

Further Studies on Hawaiian Agromyzidae (Diptera) with Descriptions of Four New Species¹

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Since the first report on the Agromyzidae of Hawaii (Frick, 1952b), D. Elmo Hardy and Wallace C. Mitchell have reared and forwarded to the writer numerous specimens for study. Eleven species were listed in the 1952 paper. Three more are herein described as new, but one is based upon a previous misidentification. This brings the total to thirteen for the Hawaiian Islands. Of these species, six are known to have been introduced. One species is described from Canton Island and it is believed to be the only species known from that island.

Frick (1952a, b) followed Hendel (1931) in the numbering of the dorso-central setae from the posterior of the mesonotum towards the head. In order to conform to accepted usage by American authors, these setae are herein numbered so that the first is the anteriormost, or pre-sutural, and the fourth is nearest the scutellum. It is hoped that this change will not work a hardship upon those who use the descriptions and the keys.

In previous papers the size of the adults was given in terms of body length. It has been found that the length of the wing is a better criterion of size, because the body so frequently dries in a curled position. Wing length is very similar to body length and may be so considered if body size is desired.

Paratypes of each new species are deposited in the collections of the University of Hawaii, Hawaiian Sugar Planters' Association, B. P. Bishop Museum, Zoologisches Museum, Berlin, and of the writer.

Genus *Melanagromyza* Hendel

Melanagromyza splendida new species

Male—Shining black; head with frontal vitta dull black, genovertical plates and frontal triangle shining fuscous, proboscis brown; mesonotum and abdominal tergites with a faint metallic greenish tinge; legs and tarsi fuscous; wing base brown, calypter with margin and fringe white; halter brownish-black.

Head—As seen in profile, genovertical plate not raised above eye margin; eye longest dorsad of antennae, about three-fourths as long as high, pubescent, especially on dorsal one-fourth, where setulae are subequal to the orbital setulae in length; gena about one-seventh the eye height, smoothly rounded ventrally, not projecting anteriorly; vibrissa small, about twice as long as subcranial setae; about six setae on each side of subcranial margin. Frontal vitta about two-thirds as long as wide; vertical triangle extending nearly two-thirds of the distance from anterior ocellus to lunule. Genovertical plates each widening from vertex until about one-fourth the distance between eyes at

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point of insertion of the dorsal lower fronto-orbital seta and about opposite the anterior tip of the frontal triangle; each bearing two upper and two lower fronto-orbital setae; dorsal upper fronto-orbital upwardly and outwardly directed, ventral upwardly directed only, both lower fronto-orbitals strongly inwardly directed; all four relatively short and slender, upper pair subequal to the postvertical seta in length, lower pair slightly shorter; upper pair very close together, dorsal lower seta slightly farther removed from ventral upper than the latter is from the dorsal upper; ventral lower fronto-orbital distant from others, about its own length away; orbital setulae very numerous, long, slender, most erect, some ventral setulae dorsally, and a few dorsal setulae anteriorly, directed. Lunule of moderate size, half as high as length of frontal vitta, terminating dorsally in a deep groove. Antennae relatively large; third segment rounded, setulae less than basal arisal thickness in length; arista extremely long, twice an upper fronto-orbital in length, pubescence extremely fine. Proboscis not greatly elongate, about half as long as eye height.

Thorax—Mesonotum with two dorsocentral setae, anterior about two-thirds as long as posterior; intraalar relatively strong, slightly more than half as long as posterior dc; inner postalar minute, less than one-seventh as long as outer postalar; acrostichal setae short, very numerous, in about eight rows extending posterior to anterior dc, sparse posteriorly but continuing back to slightly beyond posterior dc. Scutellum with distal pair of setae very close together and three times as far from basal pair as from each other. Humerus with about six setulae plus the humeral. Anepisternum with one seta dorsad to and one ventrad to the anepisternal, about five setulae in a group near dorsal margin. Katepisternum with two strong setae anterior to the katepisternal, posterior one about two-thirds as long as katepisternal.

