

A. citricola sp.n., ♀ - Scape 2.5 times as long as its greatest width. Mandible tridentate. Club of antenna less than length of 3 preceding flagellar segments together.

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CONTRIBUTIONS TO THE KNOWLEDGE OF THE VELVET ANTS (HYMENOPTERA, MUTILLIDAE) OF AUSTRALIA

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More than 160 species of velvet ants belonging to 4 genera are known for Australia (Westwood, 1843; Smith, 1855, 1879; André, 1898, 1901, 1905; Zavattari, 1907; 1913; Bingham, 1909; Turner, 1910, 1916, 1917), but the number of species and especially genera is considerably greater here, inasmuch as no revisions of this group have been made. The study of material from various parts of Australia has disclosed 10 species in 5 genera, including 2 genera and 3 species new to science. The holotypes and part of the paratypes are preserved in the Australian National Insect Collection at Canberra and other paratypes in the Zoological Institute of the USSR Academy of Sciences in Leningrad. The author is sincerely grateful to his colleagues at the Zoological Institute G.S. Medvedev and V.I. Tobias, who collected the material and submitted it.

Subfamily DASYLABRINAE Skorikov, 1935

Tribe ODONTOMUTILLINI Lelej, trib. n.

Type-genus *Odontomutilla* Ashmead, 1899.

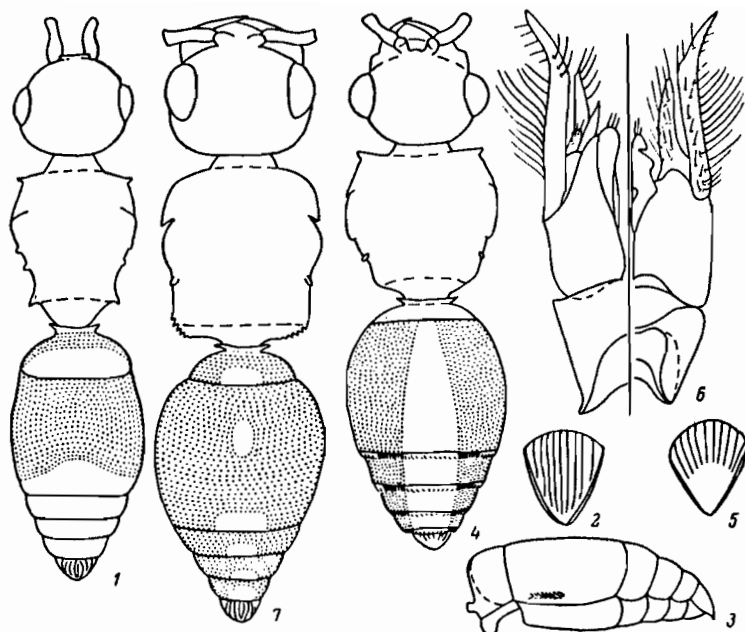


Fig. 1-7. Australian Mutillidae.

1) *Odontomyrme tobiasi*, gen. et sp.n., holotype, habitus; 2) same, pygidial area; 3) same, abdomen in profile; 4) *Eurymutilla turneri* sp.n., holotype, habitus; 5) same, pygidial area; 6) *Australotilla medvedevi* gen. et sp. n., paratype ♂ genitalia (left half dorsal, right half ventral; 7) *A. modesta* (Smith), ♀ habitus.

Male. Inner margin of eye with deep emargination near hindmargin (eye reniform). Mandibles without tooth at base of lower margin. Hindmargin of scutellum with 2 large processes or lobes. Lateral angles of propodeum pointed or with protrusions. Tegulae large, reaching furrow between scutum and scutellum. Pterostigma of forewing not developed. Pubescent furrows present at sides of 2nd abdominal tergite. Parameres of genitalia straight or weakly curved upward.

Female. Eye oval, weakly protruding. Mesothorax with more or less protruding sides, broader than propodeum. Abdominal segment 1 broad, with well differentiated anterior and dorsal surfaces.

