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## **An annotated checklist of the subfamily Syrphinae (Diptera: Syrphidae) of Iran**

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### **Abstract**

In the present paper a list of the subfamily Syrphinae species (Diptera: Syrphidae) in Iran are reviewed based on available literatures and new material. A total of 68 species from 17 genera are listed. Among the collected syrphids, 33 species are reported for the first time from Northern provinces of Iran and two species: *Chrysotoxum montivaga* VILOVITSH 1973 and *Melangyna lasiophthalma* (ZETTERSTEDT 1843) are new records for the fauna of Iran. Geographical distributions of all species are given.

### **Zusammenfassung**

Vorliegende Arbeit behandelt das Vorkommen der Unterfamilie Syrphinae (Diptera: Syrphidae) im Iran auf Grundlage verfügbarer Literatur und unpublizierten Materials. Insgesamt konnten 68 Arten aus 17 Gattungen nachgewiesen werden. Unter den festgestellten Arten gelang es 33 erstmalig aus den nördlichen Provinzen des Iran zu registrieren. *Chrysotoxum montivaga* VILOVITSH 1973 und *Melangyna lasiophthalma* (ZETTERSTEDT 1843) sind Erstnachweise für die Fauna des Iran. Hinweise zur geografischen Verteilung aller Arten werden angeführt.

## Introduction

Syrphidae (Diptera: Cyclorrhapha) are commonly called as syrphid flies, hover flies or flower flies, comprise about 6000 described species and is a specious family of Diptera (THOMPSON 2006). They are distributed worldwide, with the greatest species diversity in the New World Tropics (MASETTI et al. 2006). Adult syrphid flies visit flowers to feed on pollen and nectar. Larvae are found in a wide range of habitats, including fungal fruiting bodies (mycophagy), dung, nests of social Hymenoptera, decaying wood and water bodies of several types (saprophagy), mining in leaf and stems of numerous plant families (phytophagy), and as predators of arthropods (ROTHERAY 1993). Three subfamilies, Microdontinae, Eristalinae and Syrphinae, and 14 tribes are currently recognized in the family (THOMPSON & ROTHERAY 1998).

The larvae of subfamily Syrphinae are primarily aphid predators, some are generalists, and others specialize on just a few species of aphids. The species of the tribe Pipizini specialize on gall forming aphids. Adults exploit pollen and nectar produced by native plants having large inflorescences and flat corollae (e.i. Apiaceae, Asteraceae, Ranunculaceae and Rosaceae) (STUBBS & FALK 1983).

According to results of molecular and morphological phylogeny analysis, CHENG et al. (2000) showed that the phylogenetical relationship between Pipizini and predatory groups is closer than that between Pipizini and saprophagous groups; a conclusion is obtained that the tribe Pipizini should be transferred from Milesiinae to Syrphinae. This is well supported by the evidence of habits of larvae. However, STAHEL et al. (2003) placed Pipizini as the sister-group to subfamily Syrphinae. The tribe Pipizini was resolved as the sister group of the genus *Baccha* (MENGUAL et al. 2008). VOCKEROTH (1992) adjusted his classification recognizing only four tribes in Syrphinae (including *Chrysotoxum* in the Syrphini and placing Melanostomini under Bacchini). According to THOMPSON (2006) and MENGUAL et al. (2008) four tribes are recognized currently in the subfamily Syrphinae: Bacchini, Paragini, Syrphini and Toxomerini. Number of genera and species of Syrphinae in the world and Iran are presented in Table 1 based mainly in MENGUAL et al. (2008) classification.

Seven foraging guilds are defined according to the dietary patterns of hoverflies, reflecting mainly a sequential exploitation of flowers at different times of the year and in different habitats (BRANQUART & HEMPTINNE 2000). The majority of species live in forests where they form highly diversified communities, few Syrphinae colonize successfully open and anthropogenic habitats, such as field margins and fallow areas (BRANQUART & HEMPTINNE 2000). *Episyrphus balteatus*, *Syrphus ribessi*, *Eupeodes corollae*, *Sphaerophoria scripta* are dominant in the communities of Syrphinae from open habitats all over Iran, these species are highly polyphagous. They have access to pollen and nectar in flowers with small and tubular corollae (SADEGHI 2008; JALILIAN et al. 2010).

The first efforts on knowing syrphid flies from Iran were made by FARAHBAKHS (1961), KHIABAN et al. (1998) and DUSTI (1999). Recently, more contributions have been done for collecting and identifying the Iranian Syrphidae (GILASIAN & SOROKINA 2011; GHARALI et al. 2000; KHIABAN & PARCHAMI 2001; GILASIAN & GHARALI 2002; GOLDASTEH et al. 2002; MOETAMEDINIA et al. 2002; SADEGHI et al. 2002; GILASIAN & VJIĆ 2004; AMIRIMOGHADAM & SIRJANI 2004; GOLMOHAMMADI & KHIABAN 2004; KAMANGAR et al. 2004), also their associations and their role in biological control of

some pests were studied (MODARRES AWAL 1994; MOHAMMADBEIGI 2000; NOORBAKHS 2000; MALKESHI et al. 2004). GILASIAN & SOROKINA (2011) provide a checklist and a key of genus *Paragus* from Iran. DUSTI & HAYAT (2006) provided a catalogue for Syrphidae species from Iran, but it seems that some results of studies on the family in Iran are not listed there. Here we present an updated checklist of subfamily Syrphinae species in Iran and distribution of species outside Iran.

## Materials and Methods

The checklist aims at reviewing as many references as possible on the subfamily Syrphinae and listing each species with distributional data in Iran and other countries. The Iranian provinces which the Syrphinae species were recorded are shown in fig. 1. Fifty nine Syrphinae species were reported in the Catalogue of Syrphidae of Iran (DUSTI & HAYAT 2006), but here 9 other Syrphinae species are added to the previous records.

*Melangyna lasiophthalma* (ZETTERSTEDT 1843) was collected from Northern Iran, Mazandaran province using malaise trap in 2011 and *Chrysotoxum montivaga* VIOLOVITSH 1973 was collected from Northern Iran, Alborz province using Malaise trap in 2010. The specimens were extracted from the Malaise trap and then treated with 100% ethanol for 5 minutes followed by hexamethyldisilazane (HMDS) for 30 min and finally placed on the glass plate for drying. The dried specimens were then labeled. Morphological terminology follows VAN VEEN (2004) and STUBBS & FALK (1983). The specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran.

## Results and Discussion

Iran is located in a decisive geographic position, acting as a connection between the Palearctic and Oriental regions (fig. 2) and the existence of different and unique habitats for syrphid flies; it seems that Iran has a rich fauna of Syrphidae.

The list below present 68 Syrphinae species to Iran among them the following two species is recorded for the first time: *Melangyna lasiophthalma* (ZETTERSTEDT 1843) and *Chrysotoxum montivaga* VIOLOVITSH 1973 and 33 species are reported for the first time from studied area of Northern Iran. Up to date, about 21 species of the genus *Melangyna* VERRALL 1901 have been described. In Europe 11 species in *Melangyna* have now been recorded (BYGEBJERG 2011). So far, two species of the genus *Melangyna* have been reported from Iran: *M. cincta* (FALLÉN 1817) and *M. umbelatarum* (FABRICUS 1794) (GILASIAN 2007; GHAHARI et al. 2008).

In the Palaearctic region 114 species of the genus *Chrysotoxum* have been described (SOMMAGGIO et al. 2003), 45 of which are actually considered as synonyms and 23 supposedly distinct European species (PECK 1988). Thirteen *Chrysotoxum* species have previously been reported from Iran (DUSTI & HAYAT 2006).

Each new record for Northern provinces of Iran is indicated with one asterisk (\*) and the new Iranian records are marked with two asterisk (\*\*).

## Checklist of the subfamily Syrphinae of Iran

### Subfamily Syrphinae

#### Tribe Syrphini

#### Genus *Chrysotoxum* MEIGEN 1803

##### *Chrysotoxum arcuatum* (LINNAEUS 1758)

Iranian Records: Khorasan-e-Razavi province (DUSTI & HAYAT 2006).

Distribution: Ireland, Norway, Finland, Italy (NASH 1997); the former Yugoslavia, Bulgaria, USSR (Kola Peninsula), Caucasia (KUSTOV 2006); West and East Siberia and Serbia (THOMPSON et al. 1982); Slovenia (LAMBECK 1968); Lithuania (KUZNETSOV 1987); Great Britain (CHANDLER 1998); Mongolia, Japan, China (KE KE et al. 2006); Russia (SOROKINA & CHASHCHINA 2003).

##### *Chrysotoxum bacterianum* VIOLOVITSH 1973\*

Material examined: Alborz province: Karaj 35° 46' 20.16'' N, 50° 56' 44.94'', 1278 m, (1 ♀), 7.VI.2010; (1 ♂), 27.IV.2010; Karaj 35° 46' 8.88'' N, 50° 56' 55.2'', 1277 m, (1 ♀), 14.V.2010; Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1 ♂), 6.VII.2010; leg. M. Kheirandish.

Iranian Records: Fars province; Khorasan-e-Razavi province; Kordestan province (DUSTI & HAYAT 2006); New record for Alborz and Qazvin provinces.

Distribution: Soviet Middle Asia (PECK 1988); Lithuania (KUZNETSOV 1987).

##### *Chrysotoxum bicinctum* (LINNAEUS 1758)\*

Material examined: Guilan province: Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (1 ♀), 7.VI.2010; leg. A. Nadimi.

Iranian Records: Khorasan-e-Razavi province, Kashmar and Bardaskan (DUSTI & HAYAT 2006); New record for Guilan province.

Distribution: Fennoscandia to Iberia and coast of the Mediterranean (KUSTOV 2006); North Africa (SPEIGHT 2006); central and southern Europe (Italy, the former Yugoslavia, Bulgaria) (COE 1960; SOMMAGGIO 2010); Turkey (DIRICKX 1994); European parts of Russia (PECK 1988); Asiatic parts of Russia as far as central Siberia (VIOLOVITSH 1986); Slovenia (STROBL 1910); Lithuania (KUZNETSOV 1987); Great Britain (CHANDLER 1998).

