brownish, the second segment brownish red; hair black, short but abundant; the first segment, apical half of the fourth and the whole of the fifth with whitish pile. Venter brownish red, the pile pale yellow.

HOLOTYPE.—Female, Trusan, August, 1900.

In this species the abdomen is much wider than the thorax and widest at the apex of the second segment. It is probable that a new genus should be erected for this species because of the bare humeri, shape of head, etc., but too little is known about the species belonging to *Microdon* and allied genera. Many of the Mexican species are

of peculiar form but cannot be separated from *Microdon* on any satisfactory characters. Except for the broad abdomen and face *laxiceps* might be placed in the genus *Bardistopus* Mann, of which *Paramixogaster* Brunetti is possibly a synonym, despite the clavate abdomen. The stump of vein in the apical cell is absent in *laxiceps* but present in *Paramixogaster*.

Microdon dimidiatus, new species

Abdomen broad, brownish; the wings brown on basal half, yellowish white apically, with light brown apex; face reddish yellow. Length, 9 mm.

MALE.—Face reddish yellow, moderately narrow and narrowed below; front swollen above the transverse depression, the sides converging from the vertex to the anterior third; pile yellowish, brown on the upper part of the front and on the upper occiput; ocellar triangle small, situated a little in front of the upper angles of the eyes. Antennae brown, elongate, the first and third segments of equal length, the second two-fifths as long as the first; third segment tapering on the apical fourth, the apex blunt, the first mostly reddish yellow; arista somewhat shorter than the third segment.

Thorax brown, clothed with subappressed tawny or almost golden red pile; scutellum elongate, deeply sulcate apically, leaving a large mammiform process on either side.

Legs brown, brown haired, the anterior four tarsi brownish red.

Wings brown, yellowish white on almost the apical half, the apical sixth brown; veins brown, yellow on the whitish portion; apical crossvein transverse; no stump vein in the apical cell. Squamae brownish red. Halteres reddish yellow.

Abdomen shining brown, wider than the thorax, the second segment widest, composed of three segments, the third and fourth fused; the first, second and basal half of the third segments bear appressed short black hair, the apex of the abdomen and entire sides of the third segment with pale brassy yellow hair. Venter reddish brown and yellow pilose.

HOLOTYPE.—Male, Lundu, October, 1909; paratype, male, Kuching, April 8, 1902.

The humeri are bare as in *laxiceps*, and this species should probably be removed from *Microdon*.

Microdon alboscutatus Curran

1931, Jour. Fed. Malay States Mus., XVI, p. 303.

Female, Kuching, March 2, 1898.

Agrees with the allotype in all respects.

Microdon baramus, new species

Metallic green, tawny pilose, the legs mostly pale pilose. Length, 16 mm.

FEMALE.—Head bright metallic green; front black pilose, the sides gently narrowing to the vertex; across the depression and along the sides below, pale yellow pilose; ocellar triangle as wide as long, the vertex conspicuously swollen in the middle; face yellow pilose, the sides slightly converging below; occiput with tawny pile; first and third antennal segments of about the same length, the second one-fourth as long, the third tapering on the apical fourth.

Thorax metallic green, the dorsum bronzed or brassy; pile tawny, rather long and abundant; scutellum more than twice as long as wide, the apex slightly concave, the spines moderately strong; apex of scutellum but little narrower than the base; pleural pile all tawny.

Legs green, tawny pilose; tarsi blue, black haired above, a little broadened.

Wings light brownish in front, tinged with brown behind; apical vein recurrent in front. Squamae pale yellow, with orange border and fringe. Halteres yellow.

Basal half of the abdomen metallic green, the apex rather brownish; pile tawny, but there is a large median triangle of black hair on the fourth segment and a broad median vitta on the fifth is mostly black haired. The venter is inclined to be reddish in the middle toward the apex.

HOLOTYPE.—Female, Baram, October 17, 1910.

Microdon aeneoviridis Curran

1931, Jour. Fed. Malay States Mus., XVI, p. 302.

Male, Matang Road, February 24, 1916; male, Kakus, June and July, 1913; female, Banting, May 20, 1909.

