A PRELIMINARY STUDY OF

THE SYRPHIDAE OF OKLAHOMA

(DIPTERA: SYRPHIDAE)

By

DANIEL ALBERT SHORTER

Bachelor of Science
Northwestern State College
Alva, Oklahoma
1949

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1960

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the Oklahoma State University
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A PRELIMINARY STUDY OF THE SYRPHIDAE OF OKLAHOMA (DIPTERA: SYRPHIDAE)

Thesis Approved:

William A. Drew
Thesis Adviser

D. Stansell

W. T. Waterfall

Geo. A. Moore

J. K. Boggs
Dean of the Graduate School

PREFACE

There are no available keys to the Syrphidae of Oklahoma; therefore, this preliminary study of the adult Syrphidae of Oklahoma has been undertaken. Probably not more than sixty per cent of the total state species are represented in this work. It is hoped that this study will stimulate interest in these beautiful and interesting flies and will serve as the basis for further study which will result in the discovery of additional state records and new species.

I wish to thank my advisers, Drs. D. E. Bryan, W. A. Drew, D. E. Howell, G. A. Moore and U. T. Waterfall for their guidance, encouragement and assistance.

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It is with pride that I express appreciation to my wife, Margery, and to my children for their cooperation and understanding during the preparation of this thesis.

Finally, I dedicate this work to my deceased mother, without whose vision and encouragement this work would probably never have been undertaken and most surely would hever have been completed.

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INTRODUCTION

The flies of the family Syrphidae, called syrphid flies, hover flies, sweat flies, drone flies, or flower flies, constitute one of the largest groups of Diptera; there being approximately five thousand species world-wide. They are usually quite attractive and often are mimics of bees and wasps. They may be found almost anywhere; some are quite common. Most of them visit flowers in sunny places, but some occur only in woods, moist places, fields, or near ants' nests, depending upon their feeding and oviposition habits.

Since Oklahoma contains the deciduous forests of the east and the grasslands of the central and western areas, as well as a transitional zone between, there are unlimited possibilities for the collection of Syrphidae. For a more detailed understanding of the habitat zones of Oklahoma see Bruner (1931), Blair and Hubbell (1938) and Duck and Fletcher (1943). No attempt has been made in this study to correlate species distribution with these habitat zones.

The Syrphidae are, in general, economically beneficial to man. Many of them live upon aphids and mealy bugs in the larval stages, and the adults are of importance in the pollination of plants. A few are known to be definitely injurious to plants, and a few cases of myiasis caused by syrphid larvae have been reported.

Publications dealing with or referring to the Syrphidae are quite extensive, and hundreds of papers have been published specifically on

the Syrphidae. Many of the common species are readily identified by the use of Dr. S. W. Williston's Synopsis of North American Syrphidae (1886), but, in general, the family is a difficult one to work with. Many of the genera and species are very difficult to separate by means of keys and descriptions. Many papers must be consulted to identify the specimens of almost every collection, large or small. Unfortunately, there has been no recent revision of the North American species of which less than half are found in Williston's work. The entire family is in extreme need of revision.

The most recently published comprehensive work is that of Hull (1949b). Other works which are of benefit to the serious student of the Syrphidae are those of Sack (1932), Verrall (1901), Lundbeck (1916), and Goffe (1952). Many syrphid workers have been prolific writers. Hull, Curran, and Fluke have each published dozens of articles on the syrphids. The works of Jones (1922) and Telford (1939) have been most useful in the preparation of this thesis. Of extreme benefit to me in preparing this work have been three as yet unpublished works, namely Sedman (1952), Weems (1953), and Stone, et al. (in manuscript). The synonymy has been adapted from these last three works, mainly Stone, et al.

SYSTEMATICS

Family SYRPHIDAE

Characteristics: Small (3 to 8 mm), medium (8 to 15 mm), or large (more than 15 mm) flies, most of which have a false or spurious vein (vena spuria of European authors), extending longitudiǿnally and slightly diagonally between the third (R_{4+5}) and fourth (M_{1+2}) longitudinal veins, (Fig. 1); spurious vein absent or nearly so in some Chrysogaster, Syritta, and Psilota, and in all Graptomyza (Asiatic and African genus), faint in others (e. g., some Volucella); bristles (macrochaetae) rarely present on any part of body, never on head.

Head variable, usually as broad as or a little broader than thorax, often with epistoma produced downward, and sometimes forward; three ocelli always present; eyes large, bare or pilose, usually holoptic in males, always dichoptic in females; in some genera (e. g., Microdon, Mallota, and Helophilus in Oklahoma) males are dichoptic, but front (space between eyes lying above antennae and limited by vertex or top of head; frons of some authors) is different, always being narrower and forming some angularity with eyes, in females front is broader and lateral margins straight; front never excavated, often swollen, sometimes with a short or long process which bears the antennae; antennae short or elongate, approximate at their bases, composed of three segments (or joints), usually with a bare, pubescent, or plumose dorsal arista, rarely with a terminal style; face (front of head between mouth and antennae and limited on sides by compound

eyes and cheeks; facies of some authors) broad, bare, pollinose, or pilose, sometimes excavated in profile beneath antennae and projecting below, or with a distinct tubercle or carina; frontal lunule absent or rudimentary; oral opening large, proboscis usually short (long in Rhingia); thorax rather large and robust, moderately arched, rarely with bristles; scutellum large, usually convex, often translucent, rarely with spines on border; wings comparatively large, marginal (R_1) cell open or closed, third (R_{4+5}) vein straight or dipped into apical (R_5) cell, never branched, fourth (M_{1+2}) vein terminated in third at or near its tip, three posterior cells present (R_5 or apical, $1M_2$ or discal, and Cu_1), basal (R, 2M, and 1A) cells long, anal (1A) cell always long and closed before margin of wing, between third and fourth longitudinal veins and nearly parallel to them, a strong fold or spurious vein nearly always present and characteristic of the family (Fig. 1), not found in members of any other family; squamae (also called alulae, calypters, or post-alar membranes) small to moderately large, with forked and fan-like ciliation; plumulae (a pair of elongated, fringed, filamentous projections from upper margin of pteropleura beneath squamae) (Fig. 2) are peculiar to Syrphidae, although they are sometimes lacking; legs weak to moderately strong, occasionally very strong, never elongate; abdomen variable in shape, composed of five or six visible segments, rarely only four, generally thinly pilose or bare, sometimes with thick pile; hypopygium rarely prominent, although often large.

Key to Subfamilies of SYRPHIDAE

Head fitting close to thorax, and humeral calli of the latter bare of hairs; abdomen in both sexes with at least five visible not-transformed

segments, in a few cases more than five; spiracle of third abdominal segment located in middle of pleuron. . . . . .Syrphinae

Head not fitting closely to thorax, and humeral calli of the latter pilose; abdomen of males with not more than four visible not-transformed segments, of females not more than five; spiracle of third abdominal segment located at or near anterior margin of pleuron. . . . . Milesiinae

Note: The following key will not serve to identify some members of the tribe Pipizini. Stone, et al. (in manuscript) have placed the Pipizini in the subfamily Syrphinae on the basis of the work of Hartley (1960) and Goffe (1952). The Pipizini have been so placed on the basis of the type of larva and upon larval characteristics. Personal correspondence with Dr. Yale Sedman, Dr. J. R. Vockeroth, and Dr. Willis W. Wirth (three prominent syrphid workers) has failed to provide a key that will properly place the Pipizini. Therefore, the Pipizini are placed in the subfamily Syrphinae, but are keyed in both subfamilies for convenience.

Subfamily SYRPHINAE

Key to Tribes of Oklahoma
(modified from Williston, 1886)

1. Front long, much narrowed above in female; cheeks narrow, face considerably narrowed below; abdomen frequently contracted beyond base; more or less slender flies. . . . . Bacchini

   Face not remarkably narrowed below 2

2. Metallic green, metallic green and black, or black species; rarely with luteous markings at base of abdomen and on humeri and face; abdomen never with entire shining cross-bands 3

   Black or greenish-black species with yellow or yellowish stripes

and bands, or at least with entire shining cross-bands on abdomen; face tuberculate. 4

3. Face evenly rounded and pilose . . . . . Pipizini

Face not evenly rounded and pilose; face tuberculate. . . . Paragini

4. Face black . . . . . Melanostomini

Face partly or wholly yellow . . . . . Syrphini

Tribe SYRPHINI

Key to Genera of Oklahoma

1. Male genitalia long, projecting, asymmetrical as seen from above, somewhat cylindrical; abdomen of female broadly oval, fifth segment half as long as fourth . . . . . Eupeodes

Male genitalia normal; fifth abdominal segment of female usually less than half as long as fourth, if about half as long, abdomen has subparallel sides and front is not whitish-yellow immediately above antennae 2

2. Lateral margins of mesonotum generally distinctly marked with bright opaque yellow 3

Lateral margins of mesonotum never distinctly marked with bright opaque yellow (although in a few species they may be dull yellow or yellow pollinose) 6

3. Posterior portion of oral margin black or gray; metapleura blackish aeneous 4

Posterior portion of oral margin yellow; metapleura usually bright yellow 5

4. Hind femora of male thickened and arcuate; tibiae arcuate and

dilated at tips; hind femora of female with black band . . Toxomerus

Hind femora and tibiae of male slender; hind femora of female yellow. . . . . Mesograpta

5. Eyes of male with an area of enlarged facets above; fourth abdominal tergite with two yellow stripes medially and oblique spots laterally . . . . . Allograpta

Eyes of male normal; fourth abdominal tergite not so marked . . . . . Sphaerophoria

6. Lower lobe of squamae pilose above, with a few long hairs on disc; metasternum bare . . . . . Syrphus

Lower lobe of squamae pubescent or bare, without long hairs on disc; metasternum bare or pilose. 7

7. Abdomen distinctly emarginate; metasternum usually pilose . . . . . Metasyrphus

Abdomen indistinctly emarginate, sub-parallel, edges rolled under, often slender; metasternum bare or pilose . . . . . Epistrophe

Syrphus Fabricius

Syrphus Fabricius, 1775. Syst. Entomol., p. 762.

Syrphidis Goffe, 1933. Trans. Entomol. Soc. S. England. 8: 78.

Type-species: Musca ribesii Linnaeus, 1758. Syst. Nat., p. 593.

(To preserve the long and almost universal usage of Syrphus in the sense of Musca ribesii Linnaeus as type-species, Stone, et al, in "A Catalog of the Diptera of America North of Mexico" (in manuscript) recommend that the International Commission of Zoological Nomenclature be asked to suspend the rules and supress Curtis' 1839: plate 753 designation of

Musca lucorum Linnaeus as type-species and to place Syrphus Fabricius on the "Official List of Generic Names" with Musca ribesii Linnaeus as type-species. The present author concurs fully with this recommendation and uses Syrphus in the sense of Musca ribesii Linnaeus in this work.)

Characteristics: This genus might be called the "typical" genus of the family. Medium-sized species (8-15 mm); moderately hairy; almost always bright yellow marked; head as broad, or broader than, thorax, slightly excavated behind; face gently bulging below, with a low tubercle, usually yellow, rarely with median dark vitta, frequently micropubescent; antennae short, inserted above middle of face; arista inserted near base of oval third joint, third joint and arista microscopically hairy; eyes usually bare, sometimes slightly hairy, holoptic in male; thorax quadrate or nearly so, humeri and area between without pile, side margins of thorax often yellowish, mesonotum often with pollinose median vittae; yellow or brownish-yellow scutellum largely convex and semicircular, with fringe of hairs below margin, no bristles on thorax or scutellum, metasternum bare; wings simple, third vein only slightly curved, anterior cross-vein located well before middle of discal cell, spurious vein distinct, marginal cell broadly open; squamae large, lower lobe with dense short hairs and a few long hairs above (this character should not be confused with long hairs on margin of squamae): legs simple, slender, hairy, tarsal claws and pulvilli well developed; abdomen black, oval, emarginate on at least second and third segments, rather flattened, with prominent yellow crossbands or spots, usually with one pair of large yellow spots on second abdominal tergite, with stripes or spots on following tergites.

Key to Species

1. First segment of middle basitarsi with only yellow spicules beneath; sides of mesonotum distinctly yellow pollinose . . . . . knabi

   First segment of middle basitarsi with black spicules beneath; sides of mesonotum indistinctly yellow pollinose. 2

2. Face entirely yellow . . . . . ribesii

   Face with median dark vitta . . . . . vittafrons

Syrphus knabi Shannon

Syrphus knabi Shannon, 1916. Proc. Biol. Soc. Wash. 29: 200.

Characteristics: Length, 11-13 mm; face yellow; sides of thorax distinctly yellow pollinose, scutellum chiefly black pilose; legs mostly yellow, middle basitarsi with yellow spicules below, abdominal bands extend over side margins in practically their full width.

County records: McCurtain, Pushmataha.

June.

Syrphus ribesii (Linnaeus)

Musca ribesii Linnaeus, 1758. Syst. Nat., p. 593.

Scaeva ribesii: Fabricius, 1775. Syst. Entomol., p. 770.

Syrphus ribesii: Latreille, 1809. Gen. Crust. 4: 325.

?Syrphus philadelphicus Macquart, 1942. Diptères Exot., p. 93.

Characteristics: Length, 10-12 mm; face and cheeks yellow, pile of face pale; antennae largely brownish; eyes bare; hind femora of female yellowish, except extreme base, hind femora of male black, except apical one-fifth or one-sixth, middle basitarsi with black spicules below; spots

on first segment of abdomen reach side margins in less than one-half their width.

County records: Not recorded from Oklahoma but likely to occur in the State.

Syrphus vittafrons Shannon

Syrphus ribesii vittafrons Shannon, 1916. Proc. Biol. Soc. Wash. 29: 202.

Syrphus vittafrons: Fluke, 1954. Am. Mus. Nov. 1690: 7.

Characteristics: Length, 8-10 mm; very similar to Syrphus ribesii Linnaeus except for median dark vitta on face and median brown area on hind femora of female; males never have black pile on face except on sides near antennae; dark spots below eyes wanting; hind femora of males are black on more than basal three-fourths.

County records: Ottawa.

June.

Metasyrphus Matsumura

Metasyrphus Matsumura, 1917. In Matsumura and Adachi, Entomol. Mag. Japan. 2: 147.

Posthosyrphus Enderlein, 1938. Sitzung, Ges. Nat. Freunde Berlin, p. 204.

Type-species; Syrphus corallae Fabricius, 1794. Syst. Entomol. 4: 306. (original designation).

Characteristics: This is a very large genus in North America and rather difficult to work with as there are many intermediate forms be-

tween species. Size, coloration, and general appearance very similar to Syrphus Fabricius; face yellow, gently bulging below, with a low tubercle, with or without black, shining, median vitta; vertex usually black, pile of front and vertex usually dark; antennae oval, inserted well above middle of face, third joint and arista micropubescent; eyes usually bare, sometimes lightly pilose, holoptic in male; thorax usually shining, without conspicuous longitudinal vittae, metasternum usually pilose; lower lobe of squamae sometimes covered with dense pubescence above, but without long hairs on disc; third vein straight or only slightly curved into apical cell, anterior cross-vein before middle of discal cell; legs simple; abdomen emarginate, oval, with prominent yellow spots or cross-bands, rarely reddish, usually with a pair of yellow spots on second abdominal tergite.

