



## Research Article

# On a collection of bee flies (Diptera: Bombyliidae) from Iran

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**ABSTRACT:** Bee flies (Diptera: Bombyliidae) are beneficial insects as pollinators or natural enemies of some agricultural pests. The present paper documents 58 species from 26 genera and six subfamilies (Usiinae, Phthiriinae, Toxophorinae, Heterotropinae, Bombyliinae and Anthracinae) from different parts of Iran. This work also includes the details on collection localities and zoogeographical distribution of the collected species.

**KEY WORDS:** Bee fly, Bombyliidae, fauna, Iran

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## INTRODUCTION

Bee flies (Diptera: Bombyliidae) are most frequently found in arid and semi-arid portions of the world, with a few specialized forms occurring in moist tropical climates. Adults are commonly found on flowers, hovering in bright sunlight, or resting on warm, bare ground. Many are pollen and nectar feeders, with some acting as primary pollinators of certain species of desert wildflowers (Hull, 1973). Immatures are infrequently encountered. Larvae of some genera are predators of orthopteroid egg pods, most others are parasites or hyperparasites on immature stages of holometabolous orders of insects including Coleoptera, Diptera, Hymenoptera, Lepidoptera, Neuroptera and Orthoptera or are free-living in soil (Cole, 1969; Bowden, 1980).

The family Bombyliidae includes several significantly differentiated subfamilies. Many different opinions concerning their taxonomic status and position have been formulated in the last few decades (Greathead and Evenhuis 1997; Zaitzev, 1991).

Bombyliidae constitutes one of the large and diverse families of brachycerous Diptera. At present there are around 4547 species known worldwide with 1416 species known from the Afrotropical region and 1337 from the Palearctic region. The fauna of Iranian Bombyliidae is

diverse and totally 101 species were listed in the catalogue of Evenhuis and Greathead (2003) and then totally 18 species by Greathead and Karimpour (2006), Sakenin *et al.* (2008) and Gharali *et al.* (2010).

## MATERIALS AND METHODS

The fauna of bee flies was studied in some regions of Iran. Mostly the collections were made by sweeping net and window trap. Besides this, studies were also made on the collected materials of different Universities of Iran. The collected specimens and genitalia were macerated in 10% KOH at room temperature for one day to remove soft tissue, then rinsed in distilled water and dilute glacial acetic acid, and dissected in 80% ethanol. Female reproductive organs were stained with a saturated solution of Chlorazol Black in 40% ethanol. Genitalia preparations were placed in glycerine in a genitalia vial mounted on the pin beneath the specimen (Winterton and Kerr, 2006). Classification, nomenclature, synonymies and distributional data of Bombyliidae (Yeates, 1994; Zaitzev, 1999; Greathead and Evenhuis, 2001; Evenhuis and Greathead, 2003).

## RESULTS

Totally 58 species of bee flies from 26 genera and 6 subfamilies were collected from different regions of Iran. The list of species is given below with distributional data.

**Subfamily Usiinae Becker**

**Tribe Apolysini Evenhuis**

**Genus *Apolysis* Loew, 1860**

***Apolysis dolichorostris* Paramonov, 1947**

Material: Guilan province: Fooman, 1 female, 2 male, June 2002.

Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Turkmenistan.

**Tribe Usiini Becker**

**Genus *Parageron* Paramonov, 1929**

***Parageron griseus* Paramonov, 1947**

Material: Hamadan province: Hamadan, 1 male, September 2003. East Azarbayjan Province: Maragheh, 2 female, August 2005.

Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Turkmenistan, Uzbekistan.

***Parageron lutescens* Bezzi, 1925**

Material: Khorasan province: Ghoochan, 1 female, 1 male, October 2000.

Distribution outside Iran: Egypt, Turkmenistan, Uzbekistan.

**Genus *Usia* Latreille, 1794**

**Subgenus *Micrusia* Evenhuis, 1990**

***Usia (Micrusia) sicula* Egger, 1859**

Material: Tehran province: Shahreyar, 1 female, September 2005. East Azarbayjan Province: Aynalo, 1 female, October 2005.

