

SOME LEAF-MINING FLIES FROM NEW CALEDONIA

(Diptera: Agromyzidae)¹By Mitsuhiro Sasakawa²

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Abstract: The 6 species of agromyzid flies which occur in New Caledonia are recorded for the first time. The new species described are: *Melanagromyza joycei* and *Phytogromyza flavolunulata*.

The agromyzids identified and described below were obtained in New Caledonia by Dr. C. R. Joyce between Oct. 20 and Nov. 26, 1958. The collection contains 6 species, 2 of which are apparently new to science and 4 of which are new to the fauna. The types are deposited in Bernice P. Bishop Museum. I express my thanks to Drs. J. L. Gressitt and C. R. Joyce in connection with this study.

1. *Melanagromyza albisquama* (Malloch)

Agromyza (*Melanagromyza*) *albisquama* Mall., 1927, Proc. Linn. Soc. N. S. Wales **52**: 425.

MATERIAL EXAMINED: 7 ♂♂, 6 ♀♀, Anse Vata, 23.X-1.XI.1958, Joyce; 1 ♀, Pindimie, 26.XI.1958, Joyce.

This is a small, shining green species with wing length of 1.8-2.14 mm, characterised by the whitish fringe on the calypteres and bare eyes. It is widely distributed in the Pacific and from Africa to Australia.

2. *Melanagromyza joycei* Sasakawa, n. sp. Fig. 1.

Male: Head black; front slightly tinged with brown, frontalia matt, parafrontalia and ocellar triangle weakly shining; lunule, gena and antenna brown, arista paler; palpus dark brown. Thorax and abdomen black, moderately shining, slightly gray-dusted, except for abdominal tergites 5 & 6; mesopleural suture and base of wing pale brown. Wing hyaline; veins pale brown; calypter brownish gray, with margin and fringe brownish black; halter black. Legs black.

Head: Front slightly wider than long, 1.3-1.6× as wide as eye; parafrontalia about 1/6 width of front, parallel-sided. Ocellar triangle of moderate size, extending to level of 2nd upper fronto-orbital (*ors*), bearing 2-3 setulae plus ocellar bristles (*oc*). Lunule higher than semicircular, 2/5 as high as length of front. Parafrontalia with 4 fronto-orbitals; *ors*

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2, directed up- and slightly outwards, lower fronto-orbitals (*ori*) in- and upwards; sometimes an additional short seta below 2nd *ori*; orbital hairs (*oh*) reclinate, in a row. In profile parafrontalia moderately and parafacialia linearly projecting above eye-margin; eye almost bare, eye height and width ratio as 43 : 30; gena about 1/6 eye height; vibrissa (*vi*) differentiated from 3-4 peristomal setae (*pm*). Face with carina rather sharpened; parafacialia about 1/3 as wide as diameter of antennal segment 1. *Antennae* narrowly separated at base; segment 3 rounded, as long as wide, with long pile; arista 2× as long as whole length of antenna, swollen on basal 1/5, microscopically pubescent. *Thorax*: Mesonotum with 2 dorso-centrals (*dc*), anterior one on level of supra-alars (*sa*), 6 irregular rows of acrostichals (*acr*), 4 rows of them ending just before level of posterior *dc*; intra-alar (*ia*) subequal to anterior *dc* in length, accompanying with 3 rows of setulae; inner post-alar (*ipa*) about 1/3 of the outer; humerus with 2-4 setulae plus humeral (*h*); mesopleura with 3-6 dorsally directed setulae; sternopleura with a long seta and a few setulae before sternopleural (*sp*). *Wing*: Costa extending to M_{1+2} with sections 2-4 in proportion of 76 : 22 : 19; r-m beyond middle of discal cell; m-m usually as long as penultimate section of M_{1+2} ; ultimate section of M_{1+2} about 4.5× as long as penultimate; ultimate section of M_{3+4} about 3/4 length of penultimate. *Leg*: Mid tibia with 3 posterodorsal bristles, dorsal 2 subequal and shorter than ventral one. *Abdomen*: Tergites moderately setigerous; tergite 6 slightly longer than 5; sternite 5 as long as tergite 6, incised on caudal 1/5. *Terminalia*: Epandrium about 1/2 length of tergite 6; surstylus bluntly produced, bearing 30-34 minute spines and several setae; cercus about 2/3 as high as height of epandrium, with 3-4 spine-like setae on posteroventral 1/2. Hypandrium 2/3 length of phallapodeme, with short apodeme; praegonite densely spinulose, with 4 sensillae. Phallus about 1/2 length of