Key to Species

1. Abdominal bands broken into distinctly separate spots . . perplexus
   Second and third abdominal bands entire 2
2. Eyes dichoptic - females 3
   Eyes holoptic - males 4
3. Hind femora black on basal half or more . . . . . vinelandi
   Hind femora yellow, at least on basal fourth . . . . . wiedemanni
4. Black of cheeks connected to facial vitta by a black stripe along oral margin; genital styli small, oval . . . . . vinelandi
   Black of cheeks separated from facial vitta by a yellow area; genital styli long, irregular in outline . . . . . wiedemanni

Metasyrphus perplexus (Osburn)

Syrphus perplexus Osburn, 1910. J. New York Entomol. Soc. 18: 55.

Metasyrphus perplexus: Fluke, 1933. Trans. Wisconsin Acad. Sci. 28: 99.

Metasyrphus (Posthosyrphus) perplexus: Fluke, 1950. Trans. Wisconsin Acad. Sci. 40: 147.

Syrphus arcutus auctt. (not Fallén, 1816).

Characteristics: Length, 10-11 mm; face with median black vitta, front with two large black spots just above base of each antennae, at least in male; eyes bare; thorax steely-blue, shining, pile of thorax white, although a few black hairs may sometimes be seen on male just above wings; scutellum yellowish to opalescent, darker at basal corners, mostly black pilose in male, frequently wholly yellow-pilose in female; metasternum pilose; third vein only gently curved; abdomen with three pairs of spots, all separated from side margins.

County records: Alfalfa, Beaver, Harper, Murray, Payne, Woods.

March-May.

Metasyrphus vinelandi (Curran)

Syrphus americanus vinelandi Curran, 1921. Can. Entomol. 53: 172.

Metasyrphus vinelandi: Fluke, 1933. Trans. Wisconsin Acad. Sci. 28: 85.

Metasyrphus (Posthosyrphus) vinelandi: Fluke, 1950. Trans. Wisconsin Acad. Sci. 40: 147.

Characteristics: Length, 9-11 mm; antennae slightly larger than in M. wiedemanni; pile of face predominantly pale, black of cheeks of male

usually connected to black vitta of face; abdominal bands are narrower than in M. wiedemanni and posterior margins of second and third distinctly emarginate; genital styli small, oval.

County records: Payne, Woods.

March-May.

Metasyrphus wiedemanni (Johnson)

Syrphus americanus Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 129. (preoccupied, Swerdus, 1787).

Syrphus wiedemanni Johnson, 1919. Can. Entomol. 51: 32. (new name for S. americanus Wiedemann).

Metasyrphus wiedemanni: Fluke, 1933. Trans. Wisconsin Acad. Sci. 28: 84.

Metasyrphus (Posthosyrphus) wiedemanni: Fluke, 1950. Trans. Wisconsin Acad. Sci. 40: 147.

Characteristics: Length, 9-12 mm; face with median black vitta, front in male heavily pollinose, with small dark dot just above base of each antennae, front in female with broad pollinose band which is distinctly interrupted to form inverted black Y, with two prominent black dots above antennae; antennae rather large, third joint one and one-half times as long as first two segments combined, black, yellowish on lower one-third of last segment; arista reddish, darker apically; scutellum yellowish, with rather fine, somewhat kinky, yellow and black intermixed pile, the yellow pile predominant; metasternum pilose; legs of male yellow, with one-fourth of front and middle femora, three-fourths to four-fifths of hind femora, and a broad median band on hind tibiae black legs of female more yellowish, with only basal one-fifth of front and

middle femora, a broad median ring on hind femora, and a narrow ring on hind tibiae black; abdominal bands broad, almost straight, and separated from side margins, first abdominal band frequently entire; genital cerci long and yellowish-red, styli long and fairly slender.

County records: Alfalfa, Blaine, Caddo, Delaware, Garvin, Grant, Latimer, Le Flore, Logan, Mayes, McCurtain, Okmulgee, Payne, Pushmataha, Woods.

March-November.

Eupeodes Osten Sacken

Eupeodes Osten Sacken, 1877. Bull. U. S. Geol. Surv. 3: 328.

Type-species: Eupeodes volucris Osten Sacken, 1877. Bull. U. S. Geol. Surv. 3: 329. (monotypic).

Characteristics: Very similar to some species of Metasyrphus. Length, 7-10 mm; head hemispherical; face slightly concave below antennae, tuberculate, whitish-yellow, with black cheeks and dark median vitta over tubercle; antennae short, third joint oval; dark crescent-shaped spot over base of each antenna; eyes bare, holoptic in male; thorax pilose; scutellum raised, exposing metanotum; marginal cell open, anterior cross-vein near base of discal cell, third vein gently curved; legs simple, reddish, base of femora black; abdomen black, first segment, lateral and posterior margins of all segments shining, the fifth wholly shining, two yellow oblong spots on second abdominal segment well separated from lateral margin, on each of two following segments a pair of longer, oblong yellow spots, those on segments three and four very slightly lunate, posterior margins of fourth and fifth segments narrowly yellow,

sixth segment shining black, sparsely set with whitish pile, in male sixth segment as long as two preceding segments together, but narrower, almost tubular from above, asymmetrical, end pointing slightly to insects right as seen from above, in female abdomen elliptical, fifth segment about half as long as fourth.

Eupeodes volucris Osten Sacken

Eupeodes volucris Osten Sacken, 1877. Bull. U. S. Geol. Surv. 3: 329.

Syrphus perpallidus Bigot, 1884. Ann. Soc. Entomol. France., p. 90.

Eupeodes braggi Jones, 1917. Ann. Entomol. Soc. Amer. 10: 221.

Eupeodes weldoni Jones, 1917. Loc. cit.

Characteristics: Those of the genus.

County records: Alfalfa, Beaver, Caddo, Canadian, Carter, Custer, Garfield, Garvin, Grady, Grant, Jackson, Major, Murray, Payne, Woods.

March-November.

Epistrophe Walker

Epistrophe Walker, 1852. Insecta Saundersiana. Diptera. 1: 242.

Type-species: Syrphus grossulariae Meigen, 1822. Syst. Beschr. 3: 306. (monotypic) (as Epistrophe conjungens Walker, new species).

Characteristics: Medium-sized to moderately large Syrphus-like flies. Head broader than thorax; face yellow, with or without median dark vitta, not narrowed below; arista basal; eyes usually bare, sometimes pilose; metasternum usually bare, sometimes pilose; lower lobe of squamae without long hairs on upper surface, but usually short hairs present; abdomen oval, usually slender, emargination indistinct or lacking, sometimes with sides of abdominal tergites rolled under.

Epistrophe emarginata (Say)

Scaeva emarginata Say, 1823. J. Acad. Nat. Sci. Phila. 3: 91.

Syrphus emarginatus: Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 119.

Xanthogramma emarginata: Williston, 1886. Bull. U. S. Natl. Mus. 31: 93.

Xanthogramma aenea Jones, 1907. J. New York Entomol. Soc. 15: 93.

Syrphus aenea: Fluke, 1931. Trans. Wisconsin Acad. Sci. 26: 295.

Metasyrphus emarginatus: Fluke, 1933. Trans. Wisconsin Acad. Sci. 28: 78.

Syrphus (Epistrophe) emarginatus: Fluke, 1950. Trans. Wisconsin Acad. Sci. 40: 143.

Characteristics: Those of the genus.

County records: Pawnee.

April.

Sphaerophoria Lepeletier and Serville

Sphaerophoria Lepeletier and Serville, 1828. Encyclop. Method. 10(2): 513.

Melithreptus Loew, 1840. In Oken's Isis, p. 573. (unjustified new name for Sphaerophoria Lepeletier and Serville).

Type-species: Musca scripta Linnaeus, 1758. Syst. Nat., p. 594. (by designation of Rondani, 1844).

Characteristics: Small, slender species; black or metallic-green, with yellow abdominal bands and yellow lateral stripes on thorax; head semiglobular, broader than thorax and a little broader than high; face

slightly projecting below, slightly tuberculate, yellow, with or without median black vitta; antennae short, inserted above middle of face, bare or slightly pubescent; arista inserted near base of oval third joint; eyes bare, holoptic in male; ocelli remote from vertex; thorax with yellow interrupted or entire lateral stripes; scutellum yellow; metasternum hairy (the quantity variable); wings in male often shorter than abdomen; legs slender, simple; abdomen with characteristic fasciae and characteristically with male hypopygium greatly enlarged, oval or bulbous, usually with long, yellowish terminal pile, females have seven visible abdominal tergites, males have five.

Sphaerophoria cylindrica (Say)

Syrphus cylindricus Say, 1824. Amer. Entomol. 1: pl. 11.

Sphaerophoria contigua Macquart, 1847. Diptères Exot., Suppl. 2, p. 62.

Sphaerophoria cylindrica: Williston, 1886. Bull. U. S. Natl. Mus. 31: 105.

Characteristics: Those of the genus.

County records: Adair, Alfalfa, Blaine, Caddo, Canadian, Choctaw, Cleveland, Dewey, Garfield, Garvin, Grant, Harper, Logan, McCurtain, Murray, Payne, Pottawatomie, Woods.

March-November.

Allograpta Osten Sacken

Allograpta Osten Sacken, 1876. Bull. Buffalo Soc. Nat. Sci. 3: 49.

Type-species: Scaeva obliqua Say, 1823. J. Acad. Nat. Sci. Phila.

3: 89. (monotypic).

Characteristics: Small, elongate, bare species; difficult to separate from Epistrophe Walker; presence of oblique yellow spots and yellow geminate median vittae on fourth abdominal tergite in Allograpta will separate them from Epistrophe; face yellow, non-protruding, facial tubercle more prominent than upper oral margin; eyes of male with area of distinctly enlarged facets on upper part; thorax with yellow lateral stripes, without median cinereous dorsal stripe; metasternum hairy; mesonotum with lateral yellow stripes; scutellum yellow; abdomen slender, not emarginate, yellow bands, fourth and fifth segment with two slender median stripes and oblique side spots, edges rolled under.

Allograpta obliqua (Say)

Scaeva obliqua Say, 1823. J. Acad. Nat. Sci. Phila. 3: 89.

Syrphus obliquus: Say, 1828. Amer. Entomol., pl. 11.

Syrphus securiferus Macquart, 1842. Diptères Exot. 2: 100.

Sphaerophoria bacchides Walker, 1849. List Dipterous Ins. British Mus. 3: 594.

Syrphus dimensus Walker, 1852. Insecta Saundersiana. Diptera. 1: 235.

Syrphus signatus Wulp, 1867. Tijdschr. Entomol. 10: 144.

Allograpta obliqua: Osten Sacken, 1875. Bull. Buffalo Soc. Nat. Sci. 3: 49.

Characteristics: Those of the genus.

County records: Adair, Alfalfa, Beaver, Blaine, Caddo, Canadian, Cimmaron, Comanche, Delaware, Dewey, Ellis, Garfield, Garvin, Kay, Kingfisher, Kiowa, Latimer, LeFlore, Logan, Mayes, McCurtain, Murray,

Okmulgee, Payne, Pittsburg, Pushmataha, Roger Mills, Sequoyah, Tillman, Woods.

April-November.

Mesograpta Loew

Mesogramma Loew, 1866. Berliner Entomol. Z. 9: 157. (pre-occupied, Stephens, 1850).

Mesograpta Loew, 1872. Berliner Entomol. Z. 16: 114. (new name for Mesogramma Loew).

Type-species: Mesogramma parvula Loew, 1866. Berliner Entomol. Z. 9: 157. (by designation of Williston, 1886).

Characteristics: Small, somewhat elongate species, thinly pilose, shining black, with yellow markings on head, thorax, and abdomen; head hemispherical, small, narrow, yellow, rarely darker centrally, produced bluntly or acutely; antennae located near middle of head in profile, short, third joint oval; arista basal, bare; eyes bare, narrowly contiguous in male midway between antennae and ocelli; ocelli in both sexes remote from vertex; dorsum of thorax with a median cinerous linear stripe and lateral yellow margins; humeri yellow, usually this yellow extends posteriorly to transverse suture or beyond; wings as in Syrphus, third vein usually gently sinuous; legs simple, rather slender, hind femora in male sometimes thickened and arcuate; abdomen oval to subcircular, but more often slender or even subpetiolate or spatulate, very variable in coloring, usually yellow or orange, marked with black or brown spots or fasciae or vittae or a combination.

Key to Species

Third to fifth abdominal tergites with narrow yellow lateral margins; front of female slightly narrowed toward vertex . . . . . marginata

Third to fifth abdominal tergites with alternating yellow and black margins; front of female greatly narrowed toward vertex . . . . polita

Mesograpta marginata (Say)

Scaeva marginata Say, 1823. J. Acad. Nat. Sci. Phila. 3: 92.

Syrphus marginatus: Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 146.

Syrphus quintius Walker, 1852. Insecta Saundersiana. Diptera., p. 239.

Syrphus limbiventris Thompson, 1869. Eugenies Resa, p. 495.

Mesograpta marginata: Osten Sacken, 1878. Smithsonian Misc. Coll. 16(270): 125.

Mesogramma marginatum: Snow, 1895. Kansas Univ. Quart. 3: 239.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Adair, Alfalfa, Blaine, Caddo, Canadian, Cherokee, Craig, Cleveland, Delaware, Garfield, Grant, Harper, Hughes, Jefferson, Kay, Kingfisher, Kiowa, Latimer, Le Flore, Lincoln, Logan, McCurtain, Murray, Noble, Okmulgee, Ottawa, Pawnee, Payne, Pittsburg, Pottawatomie, Pushmataha, Rogers, Sequoyah, Woods.

March-November.

Mesograpta polita (Say)

Scaeva polita Say, 1823. J. Acad. Nat. Sci. Phila. 3: 68.

Syrphus politus: Say, 1824. Amer. Entomol., Vol. 1, pl. 11.

Syrphus cingulatus Macquart, 1855. Diptères Exot., Suppl. 4: 155.

Mesogramma polita: Say, 1859. Complete Works. 2: 77.

Syrphus hecticus Jaennicke, 1867. Neue Exot. Diptera, p. 90.

Mesograpta polita: Williston, 1886. Bull. U. S. Natl. Mus. 31: 98.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Alfalfa, Blaine, Bryan, Choctaw, Delaware, Harper, Latimer, Le Flore, Lincoln, McIntosh, Noble, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pushmataha, Sequoyah, Woods.

April-October.

Toxomerus Macquart

Toxomerus Macquart, 1855. Diptères Exot., Suppl. 5, p. 92.

