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Minnesota Mallota and Allied Genera (Diptera, Syrphidae)

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Minnesota Mallota and allied genera (Diptera, Syrphidae)[1]

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The generic characteristics of *Mallota* are compared with related Eristaline genera. Life history notes and an identification key are given for Minnesota *Mallota* species.

Mallota species are large bee-like flies, chiefly black with yellow pile. They also resemble other robust syrphid species. Hull (1949) lists 10 nearctic, one holarctic and 12 palearctic species. At least 11 species have been described from Eastern United States. Some of these species have subsequently been reduced to synonyms. All American species have been described from either a single specimen or, at best, a very short series. Large collections of American species are unknown. The comparative scarcity of these flies and the somewhat hazy generic definition have contributed to the neglect of this group. The *Mallota* species found in Minnesota represent the most common and widespread American forms. It is hoped that a review of *Mallota* characters compared with those of allied genera may clarify the generic definition and help characterize the populations within the genus.

Such eminent Syrphid fly students as Verall (1901), Shannon (1925), Wehr (1922), Telford (1939) and Hull (1949) all treat *Mallota* with the Syrphid fly subfamily Eristalinae. The most reliable characters of the subfamily include the deep bending of vein R4 + 5 into cell R5 and a group of black setulae on the bases of all femora. The typical Eristaline wing is shown in Fig. 1.

Most Minnesota Eristaline species bear a superficial resemblance to one another. The major variant is several species of the large genus *Helophilus*. All immature stages are of the so-called rat-tailed variety. Our studies of male genitalia also indicate a close relationship among these genera. The positions of cerci, styles and paraphalli are consistent throughout all species examined. A pictorial display of this comparison is shown by Figs. 3-8.

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The following key employs common external characters used to separate *Mallota* from the common local Eristaline genera.

Key to Genera of Eristalinae

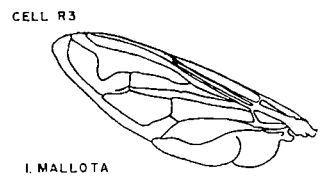
1. Cell R3 open (see Fig. 1).....2
   Cell R3 closed.....*Eristalis (Tubifera)*
2. Posterior tibiae ending in a spine or triangular projection.....3
   Posterior tibiae rounded apically.....4
3. Large species with prominent tibial spine; mesonotum usually unicolorous.....*Polydontomyia*
   Small slender species, mesonotum vittate; tibae ending with a small triangular projection.....*Helophilus (Lejops)*
4. Large robust species, thorax thickly pilose, hind femora often swollen and arcuate.....*Mallota*
   Size variable, thoracic pile wanting or scarce, femora usually simple, yellow and black species.....*Helophilus*

Mallota Meigen: The genus Mallota is characterized as follows: Face somewhat produced, often tuberculate; upper face concave. Antennae short; the third segment shorter than wide. Eyes bare to pilose. Abdomen stout. Hind femora rather stout and often arcuate; their tibiae flattened and somewhat arcuate. Loop of third vein deep; wings variably infuscated. Large, long pilose, bumblebee-like flies. Genotype—*Syrphus fuciformis* Fabricus.

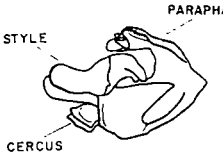
References to the biology of *Mallota* species are scattered and fragmentary. Lintener (1882) described the larvae and pupae of *Mallota posticata* collected from a decaying birch tree. Williston (1886) mentions collecting fifteen specimens of *M. posticata* and *cimbiciformis* from blossoms of blackberry and dogwood in Connecticut. Lundbeck, reported in Telford (1939), discovered *Mallota* larvae in cavities in maple and birch. Four specimens identified as *M. facialis* were reared from puparia collected in burrows of *Prion oxystus* (Cerambycidae) by R. W. Dawson and were provided by the University of Nebraska. These observations indicate decaying wood to be the usual larval medium.

Key to Minnesota Species

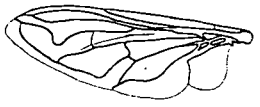
1. Eyes pilose; varying amounts of the abdomen with yellow pile.....*posticata* (Fab.)
   Eyes bare.....2
2. Pile of abdominal tergum black, except part of first tergite which is yellow; hind tibiae of male with a



1. MALLOTA

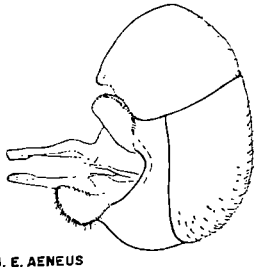


5. M. CIMBICIFORMIS



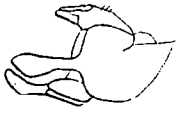
2. ERISTALIS

6. M.C. FACIALIS



3. E. AENEUS

7. M. POSTICATA



4. H. LATIFRONS

8. M. ILLINOIENSIS

stout spur in middle (form *bautias*) or wholly without such spur.....*cimbiciformis* (Fall.)
Pile of abdominal tergum variable.....3

3. Abdomen black with yellow pile at the base and apex.....*c. facialis* Hunter
Abdomen black with long whitish pile; legs reddish .....*illinoiensis* Rob.