Distribution outside Iran: Croatia, Greece, Italy (incl. Sicily), Macedonia, Slovenia, Syria, Turkey, former Yugoslavia.

**Subgenus *Usia* Latreille**

***Usia (Usia) bicolor* Macquart, 1855**

Material: Kordestan province: Sanandaj, 2 female, 1 male, September 2003.

Distribution outside Iran: Bosnia-Herzegovina, Croatia, Egypt, Greece, Israel, Italy, Kyrgyz Republic, Lebanon, Slovenia, Syria, Turkey, Tajikistan, Turkmenistan, Uzbekistan, former Yugoslavia.

***Usia (Usia) calva* Loew, 1869**

Material: Guilan province: Rasht, 3 female, 2 male, June 2002. East Azarbayjan Province: Maragheh, 2 female, June 2005.

Distribution outside Iran: Israel, Syria, Turkey.

***Usia (Usia) florea* Fabricius, 1794**

Material: Golestan province: Gonbad, 2 male, July 2003. Mazandaran province: Amol, 1 female, 1 male, July 2004. Distribution outside Iran: Algeria, France, Gibraltar, Italy, Kyrgyz Republic, Morocco, Spain, Tajikistan, Tunisia, Turkmenistan.

***Usia (Usia) transcaspica* Paramonov, 1950**

Material: Sistan & Baluchestan province: Zabol, 2 female, 3 male, October 2004. East Azarbayjan Province: Khodafarin, 1 female, August 2005

Distribution outside Iran: Armenia, Azerbaijan, Macedonia, Turkmenistan, Uzbekistan.

**Subfamily Phthiriinae Becker**

**Tribe Phthiriini Becker**

**Genus *Phthiria* Meigen, 1820**

***Phthiria gracilis* Walker, 1852**

Material: West Azarbayjan Province: Ourmieh, 1 female, August 2004. Sistan & Baluchestan province: Zabol, 2 female, May 2004.

Distribution outside Iran: India and adjacent countries.

***Phthiria quadrinotata* Loew, 1873**

Material: Mazandaran province: Amol, 1 male, July 2007. Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Tajikistan, Turkmenistan, Uzbekistan.

***Phthiria umbripennis* Loew, 1846**

Material: East Azarbayjan province: Arasbaran, 1 female, October 2003. East Azarbayjan Province: Horand, 2 female, July 2005.

Distribution outside Iran: Armenia, Azerbaijan, Croatia, France, Greece, Gruzia, Israel, Italy, Moldova, Morocco, Romania, Russia, Spain, Syria, Tunisia, Ukraine, former Yugoslavia.

**Subfamily Toxophorinae Schiner**

**Tribe Gerontini Hesse**

**Genus *Geron* Meigen, 1820**

**Subgenus *Geron* Meigen**

***Geron (Geron) gibbosus* Olivier, 1789**

Material: Kordestan province: Sanandaj, 2 female, 1 male, August 2003. East Azarbayjan Province: Tabriz, 1 female, September 2002.

Distribution outside Iran: France, Greece, Israel, Spain, Turkey.

***Geron (Geron) griseus* Zaitzev, 1962**

Material: Khuzestan province: Ahwaz, 2 male, August 2002. Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Lebanon.

***Geron (Geron) longiventris* Efflatoun, 1945**

Material: Mazandaran province: Behshahr, 2 female, 1 male, June 2001. Tehran, Shahreyar, 1 male, April 2002. Ardabil Province: Aslandooz, 1 male, August 2006.

Distribution outside Iran: China, Egypt, Israel, Tajikistan, Uzbekistan.

***Geron (Geron) michaili* Zaitzev, 1972**

Material: Mazandaran province: Nooshahr, 2 female, 1 male, August 2001.

Distribution outside Iran: Algeria, Armenia, Egypt, Mongolia, Tunisia, Turkmenistan, Ukraine.