Type-species: Scaeva geminata Say, 1823. J. Acad. Nat. Sci. Phila. 3: 92. (original designation). (as Toxomerus notatus, new species).

Characteristics: This genus appears to be much like the genus Mesograpta from which it can be separated by the enlarged hind legs of the male and the black band on the hind femora of the female as given in the key to the genera and by the shape of the apical region of the abdomen of the female. Small, mostly shining black, elongate species; face small, produced medially; antennae small, third joint oval; scutellum black with a yellow border; hind femora arcuate and thickened, hind tibiae of male greatly arcuate and dilated at tip, hind femora of

female with a black band.

Toxomerus geminatus (Say)

Scaeva geminata Say, 1823. J. Acad. Nat. Sci. Phila. 3: 92.

Syrphus geminatus: Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 145.

Eumerus privernus Walker, 1852. Insecta Saundersiana. Diptera 1: 225.

Syrphus interrogans Walker, 1852. Ibid., p. 238.

Toxomerus notatus Macquart, 1855. Diptères Exot., Suppl. 5, p. 93.

Mesogramma geminata: Schiner, 1868. Novara Exped., p. 347.

Mesograpta geminata: Osten Sacken, 1878. Smithsonian Misc. Coll. 16(270): 125.

Toxomerus geminatus: Williston, 1882. Proc. Amer. Phil. Soc. 20: 310.

Characteristics: Those of the genus.

County records: Choctaw, Delaware, McCurtain, Muskogee, Ottawa, Pawnee, Payne, Pushmataha.

April-July.

Tribe BACCHINI

Baccha Fabricius

Baccha Fabricius, 1805. Syst. Antliatorum, p. 199.

Ocyptamus Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 559.

Bacha Schiner, 1861. Fauna Austriaca. Diptera. 1: 323. (emend.)

Bacchina Williston, 1896. Manual Families Genera N. Amer. Diptera,

Second Ed., p. 86.

Orphnabaccha Hull, 1949. Entomol. Amer. 27: 93.

Type-species: Syrphus elongatus Fabricius, 1775. Syst. Entomol., p. 768. (by designation of Curtis, 1839).

Characteristics: Small to large (3-20 mm), dark, light, or metallic colored species; head large and round, broader than thorax; face and front narrow, face narrowed below, usually tuberculate; antennae short, third joint rounded or oval; arista toward base, slender, bare; eyes bare, holoptic in male, narrowly dichoptic in female; thorax short, metasternum bare; wings often with dark brown or blackish markings; legs simple, very slender, hind femora elongate, but not thickened, hind metatarsi elongated and thickened; abdomen slender, usually three or four times as long as thorax, usually petiolate, sometimes spatulate, second segment very slender, third gradually widening to tip of fourth segment, remaining segments less robust; contains many species groups.

Key to Species

1. Face and epistoma projecting forward well beyond antennal base, more prominent than facial tubercle; antennae arising close together, pits adjacent; face yellow, with a wide, sharply delimited, black vitta; abdomen clavate, black with basal divided yellow fascies on at least third and fourth tergites; scutellum bicolored . . clavata

   Face retreating below tubercle, face short and not produced; if tubercle is absent, face is gently convex 2

2. Scutellum wholly black or dark brown; wings dark brown or blackish on at least anterior one-half and on part of posterior one-half . . . . . fuscipennis

Scutellum partly or wholly reddish, yellow, or brown; wings not blackish on entire anterior one-half . . . . . fascipennis

Baccha clavata (Fabricius)

Syrphus clavatus Fabricius, 1794. Entomol. Syst. 4: 298.

Baccha varia Walker, 1849. List Dipterous Ins. British Mus. 3: 548.

Baccha babista Walker, 1849. Ibid., p. 549.

Baccha facialis Thomson, 1868. Eugenies Resa, p. 504.

Spazigaster bacchoides Bigot, 1883. Ann. Soc. Entomol. France., p. 326.

Baccha clavata: Hull, 1943. Entomol. Amer. 23: 47.

Baccha (Dioprosopa) clavata: Hull, 1949. Entomol. Amer. 27: 90.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Alfalfa, Beckham, Blaine, Payne, Tillman.

June-November.

Baccha fuscipennis Say

Baccha fuscipennis Say, 1823. J. Acad. Nat. Sci. Phila. 3: 100.

Ocyptamus fascipennis Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 554.

Syrphus amissas Walker, 1849. List Dipterous Ins. British Mus. 3: 589.

Syrphus peas Walker, 1849. Ibid., p. 590.

Syrphus radaca Walker, 1849. Loc. cit.

Baccha lugens Loew, 1863. Berliner Entomol. Z. 3: 24.

Ocyptamus longiventris Loew, 1866. Berliner Entomol. Z. 7: 66.

Baccha (Ocyptamus) fuscipennis: Hull, 1949. Entomol. Amer. 27: 98.

Baccha fenestrata Hull, 1949. Ibid., p. 280. (as var.).

Baccha cylindrica auctt. (not Fabricius, 1781).

Characteristics: Length, 9-11 mm; most common and widely distributed species of Baccha in North America; frontal triangle considerably longer than contiguity of eyes, front in female very narrow at vertex; face nearly perpendicular, very gently concave below antennae to tubercle; antennae inserted near middle of head in profile; eyes convergent below; wings almost wholly dark except posterior corner of apex in most males, and dark on at least anterior half and extending broadly to posterior margin at middle in female; considerable variation in exact amount and intensity of infuscation on wings and body exists, but on the whole it is a dark species; abdomen slender, only a little widened behind, fifth segment scarcely longer than broad in both sexes.

County records: Alfalfa, Choctaw, Latimer, Le Flore, McIntosh, Okmulgee, Osage, Pushmataha, Sequoyah.

June-August.

Baccha fascipennis Wiedemann

Baccha fascipennis Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 96.

Baccha aurinota Walker, 1849. List Dipterous Ins. British Mus. 3: 548.

Baccha (Ocyptamus) fascipennis: Hull, 1949. Entomol. Amer. 27: 98.

Characteristics: Length, 10-11 mm; easily distinguished from B.

fuscipennis, with which it might otherwise be confused, by largely hyaline wings, with infuscated area near anterior middle.

County records: Delaware, Latimer, McCurtain, Payne.

June-October.

Tribe MELANOSTOMINI

Platycheirus Lepeletier and Serville

Platycheirus Lepeletier and Serville, 1828. Encyclop. Method 10: 513.

Platychirus Agassiz, 1846. Nomen. Zool., Index, p. 295. (emend.).

Type-species: Syrphus scutatus Meigen, 1822. Syst. Beschr. 3: 333. (by designation of Westwood, 1840).

Characteristics: Slender, small to medium-sized, pilose species; mostly black or metallic green, with yellow, reddish, or whitish-yellow spots on abdomen; no bristles; head somewhat semiglobular, generally a little broader than high and a little broader than thorax, slightly excavated behind; epistoma black with a central knob; face usually recessive, slightly tuberculate; upper mouth edge slightly produced; antennae inserted high on face, well above middle, third joint longer than broad; arista inserted near base, thickened in basal half; third joint of antennae and arista microscopically hairy; eyes bare, holoptic in male, thorax rectangular, small tubercles at upper end of presutural depressions; scutellum aeneous, not pellucid; wings with anterior cross-vein before middle of discal cell; spurious vein distinct but not strong; legs somewhat slender; hind metatarsi thickened, generally most in males, legs show secondary sexual characteristics in male, especially

front tibia and tarsi are dilated in various ways, and specially colored, sometimes only tarsi dilated; front tarsi in females a little broadened and flattened; tarsal claws and pulvilli well developed; empodium short, bristle shaped; abdomen elongate, rather narrow, parallel sided, ventral segments distinctly sclerotized.

Platycheirus quadratus (Say)

Scaeva quadrata Say, 1823. J. Acad. Nat. Sci. Phila. 3: 90.

Syrphus quadratus: Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 135.

Syrphus fuscanipennis Macquart, 1855. Diptères Exot., Suppl. 5: 95.

Platychirus quadratus: Osten Sacken, 1878. Smithsonian Misc. Coll. 16(270): 122.

Platycheirus quadratus: Curran, 1927. Amer. Mus. Novitates. 247: 3.

County records: Alfalfa, Beaver, Delaware, Garfield, Ottawa, Payne, Woods.

March-July.

Tribe PARAGINI

Paragus Latreille

Paragus Latreille, 1804. Hist. Nat. Crust. Ins. 14: 359.

Type-species: Syrphus bicolor Fabricius, 1794. Entomol. Syst. 4: 297. (monotypic).

Characteristics: Small, rather short, dark species; perhaps the smallest syrphid fly; rarely any light coloration; head broader than thorax, hemispherical, somewhat flattened; face short, weakly produced

below, slightly tuberculate, may be pale yellow; antennae short, with third segment as long or longer than first two together; arista before middle, bare; eyes pilose, narrowly contiguous in male; marginal cell open, third vein straight, anterior cross-vein near base of discal cell, apical cross-vein sinuate, terminating in third vein in nearly a right angle, at a considerable distance before the tip; legs rather short, mainly short haired, anterior femora with longer hairs on postero-ventral side, hind femora with longer hairs on antero-ventral side, hind metatarsi a little thickened; abdomen bent down apically, more or less reddish; hypopygium small.

Paragus tibialis (Fallén)

Pipiza tibialis Fallén, 1817. Diptera Sueciae. Syrphici, p. 60.

Paragus haemorrhous Meigen, 1822. Syst. Beschr. 3: 182.

Paragus aeneus Meigen, 1822. Ibid., p. 183.

Paragus obscurus Meigen, 1822. Loc. cit.

Paragus tibialis: Meigen, 1822. Loc. cit.

Paragus femoratus Meigen, 1822. Ibid., p. 184.

Paragus sigillatus Curtis, 1836. British Entomol. 8: 593.

Paragus triangulifer Zetterstedt, 1838. Insecta Lapponica. Diptera, p. 618.

Paragus nigritis Gimmerthal, 1842. Bull. Soc. Imp. Nat. Moscou. 15: 668.

Paragus albipes Gimmerthal, 1842. Loc. Cit.

Paragus dispar Schummel, 1842. Ubers. Arb. Verand. Scheles. Ges. Vaterl. Kultur, p. 163.

Paragus coadunatus Rondani, 1847. Nuova Ann. Sci. Nat. Bologna. Series 2. 8: 346.

Paragus dimidiatus Loew, 1863. Berliner Entomol. Z. 7: 308.

Paragus auricaudatus Bigot, 1884. Ann. Soc. Entomol. France. 32: 540.

Characteristics: Those of the genus.

County records: Cleveland, Le Flore, McCurtain, Payne.

April-August.

Tribe PIPIZINI

Pipiza Fallén

Pipiza Fallén, 1810. Specimen Entomol. Novam Dipterorum Disponendi Methodum Exhibens, p. 11.

Phalangus Meigen, 1822. Syst. Beschr. 3: 253.

Triglyphus Loew, 1840. Progr. Posen. 15: 30.

Heringia Rondani, 1856. Dipterologiae Italicae Prodromus. 1: 53.

Pipizella Rondani, 1856. Ibid., p. 54.

Heryngia Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 184. (error or emend.).

Cnemodon Egger, 1865. Verh. Zool. Bot. Ges. Wien. 15: 573. (pre-occupied, Schoenherr, 1823).

Penium Phillipi, 1865. Verh. Zool. Bot. Ges. Wien. 15: 741.

Pipizopsis Matsumara, 1918. J. Coll. Agri. Sapporo. 8: 3.

Neocnemodon Goffe, 1944. Entomol. Monthly Mag. 80: 128. (new name for Cnemodon Egger).

Type-species: Musca noctiluca Linnaeus, 1758. Syst. Nat., p. 593.

(by designation of Curtis, 1837).

Characteristics: Small to medium, weak flying species of dark coloration, occasionally with paired yellow spots on abdomen; front and vertex sometimes swollen; face flattened, not tuberculate, broader at oral margin than at antennae, or more narrow and about as wide below as at base of antennae; antennae short, not longer than head, with third segment elongate; arista microscopically pilose or bare; eyes evenly pilose or with horizontal bare stripe; wings rather short and broad, marginal cell open, third vein nearly straight, or gently curved, anterior cross-vein before middle of discal cell; middle of hind coxae and trochanters with or without processes, hind femora slender or somewhat enlarged, minutely spinose or toothed and compressed apically below.

Key to Species

Face considerably broader at oral margin than at antennae. . femoralis

Face but little or not at all broader at oral margin than at antennae . . . . . banksi

Pipiza femoralis Loew

Pipiza femoralis Loew, 1866. Berliner Entomol. Z. 6: 38.

Pipiza (Penium) albipilosa Williston, 1886. Bull. U. S. Natl. Mus. 31: 28.

Pipiza festiva auctt. (not Meigen, 1822).

Characteristics: Length, 8-9 mm; moderately pilose species; pile sparser and shorter in female; face whitish pilose; antennae rather large, two basal joints reddish, third joint black, obscurely red near base; arista black, pallid near base; wings faintly or moderately brownish

clouded across middle, fading out apically and posteriorly, almost hyaline in some specimens, more distinctly clouded in female; hind femora considerably thickened, bearing spinules near apex, usually on a plate-like process; male usually, female always, with two yellow spots forming an arcuate band on second abdominal tergite, spots separated by a black line, and separated from the lateral margins by a black border.

County records: Payne.

April.

Pipiza banksi (Curran)

Pipizella pulchella banksi Curran, 1921. Proc. California Acad. Sci. 11: 349.

Pipiza banksi Curran, 1923. Trans. Amer. Entomol. Soc. 49: 343.

Characteristics: Length, 4-5.5 mm; frontal triangle broadly opaque above, the lower margin angulated; third antennal joint about three to four times as long as wide, basal antennal joints yellowish; bare stripe of eyes broad; wings hyaline; yellow segments of tarsi wholly without black hairs or bristles, pile on hind basitarsi very long and prominent.

County records: Craig.

September.

