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Updated Checklist of Vespidae (Hymenoptera: Vespoidea) in Iran

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ABSTRACT. 231 species of the family Vespidae (Hymenoptera, Vespoidea) of Iran, in 55 genera belonging to 4 subfamilies Eumeninae (45 genera, 184 species), Masarinae (5 genera, 24 species), Polistinae (2 genera, 17 species) and Vespinae (3 genera, 6 species) are listed. An overall assessment of the distribution pattern of the vespidae species in Iran indicates a complex fauna of different biogeographic regions. 111 species are found in both Eastern and Western Palaearctic regions, while 67 species were found only in the Eastern Palaearctic region. Few species (14 species - 6.1%) of various genera are known as elements of central and western Asian area and their area of distribution is not known in Europe (West Palaearctic) and in the Far East. The species that were found both in the Oriental and Afrotropical Regions comprises 11.7 and 15.6% the Iranian vespidae fauna, respectively. Many species (48, 20.8%) are exclusively recorded from Iran and as yet there is no record of these species from other countries. The highest percentage of the vespidae species are recorded from Sistan-o Baluchestan (42 species, 18.2%), Alborz (42 species, 18.2%), Fars (39 species, 16.9%) and Tehran provinces (38 species, 16.5%), representing the fauna of the Southeastern, North- and South Central of the country.

Key words: Catalogue, Distribution, Hornets, Potter wasps, Paper wasps, Pollen wasps, Yellow jackets

Received:
01 January, 2020

Accepted:
17 January, 2020

Published:
31 January, 2020

Subject Editor:
Volker Mauss

Citation: Rahmani, Z., Rakhshani, E. & Carpenter, J.M. (2020) Updated Checklist of Vespidae (Hymenoptera: Vespoidea) in Iran. *Journal of Insect Biodiversity and Systematics*, 6 (1), 27–86.

Introduction

Vespidae is one of the largest and most diverse families of the order Hymenoptera with more than 5000 species worldwide in six subfamilies: Euparagiinae (single genus, 10 species), Masarinae (14 genera, 374 species), Eumeninae (204 genera, 3844 species), Stenogastrinae (7 genera, 72 species), Polistinae (25 genera, 1024 species), and Vespinae (4 genera, 69 species) (Pickett & Carpenter, 2010; Carpenter, unpubl.). Species of the family Vespidae play important roles in ecosystems, as biological control agents, since they feed their larvae with caterpillars and other insects (Ross & Matthews, 1991). They also serve as pollinators of various plants (Fatoryga, 2010). Adult vespids are commonly black or brown

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in color, but often marked with yellow or white patterns. Most species are solitary, but many species are social (Goulet & Huber, 1993). The social species belong to the subfamilies Stenogastrinae, Polistinae and Vespinae, while all members of the Euparagiinae, Masarinae and Eumeninae live solitarily (Ross & Matthews, 1991). In solitary species, the larvae feed normally on larvae of other insects, especially caterpillars, within a cell constructed and provisioned by the adult female, but in the Masarinae the larva is supplied with a mixture of pollen and nectar instead. In social species the larva is progressively fed by the adult females on masticated insects (Ross & Matthews, 1991; Goulet & Huber, 1993).

Scattered data on Vespidae of Iran were partly reviewed in Farahbakhsh (1961) and Esmaili & Rastegar (1974). Subsequent faunistic or taxonomic works (Pashaei Rad et al., 2006, 2010; Abbasi et al., 2008; Ebrahimi & Carpenter, 2008, 2012; Salehi Fard et al., 2013; Khoobdel et al., 2014; Nematy et al., 2016; Hamzavi et al., 2019) contributed to increasing the knowledge on the Vespidae of Iran. The first comprehensive study of the vespidae fauna of Iran was done by Blüthgen & Gusenleitner (1970), in which numerous species were recorded from various regions. Many more vespidae species of Iran were treated by Gusenleitner (1972, 1973b, 1985b, 1986a, 1986b, 1992, 1995a, 1998c, 2000c, 2001, 2002, 2004, 2006a, 2010a, 2011a, 2012a, 2012b, 2014, 2016, 2018), in his long series of publications. Various papers including data on the recorded Vespidae from Iran were also published, elsewhere (e.g. Morawitz, 1885; Kostylev, 1937, 1940; Giordani Soika, 1961, 1970; Guiglia, 1976, 1977; Archer, 1981; Castro & Dvořák, 2009; Dvořák et al., 2012; Gusenleitner & Ockermüller, 2018; Selis, 2019).

In the last catalogue of Vespidae of Iran (Ebrahimi & Carpenter, 2008), 51 genera and 182 species were recorded with relevant data about distribution in various parts of the country. Since then, many other species have been recorded from Iran or their distribution in other parts of the country is documented. On the other hand, the status of some recorded species was changed from that considered in Ebrahimi & Carpenter (2008). Here we present an updated checklist of Vespidae from Iran with details based on the original references indicating the recent advances of the knowledge on the fauna of Vespidae in various parts of the country.

Material and methods

The known vespidae species recorded from Iran were compiled and listed. Data about general distribution of the recorded species were compiled from the selected relevant literature. The provincial distribution of each species was also based on the locality records in the published data. Classification and nomenclature followed Carpenter (1996, 2001), Carpenter & Kojima (1997), Gusenleitner (2013, 2019) and Schmid-Egger et al. (2017). The occurrence of species in Iran as originally indicated the junior synonyms under which the species were previously recorded from Iran are ignored. The valid name of each species is presented according to the last taxonomic modification. Other taxonomic changes and occurrence of the subspecies were also highlighted as separate remarks. Within the subfamilies the species are listed and presented alphabetically.

Results

231 species of the family Vespidae in 55 genera belonging to four subfamilies recorded from Iran are listed.

Family: Vespidae
Subfamily: Eumeninae Leach, 1815

Genus: *Acanthodynerus* Gusenleitner, 1969

Acanthodynerus Gusenleitner, 1969: 13. Type species: *Acanthodynerus giordanii* Gusenleitner, 1969, by original designation.

***Acanthodynerus multimaculatus* Gusenleitner, 2000**

Acanthodynerus multimaculatus Gusenleitner, 2000: 932, ♀. – Turkey.

Distribution in Iran: Isfahan ([Gusenleitner, 2011a](#)).

General distribution: Eastern (Iran) and Western (Israel, Turkey) Palaearctic ([Gusenleitner, 2013](#)).

Genus: *Alastor* Lepeletier, 1841

Alastor Lepeletier, 1841: 668. Type species: *Alastor atropos* Lepeletier, 1841. Designated by Ashmead, 1902.

***Alastor (Alastor) darius* Gusenleitner, 1986**

Alastor (Alastor) darius Gusenleitner, 1986: 30, ♀♂: Holotype ♀. – Iran.

Distribution in Iran: Hormozgan, Fars ([Gusenleitner, 1986b](#)).

General distribution: Eastern Palaearctic (Iran) ([Gusenleitner, 2013](#)).

***Alastor (Alastor) iranus* Blüthgen, 1956**

Alastor (Alastor) iranus Blüthgen, 1956: 125, ♀. – Iran.

Distribution in Iran: Sistan-o Baluchestan ([Blüthgen, 1956](#); [Blüthgen & Gusenleitner, 1970](#)).

General distribution: Eastern Palaearctic (Iran) ([Gusenleitner, 2013](#)).

***Alastor (Alastor) xerxes* Gusenleitner, 1986**

Alastor (Alastor) xerxes Gusenleitner, 1986b: 33, ♀. – Iran.

Distribution in Iran: Hormozgan ([Gusenleitner, 1986b](#)).

General distribution: Eastern Palaearctic (Iran) ([Gusenleitner, 2013](#)).

***Alastor (Alastor) zoroaster* Gusenleitner, 1986**

Alastor (Alastor) zoroaster Gusenleitner, 1986: 35, ♀. – Iran.

Distribution in Iran: Hormozgan ([Gusenleitner, 1986b](#)).

General distribution: Eastern Palaearctic (Iran) ([Gusenleitner, 2013](#)).

***Alastor (Megalastor) esfandiarrii* Giordani Soika, 1970**

Alastor (Megalastor) esfandiarrii Giordani Soika, 1970: 58, ♂. – Iran.

Distribution in Iran: Sistan-o Baluchestan ([Giordani Soika, 1970](#)).

General distribution: Eastern (Iran - [Giordani Soika, 1970](#)) and Western (Turkey - [Yildirim & Kojima, 1999](#)) Palaearctic.

Genus: *Allodynerus* Blüthgen, 1938

Allodynerus Blüthgen, 1938: 280. Type species: "*Lionotus floricola* Sauss, 1852" [= *Odynerus floricola* de Saussure, 1853].

***Allodynerus delphinalis* (Giraud, 1866)**

Odynerus (Lionotus) delphinalis Giraud, 1866: 464, ♀. – Grenoble [Paris].

Distribution in Iran: East Azerbaijan (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (China, Japan, Iran, Kazakhstan, Korea, Russian Far East) and Western (Lebanon, North Africa, Russia, Turkey, Europe) Palaearctic (Fateryga, 2018).

***Allodynerus dignotus* (Morawitz, 1895)**

Odynerus (Lionotus) dignotus Morawitz, 1895: 457, ♀♂. – Transcaucasia: Tschemachlinskaja.

Distribution in Iran: Khorasan-e Razavi (Salehi Fard et al., 2013), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Oman), Eastern (Iran, Kazakhstan, Pakistan, Turkmenistan) and Western (Iraq, Greece, Israel, Jordan, Syria, Turkey, UAE) Palaearctic (Rafi et al., 2017).

***Allodynerus rossii* (Lepeletier, 1841)**

Odynerus rossii Lepeletier, 1841: 633, ♀♂. – Environs de Paris. (destroyed).

Distribution in Iran: Alborz (Giordani Soika, 1970), East Azarbaijan (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Turkmenistan) and Western (Caucasus, Europe, Northwest Africa, Russia, Turkey) Palaearctic (Fateryga, 2018).

Genus: *Ancistrocerus* Wesmael, 1836

Ancistrocerus Wesmael, 1836: 45. Type species: *Vespa parietum* L., 1758. Designated by Girard, 1879.

***Ancistrocerus auctus* (Fabricius, 1793)**

Vespa aucta Fabricius, 1793: 272, ♀. – Kiliae [København].

Distribution in Iran: East Azarbaijan (Ebrahimi & Carpenter, 2008), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (Iran, Kazakhstan) and Western (Europe, Israel, Jordan, Russia, Syria, Turkey) Palaearctic (Fateryga, 2018).

***Ancistrocerus biphaleratus* (de Saussure, 1852)**

Odynerus (Ancistrocerus) biphaleratus de Saussure, 1852: 134, ♀♂. – Egypt.

Distribution in Iran: Hormozgan (Gusenleitner, 2010a).

General distribution: Eastern (Iran) and Western (Europe, Northwest Africa, Turkey) Palaearctic (Gusenleitner, 2013).

Remarks: The subspecies *Ancistrocerus biphaleratus triphaleratus* (de Saussure, 1855) has been recorded from Iran (Gusenleitner, 2010a).

***Ancistrocerus claripennis* Thomson, 1874**

Ancistrocerus claripennis Thomson, 1874: 76, ♀♂. – Sweden.

Distribution in Iran: Ardabil (Ebrahimi & Carpenter, 2008), Mazandaran (Gusenleitner, 2011a).

General distribution: Eastern (China, Tajikistan, Iran) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

Remarks: The subspecies *Ancistrocerus claripennis claripennis* has been recorded from Iran (Ebrahimi & Carpenter, 2008; Gusenleitner, 2011a).

***Ancistrocerus gazella* (Panzer, 1798)**

Vespa gazella Panzer, 1798: 10, ♂. - Austria (destroyed).

Distribution in Iran: No locality cited (Gusenleitner, 1995b).

General distribution: Eastern Palaearctic (Afghanistan, Iran, Pakistan), Nearctic (Canada, U.S.A - exotic), Oceanic (New Zealand - exotic), Western Palaearctic (Azerbaijan, Cyprus, Europe, Israel, North Africa, Russia, Turkey) (Fateryga et al., 2019c).

***Ancistrocerus nigricornis* (Curtis, 1826)**

Odynerus nigricornis Curtis, 1826: 137. - Great Britain.

Distribution in Iran No locality cited (Gusenleitner, 1995b).

General distribution: Oriental (India), Eastern (China, Iran, Japan, Kazakhstan, Mongolia, Russian Far East) and Western (Europe, North Africa, Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

***Ancistrocerus parietinus* (Linnaeus, 1761)**

Vespa parietina Linnaeus, 1761: 418. - Sweden.

Distribution in Iran: No locality cited (Gusenleitner, 1995b).

General distribution: Eastern (Iran, Japan, Kazakhstan, Korea, Mongolia, Russia Far East) and Western (Caucasus, Europe, North Africa, Russia, Turkey) Palaearctic (Fateryga, 2018).

***Ancistrocerus parietum* (Linnaeus, 1758)**

Vespa parietum Linnaeus, 1758: 572.

Distribution in Iran: Qazvin (Morice, 1921); No locality cited (Kurzenko, 1978).

General distribution: Eastern (Iran, Japan, Kazakhstan, Korea, Mongolia) and Western (Armenia, Azerbaijan, Europe, North Africa, Russia, Turkey) Palaearctic (Fateryga et al., 2019).

Remarks: This species has been recorded from Iran as *Odynerus parietum* (Linnaeus, 1758) (Morice, 1921).

***Ancistrocerus scoticus* (Curtis, 1826)**

Odynerus scoticus Curtis, 1826: 137. - Scotland.

Distribution in Iran: No locality cited (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (China, Iran, Kazakhstan, Korea, Mongolia, Russia) and Western (Europe, Georgia, North Africa, Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

***Ancistrocerus tenebrosus* Gusenleitner, 2010**

Ancistrocerus tenebrosus Gusenleitner, 2010: 1349, ♀♂, Holotype ♂. - Iran.

Distribution in Iran: Mazandaran (Gusenleitner, 2010a).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Genus: *Antepipona* de Saussure, 1855

Antepipona Saussure, 1855: 244. Type species: *Odynerus silaos* Saussure, 1853. Designated by ICZN, 1970.

***Antepipona barrei* (Radoszkowski, 1893)**

Odynerus barrei Radoszkowski, 1893: 76, ♀. - Turkmenistan.

Distribution in Iran: Tehran (Giordani Soika, 1970); No locality cited (Castro & Dvořák, 2009).

General distribution: Eastern (Afghanistan, Iran, Turkmenistan) and Western (Armenia) Palaearctic (Giordani Soika, 1970; Gusenleitner, 2013).

