

Descriptions of the first known Ethiopian *Myolepta* species, with a review of the subgeneric classification of *Myolepta* (Diptera: Syrphidae)

by

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SYNOPSIS

The first known Ethiopian species of *Myolepta* Newman (Diptera: Syrphidae) are described: *africana* (Zaire), *similis* (Uganda) and *triangularis* (Rhodesia), new species. The subgeneric classification of *Myolepta* is reviewed and the 30 known species are grouped into 6 species groups. Keys to the species groups and to the Ethiopian species are included.

The discovery of the first known Ethiopian species of the syrphid genus *Myolepta* has prompted a review of the subgeneric classification of that genus. Until recently *Myolepta* was unknown from the Old World tropics and was assumed to be primarily a North Temperate group with a limited distribution in the New World tropics. In 1971 I described the first two *Myolepta* from the Oriental tropics, the only previously known Oriental species being from the Himalayas. These two tropical species differed from all the other known species of the genus by their elongate antennae. The three new Ethiopian *Myolepta* species also have elongate antennae and this similarity has led to the question of interrelationships between the Old World tropical species and other species of *Myolepta*. Thus, a review of the classification of *Myolepta* is appropriate.

Genus *Myolepta* Newman

- Myolepta* Newman, 1838, Ent. Mag. (Newman's) 5:373. Type-species, *Musca luteola* Gmelin (monotypy).
Myiolepta, Newman, 1841, Familiar Intro. Hist. Ins.:226 (emendation).
Xylotaaja Rondani, 1845, Nouv. Ann. Sci. nat. Bologna (2)2:457. Type-species, *Syrphus varus* Panzer (original designation; as '*Milesia vara* (rar) Fab.').
Xyloteja, Rondani, 1856, Dipt. Ital. prodr. 1:226 (error).
Xylotoeja, Rondani, 1857, Dipt. Ital. prodr. 2:96 (error).
Xiloteja, Rondani, 1863, Dipt. exot. rev. annot.:9 [also, 1864, Arch. zool. Anat. Fisiol. 3:9] (error).
Leptomylia Walker, 1851, Ins. Brit., Dipt. 1:254 (*nomen nudum*; published in synonymy of *Xylota* as '*Leptomylia* (incl.), Nwm.'). probably could also be regarded as an error, since it is an obvious transposition of *Myiolepta*.
Eumyiolepta Shannon, 1921, Bull. Brooklyn ent. Soc. 16:71. Type-species, *Myiolepta strigilata* Loew (original designation).
Sarolepta Hull, 1941, J. Washington Acad. Sci. 31:436. Type-species, *dolorosa* Hull (original designation).
Protolepidostola Hull, 1949, Trans. zool. Soc. London 26:333. Type-species, *Lepidostola scintillans* Hull (original designation).

Head: oral margin notched anteriorly; face with distinct tubercle in male, straight to slightly concave and with strongly projecting epistoma in female; facial grooves short, extending along lower third of eyes; facial stripes distinct, pilose; frontal promi-

nence distinct, slightly above middle of head; ocellar triangle slightly before posterior margin of eyes. Eyes bare. Antennae with bare arista.

Thorax: with short pile, without thoracic bristles; proanepisterna, proanepimera and prosterna pilose; mesoanepisterna with anterior portion with upper posterior corner pilose; mesokatepisterna with separate dorsal and ventral pile patches; mesoanepimera with posterior portion bare; metathoracic spiracle small; metacoxal bridge incomplete; metathoracic pleura bare; plumulae elongate; scutellum without ventral pile fringe. Legs: all femora swollen, with ventral short spines, without basal setal patches. Wings: apical cell acute; anterior crossvein at middle area of discal cell.

Abdomen: first abdominal spiracle embedded in metathoracic epimeron.

Phylogenetic variation in *Myolepta*: Head: face usually dark and bare, pilose along oral margin in *africana* group, with scales in *scintillans* group, partly yellow in *strigilata* Loew, all yellowish orange in *africana* Thompson; cheeks usually bare, pilose in *africana* group, with scales in *scintillans* group; front of male short, half as long to as long as eye contiguity; front of female broad to narrow, as long as to one and a half times as long as face, with sides convergent above; vertical triangle of males ranging from as long as to twice as long as eye contiguity; eyes usually holoptic in males, narrowly dichoptic in males of *strigilata* Loew; antennae usually short, shorter than face, elongate in *africana*, *petiolata* and *orientalis* groups; third antennal segment usually oval, quadrate in *strigilata* Loew, elongate in *africana*, *petiolata* and *orientalis* groups.