##### *Chrysotoxum cautum* (HARRIS 1776)\*

Material examined: Mazandaran province: Noor, 36° 34' 52.98'' N, 52° 02' 44.16'' E, -14 m, (1 ♂), 29.IV.2011, (1 ♀), 26.V.2011; Noor, Joorband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (1 ♀), 29.IV.2011; leg. A. Nadimi.

**Iranian Records:** Khorasan-e-Razavi province (DUSTI & HAYAT 2006); New record for Mazandaran province.

**Distribution:** Finland to the Pyrenees and Spain (MARCOS-GARCIA et al. 2002); Ireland and Great Britain (southern England) (CHANDLER 1998); central and southern parts of Europe (Italy, the former Yugoslavia, Bulgaria, Greece) (SPEIGHT & NASH 1993); Turkey (TUATAY et al. 1967); Russia as far as the Altai mountains (Mongolia) (SOROKINA & CHASHCHINA 2003).

***Chrysotoxum coreanum* SHIRAKI 1930**

**Iranian Records:** Golestan province, Gorgan (DUSTI & HAYAT 2006).

**Distribution:** USSR-Far East and Korea (SHIRAKI 1930).

***Chrysotoxum elegans* LOEW 1841\***

**Material examined:** Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1♂), 27.VII.2011; (1♀), 25.VI.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (1♀), 20.IX.2010; (1♀), 5.X.2010; Rudsar, Orkom, 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (1♀), 26.X.2010; (1♀), 20. IX.2010; leg. A. Nadimi.

**Iranian Records:** West Azerbaijan province, Oromie (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); New record for Qazvin and Guilan provinces.

**Distribution:** Fennoscandia to Iberia and coast of the Mediterranean (PETANIDOU et al. 2011); through central and Southern Europe into European parts of Russia as far as the Caucasus Mountains (KUSTOV 2006); Turkey (DIRICKX 1994); the Netherlands (REHEMA & REEMER 2004); Italy (SOMMAGGIO 2010); Serbia (NEDELJKOVIC et al. 2009); Iceland and Spain (RIDDIFORD & EBEJER 2006); Great Britain (CHANDLER 1998); England (SKIDMORE 1999).

This species seems to be disappearing rapidly from much of its European range, along with its primary habitat, ancient, unimproved pasture with patches of scrub woodland.

***Chrysotoxum festivum* (LINNAEUS 1758)**

**Iranian Record:** East Azerbaijan province (KHAGHANINIA 2010).

**Distribution:** Fennoscandia to Iberia and coast of the Mediterranean, North Africa (SMITH & VOCKEROTH 1980); Ireland, Spain, Italy, Turkey (PECK 1988); European parts of Russia (SPEIGHT 2001); Siberia (VIOLOVITSH 1986); Japan (PAN et al. 2010); India (SPEIGHT 2006); Turkey (HAYAT & ALAOĞLU 1990).

***Chrysotoxum intermedium* MEIGEN 1822**

**Iranian Records:** Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan (DUSTI & HAYAT 2006).

**Distribution:** Belgium, Germany, Poland, Serbia (VUJIĆ et al. 1998); France, Switzerland, Hungary, Romania (VUJIĆ et al. 1998); Portugal, Spain (RIDDIFORD &

EBEJER 2006); Slovenia (GLUMAC 1956); Great Britain (CHANDLER 1998); the Netherlands (SMIT et al. 2001); Caucasia (KUSTOV 2006); Italy (SOMMAGGIO 2010); Bulgaria (MARKOVA 2006); Greece (PETANIDOU et al. 2011); Turkey (BISCHOF 1902); USSR-South European territory (LAMBECK 1968); Kazakhstan, Soviet Middle Asia, Afghanistan, Morocco, Algeria and Tunisia (PECK 1988).

***Chrysotoxum lessonae* GIGLIO-TOS 1890**

**Iranian Records:** Iran (DUSTI & HAYAT 2006).

**Distribution:** Serbia (VUJIĆ et al. 1998); Turkey (SARIBIYIK 2011); Romania and Italy (BURGIO et al. 2000).

***Chrysotoxum montivaga* VIOLOVITSH 1973\*\* (Fig. 4E)**

**Material examined:** Alborz province, Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (1 ♀), 14.IX.2010; leg. M. Kheirandish.

**Distribution:** Russia, Mongolia, Korea (Peck 1988); New record for Iran.

**Diagnosis:** Head: Third antennal segment shorter than combined lengths of segments 1+2 (fig. 3C); Mouth edge black; Thorax: Wing with a slightly darkened or yellowish anterior margin and a brownish sub apical spot (fig. 3B); scutellum yellow with black hairs (Fig. 4A); Black longitudinal strip on face not reach to base antenna; All legs yellow (fig. 3B). Abdomen: oval, 2-5 tergites strongly margined, yellow bands on abdominal tergites interrupted and reach to lateral margin, abdomen margin black and yellow (fig. 3B).

***Chrysotoxum parmense* RONDANI 1845\***

**Material examined:** Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1 ♂), 27.VII.2011; (2 ♀ ♀), (1 ♀), 22.VI.2011; (1 ♀), 6.IX.2011; (1 ♂), 23.VIII.2011; leg. A. Nadimi.

**Iranian Records:** Sistan and Baluchistan province, Kuhe-e-taftan; Khuzestan province, Ahwaz; Fars province (DUSTI & HAYAT 2006); New record for Qazvin province.

**Distribution:** Southeast Spain (MARCOS-GARCIA & ISIDRO 1995); southern France, Greece (including Crete) (MARKOVA 2006); Turkey (SACK 1932), Lebanon and Israel (KAPLAN & THOMPSON 1981); North Africa (Egypt) (PECK 1988); Caucasia (KUSTOV 2006); Italy (SOMMAGGIO 2010).

***Chrysotoxum robustum* PORTSCHINSKY 1887**

**Iranian Records:** Golestan province, Astrabad [=Gorgan] (PECK 1988).

**Distribution:** Iran (PECK 1988).

***Chrysotoxum octomaculatum* CURTIS 1837\***

**Material examined:** Mazandaran province: Noor, Gaznasara, 36° 16' 58.44'' N, 52° 10' 58.5'' E, 2032 m, (1 ♂), 28.VI.2011; leg. A. Nadimi.

**Iranian Records:** East Azarbayjan province (EHTESHAMNIA et al. 2010); New record for Mazandaran province.

**Distribution:** Sweden; Great Britain (CHANDLER 2011); Portugal (RICARTE et al. 2009); the Netherlands (STUBBS & FALK 1983); Belgium (VERLINDEN & DECLEER 1987); Germany (HEESE 1970); France (SARTHOU & SPEIGHT 1997); Switzerland, Hungry, Spain (RIDDIFORD & EBEJER 2006); Lithuania (KUZNETZOV 1987); Italy (SOMMAGGIO 2010); the former Yugoslavia (COE 1960); Romania, Bulgaria (SKIDMORE 1999); Turkey (HURKMANS et al. 1997), USSR from Kola to Caucasia (KUSTOV 2006); northern, southern and central parts of Europe (LAMBECK 1968); Siberia (PECK 1988).

***Chrysotoxum vernale* LOEW 1841\***

**Material examined:** Guilan province: Rudsar, Ghazichak, 36° 45' 57.54'' N, 50° 19' 35.22'' E, 1803 m, (3♀♀), 17.V.2010; (1♀), 12.IV.2010; (1♀), 3.VII.2010; (2♀♀), 3.V.2010; (1♀), 31.V.2010; (1♀), 19.IV.2010; Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (1♀), 31.V.2010; (1♀), 7.VI.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (1♂), 3.V.2010; (1♂), 12.IV.2010; Rudsar, Ziaz, 36° 52' 34.44'' N, 50° 13' 17.4'' E, 537 m, (1♂), 3.V.2010; Alborz province: Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (2♂♂, 1♀), 4.V.2010; (1♀), 20.IV.2010; (1♀), 20.VII.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (1♂), 27.IV.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (1♀), 20.IV.2010; leg. M. Khayrandish.

**Iranian record:** Guilan province (DUSTI & HAYAT 2006); New record for Alborz province.

**Distribution:** Great Britain (southern England) (CHALENDER 1998); most parts of Europe into Asia almost to the Pacific (PECK 1988); Norway (PECK 1988); Turkey (HURKMANS et al. 1997).

***Chrysotoxum veralli* COLLIN 1940\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (1♀), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08'' N, 52° 10' 55.62'' E, 2013m, (1♀), 13.VII.2011; (1♀), 5.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (3♀♀), 27.IX.2010; (1♀), 3.X.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (2♀♀), 11.X.2010; (1♀), 7.VI.2010; (1♀), 27.IX.2010; leg. M. Kheirandish.

**Iranian Records:** West Azerbaijan province, Oromieh (DUSTI & HAYAT 2006); East Azerbaijan (KHAGHANINIA 2010); West Azerbaijan (KHAGHANINIA et al. 2010); New record for Mazandaran and Guilan provinces.

**Distribution:** Denmark, France (RIDDIFORD & EBEJER 2006); Great Britain (Wales and central/southern England) (CHALENDER 1998); central Europe to European parts of Russia, Caucasus, Siberia (KUSTOV 2006); Croatia (JELIČIĆ et al. 2010).

## Genus *Dasyrphus* ENDERLEIN 1938

### *Dasyrphus albostrigatus* (FALLÉN 1817)\*

**Material examined:** Mazandaran province, Noor, Jurband (36° 26.259' N, 052 07.225' E), 275 m, (7♂♂, 5♀♀), 13. IV. 2011; Noor (36° 34.883' N, 052 02.763' E), -14 m, (1♂), 8. X. 2011; Guilan province, Rudsar, Orkom (36°45'739'' N, 50°18'198'' E), 1201 m, 25.X.2010, 1♀; Qazvin province, Zereshk road (36° 25.656' N, 050 06.615' E), 1997m, (1♂), 27. VIII. 2011; leg. M. Kheirandish.