Remarks: The subspecies *Antepipona barrei vastifica* (Morawitz, 1895) has been recorded from Iran (Giordani Soika, 1970).

***Antepipona deflenda* (S. S. Saunders, 1853)**

Ancistrocerus deflendus S. S. Saunders, 1853: 141, ♀♂. – Albania.

Distribution in Iran: East Azarbaijan, North Khorasan, Tehran (Ebrahimi & Carpenter, 2008), Kerman (Pashaei Rad et al., 2010), Khorasan-e Razavi (Giordani Soika, 1970), Sistan-o Baluchestan (Hamzavi et al., 2019), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (China, Iran, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan) and Western (Armenia, Azerbaijan, Cyprus, Europe, Georgia, Iraq, Israel, Jordan, Lebanon, North Africa, Russia, Turkey) Palaearctic (Fatoryga et al., 2019).

Remarks: The subspecies *Antepipona deflenda deflenda* has been recorded from Iran (Pashaei Rad et al., 2010).

***Antepipona iconia* (Blüthgen, 1951)**

Odontodynerus iconius Blüthgen, 1951: 169, 182, Holotype ♀. – Turkey.

Distribution in Iran: Mazandaran (Gusenleitner, 2012a).

General distribution: Eastern (Iran) and Western (Israel, Syria, Turkey) Palaearctic (Gusenleitner, 2013).

***Antepipona karadgensis* Giordani Soika, 1970**

Antepipona karadgensis Giordani Soika, 1970: 113, ♀. – Iran.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Antepipona laevigata* (Blüthgen, 1951)**

Odontodynerus laevigatus Blüthgen, 1951: 169, 180, ♂. – Armenia.

Distribution in Iran: Alborz, Mazandaran, Semnan (Gusenleitner, 1986a).

General distribution: Eastern (Iran, Pakistan) and Western (Armenia, Iraq, Lebanon, Turkey) Palaearctic (Gusenleitner, 2013).

***Antepipona osmania* Gusenleitner, 1986**

Antepipona osmania Gusenleitner, 1986: 361, ♀. – Turkey.

Distribution in Iran: East Azarbaijan (Gusenleitner, 2012a).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic (Gusenleitner, 2012a).

***Antepipona praeclara* Giordani Soika, 1970**

Antepipona praeclara Giordani Soika, 1970: 117, ♀. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran, Pakistan) (Gusenleitner, 2013).

***Antepipona prompta* Giordani Soika, 1970**

Antepipona prompta Giordani Soika, 1970: 123, ♀. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Antepipona specifica* (Morawitz, 1895)**

Odynerus (Lionotus) specificus Morawitz, 1895: 464, ♂♀. - Turkmenistan.

Distribution in Iran: Markazi (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Kyrgyzstan, Turkmenistan, Uzbekistan) and Western Palaearctic (Azerbaijan, Iraq) (Fateryga et al., 2019).

***Antepipona vagabunda* (Dalla Torre, 1889)**

Odynerus vagabundus Dalla Torre, 1889: 125.

Distribution in Iran: Kerman (Pashaei Rad et al., 2010), Tehran (Giordani Soika, 1970), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern Palaearctic (Afghanistan, Iran, Turkmenistan) (Gusenleitner, 2013).

***Antepipona varentzowi* (Morawitz, 1895)**

Odynerus varentzowi Morawitz, 1895: 474, ♀. - Iran.

Distribution in Iran: North Iran (Morawitz, 1895).

General distribution: Eastern Palaearctic (Iran - Morawitz, 1895; Kazakhstan, Uzbekistan - Gusenleitner, 1986a).

Remarks: This species has been recorded from Iran as *Odynerus varentzowi* Morawitz, 1895 (Morawitz, 1895).

***Antepipona vescovilis* Giordani Soika, 1970**

Antepipona vescovilis Giordani Soika, 1970: 116, ♀. - Iran.

Distribution in Iran: Alborz, Khorasan-e Razavi (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran - Gusenleitner, 2013; Pakistan - Gusenleitner, 2006c).

Genus: *Antodynerus* de Saussure, 1855

Antodynerus Saussure, 1855: 242, 287. Type species: *Vespa flavescens* Fabricius, 1775 ("*Odynerus punctum* (Fabricius)" *sensu* Saussure, 1853). Designated by van der Vecht, 1959.

***Antodynerus incomparabilis* Giordani Soika, 1970**

Antodynerus incomparabilis Giordani Soika, 1970: 138, ♀. - Iran.

Distribution in Iran: Fars (Giordani Soika, 1970).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic (Gusenleitner, 2013).

Genus: *Brachyodynerus* Blüthgen, 1938

Brachyodynerus Blüthgen, 1938: 450, 459. Type species: *Odynerus magnificus* Morawitz, 1867. Original designation.

***Brachyodynerus zhelochvtzevi* (Kostylev, 1929)**

Odynerus (Lionotus) zhelochvtzevi Kostylev, 1929: 112, ♂. - Turkestan.

Distribution in Iran: Golestan (Gusenleitner, 2011b).

General distribution: Eastern Palaearctic (Iran, Kazakhstan) (Fateryga et al., 2017).

Genus: *Brachypipona* Gusenleitner, 1967

Brachypipona Gusenleitner, 1967: 671. Type species: *Pseudepipona schmidti* Gusenleitner, 1967, by original designation.

***Brachypipona orientalis* Gusenleitner, 2004**

Brachypipona orientalis Gusenleitner, 2004: 1102, Paratype ♀. – Iran.

Distribution in Iran: Hamadan (Gusenleitner, 2004).

General distribution: Eastern (Iran - Gusenleitner, 2004) and Western (Turkey - Gusenleitner, 2013) Palaearctic.

Genus: *Cephalochilus* Blüthgen, 1939

Cephalochilus Blüthgen, 1939: 13. Type species: *Pterochilus grandis* Lepageletier, 1841 (= *Vespa labiata* Fabricius 1798), by original designation.

***Cephalochilus draco* Giordani Soika, 1970**

Cephalochilus draco Giordani Soika, 1970: 40, ♀♂. – Turkey.

Distribution in Iran: Markazi (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran - Ebrahimi & Carpenter, 2008) and Western (Turkey, Syria - Gusenleitner, 2013) Palaearctic.

Genus: *Chlorodynerus* Blüthgen, 1951

Chlorodynerus Blüthgen, 1951: 67, 75 (as subgenus of "*Euodynerus* Blüthgen"). Type species: *Odynerus chloroticus* Spinola, 1838, by original designation.

***Chlorodynerus araxanus* (Blüthgen, 1956)**

Euodynerus (*Chlorodynerus*) *araxanus* Blüthgen, 1956: 281.

Distribution in Iran: Tehran (Giordani Soika, 1970).

General distribution: Eastern (Iran) and Western (Armenia) Palaearctic (Gusenleitner, 2013).

***Chlorodynerus flavoferrugineus* Giordani Soika, 1970**

Chlorodynerus flavoferrugineus Giordani Soika, 1970: 170, ♀♂. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Chlorodynerus gratus* (Kostylev, 1940)**

Odynerus (*Pareuodynerus*) *gratus* Kostylev, 1940: 31, ♂. – Iran.

Distribution in Iran: Kerman (Kostylev, 1940).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Odynerus* (*Pareuodynerus*) *gratus* Kostylev, 1940 (Kostylev, 1940).

***Chlorodynerus infrenis* Giordani Soika, 1970**

Chlorodynerus infrenis Giordani Soika, 1970: 172, ♀♂. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970), Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Chlorodynerus loeffleri* Giordani Soika, 1958Chlorodynerus loeffleri* Giordani Soika, 1958: 144, ♀. - Iran.**Distribution in Iran:** Fars ([Giordani Soika, 1958](#)).**General distribution:** Eastern Palaearctic (Iran, Pakistan) ([Gusenleitner, 2013](#)).***Chlorodynerus schulthessianus* (Kostylev, 1937)***Odynerus schulthessianus* Kostylev, 1937: 226, ♀♂. - Armenia.**Distribution in Iran:** Khuzestan, Tehran ([Giordani Soika, 1970](#)).**General distribution:** Eastern (Iran) and Western (Armenia, Israel) Palaearctic ([Gusenleitner, 2013](#)).**Genus: *Cyphodynerus* van der Vecht, 1971***Cyphodynerus* van der Vecht, 1971: 127. Type species: *Odynerus dimidiatus* Spinola, 1838, by original designation.**Remarks:** It is not *Odynerus dimidiatus* Guérin, 1834; replaced by *Odynerus canaliculatus* Saussure, 1855).***Cyphodynerus sculpturatus* (Dover, 1925)***Odynerus sculpturatus* Dover, 1925: 300, ♀. - Karachi [Pakistan].**Distribution in Iran:** Kerman ([Kostylev, 1937](#)).**General distribution:** Eastern Palaearctic (Iran - [Kostylev, 1937](#), Pakistan - [Dover, 1925](#)).**Remarks:** This species has been recorded from Iran as *Odynerus canaliculatus nigroflammeus* Kostylev, 1937 ([Kostylev, 1937](#)).**Genus: *Cyrtolabulus* van der Vecht, 1969***Cyrtolabus* van der Vecht, 1963: 11. Type species: *Cyrtolabus suavis* van der Vecht, 1963, by original designation. Replaced by *Cyrtolabulus* van der Vecht, 1969.***Cyrtolabulus iranus* (Giordani Soika, 1968)***Cyrtolabus iranus* Giordani Soika, 1968: 112, ♀. - Iran.**Distribution in Iran:** Fars ([Giordani Soika, 1968](#)).**General distribution:** Eastern (Iran - [Giordani Soika, 1968](#)) and Western (Turkey - [Gusenleitner, 1988a](#); [Yildirim & Kojima, 1999](#)) Palaearctic.***Cyrtolabulus karachiensis* Gusenleitner, 2006***Cyrtolabulus karachiensis* Gusenleitner, 2006: 1298, ♀. - Pakistan.**Distribution in Iran:** Sistan-o Baluchestan ([Hamzavi et al., 2019](#)).**General distribution:** Eastern Palaearctic (Iran - [Hamzavi et al., 2019](#); Pakistan - [Gusenleitner, 2006c](#)).***Cyrtolabulus syriacus* (Giordani Soika, 1968)***Cyrtolabus syriacus* Giordani Soika, 1968: 120, ♀♂. - Syria.**Distribution in Iran:** Sistan-o Baluchestan ([Hamzavi et al., 2019](#)).**General distribution:** Eastern (Iran - [Hamzavi et al., 2019](#); Pakistan) and Western (Israel, Syria) ([Gusenleitner, 2006c](#)) Palaearctic.

***Cyrtolabulus zarudnyi* (Kostylev, 1939)**

Labus zarudnyi Kostylev, 1939: 166, 168, ♀. – Iran.

Distribution in Iran: Kerman (Kostylev, 1939).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic (Gusenleitner, 2013).

Genus: *Delta* de Saussure, 1855

Delta Saussure, 1855: 130, 143. Type species: *Vespa maxillosa* DeGeer, 1773 (= *Vespa emarginata* L., 1758). Designated by Bequaert, 1925.

***Delta anomalum* (Zavattari, 1909)**

Eumenes anomala Zavattari, 1909: 4, ♂. – Kashmir.

Distribution in Iran: Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern (Iran - Blüthgen & Gusenleitner, 1970; Pakistan) and Western (Egypt - Gusenleitner, 2013) Palaearctic.

Remarks: This species has been recorded from Iran as *Alfiera anomala* (Zavattari, 1909) (Blüthgen & Gusenleitner, 1970).

***Delta campaniforme* (Fabricius, 1775)**

Vespa campaniformis Fabricius, 1775: 371, Holotype ♀. – Nova Hollandia.

Distribution in Iran: Fars (Giordani Soika, 1970), Hormozgan (Khoobdel et al., 2014), Khuzestan (Giordani Soika, 1970), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1979).

General distribution: Asutrasian (Australia), Eastern Palaearctic (China, Iran, Pakistan), Oceanic (Hawaii - exotic, Papua New Guinea), Oriental (Cambodia; India - Gusenleitner, 2006b; Indonesia; Laos - Gusenleitner, 2011c; Malaysia; Myanmar - Dover, 1929; Nepal, Philippines; Singapore - Dover & Rao, 1922; Thailand, Vietnam) (Nguyen et al., 2014).

Remarks: The subspecies *Delta campaniforme chloroticum* Giordani Soika, 1979 (Giordani Soika, 1979) has been recorded from Iran.

***Delta dimidiatipenne* (de Saussure, 1852)**

Eumenes dimidiatipennis de Saussure, 1852: 51, ♀, ♂. – Djidda (Arabie), les Indes Orientales, l'Égypte".

Distribution in Iran: Alborz, Fars (Giordani Soika, 1970), Ardabil, Kohgiluyeh-va Boyer-Ahmad, Kordestan, Lorestan, Markazi (Ebrahimi & Carpenter, 2008), Hormozgan, Tehran (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Kerman (Blüthgen & Gusenleitner, 1970; Pashaei Rad et al., 2010), Khuzestan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008; Hamzavi et al., 2019), South Khorasan (Blüthgen & Gusenleitner, 1970), Different regions of Iran (Esmaili & Rastegar, 1974).

General distribution: Afrotropical (Sudan to South Africa - Carpenter et al., 2010; Saudi Arabia; Oman, Qatar - Guichard, 1986; UAE, Yemen), Oriental (India; Nepal - Gusenleitner, 1987), Eastern (Afghanistan - Blüthgen, 1961; Iran; Pakistan - Mahmood et al., 2012) and Western (Canary Islands, North Africa) Palaearctic (Gusenleitner, 2013).

Remarks: Two subspecies *Delta emarginatus dimidiatipennis* (de Saussure, 1852) (Blüthgen & Gusenleitner, 1970) and *Eumenes maxillosa dimidiatipennis* de Saussure (Esmaili & Rastegar, 1974) have been recorded from Iran.

***Delta esuriens* (Fabricius, 1787)**

Vespa esuriens Fabricius 1787: 293, Syntype. - India.

Distribution in Iran: Hormozgan (Blüthgen & Gusenleitner, 1970), Kerman (Pashaei Rad et al., 2010), Khuzestan (Blüthgen & Gusenleitner, 1970), Markazi (Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008; Hamzavi et al., 2019).

