

## SOME OF HOVERFLIES FAUNA OF SUBFAMILY MILESIINAE (DIPTERA: SYRPHIDAE) OF QURIGOL IN EAST AZERBAIJAN PROVINCE, NORTHWEST IRAN

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ABSTRACT: In this study, the collected specimens belonged to the subfamily Milesiinae from the surrounding of Qurigol lake in East Azerbaijan province, Northwest Iran, during 2008-2009 were evaluated. Totally 17 species arranged in 10 genera were identified which two of them *Lejogaster nigricans* (Meigen, 1822) and *Mallota auricoma* Sack, 1910 were determined as first records for the Iran insect fauna.

KEY WORDS: Syrphidae, Milesiinae, Fauna, New records, Qurigol, Iran.

Qurigol is a small, about 200 hectares expanse, fresh to brackish lake with associated marshes in the steppe uplands of northwestern Iran. There are extensive areas of reed beds. It is situated about in 40 Km east- southeast of Tabriz city. The surrounding area is semi-arid, and there is wheat cultivation on the west and damp grasslands on the southwest. Geographical coordinates is 37° 55' N; 46° 42' to 46° 44' E.

Hoverflies belong to one of the most diverse fly families which include about 200 genera and more than 6000 species worldwide. Flower flies of the subfamily Milesiinae are the most common and conspicuous which contain about two thirds of hoverfly fauna. In this subfamily humeri is hairy and head naturally sits well forward so that the humeri is clearly visible (Stubbs & Falk, 2002). These flies are common pollinators which is present wherever flowers are found, being absent only in truly arid areas and the Polar Regions (Faegri & van der Pijl, 1979; Kevan & Baker 1983).

Nearly most of Milesiinae members are generally seen around ponds, marshes and wet lands where there is a large amount of decaying vegetation, wood and rotting seaweeds. Most of Milesiinae larvae are filter feeders in all kinds of aquatic media and are commonly called rat-tailed maggots. If occasionally these larvae swallowed by human, myiasis will be observed. Otherwise, the larvae contribute to the purification of water by filtering out microorganisms as well as organic products. Some of them feed on plant materials and decaying organic matters (Stubbs & Falk, 2002). Feeding on dead animal could be seen in Pipizini tribe which consume dead aphids particularly Adelgids and other wax- secreting aphids. (Chandler, 1968 a,b).

Ninety five species belonging to the Milesiinae subfamily have been already recorded from Iran (Kuznetsov, 1985; Peck, 1988; Modarres Awal, 1997; Khiaban et al., 1998; Gharali et al., 2000, 2002; Alich et al., 2002; Goldasteh et al., 2002; Khiaban & Adim, 2002; Moetamedinia et al., 2002; Pashae Rad et al., 2002; Sadeghi et al., 2002; Barkalov & Gharali, 2004; Golmohammadi & Khiaban, 2004; Kamangar et al., 2004; Gilasian, 2005; Amirimoghdamani & Sirjani, 2004; Dousti & Hayat, 2006; Khaghaninia, 2010; Khaghaninia et al., 2010 a,b).

## MATERIAL AND METHODS

This study was performed during 2008 and 2009. Samples were collected from Qorigol lake surroundings (Fig. 1). Adult syrphids were sampled by a variety of methods, including visually scanning crops while walking, aerial netting, suction traps, and Malaise traps. The most of specimens were gathered on particularly Asteraceae, Malvaceae, Rosaceae and Brassicaceae. The specimens used for identification fixed by 00, 0, 1 and 2 mounted pins and the others were put into tubes filled with 70% alcohol. The collected materials were determined by different credit identification keys especially Bei-Bienko (1988), Stubbs & Falk (2002), Lyneborg & Barkemeyer (2005) and Speight (2010).

## RESULTS

In this study 17 species belonging to 10 genera were collected and identified. All the species are as new records for studying area and the new records for of Iran insect fauna are marked by one asterisk which totally listed as follows:

### ***Eristalinus aeneus* (Scopoli, 1763)**

Ent. Carniolica: 356 sex?; (*Conops*). Type locality: Idria (Yugoslavia).  
Material examined: 2 specimens (2♀♀).

Distribution: Cosmopolitan; southern Sweden south to N Africa and the Canary Isles; on into the Afrotropical region south to Kenya and Tanzania; from Ireland eastwards through central and southern Europe and on through Russia and China to the Pacific and south into the Oriental region; Mauritius; in North America from Minnesota and Ontario south to California and Texas; Hawaii, Australia and the Gilbert and Ellis islands in Australasia; Bermuda), Iran.

### ***Eristalinus megacephalus* (Rossi, 1794)**

Mantissa insectorum, 2: 63 (*Syrphus*). Type locality: not given ("Etruria") [=Toscana] (Italy).

Material examined: 5 specimens (2♂♂, 3♀♀).