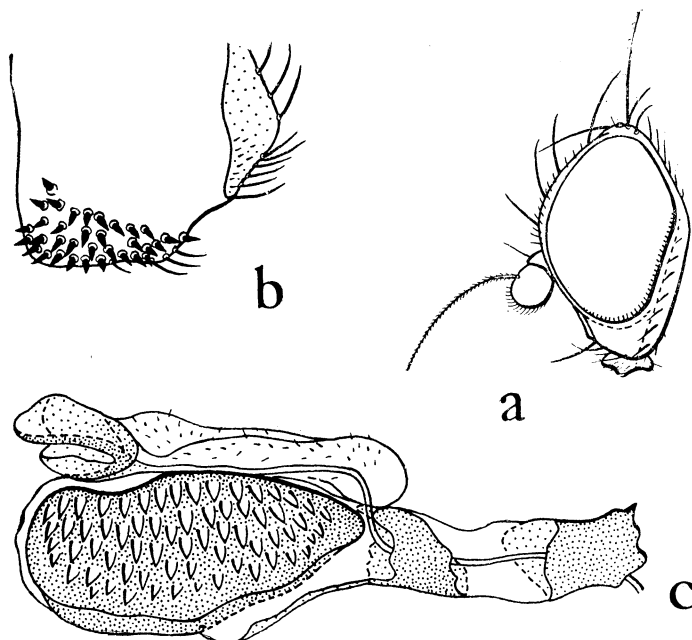


Fig. 1. *Melanagromyza joycei* Sasakawa, n. sp. a: head in profile; b: surstylus, inner aspect; c: distiphallus, lateral aspect,

phallapodeme; endophallus weakly sclerotized, with about 130 heavy spines on dorsal sclerotized lobes. Ejaculatory apodeme large, 240–323 μ long, 136–190 μ in greatest width. *Length*: Body 1.9–2.4 mm, wing 1.8–2.0.

Female: Similar to ♂, but marginal setae on tergite 6 longer than those of ♂, sternite 6 quadrate, about 2/3 as long as broad. *Terminalia*: Ovipositor sheath glossy black, as long as tergite 6; apodeme weakly sclerotized, subequal in length to sheath, pouched on anterior 1/3. Egg guide 200 μ long, with 2 rows of 50 teeth of serration and 7 spines on membranous part. Segment 9 is 129 μ long, tergite very narrow, sternite laterally with median incisions, bearing 5–6 marginal setae; cercus with tactile sensillae 1/3 length of cercus. Ventral receptacle of normal form. *Length*: Body 2.2–2.4 mm, wing 1.8–1.9.

DISTRIBUTION: New Caledonia.

Holotype ♂ (BISHOP 3358), allotopotype ♀ and paratopotypes 2♂♂, 1♀, Anse Vata, 25. X. 1958, C. R. Joyce; 2♂♂, 1. XI. 1958, Joyce.

This species is closely related to the Oriental *M. provecta* (de Meijere) in having the fringe of black hairs on the calypteres and long pile on antennal segment 3, but may be distinguished by its smaller size and sparser rows of the acrostichals. Moreover, in *provecta*, the surstylus are provided with about 39 spines and the endophallus with 184 spines on the dorsal lobes. The characteristic distiphallus suggests a close relationship with *M. boninensis* Spencer and *conspicua* Spencer, but *joycei* distinctly differs from that species by the projecting parafrontalia and 3 mid-tibial bristles. Host plant unknown.

3. *Melanagromyza metallica* (Thomson)

Agromyza metallica Th., 1869, Eugen, Resa. Dipt., p. 609.

MATERIAL EXAMINED: 1♀, Beach nr. La Foa, 19. XI. 1958; 2♂♂, 4♀♀, Plateau de Dogny, 20. XI. 1958; 1♀, in Mts. above Ouaco, 20. X. 1958, Joyce.

DISTRIBUTION: Abyssinia, Congo, Seychelles, Indonesia, Philippines, New Guinea, Solomon Is., New Hebrides, New Caledonia.

This species may be distinguished from *albisquama* by the larger size (wing length 2.16–2.4 mm) and the distinct patch of hairs on the eye of the ♂.

4. *Ophiomyia atralis* (Spencer)

Melanagromyza atralis Spenc., 1961, Trans. R. Ent. Soc. Lond. **113**: 69.

MATERIAL EXAMINED: 2♀♀, in Mts. above Ouaco, 20. X. 1958, Joyce.

DISTRIBUTION: India, Indonesia, Philippines, Micronesia, New Caledonia, Australia.

This species is characteristic in having a single vibrissae in both sexes, white fringe on the calypteres and narrow facial carina. Host plant: *Vernonia cinerea* Less (Spencer, 1962).