Subfamily MILESIINAE

Key to Tribes of Oklahoma

1. Antennae with a terminal style, third joint tapering; eyes bare . . . . . *Cerioidini*.

Antennae with a dorsal arista, if sub-apical, third joint not tapering from base 2

2. Antennae elongate; stigmatic cross-vein present; third vein with a free branch projecting into apical cell . . . . . Microdontini

Stigmatic cross-vein absent in forms having elongate antennae; no free branch of third vein projecting into apical cell 3

3. Apical cross-vein recurrent; arista densely plumose; face protruding downward. . . . . .Volucellini

Apical cross-vein parallel with wing margin or, if somewhat recurrent, arista is bare; apical cell never longest at its middle 4

4. Anterior bases of all femora with black setulae; third vein deeply bent into apical cell . . . . . Eristalini

Anterior bases of femora without setulae 5

5. Anterior cross-vein located at or beyond middle of discal cell; thorax rarely with short spines; stigmatic cross-vein usually present . . . . . Milesiini

Anterior cross-vein located well before middle of discal cell, or mesonotum with bristles; stigmatic cross-vein usually absent. . . 6

6. Face with distinct tubercle between bases of antennae and epistoma . . . . . Cheilosiini

Face without tubercle; epistoma sometimes projecting. 7

7. Eyes pilose 8

Eyes bare 9

8. Oral margin projecting. . . . . (Psilota) Chrysogastrini

Oral margin not conspicuously projecting. . . . . Pipizini

9. Face distinctly produced forward into a long snout. . . . . .(Rhingia) Cheilosiini

Face not distinctly produced forward into a long snout. 10

10. Apical crossvein meeting third longitudinal vein at or near apical margin of wing. . . . . Myoleptini

Apical crossvein meeting third longitudinal vein some distance back from apical margin of wing. . . . . Chrysogastrini

Tribe CHEILOSIINI

Key to Genera of Oklahoma

Face distinctly produced forward into a long snout; third vein and costa meeting behind apex of wing; anterior cross-vein before middle of discal cell. . . . . Rhingia

Face not distinctly produced into a long snout; anterior cross-vein at or beyond middle of discal cell; mesonotum with strong bristles; general color brassy. . . . . Ferdinandea

Rhingia Scopoli

Rhingia Scopoli, 1763. Entomol. Carniolica, p. 358.

Type-species: Conops rostrata Linnaeus, 1758. Syst. Nat., p. 604. (monotypic).

Characteristics: Small to medium-sized species; color black to reddish-brown, rarely with brownish-orange spots on abdomen; easily distinguished by long, porrect epistomal snout, thrust almost straight forward, far beyond front; antennae short, inserted considerably above middle; arista longer than antennae, slightly pubescent, almost bare; eyes bare, holoptic for a long distance in male, well separated in female; thorax rectangular, nearly square; costa and end of R_{4+5} are

characteristically drawn far down below apex of wing; abdomen short, wide, rather convex.

Rhingia nascia Say

Rhingia nascia Say, 1823. J. Acad. Nat. Sci. Phil. 3: 94.

Characteristics: Those of the genus.

County records: Ottawa.

June.

Ferdinandea Rondani

Ferdinandea Rondani, 1844. Nouva Ann. Sci. Nat. Bologna, p. 196.

Chrysoclamis Walker, 1851. Insecta Britannica. Diptera. 1: 279.

Chrysochlamys Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 145. (emend.).

Type-species: Conops cuprea Scopoli, 1763. Entomol. Carniolica, p. 355. (by designation of Rondani, 1856).

Characteristics: Medium-sized to moderately large, bright brassy or golden species, with strong bristles on pleura, post calli and scutellum; head broader than thorax; face much like Syrphus, slightly concave, with long, low, gradually rounded tubercle, face well developed but not produced; antennae short, third joint short, oval; eyes pilose; thorax with light colored pollinose stripes on dorsum; scutellum large; long macrocheatae on scutellum, notopleura, mesopleura, supraalae and post calli; third vein and apical cross-vein sinuous; hind femora short, but not thickened, and unarmed; abdomen elongate, oval, shining metallic-green or bronze-green, thickly pilose.

Ferdinandea dives (Osten Sacken)

Chrysochlamys dives Osten Sacken, 1877. Bull. U. S. Geol. Surv. 3: 341.

Ferdinandea dives: Shannon, 1924. Proc. Entomol. Soc. Wash. 26: 214.

Characteristics: Those of the genus.

County records: Delaware.

July.

Tribe MYOLEPTINI

Myolepta Newman

Myolepta Newman, 1838. Entomol. Mag. 5: 373.

Xylotaeja Rondani, 1844. Nouva Ann. Sci. Nat. Bologna. 2: 457.

Xyloteja Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 96. (emend.).

Priomerus Phillipi, 1865. Verh. Zool. Bot. Ges. Wien. 15: 739.

Eumiolepta Shannon, 1921. Bull. Brooklyn Entomol. Soc. 16: 71.

Myiolepta Curran, 1934. Families and Genera N. Amer. Diptera, p. 259. (emend.).

Saralepta Hull, 1941. Trans. Zool. Soc. London. 26: 339.

Type-species: Musca luteola Gmelin, 1788. Syst. Nat. 5: 379. (monotypic).

Characteristics: Small, bare, dark, often metallic species; head broad, a little flattened; face concave in females, lower face slightly projecting diagonally, face of males tuberculate; antennae short, situated on an obtuse conical projection, first two joints short, third

rounded or oval; arista bare, arising near base of third joint; eyes bare, holoptic in male; thorax somewhat narrowed in front, scutellum black, thinned near border; long, rather straight apical crossvein meets third vein quite close to apex of wing, marginal cell open, anterior cross-vein near base of discal cell; legs stout, hind femora only moderately thickened and with one or two prominent rows of short spines ventrally; abdomen short, oval, somewhat flattened, about twice as long as thorax.

Key to Species

1. Dorsum of thorax and abdomen clothed chiefly with flattened, scale-like pile; face on sides with large luteous spot. . . . *strigilata*
   Dorsum of thorax and abdomen with normal pile, not scale-like; face without spot on sides 2
2. Abdomen wholly dark, generally shining black; femora and tibiae black . . . . . *nigra*
   Abdomen with yellowish markings basally, at least briefly on sides of first or second tergite. . . . . *varipes*

Myolepta strigilata Loew

Myiolepta strigilata Loew, 1872. Berliner Entomol. Z. 10: 54.

Myiolepta (*Eumyiolepta*) *strigilata*: Shannon, 1921. Bull. Brooklyn Entomol. Soc. 16(5): 125.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Kingfisher.

April.

Myolepta nigra Loew

Myiolepta nigra Loew, 1872. Berliner Entomol. Z. 10: 84.

Xylota tuberans Williston, 1886. Bull. U. S. Natl. Mus. 31: 225.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Payne.

April.

Myolepta varipes Loew

Myiolepta varipes Loew, 1869. Berliner Entomol. Z. 9: 174.

Myiolepta pretiosa Hull, 1923. Ohio J. Sci. 23: 295.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Payne.

April.

Tribe CHRYSOGASTRINI

Key to Genera of Oklahoma

1. Eyes pilose . . . . . Psilota
   Eyes bare 2
2. Oral margin projecting; spurious vein usually present, although often faint; small, dark, usually metallic species. . Chrysogaster
   Oral margin not projecting; medium-sized, reddish-yellow or brownish species . . . . . Brachyopa

Chrysogaster Meigen

Chrysogaster Meigen, 1800. Nouvelle Classification, p. 32. (Suppressed. Bull. Zool. Nomen., 1963. 20: 339. Opinion 678.).

Chrysogaster Meigen, 1803. Mag. für Insektenkude. 2: 274.

Orthonevra Macquart, 1829. Rec. Soc. Agric. Lillie, p. 188.

Orthoneura Loew, 1843. Entomol. Zeit., Stettin. 4: 207. (emend.).

Campineura Rondani, 1856. Dipterologiae Italicae Prodromus. 1: 52.

Cryptineura Bigot, 1859. Rev. et Mag. de Zool., p. 308.

Type-species: Musca coemiteriorum Linnaeus, 1758. Syst. Nat., p. 597. (by designation of Coquillett, 1910). (as Syrphus coemiteriorum Fabricius [? = solstitialis (Fallen)]).

Characteristics: Small flies, always dark in color, usually metallic; wholly without yellow markings except on legs; head hemispherical, broader than thorax; distinctly characterized from all other genera by front in female having transverse lateral wrinkles; epistoma projecting greatly in females, less so in males; antennae not longer than head, third antennal segment often quite elongate; eyes bare, often with zigzag or linear pattern, holoptic in male; scutellum gently thinned above near its border, sharp, sometimes wrinkled on its disk; third vein straight, spurious vein often faint, anterior cross-vein before middle of discal cell; abdomen short, oval, flattened, border rounded, not thinned.

Key to Species

Apical cross-vein joins third vein beyond tip of second vein; eyes with a median, straight, horizontal line and two vertical, labyrinthine, brown lines; antennae longer than face, second joint nearly as long as third . . . . . nitida

Apical cross-vein joins third vein opposite or before tip of second vein; eyes with very faint markings, or none; antennae elongate, considerably longer than face, third joint almost three times as long as second. . . . . pictipennis

Chrysogaster nitida Wiedemann

Chrysogaster nitida Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 116.

Paragus aeneus Walker, 1849. List Dipterous Ins. British Mus. 3: 545.

Cryptineura hieroglyphica Bigot, 1859. Rev. et Mag. de Zool., p. 308.

Orthoneura nitida: Schiner, 1868. Novara Exped. Diptera, p. 368.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Alfalfa, Delaware, Hughes, Le Flore, McCurtain, Tillman.

June-July.

Chrysogaster pictipennis (Loew)

Orthonevra pictipennis Loew, 1863. Berliner Entomol. Z. 7: 306.

Chrysogaster pictipennis: Williston, 1886. Bull. U. S. Natl. Mus. 31: 37.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Tillman.

July.

Brachyopa Meigen

Brachyopa Meigen, 1822. Syst. Beschr. 3: 260.

Hammerschmidtia Schummel, 1834. In Oken's Isis, p. 739.

Exocheila Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 170.

Eugeniamyia Williston, 1882. Can. Entomol. 14: 80.

Type-species: Musca conica Panzer, 1798. Faunae Deutschlands Ins. 50: 20. (by designation of Westwood, 1840).

Characteristics: Medium-sized flies, nearly bare, of reddish-yellow, sometimes brownish color; head narrower than thorax; face moderately produced downward and forward, concave, non-tuberculate, front in female narrowed above; antennae short, third segment oval, rarely more roundish; arista basal, bare, pubescent or short plumose; eyes bare, holoptic in male; thorax a little narrowed in front, usually with some stouter hairs on mesopleura above, on postalar calli and margin of scutellum, which is rather large, squarish or more or less triangular; wings longer than abdomen, anterior cross-vein before middle of discal cell, apical cell ending in an acute angle near apex of wing; squamae of medium size; legs simple, femora a little thickened, and usually with short bristles below, especially hind pair; abdomen roughly triangular

in shape, broader and not much longer than thorax, broadest at second segment, then quickly narrowing to apex, but less so in female.

Brachyopa racua Osten Sacken

Brachyopa racua Osten Sacken, 1875. Bull. Buffalo Soc. Nat. Sci. 3: 68.

Brachyopa vacua Osten Sacken, 1875. Loc. cit. (typographical error when reprinted).

Characteristics: Those of the genus.

County records: Payne.

April.

Psilota Meigen

Psilota Meigen, 1822. Syst. Beschr. 3: 256.

Type-species: Psilota anthracina Meigen, 1822. Syst. Beschr. 3: 256. (monotypic).

Characteristics: Small, dark, rather thickly pilose species; face pilose, concave in both sexes, epistoma produced forwards; antennae fairly large, first two joints short, third joint more or less elongated, arista dorsal, basal, bare; eyes thickly pilose, holoptic in male; wings similar to Myolepta, marginal cell open, anterior crossvein near base of discal cell, third vein nearly straight, spurious vein faint or absent; femora slightly thickened; abdomen short and broad.

Psilota buccata (Macquart)

Pipiza buccata Macquart, 1842. Diptères Exot. 2(2): 107.

Psilota buccata: Williston, 1886. Bull. U. S. Natl. Mus. 31: 30.

Characteristics: Those of the genus.

County records: Kingfisher.

April.

Tribe MICRODONTINI

Microdon Meigen

Microdon Meigen, 1803. Mag. für Insektenkunde. 2: 275.

Aphritis Latreille, 1805. Hist. Nat. Crust. Ins. 14: 358.

Ceratophyla Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 79.

Chymophila Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 486.

Dimeraspis Newman, 1838. Entomol. Mag. 5: 372.

Mesophila Walker, 1849. List Dipterous Ins. British Mus. 4: 1157.

Ubristes Walker, 1852. Insecta Saundersiana. Diptera. 1: 217.

Omegasyrphus Giglio-Tos, 1891. Boll. Mus. Zool. Torino. 6: 4.

Type-species: Musca mutabilis Linnaeus, 1758. Syst. Nat., p. 592. (monotypic). (as Mulio mutabilis Fabricius).

Characteristics: Very distinctive genus; small to large, nearly bare flies, of pallid, metallic, brown, or black coloration; pile, especially on abdomen, often appressed; head flattened, broad; vertex only slightly elevated; face pilose, convex; antennae always elongate, usually porrect; arista short, inserted basally, bare; eyes of male dichoptic, usually bare; thorax short, broad, convex; scutellum either equipped with two spines, sulcate, or its margin entire; wings short and broad, anterior cross-vein near base of discal cell, third vein usually with a short stump of a vein extending into apical cell; hind femora a little

thickened, hind tibiae slightly thickened, hind tarsi not infrequently greatly enlarged and swollen; abdomen short, compact, convex, or flattened, oval, or pointed, nearly bare.

Microdon fulgens Wiedemann

Microdon fulgens Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 82.

Microdon euglossoides Gray, 1824. In Griffith's Animal Kingdom. Insects. 2: pl. 125, fig. 2.

Chymophila splendens Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 486.

Aphritis fulgens: Macquart, 1845. Diptères Exot., Suppl. 1: 122.

Microdon (Eumicrodon) fulgens: Curran, 1924. Kansas Univ. Bull. 15(1): 50.

Microdon aurifex, auctt. (not Wiedemann, 1830.)

Characteristics: Those of the genus.

County records: Adair.

July.

Tribe VOLUCELLINI

Volucella Geoffroy

Volucella Geoffroy, 1762. Hist. Ins. Environs de Paris. 2: 540.

Pterocera Meigen, 1803. Mag. für Insektenkunde. 2: 275.

Temnocera Lepeletier and Serville, 1828. Encyclop. Method. 10: 786.

Copestylum Macquart, 1846. Diptères Exot., Suppl. 1: 124.

Atemnocera Bigot, 1882. Bull. Soc. Entomol. France 12: 64.

Camerania Giglio-Tos, 1892. Boll. Mus. Zool. Torino. 7: 3.

Volucellosia Curran, 1930. Amer. Mus. Novitates. 413: 5.

Type-species: Musca pellucens Linnaeus, 1758. Syst. Nat., p. 595. (by designation of Curtis, 1833).

Characteristics: Very large genus containing bare to very pilose species varying from very small to large (6-16 mm); head broader than thorax, produced downward and rarely forward, conical, pointed at tip; front sometimes swollen and inflated; face is usually concave above, with either a large rounded tubercle below, or a rounded protuberant bulge, merging into epistoma; antennae small, third segment elongate, sometimes narrowed medially; arista always plumose; eyes pilose, sometimes bare in female, holoptic in male; dorsum of thorax with a pair of yellow stripes in most species, scutellum large, usually translucent, both thorax and scutellum with numerous bristles; marginal cell closed, anterior cross-vein usually towards base of discal cell and rectangular, third vein straight; legs simple; abdomen short, wide, oval, convex, inflated, slightly longer than thorax, often nearly circular.