General distribution: Afrotropical (African continent - Carpenter et al., 2010; Saudi Arabia; Mauritius - Gusenleitner & Madl, 2009; Oman; Qatar - Giordani Soika, 1957; UAE - Gusenleitner 2010b), Oriental (India; Laos - Gusenleitner, 2011c; Myanmar, Sri Lanka - Wickwar, 1908; Thailand - Gusenleitner, 1988b; Vietnam - Nguyen et al., 2014), Eastern (Iran; Pakistan - Dover, 1925) and Western (Iraq - Giordani Soika, 1970; Israel - Castro & Dvořák, 2009; North Africa - Gusenleitner, 2011c) Palaearctic (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Delta companiforme esuriens* (Fabricius, 1787) (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970). Two subspecies, *Delta esuriens esuriens* (Pashaei Rad et al., 2010) and *Delta esuriens gracile* (de Saussure, 1852) (Ebrahimi & Carpenter, 2008) have been recorded from Iran.

***Delta hottentotta* (de Saussure, 1852)**

Eumenes hottentotta de Saussure, 1852: 63, ♀. - South Africa.

Distribution in Iran: East Azarbaijan, Fars, Khuzestan (Ebrahimi & Carpenter, 2008), Kerman (Pashaei Rad et al., 2010), Sistan-o Baluchestan, South Khorasan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Burkina Faso, Cameroon, Central African Republic, Democratic Republic of Congo, Ethiopia, Gabon, Gambia, Ivory Coast, Kenya, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania - Carpenter et al., 2010; Saudi Arabia, Oman, UAE, Yemen - Gusenleitner, 2013), Eastern (Iran - Ebrahimi & Carpenter, 2008) and Western (Egypt, Jordan, Israel, North Africa - Gusenleitner, 2013) Palaearctic.

Remarks: The subspecies *Delta hottentotum elegans* (de Saussure, 1852) has been recorded from Iran (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008; Pashaei Rad et al., 2010).

***Delta unguiculatum* (Villers, 1789)**

Vespa unguiculata Villers, 1789: 282, ♂. - In Galliae Aust. [France]

Distribution in Iran: Guilan, Mazandaran (Giordani Soika, 1970), Sistan-o Baluchestan (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Tehran (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970).

General distribution: Afrotropical (Saudi Arabia), Eastern (Iran, Turkmenistan) and Western (Caucasus, Cyprus, Europe, Israel, Lebanon, North Africa, Russia, Syria, Turkey) Palaearctic (Faternityga, 2018).

Genus: *Discoelius* Latreille, 1809

Discoelius Latreille, 1809: 140. Type species: *Vespa zonalis* Panzer, 1801. Monotypic.

***Discoelius dufourii* Lepeletier, 1841**

Discoelius dufourii Lepeletier, 1841: 605, ♀. - Saint Séver [France].

Distribution in Iran: North Iran (van der Vecht & Fischer, 1972).

General distribution: Eastern (China, Iran, Kazakhstan, Korea, Mongolia, Russian Far East) and Western Palaearctic (Caucasus, Europe, Russia, Turkey) (Faternityga, 2018).

***Discoelius pictus* Kostylev, 1940**

Discoelius pictus Kostylev, 1940: 140, ♀♂. – Ak-Tach, chaîne Ala-Tau de Talas, près de Tachkent [Uzbekistan].

Distribution in Iran: No locality cited (Kurzenko, 1978).

General distribution: Eastern (Afghanistan - Kurzenko, 1978; Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan) and Western (Russia) Palaearctic (Fategya & Mokrousov, 2019).

***Discoelius zonalis* (panzer, 1801)**

Discoelius zonalis panzer 1801: pl. 18, ♀. – Nürnberg [Germany].

Distribution in Iran: North Iran (Kurzenko, 1977, 1978).

General distribution: Eastern (China, Iran, Japan, Korea, Mongolia, Russia Far East) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic (Fategya, 2018).

Genus: *Eumenes* Latreille, 1802

Eumenes Latreille, 1802: 360. Type species: "*Eumenes coarctata*, Fab." [= *Vespa coarctata* Linnaeus, 1758], by subsequent designation of Latreille, 1810: 438.

***Eumenes coarctatus* (Linnaeus, 1758)**

Vespa coarctata Linnaeus, 1758: 573, ♀. – Linnean Society, London.

Distribution in Iran: Alborz, Khorasan (Gusenleitner, 1972), East Azarbaijan (Ebrahimi & Carpenter, 2008), Kermanshah (Morice, 1921), Kordestan (Ebrahimi & Carpenter, 2008), Tehran (Gusenleitner, 1972; Ebrahimi & Carpenter, 2008).

General distribution: Eastern (China, Iran, Japan, Kazakhstan, Mongolia, Russia Far East) and Western (Caucasus, Cyprus, Europe, Israel, Jordan, North Africa, Russia, Syria, Turkey) Palaearctic (Fategya, 2018).

Remarks: This species has been recorded from Iran as *Eumenes lunulatus ordubadensis* Blüthgen, 1938 (Gusenleitner, 1972; Ebrahimi & Carpenter, 2008) and as *Eumenes coarctatus lunulatus* Fabricius, 1804 (Ebrahimi & Carpenter, 2008).

***Eumenes comberi* Dover, 1925**

Eumenes comberi Dover, 1925: 293, ♀. – Karachi; Shapali, Bombay Pres.

Distribution in Iran: Kerman (Pashaei Rad et al., 2010), Khuzestan (Gusenleitner, 1972), Markazi (Ebrahimi & Carpenter, 2008).

General distribution: Eastern Palaearctic (Iran, Pakistan, Tajikistan), Oriental (India) (Kumar et al., 2017).

Remarks: This species has been recorded from Iran as *Eumenes mirandus* Kostylev, 1940 (Gusenleitner, 1972).

***Eumenes coronatus* (Panzer, 1799)**

Vespa coronata, Panzer, 1799: 12, ♂. – Norimbergae [Germany].

Distribution in Iran: Alborz (Gusenleitner, 1972); No locality cited (Kurzenko, 1977).

General distribution: Eastern (Central Asia, China, Iran, Japan, Kazakhstan) and Western (Azerbaijan, Caucasus, Europe, Israel, Russia, Turkey) Palaearctic (Fategya et al., 2019).

Remarks: The subspecies *Eumenes coronatus detonsus* Blüthgen, 1943 has been recorded from Iran (Gusenleitner, 1972).

***Eumenes crimensis* Blüthgen, 1938**

Eumenes dubius crimensis Blüthgen, 1938: 463, ♀ ♂. – Jalta [Crimea].

Distribution in Iran: Tehran (Gusenleitner, 1972), Zanjan (Abbasi et al., 2008; Ebrahimi & Carpenter, 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (Iran, Kazakhstan, Turkmenistan, Uzbekistan) and Western (Russia) Palaearctic (Fatoryga, 2018).

Remarks: The occurrence of this species in Iran was originally indicated by two subspecies including *Eumenes dubius crimensis* Blüthgen, 1938 (Abbasi et al., 2008; Ebrahimi & Carpenter, 2008; Pashaei Rad et al., 2010) and *Eumenes sareptanus scabrosus* Gusenleitner, 1972 (Gusenleitner, 1972).

***Eumenes dubius* de Saussure, 1852**

Eumenes dubia de Saussure, 1852: 32, ♀ ♂. – France.

Distribution in Iran: Kordestan, Markazi (Ebrahimi & Carpenter, 2008); No locality cited (Gusenleitner, 1972).

General distribution: Eastern (Iran, Kazakhstan, Tajikistan, Turkmenistan) and Western Palaearctic (Caucasus, Cyprus, Europe, Iraq, Israel, Jordan, Lebanon, Russia, Syria, Turkey), Neotropical (Chile - exotic) (Fatoryga, 2017).

Remarks: Two subspecies, *Eumenes dubius dubius* (Ebrahimi & Carpenter, 2008) and *Eumenes dubius palaestinis* Blüthgen, 1938 (Gusenleitner, 1972) are recorded from Iran.

***Eumenes interpositus* Gusenleitner, 1972**

Eumenes interpositus Gusenleitner, 1972: 103, ♀ ♂: Holotype ♀. – Iran.

Distribution in Iran: Alborz (Gusenleitner, 1972).

General distribution: Eastern Palaearctic (Iran, Turkmenistan) (Gusenleitner, 2013).

***Eumenes jarkandensis* Blüthgen, 1938**

Eumenes mediterraneus jarkandensis Blüthgen, 1938: 487, ♀ ♂. – Uss-Lusch (1600 m) bei Jarkand (Ostturkestan) gesammelt [Turkestan].

Distribution in Iran: Alborz, Khorasan (Gusenleitner, 1972), East Azarbaijan, Kordestan (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan) and Western (Azerbaijan, Lebanon, Turkey) Palaearctic (Fatoryga et al., 2019).

***Eumenes mediterraneus* Kriechbaumer, 1879**

Eumenes mediterranea Kriechbaumer, 1879: 85, ♀ ♂. – Dalmatia.

Distribution in Iran: Alborz, Fars, Khorasan (Gusenleitner, 1972), East Azarbaijan, Guilan, Kerman, Khorasan-e Razavi, Kordestan, Markazi, Mazandaran, Qom (Ebrahimi & Carpenter, 2008), Isfahan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan, South Khorasan (Blüthgen & Gusenleitner, 1970), Tehran (Gusenleitner, 1972; Esmaili & Rastegar, 1974; Ebrahimi & Carpenter, 2008), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Afrotropical (Oman, Saudi Arabia, UAE, Yemen), Oceanic (Tahiti - exotic), Eastern (Afghanistan, China, Iran, Kazakhstan, Korea, Kyrgyzstan, Mongolia, Pakistan, Uzbekistan), and Western (Caucasus, Cyprus, Europe, Iraq, Israel, Jordan, Lebanon, North Africa, Russia, Syria, Turkey) Palaearctic (Fatoryga, 2018).

Remarks: Two subspecies *Eumenes mediterraneus quettaensis* Cameron, 1907 (Gusenleitner, 1972) and *Eumenis mediterraneus mediterraneus* (Ebrahimi & Carpenter, 2008; Pashaei Rad et al., 2010) have been recorded from Iran.

***Eumenes modestus* Gusenleitner, 2006**

Eumenes modestus Gusenleitner, 2006: 1361, ♂. – Iran.

Distribution in Iran: Tehran (Gusenleitner, 2006a).

General distribution: Eastern (Iran - Gusenleitner, 2013) and Western (Turkey - Yildirim & Gusenleitner, 2009) Palaearctic.

***Eumenes papillarius* (Christ, 1791)**

Sphex papillaria Christ, 1791: 325 (destroyed).

Distribution in Iran: East Azarbaijan (Ebrahimi & Carpenter, 2008), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (Iran, Kazakhstan, Mongolia, Pakistan) and Western (Azerbaijan, Europe, Israel, Lebanon, Russia, Syria, Turkey) Palaearctic (Fateryga et al., 2019).

***Eumenes punctaticlypeus* Giordani Soika, 1943**

Eumenes (Eumenes) punctaticlypeus Giordani Soika, 1943: 29, ♀♂. – Viterbo [Italy].

Distribution in Iran: North Iran (Kurzenko, 1977).

General distribution: Eastern (Central Asia, Iran, Kazakhstan) and Western (Europe, Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

Remarks: The subspecies *Eumenes punctaticlypeus kostylevi* Kurzenko, 1976 has been recorded from Iran (Kurzenko, 1977).

***Eumenes tripunctatus* (Christ, 1791)**

Sphex tripunctata Christ, 1791: 317 (destroyed).

Distribution in Iran: Markazi (Ebrahimi & Carpenter, 2008); No locality cited (Kurzenko, 1977).

General distribution: Eastern (China, Iran, Kazakhstan, Mongolia, Turkmenistan) and Western (Ukraine, Russia) Palaearctic (Fateryga, 2018).

***Eumenes* sp.**

Distribution in Iran: Hormozgan (Khoobdel et al., 2014).

Genus: *Euodynerus* Dalla Torre, 1904

Euodynerus Dalla Torre, 1904: 38. Type species: *Vespa dantici* Rossi, 1790. Designated by Blüthgen, 1938 (1937): 277.

***Euodynerus (Euodynerus) amplus* Gusenleitner, 2011**

Euodynerus (Euodynerus) amplus Gusenleitner, 2011: 324, ♂. – Iran.

Distribution in Iran: Kerman (Gusenleitner, 2011a).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Euodynerus (Euodynerus) annae* (Kostylev, 1937)**

Odynerus annae Kostylev, 1937: 223, ♀. – Iran.

Distribution in Iran: Kerman (Kostylev, 1937).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Euodynerus (Euodynerus) caspicus (Morawitz, 1873)*Leionotus caspicus* Morawitz, 1873: 295, ♀♂. – Krasnowodsk [Turkmenistan].**Distribution in Iran:** No locality cited ([Antropov & Fateryga, 2017](#)).**General distribution:** Eastern (China, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Turkmenistan) and Western (Armenia, Azerbaijan, Russia) Palaearctic ([Antropov & Fateryga, 2017](#)).***Euodynerus (Euodynerus) curictensis Blüthgen, 1940****Euodynerus curictensis* Blüthgen, 1940: 210, ♀♂. – Insel KrK in Jugoslavien [Croatia].**Distribution in Iran:** Alborz ([Giordani Soika, 1970](#)), Sistan-o Baluchestan ([Blüthgen & Gusenleitner, 1970](#)).**General distribution:** Eastern (Iran, Kazakhstan, Mongolia) and Western (Armenia, Jordan, Europe, Lebanon, North Africa, Russia, Syria, Turkey) Palaearctic ([Fateryga & Mokrousov, 2019](#)).***Euodynerus (Euodynerus) dantici (Rossi, 1790)****Vespa dantici* Rossi, 1790: 89, ♀. – Italia.**Distribution in Iran:** Kerman ([Pashaei Rad et al., 2010](#)).**General distribution:** Oriental (Taiwan, Vietnam), Eastern (Afghanistan, China, Iran, Japan, Kazakhstan, Korea, Russia, Mongolia) and Western (Caucasus, Europe, Israel (?), Jordan, Lebanon, North Africa, Russia, Syria, Turkey) Palaearctic ([Fateryga, 2018](#)).**Remarks:** The subspecies *Euodynerus dantici dantici* has been recorded from Iran ([Pashaei Rad et al., 2010](#)).***Euodynerus (Euodynerus) disconotatus (Lichtenstein, 1884)****Odynerus disconotatus* Lichtenstein, 1884: L. Montpellier (? destroyed).**Distribution in Iran:** Fars, Khorasan-e Razavi, Tehran ([Giordani Soika, 1970](#)), Hormozgan, Kerman, South Khorasan ([Blüthgen & Gusenleitner, 1970](#)), Zanzan ([Abbasi et al., 2008](#); [Pashaei Rad et al., 2010](#)).**General distribution:** Afrotropical (Saudi Arabia), Eastern (Afghanistan, Iran, Kazakhstan, Pakistan) and Western (Caucasus, Cyprus, Europe, Iraq, Jordan, Russia, Turkey) Palaearctic ([Fateryga, 2018](#)).**Remarks:** This species has been recorded from Iran as *Euodynerus sulfuripes* (Morawitz, 1885) ([Giordani Soika, 1970](#); [Blüthgen & Gusenleitner, 1970](#)). The subspecies *Euodynerus disconotatus sulfuripes* (Morawitz, 1885) has been recorded from Iran ([Abbasi et al., 2008](#); [Pashaei Rad et al., 2010](#)).***Euodynerus (Euodynerus) effrenatus Giordani Soika, 1970****Euodynerus (Euodynerus) effrenatus* Giordani Soika, 1970: 157, ♀. – Iran.**Distribution in Iran:** Fars ([Giordani Soika, 1970](#)).**General distribution:** Eastern Palaearctic (Iran) ([Gusenleitner, 2013](#)).***Euodynerus (Euodynerus) fastidiosus (de Saussure, 1853)****Odynerus (Leionotus) fastidiosus* de Saussure, 1853: 154, 189, ♀. – Algeria.**Distribution in Iran:** Alborz, Fars, Khorasan-e Razavi ([Giordani Soika, 1970](#)), Zanzan ([Abbasi et al., 2008](#); [Pashaei Rad et al., 2010](#)).