Legs—Fore tibiae without distinguishable mid-tibial spurs; mid-tibiae each with a pair of strong spurs midway between base and apex.

Wing—Slightly more than twice as long as wide; costa extending to termination of M_{1+2} ; second, third, and fourth costal sections as 14 : 4 : 3 in length; cross vein r-m beyond center of cell 1- M_2 , five-eighths of the distance to m-m; m-m slightly more than its own length from r-m; M_{1+2} with ultimate section about four times as long as penultimate; M_{3+4} with ultimate section about five-eighths as long as penultimate.

Abdomen—Covered with short setae, interspersed with some longer, subequal to a tergal length.

Size—2.25 mm. in wing length.

Female—Slightly larger, 2.5 mm. in wing length; head with fronto-orbital setae more robust, ventral lower seta about one and a half times as far from the dorsal lower as the latter is from the ventral upper; about half as many orbital setulae as in holotype; eyes with very short fine pubescence; vertical triangle extending two-thirds of distance from anterior ocellus to lunule; abdomen with seventh segment subequal to the sixth tergite in length, short, conical, shining black.

Holotype ♂—Kamuela, Hawaii, December 5, 1950, reared from a larva mining celery (*Apium graveolens* L.), deposited in the U. S. National Museum. Allotype ♀—Topotypical, same data as holotype, deposited in same collection as holotype. Paratypes—2 ♂♂, 4 ♀♀, topotypical, same data as holotype; 2 ♂♂, 1 ♀, Kurtistown, Hawaii, July 23, 1941, S. Takei, collector, ex celery; 3 ♂♂, 2 ♀♀, Glenwood, Hawaii, August, 1951, reared from larvae mining lettuce leaves; 3 ♂♂, 6 ♀♀, Hilo, Hawaii, August, 1951, ex lettuce.

Other material studied—1 ♂, 2 ♀♀, Kunia, Oahu, September, 1951, D. E. Hardy, ex squash leaf; 1 ♀, Waipahu, Oahu, January 10, 1941, W. C. Look, ex sweet potato; 2 ♀♀, Honolulu, Oahu, July 14, 1931, F. X. Williams; 1 ♂, 4 ♀♀, Waipio, Oahu, February, 1952, D. E. Hardy.

Hering (1951) presented a classification of the *Melanagromyza* species of the Indo-Australian Region. *M. splendida* belongs to the group hav-

ing the margin of the calypter white and cross vein r-m beyond the center of cell 1-M₂. From the species included in this group, *splendida* may be separated from the Formosan species, *producta* (Malloch), 1914, and *prolifera* (Malloch), 1914, by the pilose eyes; from *trispina* (Malloch), 1927, from Australia, by the two pairs of dorsocentral setae; and from the Javanese species, *sojae* (Zehntner), 1900, by the shining frontal triangle and the lack of a purplish tinge on the thorax, and from *erythrinae* (de Meijere), 1910, by the orbital setulae being mostly erect with only a few posteriorly directed and the lack of any metallic dark green color on the frontal triangle.

The only North American species in this genus known to have pilose eyes is *virens* (Loew). Dr. P. J. Darlington, Jr., Curator of Insects, at the Museum of Comparative Zoology, kindly compared specimens of the Hawaiian species with Loew's type. He found that *virens* is larger and has the orbital setulae, "more irregular in direction, being considerably mixed and even criss-crossed," but otherwise very similar.

Genus *Ophiomyia* Braschnikov

Ophiomyia scaevolae new species

Agromyza sp.: Van Zwaluwenburg, 1942, Proc. Hawaii. Ent. Soc. 11:148.

Ophiomyia sp.: Frick, 1952, Proc. Hawaii Ent. Soc. 14:515.

Male—Black, subshining. Head with frontal triangle brown, shining; frontal vitta and genovertical plates dull, latter with a brownish tinge; lunule and mesofacial plate dark brown; proboscis brown. Thorax with legs fuscous; wing base dark, calypter white, also margin and fringe; halter dark brown.