Key to Species
(modified from Weems, 1953)

1. Mesonotum with a single or a pair of small median yellow spots near base of scutellum; abdomen not largely unicolorous; face with median brown or black vitta . . . . . fasciata

   Mesonotum without small median yellow spot, or spots, posteriorly; abdomen wholly or largely unicolorous, sometimes lighter basally; face without median brown or black vitta. 2

2. Face dark rusty reddish to black with a large, low tubercle; wings blackish on basal half in front, hyaline on apical half; legs almost wholly blackish; antennae and arista wholly dark, filaments of arista blackish; mesonotum, scutellum, and abdomen shining black, with a bluish reflection; medium-sized species (11-14). . . . nigra

   Face and antennae yellow; legs dark or partly lighter 3

3. Pleura of male wholly black-pilose; abdomen of both male and female dark metallic green (often dark blue or bluish-green after death), with black base; lower lobe of squamae rusty red on swollen area; scutellum with black pile . . . . . barei

   Pleura of male mostly or wholly yellow-pilose; abdomen of both male and female ferruginous or brown with green and violet opalescence, base pale; basal two visible sternites yellow, or if dark then first sternite brown, second yellow in middle; lower lobe of squamae yellow to orange; scutellum pale pilose . . . . . vesicularia

Volucella fasciata Macquart

Volucella fasciata Macquart, 1842. Diptères Exot. 2(2): 22.

Characteristics: Antennae yellow, brownish toward tip; legs black, knees, basal portion of tibiae, and first three segments of all tarsi, yellow; abdomen with three rather broad yellow bands, anterior one on second tergite broadest, widest toward middle, interrupted or subinterrupted, others on anterior part of third and fourth tergites, entire; venter, in addition to broad basal band, with one on third segment.

County records: Alfalfa, Dewey, Garfield, Grant, Major, Payne, Woods.

April-July.

Volucella nigra Greene

Volucella nigra Greene, 1923. Proc. Entomol. Soc. Wash. 25 (7-8): 165.

Volucella esuriens, auctt. (not Fabricius, 1794.).

Volucella mexicana, auctt. (not Macquart, 1842.).

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Tillman.

July.

Volucella barei Curran

Volucella barei Curran, 1925. Can. Entomol. 57: 255.

Characteristics: Length, about 10 mm; face and antennae reddish; thorax greenish-blue (brilliant green in life).

County records: Latimer. No specimens seen.

June.

Volucella vesicularia Curran

Volucella vesicularia Curran, 1947. Amer. Mus. Novitates. 1361: 4.

Volucella vesiculosa, auctt. (not Fabricius, 1805.)

Characteristics: Length, 8.5-11 mm; metallic greenish with violaceous reflections, and appearing violaceous when viewed without magnification; wings clear, with small stigmal spot; base of abdomen yellow.

County records: Delaware, Latimer, McCurtain, Murray.

June-July.

(Note: Curran in 1947 pointed out that our species cannot possibly be V. vesiculosa, which was described from South America and he therefore described our common species and named it V. vesicularia.)

Tribe MILESIINI

Key to Genera of Oklahoma
(modified from Weems, 1953)

1. Antennae remarkably elongate, with first two segments almost equal in length, third segment short, less than half length of first segment; mesonotum black, with two interrupted vittae forming four elongate, yellowish spots; scutellum broadly yellow apically; abdomen with alternating black and yellow fasciae . . . Sphecomyia
   Antennae not remarkably elongate, or if elongate then thorax without median pair of interrupted yellow vittae. 2
2. Face tricarinate, not jutting out beyond base of antennae, keel vertical and straight, or slightly convex; hind femora swollen, greatly enlarged; wings hyaline, third vein and apical cross-vein meeting before apex of wing near costal border, stigmatic cross-vein absent; medium-sized (8-12 mm), nearly bare, chiefly black species, with yellow or orange markings on abdomen. . . . Tropidia
   Face never with well-developed median keel and lesser face cheek keels; without above combination of characters. 3
3. Hind femora black, greatly swollen, with numerous spines below, with base and a usually incomplete ring near middle reddish-yellow; face weakly carinate or with obtuse, longitudinal ridge, never with a keel, epistoma slightly produced; rather small (7-8 mm), slender, black, nearly bare species with yellow markings . . . . . Syritta

Face not carinate or ridged; hind femora slender or swollen, never colored as above. 4

4. Third antennal segment as wide as or wider than long, typically obliquely oval; face concave, lower face diagonal, elongate and sub-truncate; eyes of male narrowly dichoptic; metasternum pubescent; scutellum with ventral fringe; hind femora elongate, thick; tibiae excavated basally; medium to large (7-16 mm), elongate, usually rather long pilose flies. . . . . Brachypalpus

Third antennal segment either orbicular or elongate; almost exclusively short pilose, rather bare flies; occasionally long pile at base of abdomen; without above combination of characters. . . . 5

5. Anterior cross-vein quite oblique, and near end of discal cell, anal cell with long petiole drawn out along wing margin; medium to large (11-22 mm), often brightly marked flies 6

Anterior cross-vein less oblique and at or slightly beyond middle of discal cell, anal cell with short, straight petiole; somber or brightly colored flies. 7

6. Hind femora slender, with a sub-apical tooth; eyes with vertical, irregular stripes or blotches; first and second antennal segments slightly to distinctly elongate; metasternum with an obtuse blunt spur anteriorly; bright, wasp-like flies. . . . . Spilomyia

Hind femora often thickened, with or without sub-apical tooth; eyes uniformly colored; antennae scarcely or not at all elongate; face usually concave, front produced; marginal cell closed, apical cell closed near costal border before apex of wing, third vein gently looped into apical cell; large (16-22 mm), brightly colored flies. . . . . Milesia

7. Bright, wasp-like flies, with yellow-pollinose markings on thorax and abdomen; first and second antennal segments always quite short; face usually quite concave, especially in females, less so in males; males often with weak tubercle, face never deeply produced; anterior wing border dark. . . . . Temnostoma

   Never yellow-pollinose, although sometimes marked with yellow . .8

8. Abdomen with large, transverse or oblique, yellow spots on at least second, third and fourth tergites . . . . . Somula

   Abdomen without large, transverse or oblique, yellow spots on second, third and fourth tergites. 9

9. Hind femora compressed below on distal third or more into narrow, spiniferous ridges, straight but much thickened; abdomen not constricted basally. . . . . Xylota

   Hind femora rounded below, without ridges; abdomen somewhat narrowed basally, especially in female 10

10. Mesonotum ochraceous pollinose, thickly short, brownish-yellow, pilose. . . . . Pterallastes

    Mesonotum not ochraceous pollinose. 11

11. Abdomen wide, flattened; scutellar fringe virtually absent; hind femora moderately thickened, hind tibiae with median internal spur in male . . . . . Teuchocnemis

    Abdomen not especially widened and flattened; scutellar fringe well developed; hind femora considerably thickened; lower portion of face rather compressed laterally, the cheek-face angles distinct . . . . . Xylota

Xylota Meigen

Zelima Meigen, 1800. Nouvelle Classification, p. 34. (Suppressed. Bull. Zool. Nomen., 1963. 20: 339. Opinion 678.).

Heliophilus Meigen, 1803. Mag. für Insektenkunde. 2: 273.

Eumeros Meigen, 1803. Loc. cit.

Eumerus Meigen, 1804. Klassifikazion und Beschreibung Europaischen Zweiflugeligen Insekten. Diptera. 1: xx. (error or emend.).

Eumenos Leach, 1817. In Brewster's Edinburgh Encyclo. 12: 160. (error or emend.).

Xylota Meigen, 1822. Syst. Beschr. 3: 211.

Xylotomima Shannon, 1926. Proc. U. S. Natl. Mus. 69: 15.

Xylotodes Shannon, 1926. Ibid., p. 22.

Type-species: Musca segnis Linnaeus, 1758. Syst. Nat., p. 595. (by designation of Curtis, 1832).

(The recommendation is made by Stone, et al, in "A Catalog of the Diptera of America North of Mexico" (in manuscript) that an application be prepared for submission to the International Commission of Zoological Nomenclature to suppress Heliophilus Meigen, 1803, because of possible confusion with the valid genus Helophilus Meigen, 1822, to suppress Eumeros Meigen, 1803, because of possible confusion with the valid genus Eumerus Meigen, 1822, and to place Xylota Meigen, 1822, which has had long and almost universal usage, on the "Official List of Generic Names." The present author concurs fully with this recommendation and uses Xylota Meigen, 1822, as the name of this genus in this work.)

Characteristics: Slender, medium to large species; head hemispherical; front in female narrowed above; face concave in profile, not tuberculate, oral margin projecting, but not as far forward as the antennal prominence; antennae situated on a prominent conical projection, first two joints short, third joint rather large, oval; eyes bare, holoptic in male; thorax large, as wide or wider than abdomen; marginal cell open, anterior cross-vein at or beyond middle of discal cell, third vein straight or gently curved; legs stout, hind femora elongate and thickened, with a row of spines below, hind tibiae arcuate, often ending in a spur; abdomen flattened, elongate, with sides parallel.

Key to Species
(modified from Curran, 1941)

1. Metasternum pilose. . . . . metallica

   Metasternum pubescent 2

2. Third abdominal segment wholly dull orange, the sides rarely slightly darkened; arista bare. . . . . bicolor

   Apex of third abdominal segment black or brown; arista microscopically pubescent. 3

3. Females 4

   Males 5

4. Posterior calli with only a few black bristly hairs in front. . . . . .angustiventris

   Posterior calli with black bristly hairs abundant on anterior half or more. . . . . ejuncida

5. Abdomen elongate, the second segment with a pair of parallel

elongate, oval, yellowish spots . . . . . angustiventris

Abdomen usually robust, spots transverse or very large and weakly separated, not elongate rectangular . . . . . ejuncida

Xylota metallica Wiedemann

Xylota metallica Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 102.

Xylota subtropica Curran, 1925. Can. Entomol. 57: 44.

Xylotomima metallica: Shannon, 1926. Proc. U. S. Natl. Mus. 69: 19.

Heliophilus metallica: Curran, 1941. Bull. Amer. Mus. Nat. Hist. 78: 287.

Characteristics: Rather small, slender species; length, about 10 mm; readily distinguished from X. ejuncida by having pale femora.

Male. Frontal triangle shining except along margins, which are silvery pollinose, upper half of triangle with numerous hairs; arista yellowish-brown; metathoracic spiracle noticeably smaller than third antennal segment; anterior cross-vein slightly before middle of discal cell; front and middle legs reddish-yellow, femora sometimes brownish through middle, tips of tarsi darkened, hind legs mostly black, bases of femora and tibiae and ventral surface of tarsi yellowish, hind trochanters with a trace of a spur; second and third abdominal tergites with large yellow spots.

Female. Arista about two and one-half times width of front across ocelli; abdominal spots more obscure, sometimes quite small.

County records: Alfalfa, Delaware, Latimer, McCurtain, Pawnee, Payne, Pushmataha.

June-August.

Xylota bicolor Loew

Xylota bicolor Loew, 1864. Berliner Entomol. Z. 5: 39.

Heliophilus bicolor: Curran, 1941. Bull. Amer. Mus. Nat. Hist. 78(3): 288.

Characteristics: Large, fairly robust, species; length, about 13 mm; antennae large, black, noticeably longer than width of front in female; arista yellowish, darkened on outer half, longer than width of face; metathoracic spiracle distinctly smaller than third antennal segment; metasternum pubescent; anterior cross-vein joining discal cell at middle; anterior basitarsi of male without long hairs or black spines on ventral side, hind trochanters of male without spurs; abdomen, except first tergite, reddish-orange; male genitalia entirely reddish-orange; surstyli but little longer than broad.

County records: Pawnee, Payne.

May.

Xylota angustiventris Loew

Xylota angustiventris Loew, 1865. Berliner Entomol. Z. 6: 58.

Xylota elongata Williston, 1886. Bull. U. S. Natl. Mus. 31: 234.

Heliophilus angustiventris: Curran, 1941. Bull. Amer. Mus. Nat. Hist. 78: 288.

Characteristics: Fairly large (9-13 mm), elongate species; antennae and arista black, third segment large, longer than broad and longer than front in female, measured across ocelli; arista longer than width of face; metathoracic spiracle fairly large, but smaller than

third antennal segment; metasternum pubescent; anterior cross-vein joining discal cell beyond middle; pale parts of legs very light yellow, anterior basitarsi of male without long hairs, ventral spines present, hind trochanters of male with spurs; abdomen elongate, fourth tergite longer than broad, male with a pair of oblong yellow spots on second tergite, female with second tergite dark, sometimes with a trace of yellow spots, males occasionally have yellow abdominal spots almost obscure.

County records: McCurtain.

June.

Xylota ejuncida Say

Xylota ejuncida Say, 1824. Amer. Entomol. 1: 8.

Xylota viridaenea Shannon, 1926. Proc. U. S. Natl. Mus. 69: 33.

Heliophilus ejuncida: Curran, 1941. Bull. U. S. Natl. Mus. 78: 296.

Characteristics: Length, 9-10 mm; distinguished from closely related species by arista, which is yellowish basally, dark distally; posterior calli without conspicuous black hairs; anterior and middle tibiae entirely or largely yellowish, hind femora of male with a double row of long antero-ventral spines extending almost entire length and all about equally long and rather evenly spaced.

County records: Delaware, McCurtain.

June.

Brachypalpus Macquart

Brachypalpus Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 523.

Type-species: Brachypalpus tuberculatus Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 523. (by designation of Rondani, 1844) (= Syrphus valgus Panzer, 1798).

Characteristics: Mostly large, elongate, not very narrow, dark colored species; body wholly without yellow markings; moderately or thickly, long pilose; pile sometimes yellowish-white or light brown; face quite concave, lower face diagonal, elongate, subtruncate; antennae reddish-brown, first two segments slightly elongate; arista yellowish-brown; eyes of male narrowly holoptic or narrowly dichoptic; scutellum with ventral fringe; metasternum pubescent; apical cell of wing petiolate; hind femora somewhat, usually much, thickened and elongate, or greatly thickened, somewhat shortened and arcuate; abdomen narrower than thorax, elongate.

Brachypalpus oarus (Walker)

Xylota oarus Walker, 1849. List Dipterous Ins. British Mus. 3: 558.

Brachypalpus frontosus Loew, 1872. Berliner Entomol. Z. 10: 50.

Brachypalpus oarus: Shannon, 1926. Proc. U. S. Natl. Mus. 69: 25.

Characteristics: Those of the genus.

County records: Payne.

March.

Teuchocnemis Osten Sacken

Teuchocnemis Osten Sacken, 1875. Bull. Buffalo Soc. Nat. Hist. 2: 58.

Type-species: Pterallastes lituratus Loew, 1863. Berliner Entomol. Z. 4: 81. (by designation of Williston, 1886).