**Iranian Records:** Khorasan-e-Razavi province, Mashhad; West Azerbaijan province, Oromieh (DUSTI & HAYAT 2006); Mazandaran province (GILASIAN 2005); West Azerbaijan (KHAGHANINIA et al. 2010); New record for Qazvin and Guilan provinces.

**Distribution:** Ireland, central and southern Europe (Italy, the former Yugoslavia), Greece (Crete) (SPEIGHT 2006); Turkey (SARIBIYIK & HASBENLI 1997); Asia to Tuva (PECK 1988); North Africa (SPEIGHT 2006); Japan (PAN et al. 2010). This is a confirmed migratory species.

### *Dasyrphus eggeri* (SCHINER 1862)

**Iranian Records:** Fars province (DUSTI & HAYAT 2006).

**Distribution:** France, Spain (VOCKEROTH 1986b); Alps (Switzerland, Austria, northern Italy) (PECK 1988); Serbia (ŠIMIĆ & VUJIĆ 1996); Romania (VUJIĆ et al. 1998); southwest Asia (Kirghizistan, Tajikistan) and western Siberia (VIOLOVITSH 1986); Great Britain (VERRALL 1901).

### *Dasyrphus tricinctus* (FALLÉN 1817)

**Material examined:** Mazandaran province: Noor, Jurband (36° 26.259' N, 052 07.225' E), 275 m, (1♂), 13.IV.2011; leg. M. Kheirandish.

**Iranian Records:** Mazandaran province (KAZERANI et al. 2012).

**Distribution:** Great Britain, Denmark, Finland, France, Germany, Ireland, Japan, Luxembourg, Mongolia, the Netherlands, Norway, Spain, Sweden (BALL & MORRIS 2000); Turkey (SARIBIYIK & HASBENLI 1997).

## Genus *Dideoides* BRUNETTI 1908

### *Dideoides annandalei* (BRUNETTI 1919)

**Iranian Records:** Sistan and Baluchistan province, Nasratabad and Sistan (PECK 1988).

**Distribution:** Iran (PECK 1988).



**Genus *Epistrophe* WALKER 1852**

***Epistrophe eligans* (HARRIS 1780)**

**Material examined:** Mazandaran province: Noor, Tangevaz, 36°21'55.2" N, 52°06'10.74" E, 692m, (1♀), 26.V.2011; leg. M. Kheirandish.

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004).

**Distribution:** Ireland (SPEIGHT et al. 1975); south of Europe into Turkey and European parts of Russia as far as the Caucasus (SPEIGHT 2006); Lithuania (LUTOVINOVAS et al. 2003); Iran (GILASIAN & VUJIĆ 2004).

***Epistrophe euchroma* (KOWARZ 1885)\***

**Material examined:** Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1♂, 3♀), 30.IV.2011; Mazandaran province: Noor, Gaznasara, 36° 16' 58.08 " N, 52° 10' 55.62" E, 2013m, (2♀), 26.V.2011; leg. A. Nadimi.

**Iranian Records:** West Azerbaijan province, Oromieh (DUSTI & HAYAT 2006); Mazandaran province (GILASIAN 2005); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Qazvin province.

**Distribution:** Fennoscandia, Pyrenees, Spain (BALL & MORIS 2000); Great Britain (southern England), central Europe (BALL & MORIS 2000); Russia (KOWALEWSKY 1885); south and eastern Siberia (Yakut) (VIOLOVITSH 1986); Asia (PECK 1988); Serbia (VUJIĆ & GLUMAC 1994).

**Genus *Episyrrhus* MATSUMURA et ADACHI 1917**

***Episyrrhus balteatus* (DE GEER 1776)**

**Material examined:** Alborz province: Sarziar, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (9♀, 6♂), 14.IX.2010; Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (9♂, 15♀), 4.V.2010; (8♀), 20.IV.2010; (14♀, 7♂), 20.VII.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (17♂, 10♂), 27.IV.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (9♀), 20.IV.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28 " N, 52° 07' 13.62" E, 272 m, (15♀, 8♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08 " N, 52° 10' 55.62" E, 2013m, (20♀, 11♂), 13.VII.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (7♀, 15♂), 5.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (17♀), 27.IX.2010; (14♀, 8♂), 3.X.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (18♀, 10♂), 11.X.2010; (9♀, 6♂), 7.VI.2010; (13♀, 7♂), 27.IX.2010; Eshankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6♂, 4♀), 07.VI.2010; (1♀, 2♂), 14.VI.2010; (7♀), 22.VI.2010; (12♂, 9♀), 11.VII.2010; (2♂, 4♀), 19.VII.2010; (1♂, 7♀), 25.VII.2010; 09.VIII.2010; (2♂, 3♀), 16.VIII.2010; (9♂), 29.VIII.2010; (5♂, 6♀), 5.IX.2010; (9♀), 04.X.2010; (2♂, 2♀), 11.X.2010; (18♂, 9♀), 18.X.2010; (4♂♂, 2♀), 25.X.2010; (5♀), 22.VI.2010; Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (16♂, 7♀), 30.IV.2011; leg. M. Kheirandish.

**Iranian Records:** Fars province; West Azerbaijan province, Oromieh; Khuzestan province, Ahwaz; Qazvin province; Hamadan province; Golestan province,

Gorgan; Guilan province; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Lorestan province, Brojerd; Sistan and Baluchistan province; Kurdistan province; Mazandaran province; Alborz province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** all parts of Europe and USSR (PECK 1988); Italy (BELCARI et al. 1995); Great Britain (RIDDIFORD & EBEJER 2006); Belgium (PECK 1988); Africa, Ireland (STUBBS 1996); through Eurasia to the Pacific coast, south through the Oriental region to Sri Lanka, Australia (PECK 1988); Korea (HAN et al. 1998). This is an extremely migratory species with records from offshore islands of northern Europe.

### **Genus *Eupeodes* OSTEN SACKEN 1877**

#### ***Eupeodes (Metasyrphus) corollae* (FABRICIUS 1794)**

**Material examined:** Alborz province: Shahriar, 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (9 ♀♀), 20.IV.2010; Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (9 ♀♀, 6 ♂♂), 14.IX.2010; Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (6 ♂♂, 10 ♀♀), 4.V.2010; (8 ♀♀), 20.IV.2010; (6 ♀♀, 7 ♂♂), 20.VII.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (7 ♂♂, 10 ♂♂), 27.IV.2010; Guilan province: Eshankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6 ♂♂, 4 ♀♀), 07.VI.2010; (1 ♀, 2 ♂♂), 14.VI.2010; (7 ♀♀), 22.VI.2010; (9 ♀♀), 04.X.2010; (4 ♂♂, 2 ♀♀), 11.X.2010; (10 ♂♂, 1 ♀), 18.X.2010; (7 ♂♂, 2 ♀♀), 25.X.2010; (5 ♀♀), 22.VI.2010; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (8 ♂♂, 7 ♀♀), 30.IV.2011; Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (5 ♀♀, 8 ♂♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08'' N, 52° 10' 55.62'' E, 2013m, (2 ♀♀, 7 ♂♂), 13.VII.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (7 ♀♀, 5 ♂♂), 5.IX.2011; Guilan province: Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (8 ♀♀, 10 ♂♂), 11.X.2010; (5 ♀♀, 6 ♂♂), 7.VI.2010; (11 ♀♀, 7 ♂♂), 27.IX.2010; leg. A. Nadimi.

**Iranian Records:** Fars province; Oromieh province; Khuzestan province, Ahwaz; Qazvin province; Hamadan province; Golestan province, Gorgan; Guilan province; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Lorestan province, Brojerd; Sistan and Baluchistan province; Kurdistan province; Mazandaran province; Alborz province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** From Iceland and Fennoscandia to Iberia, coast of the Mediterranean (ROJO et al. 2003); the Canary Isles and North Africa, coastal States of Africa down to and including South Africa (EKUKOLE & AJAYI 1995); Mauritius, Ireland, most parts of Europe, European parts of Russia (SPEIGHT 2010); Germany (BASTIAN 1986); Turkey (BOLU & HAYAT 2008); Japan, China (VAN VEEN 2004). This is a highly migratory species, frequently observed using the coastal land/water interface as a migration route.

#### ***Eupeodes latifasciatus* (MACQUART 1829)**

**Iranian Records:** Tehran province (DUSTI & HAYAT 2006).

**Distribution:** Iceland, Fennoscandia, Iberia, coast of the Mediterranean (including Cyprus) (ROJO et al. 2004); North Africa (PECK 1988); Turkey (VUJIĆ & GLUMAC 1994); French (eastwards through most parts of Europe), European parts of Russia (MACQUART 1829); Siberia from the Urals to the Pacific coast (Sakhalin and Kuril Isles) (VIOLOVITSH 1986); North America (from Alaska to California and Texas) (VOCKEROTH 1992).

***Eupeodes luniger* (MEIGEN 1822)\***

**Material examined:** Alborz Province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (4 ♀ ♀), 20.IV.2010; Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (1 ♀, 3 ♂ ♂), 14.IX.2010; Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (6 ♂ ♂, 1 ♀), 4.V.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (2 ♂ ♂, 1 ♂), 27.IV.2010; Guilan province: Rudсар, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (8 ♀ ♀, 1 ♂), 11.X.2010; (5 ♀ ♀, 1 ♂), 7.VI.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6 ♂ ♂, 4 ♀ ♀), 07.VI.2010; (3 ♂ ♂, 2 ♀ ♀), 25.X.2010; Qazvin province: Zeresk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (2 ♂ ♂, 7 ♀ ♀), 30.IV.2011; Mazandaran Province: Noor, Gaznasara, 36° 16' 58.08 '' N, 52° 10' 55.62'' E, 2013m, (2 ♀ ♀, 4 ♂ ♂), 13.VII.2011; Noor, Jurband, 36° 26' 17.28 '' N, 52° 07' 13.62'' E, 272 m, (4 ♀ ♀, 3 ♂ ♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4 ♀ ♀, 5 ♂ ♂), 5.IX.2011; leg. A. Nadimi.

**Iranian Records:** Guilan province; Mazandaran province; Sistan and Baluchistan province (DUSTI & HAYAT 2006); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Alborz and Qazvin provinces.

