

MUSICIDAE OF ISRAEL

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ABSTRACT

77 species of Muscidae are enumerated as occurring in Israel, giving also their general distribution.

The family Muscidae is defined as by Hennig in "Die Fliegen der-Palae-arktischen Region" (1955). It includes Calyptrata with well-developed calyptra, without hypopleural bristles, in which the anal vein does not reach the hind margin of the wing. They differ in the last character from the Anthomyiidae in which the anal vein reaches the hind margin of the wing.

The Muscidae were combined in the past with the Anthomyiidae in one family, sometimes as Anthomyiidae (Seguy, 1923) and sometimes as Muscidae (Karl, 1925; Seguy, 1937).

In his list of the Muscidae of Israel, Bodenheimer (1937., p. 190-191) includes Muscidae and Anthomyiidae under the name Anthomyiidae. He divides the family into 2 sub-families; Muscinae and Coenosiinae. The Muscinae contain 33 species; the Coenosiinae contain 16 species of which two belong to the genus Coenosia (Muscidae) and the other 14 are Anthomyiidae.

Prof. O. Theodor of the Hebrew University of Jerusalem kindly placed his collection of Muscidae at my disposal for identification. In addition, the small collection of Muscidae at the Dept. of Plant Protection of the Ministry of Agriculture was examined.

The present list, which contains 77 species, is based on the above material and on collections of the author. The species are given in the order used by Hennig (1955-1964). The general distribution of the species is based on information given by Seguy (1923), Hennig (1955-1964) and on the "Catalog of the Diptera of America North of Mexico" (Stone et al., 1965).

MUSCIDAE

FANNINAE

Fannia canicularis Linnaeus

Upper Galilee: Har Meron - 22.V.62, Jordan valley: Tiberias - 23.V.55, Judean mountains: Aqua Bella - 24.IV.52, Jerusalem - 13.V.51, 30.V.51, 3.VII.50, 12.IV.51, Qiryat 'Anavim - 25.IV.55.

General Distribution: Geopolitan.

Fannia incisurata Zetterstedt

Upper Galilee: Hula - VII.41.

General Distribution: Europe, Asia Minor, Israel, North Africa, North and South America.

Fannia leucosticta Meigen

Judean mountains: Jerusalem - 1.VI.52, Qiryat 'Anavim - 23.V.55, Southern coastal plain: Rehovot - 30.XI.66.

General Distribution: Europe, especially in the south, all Africa, all Asia; after Hennig (1955, p. 57) it does not occur in North America. In "A Catalog of the Diptera of America North of Mexico", p. 895 (Stone A. etc., 1965) it is listed as occurring in the United States.

Fannia monilis Haliday

Judean mountains: Jerusalem - 3.VII.50.

General Distribution: Europe, North Africa, West Asia.

Fannia scalaris Fabricius

Judean mountains: Qiryat 'Anavim - 25.IV.55, Jerusalem - 13.V.57.

General Distribution: Geopolitan.

MYDAEINAE

Myospila mediatubunda Fabricius

(Listed by Bodenheimer - 1937 - as Mydaea mediatubunda Fabr. without locality or date)

Upper Galilee: HaGosherim - 18.V.65, Valley of Izrael: Yoqne'am - 6.X.68, Daverat - 27.IV.68, Foothills of Judean Highlands: Shoval - 5.III.68, Judean mountains: Aqua-Bella - 12.VI.49, 1.VII.49.

General Distribution: Europe, Asia, North Africa, North and South America.

Hebecenema fumosa Meigen

Foothills of Judean Highlands: Ben-Shemen - (without date of collection), Judean mountains: Jerusalem - 1.VII.49.

General Distribution: Europe, Asia, Africa.

Hebecenema umbratica Meigen

Northern coastal plain: Shune - 8.IV.54.

General Distribution: Europe, West, Central and East Asia, North America.

Hebecenema affinis Malloch

Listed by Bodenheimer (1937) p. 191, without locality or date. Southern coastal plain: Tel-Aviv - 2.III.54.

General Distribution: Europe, North Africa, Israel.