The tribe includes 2 genera: *Odontomutilla* Ashmead and *Odontomyrme* gen. n. By the presence of reniform eyes and large tegulae in the ♂ and broad 1st abdominal segment in the ♀, the new tribe is similar to the Mutillini (Subfam. Mutillinae), but the straight or weakly upwardly curved parameres and the lack of pterostigma in the ♂ and the shape of the thorax in the ♀ show its place in the Dasylabrinac. The ♂'s of the new tribe differ from those of the nominate tribe Dasylabrinini in the reniform eyes and the presence of lateral processes or lobes on the hindmargin of the scutellum, and the ♀'s differ in the broad 1st abdominal segment with differentiated anterior and dorsal surfaces.

Genus *Odontomyrme* Lelej, gen. n.

Type-species *Odontomyrme tobiasi* Lelej, sp.n.

Female. Head rounded, narrower than mesonotum. Eyes oval, weakly protruding,

their longitudinal diameter 1.1 times as great as distance from their posterior margin to posterior occipital margin. Frontal carinae developed. Antenna in dorsal view broadened in middle; 1st flagellar segment shorter than pedicel, other flagellar segments shorter than broad. Palpar formula 6 + 4. Mandibles without teeth on inner and lower margins. Thorax with protruding mesopleura; mesonotum considerably broader than propodeum. Fore- and hindcorners usually toothed; scutellar tubercles not developed (Fig. 1). Abdomen cylindrical, 1st segment of same width as 2nd, relatively long, with well differentiated anterior and dorsal surfaces (Fig. 3); 2nd segment long, weakly arcuate laterally, with pubescent furrows laterally on tergite. Pygidial area developed. Abdomen without pale pattern.

Male unknown.

Similar in ♀ thoracic shape to *Odontomyrme* but differing in presence of teeth on posterolateral corners of thorax, cylindrical abdomen, developed of pygidial area, and small body size.

Includes 6 Australian species: *O. tobiasi* sp.n.; *O. gilberti* (André), comb. n.; *O. difficilis* (André), comb. n.; *O. abjecta* (André), comb. n.; *O. addena* (André), comb. n.; and *O. sessilis* (André), comb. n.

KEY TO SPECIES OF *Odontomyrme*

- 1 (4). Pygidial area smooth and shining
- 2 (3). Second abdominal tergite rusty red, with preapical black crossband, following tergites rusty red. Length of body 3-6 mm. Mackay, Queensland *O. gilberti* (André).
- 3 (2). First to 5th abdominal tergites rusty red. Length of body 3 mm. Mackay, Queensland *O. difficilis* (André).
- 4 (1). Pygidial area with longitudinal striae.
- 5 (8). First abdominal segment completely or partially rusty red. Thorax longer than its greatest width. Body length up to 5 mm.
- 6 (7). Antennal tubercles not combined into transverse carina. Apex of 1st abdominal tergite with dense pitting; 3rd and 4th tergites black with rusty apical bands. Length of body 3-5 mm. Mackay, Queensland *O. abjecta* (André).
- 7 (6). Antennal tubercles combined into transverse carina. Apex of 1st abdominal tergite smooth and shining; 3rd and 4th tergites yellowish brown. . . Length of body 2.9 mm. New South Wales *O. tobiasi* sp.n.
- 8 (5). First abdominal segment black, mostly with rusty red apex. Thorax not longer than its greatest width. Length of body more than 5 mm.
- 9 (10). Fore- and hindcorners of thorax toothed. Second abdominal tergite with large semicircular, apicomedial rusty red cuticular spot. Length of body 6 mm. Mackay, Queensland *O. addena* (André).
- 10 (9). Fore- and hindcorners of thorax not toothed. Second abdominal tergite with less conspicuous, transverse apicomedial rusty red cuticular spot. Length of body 6-7 mm. Mackay, Queensland *O. sessilis* (André).

Odontomyrme tobiasi Lelej, sp.n.

Female. Head, thorax and abdomen as in Fig. 1. Antennal tubercles combined into transverse carina. Antenna with 1st flagellar segment considerably shorter than