Thorax: usually with short normal pile, with scales in *strigilata*, *scintillans*, *africana* and *orientalis* groups; barrettes usually bare, pilose only in *luteola* (Gmelin); metathoracic spiracular pile patch usually present, apparently absent in some specimens of *strigilata* Loew and *vara* (Panzer); metasterna usually bare, pilose in *luteola* group and *africana* and *similis* Thompson; scutellum usually rounded apically and without bristles, triangular in *scintillans* and *africana* groups, with bristles in some species of *luteola* group; anterior femora with one or two rows of ventral spines; apical cell of wing usually with very short petiole, with long petiole in *africana* group and *minuta* Fluke.

Abdomen: usually oval to elongate oval, petiolate in *petiolata* group.

Key to *Myolepta* Newman and its species groups

- A. All femora with strong ventral spines. B
 Femoral spines (if present) restricted to hind femora, anterior femora never with ventral spines other syrphid flies
- B. Face with tubercle in both sexes; antennae greatly elongate, always with third segment more than twice as long as broad, frequently with first two segments elongate; thorax with scale-like pile; metasterna bare; postmetacoxal bridge complete (New World tropics only) **Lepidomyia** Loew
 Face with tubercle only in males; females with concave faces; antennae usually short, with third segment usually oval; if third antennal segment elongate, then restricted to Old World **Myolepta** Newman 1
1. Metasterna pilose; third antennal segment oval; thoracic pile normal; scutellum rounded apically **luteola** group

studied material of these species), 1956; *difformis* Strobl, 1909; *haemorrhoidalis* (Philippi)*, 1865; *luctuosa* (Bigot), 1875; *lunulata* Bigot*, 1883; *luteola* (Gmelin)*, 1790; *nausicaa* (Hull)*, 1937 [= *apicalis* Fluke, 1956]; *nigra* Loew*, 1872; *nigritarsis* Coe, 1957; *obscura* Becher, 1882; *philonis* Séguy, 1961; *potens* (Harris), 1782; *shikokuana* Shiraki, 1968; *vara* (Panzer)*, 1798; and *varipes* Loew*, 1869.

From a *luteola*-type ancestor arose all the other species groups of *Myolepta*. There appears to have been two separate divergences from this common ancestor: (1) the New World branch (*strigilata* and *scintillans* groups), characterized by scale-like pile and bare metasterna; and (2) the Old World tropical branch (*africana*, *petiolata* and *orientalis* groups), characterized by the elongation of the third antennal segment. As indicated above, the *luteola* group is probably symplesiomorphic and on the basis of the presently known distribution of the genus, it seems logical to assume that the New World branch was derived from a New World member of *luteola* group and the Old World tropical branch from an Old World member.

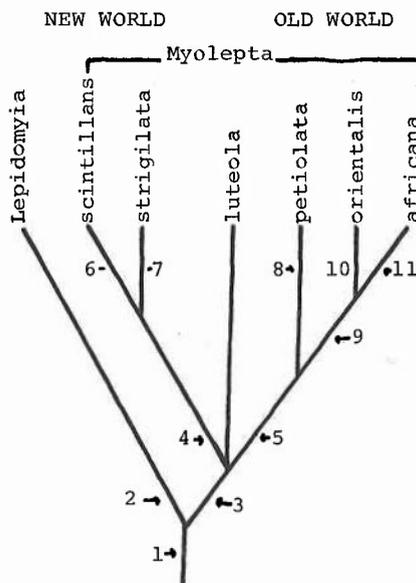


Diagram 1, Phylogenetic relationship of and within the genus *Myolepta* Newman. The autapomorphic character states used are: 1, femoral spines on all legs; 2, elongation of antennae, bare metasterna, and presence of scale-like pile; 3, loss of facial tubercle in the male; 4, bare metasterna and presence of scale-like pile; 5, elongation of 3rd antennal segment; 6, triangular scutellum; 7, bare face and cheeks; 8, petiolate abdomen; 9, presence of scale-like pile; 10, bare metasterna and emarginate scutellum; and 11, triangular scutellum.