Helina annosa Zetterstedt

Judean mountains: Jerusalem - VII.26

General Distribution: Europe, Israel, Tadzhikistan, Japan.

Helina chaetopyga (?) Malloch

Central Negev: Wadi Sick - 4.IV.62

General Distribution: Cyprus, Israel.

Helina clara Meigen

Upper Galilee: Hula - VII.41, Jordan valley: Tiberias - 12.IV.51, Northern coastal plain: Haifa - 3.II.68, Southern coastal plain: Tel Aviv - 12.III.54, Judean mountains: Jerusalem - 20.XII.21, 6.XI.31, 27.II.37, 15.VI.47, 27.I.51, 21.IX.51, Dead Sea area: Dead Sea - 15.VI.40.

General Distribution: South Europe, North Africa, Israel.

Helina duplicata Meigen

Jordan valley: En-Gev - 16.IV.41, Northern coastal plain: Qiryat Amal 14.III.40,
Central coastal plain: Netanya - 6.V.39, Judean mountains: Qiryat 'Anavim -
25.IV.55, Jerusalem - 13.VIII.30, 22.I.40, 27.II.40, 6.V.40, 4.IV.48, 13.V.51.

General Distribution: Europe, Asia, North Africa, North America.

Helina flagripes Rondani

Upper Galilee: Meron - 22.V.62, Judean mountains: Aqua Bella - 7.V.47.

General Distribution: Europe, Israel.

Helina parcepilosa Stein

Judean mountains: Aqua Bella - 27.VII.54, Jerusalem - 20.VIII.30, 14.IV.51.

General Distribution: Europe, Israel.

Helina punctata Robineau-Desvoidy

Judean mountains: Aqua Bella - 26.VI.51, Jerusalem - IV.48, 9.VII.53.

General Distribution: Europe, Asia, North Africa, North America.

Helina straminea? Hennig

Judean mountains: Jerusalem - only one female was collected - 23.XI.51.

In the opinion of Hennig it is very similar to Helina straminea described
by him from Yugoslavia (pers. com.).

Helina syracusana Hennig

Hennig 1964 p. 1076 ♂: Palaestina.

General Distribution: Sicilia, Israel.

Graphomyia maculata Scopoli

Judean mountains: Jerusalem - 3.VII.50, 28.VI.50, Aqua Bella - 7.V.47.

General Distribution: Europe, Asia, Africa, America.

Gymnodia impedita Pandellé

Arava valley: En Radian - 1.V.54.

General Distribution: Southern Europe (France, Italy), Canaries, North Africa,
Israel, Lebanon, Syria, Iran, Tadzhikistan.

Gymnodia tonitru Wiedem. canache Walker

Upper Galilee: Rosh Pina - 12.V.59, Jordan valley: Tiberias - 12.V.56, Judean mountains: Jerusalem - 7.V.47, Dead Sea area: Jericho - 24.III.23, En-Gedi - 17.III.53, Arava valley: En-Husub - 14.VIII.49, 12.X.53.

General Distribution: Canaries, Sicily, North Africa, Israel.

Limnophora bipunctata Stein

Lower Galilee: Wadi Amud - 28.V.56, Dead Sea area: Wadi Qilt - 17.VI.41, En-Gedi - 5.IV.52.

General Distribution: Canaries, Israel.

Limnophora notabilis Stein

Upper Galilee: Hula - 1.IX.40, Northern coastal plain: Nahariyya - 20.V.61, Qiryat Amal - 17.III.40, Central coastal plain: Pardes Hanna - 27.VII.41, Netanya - 20.V.61, Southern coastal plain: Petah Tiqwa - 20.XII.55, Tel Aviv - 1.VII.49, Rehovot - 11.III.42, Judean mountains: Jerusalem - 4.V.40, 14.IX.30, Dead Sea area: Jericho - 17.VII.29, 1.VIII.29.

General Distribution: Canaries, Egypt, Tropical Africa, Israel.

Limnophora obsignata Rondani

Upper Galilee: Hula - 1.IX.40, Northern coastal plain: Qiryat Amal - 14.III.40, Judean mountains: Aqua Bella - 1.VII.49, Jerusalem - 19.IV.36, 19.VI.36, 6.V.40.

