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## A survey of the bees (Hymenoptera: Apoidea) from Isfahan Province, Iran

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**ABSTRACT.** In this survey, 154 bee species of Apoidea superfamily, from the western part of the Isfahan province, Iran were recorded, of which 29 species are new for the fauna of Iran. Among the identified specimens, there were 35 species of Andrenidae, 11 of Apidae, 20 of Colletidae, 50 of Halictidae, 36 of Megachilidae and 2 of Melittidae. All specimens are deposited in the Museum of Iranian Pollinating Insects of Yasouj University, Yasouj, Iran.

**Key words:** Andrenidae, Apidae, Colletidae, Halictidae, Megachilidae and Melittidae

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### Introduction

Many Iranian researchers have studied Apoidea superfamily fauna of this country in recent decade. The first national researchers, who studied this superfamily, were [Esmaeili & Rastegar \(1975\)](#). They collected bees from Karadj (Alborz province) and recorded 11 species of *Bombus* Latreille. Most of their scientific name were later corrected by [Monfared et al. \(2007\)](#). [Mirabzadeh et al. \(1989\)](#) studied breeding and the application of the leaf cutting bees, pollinators of Alfalfa (*Medicago* sp.). They also collected and identified bees of various genera from the Alborz province, although the reliability of their identifications need to be critically corrected, in some case. [Ebadi \(1996\)](#) conducted some studies on the bee fauna of Isfahan; He recorded 33 species from Apoidea. [Izadi et al. \(1997\)](#) recorded 35 species of Apoidea bees from northern Fars

province. In a study by [Tavakoli Korqand et al. \(2010\)](#) bee pollinators of legume-crops in Gilan province, 46 species of 24 genera and six families were collected and identified. Of these, 20 species and two genera recorded for the first time from Iran. One species from *Osmia* (*Osmia*) was new for science. [Taghavi et al. \(2008\)](#), studied *Bombus* species diversity in Tehran and Qazvin provinces in Central Elburz. They collected a total of 11 species of the genus *Bombus* and detected that at least 8 species in the two regions were similar. [Monfared et al. \(2007\)](#) in a comprehensive work on bumblebees of Iran by collecting bumblebees from most regions of proper habitats in the country and also revising of species list reported before in the literature, confirmed that at least collectively 34 species of Iranian bumblebees live in twenty provinces of Iran. [Khodaparast & Monfared](#)

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(2012) in a comprehensive work on Apoidea recorded 177 species of bees from Fars province. In this survey, they reported 91 new records for Iran fauna, and 7 new species for science. Among these, 56 species belong to Apidae family, 49 species of Halictidae, 39 species of Megachilidae, 31 species of Andrenidae, 1 species of Melittidae and 1 species from Colletidae. Khodaparast & Monfared (2013b) published a taxonomic study on 14 species of four genera of the tribe of Fars Osmiini with good pictures and descriptions of the species, also Khodaparast & Monfared (2013a) in an independent work published a taxonomic study on 26 species of the tribe Eucerini from Fars province that 19 species were new for the fauna of Iran. They provide detailed pictures of them in order to facilitate the identification of the species. Khaghaninia et al. (2013) in a study of bee pollinator fauna in the forests Horand in East Azerbaydjan of Iran recorded 46 species from three families which 8 species were new records for this fauna. Monfared et al. (2012) recorded 40 species of pollinator bees from Kohgiluyeh & Boyer-Ahmad province that seven species were reported for the first time from Iran. Keshtkar et al. (2012) published 25 bees' species on 18 plant species from urban parks and gardens from Shiraz city. Sorayamohtat et al. (2012) recorded 34 species from Sistan & Baluchestan province, 34 species of these were from 17 genera and 5 families (Colletidae, Apidae, Megachilidae, Mellitidae and Andrenidae), also in this study *Colletes schwarzi* Kuhlmann recorded for the first time for Iranian fauna. Salehi Sarbijan et al. (2012) recorded 32 species from 17 genera and 5 families in southwest of Kerman province. Among the mentioned species, a species with the name of *Osmia cornuta* were new for the fauna of Iran. Nadimi et al. (2013a) studied on cleptoparasite *Coelioxys* bees in northern Iran and recorded a total of 11 species which 6 of them were new for the fauna of Iran. In addition to the above

studies, which was a review of Iranian researches on bees' fauna of Iran, we can name some foreign researchers which collected or recorded bees' species from Iran. Warncke a German scientist has recorded many bees' species from Iran (Warncke, 1976, 1977, 1979a, b, c, d, e, f, 1980a, b, 1981, 1982, 1983).

Scientists worked on bumblebees of Iran has been mentioned in Monfared et al. (2007) previously, so we review works of others, which are more important here. Ebmer (1978) have studied on some genera belong to Iran fauna such *Rophites*, *Systropha*, *Halictus* and *Lasioglossum*, He also in this study recorded 52 species of the genus *Halictus*, 118 species of the genus *Lasioglossum*, 2 species *Rophites* and 4 species *Systropha* from Iran. Warncke (1982) had recorded several species of the genera of *Xylocopa*, *Systropha*, *Halictus*, *Anthidium*, *Rophites* and *Dioxys* during years of 1976-1982 from Iran. Michez (2005) recorded a new species called *Dasypoda* (*Megadasypoda*) *intermedia* with description for the first time from Iran. Engel (2006) recorded a new species of the genus *Osmia* (*Helicosmia*) among materials were collected near Karadj. He also recorded a new rare species from cleptoparasite bees genus *Chiasmognathus* (tribe: Ammobatini) which collected from the north east of Iran. Lately, Müller (2012) published a paper about a new species of tribe Osmiini called *Osmia* (*Orientosmia*) *maxschwarzi*, which had a very long mouthparts and its unique foodplant from family Fabaceae (leguminose) recorded from Palearctic region. This bee live in a vast region from west of Turkey to central Iran. He described it and provided a key to three species of the genus *Orientosmia* in his publication.

After them, many subsequent works are carried out on bee taxonomy in Iran. Important faunistic and taxonomic works including the bee fauna of Isfahan province (Ebadi, 1996), Apoidea bees in Fars

province (Izadi et al. 1997), bee pollinators of legume crops in Gilan province (Tavakoli Korqand, 2010), *Bombus* species diversity in Central Elburz (Taghavi et al. 2008), bumblebees from most regions of Iran (Monfared et al. 2007), bees from Fars province (Khodaparast & Monfared, 2012), taxonomic study of the tribe Osmiini of Fars province (Khodaparast & Monfared, 2013b), Nadimi et al (2013b) studied the tribe Osmiini in northern Iran. Nadimi et al. (2014) studied tribe Anthididni in northern Iran. Allahverdi et al. (2016) examined *Andrena* subgenera of Iran. Salarian et al. (2016) surveid of the genus *Ceratina* Latreille in northern Iran. Safi et al. (2018) studied Halictidae from Gorgan county. Safi et al. (2018) reported a rare species of bee from Iran with a checklist of subfamily Nomioidea of Iran. Lately, Falamarzi et al. (2017) published a paper on species inventory of Megachilidae (Hymenoptera: Apoidea) in south of Fars province and Goodarzi & Monfared (2017) published a paper on identifying of Iranian species of the subgenus *Psithyrus* Lepeletier. Khajuee Dehshib et al. (2018) started a new way for bees study by Geometric Morphometric Method in their published paper entitiled seperating pollintor bees of the tribe Anthophorini Available at the Iranian Museum of Pollinator Insects' in Yasouj University, using Geometric Morphometric Method. Goodarzi & Monfared (2017) examined 64 specimens of Iranian *Psithyrus* subgenus collected mostly in North and North West of Iran.

### Material and methods

Sampling for collecting Apoid bees carried out by first author (sometimes with second author) from different parts of western and central regions of Isfahan Province (Fig. 1) in early April 2012 to early October 2013 on

crops and pasture plants. Totally, 1898 specimens collected (Table 1). In this survey all Apoid bees except honey bees (*Apis mellifera*) and wild honey bee (*Apis florea*) were collected. Samples were collected by sweeping net and put in a container contains the cork and ethyl acetate, in field, then transfer to lab. Geographic cordinations including altitude, latitude and elevation recorded by a GPS eTrix HC series by Garmin Company. Then specimens pinned and received the labels which indicate the location information, date of collection and collector name and set in collection boxes. Also, some example of flowering plants visited by bees were collected, dried, and then fixed and was identified by our colleagues expert on systematic of plants Dr. A. Jafari from Yasouj University. All data were recorded in a database of excel file. Then all specimens examined and classified based on family, subfamily, tribe and genera using Michener (2007). To identification of bees to species level examples of specimens were sent to bees' espesialist abroad and identification on various families carried out by mentioned specialist as below:

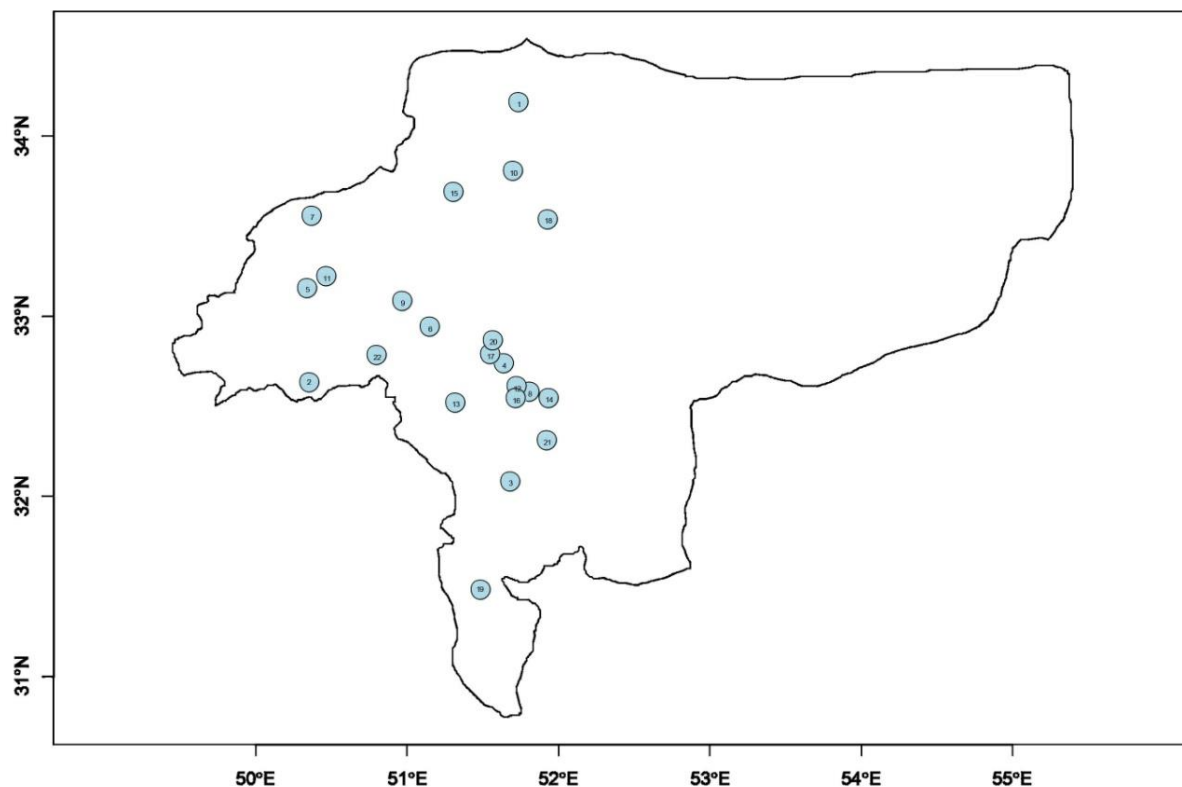
Megachilidae: [Megachilini by Christophe Praz (Switzerland); Osmiini and Anthidini by Andreas Muller (Switzerland)], Apidae: [Eucerini by Stephan Risch (Germany)]; *Bombus* by Alireza Monfared (Iran)], Melittidae by Andreas Muller (Switzerland)], Colletidae: [*Hylaeus* by Holger Dathe (Germany); *Colletes* by Michael Kuhlmann (England)], Andrenidae: [Andreninae by Erwin Scheuchl (Germany); Panurginae and Rophitinae by Sébastien Patiny (Belgium)], Halictidae: [Halictinae by Andreas W. Ebmer (Austria); Nomiinae & Halictinae only *Seladonia*, *Vestitohalictus* and *Dialictus* by Alain Pauly (Belgium)]. Identified species are deposited in Ysouj University Museum of pollinator insects.

**Table 1.** List of locality and coordinations with number of species collected in Isfahan Province, Iran.

City	locality	N	E	Elevation	Specimens No.
Aran va Bidgol	Aran va Bidgol	34° 02.554′	051° 28.977′	947 m	19
Chadegan	Chadegan	32° 37.710′	051° 40.512′	2026 m	2
	Abadchi	32° 45.085′	050° 43.736′	2179 m	3
	Sade Zayandehroud	32° 44.705′	050° 43.632′	2070 m	150
Dehaghan	Astaneh	31°49.957′	051° 35.359′	2408 m	112
Falavarjan	Baharan, Bagh Abrisham	32° 37.437′	051° 32.382′	1581 m	17
	Falavarjan	32° 32.676′	051° 29.574′	1664 m	192
	Qahderijan	32° 34.360′	051° 27.180′	1600 m	3
	Zazeran	32° 34.419′	051° 29.190′	1628 m	35
	Zodan	32° 26.255′	051° 34.328′	1606 m	9
Fereydan	Derakhtak	32° 53.985′	050° 18.146′	2240 m	2
	Barf Anbar, Sadeghieh	33° 01.229′	050° 27.510′	2326 m	2
	Daran, Damaneh	32° 54.120′	050° 18.436′	2379 m	9
Fereydun Shahr	Fereydun Shahr	32° 48.506′	050° 56.791′	2309 m	1
	Bazmeh	32° 50.341′	050° 15.468′	2555 m	27
	Dehsoor	32° 53.214′	050° 13.777′	2365 m	84
Golpayegan Isfahan	Golpayegan	33° 27.388′	050° 17.321′	1772 m	35
	Baharestan	32° 28.409′	051° 46.149′	1608 m	68
	Kabootar Abad	32° 29.949′	051° 49.261′	1563 m	1
	Kouhpayeh , Jebel	32° 48.546′	052° 25.470′	2011m	5
	Lashotor	32°48.848′	050° 58.523′	1612 m	12
	Marq	32°31.397′	051° 42.224′	1556 m	42
	Nazhvan Park	32° 36.471′	051° 32.964′	1513 m	11
	Ostandari St.	32° 39.179 ′	051° 40.309′	1570m	12
	Si_o_Se Pol	32° 37.714′	051° 40.513′	1538 m	13
	Sofe park	32° 34.278′	051° 38.475′	1800m	1
Karvan	Isfahan-Mobarakeh Road	32°24.964′	051° 45.913′	1713 m	1
	Karvan	32° 52.780′	050° 51.429′	2185 m	27
	Afjan	32° 48.914′	050° 58.403′	2051 m	1
	Jafar Abad	32° 48.071′	051° 00.511′	2035 m	66
	Nasim Abad	32° 48.131′	050° 57.166′	2062 m	5
	Mehdi Abad	32° 29.949′	051° 49.261′	1993 m	19
Kashan	Ghamsar	33° 45.205′	051° 26.969′	1879 m	26
	Kashan	33° 56.631′	051° 22.247′	1077 m	34
	Qohroud	33° 41.047′	051° 26.553′	2169 m	1

**Table 1.** Continued.

City	locality	N	E	elevation	Specimens No.
Khansar	Khansar	33° 12.073′	050° 21.432′	2425 m	3
KhomeyniShahr	Dorcheh	32° 35.100′	051° 31.754′	1608 m	67
	IUT	32° 43.245′	051° 31.697′	1676 m	19
	Kooshk	32° 38.340′	051° 30.000′	1552 m	10
	Tiranchi	32° 37.567′	051° 31.758′	1625 m	3
Lenjan	Karchegan	32° 25.379′	051° 06.783′	1843 m	1
	Sadegh Abad	32° 25.378′	051° 06.783′	1784 m	14
	Zarrin Shahr	33° 12.526′	050° 19.067′	1694 m	6
Mahyar	Mahyar	32°17.948′	051°47.553′	1657 m	5
Meymeh	Jousheghan, Key Ab	33° 36.326′	051° 13.337′	2322 m	4
	Meymeh	33° 29.201′	051° 09.835′	2059 m	33
	Mourcheh Khort	33° 08.258′	051° 25.641′	1722 m	3
	Vandadeh	33° 23.182′	051° 12.566′	1972 m	1
Mobarakeh	Deh Sorkh	32°21.701′	051°30.779′	1667 m	28
	Nehchir	32° 21.912′	051° 32.481′	1711m	98
	Sera rud	32°25.216′	051°42.599′	1675 m	28
	Ghahnaviyeh	32° 19.948′	051° 31.543′	1693m	166
	Mohammadih	32° 22.001′	051°32.209′	1665m	4
	Mobarakeh	32° 20.846′	051°30.970′	1695m	76
	Mobarakeh Industrial Estate	32° 25.141′	051°43.413′	1645m	41
Najaf Abad	Ghaleh Sefid	32° 35.735′	051° 26.412′	1653 m	135
	Rahmat Abad	32° 30.592′	051° 24.874′	1563 m	1
	Najaf Abad	32° 36.711′	051° 23.601′	1585m	3
Natanz	Natanz	33° 30.136′	051° 55.039′	1635 m	7
	Keshch	33°24.687′	051° 46.326′	2473 m	19
Semirom	Rud Abad	32° 37.711′	051° 40.511′	1794 m	4
	Semirom	31° 24.782′	051° 34.411′	2401 m	9
	Varagh	31° 42.239′	051° 32.709′	2325 m	5
	Cheshme sard	31° 43.326′	051° 34.480′	2436m	23
Shahin Shahr	Shahin Shahr	32° 21.920′	051° 30.748′	1558 m	5
Shahreza	Shahreza	32°02.995′	051° 53.156′	1817 m	16
Tiran	Jaja	32° 45.122′	050° 39.539′	1959 m	2
	Tiran	32° 25.322′	051° 46.269′	1713 m	2
	Khamiran	32° 47.790′	051° 01.168′	2018 m	10



**Figure 1.** Map of Isfahan province in which localities of collecting specimens' from there shown. This project carried out in central and west of province.

## Results

In this survey, we collected 1898 specimens including 154 species from 28 genera (Table 2). Of these 29 species were new for fauna of Iran (new records mentioned front of each scientific name).

### Andrenidae, Andreninae

#### *Andrena abbreviata osychniukae* Osytshnjuk

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae).

#### *Andrena aeneiventris* Morawitz

**Material examined:** Isfahan province, Mehdi Abad, 1993m, 23.V.2012, 1♀; Karvan, Jafar Abad, 1998m, 3.V.2013, 1♀ and 3♂♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), Unidentified plant (Asteraceae).

#### *Andrena albopunctata* (Rossi)

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2226m, 4.VI.2013, 2♀♀.

**Floral records:** *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

#### *Andrena caspica* Morawitz

**Material examined:** Isfahan province, Bazmeh, 2555m, 24.V.2012, 1♂.

**Floral record:** *Astragalus* sp. (Fabaceae), *Euphorbia* sp. (Euphorbiaceae), Unidentified plant (Liliaceae).

**Note:** *Andrena caspica* is recorded here for the first time from Iran.

#### *Andrena ciscaspica* Popov

**Material examined:** Isfahan province, Dorcheh piaz, 1608m, 27.IV.2012, 1♀; Nazhvan Park, 1513m, 16.IV.2013, 1♀;



Dorcheh, 1608m, 16.IV.2013, 2♀♀; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♀.

**Floral records:** *Convolvulus arvensis* (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae).

**Note:** *Andrena ciscaspica* is recorded here for the first time from Iran.

#### *Andrena combinata* (Christ)

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♀; Dehaghan, Astaneh, 2226m, 4.VI.2013, 1♀.

**Floral records:** *Brassica napus* (Brassicaceae), *Consolida* sp. (Ranunculaceae), *Descurainia sophia* (Brassicaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

#### *Andrena cordialis* Morawitz

**Material examined:** Isfahan province, Deh Sorkh, 1667m, 29.IV.2013, 1♂ and 5♀♀.

**Floral records:** *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae).

**Note:** *Andrena cordialis* is recorded here for the first time from Iran.

#### *Andrena cypria* Pittioni

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♂.