The *strigilata* group (= *Eumyolepta* Shannon) is the plesiomorphic sister-group to the *scintillans* group and may also be a symplesiomorphic group. However, the face and cheeks in the *strigilata* group are bare, whereas these areas are partly pilose in the *scintillans* group, and I consider this autapomorphic condition for the *strigilata* group. The *strigilata* group is restricted to the warmer parts of the New World, southern and central North America to northern Argentina, and is considered to include the following species: *auricaudata* Williston*, 1891; *aurinota* Hine*, 1903; *greeniei* Hull*, 1941; *minuta* Fluke*, 1956; and *strigilata* Loew*, 1872.

The *scintillans* group (= *Protolepidostola* Hull) is characterized by its triangular scutellum, reduced occiput and small compact size, all autapomorphic conditions. These characteristics are also found in many species of *Lepidomyia* and may suggest a more immediate common ancestor than is presently supposed (see Thompson 1968: 271). The *scintillans* group is restricted to the tropical portions of the Neotropical Region and is considered to include the following species: *braziliana* (Shannon), 1927; *circularis* (Hull)?, 1941; *dolorosa* (Hull)?, 1941; *evansi* Thompson*, 1968; *problematica* Thompson*, 1968; and *scintillans* (Hull)*, 1946. The separation of the *strigilata* and *scintillans* groups may be found to be untenable due to the discovery of intermediate forms. While I have not seen any additional species since my previous study (1968) of the *scintillans* group, I now suspect that if *M. dolorosa* (Hull) and *circularis* (Hull) do not belong to the *scintillans* group, then they will represent intermediate forms. Both of these species are described as having triangular scutellum, a characteristic of the *scintillans* group, but there is no mention of the other important group characteristics in the original descriptions.

The *africana* group is probably the sister-group to the *orientalis* group, the only other Old World *Myolepta* group with scale-like pile (synapomorphy). The *africana* group is readily separated from the *orientalis* group by its triangular scutellum (autapomorphy). The only other groups with triangular scutellum are the *scintillans* group (all) and *Lepidomyia* (some) but both are quite different as outlined above. The *africana* group is presently known from only three areas in Central Africa and includes only *africana*, *similis* and *triangularis*, new species.

The *orientalis* group includes only one species known from a single female collected in Thailand. The bare metasterna and emarginate scutellum of *orientalis* may be considered as the autapomorphic character states for the group in respects to both the *africana* and *petiolata* groups.

The *petiolata* group also includes only one species known from a single female collected in Thailand. The *petiolate* abdomen is clearly an autapomorphic character state which defines the group. *M. petiolata* can probably be regarded as the plesiomorphic sister-group to both the *africana* and *orientalis* groups because of its simple scutellum and lack of scale-like pile.

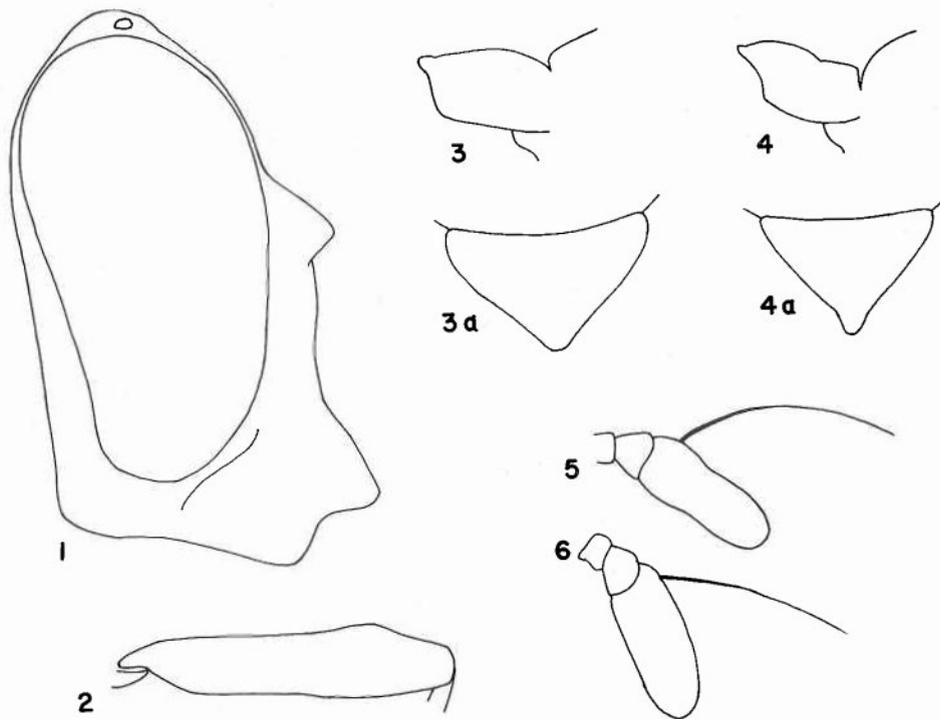
Key to the Ethiopian species of *Myolepta* Newman