**Distribution:** Spain (Madeira) (FREY 1939); coast of the Mediterranean (LAMBECK 1968); Greece (PEREZ-BANON et al. 2000); North Africa (PECK 1988); from Ireland and Siberia eastwards through most parts of Europe into European parts of Russia (ŠIMIĆ & VUJIĆ 1987); Asia Minor (including Turkey) (VUJIĆ & GLUMAC 1994); Japan (SPEIGHT 2001).

This species is highly migratory and immigrants from further south augment populations in many parts of Europe during the summer.

***Eupeodes nuba* (WIEDEMANN 1830)\***

**Material examined:** Alborz province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (13 ♀ ♀), 26.IV.2010; Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (2 ♀ ♀, 3 ♂ ♂), 04.IX.2010; Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (3 ♂ ♂, 1 ♀), 24.V.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (3 ♂ ♂, 6 ♂ ♂), 12.IV.2010; Guilan province: Rudсар, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (10 ♀ ♀, 5 ♂ ♂), 15.X.2010; (2 ♀ ♀, 1 ♂), 27.VI.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2 ♂ ♂, 4 ♀ ♀), 07.VI.2010; (5 ♂ ♂, 3 ♀ ♀), 25.X.2010; Qazvin province: Zeresk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (6 ♂ ♂, 7 ♀ ♀), 22.IV.2011; Mazandaran province: Noor, Jurband, 36° 26' 17.28 '' N, 52° 07' 13.62'' E, 272 m, (21 ♀ ♀, 3 ♂ ♂), 26.VIII.2011; Noor, Gaznasara, 36° 16' 58.08 '' N, 52° 10' 55.62'' E, 2013m, (2 ♀ ♀, 4 ♂ ♂), 03.VII.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (2 ♀ ♀, 5 ♂ ♂), 5.IX.2011; leg. A. Nadimi.

**Iranian Records:** Ahwaz province; Fars province; Golestan province, Gorgan; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Kurdistan province;

Sistan and Baluchistan province; Khuzestan province; Fars province, Shiraz; Guilan province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Mazandaran, Qazvin and Alborz provinces.

**Distribution:** Canary Isles, coast of the Mediterranean (PECK 1988); France, Italy (Sicily) and former Yugoslavia (MAZÁNEK et al. 1999); Crete, Cyprus, Lebanon, Israel, Egypt, Morocco, Switzerland, Romania (MARCOS-GARCIA et al. 2002); Transcaucasus and south-western parts of Asia (Uzbekistan, Kirghizistan, Tajikistan), Afghanistan and Mongolia (OZGUR 1986); Afrotropical region from Ethiopia to South Africa (inclusive) (DIRICKX 1998).

### **Genus *Ischiodon* SACK 1913**

#### ***Ischiodon aegyptius* (WIEDEMANN 1830)\***

**Material examined:** Alborz province: Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (1♂), 27.IV.2010; Guilan province: Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6♂♂, 4♀♀), 07.VI.2010; (1♂, 2♀♀), 25.X.2010; Qazvin province, Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (2♂♂, 2♀♀), 30.IV.2011; Mazandaran Province: Noor, Jurband, 36° 26' 17.28 '' N, 52° 07' 13.62'' E, 272 m, (4♀♀, 3♂♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08 '' N, 52° 10' 55.62'' E, 2013m, (2♀♀, 4♂♂), 13.VII.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4♀♀, 2♂♂), 5.IX.2011; leg. A. Nadimi.

**Iranian Records:** Ahwaz province; Guilan province; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Sistan and Baluchistan province; Fars province, Shiraz; Khuzestan province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Mazandaran and Alborz provinces.

**Distribution:** Afrotropical region and Africa (EKUKOLE & AJAYI 1995); the coast of coast of the Mediterranean and Yemen (LASKA et al. 2006); southern Spain (BARBOSA 1952); southern Italy, the Balearic Islands and the Canaries, Nearctic (Canada) (VOCKEROTH 1992).

The fact that adults have been seen in southern Europe only during the summer suggests this species may not be resident there, but establishes temporary populations in favorable seasons.

#### ***Ischiodon scutellaris* (FABRICIUS 1805)\***

**Material examined:** Guilan province: Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6♂♂, 4♀♀), 07.VI.2010; (1♂, 2♀♀), 25.X.2010; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1♂, 2♀♀), 30.IV.2011; Mazandaran province: Noor, Jurband, 36° 26' 17.28 '' N, 52° 07' 13.62'' E, 272 m, (2♀♀, 1♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08 '' N, 52° 10' 55.62'' E, 2013m, (3♀♀), 13.VII.2011; leg. M. Kheirandish.

**Iranian Records:** Ahwaz province; Fars province, Shiraz (DUSTI & HAYAT 2006); New record for Guilan, Qazvin and Mazandaran provinces.

**Distribution:** Soviet Middle Asia, Far East, Turkey, Afghanistan, Mongolia, Japan, Oriental Region and New Guinea (PECK 1988).

### **Genus *Melangyna* VERRALL 1901**

#### ***Melangyna cincta* (FALLÉN 1817)\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (1 ♀, 2 ♂♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08" N, 52° 10' 55.62" E, 2013m, (2 ♀♀), 13.VII.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (1 ♀, 1 ♂), 5.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (2 ♀♀), 27.IX.2010; Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (3 ♀♀), 7.VI.2010; leg. M. Kheirandish.

**Iranian Records:** Golestan province (GILASIAN 2007); New record for Mazandaran and Guilan provinces.

**Distribution:** Great Britain (CHANDLER 1998); Serbia (VUJIĆ et al. 1998); Italy (DACCORDI & SOMMAGGIO 2002); Ireland (NASH 1997).

#### ***Melangyna lasiophthalma* (ZETTERSTEDT 1843) \*\***

**Material examined:** Mazandaran province: Noor, Tangevaz, 36°21'55.2" N, 52°06' 10.74" E, 692m, (1 ♀), 29.IV.2011; Noor, Gaznasara, 36° 16' 58.08" N, 52° 10' 55.62" E, 2013m, (2 ♀♀, 1 ♂), 29. IV. 2011; 26. V. 2011(1 ♂); leg. M. Kheirandish.

**Iranian Records:** New record for Iran.

**Distribution:** Holarctic species with a wide distribution. In North America, from Alaska to Newfoundland, south to Oregon, Colorado, Connecticut and Maryland (VOCKEROTH 1992); in the Palaearctic, from Iceland and Fennoscandia south to the Pyrenees and mountainous parts of Spain, Ireland, European parts of Russia, Siberia (SPEIGHT 2010); Slovenia (DE GROOT & GOVEDIOE 2008); Great Britain (STUBBS & FALK 1983); Asia (Mongolia) (PECK 1988); Korea (ANONYMOUS 1994).

**Diagnosis:** Head: Frons black with black hairs; antennae black, upper margin of 3<sup>rd</sup> segment dark, arista black (fig. 4D); gena yellow, Mouth edge black (Fig. 4C). Thorax: scutum shiny black with golden hairs (fig. 4A), scutellum yellow with golden hairs (fig. 4A); Wing entirely microtrichose with narrow bare area along centre of cell bm (fig. 3D); Legs mostly black, most of fore tibia and mid tibiae slightly paler (fig. 4C); Abdomen: oval, 1<sup>st</sup> tergite black, 2-5 tergites with two yellow maculae that reaching lateral margins (fig. 4A); Sternites black, 2<sup>nd</sup> and 3<sup>rd</sup> sternites with yellow spots (fig. 4B).

#### ***Melangyna umbellatorum* (FABRICIUS 1794)**

**Iranian Records:** Mazadaran province, Amol (GHAHARI et al. 2008).

**Distribution:** Fennoscandia south to Iberia (DIRICKX 1994); Ireland (NASH 1997); northern, central and southern parts of Europe (Italy, the former Yugoslavia, Romania, Bulgaria) (PECK 1988); European parts of Russia (KUZNETSOV 2002); Slovenia (DE GROOT & GOVEDIOE 2008); through mountainous parts of Siberia to Kamchatka (VIOLOVITSH 1986); in North America from Alaska to Arizona (SPEIGHT 2006).

## Genus *Meliscaeva* FREY 1946

### *Meliscaeva auricollis* (MEIGEN 1822)

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (1 ♀, 1 ♂), 16.VI.2011; Noor, Gaznasara, 36° 16' 58.08" N, 52° 10' 55.62" E, 2013m, (2 ♀ ♀), 13.VI.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (2 ♀ ♀, 1 ♂), 5.V.2011; Guilan province: Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (1 ♀, 1 ♂), 11.X.2010; Eshmankamachal, 37°22'3.66" N, 49°57'57.84" E, -1 m, (1 ♂), 29.VIII.2010; (1 ♂, 2 ♀ ♀), 11.X.2010; (2 ♀ ♀), 22.VI.2010; leg. M. Kheirandish.

**Iranian Records:** Guilan province; Markazi province; Mazandaran province (DUSTI & HAYAT 2006).

**Distribution:** Fennoscandia and the Faroes (JENSEN 2001); Iberia, coast of the Mediterranean (including Cyprus, Malta and Crete) (DIRICKX 1994); North Africa (SPEIGHT 2006); Turkey (TUATAY et al. 1967); Ireland (PECK 1988); European parts of Russia (KUZNETSOV 2002).

### *Meliscaeva cinctella* (ZETTERSTEDT 1843)\*

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (2 ♀ ♀), 16.VIII.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (2 ♀ ♀), 5.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (1 ♀), 20.IV.2010; (2 ♀ ♀), 3.X.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (1 ♀, 1 ♂), 11.X.2010; Eshmankamachal, 37°22'3.66" N, 49°57'57.84" E, -1 m, (2 ♀ ♀), 07.VI.2010; leg. M. Kheirandish.

**Iranian Records:** Mazandaran province (DUSTI & HAYAT 2006); New record for Guilan province.

**Distribution:** From Fennoscandia south to Iberia, coast of the Mediterranean (DIRICKX 1994); North Africa (PECK 1988); from Ireland (NASH 1997); through the most parts of Europe and Turkey (ZETTERSTEDT 1842); European parts of Russia, Siberia from the Urals to the Pacific coast (Kuril Isles) (PECK 1988); North America from Alaska south to California and Colorado (VOCKEROTH 1992).