**Floral records:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

#### *Andrena dorsata* (Kirby)

**Material examined:** Isfahan province, Falavarjan, 1597m, 31.V.2013, 2♂♂.

**Floral record:** *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae).

#### *Andrena elmaria* Gusenleitner

**Material examined:** Isfahan province, Golpayegan, 1861m, 29.III.2013, 1♂.

**Floral record:** *Matthiola* spp. (Brassicaceae).

**Note:** *Andrena elmaria* is recorded here for the first time from Iran.

#### *Andrena ferghanica* Morawitz

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 2♀♀.

**Floral records:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Papaver* sp. (Papaveraceae).

#### *Andrena flavipes* Panzer

**Material examined:** Isfahan province, Dehsoor, 2365m, 24.V.2012, 1♀; Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♀; Mobarakeh, Nehchir, 1696m, 02.IV.2013, 6♂♂; Dehaghan, Astaneh, 2408m, 19.IV.2013, 3♀♀; Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 5♂♂ and 7♀♀; Mobarakeh, Sera rud, 1675m, 29.IV.2013, 1♂; Deh Sorkh, 1667m, 29.IV.2013, 2♀♀ and 4♂♂; Mobarakeh, 1695m, 27.V.2013, 1♀♀; Mehdi Abad, 1993m, 23.V.2012, 1♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 10♀♀.

**Floral record:** *Alliumcepa* (Alliaceae), *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Lepidium sativum* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Tragopogon* sp. (Asteraceae), Unidentified plant (Asteraceae).

**Andrena floricola** Eversmann **Material examined:** Isfahan province, Dehaghan, Astaneh, 2399m, 4.VI.2013, 1♀.

**Floral record:** *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

***Andrena fulvicornis* Schenck**

**Material examined:** Isfahan province, Mehdi Abad, 1993m, 23.V.2012, 2♀♀; Karvan, Jafar Abad, 1998m, 03.V.2013, 1♂; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 2♂♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae).

**Note:** *Andrena fulvicornis* is recorded here for the first time from Iran.

***Andrena fuscosa* Erichson**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀; Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♂; Mobarakeh, 1695m, 18.VII.2013, 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusaitalica* (Boraginaceae), *Brassica napus* (Brassicaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Descurainia sophia* (Brassicaceae), *Papaver* sp. (Papaveraceae), *Petroselinum* sp. (Apiaceae), Unidentified plant (Solanaceae).

***Andrena gasparella* Patiny**

**Material examined:** Isfahan province, Deh Sorkh, 1667m, 29.IV.2013, 1♀; Dehaghan, Astaneh, 2226m, 4.VI.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

**Note:** *Andrena gasparella* is recorded here for the first time from Iran.

***Andrena gazella* Friese**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♂.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

***Andrena haemorrhoea* (Fabricius)**

**Material examined:** Isfahan province, Dorcheh piaz, 1608m, 27.IV.2012, 1♀.

**Floral record:** *Mentha longifolia* (Lamiaceae).

***Andrena hesperia* Smith**

**Material examined:** Isfahan province, Dehsoor, 2365m, 24.V.2012, 5♀♀.

**Floral records:** *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

***Andrena labialis* (Kirby)**

**Material examined:** Isfahan province, Bazmeh, 2555m, 24.V.2012, 1♀; Bazmeh, 2442m, 4.VII.2012, 1♀.

**Floral records:** *Astragalus* spp. (Fabaceae), *Euphorbia* sp. (Euphorbiaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae), Unidentified plant (Liliaceae).

***Andrena melba* Warncke**

**Material examined:** Isfahan province, Mobarakeh, 1695m, 27.V.2013, 2♂♂ and 7♀♀; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 3♀♀; Falavarjan, 1597m, 31.V.2013, 1♂ and 7♀♀.

**Floral records:** *Cirsium* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae).

***Andrena mirna* Warncke**

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 3♀♀.

**Floral records:** *Brassica napus* (Brassicaceae), *Descurainia sophia* (Brassicaceae).

***Andrena morio* Brullé**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 9♀♀ and 3♂♂, 2067m,



19.VII.2012, 1♂; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♂.

**Floral records:** *Alyssum* sp. (Brassicaceae), *Antirrhinum majus* (Scrophulariaceae), *Bongardiachrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae).

#### *Andrena nanaeformis* Noskiewicz

**Material examined:** Isfahan province, Golpayegan, 1861m, 29.III.2013, 1♀.

**Floral record:** *Matthiola* spp. (Brassicaceae).

**Note:** *Andrena nanaeformis* is recorded here for the first time from Iran.

#### *Andrena nisoria* Warncke

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♂; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♂; Karvan, Jafar Abad, 1998 m, 3.V.2013, 2♀♀; Semirom, 2148m, 18.V.2013, 3♀♀.

**Floral records:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Nelsia* sp. (Amaranthaceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae).

#### *Andrena ovatula* (Kirby)

**Material examined:** Isfahan province, Sadegh Abad, 1784 m, 3.VI.2012, 3♀♀; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 7♀♀; Bazmeh, 2442m, 4.VII.2012, 1♂; Falavarjan, 1650m, 15.VII.2012, 1♂; Falavarjan, 1664m, 6.VII.2012, 1♀; Falavarjan, 1597m, 31.V.2013, 7♀♀; Zazeran, 1628m, 15.VII.2012, 6♀♀ and 3♂♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 2♀♀ and 1♂; Nazhvan Park, 1513 m, 16.IV.2013, 1♀; Dorcheh, 1608m, 16.IV.2013, 1♀; Ghahderijan, 1680m 11.V.2013, 1♀; Najaf Abad, Rahmat Abad, 1563 m, 11.V.2013, 1♀; Falavarjan, 1597m, 31.V.2013, 5♀♀ and 2♂♂; Semirom, Varagh, 2325m, 4.VI.2013, 3♂♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 6♀♀.

**Floral records:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Astragalus* spp. (Fabaceae), *Brassica oleracea* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Cichorium* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Crucifera* sp. (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Papaver* sp. (Papaveraceae), *Petunia* sp. (Solanaceae), *Phlomis olivieri* (Lamiaceae), *Tamarix* sp. (Tamaricaceae), *Trifolium* sp. (Fabaceae), Unidentified plant (Solanaceae).

#### *Andrena panurgimorpha* Mavromoustakis

**Material examined:** Isfahan province, Esfahan, Dehsoor, 2365m, 24.V.2012, 6♀♀.

**Floral records:** *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

#### *Andrena similis* Smith

**Material examined:** Isfahan province, Bazmeh, 2555m, 24.V.2012, 1♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀.

**Floral records:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Astragalus* sp. (Fabaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Euphorbia* sp. (Euphorbiaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Liliaceae), Unidentified plant (Solanaceae).

#### *Andrena speciosa* Friese

**Material examined:** Isfahan province, Baharestan, 1565m, 11.IV.2013, 18♀♀ and 1♂; Police rah Esfahan-Mobarakeh, 1713m, 2.IV.2013, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

**Note:** *Andrena speciosa* is recorded here for the first time from Iran.

***Andrena uncinata* Friese**

**Material examined:** Isfahan province, Dehsoor, 2365 m, 24.V.2012, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

**Note:** *Andrena uncinata* is recorded here for the first time from Iran.

***Andrena zosterata* Warncke**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 2♂♂ and 3♀♀; Deh Sorkh, 1667m, 29.IV.2013, 5♀ and 1♂; Karvan, Jafar Abad, 1998m, 3.V.2013, 2♂♂; Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♂.

**Floral record:** *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Nelsia* sp. (Amaranthaceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae).

**Andrenidae, Panurginae, Panurgini*****Camptopoeum frontale* (Fabricius)**

**Material examined:** Isfahan province, Baharestan, 1608m, 18.V.2012, 2♂♂.

**Floral record:** *Stachys inflata* (Lamiaceae).

***Panurginus corpanus* (Warncke)**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 1♂.

**Floral record:** *Brassica napus* (Brassicaceae).

**Note:** *Panurginus corpanus* is recorded here for the first time from Iran.

***Panurginus lactipennis* Friese**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 1♂.

**Floral record:** *Brassica napus* (Brassicaceae).

**Note:** *Panurginus lactipennis* is recorded here for the first time from Iran.

***Panurgus sidensis* (Warncke)**

**Material examined:** Isfahan province, Lashotor, 1612m, 10.V.2013, 1♂.

**Floral record:** *Peganumharmala* (Zygophyllaceae), *Stachys inflata* (Lamiaceae).

**Note:** *Panurgus sidensis* is recorded here for the first time from Iran.

**Apidae, Apinae, Bombini*****Bombus argillaceus* (Scopoli)**

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 1♀.

**Floral record:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

***Bombus armeniacus* Radoszkowski**

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 2♀♀.

**Floral record:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

**Apidae, Apinae, Eucerini*****Eucera clypeata* Erichson**

**Material examined:** Isfahan province, Falavarjan, 1597m, 31.V.2013, 1♂.

**Floral record:** *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae).

**Note:** *Eucera clypeata* is recorded here for the first time from Iran.

***Eucera dimidiata* Brullé**

**Material examined:** Isfahan province, Deh Sorkh, 1667m, 29.IV.2013, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♂.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

***Eucera nigrifacies* Lepeletier**

**Material examined:** Isfahan province, Dehsoor, 2365 m, 24.V.2012, 14♀ and 11♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

***Eucera paraclypeata* Sitdikov & Pesenko**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2399m, 4.VI.2013, 1♀.

**Floral record:** *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

**Note:** *Eucera paraclypeata* is recorded here for the first time from Iran.

***Eucera squamosal* Lepeletier**

**Material examined:** Isfahan province, Semirom, 2401m, 26.VI.2009, 2♀♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

**Note:** *Eucera squamosal* is recorded here for the first time from Iran.

***Eucera syriaca* Dalla Torre**

**Material examined:** Isfahan province, Mehdi Abad, 1993m, 23.V.2012, 7♂♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae).

***Tetraloniella dentata* (Germar)**

**Material examined:** Isfahan province, Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♀.

**Floral record:** *Convolvulus arvensis* (Convolvulaceae), *Medicago sativa* (Fabaceae).

**Note:** *Tetraloniella dentata* is recorded here for the first time from Iran.

***Tetraloniella glauca* (Fabricius)**

**Material examined:** Isfahan province, Falavarjan, 1664m, 6.VII.2012, 50♀♀ and 7♂♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Cichorium* sp. (Asteraceae), *Crucifera* sp. (Brassicaceae), *Descurainia sophia*

(Brassicaceae), *Medicagosativa* (Fabaceae), *Melilotusofficinalis* (Fabaceae).