***Geron (Geron) olivierii* Macquart, 1840**

Material: East Azarbayjan Province: Khodafarin, 1 female, July 2005. East Azarbayjan Province: Khodafarin, 1 male, July 2005.

Distribution outside Iran: Palaearctic: Armenia, Croatia, Greece, Italy, Jordan, Spain, Turkmenistan.

***Geron (Geron) smirnovi Zaitzev, 1978***

Material: Khorasan province: Mashhad, 3 male, September 2000.

Distribution outside Iran: Greece, Tajikistan, Turkey, Turkmenistan.

**Tribe Toxophorini Schiner**

**Genus *Toxophora* Meigen, 1803**

***Toxophora aegyptiaca* Efflatoun, 1945**

Material: Sistan & Baluchestan province: Chabahar, 2 female, 1 male, April 2004.

Distribution outside Iran: Sudan, Egypt, Oman, Saudi Arabia.

***Toxophora epargyra* Hermann, 1907**

Material: Kerman province: Kerman, 3 female, 2 male, July 2003. East Azarbayjan Province: Khomarloo, 1 female, July 2005.

Distribution outside Iran: Sudan, Armenia, Azerbaijan, Egypt, Gruzia, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

***Toxophora psammophila* Paramonov, 1933**

Material: Semnan province: Damghan, 1 female, October 2003. East Azarbayjan Province: Azarshahr, 2 male, September 2005.

Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan.

**Subfamily Heterotropinae Becker**

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**Genus *Heterotropus* Loew**

***Heterotropus pallens* Nurse, 1922**

Material: Sistan & Baluchestan province: Zahedan, 2 female, 1 male, May 2004.

Distribution outside Iran: Pakistan and adjacent countries.

***Heterotropus pyrus* Bowden, 1967**

Material: Kordestan province: Marivan, 1 male, September 2004.

Distribution outside Iran: Turkey and adjacent countries.

***Heterotropus sabulosus* Paramonov, 1929**

Material: Khorasan province: Bojnord, 3 female, August 2004. East Azarbayjan Province: Marand, 1 female, August 2005.

Distribution outside Iran: Egypt, Turkmenistan, Uzbekistan.

**Subfamily Bombyliinae Latreille**

**Tribe Bombyliini Latreille**

**Genus *Anastoechus* Osten Sacken, 1877**

***Anastoechus bahirae* Becker, 1915**

Material: Khuzestan province: Ahwaz, 2 female, 3 male, November 2002. East Azarbayjan Province: Kaleybar, 2 female, July 2005.

Distribution outside Iran: Kenya, Sudan, Algeria, Egypt, Israel, Libya, Saudi Arabia, Spain, Syria, Tunisia.

***Anastoechus exalbidus* Wiedemann in Meigen, 1820**

Material: Khuzestan province: Ahwaz, 2 female, 3 male, November 2002. Bushehr province: Bushehr, 1 male, April 2003. West Azarbayjan: Khoy, 1 male, May 2004.

Distribution outside Iran: Sudan, Yemen, Algeria, Armenia, Azerbaijan, Egypt, France, Gruzia, Israel, Italy, Jordan, Kuwait, Lebanon, Oman, Portugal, Saudi Arabia, Spain, Syria, Tunisia, former Yugoslavia.

***Anastoechus miscens* Walker, 1871**

Material: Khuzestan province: Ahwaz, 2 female, November 2002. West Azarbayjan Province: Ourmieh, 1 female, August 2004. East Azarbayjan Province: Khodafarin, 1 male, July 2005.

Distribution outside Iran: Eritrea, Sudan, Yemen, Saudi Arabia.

***Anastoechus stramineus* Wiedemann in Meigen, 1820**

Material: Golestan province: National Park, 1 female, June 2004. Tehran province: Damavand, 2 female, September 2005. East Azarbayjan Province: Maragheh, 1 female, June 2005.

Distribution outside Iran: Sudan, Algeria, Egypt, France, Israel, Italy, Libya, Portugal, Saudi Arabia, Spain, Tunisia, Turkmenistan.