General Distribution: Canaries, Mediterranean countries, Iran, Formosa, Tropical Africa.

Limnophora pulchriceps Loew

Distribution: Europe, Palaestina (Hennig - 1960, p. 391).

Limnophora rufimana Strobl

Judean mountains: Jerusalem (No date on label).

General Distribution: Southern Europe, North Africa, Israel, Afghanistan, Tadjikistan, Mongolia.

Limnophora setinerva Schnabl and Oziadzicki

Upper Galilee: Meron - 22.V.62.

General Distribution: Southern Europe, Israel, North Africa.

Lispe caesia Meigen

(Bodenheimer - 1937, p. 191)

General Distribution: Europe, Lebanon, Syria, Israel, North Africa.

Lispe candicans Kowarz

Northern coastal plain - 1.VII.49, Central coastal plain: Binyamina - 16.IV.54.

General Distribution: Canaries, Mediterranean countries, Rio de Oro (Spanish-Sahara), Madagascar.

Lispe cilitarsis Loew

Central Negev: Yeroham - 22.VII.62.

General Distribution: Egypt, Israel.

Lispe kowarzi Becker

Upper Galilee: Hula - VIII.40, Northern coastal plain: Haifa (Hennig - 1960, p. 438), Southern coastal plain: Givat Brenner - 7.VIII.40.

General Distribution: Egypt, Israel, Iran, India, Indonesia, Formosa.

Lispe leucospila Wiedemann

Northern coastal plain: Haifa (Hennig - 1960, p. 440), Central coastal plain: Pardess Hanna - 22.VIII.41, Dead Sea area: Jericho - 28.VII.29.

General Distribution: Greece, North and Tropical Africa, Israel, Arabia, India, Indonesia, Formosa.

Lispe litorea Fallen

(Bodenheimer, 1937, p. 191).

General Distribution: Europe, Israel.

Lispe longicollis Meigen

Upper Galilee: Hula - 1.XI.40, Lower Galilee: Bet Netufa - 16.XI.68, Southern coastal plain: Givat Brenner - 7.VIII.40.

General Distribution: Eastern Europe, Israel, Iran, Central Asia.

Lispe nana Macquart

Upper Galilee: Hula - 23.V.62, Meron - 23.V.62, Judean mountains: Aqua Bella - 12.VI.49, Jerusalem - II.49, Central Negev: Kurnub - 3.VI.53.

General Distribution: Canaries, Azores Is., Southern Europe, Egypt, Asia minor, Israel, Israel, Afghanistan, Iran, Tadzhikistan, Turkmenia.

Lispe cf. nuba Wiedemann

Upper Galilee: Hula - I.IX.40, Southern coastal plain: Givat Brenner - 7.VIII.40.

General Distribution of nuba Wied.: Egypt, Sudan.

Lispe pygmaea Fallen

Northern coastal plain: Megadim - 4.IV.52, Judean mountains: Jerusalem - 7.VIII.30, Dead Sea area: Jericho - 7.VIII.29.

General Distribution: Europe, Israel, North Africa.

Lispe tentaculata Degeer

Upper Galilee: Hula - 23.V.62, Wadi Amud - 28.V.56, Meron - 23.V.62, Judean mountains: Jerusalem - 15.VI.40, 8.VII.45, Central Negev: Sede Boqer - 20.VI.61, En Mur - 8.IV.55.

General Distribution: Europe, Israel, Lebanon, North, East and Central Asia, North America.

Lispocephala mikii Strobl

Judean mountains: Aqua Bella - 27.VII.54, 20.VI.51.

General Distribution: Canaries, Southern Europe, Lebanon, Syria, Israel, Africa, Tadzhikistan, China.

Atherigona humeralis - Wiedemann

Upper Galilee: Hula - 20.VIII.40, Northern coastal plain: Gaaton - 25.IV.61, Jordan valley: Bet Shean - 12.XI.53, Judean mountains: Jerusalem - 26.VI.47.