General distribution: Afrotropical (Oman), Eastern (Afghanistan, China, Iran, Kazakhstan) and Western (Caucasus, Europe, Lebanon, North Africa, Russia, Syria, Turkey) Palaearctic (Fateryga, 2017).

***Euodynerus (Euodynerus) khuzestanicus* Giordani Soika, 1970**

Euodynerus (Euodynerus) khuzestanicus Giordani Soika, 1970: 155, ♀. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Euodynerus (Euodynerus) rufinus* Blüthgen, 1942**

Euodynerus (Euodynerus) rufinus Blüthgen, 1942: 303, ♀. – Transcaspien [Turkmenistan].

Distribution in Iran: Khuzestan (Giordani Soika, 1970), Tehran (Ebrahimi & Carpenter, 2008).

General distribution: Afrotropical (UAE), Eastern (China, Iran, Kazakhstan, Mongolia, Turkmenistan, Uzbekistan) and Western (Armenia, Israel, North Africa, Russia) Palaearctic (Fateryga & Mokrousov, 2019).

Remarks: Two subspecies, *Euodynerus rufinus confictus* Giordani Soika, 1970 (Giordani Soika, 1970) and *Euodynerus rufinus rufinus* (Ebrahimi & Carpenter, 2008) are recorded from Iran.

***Euodynerus (Euodynerus) semidantici* (Giordani Soika, 1952)**

Pseudepipona (Euodynerus) semidantici Giordani Soika, 1952: 47, ♂. – Palestina.

Distribution in Iran: Unclear locality cited (Gusenleitner, 2011a).

General distribution: Eastern (Iran) and Western (Israel, Turkey) Palaearctic (Gusenleitner, 2013).

***Euodynerus (Euodynerus) semisaecularis* (Dalla Torre, 1889)**

Odynerus semisaecularis Dalla Torre, 1889: 125.

Distribution in Iran: Alborz, Khorasan-e Razavi (Giordani Soika, 1970), No locality cited (Gusenleitner, 2013).

General distribution: Afrotropical (UAE - Gusenleitner, 2010a), Eastern (China - Castro & Dvořák, 2010; Iran - Gusenleitner, 2013; Kazakhstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan - Castro & Dvořák, 2010) and Western (Turkey - Gusenleitner, 2013) Palaearctic.

Remarks: Two subspecies, *Euodynerus semisaecularis macedonicus* Blüthgen, 1951 - as *Euodynerus macedonicus* (Blüthgen) (Giordani Soika, 1970) and *Euodynerus semisaecularis semisaecularis* (Dalla Torre, 1889) (Gusenleitner, 2013) have been recorded from Iran.

***Euodynerus (Euodynerus) setosus* Gusenleitner, 1970**

Euodynerus (Euodynerus) setosus Gusenleitner, 1970: 11, ♀♂. – Iran.

Distribution in Iran: South Khorasan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Oman - Gusenleitner, 1994), Eastern Palaearctic (Afghanistan, Iran - Blüthgen & Gusenleitner, 1970).

***Euodynerus (Euodynerus) shirazensis* Giordani Soika, 1970**

Euodynerus shirazensis Giordani Soika, 1970: 162, ♀. – Iran.

Distribution in Iran: Fars (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Euodynerus (Pareuodynerus) breviventris* (Giordani Soika, 1952)**

Pseudepipona (Euodynerus) breviventris Giordani Soika, 1952: 383, ♂. – Turkey.

Distribution in Iran: Fars ([Giordani Soika, 1970](#)).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic ([Gusenleitner, 2013](#)).

Euodynerus (Pareuodynerus) enodatus (Kostylev, 1940)

Odynerus (Pareuodynerus) enodatus Kostylev, 1940: 32, ♀. – Beloutchistan.

Distribution in Iran: Sistan-o Baluchestan ([Hamzavi et al., 2019](#)), No locality cited ([Kostylev, 1940](#)).

General distribution: Eastern Palaearctic (Afghanistan, Iran, Pakistan) ([Gusenleitner, 2013](#)).

Euodynerus (Pareuodynerus) notatus (Jurine, 1807)

Vespa notata Jurine, 1807: 170, ♀. – Geneve [Switzerland].

Distribution in Iran: Mazandaran ([Castro & Dvořák, 2009](#)).

General distribution: Eastern (China, Iran, Korea ([Castro & Dvořák, 2009](#)), Mongolia, Russia) and Western (Europe, Caucasus, North Africa, Russia, Turkey) Palaearctic ([Antropov & Fateryga, 2017](#)).

Remarks: This species has been recorded from Iran as *Euodynerus notatus notatus* ([Castro & Dvořák, 2009](#)).

Euodynerus (Pareuodynerus) posticus (Herrich-Schäffer, 1841)

Odynerus posticus Herrich-Schäffer, 1841: 176, ♀.

Distribution in Iran: Lorestan, Mazandaran, Sistan-o Baluchestan, Tehran ([Ebrahimi & Carpenter, 2008](#)), Guilan ([Blüthgen & Gusenleitner, 1970](#); [Ebrahimi & Carpenter, 2008](#)), Zanjan ([Abbasi et al., 2008](#); [Pashaei Rad et al., 2010](#)).

General distribution: Eastern (Iran) and Western (Armenia, Azerbaijan, Europe, Georgia, Israel, North Africa, Russia, Turkey) Palaearctic ([Fateryga et al., 2019](#)).

Remarks: This species has been recorded from Iran as *Euodynerus posticus punctatissimus* ([Giordani Soika, 1952](#)) ([Blüthgen & Gusenleitner, 1970](#)).

Genus: *Eustenancistrocerus* Blüthgen, 1938

Eustenancistrocerus Blüthgen, 1938: 443,460. Type species: *Odynerus blanchardianus* Saussure, 1855. by original designation.

Eustenancistrocerus askhabadensis (Radoszkowski, 1886)

Odynerus (Lionotus) askhabadensis Radoszkowski, 1886: 47, ♀♂. – Askhabad.

Distribution in Iran: Golestan, Markazi, Sistan-o Baluchestan ([Ebrahimi & Carpenter, 2008](#)), Tehran ([Giordani Soika, 1970](#); [Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern Palaearctic (Iran, Pakistan, Turkmenistan - [Gusenleitner, 2013](#); Uzbekistan - [Giordani Soika, 1943](#)).

Eustenancistrocerus inconstans (de Saussure, 1863)

Odynerus (Stenancistrocerus) inconstans de Saussure, 1863: 217, ♀. – Abyssinie.

Distribution in Iran: Mazandaran ([Ebrahimi & Carpenter, 2008](#)), Tehran ([Giordani Soika, 1970](#)).

General distribution: Afrotropical (Ethiopia, Oman, Saudi Arabia, UAE, Yemen), Eastern (Central Asia, Iran, Pakistan) and Western (Israel, Jordan, North Africa) Palaearctic ([Gusenleitner, 2006c, 2013](#)).

***Eustenancistrocerus jerichoensis* (Von Schulthess, 1928)**

Odynerus jerichoensis von Schulthess, 1928: 73–74, ♀ ♂. – Jericho [Israel].

Distribution in Iran: Alborz (Giordani Soika, 1970), Sistan-o Baluchestan (Hamzavi et al., 2019).

General distribution: Eastern (Iran) and Western (Azerbaijan, Jordan, Israel, Syria, Russia, Turkey) Palaearctic (Fateryga & Mokrousov, 2019).

***Eustenancistrocerus malus* Giordani Soika, 1970**

Eustenancistrocerus (*Eustenancistrocerus*) *malus* Giordani Soika, 1970: 96, ♂. – Iran.

Distribution in Iran: Fars (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Tehran (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Eustenancistrocerus spinosissimus* Gusenleitner, 2000**

Eustenancistrocerus (*Eustenancistrocerus*) *spinosissimus* Gusenleitner, 2000: 934, ♂. – Iran.

Distribution in Iran: Yazd (Gusenleitner, 2000c).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2000c; Gusenleitner, 2013).

***Eustenancistrocerus sulcithorax* Giordani Soika, 1970**

Eustenancistrocerus (*Eustenancistrocerus*) *sulcithorax* Giordani Soika, 1970: 93, ♀♂. – Iran.

Distribution in Iran: Fars, Khuzestan, Tehran (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Giordani Soika, 1970; Gusenleitner, 2013).

***Eustenancistrocerus tegularis* (Morawitz, 1885)**

Lionotus tegularis Morawitz, 1885: 165, ♀♂. – Trauscaucasia [Azerbaijan].

Distribution in Iran: Alborz (Giordani Soika, 1970), Golestan (Ebrahimi & Carpenter, 2008), Khorasan-e Razavi (Giordani Soika, 1970; Pashaei Rad et al., 2006), North Khorasan, Tehran (Pashaei Rad et al., 2006), Zanjan (Pashaei Rad et al., 2006; Abbasi et al., 2008), Khorasan (Kohl & Handlirsch, 1889).

General distribution: Eastern (Iran, Kazakhstan) and Western (Armenia, Azerbaijan, Europe, Israel, Syria, Russia, Turkey) Palaearctic (Fateryga et al., 2019).

Remarks: This species has been recorded from Iran as *Eustenancistrocerus israelensis* Giordani Soika, 1952 (Giordani Soika, 1970; Abbasi et al., 2008) and as *Lionotus tegularis* Morawitz, 1885 (Kohl & Handlirsch, 1889).

***Eustenancistrocerus* (*Parastenancistrocerus*) *amadanensis* (de Saussure, 1855)**

Odynerus (*Ancistrocerus*) *amadanensis* de Saussure, 1855: 214, ♂. – Amadan, en Perse [Iran].

Distribution in Iran: Alborz (Giordani Soika, 1970), Bushehr (Giordani Soika, 1943), East Azarbaijan, Golestan, Markazi, Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008), Fars (Giordani Soika, 1970), Khorasan-e Razavi (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Khuzestan (de Saussure, 1855; Giordani Soika, 1970; Gusenleitner, 2000b; Ebrahimi & Carpenter, 2008), Tehran (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Afrotropical (Saudi Arabia), Eastern (Central Asia, Iran, Kazakhstan, Kyrgyzstan, Pakistan) and Western (Azerbaijan, Cyprus, Europe, Iraq, Israel, North Africa, Russia, Syria, Turkey) Palaearctic (Fateryga et al., 2019).

Remarks: This species has been recorded from Iran as *Ancistrocerus iranensis* Giordani Soika, 1943 (Giordani Soika, 1943), as *Odynerus (Ancistrocerus) amadanensis* de Saussure, 1855 and as *Eustenancistrocerus transitorius* (Moravitz, 1867) (Giordani Soika, 1970). The subspecies *Eustenancistrocerus amadanensis amadanensis* is recorded from Iran (Gusenleitner, 2000b).

***Eustenancistrocerus (Parastenancistrocerus) iranicus* Gusenleitner, 2013**

Eustenancistrocerus (Parastenancistrocerus) iranicus Gusenleitner, 2013: 110, ♂. – Iran.

Distribution in Iran: Fars (Gusenleitner et al., 2013).

Distribution: Eastern Palaearctic (Iran) (Gusenleitner et al., 2013).

***Eustenancistrocerus (Parancistrocerus) khuzestanicus* Giordani Soika, 1970**

Eustenancistrocerus khuzestanicus Giordani Soika, 1970: 97, ♀♂. – Iran.

Distribution in Iran: Khuzestan (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008).

Distribution: Eastern Palaearctic (Iran - Gusenleitner et al., 2013; Pakistan - Gusenleitner, 2006b).

***Eustenancistrocerus* sp.**

Distribution in Iran: South Khorasan (Blüthgen & Gusenleitner, 1970).

Genus: *Extraepipona* Gusenleitner, 2014

Extraepipona Gusenleitner, 2014: 537. Type species: *Extraepipona occulta* Gusenleitner, 2014, by original designation.

***Extraepipona occulta* Gusenleitner, 2014**

Extraepipona occulta Gusenleitner, 2014: 537, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner, 2014).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2014).

Genus: *Gymnomerus* Blüthgen, 1938

Gymnomerus Blüthgen, 1938 (1937): 286. Type species: *Odynerus laevipes* Shuckard, 1837, by original designation.

***Gymnomerus laevipes* (Shuckard, 1837)**

Odynerus laevipes Shuckard, 1837: 495, ♀♂. – Blackwater, Hampshire [England].

Distribution in Iran: Tehran (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Kazakhstan, Mongolia, Russia (Antropov & Fateryga, 2017)) and Western (Caucasus, Europe, North Africa, Russia (Antropov & Fateryga, 2017), Turkey, Ukraine (Yildirim & Kojima, 1999) Palaearctic (Gusenleitner, 2013).

Genus: *Hemipterochilus* Ferton, 1909

Hemipterochilus Ferton, 1909 (1908): 572. Type species: *Odynerus terricola* Mocsary, 1883 (= *Hemipterochilus bembeciformis terricola*), by monotypy.

***Hemipterochilus hohlbecki* (Kostylev, 1934)**

Pterochilus hohlbecki Kostylev, 1934: 120, ♀. – Transkaspian [Turkmenistan]

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Afghanistan, Iran, Turkmenistan) (Gusenleitner, 2013).