***Anastoechus trisignatus* Portschninsky, 1881**

Material: Isfahan province: Najaf-Abad, 2 male, April 2000. Hamadan province: Malayer, 2 female, 2 male, August 2003. East Azarbayjan Province: Ahar, 1 male, July 2005.

Distribution outside Iran: Algeria, Armenia, Azerbaijan, Bosnia-Herzegovina, Croatia, Egypt, Greece, Gruzia, Israel, Italy, Jordan, Kuwait, Lebanon, Libya, Macedonia, Morocco, Oman, Qatar, Saudi Arabia, Slovenia, Sudan, Syria, Tunisia, Yemen, former Yugoslavia.

**Genus *Bombylisoma* Rondani, 1856**

***Bombylisoma melanocephalum* Fabricius, 1794**

Material: Guilan province: Rasht, 1 female, June 2002, Mazandaran province: Chalus, 1 female, 2 male, August 2004.

Distribution outside Iran: Algeria, Armenia, Austria, Azerbaijan, Czech Republic, France, Gruzia, Hungary, Italy, Moldova, Portugal, Russia, Slovakia, Spain, Switzerland, Tunisia, Turkey, Ukraine.

***Bombylisoma senegalense* Macquart, 1840**

Material: Khuzestan province: Dezfool, 2 female, 1 male, November 2002. East Azarbayjan Province: Khodafarin, 1 female, June 2005.

Distribution outside Iran: Angola, Botswana, Burkina Faso, Chad, Eritrea, Ethiopia, Gambia, Ghana, Hungary, Italy, Kenya, Malawi, Mali, Mauritania, Mozambique, Niger, Nigeria, Portugal, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Uganda, Yemen, Zambia, Zimbabwe, Saudi Arabia, United Arab Emirates.

**Genus *Bombylius* Linnaeus, 1758**

**Subgenus *Bombylius* Linnaeus**

***Bombylius (Bombylius) altivolans* François, 1969**

Material: Khorasan province: Birjand, 2 female, June 2002.  
Distribution outside Iran: Afghanistan and adjacent countries.

***Bombylius (Bombylius) ambustus* Pallas & Wiedemann in Wiedemann, 1818**

Material: Isfahan province: Shahin-Shahr, 3 female, 3 male, October 2003.

Distribution outside Iran: Albania, Armenia, Austria, Azerbaijan, Belarus, China, Croatia, Czech Republic, Estonia, France, Germany, Greece, Gruzia, Hungary, Italy, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Poland, Russia, Slovakia, Spain, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan.

***Bombylius (Bombylius) canescens* Mikan, 1796**

Material: East Azarbayjan Province: Khodafarin, 2 female, June 2005. Golestan province: National Park, 1 female, September 2006.

Distribution outside Iran: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Gruzia, Hungary, Ireland, Italy, Latvia, Libya, Lithuania, Malta, Moldova, Netherlands, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Syria, Turkey, Turkmenistan, UK, Ukraine, former Yugoslavia.

***Bombylius (Bombylius) cinerascens* Mikan, 1796**

Material: Ardabil Province: Pars-Abad, 1 female, June 2002. East Azarbayjan Province: Abshahmad, 1 male, October 2005. Mazandaran province: Savadkooh, 1 male, September 2006.

Distribution outside Iran: Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Egypt, France, Germany, Greece, Gruzia, Hungary, Israel, Italy, Macedonia, Moldova, Poland, Romania, Russia, Saudi Arabia, Slovakia, Slovenia, Spain, Switzerland, Turkey, Ukraine, former Yugoslavia.

***Bombylius (Bombylius) olivierii* Macquart, 1840**

Material: Kermanshah province: Paveh, 1 female, May 2002. Ilam province: Ilam, 1 female, 1 male, September 2005.  
Distribution outside Iran: Iraq and adjacent countries.

***Bombylius (Bombylius) pericaustus* Loew, 1873**

Material: East Azarbayjan Province: Jolfa, 2 female, September 2006.

Distribution outside Iran: Afghanistan, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan.