## Genus *Scaeva* FABRICIUS 1850

### *Scaeva albomaculata* (MACQUART 1842)\*

**Type localities:** "Mont-sinai" (Egypt). "Alger" (Algeria).

**Material examined:** Mazandaran province: Noor, Gaznasara, 36° 16' 58.08" N, 52° 10' 55.62" E, 2013m, (3 ♂ ♂), 10.V.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (1 ♀, 1 ♂), 20.X.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (2 ♂ ♂), 20.IX.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (1 ♀, 1 ♂), 7.IX.2010; (2 ♂ ♂), 17.V.2010; Eshmankamachal, 37°22'3.66" N, 49°57'57.84" E, -1 m, (2 ♂ ♂), 17.V.2010; leg. M. Kheirandish.

**Iranian Records:** West Azarbaijan province, Oromieh; Chaharmahal Va Bakhtiari province; Fars province; Khuzestan province, Ahwaz; Lorestan province, Brojerd; Akborz province; Azarbaijan province, Miandoab; Sistan and Baluchistan

province, Zabol; Khorasan-e-Razavi province, Mashhad; Golestan province, Gorgan; Fars province, Shiraz; Khuzestan province; Kurdistan province; Khorasan-e-Razavi province, Kashmar and Bardaskan (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Mazandaran and Guilan provinces .

**Distribution:** Iberian Peninsula, coast of the Mediterranean, Morocco (HIPPA 1968); Russia (KUZNETZOV 1985); the Caucasus and southern Siberia to the Far East and Northern China (COE 1953); Afghanistan, Mongolia; highly migratory and occasionally reaches to Great Britain (KUZNETZOV 1985); Turkey (OZGUR 1986).

***Scaeva dignota* (RONDANI 1857)\***

**Material examined:** Mazandaran province, Noor, Gaznasara, 36° 16' 58.08 " N, 52° 10' 55.62" E, 2013m, (2♂♂), 10.V.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (3♂♂), 25.IV.2010; Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (4♂♂, 2♀♀), 3.V.2011; leg. A. Nadimi.

**Iranian Records:** Khuzestan province, Ahwaz; Mazandaran province (DUSTI & HAYAT 2006); New record for Guilan and Qazvin provinces.

**Distribution:** Denmark, Belgium, France (HIPPA 1968); south Mediterranean (including Crete) (RONDANI 1857); Portugal, Spain, Switzerland, Austria (VIOLOVITSH 1975); the Netherlands (REEMER 2007); Germany (REEMER 2000); the former Yugoslavia (BRADESCU 1991); Turkey (OZGUR 1986); Greece (PEREZ-BANON et al. 2000); North Africa (SPEIGHT 2006).

***Scaeva latimaculata* (BRUNETTI 1923)**

**Iranian Records:** Golestan province, Gorgan; Khorasan-e-Razavi province, Kashmar and Bardaskan (DUSTI & HAYAT 2006).

**Distribution:** Soviet Middle Asia, Afghanistan, Oriental Region (DUSEK & LASKA 1985).

***Scaeva pyrastris* (LINNAEUS 1758)\***

**Material examined:** Mazandaran province: Noor, Gaznasara, 36° 16' 58.08 " N, 52° 10' 55.62" E, 2013m, (2♂♂), 10.V.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (1♀, 1♂), 12.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (1♂), 25.IV.2010; Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1♂), 3.V.2011; leg. A. Nadimi.

**Iranian Records:** West Azarbaijan province, Oromieh; Golestan province, Gorgan; Guilan province; Khorasan-e-Razavi province, Mashhad; Lorestan province, Brojerd; Alborz province; Mazandaran province; Sistan and Baluchistan province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010), West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Qazvin province.

**Distribution:** Fennoscandia, Iberia, coast of coast of the Mediterranean (HIPPA 1968); North Africa (SPEIGHT 2006); Island (MCCULLOUGH & WAKEHAM-DAWSON 2001); east European Russia (KUZNETZOV 1985); through Siberia from the Urals to the



Pacific coast (Kuril Isles) (COE 1953); India (BRUNETTI 1923); China (PECK 1988); North America from Alaska to California and New Mexico (SHANNON 1927).

This is an extremely migratory species.

### ***Scaeva rossica* KUZNETZOV 1985**

**Iranian Records:** Tehran province; Golestan province, Gorgan (DUSTI & HAYAT 2006).

**Distribution:** Caucasus (KUSTOV 2006); Armenia, Austria, Hungary, the former Yugoslavia (KUZNETZOV 1985).

### ***Scaeva selenitica* (MEIGEN 1822)**

**Iranian Records:** Fars province; Mazandaran province (DUSTI & HAYAT 2006).

**Distribution:** Fennoscandia, Iberia and coast of the Mediterranean (JENSEN 2001); North Africa, England (CHANDLER 1998); Scotland (GEOFFREY HANCOCK 2012); Turkey (SPEIGHT 2010); Germany (MEIGEN 1822); European parts of Russia (VUJIĆ et al. 1998); from the Urals through Siberia to Cis-Baikal and on to Sakhalin and the Kuril Isles (SPEIGHT 2006; VILOVITSH 1986); Lithuania (KUZNETSOV 1987).

## **Genus *Sphaerophoria* LE PELETIER ET SERVILLE 1828**

### ***Sphaerophoria bengalensis* MACQUART 1842**

**Iranian Records:** Khuzestan province, Ahwaz; Golestan province, Gorgan; Fars province, Shiraz (DUSTI & HAYAT 2006).

**Distribution:** China (JILONG & QINGXI 1992); Korea (ANONYMOUS 1994); Japan (DOI 1938); Oriental Region (PECK 1988); Pakistan (SPEIGHT 2006).

### ***Sphaerophoria rueppelli* (WIEDEMANN 1830)**

**Iranian Records:** Khuzestan province, Ahwaz; Golestan province, Gorgan; Fars province, Shiraz; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; West Azarbaijan province, Oromieh; Sistan and Baluchistan province, Zabol; Kurdistan province; Mazandaran province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010).

**Distribution:** Norway, Sweden, North Africa (PECK 1988); Ireland east through central and southern parts of Europe (SPEIGHT 1976); England (ALLEN 1981); Lithuania (KUZNETSOV 1987); Greece (MARKOVA 2006); Turkey (SARIBIYIK 1999); China, Korea (PECK 1988); Slovenia (STROBL 1893a); Afrotropical region to Kenya (SMITH & VOCKEROTH 1980).



***Sphaerophoria scripta* (LINNAEUS 1758)**

**Material examined:** Alborz province: Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (9♀♀, 12♂♂), 12.X.2010; Shahrestanak, 35° 58' 16.26'' N, 51° 21' 25.8'' E, 2225 m, (9♂♂, 15♀♀), 4.IV.2010; (8♀♀), 20.V.2010; (14♀♀, 7♂♂), 20.VII.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (9♀♀), 20.IV.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (15♀♀, 8♂♂), 16.VIII.2011; Noor, Gaznasara, 36° 16' 58.08'' N, 52° 10' 55.62'' E, 2013m, (15♀♀, 18♂♂), 13.VI.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (8♀♀, 16♂♂), 5.IX.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (10♀♀), 27.IX.2010; (10♀♀, 3♂♂), 3.IX.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (18♀♀, 10♂♂), 11.X.2010; (14♀♀, 6♂♂♂), 7.VI.2010; (13♀♀, 7♂♂♂), 27.IX.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (6♂♂, 4♀♀), 07.VI.2010; (8♀♀, 6♂♂), 14.VI.2010; (7♀♀), 22.VI.2010; (12♂♂, 9♀♀), 16.VII.2010; (2♂♂, 4♀♀), 19.VI.2010; (1♂, 7♀♀), 25.VII.2010; 09.V.2010; (2♂♂, 3♀♀), 16.VIII.2010; (9♂♂♂), 12.V.2010; (5♂♂, 6♀♀), 5.IX.2010; (9♀♀), 04.X.2010; (2♂♂, 2♀♀), 11.X.2010; (22♂♂, 5♀♀), 18.X.2010; (3♂♂, 1♀), 25.X.2010; (15♀♀), 22.VI.2010; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (16♂♂, 7♀♀), 30.IV.2011; leg. M. Kheirandish.

**Iranian Records:** Khorasan-e-Razavi province, Mashhad; West Azarbaijan province, Oromieh; Fars province, Shiraz; Khuzestan province, Ahwaz; Qazvin province; Hamadan province; Golestan province, Gorgan; Guilan province; Kurdistan province; Mazandaran province; Sistan and Baluchistan province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** Iceland, Fennoscandia, coast of the Mediterranean (WAKEHAM-DAWSON & MCCULLOUGH 2007); the Canary Isles and North Africa (PECK 1988); Ireland (NASH 1997); Slovenia (STROBL 1893b); Lithuania (RAKAUSKAS 1960); Turkey (BISCHOF 1902); Kashmir and Nepal (SPEIGHT 2006).

***Sphaerophoria turkmenica* BANKOWSKA 1964**

**Iranian Records:** Khuzestan province, Ahwaz; Mazandaran province; Kurdistan province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** Romania (GOELDLIN DE TIEFENAU 1989); Transcaucasus, Soviet Middle Asia, Afghanistan (PECK 1988); Turkey (HAYAT & ALAOGU 1990).

**Genus *Syrphus* FABRICIUS 1775*****Syrphus ribesii* (LINNAEUS 1758)\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (10♀♀, 2♂♂), 06.V.2011; Noor, Gaznasara,, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (3♀♀, 5♂♂), 5.IX.2011; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (6♂♂, 5♀♀), 22.V.2011; (6♀♀), 06.IX.2011; leg. M. Kheirandish.

**Iranian Records:** Tehran province; Markazi province; Fars province; Esfahan province; West Azarbaijan province, Oromieh; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Sistan and Baluchistan province; Mazandaran province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Qazvin province.