1. Scutellum orange, orange pilose; squamae brown; tibiae with basal half orange . . . 2
Scutellum brownish black, black pilose except orange pilose narrowly along basal margin; squamae white; tibiae brown **triangularis**, n. sp. (Rhodesia)
2. Hind tarsi with apical three segments black pilose dorsally; face dark reddish brown; scutellum strongly produced (as in fig. 4) **similis**, n. sp. (Uganda)
Hind tarsi with apical three segments yellow pilose dorsally; face light brownish orange; scutellum not strongly produced (fig. 3) **africana**, n. sp. (Zaire)

Myolepta africana Thompson, new species

Figs 1 (head), 3 (scutellum) and 5 (antenna)

Head: face brownish orange, shiny except narrowly yellow pollinose on sides, with a few short yellow hairs along oral margin; cheeks brownish orange, shiny, yellow



Figs 1-6. Fig. 1, head of *Myolepta africana*, n. sp. Fig. 2, hind femur of *M. triangularis*, n. sp. Figs 3-4 scutella; 3, *M. africana*, n. sp.; 4, *M. triangularis*, n. sp. Figs 5-6, antenna; 5, *M. africana*, n. sp.; 6, *M. triangularis*, n. sp. All lateral views except 3a and 4a dorsal views.

pilose; lunule orange; front brownish orange, shiny on lower fourth, yellowish gold pollinose on upper three fourths, short golden pilose, punctate, with punctures smaller than in *triangularis*, without a trace of medial groove; vertex brownish orange, yellowish gold pollinose, short golden pilose; ocellar triangle produced, tubercle-like; occiput greatly reduced laterally on upper third, darker brownish orange, yellowish gold pollinose, golden pilose, with pile long below becoming very short above. Antennae elongate, shorter than face, only three-fourths as long as face, orange, yellow pilose except with a black spine-like hair on dorsal edge of both first and second segments; third segment elongate, about two and fourth times as long as broad; arista orange, as long as antennae.

Thorax: pro- and metathorax light brownish orange, sparsely white pilose; mesothoracic pleurae dark brownish black, with narrow scale-like yellowish white pile except yellow pile on pleurotergite; barretts bare; metasterna with 2-3 hairs on each sclerite; posterior surface of mesocoxae with a few fine hairs; metathoracic spiracular fringe yellow; plumulae yellowish white; squamae brown with upper fringe slightly more golden. Mesonotum about as broad as long, punctate, brown on disc, light brownish orange on sides, mainly short appressed golden pilose; humeri, transverse suture, notopleurae, above wings and postalar calli all light brownish orange; pollinosity sparse and brownish laterally, dense and golden on humeri and transverse suture, and light brownish gold in form of a broad medial vitta; postalar with a few

black hairs intermixed with golden pile; a patch of black pile above wings but patch distinctly separated from edge by a band of golden pile; scutellum triangular, produced into a point, with point lower and more blunt than in *triangularis*, orange and orange pilose. Legs: mainly orange, dark brown on apical two-third to half of femora and apical half but not apex to tibiae, light brownish on anterior tarsi, yellow pilose except black pile intermixed on dark areas of femora and on dorsal surfaces of all tarsi; coxae yellowish gray pollinose. Wings: with a very slight brownish tinge and subapical yellowish band; basicosta with yellow bristle-like pile; apical cell petiolate, with petiole about one half as long as humeral crossvein; anterior crossvein slightly but distinctly before middle of discal cell (at basal 3/7); microtrichose except bare basally; bare first and basal fourth of second costal cell, first basal cell before origin of Rs and narrowly behind spurious vein on basal fourth, second basal cell on basal half and narrowly along posterior part on basal two thirds, anal cell on basal fifth and narrowly along anterior edge on basal half.

Abdomen: brown except orange on sterna, first segment, apical margin of second and third terga and apical third of fourth tergum; first tergite and all sterna yellowish gray pollinose and yellow pilose, second through fourth terga dull, densely punctate, short appressed golden pilose.