**Note:** *Tetraloniella glauca* is recorded here for the first time from Iran.

***Tetraloniella julliani*(Pérez)**

**Material examined:** Isfahan province, Falavarjan, 1664m, 6.VII.2012, 2♀♀.

**Floral record:***Centaurea* sp. (Asteraceae), *Cichorium* sp. (Asteraceae), *Crucifera* sp. (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae).

**Colletidae, Colletinae*****Colletes chengtehensis* Yasumatsu**

**Material examined:** Isfahan province, Meymeh, 2059m, 31.VIII.2012, 1♀ and 3♂♂; Daran, Damaneh, 2379 m, 4.VII.2012, 1♂; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 3♂♂.

**Floral record:** *Allium cepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae).

***Colletes hakkari* Kuhlmann**

**Material examined:** Isfahan province, IUT, 1676m, 16.V.2012, 1♂.

**Floral record:** *Achillea millefolium* (Asteraceae).

***Colletes maidli* Noskiewicz**

**Material examined:** Isfahan province, Dorcheh piaz, 1608 m, 23.VIII.2013, 3♂♂ and 1♀.

**Floral record:** *Mentha longifolia* (Lamiaceae).

***Colletes nasutus* Smith**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 2♀♀.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Solanaceae).

***Colletes ottomanus* Noskiewicz**

**Material examined:** Isfahan province, Chadegan, SadeZayandehroud, 2067m, 19.VII.2012, 1♂.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Solanaceae).

***Colletes squamulosus* Noskiewicz**

**Material examined:** Isfahan province, Mobarakeh, 1695m, 18.VII.2013, 1♂.

**Floral record:** *Allium cepa* (Alliaceae), *Petroselinum* sp. (Apiaceae).

**Note:** *Colletes squamulosus* is recorded here for the first time from Iran.

**Colletidae, Hylaeinae**

***Hylaeus araxanus* (Warncke)**

**Material examined:** Isfahan province, Kooshk, 1552m, 24.VIII.2012, 1♂; Ostandari St., 1500m, 25.IX.2012, 2 ♀; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 1♀; Mobarakeh, 1695m, 18.VII.2013, 3♂♂ and 3♀♀.

**Floral record:** *Allium cepa* (Alliaceae), *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Helianthus annuus* (Asteraceae), *Medicago sativa* (Fabaceae), *Papaver* sp. (Papaveraceae), *Petroselinum* sp. (Apiaceae), Unidentified plant (Solanaceae).

***Hylaeus cornutus* Curtis**

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♂.

**Floral record:** *Anethum graveolens* (Apiaceae), *Medicago sativa* (Fabaceae), *Ocimum basilicum* (Lamiaceae).

***Hylaeus dolichocephalus* Morawitz**

**Material examined:** Isfahan province, Semirom, Cheshme sard, 2436m, 4.VI.2013, 1♂.

**Floral record:** *Stachys* sp. (Lamiaceae).

**Note:** *Hylaeus dolichocephalus* is recorded here for the first time from Iran.

***Hylaeus excelsus* (Alfken)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 1♂.

**Floral record:** *Medicago sativa* (Fabaceae).

***Hylaeus imparilis* Förster**

**Material examined:** Isfahan province, Dorcheh piaz, 1608m, 23.VIII.2013, 1♂, Kouhpayeh, Jebel, 2011m, 6.IX.2013, 1♂.

**Floral record:** *Mentha longifolia* (Lamiaceae).

***Hylaeus implicatus* Dathe**

**Material examined:** Isfahan province, Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 1♀; Daran, Damaneh, 2379m, 4.VII.2012, 1♀; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 2♀♀; Mobarakeh, 1695m, 27.V.2013, 1♀ and 1♂; Falavarjan, 1664 m, 31.V.2013, 1♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♀ and 2♂♂, Kouhpayeh, Jebel, 2011m, 6.IX.2013, 2♂♂ and 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ocimum basilicum* (Lamiaceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae).

***Hylaeus intermedius* Förster**

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646 m, 28.VIII.2012, 1♀ and 1♂; Mobarakeh, 1695m, 18.VII.2013, 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Medicago sativa* (Fabaceae), *Ocimum basilicum* (Lamiaceae), *Petroselinum* sp. (Apiaceae).

**Note:** *Hylaeus intermedius* is recorded here for the first time from Iran.

***Hylaeus kotschisus* (Warncke)**

**Material examined:** Isfahan province, Dehsoor, 2319m, 4.VII.2012, 1♀; Semirom, 2401m, 21.VIII.2012, 1♀. **Floral record:** *Centaurea virgata* (Asteraceae), *Mentha longifolia* (Lamiaceae).

***Hylaeus leptcephalus* (Morawitz)**

**Material examined:** Isfahan province, Tiranchi, 1625m, 15.VII.2012, 1♀; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♀.

**Floral record:** *Anethum graveolens* (Apiaceae), *Medicago sativa* (Fabaceae), *Ocimum basilicum* (Lamiaceae).

***Hylaeus moricei* (Friese)**

**Material examined:** Isfahan province, Falavarjan, 1664m, 6.VII.2012, 1♀, 31.V.2013, 2♂♂; Zazeran, 1628 m, 15.VII.2012, 2♂♂ and 1♀; Zodan, 1606m, 28.VIII.2012, 1♀; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♂; Mobarakeh, Sera rud, 1675m, 29.IV.2013, 1♀ and 1♂; Ostandari St., 1500m, 25.IX.2012, 2♀♀ and 2♂♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀; Nazhvan Park, 1513m, 16.IV.2013, 1♀; Mobarakeh, 1695m, 27.V.2013, 2♂♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 2♀♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♀; Dorcheh piaz, 1608m, 23.VIII.2013, 1♂; Kouhpayeh, Jebel, 2011m, 6.IX.2013, 1♂.

**Floral record:** *Allium cepa* (Alliaceae), *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica*

(Boraginaceae), *Anethum graveolens* (Apiaceae), *Brassica oleracea* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Cichorium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Crucifera* sp. (Brassicaceae), *Descurainia Sophia* (Brassicaceae), *Lepidium sativum* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Ocimum basilicum* (Lamiaceae), *Papaver* sp. (Papaveraceae), *Peganum harmala* (Zygophyllaceae), *Tamarix* sp. (Tamaricaceae), Unidentified plant (Solanaceae).

***Hylaeus pictus* (Smith)**

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 2♀♀.

**Floral record:** *Anethum graveolens* (Apiaceae), *Medicago sativa* (Fabaceae), *Ocimum basilicum* (Lamiaceae).

**Note:** *Hylaeus pictus* is recorded here for the first time from Iran.

***Hylaeus scutellaris* Morawitz**

**Material examined:** Isfahan province, Mobarakeh, 1695m, 27.V.2013, 2♂♂, 18.VII.2016, 1♂ and 2♀♀.

**Floral record:** *Cirsium* sp. (Asteraceae), *Medicago sativa* (Fabaceae).

***Hylaeus tardus* (Warncke)**

**Material examined:** Isfahan province, Qohroud, 2169m, 31.VIII.2012, 1♀; Mobarakeh, 1695m, 18.VII.2013, 2♂♂ and 6♀♀.

**Floral record:** *Allium cepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Petroselinum* sp. (Apiaceae).

***Hylaeus trisignatus* Morawitz**

**Material examined:** Isfahan province, Daran, Damaneh, 2379m, 4.VII.2012, 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Cirsium* sp.

(Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae).

**Note:** *Hylaeus trisignatus* is recorded here for the first time from Iran.

### Halictidae, Halictinae, Halictini

#### *Halictus brunnescens* (Eversmann)

**Material examined:** Isfahan province, Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♀; Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 9♀♀; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 2♂♂ and 9♀♀.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ononis* sp. (Fabaceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae), Unidentified plant (Solanaceae).

#### *Halictus cephalicus* Morawitz

**Material examined:** Isfahan province, Baharestan, 1608m, 18.V.2012, 1♀; Baharestan, 1565m, 11.IV.2013, 1♀; Baharan, Bagh Abrisham, 1581m, 28.VIII.2012, 1♀; Kashan, 1077m, 11.VIII.2013, 1♀.

**Floral record:** *Anethum graveolens* (Apiaceae), *Convolvulus* sp. (Convolvulaceae).

#### *Halictus cypricus* Blüthgen

**Material examined:** Isfahan province, Mobarakeh, 1695m, 18.VII.2013, 1♂.

**Floral record:** *Alliumcepa* (Alliaceae), *Petroselinum* sp. (Apiaceae).

#### *Halictus lucidipennis* Smith

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♀; Mobarakeh, Sera rud, 1675m, 29.IV.2013, 1♀; Mobarakeh Industrial Estate, 1641m, 27.V.2013, 1♀; Mobarakeh, Mohammadih, 1665m, 27.V.2013, 2♀♀; IUT, 1676m,

16.V.2012, 1♀; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 2♀♀; Najaf Abad, 1585m, 11.V.2013, 1♀; Falavarjan, 1650m, 15.VII.2012, 1♂; Zazeran, 1628m, 15.VII.2012, 2♀♀; Baharan, Bagh Abrisham, 1581m, 28.VIII.2012, 4♀♀; Ostandari St., 1540m, 25.IX.2012, 1♂; Ostandari St., 1540m, 19.VIII.2013, 2♀♀; Shahreza, 1817m, 19.IV.2013, 2♀♀; Shahreza, 1828 m, 4.VI.2013, 1♀; Kashan, 1077m, 11.VIII.2013, 2♀♀ and 1♂; Aran va Bidgol, 947m, 11.VIII.2013, 1♀ and 1♂; Shahin Shahr, 1558m, 31.VIII.2012, 5♀♀.

**Floral record:** *Achillea millefolium* (Asteraceae), *Anethum graveolens* (Apiaceae), *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Centaurea* sp. (Asteraceae), *Cichorium* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Lepidium sativum* (Brassicaceae), *Medicago sativa* (Fabaceae), *Mimosa* sp. (Mimosaceae), *Ocimum basilicum* (Lamiaceae), *Peganum harmala* (Zygophyllaceae), *Petunia* sp. (Solanaceae), *Scariola orientalis* (Asteraceae), *Trifolium* sp. (Fabaceae).

#### *Halictus nasica* Morawitz

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1711m, 6.IX.2012, 3♂♂; Kashan, 1077m, 11.VIII.2013, 14♀♀ and 1♂.