***Hemipterochilus punctiventris* (Morawitz, 1885)**

Pterochilus punctiventris Morawitz, 1885: 143, ♀. – Iran.

Distribution in Iran: Semnan (Morawitz, 1885), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Pterochilus punctiventris* Morawitz, 1885 (Blüthgen & Gusenleitner, 1970). The subspecies *Hemipterochilus punctiventris subquadricolor* Gusenleitner, 1970 has also been recorded from Iran (Blüthgen & Gusenleitner, 1970).

***Hemipterochilus simplex* Gusenleitner, 2000**

Hemipterochilus simplex Gusenleitner, 2000: 927, ♀♂. – Turkey.

Distribution in Iran: Hamadan (Gusenleitner, 2000c).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic (Gusenleitner, 2013).

Genus: *Ischnogasteroides* Magretti, 1884

Ischnogasteroides Magretti, 1884 (1883): 603. Type species: *Ischnogasteroides flavus* Magretti, 1884 (= *Ischnogasteroides leptogaster flavus*), by monotypy.

***Ischnogasteroides picteti* (de Saussure, 1852)**

Eumenes picteti de Saussure, 1852: 67, ♀♂. – France.

Distribution in Iran: Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008); No locality cited (Gusenleitner, 2013).

General distribution: Eastern (Iran - Ebrahimi & Carpenter, 2008; Turkmenistan, Kazakhstan - van der Vecht & Fischer, 1972; Kyrgyzstan - Gusenleitner, 2011b) and Western (Europe; Turkey - Gusenleitner, 1988a; Yildirim & Kojima, 1999) Palaearctic.

Remarks: The subspecies *Ischnogasteroides picteti tenuis* (Morawitz, 1888) has been recorded from Iran (Gusenleitner, 2013).

***Ischnogasteroides zarudnyi* (Kostylev, 1939)**

Labus zarudnyi Kostylev, 1939: 166, ♀. – Iran.

Distribution in Iran: Kerman (Kostylev 1939), Markazi (Ebrahimi & Carpenter, 2008), South Khorasan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern (Afghanistan, Iran - Gusenleitner, 2013) and Western (Turkey - Gusenleitner, 1988a) Palaearctic.

Remarks: This species has been recorded from Iran as *Eumenes zarudnyi* Kostylev, 1939 (Kostylev, 1939).

***Ischnogasteroides* sp.**

Distribution in Iran: Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

Genus: *Jucancistrocerus* Blüthgen, 1938

Jucancistrocerus Blüthgen, 1938: 442, 460. Type species: *Odynerus jucundus* Mocsary, 1883, by monotypy.

Jucancistrocerus (Eremodynerus) atrofasciatus (Morawitz, 1885)*Lionotus atrofasciatus* Morawitz, 1885: 162, ♀♂. – China montibus Alaschanensibus.**Distribution in Iran:** No locality cited ([Gusenleitner, 2013](#)).**General distribution:** Eastern Palaearctic (Central Asia, Iran - [Gusenleitner, 2013](#); China - [Tan et al., 2018](#)).***Jucancistrocerus caspicus Giordani Soika, 1970****Jucancistrocerus caspicus* Giordani Soika, 1970: 102, ♀♂. – Iran.**Distribution in Iran:** Alborz ([Giordani Soika, 1970](#)).**General distribution:** Eastern (Iran, Kazakhstan) and Western (Armenia, Azerbaijan, Georgia, Europe, Russia, Turkey) Palaearctic ([Fateryga et al., 2019](#)).***Jucancistrocerus citreodecoratus Giordani Soika, 1970****Jucancistrocerus citreodecoratus* Giordani Soika, 1970: 104, ♀. – Iran.**Distribution in Iran:** Alborz ([Giordani Soika, 1970](#); [Gusenleitner, 2010a](#)), Kordestan, Markazi ([Ebrahimi & Carpenter, 2008](#)), Sistan-o Baluchestan ([Hamzavi et al., 2019](#)).**General distribution:** Eastern (Iran) and Western (Turkey, Serbia) Palaearctic ([Gusenleitner, 2013](#)).***Jucancistrocerus jucundus (Mocsary, 1883)****Odyneus (Ancistrocerus) jucundus* Mocsary, 1883: 49, ♀♂. – Hungária centralis (Budapestinum) et Asia minor (Brussa.).**Distribution in Iran:** No locality cited ([Ebrahimi & Carpenter, 2008](#)).**General distribution:** Eastern (Iran - [Ebrahimi & Carpenter, 2008](#); Turkmenistan) and Western (Europe, Iraq, Turkey) Palaearctic ([Gusenleitner, 2013](#)).**Remarks:** This species has originally been recorded from Iran as *Jucancistrocerus jucundus deceptrix* (Morice, 1921) ([Ebrahimi & Carpenter, 2008](#)).***Jucancistrocerus pareumeniformis Giordani Soika, 1973****Jucancistrocerus pareumeniformis* Giordani Soika, 1973: 102, ♂ – Iran.**Distribution in Iran:** Guilan ([Giordani Soika, 1973](#)).**General distribution:** Eastern Palaearctic (Iran) ([Giordani Soika, 1973](#)).**Genus: *Katamenes* Meade-Waldo, 1910***Katamenes* Meade-Waldo, 1910: 46. Type species: *Katamenes watsoni* Meade-Waldo, 1910, by monotypy.***Katamenes dimidiatus (Brullé, 1832)****Eumenes dimidiatus* Brullé, 1832: 361, ♀. – Plaine de Modon [Greece].**Distribution in Iran:** East Azarbaijan, Fars, Markazi ([Ebrahimi & Carpenter, 2008](#)), Tehran ([Giordani Soika, 1970](#)), Zanzan ([Abbasi et al., 2008](#); [Pashaie Rad et al., 2010](#)).**General distribution:** Oriental (India - [Kumar et al., 2019](#)), Eastern (Afghanistan, Central Asia, Iran, Kazakhstan, Mongolia, Pakistan) and Western (Caucasus, Cyprus, Europe, Israel, Russia, Syria, Turkey) Palaearctic ([Fateryga, 2018](#)).

Remarks: The subspecies *Katamenes dimidiatus dimidiatus* (Pashaei Rad et al., 2010) and *Katamenes dimidiatus montanus* (Nurse, 1904) (Giordani Soika, 1970) have been recorded from Iran.

***Katamenes flavigularis* (Blüthgen, 1951)**

Eumenes (*Katamenes*) *arbustorum flavigularis* Blüthgen, 1951:176.

Distribution in Iran: Qazvin, Tehran (Ebrahimi & Carpenter, 2008).

General distribution: Oriental (India - Kumar et al., 2019), Eastern (Afghanistan, Iran, Tajikistan) and Western (Europe, Caucasus; Israel - Kumar et al., 2019; Lebanon, Russia, Syria, Turkey) Palaearctic (Antropov & Fateryga, 2017).

***Katamenes niger* (Brullé, 1839)**

Eumenes niger Brullé, 1839: 89, ♀♂. – Canaries [Canary Islands].

Distribution in Iran: Unclear locality cited (Giordani Soika, 1970).

General distribution: Afrotropical (Saudi Arabia), Eastern (Iran - Giordani Soika, 1970) and Western (Algeria - Saunders, 1905; Canary Islands, Egypt, Jordan, Israel, Morocco) Palaearctic (Gusenleitner, 2013).

***Katamenes sichelii* (de Saussure, 1852)**

Eumenes sichelii de Saussure, 1852: 36, ♀. – Albania.

Distribution in Iran: Alborz (Giordani Soika, 1949, 1970), Lorestan (Giordani Soika, 1949), Markazi (Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970), Tehran (Castro & Dvořák, 2009).

General distribution: Afrotropical (Saudi Arabia, UAE), Eastern (Afghanistan, China, Iran, Kazakhstan, Mongolia, Turkmenistan - Giordani Soika, 1966; Uzbekistan - Castro & Dvořák, 2009) and Western (Armenia, Azerbaijan, Europe, Iraq, India, Israel, Jordan, North Africa, Russia, Turkey) Palaearctic (Fateryga et al., 2019).

Remarks: This species has been recorded from Iran as *Eumenes sichelii* var. *baeri* (Radoszkowski, 1865) (Giordani Soika, 1949). Three subspecies *Katamenes sichelii baerii* (Radoszkowski, 1865) (Giordani Soika, 1970), *Katamenes sichelii fulvov* (Eversmann, 1854) as *Eumenes* (*Katamenes*) *sichelii* var. *Luristanensis* Giordani Soika, 1949 (Giordani Soika, 1949) and *Katamenes sichelii tauriae* (Giordani Soika, 1960) (Blüthgen & Gusenleitner, 1970; Castro & Dvořák, 2009) have been recorded from Iran.

***Katamenes tauricus* (de Saussure, 1855)**

Eumenes tauricus de Saussure, 1855: 137, Crimée.

Distribution in Iran: Alborz (Giordani Soika, 1970), Tehran (Ebrahimi & Carpenter, 2008); No locality cited (Giordani Soika, 1949).

General distribution: Oriental (India), Eastern (Afghanistan, China, Iran, Kazakhstan, Kyrgyzstan, Mongolia) and Western (Russia) Palaearctic (Fateryga, 2018).

Remarks: The subspecies *Katamenes tauricus viratus* (Giordani Soika, 1949) has been recorded from Iran, as *Katamenes sesquicinctus viratus* (Giordani Soika, 1949) (Giordani Soika, 1970) and as *Eumenes* (*Katamenes*) *latipes* var. *viratus* Giordani Soika, 1949 (Giordani Soika, 1949).

Genus: *Knemodynerus* Blüthgen, 1940

Knemodynerus Blüthgen, 1940: 43. Type species: *Odynerus excellens* Perez, 1907, by original designation.

***Knemodynerus excellens* (Pérez, 1907)**

Odynerus (*Lionotus*) *excellens* Pérez, 1907: 493, ♀♂. – Dibba [Oman], ♀; Bahrein, ♂.

Distribution in Iran: Kerman (Pashaei Rad et al., 2010), Khuzestan (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970), Markazi (Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970), Zanjan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Afrotropical (Oman, Qatar, Saudi Arabia, UAE - Gusenleitner, 2013), Eastern Palaearctic (Iran, Turkmenistan - Gusenleitner, 2013; Pakistan - Gusenleitner, 2006c), Oriental (India) (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Euodynerus excellens* (Pérez, 1907) (Giordani Soika, 1970).

Genus: *Labochilus* Blüthgen, 1939

Labochilus Blüthgen, 1939: 12. Type species: *Pterochilus linguarius* Saunders, 1905, by monotypy.

***Labochilus orientalis* Gusenleitner, 2001**

Labochilus orientalis Gusenleitner, 2001: 680, ♀♂: Holotype ♀. – Iran.

Distribution in Iran: Hormozgan (Gusenleitner, 2001).

General distribution: Eastern (Iran) and Western (Jordan) Palaearctic (Gusenleitner, 2001).

Genus: *Leptochilus* de Saussure, 1853

Leptochilus Saussure, 1853: 233. Type species: *Pterochilus mauritanicus* Lepeletier, 1841. Designated by Ashmead, 1902.

***Leptochilus* (*Lionotulus*) *callidus* (Kostylev, 1940)**

Odynerus (*Lionotulus*) *callidus* Kostylev, 1940: 33, ♀♂. – Syr-Daria [Kazakhstan].

Distribution in Iran: Kerman (Gusenleitner, 2012a).

General distribution: Eastern Palaearctic (Central Asia, Iran, Mongolia) (Gusenleitner, 2013).

***Leptochilus* (*Lionotulus*) *fuscipes* Gusenleitner, 1985**

Leptochilus (*Lionotulus*) *fuscipes* Gusenleitner, 1985: 98, ♂. – Iran.

Distribution in Iran: Hamadan, Qazvin (Gusenleitner, 1985b).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic (Gusenleitner, 1985b).

***Leptochilus* (*Lionotulus*) *lorestanicus* Gusenleitner, 1995**

Leptochilus (*Lionotulus*) *lorestanicus* Gusenleitner, 1995: 174, ♀. – Iran.

Distribution in Iran: Lorestan (Gusenleitner, 1995a).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Leptochilus* (*Lionotulus*) *membranaceus* (Morawitz, 1867)**

Odynerus (*Leionotus*) *membranaceus* Morawitz, 1867: 135, ♀. – Gouvernement von Saratov.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern (Iran, Kazakhstan, Turkmenistan, Uzbekistan) and Western (Caucasus, Israel, Europe, Russia, Turkey) Palaearctic (Fateryga, 2018).

***Leptochilus (Lionotulus) neutralis* (Giordani Soika, 1943)**

Odynerus (Leptochilus) neutralis Giordani Soika, 1943: 12, ♀. – Asia minore, Amasia [Turkey].

Distribution in Iran: Khuzestan (Giordani Soika, 1961).

General distribution: Eastern (Iran - Giordani Soika, 1961) and Western (Israel - Giordani Soika, 1952; Syria - Giordani Soika, 1970; Turkey - Gusenleitner, 2013) Palaeartic.

***Leptochilus (Lionotulus) ressl* Gusenleitner, 1985**

Leptochilus (Lionotulus) ressl Gusenleitner, 1985: 88, ♂. – Iran.

Distribution in Iran: Lorestan (Gusenleitner, 1985b).

General distribution: Eastern (Iran) and Western (Turkey - Gusenleitner, 1988a) Palaeartic.

***Leptochilus (Lionotulus) simurgh* Gusenleitner, 2016**

Leptochilus (Lionotulus) simurgh Gusenleitner, 2016: 91, ♀♂. – Iran.

Distribution in Iran: Alborz (Gusenleitner, 2016).

General distribution: Eastern Palaeartic (Iran) (Gusenleitner, 2016).

***Leptochilus (Neoleptochilus) regulus* (de Saussure, 1855)**

Odynerus (Odynerus div. Parodynerus) regulus de Saussure, 1855: 247, ♀♂. – Algeria.

Distribution in Iran: East Azarbaijan (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran) and Western (Caucasus, Cyprus, Jordan, Europe, North Africa, Russia, Syria, Turkey) Palaeartic (Fategya, 2017).

Genus: *Microdynerus* Thomson, 1874

Microdynerus Thomson, 1874: 58. Type species: *Odynerus exilis* Herrich-Schäffer, 1839. Designated by Jones, 1937.

***Microdynerus (Alastorynerus) microdynerus* (Dalla Torre, 1889)**

Odynerus microdynerus Dalla Torre, 1889: 124.

Distribution in Iran: No locality cited (Gusenleitner, 1997a).