General Distribution: Israel, Egypt, Sudan.

Atherigona laevigata Loew

Northern coastal plain: Nahariyya - 20.IV.41, Central coastal plain: Tel Yizhak - 9.I.62, Southern coastal plain: Yarkon - 1.VII.49, Bat Yam - 16.IV.52, Jordan valley: Allenby Bridge - 26.IV.31, Judean mountains: Jerusalem - 17.VIII.30, Dead Sea area: Jericho - 26.VII - 21.VIII.29.

General Distribution: Israel, Arabia, Egypt, Tropical Africa.

Atherigona orientalis Schiner (excisa Thomson)

Northern coastal plain: Nahariyya - 7.VII.39, Central coastal plain: En HaHoresh - 18.VI.48, Pardes Hanna - 22.VIII.41, Valley of Izrael: Geva - 13.VII.43, Southern coastal plain: Tel Aviv 10.VII.39, Petah Tiqwa - 20.VIII.62, Rehovot - 6.X.49, Givat Brenner - VII.49, Judean mountains: Jerusalem - 15.VI.47, 9.X.39, 9.VII.39, Central Negev: Revivim - IX.49.

General Distribution: Israel, India, Ceylon, Indonesia, China, Formosa, Australia, Tropical Africa, South America.

In Israel it is a serious pest on Sorghum caffrorum and attacks also corn, Sudan grass, Lemon grass and Pennisilaria (Rivnay, 1962).

Atherigona theodori Hennig

The Holotype (Cairo, XI.1944., which was the only known specimen) was regarded by Hennig (1961, p. 489) as belonging to Atherigona laevigata Loew, in spite of many differences but after seeing a series of specimens from Israel he described it as a new species (Hennig, 1963b).

Upper Galilee: Hula - 20.VIII.40, Valley of Israel: En Harod - 20.X.34, Central coastal plain: Herzliyya - 15.III.51, Yarkon - 1.VII.49, Dead Sea area: Dead Sea - 22.III.41.

General Distribution: Israel, Egypt.

Atherigona varia Meigen

Upper Galilee: Hula - 22.VIII.40, Southern coastal plain: Rehovot - 4.XI.33, 10.X.33, Judean mountains: Jerusalem - 20.V.40.

Atherigona varia var. soccata Rondani

Valley of Izrael: Sha'ar Ha'Amaqim - 27.VIII.39 (ex. sorghum), Jerusalem. According to Yathom (1965) it is a serious pest of sorghum in Israel, and was obtained from Lower Galilee; Ga'ton, Northern coastal plain: Yagur, Southern coastal plain: Bet Dagan, Foothills of Judean Highlands: Lakhish.

General Distribution: South Europe, Asia, North Africa.

Coenosia atra Meigen

Bodenheimer, p. 191.

General Distribution: Central and South Europe, Syria, Israel, Iran, Tadzhikistan.

Coenosia attenuata Stein

Judean mountains: Jerusalem - 29.X.47, Dead Sea area: Dead Sea - 22.III.51, 16.V.42.

General Distribution: Canaries, Spain, North and Tropical Africa, Syria, Israel, Afghanistan, Central Asia, Formosa, Australia.

Coenosia humilis Meigen

Northern coastal plain: Nahariyya - 20.IV.41, Central coastal plain: Kefar Vitkin - 7.V.39, Ramataim - 17.VIII.40, Valley of Izrael: Beth Hashita - 7.I.40, Southern coastal plain: Rehovot - 11.III.42, 25.XII.31, 7.XII.33, 28.IX.30, Dead Sea Area: Dead Sea - 22.III.45.

General Distribution: Central and South Europe, North Africa, Central and West Asia, North America.

Coenosia tigrina Fabricius

Upper Galilee: Zefat - 23.IV.57, Northern coastal plain: Haifa - (Hennig, p. 611), Central coastal plain: Kefar Vitkin - 7.V.38.

General Distribution: Europe, North Africa, Israel, Lebanon, Syria, Iran, Turkestan, North America.

PHAONINAE

Ophyra capensis Wiedemann

(Ophyra anthrax Meigen, Bodenheimer 1937, p. 191).