**Distribution:** Iceland and Fennoscandia to Iberia and coast of the Mediterranean (SPEIGHT 2001); Ireland, most parts of Europe, Turkey, European parts of Russia and Afghanistan (PECK 1988); from the Urals to the Pacific coast (Kuril Isles); Korea (KIM & PARK 1991); Lithuania (RAKAUSKAS 1960); the former Yugoslavia (LECLERQ 1961); North America from Alaska to central parts of the USA (VOCKEROTH 1990).

This is highly migratory species.

### ***Syrphus torvus* (OSTEN SACKEN 1875)**

**Iranian Records:** Markazi province (DUSTI & HAYAT 2006).

**Distribution:** Iceland, the Faroes and Fennoscandia to Iberia and coast of the Mediterranean (HIPPA 1968); through most of Europe into Turkey and European parts of Russia (OZGUR 1986); through Siberia from the Urals to the Pacific coast (Kuril Isles) (SPEIGHT 2006); Korea (KIM & KIM 1971); Croatia (JELIČIĆ et al. 2010); Slovenia (DE GROOT 2004); Lithuania (RAKAUSKAS 1960); northern India, Nepal, Thailand; in North America from Alaska south to New Mexico (VOCKEROTH 1990).

### ***Syrphus vitripennis* MEIGEN 1822\***

**Material examined:** Alborz province: Sarzariat, 35° 55' 10.38'' N, 51° 06' 51.24'' E, 1980 m, (5 ♀♀, 4 ♂♂), 15-IV-2010; (1 ♂, 5 ♀♀), 04.V.2010; (6 ♀♀), 08.IV.2010; Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (7 ♂♂, 2 ♂♂), 22.V.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (6 ♀♀), 09.V.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (5 ♀♀, 2 ♂♂), 06.IV.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (3 ♀♀, 2 ♂♂), 15. X.2011; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1 ♂, 5 ♀♀), 22.IV.2011; (2 ♀♀), 06.IX.2011; leg. M. Kheirandish.

**Iranian Records:** West Azarbaijan province, Oromieh; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Golestan province, Gorgan; Mazandaran province (DUSTI & HAYAT 2006); Iran (AMIRIMOGHADAM & SIRJANI 2004); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Alborz and Qazvin provinces.

**Distribution:** Throughout most parts of the Palaearctic region (HIPPA 1968); including North Africa (PECK 1988); Korea (KIM & YOO 1987); in North America from Alaska to California (VOCKEROTH 1990); Slovenia (STROBL 1910).

## Genus *Xanthogramma* SCHINER 1860

### *Xanthogramma laetum* (FABRICIUS 1794)

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (2 ♀ ♀), 16.V.2011; Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (1 ♀), 25. IX.2011; leg. A. Nadimi.

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004).

**Distribution:** Europe, Belgium (VERLINDEN & DECLEER 1987); Germany (LÖHR 2002); Caucasia (KUSTOV 2006); Romania (VUJIĆ et al. 1998); Croatia (JELIČIĆ et al. 2010); Italy (DACCORDI & SOMMAGGIO 2002); the former Yugoslavia, Bulgaria and USSR-Central European territory (LAMBECK 1968); Serbia (NEDELJKOVIC et al. 2009).

### *Xanthogramma maculipenne* MIK 1887

**Iranian Records:** Fars province; Khorasan-e-Razavi province, Kashmar and Bardaskan (DUSTI & HAYAT 2006).

**Distribution:** The former Yugoslavia, Caucasia (KUSTOV 2006).

### *Xanthogramma pedissequum* (HARRIS 1776)\*

**Material examined:** Alborz province, 35°46'8.88" N, 50°56'55.2" N, 1277 m, (1 ♂, 2 ♀ ♀), 01.VI.2010; (3 ♀ ♀), 14.X.2010; (1 ♀), 30.VII.2010; (3 ♂ ♂, 2 ♀ ♀), 18.IV.2010; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (2 ♀ ♀), 05. VII.2010; (1 ♀), 25.X.2010; (2 ♀ ♀, 3 ♂ ♂) 10.X.2010; Qazvin Province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (2 ♀ ♀), 02.V.2011; leg. M. Kheirandish.

**Iranian Records:** West Azarbaijan province, Oromieh (DUSTI & HAYAT 2006); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Qazvin, Guilan and Alborz provinces.

**Distribution:** Great Britain (SPEIGHT 1990); Lithuania (KUZNETSOV 1987); Slovenia (GLUMAC 1956); Serbia (NEDELJKOVIC et al. 2009); Caucasia (KUSTOV 2006).

## Tribe *Bacchini*

## Genus *Melanostoma* SCHINER 1860

### *Melanostoma mellinum* (LINNAEUS 1758)

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (3 ♀ ♀, 2 ♂ ♂), 06.IV.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (4 ♀ ♀, 1 ♂), 15.V.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (5 ♀ ♀), 15. VI.2010; (3 ♀ ♀), 25.IV.2010; (2 ♀ ♀, 3 ♂ ♂), 20.X.2010; (4 ♀ ♀), 21. X.2010; (1 ♀, 2 ♂ ♂), 16.IV.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (3 ♀ ♀, 2 ♂ ♂), 12.IV.2010; (3 ♀ ♀), 7.V.2010; (3 ♀ ♀), 12.X.2010; Eshmankamachal, 37°22'3.66" N, 49°57'57.84" E, -1 m, (2 ♂ ♂, 4 ♀ ♀), 22.VI.2010; leg. A. Nadimi.

**Iranian Records:** West Azarbaijan province, Oromieh; Khuzestan province, Ahwaz; Golestan province, Gorgan; Guilan province; Mazandaran province; Khorasan-e-

Razavi province, Kashmar and Bardaskan (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** Iceland, Fennoscandia and Iberia (MUTIN & BARKALOV 1997); coast of the Mediterranean and North Africa (SMITH & VOCKEROTH 1980); Ireland, most parts of Europe and European parts of Russia (NASH 1997); Turkey (OZGUR 1986); Siberia from the Urals to the Pacific coast (SPEIGHT 2006); Korea (KIM & NAM 1982); Spain (RIDDIFORD & EBEJER 2006); North America from Alaska to Quebec and south to Washington (VOCKEROTH 1992).

***Melanostoma scalare* (FABRICIUS 1794)\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (2♀♀, 2♂♂), 12. V.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (2♀♀, 1♂), 05.IV.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (5♀♀), 03.V.2010; (3♀♀), 10.IV.2010; (3♀♀, 2♂♂), 09.IX.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (3♀♀, 2♂♂), 09.V.2010; (3♀♀), 15.IV.2010; (2♂♂, 4♀♀), 02.IX.2010; Eshmankamachal, 37°22'3.66" N, 49°57'57.84" E, -1 m, (3♀♀), 12.VII.2010; leg. A. Nadimi.

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004); New record for Guilan province .

**Distribution:** Iceland and Fennoscandia, Iberia, coast of the Mediterranean and North Africa (SMITH & VOCKEROTH 1980); Ireland most parts of Europe and European parts of Russia (NASH 1997); Siberia from the Urals to the Pacific coast (Kuril Isles) (SPEIGHT 2006); eastern parts of the Afrotropical region (DIRICKX 1998); Turkey (DIRICKX 1994); Zimbabwe (WHITTINGTON 1998); Korea (DOI 1938); Oriental region and New Guinea (THOMPSON & VOCKEROTH 1989).

**Genus *Platycheirus* LE PELETIER et SERVILLE 1828**

***Platycheirus albimanus* (FABRICIUS 1781)\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (1♀, 2♂♂), 06.IV.2011; (2♀♀), 15.V.2011; (1♀), 25.IX.2011; (2♂♂), 10.VII.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (3♀♀, 2♂♂), 15.X.2011; (2♀♀), 7.VI.2011; (1♀), 21.X.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (2♀♀), 21.X.2010; (1♀, 2♂♂), 03.X.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (2♀♀, 1♂), 11.X.2010; Qazvin province: Zereskh road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (2♀♀), 22.IV.2011; leg. M. Kheirandish.

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004); New record for Guilan and Qazvin provinces.

**Distribution:** Greenland, Iceland, the Faroes and Fennoscandia, Iberia and coast of the Mediterranean (SPEIGHT 2001); Ireland, most parts of Europe, Turkey and European parts of Russia (PECK 1988); Siberia from the Urals to the Pacific coast (Kuril Isles) (BARKALOV & NIELSEN 2008); Philippines, Italy (SOMMAGGIO 2010); Serbia (VUJIĆ & GLUMAC 1994); Lithuania (PODÉNAS 1992); in North America from Alaska south into Canada and western parts of the USA (VOCKEROTH 1990).

***Platycheirus fulviventris* (MACQUART 1829)**

**Iranian Records:** Guilan province (DUSTI & HAYAT 2006).

**Distribution:** From southern Fennoscandia south to Iberia and coast of the Mediterranean (SPEIGHT 2001); through lowland areas of central and southern Europe into Turkey (DIRICKS 1994); European parts of Russia and the Pacific coast (BARKALOV & NIELSEN 2008); Italy (SOMMAGGIO 2010); Serbia (NEDELJKOVIC et al. 2009).

***Platycheirus scutatus* (MEIGEN 1822)\***

**Material examined:** Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (2 ♀ ♀, 2 ♂ ♂), 05.V.2011; (2 ♀ ♀), 15.V.2011; (1 ♀), 25.IX.2011; (2 ♂ ♂), 10.VII.2011; Noor, Gaznasara, 36° 16' 56.82" N, 52° 10' 58.5" E, 2032 m, (3 ♀ ♀, 2 ♂ ♂), 15. X.2011; (2 ♀ ♀), 7.VII.2011; (1 ♀), 21.X.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62" N, 50° 20' 1.08" E, 1787 m, (2 ♀ ♀), 14. V.2010; (1 ♀, 2 ♂ ♂), 23.IX.2010; Rudsar, Orkom 36° 45' 44.34" N, 50° 18' 11.88" E, 1201 m, (2 ♀ ♀, 1 ♂), 11.X.2010; leg. M. Kheirandish.

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004); New record for Guilan province.