Characteristics: Medium-sized to large, elongate, moderately pilose, non-metallic, black and yellow species; head short; face concave, not produced, lower part diagonal, subtruncate, not tuberculate; antennae short, third antennal segment suborbicular; arista bare; metasternum pilose; marginal cell of wing open, apical cell petiolate, third vein with moderate curve into apical cell; legs stout, hind femora greatly thickened in males, less so in females, hind tibiae of male with short median spur; abdomen rather wide and flattened, only slightly longer than wide.

Teuchocnemis bacuntius (Walker)

Milesia bacuntius Walker, 1849. List Dipterous Ins. British Mus. 3: 563.

Teuchocnemis bacuntius: Osten Sacken, 1876. Bull. Buffalo Soc. Nat. Hist. 3: 58.

Characteristics: Those of the genus.

County records: Stephens.

April.

Syritta Lepeletier and Serville

Syritta Lepeletier and Serville, 1825. Encyclop. Method. 10: 888.

Type-species: Musca pipiens Linnaeus, 1758. Syst. Nat., p. 594. (monotypic). (as Xylota pipiens Meigen).

Characteristics: Rather small, slender flies; head hemispherical, not at all flattened, somewhat broader than thorax; face short, concave and weakly carinate below, without keel; epistoma and lower face sometimes constricted and produced diagonally downward; antennae short, third segment round; arista bare; eyes bare, very large, holoptic in male; thorax rather long; scutellum thin on its outer edge, without ventral fringe; metasternum pilose; marginal cell of wing open, apical cell with long petiole, third vein curved, anterior cross-vein near middle of discal cell, rectangular; front and middle legs slender and small, hind femora massive, greatly thickened, concave below, with a long, apical, lateral, ventral, short-spinose plate; abdomen slender, subcylindrical, about twice as long and narrower than thorax, base of second abdominal segment laterally often with a vertical fan-like fringe of stout pile.

Syritta pipiens (Linnaeus)

Musca pipiens Linnaeus, 1758. Syst. Nat., p. 594.

Conops pipiens: Scopoli, 1763. Entomol. Carniolica, p. 969.

Syrphus pipiens: Fabricius, 1781. Species Insectorum. 2: 434.

Milesia pipiens: Fabricius, 1805. Syst. Antliatorum, p. 194.

Xylota pipiens: Meigen, 1822. Syst. Beschr. 3: 213.

Xylota proxima Say, 1824. Amer. Entomol. 1: pl. 8.

Coprina pipiens: Zetterstedt, 1837. Insectorum Lapponica. In Oken's Isis, p. 45.

Syritta pipiens: Macquart, 1838. Hist. Nat. Ins. Diptères. 1: 525.

Characteristics: Those of the genus.

County records: Alfalfa, Blaine, Canadian, Custer, Dewey, Jackson, Jefferson, Latimer, McCurtain, Ottawa, Payne, Pittsburg, Tillman, Woods.

April-November.

Tropidia Meigen

Tropidia Meigen, 1822. Syst. Beschr. 3: 346.

Type-species: Musca scita Harris, 1776. Exposition English Ins., p. 107, pl. 401. (by designation of Curtis, 1832), (as Eristalis milesiformis Fallén, 1817).

Characteristics: Medium-sized flies; with yellowish markings on black, often pollinose marked; head broader than thorax; face tricarinate, with sharp median keel, straight or slightly arched; antennae short; eyes bare, holoptic in male, narrowly dichoptic in female; scutellum with fringe; metasternum pilose; apical cell not petiolate, third vein with a moderate curvature, sometimes deeply bent into apical cell, anterior cross-vein beyond middle of discal cell, oblique; legs strong, hind femora greatly thickened, with a prominent apical, lateral plate, hind tibiae arcuate; abdomen narrow, slightly elongate, tapered to large hypopygium.

Tropidia albistylum Macquart

Tropidia albistylum Macquart, 1847. Diptères Exot., Suppl. 2, p. 60.

Characteristics: Those of the genus.

County records: Bryan, Le Flore.

April-June.

Pterallastes Loew

Pterallastes Loew, 1863. Berliner Entomol. Z. 4: 80.

Type-species: Pterallastes thoracicus Loew, 1863. Berliner Entomol. Z. 4: 80. (monotypic).

Characteristics: Rather large, short, somewhat thickly pilose, flies; head broader than thorax, much flattened; face gently concave, not carinate, lower face short, epistoma not protruding; antennae short, third joint oval; arista basal, bare; eyes bare, holoptic in male; thorax nearly unicolorous; scutellum wholly yellowish opaque, with copious fringe; metasternum pilose; marginal cell open, apical cell with a short petiole, third vein with a prominent dip into apical cell, stigmatic cross-vein present, anterior cross-vein oblique, situated two-thirds of distance from base of discal cell, second anal vein nearly straight; hind femora stout without being thickened, no differentiated setae at base, hind tibia arcuate; abdomen elongate oval, as wide or wider and twice as long as thorax.

Pterallastes thoracicus Loew

Pterallastes thoracicus Loew, 1863. Berliner Entomol. Z. 4: 80.

Characteristics: Those of the genus.

County records: Ottawa.

June.

Somula Macquart

Somula Macquart, 1847. Diptères Exot., Suppl. 2: 57.

Type-species: Somula decora Macquart, 1847. Diptères Exot., Suppl.

2: 57. (original designation).

Characteristics: Large flies (13-16 mm) with yellow face and with abdomen brightly marked with yellow; front and antennal region greatly produced into a pedicel which bears short antennae; face produced downwards, nearly vertical in profile, barely concave above, barely convex below; third antennal segment orbicular; eyes bare, dichoptic in male; scutellum without fringe; humeri opaque with yellow pile; metasternum pubescent; wings dark brown anteriorly, hyaline posteriorly, apical cell not petiolate; hind femora slender; abdomen oval, black, with three or four pairs of conspicuous, oblique, large, oval, bright yellow, opaque spots, first pair on second segment, broader towards middle, concave in front and directed backwards and outwards, but not reaching sides, sides of segment narrowly yellow, with yellow pile, black part is opaque, except a posterior metallic cross-band, broadest in middle; third and fourth segments similar; fifth segment in female with spots small and nearly round. Wholly North American genus.

Somula decora Macquart

Somula decora Macquart, 1847. Diptères Exot., Suppl. 2: 57.

Characteristics: Those of the genus.

County records: Caddo-Payne.

April-May.

Sphecomyia Latreille

Sphecomyia Latreille, 1829. Famillies Naturelles du Regne Animal, p. 570.

Type-species: Chrysotoxum vittatum Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 87. (by designation of Coquillett, 1910).

Characteristics: Moderately large, handsome, yellow-pollinose, wasp mimicking species; front very short, concave; face perpendicular, well-developed upon lower half and greatly produced downward, concave either slightly or much upon upper part, obtusely tuberculate; first and second segment of antennae usually elongate, often greatly so, third segment usually orbicular; eyes bare, holoptic in most males, but narrowly dichoptic in some males; scutellum with fringe; metasternum pilose; marginal cell widely open, apical cell with or without petiole, third vein gently sinuate, anterior cross-vein a little beyond middle of discal cell; hind femora simple; abdomen large, elongate, convex.

Key to Species

Mesonotum with two interrupted yellow pollinose vittae; disc of scutellum yellow pollinose, the apical border bare. . . . . vittata

Mesonotum without vittae; scutellum mostly shining . . . . . nascia

Sphecomyia vittata (Wiedemann)

Chrysotoxum vittatum Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 87.

Psarus ornatus Wiedemann, 1830. Ibid., p. 91.

Sphecomyia vittata: Macquart, 1842. Diptères Exot. 2: 18.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Payne.

April.

Sphecomyia nascia Osburn

Sphecomyia nascia Osburn, 1908. Can. Entomol. 40: 13.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Payne.

April.

Spilomyia Meigen

Tritonia Meigen, 1800. Nouvelle Classification, p. 33. (Suppressed. Bull. Zool. Nomen. 20: 339. Opinion 678).

Spilomyia Meigen, 1803. Mag. für Insektenkunde. 2: 273.

Mixtemyia Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 491.

Type-species: Syrphus saltuum Fabricius, 1794. Entomol. Syst. 4: 287. (by designation of Coquillett, 1910, as Syrphus diophthalmus Fabricius; misidentified).

Characteristics: Relatively large species, with bright yellow spots or bands on abdomen and thorax, and with strong superficial resemblance to vespid wasps found in the same region, also, with similar actions, even to habit of resting on the four posterior legs and waving front legs about in almost the same way that vespids move their antennae; head hemispherical, broader than thorax; face nearly straight in profile, minutely produced at epistoma or with a minute tubercle in middle; antennae porrect, with first and second segments elongate, third segment rounded, not twice as long as broad; arista bare, eyes bare and marked with irregular vertical stripes or bands of spots, holoptic in male; thorax short and broad, considerably convex above, with yellow spots;

scutellum with or without fringe; metasternum pilose, with a blunt angular tubercle in front; marginal cell widely open, apical cell not petiolate, vein beyond tip of anal cell continued outward, nearly parallel to hind border of wing, anterior third to half of wing brown, brownish-yellow, or at least darkened; hind femora simple, with a prominent subapical, dentate spur; abdomen convex, large, subcylindrical and elongate, with yellow bands.

Key to Species

Anterior orange fascia on second abdominal segment carried very broadly forward laterally, almost to base of segment; black markings behind second segment linear; yellow spots on pleura not continuous from hypopleura to sternopleura. . . . . texana

Anterior yellowish fascia on second abdominal segment gradually widened laterally; black fascia as wide as yellow ones; all yellow cross-bands entire; yellow spots on pleura form a continuous line from hypopleura to sternopleura . . . . . longicornis

Spilomyia texana Johnson

Spilomyia texana Johnson, 1921. Psyche. 28: 57.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: McCurtain, Pushmataha.

April-June.

Spilomyia longicornis Loew

Spilomyia longicornis Loew, 1872. Berliner Entomol. Z. 10: 49.

Characteristics: This species is sufficiently characterized by the specific key; thus, no further description is given.

County records: Payne.

June.

Temnostoma Lepeletier and Serville

Temnostoma Lepeletier and Serville, 1828. Encyclop. Method. 10: 518.

Type-species: Milesia bombylans Fabricius, 1805. Syst. Antliatorum, p. 199. (by designation of Coquillett, 1910).

Characteristics: Medium to large, wasp-like flies; characteristically marked with yellow or gray pollen; face concave in female, often with weak tubercle in male; antennae short, inserted in middle of head, third segment nearly or quite orbicular; eyes bare, narrowly dichoptic; scutellum black, with fringe; metasternum pilose, tending to become pubescent in a few species which have only a very few hairs; apical cell not petiolate, anterior cross-vein near middle of discal cell, no stigmatic cross-vein; hind femora simple, without any process below; abdomen elongate, becoming more slender in smaller species.

Temnostoma pictulum Williston

Temnostoma pictulum Williston, 1886. Bull. U. S. Natl. Mus. 31: 251.

Temnostoma greeni Shannon, 1939. Proc. Entomol. Soc. Wash. 41: 221.

Characteristics: Those of the genus.

County records: McCurtain.

April.

Milesia Latreille

Milesia Latreille, 1805. Hist. Nat. Crust. Ins. 14: 361.

Sphixea Rondani, 1844. Nuova Ann. Sci. Nat. Bologna. 2: 455.

Type-species: Musca diophthalma Linnaeus, 1758. Syst. Nat., p. 593. (by designation of Rondani, 1844).

Characteristics: Very large, robust, handsome, distinctively colored flies; length, about 20 mm; head hemispherical, broader than thorax; face large or well developed in profile, usually nearly straight or concave above, face prominent upon lower half but never greatly produced downward; antennae short, porrect, inserted on projection of front, third segment orbicular or a little wider than long; eyes bare, usually holoptic in male; thorax large and robust, with yellow markings; scutellum largely yellow, with fringe; metasternum pilose; wings comparatively narrow, venation characteristic, apical cell petiolate or nonpetiolate, marginal cell closed, anterior cross-vein very oblique, joining discal cell in distal one-fourth; hind femora elongate and stout without being noticeably thickened, femora frequently bear a small, subapical, dentate projection; abdomen elongate, more than twice as long as thorax, only a little broader in middle, with yellow bands.

Key to Species

Scutellum almost wholly reddish-yellow; anterior black crossband of thorax typically interrupted, not reaching median black vitta; wings very dark brown, almost black in front; yellow bands of abdomen separated only by slender black lines . . . . . scutellata

Scutellum widely black basally; both black crossbands of thorax typically

entire, or nearly so; wings subhyaline, or slightly clouded in front; yellow bands of abdomen separated by distinct black lines . . . . . virginiensis

Milesia scutellata Hull

Milesia scutellata Hull, 1924. Entomol. News. 35: 280.

Characteristics: Similar to M. virginiensis, but readily distinguished by almost wholly reddish-yellow scutellum, which, at most, has only a very narrow black line basally; by different maculation of thorax; and by black transverse markings of abdomen, especially those of second tergite, which are considerably narrower than in M. virginiensis; wings are usually more heavily tinged with blackish brown along leading edge; width of abdomen varies considerably; front of female with black median vitta.

County records: Latimer, Pushmataha.

May-June.

Milesia virginiensis (Drury)

Musca virginiensis Drury, 1773. Illustrations Nat. Nist., p. 71.

Milesia ornata Fabricius, 1805. Syst. Antliatorum, p. 188.

Milesia virginiensis: Westwood, 1837. In Drury's Exot. Entomol., Second Ed. 2: 77.

Sphixea fulvifrons Bigot, 1883. Ann. Soc. Entomol. France. 32: 341.

Characteristics: Bright yellow and black wasp mimics; thorax and abdomen distinctive; as in M. scutellata, width of abdomen variable in both sexes.

County records: Alfalfa, Grant, Latimer, LeFlore, McCurtain, Nowata, Okmulgee, Osage, Pawnee, Pushmataha.

June-August.

Tribe CERIOIDINI

Ceriana Rafinesque

Ceria Fabricius, 1794. Entomol. Syst. 4: 277. (preoccupied, Scopoli, 1763).

Cina Fabricius, 1798. Entomol. Syst., Suppl. 5, p. 557. (unavailable; name cited in synonomy of Ceria Fabricius, 1794).

Ceriana Rafinesque, 1815. Analyse de la Nature ou Tableau de l'Univers et des Corps Organises, p. 131. (new name for Ceria Fabricius).

Cerioides Rondani, 1850. Ann. Entomol. Soc. France. 8: 211.

Sphiximorpha Rondani, 1850. Ibid., p. 212.

Ceriodes, auctt. (error).

(Stone, et al., in "A Catalog of the Diptera of America North of Mexico" (in manuscript) state that "because of the conflicting usage between Cerioides and Sphiximorpha, it is preferable to change to the correct name under the rules, Ceriana, hitherto unused." The present author concurs and thus, uses Ceriana in this work.)

Type-species: Cina clavicornis Fabricius, 1798. Entomol. Syst., Suppl. 5, p. 557. (monotypic)(= Cina conopsoides (Linnaeus)).