Head—Seen in profile, about twice as high as long; gena relatively large, nearly one-third as high as the eye height, about six setae on each side along subcranial margin; vibrissal angle produced, but not extending anteriorly as far as the eye, vibrissa a fasciculus of setae, long, strongly upcurved on outer one-third, nearly reaching third antennal segment. Frontal triangle very large, at vertex nearly reaching genovertical plates laterally and extending to lunule; genovertical plates narrow, each about one-sixth the distance between eyes; each bearing a pair of upwardly and slightly outwardly curving upper frontoorbital setae, and a pair of lower frontoorbitals; upper subequal in length, lower shorter, all slender, relatively short, longest being only three-fourths the length of the postvertical setae; about six short orbital setulae on each plate. Lunule low, about one-sixth of distance from antennal bases to anterior ocellus; mesofacial plate strongly projecting ventrally, with a narrow median carina, widening between antennae. Antennae divergent, third segment rounded, arista about three times as long as this segment is in diameter. Proboscis relatively elongate, about half as long as head height.

Thorax—Mesonotum with two dorsocentral setae, posterior the stronger, anterior slender, about five-eighths as long as posterior; intraalar weak, about three-eighths the posterior dorsocentral; inner postalar minute, only one-fourth the outer, which is subequal to the posterior dorsocentral; acrostichal setae short, numerous, in about seven rows back to anterior dorsocentral, only about ten posterior to this pair of setae; humerus with about four setulae plus the humeral.

Wing—Slightly more than twice as long as wide; costal segments in the proportions of 9:2.5:2, terminating at end of M₁₊₂; cross vein r-m about two-thirds the distance from base of cell 1-M₂, very close to cross vein m-m; m-m less than its own length from r-m; M₁₊₂ with penultimate section about one-seventh the ultimate in length; M₃₊₄ with ultimate section about three-fifths the penultimate, ending at wing margin.

Legs—No distinguishable spurs on any of the tibiae midway between base and apex.

Size—1.5 mm. in wing length.

Female—Subequal to male in size; head with gena about one-fourth eye height, bearing a single strong vibrissa, about half as long as the arista; abdomen with seventh segment black, shining, nearly twice as long as sixth abdominal tergite.

Holotype ♂—Canton Island, November 5, 1940, R. R. Danner, collector, reared from a larva mining a leaf of *Scaevola frutescens*, "nau-paka" (Goodeniaceae), deposited in the U. S. National Museum. Allotype ♀—Topotypical, September, 1941, R. H. Van Zwaluwenburg, ex *Scaevola* leaf, deposited in same collection as holotype. Paratypes—1 ♂, 3 ♀♀, topotypical, same data as allotype; 2 ♀♀, topotypical, October, 1950, N. L. H. Krauss; 1 ♂, topotypical, September, 1950, N. L. H. Krauss.

Five other specimens from Canton Island, only one of which was reared, were left out of the type series because of inferior condition.

Ophiomyia scaevolae can be quickly separated from the Pacific area species, *lantanae* (Froggatt), 1919, and *anguliceps* (Malloch), 1914, and the European species, *maura* (Meigen), 1838, and *proboscidea* (Strobl), 1900, by the white margin and fringe of the calypter. Two *Ophiomyia* species from the Pacific area have the calypter entirely white and these are *cornuta* (de Meijere), 1910, from Krakatau and *leucolepis* Bezzi, 1928, from Fiji. These last two species are both very similar to *scaevolae*. Each was described from a single unreared male and only a study of the types can positively determine whether three species are involved. At present, it seems better to give a name to the species mining *Scaevola* leaves on Canton Island until such time as the types of the other two species can be studied.