**Distribution:** Requires review due to potential for confusion of this species with the recently-described *P. scutatus* group species, but supposedly widespread, from Iceland, the Faroes and Fennoscandia south to Iberia and coast of the Mediterranean (SPEIGHT 2001); Ireland (NASH 1997); eastwards through northern, central and southern Europe, Italy (SOMMAGGIO 2010); the former Yugoslavia (SPEIGHT 2006); Greece (MARKOVA 2006); Turkey and European parts of Russia (PECK 1988); Siberia and the Pacific coast (Sakhalin Is., Japan) (NEDELJKOVIC et al. 2009); in North America from Alaska south to Colorado (VOCKEROTH 1990).

**Genus *Xanthandrus* VERRALL 1901**

***Xanthandrus comtus* (HARRIS 1780)**

**Iranian Records:** Mazandaran province (GILASIAN & VUJIĆ 2004).

**Distribution:** Norway and Iberia (GAMMELMO & NIELSEN 2008); Ireland (NASH 1997); central and southern parts of Europe, Russia, the Caucasus and the Pacific coast (KUSTOV 2006); Italy (SOMMAGGIO 2010); Korea (KIM & KIM 1972); Lithuania (PODĖNAS 1992); Serbia (NEDELJKOVIC et al. 2009); Spain (SPEIGHT 2006).

**Genus *Baccha* FABRICUS 1775**

***Baccha Elongata* (FABRICUS 1775)**

**Iranian Records:** West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** Ireland and Finland to Portugal, Spain, Italy, Bulgaria, Greece (PECK 1988); Leningrad, Georgian, Azerbaijan, Armenian (SPEIGHT 2010), Turkey (SARIBIYIK 1999).

**Tribe P a r a g i n i****Genus P a r a g u s LATREILLE 1804*****Paragus (Pandasyophthalmus) abrogans GOELDLIN DE TIEFENAU 1971\****

**M a t e r i a l e x a m i n e d :** Alborz Province: Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (4♀♀, 2♂♂), 22.V.2010; (2♀♀, 2♂♂), 02.IV.2010; (4♀♀), 10.V.2010; (1♀, 2♂♂), 22.IX.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (4♀♀), 10.V.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (5♀♀, 2♂♂), 06.IV.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (3♀♀, 2♂♂), 15. X.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (7♀♀), 21. X.2010; (2♀♀, 2♂♂), 03.X.2010; (5♀♀, 4♂♂), 15.IV.2010; (1♂, 5♀♀), 04.V.2010; (4♀♀), 08.IV.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (8♀♀, 1♂), 11.X.2010; (2♀♀, 3♂♂), 17.V.2010; (3♀♀, 2♂♂), 21.X.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2♂♂, 2♀♀), 12.VI.2010; (1♀, 3♂♂), 20.VI.2010; (7♀♀), 10.IV.2010; (2♂♂, 5♀♀), 02.IV.2010; (2♂♂, 4♀♀), 12.IV.2010; (2♂♂, 5♀♀), 15.IV. 2010; Qazvin Province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1♂, 2♀♀), 10.IV.2011; (2♀♀), 06.IX.2011, (1♂, 2♀♀), 04.IV.2011; leg. M. Kheirandish.

**I r a n i a n R e c o r d s :** East Azarbaijan province; Tehran province; Mazandaran province; Lorestan province; Khorasan-e-Razavi province; Golestan province (DUSTI & HAYAT 2006); New record for Alborz, Guilan and Qazvin provinces.

**D i s t r i b u t i o n :** USSR-Central European territory (PECK 1988); Soviet Middle Asia (BAŃKOWSKA 2000b).

***Paragus (Pandasyophthalmus) haemorrhous MEIGEN 1822 \****

**M a t e r i a l e x a m i n e d :** Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (3♀♀, 2♂♂), 06.V.2011; (2♂♂), 26.V.2011; (3♀♀, 2♂♂), 06.IV.2011; (1♀, 1♂), 15.V.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4♀♀, 1♂), 15.V.2011; Alborz province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (10♀♀), 15.V.2010; (5♀♀, 4♂♂), 02.IX.2010; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (5♀♀), 15.VI.2010; (3♀♀), 25.IV.2010; (2♀♀, 3♂♂), 20.X.2010; (5♀♀), 21.IX.2010; (2♀♀, 2♂♂), 16.V.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (3♀♀, 2♂♂), 12.IV.2010; (3♀♀), 7.VII.2010; (3♀♀), 12.IX.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2♂♂, 4♀♀), 20.V.2010; Qazvin province, Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1♂, 2♀♀), 15.V.2011; (2♀♀), 26. X.2011, (2♂♂, 2♀♀), 04.IV.2011; leg. A. Nadimi.

**I r a n i a n R e c o r d s :** Guilan province; Khorasan-e-Razavi province Mashhad; Tehran province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); New record for Qazvin, Mazandaran and Alborz provinces.

**D i s t r i b u t i o n :** Norway, Iberia and coast of the Mediterranean (including Sicily and Malta) (MARCOS-GARCIA 1986); North Africa (DIRICKS 1994); Israel and Turkey (HAYAT & CLAUSSEN 1997); Afrotropical region (THOMPSON & GHORPADÉ 1992); Ireland and central and southern parts of Europe (Italy, the former Yugoslavia) (SIMIĆ 1986); European parts of Russia (GOELDLIN DE TIEFENAU 1976); Korea (SHIRAKI 1930);

North America from the Yukon to Costa Rica (Vockeroth 1986a); Serbia (NEDELJKOVIC et al. 2009).

***Paragus radjabii* GILASIAN & SOROKINA 2011\***

**Material examined:** Alborz province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (2♂♂), 15.V.2010; leg. M. Kheirandish.

**Iranian Record:** Tehran province (GILASIAN & SOROKINA 2011); New record for Alboz province.

**Distribution:** This species has only reported from Iran (GILASIAN & SOROKINA 2011)

***Paragus (Pandasyophtalmus) tibialis* (FALLÉN 1817)\***

**Material examined:** Alborz province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (6♂♂), 24.VI.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28" N, 52° 07' 13.62" E, 272 m, (3♀♀, 2♂♂), 06.V.2011; (2♂♂), 26.V.2011; (3♀♀, 2♂♂), 06.IV.2011; (1♀, 1♂), 15.V.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4♀♀, 1♂), 15.V.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (5♀♀), 15.VI.2010; (3♀♀), 25.IV.2010; (2♀♀, 3♂♂), 20.X.2010; (5♀♀), 21.IX.2010; (2♀♀, 2♂♂), 16.V.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (3♀♀, 2♂♂), 12.IV.2010; (3♀♀), 7.VII.2010; (3♀♀), 12.IX.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2♂♂, 4♀♀), 20.V.2010; Qazvin province: Zereshk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1♂, 2♀♀), 15.V.2011; (2♀♀), 26.VII.2011, (2♂♂, 2♀♀), 04.IV.2011; leg. A. Nadimi.

**Iranian Records:** Khorasan-e-Razavi province, Kashmar and Bardaskan; Tehran province; Markazi province; Zanjan province; West Azarbaijan province, Oromieh; Fars province; Golestan province; Mazandaran province (DUSTI & HAYAT 2006); East Azerbaijan province (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Guilan, Qazvin and Alborz provinces.

**Distribution:** Uncertain at present, due to confusion with other species until recently; apparently occurs from southern Norway, Sweden and Denmark and coast of the Mediterranean (GOELDLIN DE TIEFENAU 1976); North Africa and the Canary Isles (DIRICKX 1994); from Great Britain (SPEIGHT 1978); southern England, central and southern parts of Europe and former Yugoslavia (SIMIĆ 1986); Turkey (OZGUR 1986); Serbia (NEDELJKOVIC et al. 2009); Korea (SHIRAKI 1930); Nearctic and Oriental Regions (THOMPSON & GHORPADÉ 1992).

***Paragus (Paragus) albifrons* (FALLÉN 1817)**

**Iranian Records:** Iran (DUSTI & HAYAT 2006), West Azerbaijan province (KHAGHANINIA et al. 2010).

**Distribution:** Norway and Denmark to coast of the Mediterranean (GOELDLIN DE TIEFENAU 1976); Great Britain (CHANDLER 1988); (southern England) through central and southern parts of Europe (Italy, the former Yugoslavia, Bulgaria), European parts of Russia (MUTIN & BARKALOV 1999; VUJIĆ et al. 1999b); Caucasus and the Pacific



(BARKALOV & GOGUZOKOV 2001); Afghanistan and Mongolia (BANKOWSKA 2000a); Turkey (DÜZGÜNEP et al. 1982).

***Paragus (Paragus) antoinettae* GOELDLIN DE TIEFENAU & LUCAS 1981 \***

**Material examined:** Mazandaran province: Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4 ♀ ♀, 1 ♂), 15.V.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (2 ♀ ♀), 15.VI.2010; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1 ♂, 2 ♀ ♀), 15.V.201; leg. A. Nadimi.

**Iranian Records:** Golestan province (DUSTI & HAYAT 2006); New record for Guilan, Mazandaran and Qazvin provinces.

**Distribution:** The former Czechoslovakia (GOELDLIN de TIEFENAU 1976); Spain, France (Corsica), Italy, (Sardinia, Sicily), Greece (Crete, Rhodes) (PECK 1988); Turkey (HAYAT & CLAUSSEN 1997).

***Paragus (Paragus) azureus* HULL 1949**

**Iranian Records:** Khuzestan province, Ahwaz (DUSTI & HAYAT 2006).

**Distribution:** Transcaucasia (Armenia) (BARKALOV & GOGUZOKOV 2001); Israel, Egypt, Afrotropical Region (PECK 1988; VUJIĆ et al. 1999b); Turkey (HAYAT & CLAUSSEN 1997).