Mallota cimbiciformis (Fallen): This is the most numerous species in the collection assembled for this study. The species is unusual in that it appears to be polymorphic. Dimorphic males seem to exist throughout Eastern United States. Williston (1886) describes these variants as follows: "Form *cimbiciformis*. Hind tibiae in male moderately compressed without a spur in the middle; usually smaller specimens. Form *Bautias*. Hind tibiae extraordinarily compressed and with a stout angular projection in the middle, which, when the tibia is flexed, lies on the outer side of the femur; usually larger specimens."

Such variants as described by Williston were among the specimens used in this study. We have *bautias* forms however, as small as the smallest *cimbiciformis*. Hunter (1896) remarked on the similarity of *cimbiciformis* and *sackeni* Williston. Curran's (1931) key to *Mallota* species also underscores the similarity of *sackeni* to *cimbiciformis*. It seems very possible that these species are conspecific.

Hunter (1896) described *facialis* from one male collected in Northwestern Nebraska. Hunter's description of *facialis* is identical to the description of *flavoterminata* Jones. The yellow pile on the terminal abdominal segment serves to identify these flies. Some specimens in the *cimbiciformis* series used in this study showed a mixture of black and golden pile on the terminal abdominal segment. This seeming kinship is further emphasized by the great similarity in male genitalia as shown by Figs. 5 and 6. This study indicates *facialis* to be a variety of *cimbiciformis*. We suggest that *facialis* be known as *Mallota cimbiciformis facialis* Hunter. This form does not appear to be common in Minnesota. Our two specimens were taken in July. The regular *cimbiciformis* series were taken from July to September.

Mallota posticata (Fabricius): The rather sparse whitish pile of the eyes seems to be the most reliable superficial mark for this species. The male genitalia are quite distinct from those of other local species. The abdominal markings appear highly variable in both sexes. This large fly bears a striking resemblance to *Eristalis barda*. The adults of this species seem to be active during the same seasons as *cimbiciformis*.

Mallota illinoiensis Robertson: The smallest of the Minnesota *Mallota* species, *illinoiensis* also differs from the others in color. The reddish cast to the thoracic pile and the legs set it apart from the robust yellow and black species. It seems to be even less common than *cimbiciformis* and *posticata*. We have no knowledge of the immature stages. Our adults were collected during July.

Hull (1945) described two *Mallota* species from Mississippi which bear great resemblance to Minnesota species. *Mallota separata* Hull described from a male; it appears very similar to *posticata*. The other species, *mississipensis*, also described from a single male, differs from *illinoiensis* in having black legs and banded abdominal pile. It seems that *diversipennis* Curran is also similar to *illinoiensis*.

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". . . we may illustrate the course which thought has hitherto run by likening it to a web woven of three different threads—the black thread of magic, the red thread of religion, and the white thread of science, if under science we may include those simple truths drawn from observation of nature, of which men in all ages have possessed a store. Could we then survey the web of thought from the beginning, we should probably perceive it to be at first a chequer of black and white, a patchwork of true and false notions, hardly tinged as yet by the red thread of religion. But carry your eye further along the fabric and you will remark that, while the black and white chequer still runs through it, there rests on the middle portion of the web, where religion has entered most deeply into its texture, a dark crimson stain, which shades off insensibly into a lighter tint as the white thread of science is woven more and more into the tissue. To a web thus chequered and stained, thus shot with threads of diverse hues, but gradually changing colour the farther it is unrolled, the state of modern thought, with all its divergent aims and conflicting tendencies, may be compared. Will the great movement which for centuries has been slowly altering the complexion of thought be continued in the near future? or will a reaction set in which may arrest progress and even undo much that has been done? To keep up our parable, what will be the colour of the web which the Fates are now weaving on the humming loom of time? will it be white or red? We cannot tell. A faint glimmering light illuminates the backward portion of the web. Clouds and thick darkness hide the other end."

From THE NEW GOLDEN BOUGH (A new abridgement of the classic work by Sir James George Frazer, 1854-1941), edited, and with notes and foreword by Dr. Theodor H. Gaster. New York, Criterion Books, 1959, pp. 650-651.