Bezzi states that the ultimate and penultimate sections of M_{3+4} are subequal in length. In *scaevolae* the ultimate is only three-fifths as long as the penultimate. Based on de Meijere's descriptions (1910, 1922) *cornuta* may be distinguished by the black frontal triangle and proboscis, both of which are brown in *scaevolae*. De Meijere's figure (1910) shows the vibrissal angle extending anteriorly as far as the eye, while in *scaevolae* this angle is not as far forward as the anterior margin of the eye.

Genus *Phytobia* Lioy

Subgenus *Praspedomyza* Hendel

Phytobia (*Praspedomyza*) *cocculi* new species

Male—Fuscous with yellow markings. Head yellow except back of head, eye margins from posterior median curve of eye to vertex, ocellar triangle, and arista. Thorax with mesonotum fuscous, scutellum concolorous; humerus brown, narrowly encircled with yellow, metapleural triangle yellow; anepisternum brown centrally, narrowly ringed with yellow on both sides and ventral margin, dorsal margin yellow for about one-third of anepisternal height; katepisternum brown, narrowly yellow dorsally, metapleural callus light brown; wing base yellow, wings grayish; calypter gray, margin and fringe grayish-black; halter yellow. Legs with femora primarily brown, spotted with yellow and distally narrowly yellow, tibiae and tarsi brown. Abdomen fuscous, each tergite very narrowly yellow distally; ninth tergite brownish-black, cerci yellow.

Head—As viewed in profile, eye about four-fifths as long as high; gena midway between posterior angle and vibrissa, about one-fifth eye height; genoverital plate not raised above eye margin. Frontal vitta about twice as long as wide, sunken below geno-

vertical plates, striated with vertical rows of minute brown spots; genovetical plates broad, each about one-third width between eyes; each bearing two upwardly directed upper fronto-orbital setae and two upwardly and inwardly curving lower fronto-orbitals, all subequal in length and subequal to the long ocellar setae; orbital setulae short, upwardly directed, about ten on each side. Antennae with third segment rounded, setulae subequal to basal arisal thickness in length; arista subequal in length to eye length. Vibrissae long, nearly twice as long as strong subcranial setae, of which there are about five on a side.

Thorax—Mesonotum with 3+1 dorsocentral setae, first three elongate, subequal in length, each about three-fourths as long as fourth dc, all subequally spaced from each other; intraalar minute, barely longer than any of ten setulae in each intraalar row posterior to the transverse suture; inner postalar long, about three-fourths the outer postalar; acrostichal setae numerous, in about five irregular rows to third dc, sparser posteriorly, reaching fourth dc. Humerus with about five setulae plus the humeral. Anepisternum with one setula dorsad to and one ventrad to the anepisternal, two setulae near dorsal margin.

Wing—Slightly less than half as wide as long; costa terminating at tip of wing, at end of vein M_{1+2} ; cross vein r-m at center of cell 1- M_2 ; cross vein m-m one and a half times its length from r-m; M_{1+2} with ultimate section about eight times as long as penultimate; M_{3+4} with ultimate twice as long as penultimate.

Legs—No distinguishably elongate setae or spurs on the femora.

Size—1.6 mm. in wing length.

Female—Subequal in size to male; mesonotum with fourth dorsocentral one-fourth again as far removed from third as others are from each other; abdomen with sixth tergite about one-fourth yellow distally; seventh segment dull black, covered with minute setulae, subequal to sixth tergite in length.

Holotype ♂—Pupukea, Oahu, March 6, 1932, O. H. Swezey, collector, reared from a larva mining a *Cocculus* leaf, deposited in the U. S. National Museum. Allotype ♀—Topotypical, same data as holotype, deposited in same collection as holotype. Paratypes—2 ♂♂, 1 ♀, topotypical, same data as holotype; 3 ♀♀, Kahana, Oahu, January 1, 1928; 2 ♀♀, Kuliouou, Oahu, May 4, 1924; 1 ♀, Mt. Kaala, Oahu, February 18, 1923; 1 ♂, 2 ♀♀, Mt. Kaala, Oahu, no date (all of the foregoing paratypes reared by O. H. Swezey from larvae mining *Cocculus* leaves); 1 ♂, Mt. Kaala, Oahu, April, 1952, L. D. Tuthill.