***Paragus (Paragus) bicolor* (FABRICIUS 1794) \***

**Material examined:** Alborz Province: Arangeh 35° 55' 7.2'' N, 51° 05' 9.24'' E, 1891 m, (8 ♀ ♀, 2 ♂ ♂), 20.IV.2010; (8 ♀ ♀, 6 ♂ ♂), 02.IV.2010; (13 ♀ ♀), 10.VI.2010; (1 ♀, 4 ♂ ♂), 22.IX.2010; Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (6 ♀ ♀), 10.V.2010; Mazandaran province: Noor, Jurband, 36° 26' 17.28'' N, 52° 07' 13.62'' E, 272 m, (12 ♀ ♀, 2 ♂ ♂), 06.V.2011; (6 ♂ ♂), 26.V.2011; (5 ♀ ♀, 2 ♂ ♂), 06.IV.2011; (9 ♀ ♀, 1 ♂), 15.V.2011; Noor, Gaznasara, 36° 16' 56.82'' N, 52° 10' 58.5'' E, 2032 m, (4 ♀ ♀, 1 ♂), 15.V.2011; Guilan province: Rudsar, Ghazichak, 36° 45' 52.62'' N, 50° 20' 1.08'' E, 1787 m, (5 ♀ ♀), 15.VI.2010; (3 ♀ ♀), 25.IV.2010; (2 ♀ ♀, 3 ♂ ♂), 20.X.2010; (5 ♀ ♀), 21.X.2010; (2 ♀ ♀, 1 ♂), 16.V.2010; Rudsar, Orkom 36° 45' 44.34'' N, 50° 18' 11.88'' E, 1201 m, (3 ♀ ♀, 2 ♂ ♂), 12.IV.2010; (3 ♀ ♀), 7.VII.2010; (3 ♀ ♀), 12.IX.2010; Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2 ♂ ♂, 4 ♀ ♀), 20.V.2010; Qazvin province: Zereshk road, 36° 25' 39.36'' N, 50° 06' 36.9'' E, 1997m, (1 ♂, 2 ♀ ♀), 15.V.2011; (2 ♀ ♀), 26.VII.2011, (2 ♂ ♂, 2 ♀ ♀), 04.IV.2011; leg. A. Nadimi.

**Iranian Records:** Sistan and Baluchistan province; West Azarbaijan province, Oromieh; Khuzestan province, Ahwaz; Fars province; Guilan province; Golestan province, Gorgan; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan,(DUSTI & HAYAT 2006); East Azerbaijan (KHAGHANINIA 2010); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Mazandaran, Alborz and Qazvin provinces.

**Distribution:** Belgium and coast of the Mediterranean (GOELDLIN DE TIEFENAU 1989); North Africa (DIRICKS 1994); France, central and southern parts of Europe, Mongolia and Afghanistan (BANKOWSKA 2000a); North America (VOCKEROTH 1986a).



***Paragus (Paragus) compeditus* WIEDEMANN 1830\***

**Material examined:** Alborz province: Karaj 35° 46' 20.16'' N, 50° 56' 44.94'', 1278 m, (2 ♀ ♀), 7.VI.2010; (1 ♂), 27.IV.2010; Qazvin province: Lushan 36° 40' 9.12" N, 49° 25' 37.74" E, 291 m, (4 ♀ ♀), 20.V.2011; (1 ♂, 3 ♀ ♀), 10.IV.2010; Guilan province: Eshmankamachal, 37°22'3.66'' N, 49°57'57.84'' E, -1 m, (2 ♂ ♂, 4 ♀ ♀), 20.V.2010; (3 ♀ ♀), 21.X.2010; (2 ♀ ♀, 1 ♂), 16.V.2010; leg. A. Nadimi.

**Iranian Records:** Sistan and Baluchistan province; West Azarbaijan province, Oromieh; Khuzestan province, Ahwaz; Fars province; Guilan province; Golestan province, Gorgan; Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan (DUSTI & HAYAT 2006); New record for Alborz and Qazvin provinces.

**Distribution:** USSR-South European territory (PECK 1988); Transcaucasus (BARKALOV & GOGUZOKOV 2001); Soviet Middle Asia (Afghanistan and Kazakhstan) (BAŃKOWSKA 2000b); North China (SOROKINA & CHENG 2007); Egypt (PECK 1988); Turkey (HAYAT & CLAUSEN 1997).

***Paragus finitimus* GOELDLIN DE TIEFENAU 1971**

**Iranian Records:** Iran (DUSTI & HAYAT 2006).

**Distribution:** southern Norway, Denmark, the Netherlands, Belgium, France (Paris basin, Rhine valley) (PECK 1988); southern Germany, Switzerland and Spain (Goeldlin de Tiefenau 1976); USSR-Central and South European territories, Kazakhstan, Soviet Middle Asia, West and East Siberia, Mongolia (BAŃKOWSKA 2000b); probably endangered in Western Europe (SPEIGHT 2006).

***Paragus (Paragus) majoranae* RONDANI 1857**

**Iranian Records:** Iran (DUSTI & HAYAT 2006).

**Distribution:** Germany, Italy, Greece, Montenegro (GOELDLIN DE TIEFENAU 1976); Serbia and Macedonia (SOMMAGGIO 2002).

***Paragus (Paragus) quadrifasciatus* MEIGEN 1822**

**Material examined:** Alborz province: Shahriar 35° 40' 8.1'' N, 50° 56' 56.64'' E, 1168 m, (6 ♀ ♀), 10.V.2010; Karaj 35° 46' 20.16'' N, 50° 56' 44.94'', 1278 m, (2 ♀ ♀), 7.VI.2010; Qazvin province: Zeresk road, 36° 25' 39.36" N, 50° 06' 36.9" E, 1997m, (1 ♂, 2 ♀ ♀), 15.V.2011; Mazandaran province: Noor, Tangevaz, 36°21'55.2" N, 52°06' 10.74" E, 692m, (3 ♀ ♀), 26.V.2011; leg. A. Nadimi.

**Iranian Records:** Khorasan-e-Razavi province, Mashhad, Kashmar and Bardaskan; Guilan province (DUSTI & HAYAT 2006); West Azerbaijan province (KHAGHANINIA et al. 2010); New record for Alborz, Qazvin and Mazandaran provinces.

**Distribution:** France (Brittany), coast of the Mediterranean and North Africa (DIRICKS 1994); Portugal, southern and central parts of Europe and Romania (STĂNESCU 1992); Greece (including Crete and Rhodes), Turkey (BAŃKOWSKA 2000b); Caucasus (BARKALOV & GOGUZOKOV 2001); European parts of Russia, Kazakhstan, Tadjikistan to the far east (MUTIN & BARKALOV 1999); China (SOROKINA & CHENG 2007); Korea (SHIRAKI 1930).

***Paragus (Paragus) serratus* (FABRICIUS 1805)**

Iranian Record: Semnan province (MEHRABI & SSYMANK 2008).

Distribution: Mediterranean (VUJIĆ et al. 1999a); England (STUCKENBERG 1954); Turkey (HAYAT & CLAUSSEN 1997); Yemen (HARTEN et al. 2003); Oriental region (PECK 1988).

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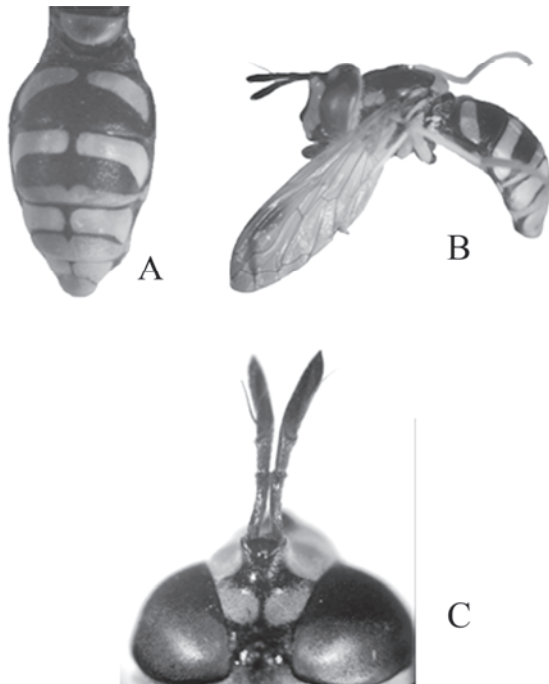
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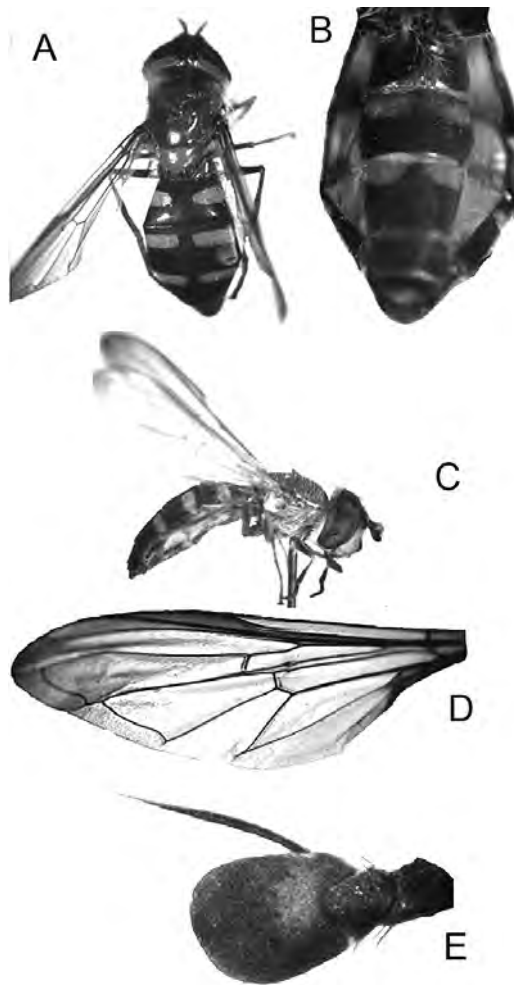




**Fig. 2:** Iran's situation in Palearctic and Oriental region.



**Fig. 3:** *Chrysotoxum montivaga*, female: (A) Dorsal view of abdomen, (B) lateral view, (C) Dorsal view of head.



**Fig. 4:** *Melangyna lasiophthalma*, female: (A) Dorsal view, (B) Ventral view of abdomen, (C) Lateral view, (D) Wing venation, (E) antenna.

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