***Bombylius (Bombylius) repeteki ssp. repeteki* Paramonov, 1940**

Material: Tehran province: Varamin, 1 female, June 2005.  
Distribution outside Iran: Armenia, Azerbaijan, Gruzia, Israel, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan.

**Genus *Efflatounia* Bezzi, 1925**

***Efflatounia aegyptiaca* Bezzi, 1925**

Distribution in Iran: Khuzestan province: Ahwaz, 2 female, 1 male, November 2002. East Azarbayjan Province: Azarshahr, 2 female, September 2005.

Distribution outside Iran: Egypt, Israel, Libya, Saudi Arabia.

**Genus *Systoechus* Loew, 1855**

***Systoechus submicans* Greathead, 1980**

Material: Bushehr province: Brazjan, 1 female, December 2007.

Distribution outside Iran: Saudi Arabia and adjacent countries.

**Tribe Conophorini Becker**

**Genus *Conophorus* Meigen, 1803**

***Conophorus glaucescens* Loew, 1863**

Material: East Azarbayjan Province: Ahar, Maragheh, 3 female, July 2005. Zanzan province: Zanzan, 1 female, 1 male, August 2006.

Distribution outside Iran: Albania, Armenia, Azerbaijan, Bulgaria, Croatia, Greece, Gruzia, Israel, Italy, Moldova, Russia, Turkey, Ukraine, former Yugoslavia.

**Genus *Prorachthes* Loew, 1869**

***Prorachthes ledereri* Loew, 1869**

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Material: West Azarbayjan Province: Mahabad, 1 female, July 2002. Mazandaran province: Amol, 1 female, July 2006.

Distribution outside Iran: Greece, Kyrgyz Republic, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

**Subfamily Anthracinae Latreille**

**Tribe Anthracini Latreille**

**Genus *Anthrax* Scopoli, 1763**

***Anthrax alagoezicus* Paramonov, 1935**

Material: Ardabil province: Aslandooz, 1 female, September 2006.

Distribution outside Iran: Palaeartic: Armenia, Azerbaijan, Gruzia.

***Anthrax chionostigma* (Sack, 1909)**

Material: West Azarbayjan province: Mahabad, 3 female, 2 male, July 2007.

Distribution outside Iran: Palaeartic: Afghanistan, Armenia, Azerbaijan, France, Greece, Gruzia, Italy, Kazakhstan, Spain, Tajikistan, Uzbekistan.

***Anthrax monachus* (Sack, 1909)**

Material: Ardabil province: Ardabil, 1 female, 1 male, September 2008.

Distribution outside Iran: Palaeartic: Armenia, Azerbaijan, Gruzia, Kyrgyz Republic, Tajikistan, Turkmenistan, Turkey, Uzbekistan.

**Genus *Satyramoeba* Sack, 1909**

***Satyramoeba bipunctata* Fabricius, 1805**

Material: Sistan & Baluchestan province: Zabol, 2 female, October 2004.

Distribution outside Iran: Oriental: Bangladesh, India, Pakistan.

**Genus *Spogostylum* Macquart, 1840**

***Spogostylum griseipenne* Macquart, 1850**

Material: Kordestan province: Sanandaj, 3 female, 3 male, June 2007.

Distribution outside Iran: Afrotropical: Mauritania, Niger. Palaeartic: Egypt, Iraq, Israel, Libya, Saudi Arabia, Tunisia, United Arab Emirates.

**Genus *Turkmeniella* Paramonov, 1940**

***Turkmeniella transcaspicus* Paramonov, 1925**

Material: Khorasan province: Serakhs, 1 female, 2 male, August 2008.

Distribution outside Iran: Palaeartic: Tajikistan, Turkmenistan, Uzbekistan.

**Genus *Exoprosopa* Macquart, 1840**

***Exoprosopa cleomene* Egger, 1859**

Material: Ardabil province: Germy, 2 female, 1 male, July 2006.