This species may be easily separated from the North American species, *subinfumata* (Malloch), 1915, by the yellow frontal vitta, rounded third antennal segment, and the very weak intraalar seta. From the similar appearing *approximata* (Hendel), 1920, *cocculi* differs in having cross vein r-m approximately at the center of cell 1- M_2 and in having the anterior femora narrowly yellow distally.

Genus *Liriomyza* Mik

For the convenience of those working with the leaf-mining Diptera in Hawaii a key is herein included to the species the larvae of which are known to attack agricultural crops. It is stressed that the key must be used with reservations. The writer has specimens, collected by sweeping, that do not belong to any of the five species. Therefore, all specimens being determined should be carefully checked with the original descriptions.

Key to Species Attacking Agricultural Crops

1. Mesonotum with inner postalar seta one-half or less as long as the outer postalar 2
 Mesonotum with inner postalar distinctly more than half as long as outer..... 4
2. Head with both vertical setae arising from the black of the vertex; outer vertical at edge of black..... 3
 Head with outer vertical arising from the yellow of the vertex, outer from the black *Liriomyza minutiseta* Frick
3. Mesonotum with first dorsocentral seta about one-third as long as fourth; abdomen with only second tergite yellow laterally..... *Liriomyza pullata* Frick
 Mesonotum with first dc about half as long as fourth; abdomen with all tergites narrowly yellowish laterally..... *Liriomyza canomarginis* Frick
4. Head with genovertical plates entirely yellow; eye about half as long as high *Liriomyza hawaiiensis* Frick
 Head with genovertical plates narrowly darkened; eye three-fourths as long as high *Liriomyza brassicae* (Riley)

Many specimens have been received for determination during the past year. All of the new host and locality records for each species, together with one correction of a previous determination, follow:

***Liriomyza pullata* Frick, 1952**

This is one of the large species. The females have a wing length of 1.5 mm. The species is not common.

3, Honolulu, Oahu, September, 1950, W. C. Mitchell, ex *Aster* sp.;
 1, Poamoho, Oahu, July, 1950, W. C. Mitchell, ex tomato.

***Liriomyza canomarginis* Frick, 1952**

No additional specimens were found that belong to this apparently rare bean miner. The females have a wing length of 1.25 mm., making this species one of the smaller. The record of the male paratype taken at a light in Honolulu is in error. The specimen belongs to the closely related *L. pullata*.

***Liriomyza minutiseta* Frick, 1952**

Another small species, as the female wing measures only 1.25 mm. in length. The puparium has three bulbs on each posterior spiracle. This is apparently a rather common species, and attacks a variety of crop plants.

6, Kunia, Oahu, November 23, 1951, W. C. Mitchell, ex *Lycopersicon pimpinellifolium*; 6, Honolulu, Oahu, September 7, 1951, W. C. Mitchell, ex eggplant and Chinese cabbage ("won bok"); 3, Poamoho, Oahu, November, 1951, W. C. Mitchell, ex cauliflower; 1, Poamoho, Oahu, July, 1950, W. C. Mitchell, ex tomato; 5, Honolulu, Oahu, December, 1952, W. C. Mitchell, ex okra; 6, Honolulu, Oahu, December, 1951, W. C. Mitchell, ex pole bean; 3, Kona, Hawaii, July, 1952, H. A. Bess, ex pole bean.

Liriomyza hawaiiensis Frick, 1952

One of the larger species, the females having a wing length of 1.5 mm. There are three bulbs on each posterior spiracle of the puparium. This is by far the most common species, having been collected on five of the Hawaiian Islands attacking a large variety of crop plants, none of which are native.