Characteristics: Medium-sized, elongate flies; often with bright yellow markings on a black background; mostly bare; upper occiput swollen; face projecting downward, usually nearly straight in profile

and retreating above epistoma; cheeks well developed; antennae porrect, first segment a little longer than second, third joint thickened basally, second thickened apically such that last two segments appear as one, last segment bears a short, pointed, terminal, often pale, style; eyes bare; scutellum short, at least partially yellow; anterior border of wings brownish, third vein with short stump projecting into apical cell, but with almost no dip, third vein, apical cross-vein, and costa end at tip of wing, anterior cross-vein beyond middle of discal cell, oblique; femora considerably thickened, hind femora with stout setigerous bristles ventrally; abdomen but little constricted at base, greatest constriction just beyond base of second segment, abdomen elongate, very convex, subcylindrical.

Ceriana signifera (Loew)

Ceria signifera Loew, 1853. Neue Beitrage. 1: 18.

Ceria willistonii Kahl, 1897. Kansas Univ. Quart. 4: 141.

Cerioides signifera: Curran, 1924. Kansas Univ. Sci. Bull. 15: 31.

Ceriana signifera. Stone, et al., (in manuscript). Cat. Diptera. Am. N. Mexico., p. 97.

Characteristics: Readily separated from other Oklahoma syrphids by the stylate antennae.

County records: Woods.

May.

Tribe Eristalini

Key to Genera of Oklahoma

1. Mesonotum and abdomen mostly dark, with yellow markings of short, squamose pile; wings darkened anteriorly, distinctly so on apical half of anterior border; third vein deeply looped into apical cell . . . . . Meromacrus

   Mesonotum and abdomen without yellow markings of short, squamose pile, or if so, then wings not darkened anteriorly and third vein not deeply looped into apical cell 2

2. Marginal cell always closed; abdomen variously marked with light and dark fasciae or spots; sparsely to thickly pilose flies. . Eristalis

   Marginal cell always open. 3

3. Stigmatic cross-vein absent; hind femora without spur; thorax vittate . . . . . Helophilus

   Stigmatic cross-vein present (may be faint); hind femora with or without spur; thorax with or without vittae 4

4. Face usually deeply produced below; fronto-antennal region never prominent, face not attenuated and conical; thorax unicolorous; abdomen densely pilose; rather large, wooly, long-pilose flies . . . . . Mallota

   Face not deeply produced below; fronto-antennal region sometimes prominent; hind tibiae produced below at apex; rather short-pilose flies . . . . . Lejops

Helophilus Meigen

Helophilus Meigen, 1822. Syst. Beschr. 3: 338. (See *Eristalis* synonomy for *Helophilus* Fabricius, 1805).

Type-species: *Musca pendula* Linnaeus, 1758. Syst. Nat. 10: 591. (by designation of Curtis, 1832).

Characteristics: Small to medium sized, usually bright-colored flies; head hemispherical, not flattened; face slightly concave on upper half, lower half convex, straight, retreating, or with small tubercle, face wholly pollinose, except for bare median vitta; antennae short, third segment approximately orbicular; arista basal, bare; thorax usually with light pollinose stripes on dorsum; scutellum usually more or less translucent; marginal cell of wing open, third vein deeply bent into apical cell, anterior cross-vein slightly oblique, located beyond middle of discal cell; legs rather short, hind femora somewhat thickened, hind tibiae arcuate; abdomen usually broadly oval.

Key to Species

Front of male much wider than width of antennal process; female with yellow pile on lower portion of front . . . . . *latifrons*

Front of male as narrow or narrower than width of antennal process; front of female entirely black pilose . . . . . *fasciatus*

Helophilus latifrons Loew

Helophilus latifrons Loew, 1863. Berliner Entomol. Z. 4: 73.

Helophilus travittatus, auctt. (not Fabricius, 1805.)

Characteristics: Length, 11-15 mm; front of male only black pilose

across ocelli, front of female yellow pilose on lower third; face with median line always yellow or reddish-yellow, never ferruginous or black; second and third abdominal segments chiefly lemon yellow in male, variable in female.

County records: Alfalfa, Beckham, Ellis, Grant, Harper, Major, Payne, Woods.

April-November.

Helophilus fasciatus Walker

Helophilus similis Macquart, 1842. Dipteres Exot. 2: 64. (preoccupied Curtis, 1832).

Helophilus fasciatus Walker, 1849. List Dipterous Ins. British Mus. 3: 605.

Eristalis decisus Walker, 1849. Ibid., p. 614.

Helophilus sussurans Jaennicke, 1867. Neue Exot. Dipteren, p. 94.

Characteristics: Length, 10-15 mm; similar to H. latifrons, but abdominal bands usually narrower; front much narrower and black pile covers all of front above depression in male and all of front in female; legs more extensively black than in H. latifrons.

County records: Alfalfa, Blaine, Caddo, Harper, McCurtain, Payne, Woods.

March-November.

Lejops Rondani

Lejops Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 33.

Eurhimyia Bigot, 1883. Ann. Soc. Entomol. France. 32: 226.

Eurimyia Bigot, 1883. Loc. cit. (error).

Parhelophilus Girschner, 1897. Illust. Wochenschr. Entomol. 2: 604.

Type-species: Mallota vittata Meigen, 1822. Syst. Beschr. 3: 378, (original designation).

Characteristics: Rather small, slender, dark species; ocellar triangle in female rather small, rarely almost equilateral; front of female about width of one eye, front of male not half width of one eye; eyes bare, always dichoptic in both sexes; thorax with light pollinose stripes on dorsum; stigmal spot simulating a cross-vein, marginal cell open, third vein deeply bent into apical cell, anterior cross-vein oblique, located beyond middle of discal cell; apex of hind tibiae produced into scoop-like or rather acute spur; abdomen elongate, more than twice as long as wide, sides parallel, slightly tapering at apex.

Lejops relictus Curran and Fluke

Lejops relictus Curran and Fluke, 1926. Trans. Wisconsin Acad. Sci. 22: 257.

Characteristics: Hind trochanters of males with long apical projection; female with small tubercle.

County records: Okmulgee.

July.

Mallota Meigen

Mallota Meigen, 1822. Syst. Beschr. 3: 377.

Imatisma Macquart, 1842. Diptères Exot., p. 127.

Type-species: Syrphus fuciformis Fabricius, 1794. Entomol. Syst. 4: 290. (by designation of Rondani, 1844).

Characteristics: Large, densely long-pilose, wooly appearing, bumblebee-like flies; closely related to Eristalis and Helophilus; head somewhat flattened, broader than thorax; occiput very thick and tumid; face quite deeply produced deep cheeks slope into cylindrical, obtuse cone of lower face, upper face concave below, with a long, low convexity, front produced; antennae short, third segment much shorter than wide; eyes pilose or naked, long, holoptic or narrowly dichoptic in male; scutellum large; marginal cell open, stigma simulates a cross-vein in all forms, third vein dips strongly into apical cell, fourth vein terminates near end of third; legs strong, hind femora extraordinarily thickened and bent, hind tibiae sometimes with a stout spur in middle in front in male; abdomen short, stout, oval.

Key to Species

1. Eyes pilose . . . . . posticata
   Eyes bare 2
2. Abdomen entirely black-pilose except for a few hairs on anterior angles of second tergite . . . . . bautias
   Abdomen slightly to considerably yellow-pilose beyond second tergite . . . . . facialis

Mallota posticata (Fabricius)

Eristalis posticata Fabricius, 1805. Syst. Antliatorum, p. 237.
Milesia bardus Say, 1829. J. Acad. Nat. Sci. Phila. 6: 163.
Eristalis coactus Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 165.
Imatisma posticata: Macquart, 1842. Diptères Exot. 2: 68. (male only; female is M. bautias).

Merodon balanus Walker, 1849. List Dipterous Ins. British Mus. 3: 600.

Merodon bardus: Packard, 1869. Guide Study Ins., p. 399.

Mallota barda: Osten Sacken, 1878. Smithsonian Misc. Coll. 16(270): 135.

Mallota posticata: Williston, 1883. Berliner Entomol. Z. 27: 170.

Characteristics: Length, 11-15 mm; eyes holoptic in male for a little longer distance than in M. bautias; abdomen black, with abundant black and yellow pile, yellow pile quite variable, usually confined to first and basal part of second tergite, at other times covering nearly entire third tergite, when denuded of pile abdomen often shows considerable red on second and third tergites.

County records: McCurtain, Pawnee.

May-June.

Mallota bautias (Walker)

Eristalis cimbiciformis Meigen, 1822. Syst. Beschr. 3: 385, (auctt., not Fallén, 1817). (see note below)

Imatisma posticata: Macquart, 1842. Diptères Exot. 2: 68. (female only; male is M. posticata).

Merodon bautias Walker, 1849. List Dipterous Ins. British Mus. 3: 600.

Mallota bautias: Osten Sacken, 1878. Smithsonian Misc. Coll. 16(270): 135.

Mallota dentipes Williston, 1883. In Lintner, First. Ann. Rpt. Entomol., p. 211, (Nomen nudum).

Mallota cimbiciformis, auctt. (not Fallén, 1817).

Characteristics: Length, 12-16 mm; fairly common species; males dimorphic, in one form hind tibiae are moderately compressed and are wholly without a spur in middle, these are usually smaller specimens; in other form, hind tibiae are extraordinarily compressed and have a stout angular projection in middle which when tibia is flexed, lies on outer side of femur, these are usually larger specimens; flight distinctive, they fly with a loud buzz, going in and out about patches of flowers and through low-growing vegetation.

(Note: Weems (1953, p. 468) states that Curran, in a letter to him in 1951, stated that Mallota cimbiciformis (Fallén) is a European species; therefore, all references to this species in North America must refer to M. bautias (Walker), it becomes the correct name for our American species).

County records: Logan, McCurtain, Pawnee, Payne, Woods.

April-June.

Mallota facialis Hunter

Mallota facialis Hunter, 1896. Can. Entomol. 28: 100.

Mallota flaviterminata Jones, 1917. Ann. Entomol. Soc. Amer. 10: 228.

Characteristics: Some authors express doubt that this is a valid species distinct from M. bautias. It is very similar to M. bautias and it shows considerable variation in amount of yellow pile on abdomen. Some specimens have only scattered yellow hairs while others have almost entire abdomen covered with yellow pile. Typical specimens have the last segment of males and the last two segments of females pale orange to yellow pilose.

County records: Comanche, Logan, Payne, Woods.

April-July.

Meromacrus Rondani

Plagiocera Macquart, 1842. Diptères Exot. 2: 59. (preoccupied, Klug, 1834).

Meromacrus Rondani, 1848. Truqui Studi Entomol. 1(70):3.

Pteroptila Loew, 1866. Berliner Entomol. Z. 9: 59.

Type-species: Meromacrus ghiliani Rondani, 1848. Truqui Studi Entomol. 1(70): 3. (monotypic).

Characteristics: Large, shining, bare flies, with bright spots of opaque tomentum; head hemispherical, slightly broader than thorax; face slightly concave above, without tubercle, but convex and prominent below, not produced downward; front-antennal region protuberant, or at least prominent; third antennal segment usually elongate-oval; arista long, bare; eyes bare, holoptic in male; thorax somewhat narrowed in front; scutellum broad; wings usually with brown anterior border, marginal cell closed and petiolate, third vein with deep loop into apical cell, apex of anal cell attenuate, anterior cross-vein transverse, somewhat beyond middle of discal cell; femora from slender to much thickened, tibiae flattened, arcuate, shorter than femora, with basal knife edge; abdomen broad and compact, tapering to large asymmetrical hypopygium in male.

Meromacrus acutus (Fabricius)

Milesia acuta Fabricius, 1805. Syst. Antliatorum, p. 187.

Milesia crucigera Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 105.

Mallota milesiformis Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 500.

Plagiocera crucigera: Macquart, 1842. Diptères Exot. 2: 60.

Pteroptila crucigera: Williston, 1886. Bull. U. S. Natl. Mus. 31: 180.

Meromacrus acutus: Aldrich, 1905. Catalogue N. Amer. Diptera, p. 390.

Characteristics: Those of the genus.

County records: Pawnee, Pittsburg, Pushmataha, McCurtain.

June-August.

Eristalis Latreille

Tubifera Meigen, 1800. Nouvelle Classification, p. 34. (Suppressed. Bull. Zool. Nomen., 1963. 20: 339. Opinion 678).

Elophilus Meigen, 1803. Mag. für Insektenkunde. 2: 274.

Elophila Meigen, 1804. Klassifikazion und Beschreibung der Europaischen Zweiflugeligen Insekten. 1: xx. (error).

Eristalis Latreille, 1805. Hist. Nat. Crust. Ins. 14: 363.

Helophila Fabricius, 1805. Syst. Antliatorum, p. 232. (error).

Helophilus Fabricius, 1805. Ibid., p. 233, 234, 238. (error).

Helophilus Leach, 1817. In Brewster's Edinburgh Encyclo. 12: 159. (emend.).

Eristaloides Rondani, 1844. Nouva Ann. Sci. Nat. Bologna. 2: 453.

Eristalomya Rondani, 1857. Dipterologiae Italicae Prodromus. 2: 40.

Eristalomyia Bigot, 1880. Ann Soc. Entomol. France. 10: 220. (error or emend.).

Lathyrophthalmus Mik, 1897. Wien Entomol. Ztg. 16: 114.

Type-species: Musca tenax Linnaeus, 1758. Syst. Nat., p. 591, (by designation of Curtis, 1832).

(The recommendation is made by Stone, et al. in "A Catalog of the Diptera of America North of Mexico" (in manuscript) that an application be prepared for submission to the International Commission of Zoological Nomenclature to supress Elophilus Meigen, 1803 and Helophilus Leach, 1817 because of possible confusion with the valid genus Helophilus Meigen, 1822, and to preserve the long and almost universal usage of Eristalis Latreille, 1805 in syrphid literature by placing Eristalis Latreille, 1805 on the "Official List of Generic Names." The present author concurs fully with the recommendation and uses Eristalis Latreille, 1805 as the name of this genus in this work.)

Characteristics: This is a large and cosmopolitan genus including more than four hundred described species; generally medium, occasionally large flies; length, 7-17 mm; moderately hairy or sometimes densely velvet pilose; head broader than high and about as broad or slightly broader than thorax; face tuberculate, concave upon upper half to a varying extent, and slightly produced downward and diagonally forward, the amount also varying; antennae short, inserted near middle of head, third segment longest ventrally, while dorso-apically it is shorter and rounded; arista long, bare or miscroscopically pubescent, rarely short plumose basally; eyes range from bare to pilose, with or without bare bands, from unicolorous to dark vertical bands or numerous spots on a lighter ground color, holoptic to narrowly dichoptic in male; mesonotum short and compact, rather convex; scutellum without fringe; stigmatic cross-vein present, spurious vein generally distinct, marginal cell closed, third vein deeply bent into apical cell and ending well above apex of

wing, anterior cross-vein at or near middle of discal cell; hind femora slender to moderately thickened and without spurs, spines, or teeth, apically the ventral margin is often setiferous; tibiae nearly straight or moderately arcuate; abdomen generally with yellow and black markings.