Distribution: Southern Spain and coastal parts of Italy round the Mediterranean basin (including islands, e.g. Corsica, Malta, Sicily, Crete) to Turkey and on into Egypt and North Africa; southwards through the Afrotropical region to South Africa), Iran.

### ***Eristalinus sepulchralis* (Linnaeus, 1785)**

Syst. Nat., Ed.10, 1: 596 (*Musca*). Type locality: "Europa".

Material examined: 4 specimens (2♂♂, 2♀♀).

Distribution: Fennoscandia south to Iberia and the Mediterranean, including North Africa; from Ireland through most of Europe into Turkey and European parts of Russia; through Siberia to the Pacific coast; Japan; China; India), Iran.

### ***Eristalinus taeniops* (Wiedemann, 1818)**

Zool. Meg., Kiel, 1(2): 42 (*Eristalis*). Type-locality: "Vorgebirge der Guten Hoffnung" [=Cape] (South Africa).

Material examined: 1 specimen (1♂).

Distribution: Portugal, Spain and round the Mediterranean basin (southern France including Corsica, Italy including Sardinia and Sicily, parts of the former Yugoslavia, Albania, Roumania, Cyprus, Greece (including Crete and Rhodes), Turkey, Lebanon, Israel, North Africa (Syria, Egypt, Libya, Tunisia, Morocco), Canary Islands, Transcaucasus; in eastern parts of the Afrotropical region down to South Africa (inclusive) and in Nepal and parts of Pakistan and northern India in the Oriental region), Iran.

### ***Eristalis arbustorum* (Linnaeus, 1758)**

Syst. Nat., Ed. 10, 1: 591 (*Musca*). Type locality: Europa.

Material examined: 23 specimens (11♂♂, 12♀♀).

Distribution: Throughout the Palaearctic region, including North Africa; North America from Wisconsin to Labrador and south to Kansas and South Carolina; reaches the Oriental region in northern India. In Western Europe, there has been a noticeable decrease in the abundance of this species during the 1990s, which may be due to the widespread use of Ivermectins and similar compounds as systemic helminthicides. These compounds render cow-dung toxic to a range of dung-feeding insects, but their level of toxicity to *E. arbustorum* remains to be established, so that the extent to which the disappearance of this species is due to the spread of these compounds into general use remains uncertain (Speight, 2005), Iran.

***Eristalis nemorum* (Linnaeus, 1758)**

Syst. Nat., Ed. 10, 1: 591 (*Musca*). Type locality: "Europa".

Material examined: 5 specimens (3♂♂, 2♀♀).

Distribution: From Scandinavia to Spain, Italy, the former Yugoslavia, Bulgaria; USSR—from North European territory to Transcaucasus, Kazakhstan, Soviet Middle Asia (Kirghizistan), West Siberia, Far East; Mongolia and Nearctic Region), Iran.

***Eristalis tenax* (Linnaeus, 1758)**

Syst. Nat., Ed. 10, 1: 591 (*Musca*). Type locality: Svecia (Sweden).

Material examined: 19 specimens (7♂♂, 12♀♀).

Distribution: Highly migratory; cosmopolitan; the most widely distributed syrphid species in the world, known from all regions except the Antarctic; found throughout Europe except in the far north), Iran.

***Eumerus sogdianus* Stackelberg, 1952**

Trudy zoll Inst., 12: 390 (*Eumerus*) Type-locality: Tajikistan: Stalinabad [=Dushanbe] calley of the r. Kafernighan.

Material examined: 1 specimen (1♂).

Distribution: Denmark south to southern Spain; from Belgium eastwards through central and southern Europe into European parts of Russia and on into central Asia (Kazakhstan, Tajikistan, Uzbekistan, Mongolia); China. The presence of this species in Western Europe has only been recognized recently), Iran.

***Helophilus pendulus* (Linnaeus, 1758)**

Syst. Nat. Ed. 10, 1: 591 (*Musca*). Type locality: "Svecia" (Sweden).

Material examined: 2 specimens (1♂, 1♀).

Distribution: From Iceland, Fennoscandia and the Faroes south to Iberia; from Ireland eastwards through central and southern Eurasia to the Pacific coast; more localised in southern Europe), Iran.

***Helophilus trivittatus* (Fabricius, 1805)**

Syst. Antl.: 235 (*Eristalis*). Type locality: "Austria".

Material examined: 1 specimen (1♂).

Distribution: From Fennoscandia south to the Mediterranean and from Ireland eastwards through Eurasia to the Pacific, including Iran and Afghanistan), Iran.

**\**Lejogaster nigricans* (Stackelberg, 1922)**

Annu. Mus. Zool. Acad. Sci. USSR, 23(3/4): 362 (*Liogaster*). Type- localities: "Rossia centralis: Gremjatsheca.

Material examined: 1 specimen (1♂).

Distribution: Europe: Yugoslavia, Bulgaria, Albania, Greece, USSR: Central European territory, South European territory. The new record for the Iran insect fauna.