5. *Ophiomyia lantanae* (Froggatt)

Agromyza lantanae Frog., 1919, Agr. Gaz. N. S. Wales **30**: 665.

MATERIAL EXAMINED: 1♀, in Mts. above Ouaco, 20. X. 1958; 1♂, Anse Vata, 23. X. 1958; 1♂, Thio, 11. XI. 1958; 1♀, Pondimie, 26. XI. 1958. Joyce.

This species has been introduced into many countries for the lantana control because the larvae feed in the seeds of *Lantana* spp. This species is easily distinguished by the extremely long vibrissal fascicule of setae in ♂, black fringe on the calypteres and bul-

bous facial carina.

6. *Phytagromyza flavolunulata* Sasakawa, n. sp. Fig. 2.

Female: Head with frontalia and occiput brownish black; parafrontalia shiny brown, paler ventrally; ocellar triangle subshining; lunule yellow, silverly pruinose; face, gena and antenna brown, segment 1 brownish yellow; palpus brown. Thorax shiny black, slightly gray-dusted; pleura tinged with brown; base of wing yellow. Wing hyaline; veins pale brown; calypter yellowish white, with fringe pale ochreous; halter yellow. Legs brownish black but tarsi pale brown. Abdomen subshiny blackish brown, tergite 6 with yellow caudal margin; ovipositor sheath glossy black.

Head: Front almost as long as wide, $1.3\times$ as wide as eye; parafrontalia $1/6$ width of front, almost parallel-sided. Ocellar triangle with ventral tip extending to level of 1st *ors*³, bearing 6 pairs of setulae plus *oc*. Lunule very low, $1/6$ as high as length of front. Parafrontalia linearly projecting above eye in profile, bearing 5 fronto-orbitals; *ors* directed up- and slightly outwards; 1st and 2nd *ori* in- and slightly upwards, 3rd inwards; *oh* fine, in a row, accompanying with an additional row of incurved setulae from 2nd *ors* to 3rd *ori*. Eye almost bare, $1.2\times$ as high as wide; gena about $1/12$ eye height; 5 *pm* arranged in 2 rows. Occiput with 8 rows of white pubescence. *Antennae*: approximated at base; segment 3 rounded, shorter than broad, with white pile; arista approximately $2.5\times$ as long as whole length of antenna, swollen on basal $1/5$, pubescent. *Thorax*: Mesonotum with 1+3 *dc*, 1st *dc* about $1/2$ length of 2nd and situated on level of presuturals, 3rd *dc* on level of *sa*; 6 rows of *acr*, 4 rows of them extending posteriorly midway between 3rd and 4th *dc*, posterior 2 pairs longer and subequal to *ipa* in length; *ia* accompanying with 4 irregular rows of setulae behind suture; *ipa* $1/3$ length of *opa*; humerus with 8 setulae plus *h*. Mesopleura with 8–10 dorsally directed setulae; sternopleura with 3 setulae before *sp*. *Wing*: Costa extending slightly beyond R_{4+5} , with sections in proportion of 32 : 12.7 : 11; wing tip located between R_{4+5} and M_{1+2} but distinctly nearer the former; m-m just on level of r-m; M_{1+2} weak; ultimate section of M_{3+4} $2.6\times$ as long as length of penultimate. *Legs*: Mid tibia with 2 posterodorsal bristles. *Abdomen*: Tergites moderately setigerous; tergite 6 longer than 5; ovipositor sheath with a pair of long posterodorsal setae. *Length*: Body and wing 2.2 mm.

Male: Unknown.

DISTRIBUTION: New Caledonia.

Holotype ♀ (BISHOP 3359), Anse Vata, 23. X. 1958, C. R. Joyce.

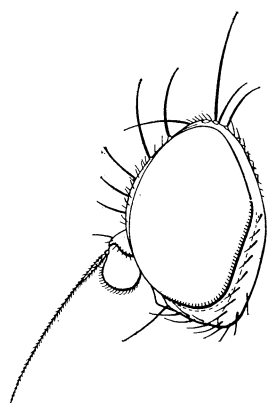


Fig. 2. Head of *Phytagromyza flavolunulata* Sasakawa, n. sp.

This appears to be related to *P. atrata* Malloch known from Taiwan by having just continuation of both cross-veins. But, it differs by having yellow lunule and antennal segment 1; the fronto-orbitals are 5 pairs, not 4 pairs; the acrostichals are arranged in 6 rows, not in 10 rows; the fringe on the calypter is paler; the 2nd section of costa is nearly $3\times$ as long as the 4th, not about $2\times$ as long; the specimen is much smaller than 3.0 mm.

3. See description of *Melanagromyza joycei* for setal abbreviation.