11, Honolulu, Oahu, December 24, 1942, January 19, 1943, and April, 1946, N. L. H. Krauss, ex *Gynandropsis pentaphylla* D. C.; 6, Honolulu, Oahu, March, 1952, Van Zwaluwenburg, ex *Cleome* sp., 9, Poamoho, Oahu, November, 1951, W. C. Mitchell, ex cauliflower; 11, Poamoho, Oahu, July, 1950, W. C. Mitchell, ex cabbage and Chinese cabbage ("won bok"); 7, Honolulu, Oahu, September 7, 1951, W. C. Mitchell, ex cauliflower and Chinese cabbage; 4, Honolulu, Oahu, February, 1952, H. A. Bess, ex nasturtium; 6, Waiakoa, Maui, September 18, 1951, H. A. Bess, ex cabbage; 2, Wailua, Kauai, January 21, 1944, N. L. H. Krauss, ex Chinese cabbage.

Liriomyza brassicae (Riley), 1884

The females have a wing length of 1.5 mm. This species, the larvae of which mine various cruciferous plants, is frequently very common in the western United States. In Hawaii, it is much less common than *L. hawaiiensis*.

5, Honolulu, Oahu, October, 1951, W. C. Mitchell, ex white mustard cabbage; 6, Honolulu, Oahu, December, 1951, W. C. Mitchell, ex leaf mustard cabbage.

Genus Phytoliriomyza Hendel**Key to the Species of the World**

- | | |
|---|----------------------------|
| 1. Anepisternum ventrally at most one-third darkened..... | 2 |
| Anepisternum ventrally at least one-half darkened..... | 3 |
| 2. Ultimate section of M_{3+4} one and three-fourths as long as penultimate; back of head and vertex grayish..... | fermosensis Malloch |
| Ultimate section of M_{3+4} slightly more than twice as long as penultimate; only ocellar triangle grayish..... | perpusilla (Meigen) |
| 3. Anepisternum ventrally about one-half darkened; cross vein m-m at an acute angle to penultimate section of M_{1+2} | halterata (Becker) |
| Anepisternum dorsally with only a narrow yellow band; cross vein m-m approximately perpendicular to M_{1+2} | montana new species |

Phytoliriomyza montana new species

Phytoliriomyza perpusilla (Meigen), Frick, 1952, Proc. Hawaii. Ent. Soc., 14:516.

Female—Grayish black, marked with yellow, dull, pollinose. Head with back, vertex, ocellar triangle, dorsal half of genoverical plates, antennae, and palpi grayish black; frontal vitta yellowish, striated with brown; mesofacial plate yellow, subantennal grooves brownish; gena and proboscis yellow. Thorax with mesonotum and scutellum grayish black, heavily pollinose; humerus and metapleural triangle brownish; anepisternum grayish black, narrowly yellow along anterior, dorsal, and ventral margins; katepisternum grayish black, rather broadly yellow dorsally; metapleural callus yellow; rest of pleura brownish. Wings tinged with gray, base yellow, calypter with margin and fringe brown; halter yellow, knob brownish. Legs grayish brown, femora narrowly

yellow distally. Abdomen grayish brown dorsally; sixth tergite about one-third yellow distally; pleural area yellow; seventh segment brownish black, shining.

Head—When viewed in profile, about three-fourths as long as high, subtriangular in outline, eye placed at an angle, ventrally more anterior; eye subrectangular, about two-thirds as long as high, covered with very short, colorless setulae; gena, midway between vibrissal angle and posterior angle, about one-fourth as high as eye height, vibrissa slender, short, about one and a half times as long as subcranial setae, about four setae on each side. Frontal vitta subquadrate, about three-fifths of width between eyes; genovertical plates narrow, each bearing two upper upwardly and outwardly curving fronto-orbital setae, ventral about two-thirds as long as dorsal, and one slightly inwardly curving lower fronto-orbital, subequal in length to the dorsal upper fronto-orbital; orbital setulae anteriorly directed, about seven on a side; vertex with ocellar triangle small, ocellar setae subequal to dorsal upper fronto-orbital in length. Antennae with third segment rounded, relatively large, equal to about one-third eye length in diameter, setulae less than basal arista thickness in length; arista elongate, in length nearly equal to eye height, setulae minute.