2nd (viewed dorsally); 3rd segment 1.5 times as long as 2nd. Clypeus with arcuate transverse carina. First abdominal sternite with longitudinal carina. Lateral processes of 1st abdominal tergite (viewed dorsally) broadly rounded. Dorsum of head and thorax with dense pitting, intervals between pits less than their diameter, pits on thorax somewhat larger. Posterior surface of propodeum with network of cells. Anterior surfaces of mesopleura and metapleura and sides of propodeum shining, with microrugosity; sides of pronotum and remainder of mesopleura with same pitting as dorsum of thorax. Anterior surface of 1st abdominal tergite with dense fused pits, dorsal surface smooth and shining; 2nd abdominal tergite pitted, more coarsely on anterior half and with intervals between pits; 2nd abdominal sternite with sparse large pits. Pygidial area bordered with rim of uniform height, with dense longitudinal striation (Fig. 2). Head and thorax chestnut brown, front brownish red, as also clypeus and underside of head. Antenna brownish red with darker apical segments. Legs chestnut brown, with brownish red tarsi and spurs. Second abdominal tergite chestnut brown, with yellowish brown apical band; 2nd sternite brownish red, apical margin yellowish brown. Dorsum of 1st tergite and 3rd-6th abdominal segments yellowish brown. Body and legs with sparse grayish hairs, these yellowish on bright-colored parts of abdomen and forming weak fringe on hindmargins of 3rd-5th segments. Length of body 2.9 mm.

Male unknown.

Holotype ♀, Australia: New South Wales, 20 km N Deniliquin, *Eucalyptus* forest near flowing stream, 16.IV.1975 (Tobias).

Differences between this species and previously known species are given in the key. The species is named after V.I. Tobias.

Subfamily SPHAEROPHTHALMINAE Schuster, 1949 (1903)

Genus *Eurymutilla* Ashmead, 1899

Eurymutilla argenteolineata (André, 1905), comb. n.

André, 1905 271, ♀ (*Ephutomorpha*). -- *perelegans* Turner, 1910: 257, pl. 32, Fig. 3, ♀ (*Ephutomorpha*).

Distribution. Australia: Northern Territory, Queensland (André, 1905; Turner, 1910).

Material. Australia: New South Wales, 35 km NE Deniliquin, at irrigation channel, 12-13.IV.1978, 1 ♂ (Tobias); same, at *Acacia* flowers, 13.IV.1978, 19 ♀, 5 ♂ (Tobias); same, sand dunes, 15-16.IV.1978, 70 ♀, 1 ♂ (Tobias); 20 km S Deniliquin, *Eucalyptus* forest, 14.IV.1978, 1 ♂ (Tobias); Deniliquin, Konargo, 17.IV.1978, 18 ♀, 1 ♂ (Tobias).

Male (hitherto unknown). Similar to ♂ of *E. turneri* sp.n. (see below), differing as follows. Antennal tubercles without semicircular carinae on anterior surface. Mandibles with 1 preapical tooth on inner margin and protuberance on middle of lower margin. Clypeus with transverse preapical smooth furrow. Ocelli small, ratio POL:OOL equaling 0.6. Second flagellar segment hardly shorter than 3rd and 1.8 times as long as 1st. Axillae with posteriorly projecting sharply triangular posterior margin. Inner side of hindcoxa with carina ending posteriorly in denticle. First abdominal segment relatively long, as long as wide, with short basal pedicel. Pubescent lateral furrow on 2nd abdominal tergite and considerably shorter one on 2nd sternite; 7th tergite with longitudinal raised stripe.

Tegula, except inner margin, smooth and shining. Apical part of 7th tergite microrugose. Wings intensively darkened, more hyaline basally. Hindmargins of 1st and 2nd tergites and 2nd sternite with fringes of plumose silvery hairs; 3rd-6th tergites with sparse erect short silvery hairs and long black bristles; hindmargins of 3rd-6th tergites without fringes of black or pale hairs.

Length of body 6.5-9.5 mm.

Eurymutilla turneri Leleg, sp.n.

Eyes hemispherical. Antennal tubercles relatively long, with semicircular carina of anterior surface. Frontal carinae not developed. Mandibles with preapical denticle on inner margin, without denticle at base of lower margin. Clypeus with smooth transverse depression. Tip of 1st abdominal tergite with brownish yellow cuticular band.

Male. Head rounded behind eyes, without differentiated angles, as wide as widest part of thorax. Ocelli small, diameter of anterior ocellus 2/3 distance between it and posterior ocelli; POL:OOL 0.7. Anterior clypeal margin without tubercles. Second flagellar segment hardly shorter than 3rd and 1.5 times as long as 1st. Pronotum with rounded humeri, untoothed; mesonotum with parapsidal furrows, axillae small, not projecting posteriorly. Forewing with 3 radiomedial and 2 discoidal cells; radial cell with straight tip; pterostigma sclerotized. Abdomen sessile; 1st tergite not as long as its greatest width; 1st sternite with longitudinal carina; 2nd tergite with lateral pubescent furrows; base of 2nd sternite without longitudinal carina.