Distribution outside Iran: Palaeartic: Armenia, Austria, Azerbaijan, Belgium, Czech Republic, France, Germany, Gruzia, Hungary, Italy, Poland, Russia, Slovakia, Slovenia, Spain, Switzerland, Ukraine.

***Exoprosopa onusta* Walker, 1852**

Material: Kordestan province: Sanandaj, 1 female, 2 male, June 2007.

Distribution outside Iran: Afrotropical: Yemen. Palaeartic: Bulgaria, Cyprus, Greece, Israel, Saudi Arabia, Syria, Turkey.

**Genus *Heteralonia* (Rondani, 1863)**

***Heteralonia* (*Homolonia*) *aegina* Wiedemann, 1828**

Material: Bushehr province: Brazjan, 1 male, December 2006.

Distribution outside Iran: Afrotropical: Djibouti, Sudan. Palaeartic: Armenia, Azerbaijan, Egypt, Gruzia, Israel, Kyrgyz Republic, Saudi Arabia, Syria, Tajikistan, Turkmenistan, Uzbekistan, Yemen.

***Heteralonia* (*Zygodipla*) *interstitialis* Nurse, 1922**

Material: Sistan & Baluchestan province, 1 female, October 2004.

Distribution outside Iran: Oriental: Pakistan. Palaeartic: Afghanistan.

**Genus *Micomitra* Bowden, 1964**

***Micomitra chrystallina* Bezzi, 1924**

Material: Khuzestan province: Ahwaz, 1 female, November 2007.

Distribution outside Iran: Afrotropical: Somalia, Yemen. Palaeartic: Saudi Arabia.

**Tribe Prorostomatini Hull**

**Genus *Stomylomyia* Bigot, 1887**

***Stomylomyia pusilla* Bezzi, 1925**

Material: East Azarbayjan province: Tabriz, 2 female, 3 male, September 2008.

Distribution outside Iran: Palaeartic: Armenia, Azerbaijan, Egypt, Gruzia.

**Tribe Villini Hull**

**Genus *Villa* Liroy, 1864**

***Villa bizonata* Becker, 1916**

Material: West Azarbayjan province: Maco, 1 female, August 2005.

Distribution outside Iran: Palaeartic: Turkey.

***Villa clarissima* (Loew, 1857)**

Material: East Azarbayjan province: Arasbaran, 4 female, 2 male, July 2007.

Distribution outside Iran: Palaeartic: Armenia, Azerbaijan, Bulgaria, Cyprus, Greece, Gruzia, Israel, Italy, Libya, Syria, former Yugoslavia.

***Villa occulta* Wiedemann in Meigen, 1820**

Material: East Azarbayjan province: Arasbaran, 1 female, July 2007.

Distribution outside Iran: Palaeartic: Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Gruzia, Hungary, Italy, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Poland, Romania, Russia, Spain, Ukraine, former Yugoslavia.

***Villa tomentosa* Becker, 1916**

Material: East Azarbayjan province: Tabriz, 1 male, September 2008.

Distribution outside Iran: Palaeartic: Afghanistan, Armenia, Azerbaijan, Greece, Gruzia, Italy, Macedonia, Turkey, former Yugoslavia.

**Genus *Villoestrus* Paramonov, 1931**

***Villoestrus uvarovi* Paramonov, 1931**

Material: West Azarbayjan: Maco, 1 female, August 2005. Distribution outside Iran: Palaeartic.

**Tribe Xeramoebini Hull**

**Genus *Petrorossia* Bezzi, 1908**

***Petrorossia flavipennis* Zaitzev, 1966**

Material: Ardabil province: Germy, 3 female, July 2006.

Distribution outside Iran: Palaeartic: Armenia, Azerbaijan, Egypt, Gruzia, Israel, Kazakhstan, Uzbekistan.

**Genus *Xeramoeba* Hesse 1956**

***Xeramoeba sabulonis* Becker, 1906**

Material: West Azarbayjan province: Maco, 1 female, 2 male, August 2005.

Distribution outside Iran: Afrotropical: Sudan. Palaearctic: Algeria, Egypt, Greece, Israel, Macedonia, Tunisia, Turkey, Yugoslavia.