Holotype female.—[ZAIRE, Kisangani] Congo, Stanleyville, 25° 10' E, 0° 30' N, March 1915 (Lang & Chapin, collectors), taken from *Bembex* [nest?]. The type is deposited in The American Museum of Natural History.

Discussion: *M. africana* is very similar to both *M. triangularis* and *similis* in structure and colour pattern but the overall tone of the coloration of *africana* is much lighter brown to brownish orange than that in the other two species, which are darker reddish brown to blackish brown. *M. africana* can be contrasted with *M. similis* and *triangularis* as follows: (1) the face is light brownish orange, not dark reddish brown; (2) the front is light brownish orange, not blackish brown; (3) the prothorax is light brownish orange, not blackish brown; and (4) the scutellum is not greatly produced (see figs 3 & 4). *M. africana* differs from *triangularis* in that the bases of the femora and tibiae are yellowish orange, not light brown to reddish brown, and the apical margin of the third tergum is orange brown, not brownish black.

The name *africana*, an adjective, alludes to the provenance of the species.

Myolepta similis Thompson, new species

Head: face reddish brown, shiny except narrowly yellow pollinose on sides, with a few short yellowish hairs along oral margin; cheeks reddish brown, shiny, yellow pilose; lunule orange; front blackish brown, shiny on lower fourth, yellowish to brownish pollinose on upper three-fourths, short yellowish orange pilose; punctate, without a trace of medial groove on upper three-fourths; vertex blackish brown, tawny pollinose; ocellar triangle distinctly produced, tubercle-like; occiput greatly reduced laterally on upper third, blackish brown, yellowish gray pollinose, yellow pilose, with pile longer below becoming very short above. Antennae elongate, about as long as face, orange, yellow pilose except with a black spine-like hair on dorsal edge of second segment; third segment elongate, about two and half times as long as broad; arista orange basally, brownish apically, slightly longer than antenna and about as long as face.

produced, tubercle-like; occipit greatly reduced laterally on upper third, blackish brown, yellowish gray pollinose, yellow pilose, with pile long below becoming very short above. Antennae elongate, about as long as face, orange, yellow pilose, except with three black spine-like hairs on dorsal edge of first segment; third segment elongate, about two and half times as long as broad; arista orange basally, brownish apically, slightly longer than antenna and about as long as face.

Thorax: brownish black; pleurae mainly dull, pro- and metathoracic pleurae grayish white pollinose, with narrow scale-like yellow pile except normal white pile on pleurotergite; barrettes and metasterna bare; posterior surface of mesocoxae with a few fine hairs; metathoracic spiracular fringe white; plumulae white; squamae white, with white fringe except slightly brownish on upper fringe. Mesonotum broader than long, punctate, sparsely brownish to yellowish pollinose except densely yellowish white pollinose on humeri and transverse suture; pollinosity when viewed posteriorly appears as two light yellowish brown medial vittae, two darker yellowish brown sub-medial vittae and grayish brown on sides; pilosity mainly yellow, black above wings, and on postalar calli, short and appressed except thicker and scale-like on notopleurae; scutellum triangular, produced into acute point, brownish black, shiny, punctate, short appressed pilose, with pile black except yellow along base. Legs: mainly brown and black pilose; coxae reddish brown, yellowish white pollinose and pilose; trochanters and basal third of femora more reddish brown, pale pilose, tibiae mainly yellow pilose; anterior tarsi brown, black pilose dorsally, yellow pilose laterally and ventrally; posterior four tarsi yellow, yellow pilose except for a few black hairs on apical segments; anterior femora with two rows of ventral spines; hind femora slightly swollen on apical third. Wings: with a very slight brownish tinge and subapical yellowish band; basicosta with yellow bristle-like pile; apical cell petiolate, with petiole about one-half as long as humeral crossvein; anterior crossvein slightly but distinctly before middle of discal cell (at basal 3/7); microtrichose except bare basally; bare first and basal one-fourth of second costal cell, first basal cell before origin of Rs and narrowly behind spurious vein on basal fourth, second basal cell on basal one-half and narrowly along posterior part on basal third, anal cell on basal fifth and narrowly along anterior edge of basal half.