General distribution: Eastern (Iran, Kazakhstan, Tajikistan) and Western (Armenia, Azerbaijan, Europe, Georgia, Jordan, Russia, Turkey) Palaeartic (Fategya et al., 2019).

***Microdynerus (Microdynerus) atriceps* Morawitz, 1895**

Microdynerus atriceps Morawitz, 1895: 485, ♀. – Transcaucasia, Helenendorf [Azerbaijan].

Distribution in Iran: Qazvin (Gusenleitner, 1979).

General distribution: Eastern (Iran, Turkmenistan) and Western (Azerbaijan - Morawitz, 1895; Greece - Gusenleitner, 2008; Israel, Turkey) Palaeartic (Gusenleitner, 2013).

***Microdynerus (Pseudomicrodynerus) anatolicus* (Blüthgen, 1938)**

Pseudomicrodynerus (Pachymicrodynerus) anatolicus Blüthgen, 1938: 456, ♀. – Kleinasien [without details].

Distribution in Iran: No locality cited (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran - Ebrahimi & Carpenter, 2008) and Western Palaeartic (Israel, Syria, Turkey) (Gusenleitner, 2013).

Microdynerus (Pseudomicrodynerus) parvulus (Herrich-Schäffer, 1838)*Odynerus parvulus* Herrich-Schäffer, 1838: 19, ♀♂. – bei Regensburg [Germany].**Distribution in Iran:** No locality cited (Gusenleitner, 1979).**General distribution:** Eastern (Iran, Kazakhstan, Uzbekistan) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic (Fateryga, 2018).**Genus: *Odynerus* Latreille, 1802***Odynerus* Latreille, 1802: 362. Type species: *Vespa spinipes* L., 1758. Designated by Shuckard, 1837.***Odynerus (Odynerus) ezechiae von Schulthess, 1924****Odynerus (Hoplopus) ezechiae* von Schulthess, 1924: 290, ♂. – Constantinople [Turkey], Jerusalem [Israel].**Distribution in Iran:** No locality cited (Gusenleitner, 1998a).**General distribution:** Eastern (Iran, Uzbekistan) and Western (Greece, Israel, Jordan, Turkey) Palaearctic (Gusenleitner, 2013).***Odynerus (Odynerus) femoratus de Saussure, 1856****Odynerus (Epipona div. Hoplopus) femoratus* de Saussure, 1856: 310, ♀♂. – Paris [France].**Distribution in Iran:** Alborz (Giordani Soika, 1970).**General distribution:** Eastern (Iran) and Western (Caucasus, Europe, Israel, Russia, Syria, Turkey) Palaearctic (Antropov & Fateryga, 2017).***Odynerus (Odynerus) leucopus (Blüthgen, 1941)****Hoplomerus (Hoplomerus) leucopus* Blüthgen, 1941: 310, 331, ♀♂. – Iran.**Distribution in Iran:** Bushehr (Blüthgen, 1941), Ilam (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Kermanshah, Khuzestan (Giordani Soika, 1970).**General distribution:** Eastern (Iran) and Western (Israel, Syria) Palaearctic (Gusenleitner, 2013).**Remarks:** This species has been recorded from Iran as *Hoplomerus leucopus* Blüthgen, 1941 (Blüthgen, 1941).***Odynerus (Odynerus) melanocephalus (Gmelin, 1790)****Vespa melanocephalus* Gmelin, 1790: 2760. Europa (destroyed).**Distribution in Iran:** Alborz (Giordani Soika, 1970), East Azarbaijan, Golestan (Ebrahimi & Carpenter, 2008), No locality cited (du Buysson, 1912; Kostylev, 1929).**General distribution:** Eastern (Afghanistan, Kazakhstan, Iran, Uzbekistan) and Western (Armenia, Caucasus, Cyprus, Europe, Iraq, Israel, Jordan, Russia, Syria, Turkey) Palaearctic (Antropov & Fateryga, 2017).**Remarks:** This species has been recorded from Iran as *Hoplomerus armeniacus* Morawitz, 1885 (Kostylev, 1929). The subspecies *Odynerus melanocephalus armeniacus* (Morawitz, 1885) has been recorded from Iran (Ebrahimi & Carpenter, 2008).***Odynerus (Spinicoxa) albopictus de Saussure, 1856****Odynerus (Epipona div. Hoplopus) albopictus* de Saussure, 1856: 312, ♂. – L'île de Rhodes [Greece].**Distribution in Iran:** East Azarbaijan (Ebrahimi & Carpenter, 2008), Khuzestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern (Iran, Kazakhstan, Turkmenistan, Uzbekistan) and Western (Caucasus, Europe, Iraq, Israel, Jordan, North Africa, Russia, Syria, Turkey) Palaearctic (Fateryga, 2018).

Remarks: The subspecies *Odynerus albopictus calcaratus* (Morawitz, 1885) has been recorded from Iran (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008).

***Odynerus (Spinicoxa) nigrospinosus* (Morawitz, 1895)**

Hoplomerus nigrospinosus Morawitz, 1895: 436, ♀♂. -Transcaspia, Serachs [Turkmenistan].

Distribution in Iran: Khuzestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern (Iran - Blüthgen & Gusenleitner, 1970; Turkmenistan) and Western (Armenia, Egypt, Israel, Turkey) Palaearctic (Gusenleitner, 2013).

Genus: *Onychopterocheilus* Blüthgen, 1955

Onychopterocheilus Blüthgen, 1955: 407. Type species: *Odynerus daw* Dusmet, 1903, by original designation.

***Onychopterocheilus (Acutopterocheilus) spheciformis* (Gusenleitner, 1970)**

Pterocheilus spheciformis Gusenleitner, 1970: 9, ♀. - Iran.

Distribution in Iran: Khuzestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Onychopterocheilus (Onychopterocheilus) hellenicus* (Morawitz, 1885)**

Pterochilus hellenicus Morawitz, 1885: 137, ♀. - Greece.

Distribution in Iran: No locality cited (Gusenleitner, 2013).

General distribution: Eastern (Iran) and Western (Balkans, Lebanon, Italy, Turkey, Syria) Palaearctic (Gusenleitner, 2013).

Remarks: The subspecies *Onychopterocheilus hellenicus syriacus* (Blüthgen, 1952) has been recorded from Iran (Gusenleitner, 2013).

***Onychopterocheilus mavromoustakisi* (Giordani Soika, 1970)**

Pterocheilus mavromoustakisi Giordani Soika, 1970: 46, ♀. - Iran.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern (Iran) and Western (Lebanon, Turkey) Palaearctic (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Pterocheilus mavromoustakisi* Giordani Soika, 1970 (Giordani Soika, 1970).

***Onychopterocheilus stiziformis* (Gusenleitner, 1970)**

Pterocheilus stiziformis Gusenleitner, 1970: 7, ♀. - Iran.

Distribution in Iran: Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (UAE), Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Genus: *Paragymnomerus* Blüthgen, 1938

Paragymnomerus Blüthgen, 1938 (1937): 286. Type species: *Odynerus spiricornis* Spinola, 1808, by original designation.

Paragymnomerus amitinorum* Blüthgen, 1952Paragymnomerus amitinorum* Blüthgen, 1952: 4, ♀♂. – Tiberias [Israel].**Distribution in Iran:** No locality cited (Gusenleitner, 2013).**General distribution:** Eastern (Iran) and Western (Croatia, Greece, Israel, Turkey) Palaearctic (Gusenleitner, 2013).***Paragymnomerus mammillatus* (Morawitz, 1885)***Hoplomerus mammillatus* Morawitz, 1885: 149, ♀. – Iran.**Distribution in Iran:** Semnan (Morawitz, 1885).**General distribution:** Eastern Palaearctic (Iran) (Gusenleitner, 2013).**Remarks:** This species has been recorded from Iran as *Hoplomerus mammillatus* Morawitz, 1885 (Morawitz, 1885).***Paragymnomerus spiricornis* (Spinola, 1808)***Odynerus spiricornis* Spinola, 1808: 257, ♂. – Genuam [Italy].**Distribution in Iran** No locality cited (Gusenleitner, 2013).**General distribution:** Eastern (Iran - Gusenleitner, 2013; Turkestan - van der Vecht & Fischer, 1972) and Western (Armenia, Europe, Turkey) Palaearctic (Gusenleitner, 2013).**Genus: *Paraleptomenes* Giordani Soika, 1970***Paraleptomenes* Giordani Soika, 1970: 79. Type species: *Paraleptomenes nurseanus* Giordani Soika, 1970, by original designation.***Paraleptomenes miniatus* (de Saussure, 1855)***Odynerus miniatus* de Saussure, 1855: 249, ♀. – Les Indes orientales.**Distribution in Iran:** Kerman (Blüthgen & Gusenleitner, 1970; Pashaei Rad et al., 2010).**Distribution:** Afrotropical (Mauritius), Eastern Palaearctic (China - Tan et al., 2018; Iran, Pakistan), Oriental (India, Taiwan) (Rafi et al., 2017).**Remarks:** The subspecies *Paraleptomenes miniatus miniatus* (de Saussure, 1855) has been recorded from Iran (Pashaei Rad et al., 2010).**Genus: *Paravespa* Radoszkowski, 1886***Paravespa* Radoszkowski, 1886: 46. Type species: *Hoplomerus komarowi* Radoszkowski, 1886 (= *Hoplomerus quadricolor* Morawitz, 1885), by monotypy.***Paravespa grandis* (Morawitz, 1885)***Hoplomerus grandis* Morawitz, 1885: 159, ♂. – Persia boreali, Scharud [Iran].**Distribution in Iran:** Semnan (Morawitz, 1885), Sistan-o Baluchestan (Hamzavi et al., 2019); No locality cited (Ebrahimi & Carpenter, 2008).**General distribution:** Eastern (Afghanistan - Gusenleitner, 2013; Iran, Turkmenistan - Morawitz, 1885) and Western (Azerbaijan - Kokujev, 1912; Lebanon - Gusenleitner, 2013; Turkey - Giordani Soika, 1970) Palaearctic.**Remarks:** This species has been recorded from Iran as two separate species including *Hoplomerus grandis* Morawitz, 1885 and *Hoplomerus persa* Morawitz, 1885 (Morawitz, 1885). The subspecies *Paravespa grandis caucasica* (Kokujev, 1912) has been recorded from Iran (Ebrahimi & Carpenter, 2008).

***Paravespa mimetica* (Von Schulthess, 1924)**

Odynerus mimeticus Von Schulthess, 1924: 284, ♀♂. – Jericho [Israel].

Distribution in Iran: Khuzestan (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008).

General distribution: Afrotropical (Saudi Arabia), Eastern (Iran, Turkmenistan) and Western (Armenia - Bialynicki-Birula, 1926; Israel, Turkey) Palaearctic (Gusenleitner, 2013).

***Paravespa quadricolor* (Morawitz, 1885)**

Hoplomera quadricolor Morawitz, 1885: 146, ♀. – Territorio Transcaspico, Krasnowodsk [Turkmenistan].

Distribution in Iran: Sistan-o Baluchestan (Bialynicki-Birula, 1926; Ebrahimi & Carpenter, 2008); No locality cited (Giordani Soika, 1970).

General distribution: Eastern (Afghanistan, Iran, Turkmenistan) and Western (Turkey - Gusenleitner, 1988b) Palaearctic (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Hoplomeres quadricolor* Morawitz, 1885 (Bialynicki-Birula, 1926).

***Paravespa rex* (von Schulthess, 1924)**

Odynerus (Hoplopus) rex von Schulthess, 1924: 284, 285, ♀♂. – Turkestan, Kisilkum.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern (Iran, Kazakhstan, Kyrgyzstan, Uzbekistan) and Western (Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

Genus: *Parodontodynerus* Blüthgen, 1938

Parodontodynerus Blüthgen, 1938 (1937): 280. Type species: *Eumenes ephippium* Klug, 1817, by original designation.

***Parodontodynerus aramaeus* Blüthgen, 1955**

Parodontodynerus aramaeus Blüthgen, 1955: 27, ♀. – Israel.

Distribution in Iran: Fars, Khuzestan (Giordani Soika, 1961).

General distribution: Eastern (Iran) and Western (Turkey, Syria - Giordani Soika, 1970; Israel) Palaearctic (Gusenleitner, 2013).

Remarks: This species has originally been recorded from Iran as *Odontodynerus ephippium eremicus* Giordani Soika, 1961 (Giordani Soika, 1961).

***Parodontodynerus ephippium* (Klug, 1817)**

Eumenes ephippium Klug, 1817: 264. – Dalmatiae insulae [Croatia].

Distribution in Iran: Alborz (Giordani Soika, 1970), Zanjan (Pashaei Rad et al., 2006; Abbasi et al., 2008).

General distribution: Eastern (Iran, Kazakhstan, Turkmenistan, Uzbekistan) and Western (Armenia, Azerbaijan, Europe, Lebanon, Russia, Turkey) Palaearctic (Fateryga et al., 2019).

***Parodontodynerus rufinus* (Kostylev, 1940)**

Odynerus (Parodontodynerus) ephippium rufinus Kostylev, 1940: 30, ♀. – Iran.

Distribution in Iran: Kerman (Kostylev, 1940).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Odynerus (Parodontodynerus) ephippium rufinus* Kostylev, 1940 (Kostylev, 1940).

Genus: *Pseudepipona* de Saussure, 1856

Pseudepipona de Saussure 1856: 309. Type species: *Odynerus herrichii* Saussure, 1856, by monotypy.

***Pseudepipona (Deuterepipona) tricolor* Gusenleitner, 1976**

Pseudepipona (Pseudepipona) tricolor Gusenleitner, 1976: 115, ♀♂. – Daghestan [Russia].

Distribution in Iran: No locality cited (Gusenleitner, 2013).

General distribution: Eastern (Iran, Kazakhstan) and Western (Russia) Palaeartic (Fateryga et al., 2017).

***Pseudepipona (Pseudepipona) herrichii* (de Saussure, 1856)**

Odynerus (Epipona div. *Pseudepipona) herrichii* de Saussure, 1856: 309, ♀♂. – Regensburg [Germany].

Distribution in Iran: No locality cited (Gusenleitner, 1998b).

General distribution: Eastern Palaeartic (China; Iran - Gusenleitner, 1998b; Kazakhstan, Kyrgyzstan, Mongolia, Russia, Turkmenistan, Uzbekistan), Nearctic (North America), Western Palaeartic (Armenia, Azerbaijan, Caucasus, Europe, North Africa, Russia, Syria, Turkey) (Fateryga & Mokrousov, 2019).