Key to Species

1. Eyes spotted; abdomen wholly shining greenish or brassy. . *aeneus*
   Eyes not spotted; abdomen not wholly shining greenish or brassy..2
2. Arista distinctly plumose on basal half, some of the filaments as long as or longer than first antennal segment. . . . . *transversus*
   Arista bare, pubescent or short pilose (filaments not longer than first antennal segment) 3
3. Arista short pilose 4
   Arista bare or pubescent 5
4. Wings hyaline; mesonotum and scutellum dark; pile of thorax whitish; third and fourth abdominal tergites with a medial, basal, opaque spot . . . . . .*dimidiatus*
   Wings sometimes slightly clouded medially, but not with a distinct, approximately quadrate dark spot; eyes with a distinct, broad, vertical band of dark yellowish pile which is more dense than rest of ocular pile; resemble honeybees in appearance . . . . . *tenax*
5. With an ashy or metallic fascia situated between the scutellum and transverse suture. . . . . *vinetorum*
   Without a prescutellar band . . . . . .*latifrons*

Eristalis aeneus (Scopoli)

Conops aeneus Scopoli, 1763. Entomol. Carniolica, p. 356.

Syrphus aeneus: Fabricius, 1794. Entomol. Syst. 4: 302.

Eristalis cuprovittatus Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 190.

Eristalis sincerus Walker, 1849. List Dipterous Ins. British Mus. 3: 611.

Lathyrophthalmus aeneus: Mik, 1897. Wien Entomol. Ztg. 16: 113.

Eristalis aeneus: Williston, 1886. Bull. U. S. Natl. Mus. 31: 161.

Characteristics: Length, 8-10 mm; easily separated from all other Oklahoma Eristalis by eyes, which are covered with numerous, small, dark spots, which tend to run together on upper part of eyes.

County records: Beaver, Grady, Payne, Woods.

March-November.

Eristalis tenax (Linnaeus)

Musca tenax Linnaeus, 1758. Syst. Nat., p. 591.

Conops vulgaris Scopoli, 1763. Entomol. Carniolica, p. 960.

Conops fuscus Scopoli, 1763. Ibid., p. 961.

Syrphus tenax: Fabricus, 1775. Syst. Entomol., p. 765.

Eristalis tenax: Fabricius, 1805. Syst. Antliatorum, p. 238.

Elophilus tenax: Latreille, 1809. Gen. Crust. 4: 324.

Eristalis campestris Meigen, 1822. Syst. Beschr. 3: 387.

Eristalis hortorum Meigen, 1822. Loc. cit.

Eristalis vulpinus Meigen, 1822. Ibid., p. 388.

Eristalis sylvaticus Meigen, 1822. Loc. cit.

Characteristics: Length, 12-15 mm; complete facial stripe; eyes with dark pile, more abundant near middle, in form of an elongated, vertical stripe or ellipse, the middle of which is less pilose.

This is the well-known drone fly or "news-bee" whose larvae are the best known of the rat-tailed maggots. It is cosmopolitan, occurring almost everywhere that man does. It breeds in decomposing organic matter in outhouses, roadside ditches, pools of stagnant water, etc. It has been used some for laboratory research. It occurs throughout the warm seasons of the year. Imagoes may emerge during temporary warm spells which occur during fall, winter, and early spring. Probably an immigrant to North America from Europe.

County records: Alfafa, Craig, Payne, Woods.

March-December.

Eristalis vinetorum (Fabricius)

Syrphus vinetorum Fabricius, 1778. Entomol. Syst., Suppl., p. 562.

Eristalis vinetorum: Fabricius, 1805. Syst. Antliatorum, p. 235.

Eristalis trifasciatus Say, 1829. J. Acad. Nat. Sci. Phila. 6: 165.

Eristalis uvarum Walker, 1842. List Dipterous Ins. British Mus. 3: 623.

Characteristics: Length, 11-14 mm; typical specimens almost wholly opaque; pile of whole thoracic dorsum short, dense, brownish-yellow to fulvous; legs shining reddish to yellowish, darker on femora, sometimes black on hind femora; hind tibiae considerably thickened and somewhat arcuate, with a row of strong, short, black bristles above and below; wings slightly infuscated about middle on anterior half.

County records: Alfalfa, Blaine, Cleveland, Kingfisher, Payne, Woods.

July-October.

Eristalis transversus Wiedemann

Eristalis transversus Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 188.

Eristalis vittatus Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 307.

Eristalis philadelphicus Macquart, 1842. Diptères Exot. 2: 34.

Eristalis pumilus Macquart, 1842. Ibid., p. 57.

Eristalis zonatus Bigot, 1880. Ann. Soc. Entomol. France, 21: 217.

Characteristics: Length, 7-12 mm; thorax black, whole area in front of suture brownish-gray, somewhat shining; a rather wide band, with opaque black on either side behind suture considerably shining; scutellum yellow; pile of whole thorax yellowish; wings nearly hyaline.

County records: Caddo, Payne.

April-June.

Eristalis dimidiatus Wiedemann

Eristalis dimidiatus Wiedemann, 1830. Aussereurop. Zweifl. Ins. 2: 180.

Eristalis niger Macquart, 1834. Hist. Nat. Ins. Diptères. 1: 505.

Eristalis chalybeus Macquart, 1842. Diptères Exot. 2(2): 115. (female).

Eristalis lherminierii Macquart, 1842. Loc. cit. (male).

Eristalis inflexus Walker, 1849. List Dipterous Ins. British Mus. 3: 617.

Eristalis incisuralis Macquart, 1851. Diptères Exot., Suppl. 4: 139.

Characteristics: Length, 10-13 mm; antennae black; facial stripe and cheeks shining black; thorax wholly shining greenish-black, with three very faint opaque vittae; wings hyaline, rarely with a slight infuscation on middle of anterior half; legs shining black, basal half of all tibiae pale yellowish-white, usually sharply marked.

County records: Alfalfa, Payne.

April-October.

Eristalis latifrons Loew

Eristalis latifrons Loew, 1865. Berliner Entomol. Z. 6: 65.

Eristalis stipator Osten Sacken, 1877. Western Diptera, p. 336.

Eristalis maculipennis latifrons Townsend, 1897. Psyche, 8: 93.

Characteristics: Very common, characteristic species; length, 9-14 mm; antennae black; arista bare to microscopically pubescent; facial vittae and cheeks, shining black; thorax greenish-brown, shining, with no traces of opaque markings; scutellum yellowish-brown; wings sometimes hyaline, usually with a brownish spot in middle of anterior half; abdomen wholly shining except for an interrupted opaque posterior band on second segment, occasionally an oval, opaque spot on each side of third segment in male.

County records: Alfalfa, Beaver, Caddo, Carter, Cleveland, Craig, Grady, Grant, Harper, Jackson, Jefferson, Nowata, Payne, Tillman, Woods, Woodward.

March-November.

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PLATE I

Fig. 1. Typical syrphid wing, (after Weems, 1953).

Fig. 2. Typical syrphid thorax, (lateral view) (after Weems, 1953).

Longitudinal veins

1A	------	first anal (reduced)
2A	------	second anal, or sixth longitudinal
3A	------	third anal, or axillary (vestigial)
C	------	costa
Cu	------	cubitus, or fifth longitudinal
Cu_1	------	cubitus one
Cu_2	------	cubitus two, anal cross-vein, or posterior basal cross-vein
M	------	media, or fourth longitudinal
Ma	------	arculus
M_1	------	first medial, bent up part of fourth longitudinal, upper marginal cross-vein, apical, or sub-apical
M_{1+2}	-----	first medial plus second medial, or fourth longitudinal
M_2	------	second medial, or fourth longitudinal
M_3	------	third medial, lower cross-vein, or anterior basal cross-vein
M_3+Cu_1	--	third medial plus cubitus one, or fifth longitudinal
R+M	------	radius plus media
R_1	------	first radial, or first longitudinal
Rs	------	radial sector
R_{2+3}	----	second radial plus third radial, or second longitudinal
R_{4+5}	----	fourth radial plus fifth radial, or third longitudinal
Sc	------	subcosta, or auxiliary

Cross-veins

h	-------	humeral
m	-------	medial, bent up portion of fifth longitudinal, posterior, postical, or lower marginal
r-m	-----	radio-medial, discal, middle, small, or anterior
st	------	stigmatic, or stigmal

False veins or folds

mb	------	medial bulla
ps	------	preanal spuria
s	-------	spurious, adventitious, spurious fold, or vena spuria

PLATE I (continued)

Cells

1A	anal, first anal, third basal, or lower basal
2A	second anal, axillary, or anal angle
1C	first costal, or basal costal
2C	second costal, costal, or mediastinal
Cu_1	cubitus one, cubital, or third posterior (rarely called fourth posterior, in which case $2M_2$ becomes third posterior)
1M	first medial
2M	second medial, or second basal
M_1	medius one
$1M_2$	first medius two, discal, or second posterior
$2M_2$	second medius two (rarely called third posterior)
Po	posterior lobe, anal lobe, alula, or axillary lobe
R	radial, or first basal
R_1	first radial, or marginal
R_3	third radial, or submarginal
R_5	fifth radial, first posterior, apical, or subapical
Sc_1	subcostal
Sc_2	subcostal two, pterostigma, or stigmal area of subcostal

Notches

an	anal notch
ax	axillary incision
sn	subapical notch

Figure 2. Typical syrphid thorax.

AB	abdomen
CLD	curved linear depression
CX	coxa
EP	epimeron (metapleuron of Curran)
F	femur
HA	haltere
HC	humeral callus, or humerus
HYPL	hypopleuron
NPL	notopleuron
PAC	posterior or post-alar callus
PL_1	propleuron
PL_2	mesopleuron
PL_3	metapleuron
PLM	plumula
PPL	postpleuron
PRSC	prescutum
PSCL	postscutellum

PLATE I (continued)

PTPL ----- pteropleuron
PWP ------ pleural wing process
SCL ------ scutellum
SCT ------ scutum
SP_2 ------ mesothoracic spiracle
SP_3 ------ metathoracic spiracle
SQ ------- squama
STN_3 ----- metasternum
STPL ----- sternopleuron
TR ------- trochanter
TS ------- transverse suture
W -------- wing

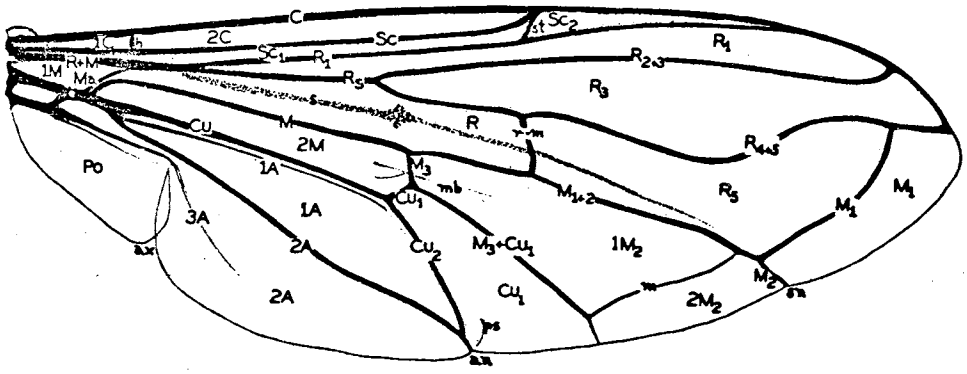

Fig. 1. Typical syrphid wing. (after Weems, 1953)

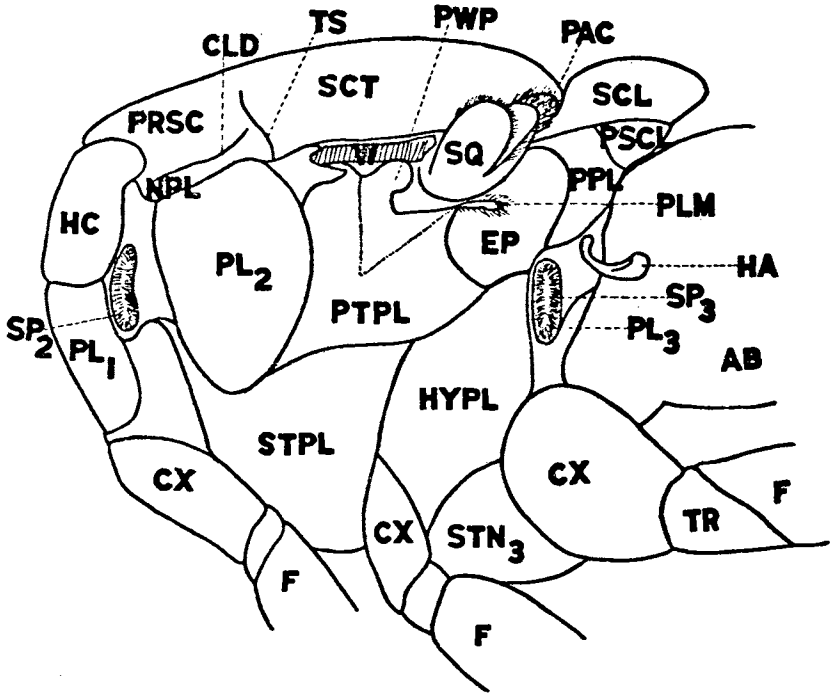

Fig. 2. Typical syrphid thorax. (lateral view)

(after Weems, 1953)

VITA

Daniel Albert Shorter

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE SYRPHIDAE OF OKLAHOMA (DIPTERA: SYRPHIDAE)

Major Field: Entomology

Biographical:

Personal Data: Born in Goltry, Oklahoma, May 20, 1927, the son of Wiley B. and Edna I. Mason Shorter.

Education: Attended grade school and high school in Goltry, Oklahoma; graduated from Goltry High School in 1945; received the Bachelor of Science degree from Northwestern State College, Alva, Oklahoma with majors in Biology and Education in May, 1949; received the Master of Science degree from the Oklahoma State University, Stillwater, Oklahoma, with a major in Natural Science, in May, 1960; completed requirements for the Doctor of Philosophy degree in May, 1966.

Professional Experience: Taught mathematics and coached at Anthony High School, Anthony, Kansas from 1949 to 1958; taught in the Biology Department at Northwestern State College, Alva, Oklahoma from 1960 to 1963; taught extension courses for the Arts and Sciences Department at Oklahoma State University, Stillwater, Oklahoma while on leave from Northwestern State College during the academic year of 1963 and 1964; returned to the Biology Department at Northwestern State College in 1964.

Member of Alpha Zeta, Phi Sigma Society, Kappa Delta Pi, Kansas Entomological Society, Entomological Society of America, American Society of Mammalogists, Oklahoma Academy of Science, Oklahoma Ornithological Society, American Association for the Advancement of Science and associate member of the Society of the Sigma Xi.