**Floral record:** *Centaurea* sp. (Asteraceae).

#### *Halictus patellatus patellatus* Morawitz

**Material examined:** Dehsoor, 2319 m, 4.VII.2012, 1♀; Jousheghan, Key Ab, 2322m, 31.VIII.2012, 1♀; Natanz, Kesheh, 2473m, 20.IX.2013, 1♂.

**Floral record:** *Centaurea virgata* (Asteraceae), *Medicago sativa* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Scariola orientalis* (Asteraceae).

#### *Halictus pollinosus* Sichel

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646m, 28.VIII.2012,

2♀♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♀; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 2♂♂; Marq, 1556m, 21.VI.2013, 6♂♂; Falavarjan, 1597m, 31.V.2013, 1♂, Mobarakeh, 1695m, 18.VII.2013, 1♀; IUT, 1676 m, 16.V.2012, 1♀; Dorcheh piaz, 1608m, 23.VIII.2013, 7♀♀; Mehdi Abad, 1993m, 23.V.2012, 2♀♀; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 1♀; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 2♀♀; Karvan, Nasim Abad, 2062m, 29.VI.2012, 1♀; Baharan, Bagh Abrisham, 1581m, 28.VIII.2012, 2♀♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 2♀♀; Kashan, 1077m, 11.VIII.2013, 2♀♀.

**Floral record:** *Achillea millefolium* (Asteraceae), *Alliumcepa* (Alliaceae), *Alyssum* sp. (Brassicaceae), *Anethum graveolens* (Apiaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Cynanchum acutum* (Asclepiadaceae), *Medicago sativa* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Ocimum basilicum* (Lamiaceae), *Papaver* sp. (Papaveraceae), *Peganum harmala* (Zygophyllaceae), *Petroselinum* sp. (Apiaceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae). *Chenopodium album* (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae).

#### *Halictus pulvereus* Morawitz

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♀; Mobarakeh, 1695m, 27.V.2013, 1♂; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 3♂♂ and 1♀; 12.VII.2013, 1♂; Dorcheh piaz, 1608m, 27.IV.2012, 1♀; Baharestan, 1565m, 11.IV.2013, 1♀; Marq, 1556m, 21.VI.2013, 2♂♂ and 2♀♀; Sadegh Abad, 1784m, 3.VI.2012, 1♂; Shahreza, 1817m, 19.IV.2013, 1♀; Kashan, 1077m, 11.VIII.2013, 2♀♀ and 5♂♂.

**Floral record:** *Alliumcepa* (Alliaceae), *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Chenopodium album* (Chenopodiaceae), *Cirsium* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Trifolium* sp. (Fabaceae).

#### *Halictus resurgens* Nurse

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1668m, 6.IX.2012, 1♂; Mobarakeh, 1695m, 27.V.2013, 1♀; Dorcheh piaz, 1608m, 23.VIII.2013, 1♀ and 1♂; Nazhvan Park, 1513m, 16.IV.2013, 1♀; Najaf Abad, 1585m, 11.V.2013, 1♀; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♀; Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 43♀♀; Karvan, Nasim Abad, 2062m, 29.VI.2012, 1♂; Chadegan, Abadchi, 2179m, 7.VII.2012, 2♀♀ and 1♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 4♀♀ and 6♂♂; Jaja, 1959m, 19.VII.2012, 2♂♂; Rud Abad, 1794m, 19.VIII.2012, 3♂♂; 30km to Semirom, 2283m, 21.VIII.2012, 1♂; Baharan, Bagh Abrisham, 1581m, 28.VIII.2012, 1♀; Meymeh, 2038m, 9.VIII.2013, 1♀ and 3♂♂; Jousheghan, Key Ab, 2322m, 31.VIII.2012, 1♂ and 1♀; Shahreza, 1828m, 4.VI.2013, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♀; Aran and Bidgol, 947m, 11.VIII.2013, 1♂; Natanz, 1635m, 11.VIII.2013, 1♂.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Anethum graveolens* (Apiaceae), *Antirrhinum majus* (Scrophulariaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Cynanchum acutum* (Asclepiadaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae),



*Mentha longifolia* (Lamiaceae), *Papaver* sp. (Papaveraceae), *Petroselinum* sp. (Apiaceae), *Scariola orientalis* (Asteraceae), *Sonchus* sp. (Asteraceae), *Trifolium* sp. (Fabaceae), Unidentified plant (Solanaceae).

#### ***Halictus senilis* (Eversmann)**

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 2♀♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Descurainia sophia* (Brassicaceae).

#### ***Halictus smaragdulus* Vachal**

**Material examined:** Karvan, 2185m, 23.V.2012, 1♀; Dehaghan, Astaneh, 4.VI.2013, 2226 m, 1♀, Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Consolida* sp. (Ranunculaceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Foeniculum vulgare* (Apiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Petunia* sp. (Solanaceae), *Salvia* sp. (Lamiaceae), *Trifolium* sp. (Fabaceae), *Turgenia* sp. (Apiaceae).

#### ***Halictus subauratoides* Blüthgen**

**Material examined:** Isfahan province, IUT, 1676m, 16.V.2012, 1♀.

**Floral record:** *Achillea millefolium* (Asteraceae), *Peganum harmala* (Zygophyllaceae).

**Note:** *Halictus subauratoides* is recorded here for the first time from Iran.

#### ***Halictus tetrazonianellus* Strand**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 4.VI.2013, 2226m, 2♀♀.

**Floral record:** *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

#### ***Halictus tuberculatus* Blüthgen**

**Material examined:** Isfahan province, Semirom, 2148m, 22.VI.2013, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

#### ***Lasioglossum aegyptiellum* (Strand)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnaviyeh, 1668m, 6.IX.2012, 2♀♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

#### ***Lasioglossum capsicum* (Morawitz)**

**Material examined:** Isfahan province, Mehdi Abad, 1993m, 23.V.2012, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 2♀♀; Dehaghan, Astaneh, 4.VI.2013, 2226m, 2♀♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Consolida* sp. (Ranunculaceae), *Convolvulus* sp. (Convolvulaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Turgenia* sp. (Apiaceae).

#### ***Lasioglossum discum* (Smith)**

**Material examined:** Isfahan province, Mobarakeh, 1695m, 27.V.2013, 1♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♀; Meymeh, 2059m, 31.VIII.2012, 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Cirsium* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae).

#### ***Lasioglossum epipygiale* (Blüthgen)**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2408m, 19.IV.2013, 2♀♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

#### ***Lasioglossum griseolum* (Morawitz)**

**Material examined:** Isfahan province, Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 2♀♀.

**Floral record:** *Convolvulus arvensis* (Convolvulaceae), *Medicago sativa* (Fabaceae).

***Lasioglossum interruptum trispinosum* (Alfken)**

**Material examined:** Isfahan province, Karvan, Nasim Abad, 2062m, 29.VI.2012, 1♂; Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Antirrhinum majus* (Scrophulariaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Papaver* sp. (Papaveraceae), *Petroselinum* sp. (Apiaceae), *Sonchus* sp. (Asteraceae), *Trifolium* sp. (Fabaceae).

***Lasioglossum ituraeum* Ebmer**

**Material examined:** Isfahan province, Natanz, Kesheh, 2473m, 20.IX.2013, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

***Lasioglossum leave* (Kirby)**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

***Lasioglossum leucozonium* (Schrank)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♀ and 1♂; Nazhvan Park, 1513 m, 16.IV.2013, 1♀; Dehsoor, 2365m, 24.V.2012, 6♀; Karvan, Jafar Abad, 2035 m, 29.VI.2012, 2♂♂; Chadegan, Sade Zayandehroud, 2070 m, 8.VII.2012, 1♀; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♂; Zazeran, 1628m, 15.VII.2012, 1♂; Natanz, 1635m, 11.VIII.2013, 1♂.

**Floral record:** *Alliumcepa* (Alliaceae), *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Antirrhinum majus* (Scrophulariaceae), *Brassica oleracea* (Brassicaceae), *Centaurea* sp. (Asteraceae),

*Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ononis* sp. (Fabaceae), *Papaver* sp. (Papaveraceae), *Rosmarinus officinalis* (Lamiaceae), *Sonchus* sp. (Asteraceae), *Tamarix* sp. (Tamaricaceae), *Tragopogon* sp. (Asteraceae), Unidentified plant (Solanaceae).

***Lasioglossum limbellum* (Morawitz)**

**Material examined:** Isfahan province, Nazhvan Park, 1513m, 16.IV.2013, 1♀.

**Floral record:** *Descurainia sophia* (Brassicaceae).

***Lasioglossum lucidulum* (Schenck)**

**Material examined:** Isfahan province, Jousheghan, Key Ab, 2322m, 31.VIII.2012, 1♀; Ostandari St., 1540m, 19.VIII.2013, 1♀.

**Floral record:** *Medicago sativa* (Fabaceae), *Scariola orientalis* (Asteraceae).

***Lasioglossu mmalachurum* (Kirby)**

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 2♀♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♀; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 2♀♀; Meymeh, 2038m, 9.VIII.2013, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 1♀; Dehaghan, Astaneh, 2226m, 4.VI.2013, 1♀.

**Floral record:** *Alliumcepa* (Alliaceae), *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Cirsium* sp. (Asteraceae), *Consolida* sp. (Ranunculaceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Foeniculum vulgare* (Apiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae), *Turgenia* sp. (Apiaceae).

***Lasioglossum marginatum* (Brullé)**

**Material examined:** Isfahan province, Karvan, 2185 m, 23.V.2012, 2♀♀; Semirom, 2148m, 18.V.2013, 2♀♀; Barf Anbar, Sadeghieh, 2326 m, 24.V.2012, 1♀; Karvan, Jafar Abad, 1998m, 3.V.2013, 6♀♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 30♀♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Cynara* sp. (Asteraceae), *Descurainia sophia* (Brassicaceae), *Nelsia* sp. (Amaranthaceae), *Papaver* sp. (Papaveraceae), *Salvia* sp. (Lamiaceae), *Sonchus* sp. (Asteraceae).

***Lasioglossum mesosclerum* (Pérez)**

**Material examined:** Isfahan province, Nazhvan Park, 1513m, 16.IV.2013, 1♀; Karvan, 2185m, 23.V.2012, 1♀; Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♂; Shahreza, 1817m, 19.IV.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Centaurea* sp. (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ononis* sp. (Fabaceae), *Salvia* sp. (Lamiaceae).