***Pseudepipona (Pseudepipona) lativentris* (de Saussure, 1855)**

Pseudepipona (Odynerus div. *Epsilon) lativentris* de Saussure, 1855: 275, ♀. – Le Midi de la France. Montpellier [France].

Distribution in Iran: Tehran (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Central Asia; Iran - Ebrahimi & Carpenter, 2008) and Western (Armenia, Europe, Lebanon, Israel, North Africa, Turkey) Palaeartic (Gusenleitner, 2013).

***Pseudepipona (Pseudepipona) peculiaris* (Morawitz, 1895)**

Odynerus (Lionotus) peculiaris Morawitz, 1895: 469, ♀. – Mons Bogdo [Russia].

Distribution in Iran: Semnan (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Kazakhstan) and Western (Russia) Palaeartic (Antropov & Fateryga, 2017).

***Pseudepipona (Pseudepipona) priesneri* Gusenleitner, 1970**

Pseudepipona priesneri Gusenleitner, 1970: 10, ♀♂. – Saudi Arabia.

Distribution in Iran: Khuzestan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Saudi Arabia), Eastern Palaeartic (Iran) (Blüthgen & Gusenleitner, 1970).

***Pseudepipona (Pseudepipona) sellata* (Morawitz, 1885)**

Lionotus sellatus Morawitz, 1885: 172, ♀♂. – Deserto Kirgisorum. Mons Bogdo [Russia].

Distribution in Iran: Southern Iran (van der Vecht & Fischer, 1972).

General distribution: Eastern (Iran, Kazakhstan, Turkmenistan) and Western (Azerbaijan, Russia, Turkey) Palaeartic (Fateryga, 2017).

Genus: *Pseudodontodynerus* Blüthgen, 1939

Pseudodontodynerus Blüthgen, 1939: 249. Type species: *Odynerus pretiosus* Dusmet, 1928, by monotypy.

***Pseudodontodynerus peculiariventris* (Giordani Soika, 1952)**

Odontodynerus peculiariventris Giordani Soika, 1952: 50, ♀. – Tiberias [Israel].

Distribution in Iran: Fars (Giordani Soika, 1970), Sistan-o Baluchestan (Hamzavi et al., 2019).

General distribution: Eastern (Iran) and Western (Israel) Palaearctic (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Pseudodontodynerus peculiariventris salsus* (Giordani Soika, 1970) (Giordani Soika, 1970).

Genus: *Pseudosymmorphus* Blüthgen, 1938

Pseudosymmorphus Blüthgen, 1938 (1937): 293. Type species *Odynerus hindenburgi* Dusmet, 1917, by original designation.

***Pseudosymmorphus angulatus* Gusenleitner & Ockermüller, 2018**

Pseudosymmorphus angulatus Gusenleitner & Ockermüller, 2018: 1092, ♀♂. – Iran.

Distribution in Iran: Lorestan (Gusenleitner & Ockermüller, 2018).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner & Ockermüller, 2018).

***Pseudosymmorphus capillus* Gusenleitner & Ockermüller, 2018**

Pseudosymmorphus capillus Gusenleitner & Ockermüller, 2018: 1094, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner & Ockermüller, 2018).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner & Ockermüller, 2018).

Genus: *Psiliglossa* S. S. Saunders, 1872

Psiliglossa S.S Saunders, 1872: 42. New name for *Stenoglossa* de Saussure.

***Psiliglossa algeriensis* E. Saunders, 1905**

Psiloglossa algeriensis E. Saunders, 1905: 400, ♀♂. – Biskar [Algeria].

Distribution in Iran: Hormozgan (Gusenleitner, 1973a, 2011a); No locality cited (Gusenleitner, 2013).

General distribution: Afrotropical (UAE - Gusenleitner, 2010b), Eastern (Iran) and Western (Algeria, Israel; Jordan - Gusenleitner, 2011a; Libya, Tunisia; Turkey - Gusenleitner, 2011a) Palaearctic (Castro & Dvořák, 2009).

Remarks: This species has been recorded from Iran as *Psiliglossa anatolica* Giordani Soika, 1979 (Gusenleitner 2013).

***Psiliglossa pulchra* Morawitz, 1895**

Psiloglossa pulchra Morawitz, 1895: 410, ♀. Transcaspia: Serachs [Turkmenistan].

Distribution in Iran: Kohgiluyeh-va Boyerahmad (Gusenleitner, 2004); No locality cited (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran - Ebrahimi & Carpenter, 2008; Kazakhstan, Kyrgyzstan, Turkmenistan) and Western (Armenia) Palaearctic (Mokrousov & Zryanin, 2015).

Remarks: The subspecies *Psiliglossa pulchra zhelochootsevi* Panfilov, 1968 has been recorded from Iran (Gusenleitner, 2004).

Genus: *Pterocheilus* Klug, 1805

Pterocheilus Klug, 1805: 143. Type species: *Vespa phalerata* Panzer, 1797. Designated by Blanchard, 1840.

***Pterocheilus chobauti* Dusmet, 1928**

Pterocheilus chobauti Dusmet, 1928: 109, ♀. – Algeria.

Distribution in Iran: Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Oman - Guichard, 1986; Saudi Arabia), Eastern (Iran) and Western (Algeria, Egypt; Israel - Giordani Soika, 1970; Morocco; Syria - Giordani Soika, 1970; Tunisia) Palaearctic (Gusenleitner, 2013).

Remarks: The subspecies *Pterocheilus chobauti chlorodyneroides* Gusenleitner, 1970 has been recorded from Iran (Blüthgen & Gusenleitner, 1970).

***Pterocheilus persicus* Gusenleitner & Fallahzadeh, 2013**

Pterocheilus persicus Gusenleitner & Fallahzadeh, 2013: 109, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner et al., 2013).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Pterocheilus tenebricosus* Gusenleitner, 1998**

Pterocheilus tenebricosus Gusenleitner, 1998: 503, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner, 1998c).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Genus: *Raphiglossa* S. S. Saunders, 1850

Raphiglossa Saunders, 1850: 71. Type species: *Raphiglossa eumenoides* Saunders, 1850. Designated by Ashmead, 1902.

***Raphiglossa eumenoides* S. S. Saunders, 1850**

Raphiglossa eumenoides S. S. Saunders, 1850: 17, ♀♂. – Greece.

Distribution in Iran: Alborz (Gusenleitner, 2000b).

General distribution: Eastern (Iran) and Western (Armenia, Azerbaijan, Europe, Lebanon, Russia; Turkey - Giordani Soika, 1970) Palaearctic (Fatoryga et al., 2019).

Remarks: The subspecies *Raphiglossa eumenoides caucasica* Giordani Soika, 1970 has been recorded from Iran (Gusenleitner, 2000b).

***Raphiglossa formosa* Kostylev, 1940**

Raphiglossa formosa Kostylev, 1940: 139, ♂. – Kabadian [Tajikistan].

Distribution in Iran: Fars (Giordani Soika, 1970).

General distribution: Eastern (Iran, Tajikistan) and Western (Syria) Palaearctic (Gusenleitner, 2013).

***Raphiglossa irana* Giordani Soika, 1970**

Raphiglossa irana Giordani Soika, 1970: 28, ♂. – Iran.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

Genus: *Rhynchium* Spinola, 1806

Rhynchium Spinola, 1806: 186. Type species: *Rhynchium* (!) *europaeum* Spinola, 1806 (= *Vespa oculata* Fabricius, 1781), by monotypy.

***Rhynchium acromum* Giordani Soika, 1952**

Rhynchium acromum Giordani Soika, 1952: 49, ♀. – Karachi [Pakistan].

Distribution in Iran: Kerman (Pashaei Rad et al., 2010), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Eastern Palaearctic (Iran - Blüthgen & Gusenleitner, 1970; Pakistan - Giordani Soika, 1952).

***Rhynchium cyanopterum* de Saussure, 1852**

Rhynchium cyanopterum de Saussure, 1852: 108, ♀♂. – Egypte.

Distribution in Iran: No locality cited (du Buysson, 1912)

General distribution: Afrotropical (Southern Sahara to West Africa; Saudi Arabia, UAE - Guichard, 1986; Oman - Gusenleitner, 2005; Yemen), Eastern (Iran - du Buysson, 1912) and Western (Egypt, Jordan, Israel) Palaearctic (Gusenleitner, 2013).

***Rhynchium oculatum* (Fabricius, 1781)**

Vespa oculata Fabricius, 1781: 463, Italia.

Distribution in Iran: Bushehr (du Buysson, 1912), Hormozgan (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970; Ebrahimi & Carpenter, 2008; Khoobdel et al., 2014), Kerman (Pashaei Rad et al., 2010).

General distribution: Afrotropical (Saudi Arabia; UAE - Gusenleitner, 2010b; Oman, Yemen - Giordani Soika, 1957), Eastern (Afghanistan, Iran) and Western (Cyprus, Egypt, Europe, Israel, Jordan, Malta, Turkey) Palaearctic, Oriental (India) (Gusenleitner, 2013).

Remarks: This species has been recorded from Iran as *Rhynchium distinguendum* du Buysson, 1912 (du Buysson, 1912), which is considered as a subspecies, *Rhynchium oculatum distinguendum* du Buysson, 1913 (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970; Pashaei Rad et al., 2010).

Genus: *Stenancistrocerus* de Saussure, 1863

Stenancistrocerus de Saussure, 1863: 216. Type species: *Odynerus atropos* Lepelletier, 1841. Designated by Bequaert, 1925.

***Stenancistrocerus (Paratropancistrocerus) biblicus* (Giordani Soika, 1952)**

Tachyancistrocerus biblicus Giordani Soika, 1952: 38, ♀♂. – Israel.

Distribution in Iran: Sistan-o Baluchestan (Hamzavi et al., 2019).

General distribution: Eastern (Iran - Hamzavi et al., 2019) and Western (Israel - Gusenleitner, 2013) Palaearctic.

Genus: *Stenodynerus* de Saussure, 1863

Stenodynerus de Saussure, 1863: 228. Type species: *Odynerus chinensis* Saussure, 1863. Designated, by Bohart, 1939.

***Stenodynerus bluethgeni* van der Vecht, 1971**

Stenodynerus bluethgeni van der Vecht, 1971: 131, ♀♂. – France.

Distribution in Iran: No locality cited (Gusenleitner, 2000a).

General distribution: Eastern (China, Iran, Kazakhstan, Turkmenistan) and Western (Caucasus; Cyprus - Gusenleitner, 1981; Europe, Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

***Stenodynerus chevrieranus* (de Saussure, 1855)**

Odynerus (*Odynerus* div. *Epsilon*) *chevrieranus* de Saussure, 1855: 268, ♀♂. – Les environs de Genève [Switzerland].

Distribution in Iran: East Azarbaijan (Ebrahimi & Carpenter, 2008), Zanzan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (Iran, Kazakhstan) and Western (Azerbaijan, Europe, Russia, Turkey) Palaearctic (Fateryga et al., 2019).

***Stenodynerus chitgarensis* Giordani Soika, 1970**

Stenodynerus chitgarensis Giordani Soika, 1970: 108, ♀♂. – Iran.

Distribution in Iran: Alborz (Giordani Soika, 1970), Tehran (Giordani Soika, 1970; Ebrahimi & Carpenter, 2008), Zanzan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (Iran, Kyrgyzstan, Uzbekistan) and Western (Azerbaijan, Turkey) Palaearctic (Fateryga et al., 2019).

***Stenodynerus cyrus* Gusenleitner, 2012**

Stenodynerus cyrus Gusenleitner, 2012: 1131, ♀. – Iran.

Distribution in Iran: Kerman (Gusenleitner, 2012a).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Stenodynerus fastidiosissimus* (de Saussure, 1855)**

Odynerus (*Odynerus* div. *Epsilon*) *fastidiosissimus* de Saussure, 1855: 265, ♀♂. – L'Algérie ou l'Europe méridionale.

Distribution in Iran: Kohgiluyeh-va Boyerahmad (Gusenleitner, 2012a); No locality cited (Gusenleitner, 2000a).

General distribution: Eastern (Central Asia, Iran) and Western (Iraq, Israel, Libya, North Africa, Mediterranean Islands, Southern Europe, Russia (Antropov & Fateryga, 2017); Turkey) Palaearctic (Castro & Dvořák, 2009).

Remarks: The subspecies *Stenodynerus fastidiosissimus difficilis* (Morawitz, 1867) has been recorded from Iran (Gusenleitner, 2000a).

***Stenodynerus punctifrons* (Thomson, 1874)**

Odynerus (*Leionotus*) *Lionotuspunctifrons* Thomson, 1874: 57, ♀. – Helvetia.

Distribution in Iran: No locality cited (Kim & Yamane, 2004).

General distribution: Eastern (Kazakhstan, Kyrgyzstan, Mongolia, Russia) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic (Fateryga & Mokrousov, 2019).

***Stenodynerus sapidus* Giordani Soika, 1970**

Stenodynerus sapidus Giordani Soika, 1970: 110, ♀. – Iran.

Distribution in Iran: Alborz (Giordani Soika, 1970).

General distribution: Eastern (Iran) and Western (Russia) Palaearctic (Fateryga & Popov, 2017).

***Stenodynerus trotzinai* (Morawitz, 1895)**

Odynerus trotzinai Morawitz, 1895: 463, ♀. – Transcaspia [Turkmenistan].

Distribution in Iran: Sistan-o Baluchestan (Hamzavi et al., 2019).

General distribution: Eastern (Iran - [Hamzavi et al., 2019](#); Pakistan - [Gusenleitner, 2006c](#); Turkmenistan - [Morawitz, 1895](#)) and Western (Turkey - [Yildirim & Gusenleitner, 2012](#)) Palaearctic.

***Stenodynerus xanthomelas* (Herrich-Schäffer, 1839)**

Odynerus xanthomelas Herrich-Schäffer, 1839: 13, ♀♂.

Distribution in Iran: No locality cited ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern (China, Iran) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic ([Fategya, 2018](#)).

Genus: *Symmorphus* Wesmael, 1836

Symmorphus Wesmael, 1836: 45. Type species: *Odynerus elegans* Wesmael, 1833. Designated by Richards, 1935.

***Symmorphus (Symmorphus) crassicornis* (Panzer, 1798)**

Vespa crassicornis Panzer, 1798: 53, ♀. - Austria.

Distribution in Iran: No locality cited ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Oriental (India), Eastern (China, Iran, Kazakhstan; Kyrgyzstan - [Cumming, 1989](#); Mongolia; Tajikistan- [Cumming, 1989](#)) and Western (Caucasus, Europe, Russia, Turkey) Palaearctic ([Fategya, 2018](#)).