Jordan valley: Tiberias - 12.IV.51, Judean mountains: Qiryat Anavim - 15.IV.31, Aqua Bella - 20.IV.40, Jerusalem - 14.II.41, IV.48.

General Distribution: Europe, Israel, Africa, North and South America.

Ophyra leucostoma Wiedemann

Upper Galilee: Hagosherim - 18.V.67, Rosh Pinna - 15.IV.41, 28.VII.50, Central coastal plain: Hadera - 5.IV.53, Kefar Vitkin - 25.IV.64, Avihayil - 15.III.63, Southern coastal plain: Tel Aviv - 24.IV.57, 8.VII.53, Ramat Gan - 1.VIII.56, Petah Tiqwa - 1.V.55, 10.IX.63, Judean mountains: Qiryat Anavim - 23.V.55, Jerusalem - 20.VII.53.

General Distribution: Europe, Asia, North Africa, North America.

Hydrotaea meteorica (?) Linnaeus

Judean mountains: Jerusalem - IV.48.

General Distribution: Europe, Israel, North America.

Hydrotaea similis Meade

Southern coastal plain: Tel Aviv - 7.III.56, Judean mountains: Jerusalem - 3.X.51.

General Distribution: Europe, Israel.

Phaonia kugleri Lyneborg

Upper Galilee: Meron - 22.V.62 (Holotype ♂).

Hennig, 1963 - p. 881, regarded the specimen as belonging to either Phaonia tersa Villeneuve or to be a new species near L. tersa. Lyneborg (1965) described this specimen as a new species, since it has hairs on the prosternum, while Ph. tersa lacks them.

Phaonia rufipalpis Maquart

Judean mountains: Aqua Bella - 7.V.47, 12.VI.49, 1.VII.49.

General Distribution: Europe, Israel.

Phaonia trimaculata Bouché

Upper Galilee: Rosh-Pinna - 15.VII.49, Judean mountains: Aqua Bella - 1.VII.49, 27.VII.54, 27.VIII.54, Jerusalem - 28.VI.50, 5.VII.50.

General Distribution: Europe, Israel, North Africa.

Phaonia viarum Robineau-Desvoidy (erratica Fallen)

Judean mountains: Aqua Bella - 12.VI.49, Jerusalem - 2.IV.48.

General Distribution: Europe, North Africa, Israel, Uzbekistan.

Muscina assimilis Fallen

Southern coastal plain: Ramat Gan - 17.III.45, Judean mountains: Jerusalem - 28.VI.47.

General Distribution: Europe, Asia, North America.

Muscina pabulorum Fallen

Jordan valley: Tabha - 26.III.42, Judean mountains: Jerusalem - 15.V.44, Zora - 21.V.67 (ex. Thaumetopoea wilkinsoni Tams. larvae, leg. Halperin).

General Distribution: Europe, Israel, North Africa, North America.

Muscina pascuorum Meigen

Southern coastal plain: Tel Aviv - 15.II.64.

General Distribution: Europe, Asia, North America.

Muscina stabulans Fallen

Upper Galilee: Meron - 18.V.65, 17.V.67, Elon - 28.V.57, Southern coasta plain: Tel Aviv - 1.X.47, Judean mountains: Aqua-Bella - 20.VI.51, 19.I.54, 27.VIII.52, 3.V.39, 6.V.40, Central Negev: Sede-Boqer - 10.IV.53, Arava valley: En Radian - 4.IV.62.

General Distribution: Geopolitan.

Synthesomyia nudiseta Wulp

Southern coastal plain: Tel Aviv - 5.VI.63 (The larvae were found in the mouth of a dying Vipera palaestina), Giv'at Brenner - 20.XI.40.

General Distribution: Israel, Tropical regions of the world.

Pyrellia ignita Robineau-Desvoidy

Dead Sea area: Jericho - 11.VI.41

General Distribution: Europe, Asia.

Morellia nilotica Loew

Upper Galilee: Meron - 22.V.62, Dead Sea area: Jericho - 20.III.23, 4.XI.30, Dead Sea - 14.IV.52, En Gedi - 30.IX.61.