***Lasioglossum morio* (Fabricius)**

**Material examined:** Isfahan province, Natanz, Kesheh, 2473m, 20.IX.2013, 8♂♂ and 5♀♀.

**Floral record:** *Centaurea* sp. (Asteraceae).

***Lasioglossum mose* Ebmer**

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 1♀; Lashotor, 1612m, 10.V.2013, 3♀♀; 15.V.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Peganum*

*harmala* (Zygophyllaceae), *Stachys inflata* (Lamiaceae).

***Lasioglossum niveocinctum* (Blüthgen)**

**Material examined:** Isfahan province, Esfahan, Dorcheh piaz, 1608m, 23.VIII.2013, 3♀♀ and 1♂.

**Floral record:** *Cynanchum acutum* (Asclepiadaceae), *Mentha longifolia* (Lamiaceae).

**Note:** *Lasioglossum niveocinctum* is recorded here for the first time from Iran.

***Lasioglossum obscuratum obscuratum* (Morawitz)**

**Material examined:** Isfahan province, Mobarakeh, Nehchir, 1696m, 2.IV.2013, 5♀♀; Dehsoor, 2365m, 24.V.2012, 1♀; Bazmeh, 2555 m, 24.V.2012, 1♀; Dehaghan, Astaneh, 2408m, 19.IV.2013, 7♀♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Astragalus* spp. (Fabaceae), *Bongardia chrysogonum* (Berberidaceae), *Brassica napus* (Brassicaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Descurainia sophia* (Brassicaceae), *Euphorbia* sp. (Euphorbiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Tragopogon* sp. (Asteraceae), Unidentified plant (Liliaceae).

***Lasioglossum ordubadense* (Friese)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnaviyeh, 1693m, 2.IV.2013, 2♀♀; Karvan, Jafar Abad, 1998 m, 3.V.2013, 1♀; Tiran, Khamiran, 2018m, 7.VII.2012, 1♀ and 1♂; Mourcheh Khort, 1722m, 31.VIII.2012, 1♂.

**Floral record:** *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Descurainia sophia* (Brassicaceae), *Glycyrrhiza glabra* (Fabaceae), *Helianthus annuus* (Asteraceae), *Medicago sativa* (Fabaceae), *Nelsia* sp. (Amaranthaceae), *Ononis* sp. (Fabaceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae).

***Lasioglossum pauxillum* (Schenck)**

**Material examined:** Isfahan province, Dehaghan, Astaneh, 2408m, 19.IV.2013, 8♀♀.

**Floral record:** *Alyssum* sp. (Brassicaceae), *Bongardia chrysogonum* (Berberidaceae), *Cardaria draba* (Brassicaceae), *Papaver* sp. (Papaveraceae).

***Lasioglossum popovi* (Blüthgen)**

**Material examined:** Isfahan province, Dorcheh, 1608m, 16.IV.2013, 1♀.

**Floral record:** *Descurainia Sophia* (Brassicaceae), *Melilotus officinalis* (Fabaceae).

**Note:** *Lasioglossum popovi* is recorded here for the first time from Iran.

***Lasioglossum pseudoleptorhynchum* (Blüthgen)**

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 1♀.

**Floral record:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

***Lasioglossum puncticolle* (Morawitz)**

**Material examined:** Isfahan province, Dehsoor, 2365m, 24.V.2012, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

***Lasioglossum pygmaeum patulum* (Vachal)**

**Material examined:** Isfahan province, Nazhvan Park, 1513m, 11.V.2012, 1♀; Sadegh Abad, 1784m, 3.VI.2012, 1♀; Najaf Abad, Ghaleh Sefid, 1613 m, 5.VII.2013, 6♀♀; Karvan, Jafar Abad, 1998m, 3.V.2013, 1♀; Shahreza, 1817m, 19.IV.2013, 4♀♀, Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Cardaria draba* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Convolvulus arvensis* (Convolvulaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis*

(Fabaceae), *Nelsia* sp. (Amaranthaceae), *Ononis* sp. (Fabaceae), *Papaver* sp. (Papaveraceae), *Sonchus* sp. (Asteraceae), *Trifolium* sp. (Fabaceae).

***Lasioglossum setulellum* (Strand)**

**Material examined:** Isfahan province, Shahreza, 1817m, 19.IV.2013, 1♀; Dehaghan, Astaneh, 4.VI.2013, 2226m, 1♀; Lashotor, 1612m, 10.V.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Consolida* sp. (Ranunculaceae), *Foeniculum vulgare* (Apiaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Peganum harmala* (Zygophyllaceae), *Stachys inflata* (Lamiaceae), *Turgenia* sp. (Apiaceae).

***Lasioglossum sociorum* (Blüthgen)**

**Material examined:** Isfahan province, Baharestan, 1565m, 15.V.2013, 1♀; Lashotor, 1612m, 10.V.2013, 1♀.

**Floral record:** *Peganum harmala* (Zygophyllaceae), *Stachys inflata* (Lamiaceae).

***Lasioglossum tadschicum* (Blüthgen)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 1♂; Dehsoor, 2365m, 24.V.2012, 2♀♀; Bazmeh, 2555m, 24.V.2012, 1♀.

**Floral record:** *Alliumcepa* (Alliaceae), *Astragalus* sp. (Fabaceae), *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Euphorbia* sp. (Euphorbiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae), Unidentified plant (Liliaceae).

***Lasioglossum villosulum* (Kirby)**

**Material examined:** Isfahan province, Dehsoor, 2365m, 24.V.2012, 15♀♀; Soffe park, 1600m, 7.XI.2012, 1♀; Shahreza, 1817m, 19.IV.2013, 1♀.

**Floral record:** *Brassica napus* (Brassicaceae), *Brassica* sp. (Brassicaceae), *Centaurea* sp. (Asteraceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tragopogon* sp. (Asteraceae).

**Halictidae, Nomiinae*****Nomiapis bispinosa* (Brullé)**

**Material examined:** Isfahan province, Marq, 1556m, 21.VI.2013, 4♂♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusaitalica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium album* (Chenopodiaceae), *Chenopodium* sp. (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Solanaceae).

***Nomiapis diversipes* (Latreille)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 3♀♀; IUT, 1676m, 16.V.2012, 1♂; Dorcheh piaz, 1608 m, 23.VIII.2013, 2♀♀ and 3♂♂; Baharestan, 1608 m, 18.V.2012, 2♂♂; Mobarakeh, Nehchir, 1711m, 6.IX.2012, 1♂; Marq, 1556m, 21.VI.2013, 3♂♂ and 1♀; Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 2♀♀ and 3♂♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 4♂♂ and 8♀♀; Karvan, Jafar Abad, 2035m, 29.VI.2012, 4♂♂; Fereydun Shahr, 2309m, 4.VII.2012, 1♀; Falavarjan, 1664m, 6.VII.2012, 16♂♂; Zazeran, 1628m, 15.VII.2012, 6♂♂ and 2♀♀; Tiranchi, 1625m, 15.VII.2012, 1♂; Zodan, 1606m, 28.VIII.2012, 1♀; Meymeh, 2059m, 31.VIII.2012, 4♀♀ and 1♂.

**Floral record:** *Alliumcepa* (Alliaceae), *Brassica oleracea* (Brassicaceae), *Centaurea* sp. (Asteraceae), *Chenopodium album* (Chenopodiaceae), *Chenopodium* sp. (Chenopodiaceae), *Cichorium* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Cruciferae* sp. (Brassicaceae), *Cynanchumacutum* (Asclepiadaceae), *Descurainia sophia* (Brassicaceae), *Lotus corniculatus* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Mentha longifolia* (Lamiaceae),

*Ononis* sp. (Fabaceae), *Peganum harmala* (Zygophyllaceae), *Petunia* sp. (Solanaceae), *Tamarix* sp. (Tamaricaceae), *Trifolium* sp. (Fabaceae).

***Nomiapis fugax* (Morawitz)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 3♂♂; Dorcheh piaz, 1608m, 23.VIII.2013, 1♂; Marq, 1556m, 21.VI.2013, 1♂.

**Floral record:** *Allium cepa* (Alliaceae), *Chenopodium album* (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Cynanchum acutum* (Asclepiadaceae), *Mentha longifolia* (Lamiaceae).

***Pseudapis lobata* (Olivier)**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 19♀♀ and 14♂♂; Mobarakeh, 1695m, 18.VII.2013, 9♂♂; Marq, 1556m, 21.VI.2013, 3♂♂; Falavarjan, 1664m, 6.VII.2012, 3♀♀; Zodan, 1606m, 28.VIII.2012, 1♀.

**Floral record:** *Allium cepa* (Alliaceae), *Centaurea* sp. (Asteraceae), *Chenopodium album* (Chenopodiaceae), *Convolvulus* sp. (Convolvulaceae), *Cruciferae* sp. (Brassicaceae), *Cichorium* sp. (Asteraceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotusofficinalis* (Fabaceae), *Menthalongifolia* (Lamiaceae), *Peganum harmala* (Zygophyllaceae), *Petroselinum* sp. (Apiaceae).

**Halictidae, Nomioidinae*****Nomioides squamiger* Saunders**

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 3♀♀; Kashan, 1077m, 11.VIII.2013, 1♀.

**Floral record:** *Alliumcepa* (Alliaceae), *Convolvulus* sp. (Convolvulaceae).

***Nomioides turanicus* Morawitz**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1641m, 27.V.2013, 1♀.

**Floral record:** *Peganum harmala* (Zygophyllaceae).

***Nomioides variegatus* (Olivier)**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1645m, 29.IV.2013, 5♀♀; Mobarakeh, Ghahnavieh, 1711m, 12.VII.2013, 4♂♂ and 1♀; Baharan, Bagh Abrisham, 1581m, 28.VIII.2012, 1♀; Zodan, 1606 m, 28.VIII.2012, 1♀; Meymeh, 2038m, 9.VIII.2013, 1♀.

**Floral record:** *Alliumcepa* (Alliaceae), *Anethum graveolens* (Apiaceae), *Brassica napus* (Brassicaceae), *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Peganum harmala* (Zygophyllaceae).

**Halictidae, Rophitinae**

***Rophites canus* Eversmann**

**Material examined:** Isfahan province, Falavarjan, 1597m, 31.V.2013, 1♂.

**Floral record:** *Convolvulus* sp. (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae).

**Megachilidae, Fideliinae, Pararhophitini**

***Pararhophites orobinus* (Morawitz)**

**Material examined:** Isfahan province, IUT, 1676m, 16.V.2012, 5♀♀; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 22♀♀ and 2♂♂.