Head and thorax densely pitted, intervals between pits less than their diameter. Propodeum with network of cells. Tegula, except inner margin, densely pitted. Abdomen with 2nd tergite densely pitted, pits considerably smaller toward hindmargin of tergite; 7th tergite with dense, sometimes fused pits. Body, antenna, and legs black. Mandibles with brownish red preapical parts. Spurs of legs white. Wings weakly darkened, more decidedly so apically. Weakly plumose, long, predominantly erect, silvery hairs on head (except posterior part of front and occiput), basal antennal segment, thorax (except mesoscutum), legs, 1st abdominal tergite, base and sides of 2nd tergite, and 3rd-5th tergites and sternites (except hypopygium). Occiput, posterior part of front, and mesoscutum with usual sparse erect black or brown hairs. Remaining parts of 2nd abdominal tergite with brown hairs. Hindmargin of 2nd-5th abdominal tergites with row of stiff, semidecumbent black bristles. Pubescent furrows with gray hairs; 6th tergite and hypopygium with long, separated black hairs.

Female (Fig. 4). Head behind eyes rounded, not elongate, distance between hindmargin of eyes and hindmargin of occiput in relation to diameter of eyes 0.5. Antennal tubercles combined into transverse carina. Antenna with 1st flagellar segment 1.5 times as long as pedicel and slightly shorter than 2nd segment. Pronotum with weakly concave anterior margin and small denticles on anterior corners. Thorax a little shorter than its greatest width. First abdominal segment not constricted posteriorly; base of 2nd sternite with quite distinct protrusion. Pygidial area with longitudinal striations and smooth tip (Fig. 5).

Dorsum of head and thorax densely pitted, intervals between pits less than their diameter, thoracic pits smaller. Abdomen with 2nd tergite densely punctate. Body black, thorax rusty red. Antenna and legs brownish red, with chestnut brown femora. Front and vertex with sparse hairs of coppery tinge; occiput with sparse grayish hairs; dorsum of thorax with sparse black hairs; hairs of mesopleural crest bright colored; legs with bright-colored hairs. Abdomen with broad stripe of yellowish hairs starting at base of 2nd tergite and ending on 5th tergite; 1st tergite and venter with sparse whitish hairs forming fringes on posterior margins of sternites and running onto sides of 2nd and 3rd tergites. Pubescent furrows covered with whitish hairs.

Length of body of ♂ 7, of ♀ 4 mm.

Holotype ♀, Australia: New South Wales, Deniliquin, Konargo, 17.IV.1978 (To-bias). Paratypes: 1 ♂ and 1 ♀ with same labels.

Similar to *E. argenteolineata*, differing in semicircular carina on anterior

surface of antennal tubercles and lack of denticle at base of lower margin of mandible. Besides this, it differs from the ♀ of *E. argenteolineata* in shorter thorax and smooth tip of pygidial area. The ♀ of *E. turneri* differs from that of *E. cordata* (Smith), comb. n., in the sculpture of the pygidial area (in *E. cordata* the furrows diverge from the central area) and in longer bright hairs on dorsum of abdomen (in *E. cordata* they begin in the middle of the 2nd tergite). It differs from the ♀ of *E. unilineata* (Turner), comb. n., to which it is close, in smooth tip of the pygidial area (in *E. unilineata* the whole area is furrowed).

Both sexes have a series of characters in common, which taken together are also the basis for considering that they belong to a single species. The species is named for Rowland E. Turner in recognition of his significant contributions to the study of Australian velvet ants.

Eurymutilla affinis (Westwood, 1843), comb. n.

Westwood, 1843: 18, pl. 54, Fig. 2, ♀ (*Mutilla*).

Distribution. Australia: Queensland (Westwood, 1843).

Material. Australia: New South Wales, 35 km NE Deniliquin, at irrigation channel, 12-13.IV.1978 (Tobias), 1 ♀.

Eurymutilla exigua (André, 1898), comb. n.

André, 1898: 290, ♂ (*Mutilla*).

Distribution. Australia: Queensland.