General Distribution: Syria, Israel, Egypt, Tropical Africa.

Musca albina Wiedemann

Southern coastal plain: Tel Aviv - 20.VI.56, Ekron - 30.VII.41, Judean mountains: Jerusalem - 30.V.29, Central Negev: Treibe - 3.VI.43, Arava valley: En Radian - 1.V.54.

General Distribution: Eastern Europe, Asia, Africa.

Musca autumnalis Degeer

Upper Galilee: Hula - 2.VIII.40, 5.VIII.41, 5.VIII.40, Northern coastal plain: Haifa - 22.IX.41, Dead Sea area: Jericho - 19.21.VII.29.

General Distribution: Europe, Central and Western Asia, North and East Africa, North America.

Musca crassirostris Stein

Upper Galilee: Metulla - 25.V.47, Dafna - 25.V.47, Hula - 2.VIII.41, Jordan valley: Bet-Shean - 24.VII.22, Valley of Izrael: Bet Alfa - 28.X.29, Southern coastal plain: Holon - 27.VI.53, Givat Brenner - 20.XI.40, Foothills of Judean

mountains; Bet Guvrin - 7.VIII.50, Judean mountains: Jerusalem - 7.VII.29, 20.VIII-22 - 22.IX.30, Dead Sea area: Jericho - 7.VII.29, 11.VI.41, Kalia - 2.VII.46,

General Distribution: Southern and Eastern Europe, Asia, Africa.

Musca domestica form domestica Linnaeus

Northern coastal plain: Haifa - 3.IV.24, Judean mountains: Jerusalem - 7.VI.29, 9.VI.29, 8.IX.29, 16.IX.29, 3.V.41, 26.XII.40, 3.I.41, 22.VII.41, 20.XII.41, Dead Sea area: Dead Sea - 5.X.41.

General Distribution: Geopolitan.

Musca domestica L. form vicina Macquart

This form is the common housefly throughout Israel.

General Distribution: After Patton (1933) Musca vicina is the common house-fly of the tropics. It is common in Egypt, Palestine and Iraq, also in North China.

Musca domestica L. form nebulosus Fabricius

Jordan valley: 18.XII.30, 18.XII.41; Naharaim - 20.IV.41, Southern coastal plain: Givat Brenner - 20.XI.40, Judean mountains: Qiryat Anavim - 23.I.41, Jerusalem - 8.IV.29, 17.VIII-- 18.IX.30, 20.XII.41, Dead Sea area: Jericho - 10.VII.29, Kalia - 16.V.42, Dead Sea - 15.X.41, 15.X.43.

Gratz, Rosen and Ascher (1957) collected 39 samples of medium (cow manure, garbage, chicken manure, compost) - 1/2 kg. each - from 12 different localities ranging from Zefat in the north to Beer Sheva in the south. All the samples contained larvae of Musca. From the emerging flies a number of males from each sample was identified. In all samples Musca d. vicina was predominant. In addition, M.d. nebulosus was obtained from almost all samples. The highest percentage was from Ashqelon: 31%.

General Distribution: After Patton (1933) it is widely distributed in Egypt, Palestine, Iraq, Arabia and India.

Musca larvipara Portschinsky

Upper Galilee: Dafna - 25.VI.47, Central coastal plain: Binyamina.

General Distribution: Eastern and Southern Europe, Asia, North Africa.

Musca lucidula Loew

Northern coastal plain: Haifa - 2.IV.39, Dead Sea area: Jericho - 11.VI.41, Kalia - 2.VII.46, Dead Sea - 13.VI.56, Central Negev: Treibe - 3.VI.53, Northern Negev: Wadi Maari - 6.IV.55, Arava Valley: En Radyan - 1.V.54.

General Distribution: Sicilia, North Africa, West and Central Asia.

Musca osiris Wiedemann

Rehovot - leg. Aharoni, Mus. Stuttgart (Hennig, 1964, p. 1099). M. osiris was regarded by most authors as a synonym of M. vitripennis Meig. Hennig (1964, p. 1017) regards it as a different species.