**Floral record:** *Peganum harmala* (Zygophyllaceae).

**Megachilidae, Megachilinae, Anthidiini**

***Anthidiellum strigatum crassepunctatum* Popov**

**Material examined:** Isfahan province, Karvan, Jafar Abad, 2035m, 29.VI.2012, 2♂♂; Tiran, Khamiran, 2018m, 7.VII.2012, 2♂♂; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♂; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♂; Mobarakeh, Mohammadih,

1665m, 27.V.2013, 1♀ and 1♂; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 1♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♂.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Anethum graveolens* (Apiaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Cichorium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ocimum basilicum* (Lamiaceae), *Ononis* sp. (Fabaceae), *Papaver* sp. (Papaveraceae), *Peganum harmala* (Zygophyllaceae), Unidentified plant (Solanaceae).

***Anthidium florentinum* (Fabricius)**

**Material examined:** Isfahan province, Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 1♂ and 2♀♀; Falavarjan, 1664m, 6.VII.2012, 2♂♂ and 1♀; Falavarjan, 1650m, 15.VII.2012, 3♂♂ and 2♀♀; Kooshk, 1552 m, 24.VIII.2012, 4♂♂ and 5♀♀; Zodan, 1606m, 28.VIII.2012, 2♂♂ and 1♀; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♀ and 1♂; Si\_o\_Se Pol, 1538m, 19.IX.2012, 1♀; Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 2♂♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 28♂♂ and 12♂♂; Falavarjan, 1597m, 31.V.2013, 3♂♂ and 2♀♀; Meymeh, 2038m, 9.VIII.2013, 2♂♂; Marq, 1556m, 21.VI.2013, 1♀.

**Floral records:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea* sp. (Asteraceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Cichorium* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Crucifera* sp. (Brassicaceae), *Descurainia Sophia* (Brassicaceae), *Helianthus annuus* (Asteraceae), *Medicago sativa* (Fabaceae),

*Melilotus officinalis* (Fabaceae), *Mentha longifolia* (Lamiaceae), *Papaver* sp. (Papaveraceae), *Peganum harmala* (Zygophyllaceae), *Petunia* sp. (Solanaceae), Unidentified plant (Solanaceae), *Trifolium* sp. (Fabaceae).

***Anthidium gussakovskiji* Mavromoustakis**

**Material examined:** Isfahan province, Baharestan, 1565m, 15.V.2013, 1♀.

**Floral record:** *Stachys inflata* (Lamiaceae).

***Anthidium oblongatum* (Illiger)**

**Material examined:** Isfahan province, Meymeh, 2059m, 31.VIII.2012, 1♂.

**Floral record:** *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae).

***Anthidium taeniatum* Latreille**

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 1♂.

**Floral records:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

***Anthidium undulatum* Dours**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 1♀; Baharestan, 1608m, 18.V.2012, 1♀.

**Floral records:** *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Sonchus* sp. (Asteraceae), *Stachysinflata* (Lamiaceae).

***Anthidium wuestneii* Mocsary**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♀.

**Floral record:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusa italica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Solanaceae).

***Icteranthidium cimbiciforme* (Smith)**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 5♀♀.

**Floral record:** *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Sonchus* sp. (Asteraceae).

***Icteranthidium ferrugineum discoidale* (Latreille)**

**Material examined:** Isfahan province, Zodan, 1606m, 28.VIII.2012, 1♂.

**Floral record:** *Mentha longifolia* (Lamiaceae), *Peganum harmala* (Zygophyllaceae).

***Icteranthidium limbiferum* (Morawitz)**

**Material examined:** Isfahan province, Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ononis* sp. (Fabaceae).

***Pseudoanthidium scapulare* (Latreille)**

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1641m, 27.V.2013, 1♀; Aran and Bidgol, 947m, 11.VIII.2013, 1♂.

**Floral record:** *Medicago sativa* (Fabaceae), *Peganum harmala* (Zygophyllaceae).

**Megachilidae, Megachilinae, Lithurgini**

***Lithurgus chrysurus* Fonscolombe**

**Material examined:** Isfahan province, Najaf Abad, Ghaleh Sefid, 1653m, 29.VI.2012, 1♂; Falavarjan, 1664m, 6.VII.2012, 1♀ and 1♂.

**Floral record:** *Centaurea* sp. (Asteraceae), *Cichorium* sp. (Asteraceae), *Cirsium* sp. (Asteraceae), *Convolvulus arvensis* (Convolvulaceae), *Crucifera* sp. (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Petunia* sp. (Solanaceae), *Trifolium* sp. (Fabaceae).



***Lithurgus cornutus* (Fabricius)**

**Material examined:** Isfahan province, Zazaran, 1628m, 15.VII.2012, 1♀.

**Floral record:** *Brassica oleracea* (Brassicaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Tamarix* sp. (Tamaricaceae).

**Megachilidae, Megachilinae, Megachilini*****Coelioxys afra* Lepeletier**

**Material examined:** Isfahan province, Dehsoor, 2319m, 4.VII.2012, 1♂.

**Floral record:** *Centaurea virgata* (Asteraceae), *Mentha longifolia* (Lamiaceae).

***Megachile albisecta* (Klug)**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 2♂♂, 19.VII.2012, 1♀; Zarrin Shahr, 1694m, 3.VI.2012, 1♂.

**Floral record:** *Acroptilon* sp. (Asteraceae), *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Sonchus* sp. (Asteraceae).

***Megachile albonotata* Radoszkowski**

**Material examined:** Isfahan province, Baharestan, 1608m, 18.V.2012, 1♀.

**Floral record:** *Stachys inflata* (Lamiaceae).

***Megachile asiatica* Morawitz**

**Material examined:** Isfahan province, Baharestan, 1608m, 18.V.2012, 1♀; IUT, 1676m, 16.V.2012, 1♂. **Floral record:** *Stachys inflata* (Lamiaceae).

**Note:** *Megachile asiatica* is recorded here for the first time from Iran.

***Megachile burdigalensis* Benoist**

**Material examined:** Isfahan province, Karvan, Jafar Abad, 2035m, 29.VI.2012, 2♂♂ and 1♀; Tiran, Khamiran, 2018m, 7.VII.2012, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Glycyrrhizaglabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Ononis* sp. (Fabaceae).

***Megachile centuncularis* (Linnaeus)**

**Material examined:** Isfahan province, Si\_o\_Se Pol, 1538m, 19.IX.2012, 1♀; Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♂.

**Floral record:** *Anethum graveolens* (Apiaceae), *Medicago sativa* (Fabaceae), *Ocimum basilicum* (Lamiaceae).

***Megachile leachella* Curtis**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 2♀♀ and 1♂; Falavarjan, 1650m, 15.VII.2012, 1♂; IUT, 1676m, 16.V.2012, 1♂.

**Floral record:** *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Medicago sativa* (Fabaceae), *Sonchus* sp. (Asteraceae).

***Megachile leucomalla* Gerstäcker**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♂.

**Floral record:** *Centaurea virgata* (Asteraceae).

**Note:** *Megachile leucomalla* is recorded here for the first time from Iran.

***Megachile picicornis* Morawitz**

**Material examined:** Isfahan province, Mobarakeh, Sera rud, 1646m, 28.VIII.2012, 1♀; Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 1♂.

**Floral record:** *Antirrhinum majus* (Scrophulariaceae), *Centaurea* sp. (Asteraceae), *Sonchus* sp. (Asteraceae).

***Megachile rotundata* (Fabricius)**

**Material examined:** Isfahan province, Sadegh Abad, 1784 m, 3.VI.2012, 1♀ and 1♂.

**Floral record:** *Melilotus officinalis* (Fabaceae), *Trifolium* sp. (Fabaceae).

***Megachile rubripes* Morawitz**

**Material examined:** Isfahan province, Tiran, Khamiran, 2018m, 7.VII.2012, 1♀; Lashotor, 1612m, 10.V.2013, 1♀; Baharan,

Bagh Abrisham, 1581m, 28.VIII.2012, 1♂, Ghahderijan, 1550m, 11.V.2013, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Ononis* sp. (Fabaceae), *Peganum harmala* (Zygophyllaceae), *Stachys inflata* (Lamiaceae).

#### *Megachile sanguinipes* Morawitz

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 1♂ and 1♀.

**Floral record:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

**Note:** *Megachile sanguinipes* is recorded here for the first time from Iran.

### Megachilidae, Megachilinae, Osmiini

#### *Heriades truncorum* (Linnaeus)

**Material examined:** Isfahan province, Baharestan, 1608m, 18.V.2012, 1♂; Sadegh Abad, 1784m, 3.VI.2012, 1♂; Chadegan, 2026m, 7.VI.2012, 1♂.

**Floral records:** *Melilotus officinalis* (Fabaceae), *Stachys inflata* (Lamiaceae), *Trifolium* sp. (Fabaceae).

#### *Hoplitis minor* (Morawitz)

**Material examined:** Isfahan province, Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 1♂.

**Floral record:** *Medicago sativa* (Fabaceae).

#### *Hoplitis nitidula* (Morawitz)

**Material examined:** Isfahan province, Mobarakeh Industrial Estate, 1641m, 27.V.2013, 1♂; Mobarakeh, Ghahnavieh, 1711m, 27.V.2013, 1♀.

**Floral records:** *Medicago sativa* (Fabaceae), *Peganum harmala* (Zygophyllaceae).

#### *Hoplitis unispina* (Alfken)

**Material examined:** Isfahan province, khansar, 2425m, 24.V.2012, 1♂; Barf Anbar, Sadeghieh, 2326m, 24.V.2012, 1♂.

**Floral records:** *Crepis sancta* (Asteraceae), *Onosma* sp. (Boraginaceae).

**Note:** *Hoplitis unispina* is recorded here for the first time from Iran.

#### *Osmia bidentata* Morawitz

**Material examined:** Isfahan province, Dehsoor, 2319m, 4.VII.2012, 2♀♀ and 4♂♂; Bazmeh, 2442m, 4.VII.2012, 1♂.

**Floral record:** *Astragalus* spp. (Fabaceae), *Centaurea virgata* (Asteraceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

#### *Osmia caerulescens* (Linnaeus)

**Material examined:** Isfahan province, Karvan, 2185m, 23.V.2012, 1♂; Sadegh Abad, 1784 m, 3.VI.2012, 1♀; Marq, 1556m, 21.VI.2013, 1♂; Najaf Abad, Ghaleh Sefid, 1613m, 5.VII.2013, 1♀; Falavarjan, 1597m, 31.V.2013, 1♀; Dehaghan, Astaneh, 2399m, 4.VI.2013, 1♀.