Thorax—Mesonotum with 3+1 dorsocentral setae; fourth the longest, third slightly shorter, first and second subequal in length, about half as long as fourth; third one and a half times as far from fourth as from second, first and second and second and third subequally spaced from each other; acrostichals very sparse, seven in two rows extending posteriorly nearly to third pair of dorsocentrals, two setulae anterior to first dorsocentral in each row; no intraalar seta, but one or two setulae anterior to and one or two posterior to transverse suture; inner postalar small, slightly less than half as long as outer.

Wing—Slightly more than twice as long as broad; second, third, and fourth costal segments in the proportions of 4 : 1 : 1 in length; M_{1+2} terminating at wing tip, ultimate section about four times as long as penultimate; cross vein r-m at anterior third of cell 1- M_2 ; cross vein m-m twice its length from r-m, approximately perpendicular to penultimate sections of M_{1+2} and M_{3+4} ; M_{3+4} nearly reaching wing margin, penultimate section about four-fifths as long as ultimate.

Size—1.5 mm. in wing length.

Male—Smaller, 1.25 mm. in wing length; coloration generally a little lighter; thorax with only four acrostichals and one seta immediately anterior to supraalar on each side in intraalar rows; wing with cross vein m-m at an angle slightly less than perpendicular to penultimate sections of M_{1+2} and M_{3+4} ; male terminalia extended so that large aedeagal hood and elongate phallus are partially visible.

Holotype ♀—Koolau Gap, Haleakala Crater, elevation 7,000 feet, Maui, June, 1952, D. E. Hardy collector, deposited in the U. S. National Museum. Allotype ♂—Topotypical, same data as holotype, deposited in same collection as holotype. Paratypes—1 ♂, 4 ♀, topotypical, June, 1952, D. E. Hardy; 1 ♂, Holua, Haleakala Crater, Maui, June, 1952, D. E. Hardy; 1 ♀, Keanae, Maui, June, 1952, D. E. Hardy; 7 ♂♂, 1 ♀, Pupukea, Oahu, April, 1952, D. E. Hardy and W. C. Mitchell; 1 ♀, Waipio, Oahu, February, 1952, D. E. Hardy; 2 ♀♀, Mt. Kaala, Oahu, April, 1952, D. E. Hardy and L. D. Tuthill; 1 ♀, Mt. Kaala, Oahu, May, 1952, M. Tamashiro; 1 ♀, Mt. Kaala, elevation 4,000 feet, Oahu, July 25, 1946, W. W. Wirth; 1 ♂, Hawaii National Park, elevation 4,000 feet, Hawaii, March 3, 1946, W. W. Wirth.

The host plants of this species were not determined, according to D. E. Hardy. The larvae of *P. perpusilla* and *halterata* are known in Europe as stem miners and it is probable that the larvae of *P. montana* mine the stems of one or more native Hawaiian plants.

Frick (1952b) determined a rather teneral specimen of this species as *P. perpussilla*. With 22 more specimens available for study, it was quickly seen that the species was new. *P. montana* is most easily separated from the other known species by its dark coloration, particularly of the anepisternum and legs and by the unique character of pilose eyes.

Agromyza formosensis Malloch, 1914, was placed in *Phytoliriomyza* by Hennig (1941) on the basis of specimens in the collection of the "Deutsche Entomologische Institut." His figure of the male terminalia substantiates the change in generic position. *P. formosensis* is lighter in coloration than *montana*, and may be separated on the relatively short ultimate section of M_{3+4} from *perpussilla* and *halterata*. In *formosensis* this section is about one and three-fourths as long as the penultimate while in the other two species it is more than twice as long. *P. halterata* may be distinguished from *perpussilla* by the acute angle of cross vein m-m to the penultimate section of M_{1+2} , ultimate section of M_{3+4} being darkened for only one-third of the distance to the wing margin, and the darker coloration, especially of the anepisternum.

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