Material. Australia: New South Wales, 35 km NE Deniliquin, 16.IV.1978 (Tobias); South Australia, 220 km N Port Augusta, nr. Wilpena, 30.IV.1978 (Tobias), 1 ♂.

Genus *Australotilla* Lelej, sp.n.

Type-species, *Australotilla medvedevi* Lelej, sp.n.

Eyes semiglobular. Palpar formula 6 + 4.

Male. Head distinctly narrower than thorax, rounded, without differentiated posterolateral corners. Ocelli small. Clypeus weakly convex. Mandibles with preapical tooth on inner margin, without tooth at base of lower margin. Antenna with 2nd flagellar segment as long as 3rd and 1.5 times as long as 1st. Pronotum without humeral tooth. Axillae with posteriorly projecting lobe. Parapsidal furrows well developed. Forewing intensively darkened, with 3 radiomedial and 2 discoidal cells; pterostigma sclerotized; radial cell with straight apex. Abdomen sessile; 1st sternite with longitudinal carina; base of 2nd sternite with large longitudinal carina; pubescent furrows developed at sides of 2nd tergite but reduced at sides of 2nd sternite. Genitalia with parameres sharply bent outwards apically (Fig. 6). volsella long, cuspis nearly reaching bend of parameres, digitus appendiciform, penial folds with 2 denticles. Vestiture of body with weakly plumose and plumose hairs.

Female (Fig. 7). Head slightly narrower than thorax, weakly elongated behind eyes. Eyes weakly protruding beyond contour of head. Frontal carinae developed. Mandible with denticle at base of lower margin. Anterior margin of clypeus trituberculate. Antenna with 1st flagellar segment 1.4 times as long as 2nd. Thorax slightly longer than wide; mesopleuron weakly convex. Legs with outer side of mid- and hindtibiae with 2 rows of spinules. Abdomen semisessile; 1st segment relatively narrow, without apical crossband; 2nd sternite without transverse preapical

depression; pygidial area with longitudinal striae. Body black; abdomen with 6 bright-colored spots in single longitudinal line, sometimes weak or lacking on 3rd and 4th tergites.

The genus includes 5 Australian species: *A. medvedevi* sp.n.; *A. modesta* (Smith), comb. n.; *A. auriceps* (Smith), comb. n.; *A. queenslandica* (André), comb. n.; and *A. afflicta* (André), comb. n.

The genus is close to *Bothriomutilla* in the presence of well developed parapsidal furrows on the ♂ mesonotum, but it does not have a transverse depression on the 2nd abdominal sternite nor humeral teeth on the pronotum. The ♀'s of *Australotilla* spp. differ from those of *Bothriomutilla* in lacking the transverse depression on the 2nd abdominal sternite and teeth on the fore- and hindcorners and sides of the thorax and in shorter thorax. They differ from ♀'s of *Eurymutilla* in the weak lengthening of the postocular part of the head, less convex mesothorax, and bright abdominal pattern (Fig. 4, 7).

Australotilla medvedevi Lelej, sp.n.

Male. Diameter of anterior ocellus half as great as distance between it and posterior ocelli; POL:OOL 0.7. Anterior clypeal margin with 2 approximated teeth. Tip of forecoxa with sharp tooth. Bend between posterior and lateral surfaces of propodeum sharp. Inner side of hindcoxae with carina but without tooth. Abdomen with high carina on 1st sternite, weakly concave. Pubescence of groove and 2nd abdominal tergite more than half its length. Genitalia as in Fig. 6.

Surface of thorax, including tegulae, with dense, sometimes fused pits. Propodeum with network of cells. Abdomen with 2nd tergite densely pitted, intervals between pits less than their diameter, pits smaller toward posterior and lateral tergal margins; 2nd sternite with pits similar to those of tergite but larger; 7th tergite with smooth and shining longitudinal stripe in apical half; apical part of hypopygium with longitudinal depression. Body, antenna, and legs black with reddish brown preapical part of mandibles and underside of 1st flagellar segment and with dark cherry-red 2nd abdominal segment. Base of wings hyaline. Spurs of legs black. Front, vertex, and clypeus dense, but 1st and base of 2nd abdominal tergites with sparse weakly plumose silvery hairs. Tibiae and hindsurface of propodeum with sparse bright-colored hairs. Hindmargin of 1st abdominal tergite with fringe of dense silvery hairs. Posterolateral angles of 2nd tergite with spots of plumose silvery hairs, in paratype at sides of 3rd tergite also. Middle of 5th, 6th and 7th abdominal tergites with silvery hairs. Remainder of body and legs with sparse black hairs, forming loose fringe on hindmargins of 2nd-5th abdominal sternites. Length 12-14 mm.