**\**Mallota auricoma* Sack, 1910**

Beil. Programm Wohler-Realgymn. Frankfurt a.M., 1910:36 (*Mallota*). Type-Locality: "Altai-Beresowski" (W Siberia).

Material examined: 1 specimen (1♀).

Distribution: USSR: Central European territory, Soviet Middle Asia. Uzbekistan, Tajikistan, Kirghizstan, Turkmenistan. West and East Siberia. Far East. China. Mongolia. The new record for the Iran insect fauna.

***Myathropa florea* (Linnaeus, 1758)**

Syst. Nat. Ed. 10, 1: 591 (*Musca*). Type locality: Europa.

Material examined: 3 specimens (2♂♂, 1♀).

Distribution: From Fennoscandia south to Iberia and the Mediterranean, the Canary Isles and North Africa; from Ireland eastwards through Eurasia to the Pacific coast), Iran.

***Neoscia podagrica* (Fabricius, 1775)**

Syst. entom.: 768 (*Syrphus*). Type locality: "Dania".

Material examined: 3 specimens (1♂, 2♀♀).

Distribution: From Fennoscandia south to Iberia and the Mediterranean, including Madeira, Cyprus and Crete; N Africa; from Ireland eastwards through northern, central and southern Europe (Italy, the former Yugoslavia, Greece) to Turkey and Israel; European parts of Russia and on into western Siberia as far as Cis-Baikal), Iran.

***Syrirta pipiens* (Linnaeus, 1758)**

Syst. Nat., Ed.10, 1: 594 (*Musca*). Type locality: Europa.

Material examined: 28 specimens (11♂♂, 17♀♀).

Distribution: Becoming cosmopolitan; known from most of the Palaearctic, including North Africa, most of North America, South America and the Oriental region. But records from the Afrotropical region are apparently erroneous), Iran.

***Volucella inanis* (Linnaeus, 1758)**

Syst. Nat., Ed. 10, 1: 595 (*Musca*). Type locality: "Europa".

Material examined: 14 specimens (6♂♂, 8♀♀).

Distribution: From southern Fennoscandia south to Spain and the Mediterranean (including islands, e.g. Crete), north Africa and Asia Minor (Syria); from Britain (southern England) eastwards through central and southern Europe into Turkey and European parts of Russia and on through Siberia to the Pacific; Afghanistan, Mongolia, China. This species is strongly migrant), Iran.

***Volucella zonaria* (Poda, 1761)**

Insect. Mus. Graecensis: 118 (*Conops*). Type locality: not given ("ad Graecium") [= environs of Graz] (Austria).

Material examined: 1 specimen (1♂).

Distribution: From Poland south to the Mediterranean (including islands, e.g. Crete) and North Africa; from Britain (southern England) eastwards through central and southern Europe (Italy, the former Yugoslavia, Greece) into Turkey and European parts of Russia and on through Siberia to the Pacific; Iran; Mongolia. This species is strongly migratory), Iran.

## CONCLUSION

Our study indicated that the species belonged to Eristalini particularly *Eristalinus*, *Eristalis* and *Helophilus* genera having aquatic larvae, were the most common and conspicuous flower flies at the working area. *Helophilus* members and *Neoscia podagrica* were found related to reed beds whereas the *Voucella* members gathered mostly on grass lands near the water channels. The specimens caught by malaise traps were female biased that were in agree with the findings of Hagvar and Nilson (2007) indicating that female flight behavior makes females more vulnerable to Malaise traps than males.

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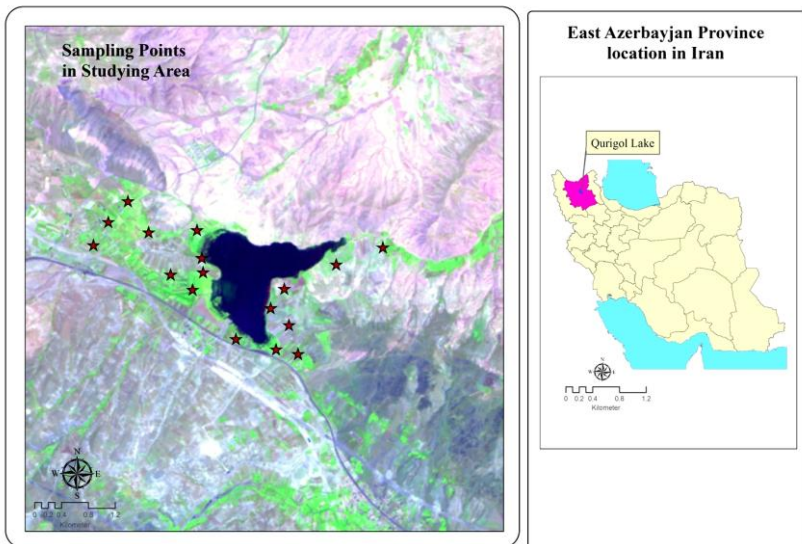


Fig. 1. Location of sampling points on satellite image (SPOT) of Qurigol lake environment.