The males agree with the description of the specimen from Kedah Peak, Malaya, but the female may belong to a different species. It differs in having the fourth and fifth abdominal segments blackish blue and short black haired. It seems likely that this is a sexual difference, but in other species such an obvious variation usually indicates a specific difference that is borne out by a study of the male genitalia. Unless a male agreeing with this female is found it is best to consider the specimen as belonging to *aeneoviridis*.

Microdon lundura, new species

Bright green, tawny pilose, the abdomen mostly reddish. Length, 11.5 mm.

MALE.—Front black pilose, strongly narrowed at the anterior third, the ocellar triangle slightly

longer than wide; facial pile brassy yellowish, the face narrow below. Basal antennal segment one-sixth longer than the third, second one-third as long as first, the third tapering on the apical fourth.

Mesonotum metallic green, the pile tawny or reddish; pleura with black pile, white pilose below the humeri. Scutellum almost twice as wide as long, the apex concave, the sides oblique, the apical corners each bearing a spine; pile erect, tawny.

Legs violaceous clothed with black hair, the femora partly green; tarsi somewhat broadened.

Wings cinereous hyaline, with brown tinge; apical cell recurrent in front. Squamae whitish, with tawny border and fringe. Halteres yellow.

Abdomen reddish, the first segment metallic green, the second metallic green except on the broad sides; basal sternite green; pile wholly tawny; abdomen with slight metallic green luster in some lights.

HOLOTYPE.—Male, Lundu, October, 1909.

Microdon beatus, new species

Scutellum wide; abdomen mostly reddish; wings brown with brownish yellow apex. Length, 17 mm.

MALE.—Head black, the front violaceous, the face metallic green; pile black, tawny on the face. Front rather strongly narrowed to the anterior third; ocellar triangle longer than wide, situated well forward, the vertex with a strong median swelling. Occiput reddish yellow pilose on lower two-thirds. Antennae long, the first and third segments of equal length, the second one-fourth as long, the third gently tapering from near the base.

Thorax metallic black, strongly violaceous, the pile wholly black. Scutellum almost twice as wide as long, with strong spines at the corners, the apex almost as wide as the base.

Legs steel blue, black pilose, the tarsi broadened.

Wings brown on the basal two-thirds, paler behind, the apex becoming luteous and with reddish veins; apical crossvein recurrent in front. Squamae brown; halteres yellow.

Abdomen brown, the first two segments bronzed or rather violaceous, the following so densely tawny pilose as to appear reddish. Venter brown, tawny pilose. Genitalia reddish brown.

HOLOTYPE.—Male, Matang Road, March 5, 1912.

Microdon miniticornis Curran

1931, Jour. Fed. Malay States Mus., XVI, p. 342.

Female, Kuching, November 18, 1897.

Microdon rufiventris, new species

Black, the abdomen wholly rusty reddish;

wings brown, paler basally and posteriorly. Length, 12 mm.

FEMALE.—Front about as long as wide, swollen, with a deep broad depression, the antennal base swollen and dark red in color; pile short, brassy yellow. Face brownish, somewhat narrowed below, the hairs arising from tiny black tubercles. Antennae long, brown, the segments as 7-3-5, the first mostly reddish, the third tapering on the apical third, the arista about as long as the second segment.

Thorax black, the sides of the mesonotum and pleura mostly brownish red; hair short, appressed, pale brassy yellow, an incomplete band of black hair behind the suture. Scutellum evenly convex.

Legs dark reddish, the posterior pair brown, pile short and white. Tarsi not broadened.

Wings reddish brown, paler basally and posteriorly; apical crossvein recurrent, rounded and without appendage at the bend. Squamae and halteres yellowish.

Abdomen dark rusty reddish, wider than the thorax, clothed with appressed tawny or rather golden pile.

HOLOTYPE.—Female, Kuching, September 6, 1897.

Volucella surda Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 163 (f.).

Male, Kuching, February 2, 1916.