Female unknown.

Holotype ♂, Australia, Northern Territory, 30 km N Alice Springs, 8.XI.1979 (G. Medvedev). Paratype, ♂ with same label.

The ♂ of the new species is close to that of *A. auriceps* (Smith), but differs in the silvery pubescence of the head and in lack of bright spots in the middle of the 2nd-4th abdominal tergites. It is possible that it is the opposite sex of *A. modesta* (Smith), the ♀ of which was collected at the same time as were ♂'s of *A. medvedevi* sp.n. The species is named after G.S. Medvedev.

Australotilla modesta (Smith, 1855), comb. n.

Smith, 1855: 29, ♀ (*Mutilla*).

Distribution. Australia: Adelaide (Smith, 1855).

Material. Australia: Northern Territory, 30 km N Alice Springs, 8.XI.1979 (G. Medvedev), 1 ♀; 12 km NE Darwin, Parm Creek, forest, 16.XI.1979 (G. Medvedev), 1 ♀.

Bothriomotilla rugicollis (Westwood, 1843).

Westwood, 1843: 17, pl. 53, Fig. 6, ♀ (*Mutilla*).

Distribution. Australia: Queensland (André, 1898).

Material. Australia: Northern Territory, 30 km W Alice Springs, at light, 7.XI.1979 (G. Medvedev), 1 ♀.

Genus *Ephutomutilla* André, 1903

Ephutomutilla ferruginata (Westwood, 1843).

Westwood, 1843: 18, pl. 54, Fig. 4, ♀ (*Mutilla*).

Distribution. Australia: Queensland (André, 1903).

Material. Australia: South Australia, 100-150 km N Oodnadatta, dry creek, 3.V.1979 (Tobias), 1 ♀.

Ephutomutilla sp. aff. *metallica* (Smith, 1855).

Material. Australia: Northern Territory, Alice Springs, 9.V.1978 (Tobias), 1 ♀.

Close to *E. metallica* (Smith) in the presence of a transverse depression in the 2nd abdominal sternite and the metallic body color, but it differs in having bright spots in the middle of the 3rd-5th tergites. The posterior margin of the 1st tergite has a crossband of silvery hairs. The body length is 7.5 mm.

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A REVIEW OF THE HOLARCTIC SPECIES OF Monoclona MIK (DIPTERA, MYCETOPHILIDAE)

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According to the classification of the Mycetophilidae proposed by Edwards (1925), the genus *Monoclona* Mik belongs to the tribe Sciophilini of the subfamily Sciophilinae. In spite of the great number of species included in this taxon, the independence of parts of it has not so far been doubted. Nearly all of this concerns European representatives of the genus, inasmuch as the characters cited in the original descriptions do not allow discrimination of these species with certainty (Landrock, 1927). A considerably better state of affairs obtains with the Nearctic species as the key for their determination by Fisher, 1946, is constructed with reference to genitalic structures. However, in revising various groups of Mycetophilidae a great interest has arisen in the analysis of the Holarctic fauna as a whole, inasmuch as thereby whole series of species are found to be common to the whole region. In this connection in the said work, besides collections from various Palearctic regions, collections of material from North America were analyzed. The author extends his gratitude to the following for furnishing material: R.J. Gagné, United States National Museum, Washington (USNM); A.V. Kompantsev, of the same Institute as the author (IEMEZ); E.P. Narchuk, Zoological Institute of the Soviet Academy of Sciences in Leningrad (ZIN); G.P. Ostroverkhova, Tomsk State University (TGU); M.K. Thayer, Museum of Comparative Zoology, Harvard College, Cambridge, Mass. (MCZ). His sincere thanks are also extended to Prof. G. Morge, Eberswalde, East Germany, for the loan of type specimens from the G. Strobl collection preserved in the Natural History Museum of the Benedictine Abbey at Admont, Austria (INMA).

The key does not include one European species, *M. miki* Kert, inasmuch as the characters cited in the original description (Kertész, 1898) do not suffice to differentiate it from other European species. The type specimen is apparently lost.