**Floral record:** *Centaurea* sp. (Asteraceae), *Chenopodium album* (Chenopodiaceae), *Consolida* sp. (Ranunculaceae), *Convolvulus arvensis* (Convolvulaceae), *Convolvulus* sp. (Convolvulaceae), *Foeniculum vulgare* (Apiaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Papaver* sp. (Papaveraceae), *Salvia* sp. (Lamiaceae), *Trifolium* sp. (Fabaceae), *Turgenia* sp. (Apiaceae).

#### *Osmia cephalotes* Morawitz

**Material examined:** Isfahan province, Golpayegan, 1861m, 29.III.2013, 1♀.

**Floral record:** *Matthiola* spp. (Brassicaceae).

#### *Osmia difficilis* Morawitz

**Material examined:** Isfahan province, Semirom, Cheshme sard, 2436m, 4.VI.2013, 1♀.

**Floral records:** *Astragalus* spp. (Fabaceae), *Stachys* sp. (Lamiaceae).

***Osmia gutturalis* Warncke**

**Material examined:** Isfahan province, Bazmeh, 2442m, 4.VII.2012, 1♀.

**Floral records:** *Astragalus* spp. (Fabaceae), *Mentha longifolia* (Lamiaceae), *Phlomis olivieri* (Lamiaceae).

***Osmia signata* Erichson**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2070m, 8.VII.2012, 1♀; Mehdi Abad, 1993m, 23.V.2012, 1♂; Tiran, 1713m, 3.V.2013, 1♂; Esfahan, Ghahderijan, 1680m 11.V.2013, 1♂.

**Floral records:** *Antirrhinum majus* (Scrophulariaceae), *Stachys inflata* (Lamiaceae), *Carduus arabicus* (Asteraceae), *Centaurea* sp. (Asteraceae), *Convolvulus* sp. (Convolvulaceae), *Sonchus* sp. (Asteraceae), Unidentified plant (Asteraceae).

**Melittidae, Dasypodainae, Dasypodaini*****Dasypoda hirtipes* (Fabricius)**

**Material examined:** Isfahan province, Chadegan, Sade Zayandehroud, 2067m, 19.VII.2012, 1♂.

**Floral records:** *Amaranthus* sp. (Amaranthaceae), *Anagallis arvensis* (Primulaceae), *Anchusaitalica* (Boraginaceae), *Centaurea virgata* (Asteraceae), *Chenopodium* sp. (Chenopodiaceae), *Papaver* sp. (Papaveraceae), Unidentified plant (Solanaceae).

**Melittidae, Melittinae*****Melitta leporina* (Panzer)**

**Material examined:** Isfahan province, Karvan, Jafar Abad, 2035m, 29.VI.2012, 1♂; Kabootar Abad, 1563m, 18.V.2012, 1♂; Karchegan, 1843m, 3.VI.2012, 1♂; Karvan, Jafar Abad, 2035m, 29.VI.2012, 3♂♂; Falavarjan, 1664 m, 6.VII.2012, 2♂♂ and 1♀; Karvan, Nasim Abad, 2062m, 29.VI.2012, 1♂; Tiran, Khamiran, 2018m, 7.VII.2012, 3♂♂.

**Floral records:** *Centaurea* sp. (Asteraceae), *Cichorium* sp. (Asteraceae), *Crucifera* sp. (Brassicaceae), *Descurainia sophia* (Brassicaceae), *Glycyrrhiza glabra* (Fabaceae), *Medicago sativa* (Fabaceae), *Melilotus officinalis* (Fabaceae), *Ononis* sp. (Fabaceae).

**Discussion**

By now there is not a comprehensive study on Apoid bees of the vast province of Isfahan. By recording more than 154 species of Apoidea in this study, seems that these bees have more distribution in this province, although we just surveyd the central and west of province. East of this province is a desert and dried area with less vegetations. When we think about the bees in our country, there is some worriness in this regards. The first is little attention on peoples who do researchs on bees. There are not much intrest on this studies comparing to crop pests although there are not less importance than them. Adding to these problems, we do not have a comprehensive list of bee species which based on that, we know about our in danger species. So, the first work is focus on faunestic studies so that we know how many species we have in the various regions of Iran. There are some annoying things which happenes sometimes in environments where bees live for example using of pesticide is common everywhere in crops, gardens and greenhouse as well as on weeds that are the main plants which visited by bees for pollen and nectar. It is obvious that weeds below canopy of fruit plants and flowering herbs around them are the most visited plants by bees other than honeybees which neglected everywhere. The second concern about bees is little tending to faunestic and systematic studies of bees which there not much care about it. There is not a comprehensive collection in Iran to be a site of detected species to help in identification of Iranian species. The most important point is about expertise on Palearctic, especially Iranian bees, which most of espicialists are retired

or no work anymore on this fauna. For example we have collected many specimens from Apidae (*Anthophora* spp.) and Halictidae (non metallic ones) which no one could help us in species identification. It's heard that importance of these kinds of studies is not in priority at present and also travel to abroad to visit collections including bees of Iran is very expensive and mostly not supported. Iran is a country with most diverse fauna which most of its regions are not sampled yet for bees. Recently we started collecting and making a comprehensive collection of bees of all over Iran in Yasouj University. Most deposited collected specimens now detected by first class expertise of related taxa in the world. Comparing to our previous study in Fars province and other provinces; we found some interesting points about bees fauna in Isfahan. In Fars province there were 91 new records for Iran fauna and 5 for science (Khodaparast & Monfared, 2012) here we report 155 bee species from the western parts of Isfahan Province, of which 36 are certainly new records for Iran, including 7 undescribed species for science. Specimens of family Colletidae which were rare in Fars province and we just collected one species in Isfahan were 20 species. Unfortunately, there is not much literatures available about mapping bees species from Isfahan province in the past and data provided here are the most complete ever made on this province fauna regarding the bees distributions. So we do not have many references available for comparing, but we have a plan to do that in near future.

Another important point about Iran, which we are observing each year in spring and summer, on our sampling, is that in many regions, expanding the roads and building and villas for pleasure and holidays in counties and mountainous regions, made by human, are limiting gradually destiny of bees' distributions, especially for bumblebees. We think, this factor should be added to world weather

warming conditions and other risks as one of the reasons of decrease activities and food plants of bees in Iran. Lately published book on climatic risk and distribution atlas of European bumblebees by Rasmont et al. (2015) shows that there are main worry on declining bees' species in Europe as well as in other parts of the world. Regarding to being a vast country with various weather conditions and rich fauna, Iran should be in center of our attentions for such risks of declining bees' species. We also should point out that the faunistic and systematic studies of bees are the first and fundamental pace of using of beneficial bees. After that we should work on biology, ecology and other scientific and practice aspects of apoid species for applying them in increasing our agricultural products and food supplement for populations. Nowadays some commercial products of bees for pollination of greenhouse plants and vegetables resulted to billions dollars in all over the world while we have not use of them despite having these commercial species as native to Iran. For example we have *Bombus terrestris* and *Bombus lucorum* native to Iran which could rear for pollination in our greenhouse and orchards. Some megachilid bees which use for pollination purpose like *Megachile* spp. and even some non honeybees which make honey are common in Iran.

One of the interesting aspects of bees study is 'behaviour' which is neglected all the times in Iran. We have not any study in this regards by now, just one study about egg-laying of 'bumblebees' workers when solitary protected in captivity by Beheshti et al. (2013). Also some studies about detecting labial gland secretions of bumblebees published by Abdoli & Monfared (2014).

We hope our faunistic studies resulted to more knowledge about their diversity and distributions in all provinces in Iran and encourage other researchers to begin their research in all other scientific aspects of bees to more exploit them.

**Table 2.** List of bee genera with number of species collected in Isfahan Province, Iran.

Family	Subfamily	Tribe	Genus	Sp.	
Andrenidae	Andreninae		<i>Andrena</i>	31	
	Panurginae	Panurgini	<i>Camptopoeum</i>	1	
			<i>Panurginus</i>	2	
			<i>Panurgus</i>	1	
Apidae	Apinae	Bombini	<i>Bombus</i>	2	
		Eucerini	<i>Eucera</i>	6	
			<i>Tetraloniella</i>	3	
Colletidae	Colletinae		<i>Colletes</i>	6	
	Hylaeinae		<i>Hylaeus</i>	14	
Halictidae	Halictinae	Halictini	<i>Halictus</i>	14	
			<i>Lasioglossum</i>	28	
	Nomiinae		<i>Nomiapis</i>	3	
			<i>Pseudapis</i>	1	
			<i>Nomioides</i>	3	
		Rophitinae		<i>Rophites</i>	1
Megachilidae	Fideliinae	Pararhophitini	<i>Pararhophites</i>	1	
	Megachilinae	Anthidiini	<i>Anthidiellum</i>	1	
			<i>Anthidium</i>	6	
			<i>Icteranthidium</i>	3	
			<i>Pseudoanthidium</i>	1	
			Lithurgini	<i>Lithurgus</i>	2
		Megachilini	<i>Coelioxys</i>	1	
			<i>Megachile</i>	11	
		Osmiini	<i>Heriades</i>	1	
			<i>Hoplitis</i>	3	
	<i>Osmia</i>		6		
Melittidae	Dasypodainae	Dasypodaini	<i>Dasypoda</i>	1	
	Melittinae		<i>Melitta</i>	1	

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## Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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## مطالعه‌ی زنبورهای گرده‌افشان (Hymenoptera: Apoidea) در استان اصفهان، ایران

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**چکیده:** در این بررسی، ۱۵۴ گونه از زنبورهای گرده افشان بالاخانواده Apoidea از غرب استان اصفهان ایران گزارش شد که ۲۹ گونه از آن‌ها برای اولین بار از فون ایران ثبت می‌شوند. از بین نمونه‌های مورد بررسی، ۳۵ گونه از خانواده Andrenidae، ۱۱ گونه از خانواده Apidae، ۲۰ گونه از خانواده Colletidae، ۵۰ گونه از خانواده Halictidae، ۳۶ گونه از خانواده Megachilidae و ۲ گونه از خانواده Melittidae بودند. همه نمونه‌ها در موزه حشرات گرده‌افشان ایران در دانشگاه یاسوج (ایران) نگهداری می‌شوند.

**واژگان کلیدی:** Halictidae, Colletidae, Apidae, Andrenidae, Melittidae و Megachilidae