Graptomyza WIEDEMANN—TABLE OF SPECIES

- 1.—Femora and tibiae mostly black. 2.
Femora more than half yellowish or the tibiae pale. 3.
- 2.—Apical corners of fourth abdominal segment produced as a strong spur.
. *seimundi* Curran.
Apex of fourth segment produced only in the middle. *nigripes* Brunetti.
- 3.—Abdomen with longitudinal yellow and black stripes. 4.
Abdomen with transverse markings or with black spots. 5.
- 4.—Abdomen with four black vittae.
. *longirostris* Wiedemann.
Abdomen with three black vittae.
. *lineata* Osten Sacken.
- 5.—At least the posterior tibiae brown. . . 6.
Femora and tibiae wholly reddish.
. *flavipes* de Meijere.
- 6.—Face short, obtuse below; wings with three brown bands.
. *brevirostris* Wiedemann.

Face long and conical; wings not banded. *ventralis* Wiedemann.

Graptomyza flavipes de Meijere

1911, Tijds. v. Ent., LIV, p. 344.

Female, Peurissen, May, 1899.

The spines on the fourth abdominal segment are long and stout.

Graptomyza brevirostris Wiedemann

1820, Nova Dipt. Gen., p. 17.

Female, Kuching, April 27, 1900.

The fourth abdominal segment is unarmed but has a strong apical flange.

Asarkina salviae Fabricius

Syrphus salviae FABRICIUS, 1787, Mant. Ins., II, p. 340.

Female, Kuching, June 30, 1899.

Baccha fallax Austen

1893, Proc. Zool. Soc. London, p. 142.

Male, Matang, 3600 feet, June, 1893.

Melanostoma univittatum Wiedemann

Syrphus univittatus WIEDEMANN, 1824, Anal. Ent., p. 36.

Female, Serambu, December, 1898; female, Kuching, May 22, 1900.

Spheginobaccha macropoda Bigot

Sphegina macropoda BIGOT, 1883, Ann. Soc. Ent. France, p. 331.

Male, Peurissen, May, 1899.

Citibaena marginatus Grimshaw

Eumerus marginatus GRIMSHAW, 1902, Fauna Hawaiiensis, III, p. 82.

Male, Kuching, May 14, 1900.

Xylota morna Curran

1931, Jour. Fed. Malay States Mus., XVI, p. 367.

Three males, five females, Kuching, August 21, 1897, December 12, 21, 22, 1899; January, July 3, September 8, 1900, and March 14, 1902; male, four females, Matang Road, December, 1909, December 12, 1910, October 28, 1916, and February 22, 1916.

Tigridemyia vilis Wiedemann

Eristalis vilis WIEDEMANN, 1830, Aussereur. Zweifl., II, p. 164.

Helophilus curvigator MACQUART, 1843, Dipt. Exot., II, Pt. 2, p. 62 (f.).

Merodon interveniens WALKER, 1860, Proc. Linn. Soc. London, IV, p. 120.

Tigridemyia pictipes BIGOT, 1882, Bull. Soc. Ent. France, p. cxxi.

Male, Kuching, September 10, 1900.

There can be no doubt about the above synonymy, but the species described as *Polydontomyia orientalis* Brunetti may be distinct. The form occurring in Formosa is not the same as *vilis*, since the process near the base of the posterior femora is very long and acute at the apex, while in *vilis* it is cut off angularly. Brunetti's figure indicates that the Indian form is the same as *vilis*, but only an examination of specimens can prove this. The genitalia in the Formosan insect show well marked differences.

Keda simpliciceps de Meijere

Eristalis simpliciceps DE MEIJERE, 1914, Tijds. v. Ent., LVII, p. 146.

Three males, four females, Sautubong, February, 1900; three males, Sautubong, May and November, 1898.

Lathyrphthalmus nigroscutatus
de Meijere

1911, Tijds. v. Ent., LIV, p. 377.

Male, four females, Kuching, March, 1897, November 28, 29, 1899, June 2, 1900, May 29, 1913; female, Sarebas, 1916; female, Bau, March 9, 1916; female, Lingga, November, 1899; three males, five females, Matang Road, January 28, February 2, 23, March 3, July 31 and October 28, 1916.

Lathyrphthalmus arvorum Fabricius

Syrphus arvorum FABRICIUS, 1787, Mant. Ins., p. 335.

Female, Sadong, August, 1903.

Lathyrphthalmus obliquus Wiedemann

Eristalis obliquus WIEDEMANN, 1828, Anal. Ent., p. 38.

Female, Kuching, December, 1898; female, Matang Road, February 7, 1916.