## DISCUSSION

The bombyliid fauna of Iran, documented in this communication is mostly dominated by the Afrotropical and Palaearctic materials and only 4 species (*Phthiria gracilis*, *Heterotropus pallens*, *Satyramoeba bipunctata* and *Heteralonia (Zygodiola) interstitialis* extend their distribution up to the Oriental region.

Bee flies are beneficial insects and play an important role as pollinators and pests in almost all the ecosystems. Considering their economic importance, the fauna of Iranian Bombyliidae is poorly studied and the reported number of species is less than 150, while Iran is a large country and therefore a very diverse fauna is expected. Now it is very much necessary to give more emphasis and attention on the researches of these beneficial insects of Iran.

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## REFERENCES

Bowden, J. 1980. Family Bombyliidae, pp. 381-430. In: Crosskey, R. W. (Ed.), *Catalogue of the Diptera of the Afrotropical region*, British Museum (Natural History), London, UK, 1437 pp.

Cole, F. R. 1969. *The Flies of Western North America*. University of California Press, Berkeley, CA, USA, 693 pp.

Evenhuis, N. L. and Greathead, D. J. 2003. World Catalog of Bee Flies (Diptera: Bombyliidae): Corrigenda and Addenda. *Zootaxa*, **300**: 64 pp.

Gharali, B., Kamali, K., Evenhuis, N. and Talebi, A. A. 2010. Two new species of the genus *Apolysis* (Apolysini, Bombyliidae, Diptera) from the north of Iran. *Zootaxa*, **2441**: 41-52.

Greathead, D. 2004. Fauna Europaea: Bombyliidae. In: Pape, T. (Ed.). *Fauna Europaea: Diptera, Brachycera*. Fauna Europaea version 1.1, <http://www.faunaeur.org>.

Greathead, D. J. and Evenhuis, N. L. 1997. Bombyliidae, pp. 487-512. In: Papp, L. And Darvas, B. (Eds). *Contributions to a Manual of Palaearctic Diptera (with special reference to flies of economic importance)*. Vol. 2. *Nematocera and Lower Brachycera*. Science Herald, Budapest, Hungary.

Greathead, D. J. and Evenhuis, N. L. 2001. Annotated keys to the Bombylioidea (Diptera: Bombyliidae: Mythicomyiidae) of Africa. *African Invertebrates*, **47**: 105-244.

Greathead, D. J. and Karimpour, Y. 2006. A new species of *Villa* Lioy, 1864 (Diptera: Bombyliidae) parasitic on Sesiidae (Lepidoptera). *Zootaxa*, **1156**: 65-68.

Hull, F. M. 1973. Bee flies of the world. The genera of the family Bombyliidae. *Bulletin of the United States National Museum*, **286**: 687 pp.

Sakenin, H., Raheb, J., Imani, S., Havaskary, M., Shirdel, F. and Mohseni, H. 2008. A preliminary survey on dipteran predators and parasitoids and Odonata in Iranian rice fields. Proceedings of National Conference of Agronomical Rice Breeding, Ghaemshahr Islamic Azad University, 26-27 November, p. 79 (In Persian with English Summary; full paper as CD ROM, 14 pp).

Winterton, S. L. and Kerr, P. H. 2006. A new species of *Alloxytropus* Bezzi (Diptera: Scenopinidae: Proratinae) from Israel. *Zootaxa*, **1155**: 41-50.

Yeates, D. K. 1994. The cladistics and classification of the Bombyliidae (Diptera: Asiloidea). *Bulletin of the American Museum of Natural History*, **219**: 191 pp.

Zaitzev, V. F. 1991. The phylogeny and system of Diptera of the superfamily Bombylioidea (Diptera). *Entomological Review*, **71**: 94-114.

Zaitzev, V. F. 1999. On the fauna of flies of the family Bombyliidae (Diptera) of Israel. V. *Entomologicheskoe Obozrenie*, **78**: 703-718.