General Distribution: Asia, North Africa.

Musca sorbens Wiedemann

Upper Galilee: Hula - 2.VIII.40, Rosh Pinna - 8.VII.31, Jordan valley: 26.I.42, 18.XII.30, Bet Shean - 29.IV.40, Northern coastal plain: Haifa - 8.VIII.39, Atlit - 9.VIII.39, Valley of Izrael: Bet HaShitta - 7.I.40, Central coastal plain: Pardes-Hana - 22.VIII.41, Samaria: Wadi-Kelt - 17.XII.41, Southern coastal plain: Tel Aviv - 5.VII.39, Foothills of Judean mountains: Bet Guvrin - 25.III.54, Judean mountains: Aqua Bella - 20.XII.41, Jerusalem - 9.VI.29, 7.VII.29, 28.VIII-5.IX.30, 14.VII.29, 27.VIII.30, 5.XII.39, 5.X.39, 3.VIII.39, 4.VI.40, 15.XI.41, 1.VII.40, 3.VIII.39, 5.VIII.44, 4.VI.40, 2.VIII.53, 15.X.54, Moza - 14.X.39, Northern Negev: Beer Sheva - 25.III.54, Central Negev: Wadi Ramon - 5.VI.57, Wadi Nafha - 20.X.57, Dead Sea area: Jericho - 9-11.VII.29, 11.VI.41, 25.VIII.41, 11.VI.41, Dead Sea - 22.III.41, 5.VIII.39, 6.VII.46, 19.VI.47, 10.III.46, 30.III.65, 14.IV.52, Arava valley: Beer Ora - 2.VII.52.

General Distribution: Southern Europe, Asia, Africa.

Musca tempesta Fallen

Central Negev: Sede Boqer - 1.V.54, Dead Sea area: Jericho - 16.VIII.29, Kalia - 16.V.42, Arava valley: Wadi Arava - 3.VII.46.

General Distribution: Europe, Asia, Africa.

Musca vitripennis Meigen

Upper Galilee: Hula - 5.VIII.40, Rosh Pinna - 15.IV.41, Central coastal plain: Hadera - 5.VI.53, Southern coastal plain: Tel Aviv - 21.IV.35, Bat Yam - 16.IV.52, Rehovot - 1.III.33, 12.XII.33, 11.III.42, Givat Brenner - 20.XI.40, Foothills of Judean mountains: Bet Guvrin - 25.III.54, Judean mountains: Aqua Bella - 20.IV.40, Qiryat Anavim - 22.I.41, Jerusalem - 28.V.29, 1.IV.31, 14.VIII.42, 16.IX.49, 15.II.41, 2.XII.40, Northern Negev: Revivim - 25.III.57, Dead Sea area: Jericho - 11.VI.41, Dead Sea - 3.VIII.39.

General Distribution: Central Europe, Mediterranean countries, West Asia.

Stomoxys calcitrans Linnaeus

Northern coastal plain: Haifa - 1.IV.24, 2.IV.38, Jordan valley: 4.V.23, Bet Shean - 4.IV.39, Valley of Izrael: Bet Alfa - 16.I.40, Judean mountains: Jerusalem -

5.VII.51, 31.V.50, 3.V.39, 5.IV.39, 5.VI.40, Northern coastal plain: Tel Aviv - 18.II.68, Holon - 25.I.64, Rehovot - 14.X.66, Central Negev: Wadi Ramon - 5.VI.57, Dead Sea area: En Gedi - 26.VI.59, Arava valley: Wadi Arava - 3.VII.46.

General Distribution: Geopolitan.

Siphona irritans Linnaeus (Lyperosia irritans L. Bodenheimer, 1937, p. 191).

Upper Galilee: Dafna - 25.V.47, Hula - VII.41, 2.VIII.40, Jordan valley: Bet Shean - 2.XI.21, Central coastal plain: Hadera - 31.V.21, Ramat-HaKovesh - 3.VII.50, Southern coastal plain: Givat Brenner - 20.XI.40.

General Distribution: Europe, Asia, North Africa, North and Central America.

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