Lathyrphthalmus quinquestriatus
Fabricius

Syrphus quinquestriatus FABRICIUS, 1794, Ent. Syst., IV, p. 289.

Female, Bau, March 9, 1916; female, Matang Road, February 24, 1916.

SYRPHIDAE FROM THE MALAY PENINSULA

Microdon pagdeni, new species

Black; thorax brownish red, the face luteous laterally; wings brownish gray. Length, 12 mm.

FEMALE.—Head black, black pilose, the occiput thinly cinereous pollinose; face brownish red in the middle, becoming yellow at the sides; front a little longer than wide, the transverse depression weak; ocellar triangle wider than long; no median swelling of the vertex. Antennae moderately long, the first segment slightly longer than the third, the second three-eighths as long as the first; third tapering on the apical third, convex below, slightly concave above; arista reddish, about as long as the third segment.

Thorax brownish red, the pleura luteous; pile black. Scutellum brown, the apex deeply emarginate and bearing strong spines.

Legs reddish brown; pile wholly black; tarsi not broadened.

Wings brownish gray, the veins bordered with brown; apical crossvein recurrent, the bend rounded and without appendage. Squamae gray, with brown border and fringe, the halteres pale yellow.

Abdomen shining black or very dark brown, wholly black haired; venter brownish red. Abdomen moderately long, widest at the apex of the second segment where it is wider than the thorax.

HOLOTYPE.—Female, Kedah Peak, Kedah, 3284 feet, April 18–19, 1930 (H. T. Pagden).

Microdon robinsoni Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 154.

Two specimens from Ulu Langat, Selangor, March 22, 1931 (N. C. Miller).

The male has more extensive black pile on the mesonotum and the pile of the head pale brassy yellow instead of brassy yellow as in the type.

Syrphus obligatus Curran

1931, Jour. Fed. Malay States Mus., XVI, p. 316.

Two males, Bukit Kutu, Selangor, 3300–3500 feet, March 20, 1931; male, female, Larut Hills, Perak, 3700 and 4500 feet, February 8, 20, 1932 (H. M. Pendlebury); male, Fraser's Hill; Pahang, 4200 feet, July 2, 1931.

Syrphus nectarinus Wiedemann

1830, Aussereur. Zweifl., II, p. 128.

Five males, seven females, Larut Hills, Perak, 3700–4700 feet, February 6 to 27,

1932; female, Fraser's Hill, Pahang, 4000 feet, February 1, 1929 (H. M. Pendlebury); female, Fraser's Hill, Pahang, 4200 feet, June 27, 1931.

Syrphus strigifrons de Meijere

1914, Tijds. v. Ent., LVII, p. 158.

Female, Larut Hills, Perak, 4500 feet, February 21, 1932 (H. M. Pendlebury).

Syrphus exul Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 215.

Male, Fraser's Hill, Pahang, 4200 feet, July 7, 1931; male, Larut Hills, Perak, 4500 feet, February 22, 1932 (H. M. Pendlebury).

Syrphus citrinum Brunetti

Xanihogramma citrinum BRUNETTI, 1923, Fauna Brit. India, Dipt., III, p. 95.

Sixteen males, Larut Hills, Perak, 3700–4500 feet, February 12 to 17, 1932 (H. M. Pendlebury).

Syrphus robinsoni Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 208.

Three males, female, Larut Hills, Perak, 4500 feet, February 21, 1932 (H. M. Pendlebury).

Baccha virtuosa Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 246.

Two males, Larut Hills, Perak, 3700–4500 feet, February 14, 22, 1932 (H. M. Pendlebury); two males, Fraser's Hill, Pahang, 4200 feet, July 2, 1931, and May 31, 1932.

Cheilosia acuticornis Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 267.

Two males, Larut Hills, Perak, 4500 feet, February 10, 21, 1932 (H. M. Pendlebury).

Cheilosia tendens Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 269.

Male, Larut Hills, Perak, 4500 feet, February 20, 1932 (H. M. Pendlebury).

This specimen is larger than the types

(8.5 mm.), more metallic bluish and has a few blackish hairs on the fourth abdominal segment. It may represent a different species, but more material is needed in order to decide the question.