Abdomen: brown except reddish brown apex, dull except grayish white pollinose on first segment and all sterna; sterna yellow pilose; dorsum densely punctate on second through fourth terga; second and third terga short appressed black pilose except narrowly whitish pilose on sides; fourth tergum mainly short appressed yellow pilose except for black pilose in form of two large indistinct basolateral patches.

Holotype female.—RHODESIA, North Vumba, Umtali District, 14 October 1964 (D. Cookson). The type is deposited in the Natal Museum, Pietermaritzburg.

Discussion: The differences between *triangularis* and *africana* are outlined in the above key and in the discussion of the latter. *Myolepta* species from tropical areas are quite rare in collections and I know of less than a dozen specimens of *Myolepta* from both the Old and New World tropics. Dr Brian Stuckenberg (*in litt.*) has suggested that *M. triangularis* is a canopy dweller. This suggestion might well explain the apparent scarcity of *Myolepta* from tropical areas since the canopy is a very difficult habitat to work in and people have rarely collected there. It is interesting to note here that the type of *M. africana* was collected by a bembecine wasp!

The name *triangularis*, an adjective, alludes to the shape of the scutellum of the species.

ACKNOWLEDGEMENTS

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Thorax: brownish black except orange humeri and scutellum; pleurae mainly dull, pro- and metathoracic pleurae grayish white pollinose, with narrow scale-like yellow pile except normal dirty white pile on pleurotergite; barrettes bare; metasterna with 6-8 hairs on each sclerite; posterior surface of mesocoxae with a few fine hairs; metathoracic spiracular fringe yellow; plumulae white; halteres white; squamae brown, with dark brown fringe. Mesonotum about as broad as long, punctate, sparsely brownish to yellowish pollinose except densely yellowish orange pollinose on humeri and transverse suture; pollinosity when viewed posteriorly appears as two indistinct broad light yellowish brown medial vittae, becoming darker brown laterally with sides broadly grayish black; pilosity mainly orange, with black intermixed above wings and on postalar calli, short and appressed except thicker and scale-like on notopleurae; scutellum triangular, produced into acute point, orange, shiny, punctate, short appressed pilose, with pile orange. Legs: mainly brown and black pilose; coxae reddish brown, yellowish white pollinose and pilose; trochanters more reddish brown; femora with subbasal reddish yellow bands, pale pilose on basal half; tibiae mainly yellow pilose; anterior tarsi brown, black pilose dorsally, tawny pilose ventrally; middle tarsi tawny except white basitarsi, black pilose except white pilose on basitarsi; posterior tarsi orange, yellow pilose except black pilose on apical 3 segments; anterior femora with two rows of ventral spines; hind femora slightly swollen on apical third. Wings: slightly brownish, with very faint subapical yellowish band; basicosta with orange bristle-like pile; apical cell petiolate, with petiole about one-half as long as humeral crossvein; anterior crossvein slightly but distinctly before middle of discal cell (at basal 3/7); microtrichose except bare basally; bare first and basal one-fourth of second costal cell, first basal cell before origin of Rs and narrowly behind spurious vein on basal fourth, second basal cell on basal one-half and narrowly along posterior part on basal third, anal cell on basal fifth and narrowly along anterior edge on basal half.

Abdomen: brownish black except reddish brown sides and apical margins of third and fourth terga, dull except grayish white pollinose on first segment and all sterna; sterna yellow pilose; dorsum densely punctate on second through fourth terga; second and third terga short appressed black pilose except narrowly whitish pilose on sides; fourth tergum mainly short appressed yellow pilose except for a few black intermixed medially.

Holotype female.—UGANDA, Entebbe, 20 June 1972 (H. Falke), in Forest. The type is deposited in the Canadian National Collection, Ottawa.

Discussion: *M. similis* is very similar to *triangularis* in structure and coloration but differs in having an orange scutellum and brown squamae. The name *similis*, an adjective, alludes to this.

***Myolepta triangularis* Thompson, new species**

Figs 2 (hind femur), 4 (scutellum) and 6 (antenna).

Head: face reddish brown, shiny except narrowly white pollinose on sides, with a few short yellowish hairs along oral margin; cheeks reddish brown, shiny, yellow pilose; lunule orange; front blackish brown except reddish around antennal bases, shiny on lower fourth, yellowish gray pollinose on upper three-fourths, short yellow pilose, punctate, with a faint medial groove on upper three-fourths; vertex blackish brown, yellowish gray pollinose except shiny ocellar triangle; ocellar triangle distinctly