Graptomyza nigripes Brunetti

Graptomyza ventralis nigripes BRUNETTI, 1913, Rec. Ind. Mus., VIII, p. 167.

Male, Cameron's Highlands, Pahang, 4600 feet, May 29, 1931 (H. T. Pagden); female, Fraser's Hill, Pahang, 4200 feet, May 19, 1932, and four females, Larut Hills, Perak, 3700-4500 feet, February 6, 10, 21, 24, 1932 (H. M. Pendlebury).

This species is very distinct from *ventralis* Wiedemann. The fourth abdominal segment is produced in the middle of the apex but lacks the long spines on the apical corners. The legs vary somewhat in color, the bases of the femora being rather broadly reddish yellow in some specimens, and the basal two or three segments of the posterior four tarsi are reddish. The antennae are brown, the third segment rarely orange. *G. seimundi* Curran also has the fourth abdominal segment spined on the posterior corners.

Graptomyza lineata Osten Sacken

1881, Ann. Mus. Genova, XVI, p. 439.

Male, Fraser's Hill, Pahang, 4000 feet, February 1, 1929 (H. M. Pendlebury).

Readily recognized by the presence of three black stripes on the abdomen. The wings bear three brown fasciae on the apical half, that at the stigma very short. The type, from Ternate, was in poor condition and evidently teneral.

Asarkina biroi Bezzi

1908, Ann. Mus. Nat. Hung., VI, p. 498.

Seven males, female, Larut Hills, Perak, 3700-4500 feet, February 7-22, 1932 (H. M. Pendlebury).

Some of the specimens have black hairs intermixed with the pale pile behind the suture.

Asarkina consequens Walker

Syrphus consequens WALKER, 1856, Proc. Linn. Soc. London, I, p. 18.

Three males, Bukit Kutu, Selangor, 3300-3500 feet, March 11, 21, 22, 1931 (H. M. Pendlebury).

Asarkina laticornis Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 235 (fig.).

Three males, Larut Hills, Perak, 3700-4500 feet, February 12-17, 1932; male, Bukit Kutu, Selangor, 3300-3500 feet, March 20, 1931 (H. M. Pendlebury).

Xylota spinipes Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 283.

Three males, Larut Hills, Perak, 3700-4500 feet, February 12, 15, 17, 1932 (H. M. Pendlebury).

The type was teneral, and the colors were not fully described. The legs are black, the femora with greenish reflections, and the middle pair bear long yellow pile below. The second abdominal segment is dark reddish with a slender median vitta and the apex brown, the reddish color occupying about the basal half, the fourth segment metallic green.

Xylota doris Curran

1928, Jour. Fed. Malay States Mus., XIV, p. 281.

Male, Cameron's Highlands, Pahang, 4800 feet, May 30, 1931, and female, Larut Hills, Perak, 4500 feet, February 20, 1932 (H. M. Pendlebury).

Only the female was described. The male has the femora reddish only on the basal fourth, the reddish abdominal spots longer than wide and the apical third of the fourth abdominal segment and genitalia pale orange. The face is yellow in both sexes.

Citibaena nicobarensis Schiner

Eumerus nicobarensis SCHINER, 1868, Reise Novara, Dipt., p. 368.

Female, Fraser's Hill, Pahang, 4200 feet, June 17, 1931; female, Selitar, Singapore, August, 1911.

These specimens are referred here with some doubt because the black part of the posterior tibiae is clothed with black hair.

Otherwise they agree with Schiner's description. The pile of the eyes is thinner than in *aurifrons* Weidemann, and the pale spots on the second abdominal segment are much larger.

***Mallota orientalis* Wiedemann**

Eristalis orientalis WIEDEMANN, 1824, Anal. Ent., p. 38.

Male, two females, Larut Hills, Perak, 4500 feet, February 21, 1932; female,

Cameron's Highlands, Pahang, 4800 feet, June 2, 1931 (H. M. Pendlebury).

***Eristalis niger* Wiedemann**

1824, Anal. Ent., p. 38.

Two males, female, Larut Hills, Perak, February 10, 13, 14, 1932; male, Bukit Kutu, Selangor, 3600 feet, March 10, 1931; female, Cameron's Highlands, Pahang, 4800 feet, May 29, 1931 (H. M. Pendlebury).