***Symmorphus (Symmorphus) gracilis* (Brullé, 1832)**

Odynerus gracilis Brullé 1832: 362, ♂. - foret de Koubeh [Greece].

Distribution in Iran: No locality cited ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern (Iran, Kazakhstan, Tajikistan, Turkmenistan) and Western (Caucasus, Europe, Israel, Lebanon, Russia, Syria, Turkey) Palaearctic ([Fategya, 2018](#)), Oriental (India - [Cumming, 1989](#)).

***Symmorphus (Symmorphus) murarius* (Linnaeus, 1758)**

Vespa muraria Linnaeus, 1758: 573, ♀. - Insecten von Teutschland.

Distribution in Iran: No locality cited ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern (Iran, Kazakhstan, Korea, Russia) and Western (Caucasus, Europe, North Africa, Russia, Turkey) Palaearctic ([Fategya, 2018](#)).

Genus: *Syneodynerus* Blüthgen, 1951

Syneodynerus Blüthgen, 1951: 67. Type species: *Odynerus egregius* Herrich-Schäffer, 1839, by original designation.

***Syneodynerus egregius* (Herrich-Schäffer, 1839)**

Odynerus egregius Herrich-Schäffer, 1839: 10, ♀. - Spain.

Distribution in Iran: Hormozgan ([Gusenleitner, 1997b](#)).

General distribution: Eastern (Iran, Turkmenistan) and Western (Caucasus, Cyprus, Europe, Israel, Jordan, North Africa, Russia, Syria, Turkey) Palaearctic ([Fategya, 2018](#)).

Remarks: The occurrence of this species in Iran was indicated by the subspecies *Syneodynerus egregius egregior* Gusenleitner, 1970 ([Gusenleitner, 1997b](#)).

Genus: *Tachyancistrocerus* Giordani Soika, 1952

Tachyancistrocerus Soika, 1952: 37. Type species: *Odynerus rhodensis* Saussure, 1855, by original designation.

***Tachyancistrocerus komarowi* (Morawitz, 1885)**

Ancistrocerus komarowi Morawitz, 1885: 175, ♀. – Territorio transcaspico. Asschabad [Ashkhabad, Turkmenistan].

Distribution in Iran: Bushehr (du Buysson, 1912; Giordani Soika, 1943), Fars, Khuzestan (Giordani Soika, 1970), Kerman (Pashaei Rad et al., 2010).

General distribution: Afrotropical (Oman), Eastern (Afghanistan, Iran, Kazakhstan, Pakistan, Turkmenistan) and Western (Turkey) Palaearctic (Gusenleitner, 2006c).

Remarks: This species has been recorded from Iran as *Odynerus komarowi* Morawitz, 1885 (du Buysson, 1912) and as *Pseudonortonia bushirensis* Giordani Soika, 1943 (Giordani Soika, 1943).

***Tachyancistrocerus pallidenotatus* Giordani Soika, 1970**

Tachyancistrocerus pallidenotatus Giordani Soika, 1970: 90, ♀. – Iran.

Distribution in Iran: Fars (Giordani Soika, 1970).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2013).

***Tachyancistrocerus quabosi* Giordani Soika, 1979**

Tachyancistrocerus quabosi Giordani Soika, 1979: 278.

Distribution in Iran: Sistan-o Baluchestan (Hamzavi et al., 2019).

General distribution: Afrotropical (Oman, UAE - Gusenleitner, 2013), Eastern Palaearctic (Iran - Hamzavi et al., 2019).

***Tachyancistrocerus schmidti* (Kokujev, 1913)**

Odynerus (Ancistrocerus) schmidti Kokujev, 1913: 4, ♀. – Caucasus (Geok-tapa) [Azerbaijan].

Distribution in Iran: Alborz, Khorasan-e Razavi, Tehran (Giordani Soika, 1970).

General distribution: Eastern (Afghanistan, Iran, Kyrgyzstan, Turkmenistan, Uzbekistan) and Western (Armenia, Azerbaijan, Russia, Turkey) Palaearctic (Fatoryga & Mokrousov, 2019).

Subfamily: Masarinae Latreille, 1802**Genus: *Celonites* Latreille, 1802**

Celonites Latreille, 1802: 368. Type species: *Masaris apiformis* Fabricius, 1793 (= *Vespa abbreviata* Villers, 1789), by monotypy.

***Celonites clarus* Gusenleitner, 1973**

Celonites clarus Gusenleitner, 1973: 60, 66, ♀. – Iran.

Distribution in Iran: Tehran (Gusenleitner, 1973b).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 1973b; Carpenter, 2001).

***Celonites crenulatus* Morawitz, 1888**

Celonites crenulatus Morawitz, 1888: 267, ♀. – Territorio transcaspico Kiltitschinar [Iran].

Distribution in Iran: No locality cited (Morawitz, 1888).

General distribution: Eastern Palaearctic (Iran, Turkmenistan) (Carpenter, 2001).

***Celonites cyprius* de Saussure, 1854**

Celonites cyprius de Saussure, 1854: 4, ♂. – Cyprus.

Distribution in Iran: Alborz, Fars, Khorasan-e Razavi (Gusenleitner, 1973b), Tehran (Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran) and Western (Armenia, Cyprus, Greece, Israel, Lebanon, Syria, Turkey) Palaearctic (Carpenter, 2001).

Remarks: The subspecies *Celonites cyprius smyrnensis* Richards, 1962 has been recorded from Iran (Gusenleitner, 1973b; Ebrahimi & Carpenter, 2008).

***Celonites discretus* Gusenleitner, 1973**

Celonites discretus Gusenleitner, 1973: 62, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner, 1973b).

General distribution: Eastern Palaearctic (Iran) (Carpenter, 2001).

***Celonites iranus* Gusenleitner, 2018**

Celonites iranus Gusenleitner, 2018: 306, ♀. – Iran.

Distribution in Iran: Kerman (Gusenleitner, 2018).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 2018).

***Celonites jousseaumei* du Buysson, 1906**

Celonites jousseaumei du Buysson, 1906: 104, ♀♂. – Obock [Djibouti].

Distribution in Iran: Hormozgan (Ebrahimi & Carpenter, 2008).

General distribution: Afrotropical (Djibouti, Mali, Oman, Qatar, Senegal, Sudan, Saudi Arabia, UAE, Yemen), Eastern (Iran - Ebrahimi & Carpenter, 2008) and Western (Algeria, Israel) Palaearctic (Carpenter, 2001).

***Celonites longipilis* Gusenleitner, 1973**

Celonites longipilis Gusenleitner, 1973: 59, ♀. – Iran.

Distribution in Iran: Fars (Gusenleitner, 1973b).

General distribution: Eastern Palaearctic (Iran) (Gusenleitner, 1973b; Carpenter, 2001).

***Celonites persicus* Richards, 1962**

Celonites persicus Richards, 1962: 241, ♀. – Iran.

Distribution in Iran: Khuzestan (Richards, 1962).

General distribution: Eastern Palaearctic (Iran) (Richards, 1962; Carpenter, 2001).

***Celonites pictus* Richards, 1962**

Celonites pictus Richards, 1962: 226, ♂. – Senegal.

Distribution in Iran: Hormozgan (Gusenleitner, 1992).

General distribution: Afrotropical (Oman, Saudi Arabia, Senegal), Eastern (Iran) and Western (Morocco) Palaearctic (Carpenter, 2001).

Remarks: The subspecies *Celonites pictus rufiventris* Gusenleitner, 1992 was described from Iran (Gusenleitner, 1992).

***Celonites rothschildi* du Buysson, 1906**

Celonites rothschildi du Buysson, 1906: 105, ♂. – Afrique orientale anglaise: Lesammise, Rendile [Kenya].

Distribution in Iran: Isfahan ([Gusenleitner, 1992](#)).

General distribution: Afrotropical (Kenya), Eastern Palaearctic (Iran) ([Carpenter, 2001](#)).

***Celonites semenovi* Kostylev, 1935**

Celonites (Eucelonites) semenovi Kostylev, 1935: 112 - Persia [Iran].

Distribution in Iran: No locality cited ([Kostylev, 1935](#)).

General distribution: Eastern Palaearctic (Iran) ([Kostylev, 1935](#); [Carpenter, 2001](#)).

***Celonites tauricus* Kostylev, 1935**

Celonites (Celonites) abbreviatus tauricus Kostylev, 1935: 108, ♀. - [Crimea].

Distribution in Iran: Alborz ([Mauss et al., 2016](#)).

General distribution: Eastern (Iran) and Western (Armenia, Azerbaijan, Cyprus, Europe, Russia, Syria, Turkey) Palaearctic ([Fateryga, 2018](#)).

Genus: *Ceramius* Latreille, 1810

Ceramius Latreille, 1810: 329,438. Type species: *Ceramius fonscolombi* Latreille, 1810, by original designation.

***Ceramius caucasicus* André, 1884**

Ceramius caucasicus André, 1884: 820, ♂. - Caucase [Armenia].

Distribution in Iran: Alborz ([Gusenleitner, 1973b](#)), East Azarbaijan ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern (Iran - [Gusenleitner, 1973b](#)) and Western (Armenia, Turkey) Palaearctic ([Carpenter, 2001](#)).

Genus: *Jugurtia* de Saussure, 1854

Jugurtia de Saussure, July 1854: 19, 37, 42-44. Type species: *Celonites oraniensis* Lepeletier, 1841, by subsequent designation of Ashmead, 1902.

***Jugurtia escalerae* Meade-Waldo, 1910**

Jugurtia escalerae Meade-Waldo, 1910: 33, ♀. - Iran.

Distribution in Iran: Khuzestan ([Meade-Waldo 1910](#)), Kordestan ([Ebrahimi & Carpenter, 2008](#)), Sistan-o Baluchestan ([Blüthgen & Gusenleitner, 1970](#)).

General distribution: Eastern (Iran) and Western (Turkey) Palaearctic ([Carpenter, 2001](#)).

***Jugurtia eurycara* Kostylev, 1935**

Jugurtia eurycara Kostylev, 1935: 94, ♀♂. - Caucasus.

Distribution in Iran: Alborz ([Gusenleitner, 1973b](#)), Markazi ([Ebrahimi & Carpenter, 2008](#)).

General distribution: Eastern (Iran) and Western (Armenia, Turkey) Palaearctic ([Carpenter, 2001](#)).

***Jugurtia irana* Kostylev, 1935**

Jugurtia irana Kostylev, 1935: 94, ♀♂. - Iran.

Distribution in Iran: Alborz ([Gusenleitner, 1973b](#)), Khorasan, Sistan-o Baluchestan ([Kostylev, 1935](#)).

General distribution: Eastern Palaearctic (Iran) ([Carpenter, 2001](#)).

***Jugurtia zarudnyi* Kostylev, 1935**

Jugurtia zarudnyi Kostylev, 1935: 93, ♀♂. – Iran.

Distribution in Iran: Hormozgan ([Gusenleitner, 1973b, 1992](#)), Kerman, Khorasan ([Kostylev, 1935](#)).

General distribution: Eastern Palaearctic (Iran) ([Carpenter, 2001](#)).

Genus: *Masaris* Fabricius, 1793

Masaris Fabricius, 1793: 6, 283, 284. Type species: *Masaris vespiformis* Fabricius, 1793, by subsequent monotypy.

***Masaris agnolii* Selis, 2019**

Masaris agnolii Selis, 2019: 395, ♂. – Iran.

Distribution in Iran: Charmahal-o Bakhtiari ([Selis, 2019](#)).

General distribution: Eastern Palaearctic (Iran) ([Selis, 2019](#)).

***Masaris carli* von Schulthess, 1922**

Masaris carli von Schulthess, 1922: 404.

Distribution in Iran: Fars ([Gusenleitner, 1992, 2002](#)).

General distribution: Eastern Palaearctic (Iran, Kazakhstan, Uzbekistan) ([Carpenter, 2001](#)).

Genus: *Quartinia* André, 1884

Quartinia André, 1884: 811, 822. Type species: *Quartinia dilecta* André, by monotypy.

***Quartinia araxana* Giordani Soika, 1960**

Quartinia araxana Giordani Soika, 1960: 133, ♀♂. – Caucaso.

Distribution in Iran: Alborz ([Gusenleitner, 1985a](#)).

General distribution: Eastern (Iran) and Western (Armenia, Turkey) Palaearctic ([Carpenter, 2001](#)).

***Quartinia atrata* Gusenleitner, 1998**

Quartinia atrata Gusenleitner, 1998: 503, ♀. – Iran.

Distribution in Iran: Fars ([Gusenleitner, 1998c](#)).

General distribution: Eastern Palaearctic (Iran) ([Carpenter, 2001](#)).

***Quartinia irana* Gusenleitner, 2012**

Quartinia irana, Gusenleitner, 2012: 319, ♀ – Iran.

Distribution in Iran: Markazi ([Gusenleitner, 2012b](#)).

General distribution: Eastern Palaearctic (Iran) ([Gusenleitner, 2012b](#)).

***Quartinia soikai* Richards, 1964 [1962]**

Quartinia soikai Richards, 1964 (1962): 84, ♀. – Turkey.

Distribution in Iran: Alborz ([Gusenleitner, 1973b](#)).

General distribution: Eastern (Iran) and Western (Greece, Turkey) Palaearctic ([Carpenter, 2001](#)).

***Quartinia syriaca* Richards, 1964 (1962)**

Quartinia syriaca Richards, 1964 (1962): ♀♂. - Syria.

Distribution in Iran: Fars ([Gusenleitner, 1973b](#)).

General distribution: Eastern (Iran) and Western (Lebanon, Syria) Palaearctic ([Carpenter, 2001](#)).

Remarks: The subspecies *Quartinia syriaca nitens* Gusenleitner, 1973 was described from Iran ([Gusenleitner, 1973b](#)).

Subfamily Polistinae Latreille, 1802**Genus: *Parapolybia* de Saussure, 1854**

Parapolybia de Saussure, 1854: 207. Type species: *Polybia (Parapolybia) indica* Saussure, 1854, by subsequent designation of Bingham, 1897.

***Parapolybia escalerae* (Meade-Waldo, 1911)**

Polybia escalerae Meade-Waldo, 1911: 109, ♀. - Iran.

Distribution in Iran: Bushehr, Kerman, Lorestan ([Ebrahimi & Carpenter, 2008](#)), Khuzestan ([Meade-Waldo, 1911](#)).

General distribution: Eastern (Iran, Pakistan) and Western Palaearctic (Turkey) ([Yildirim & Kojima, 1999](#)).

***Parapolybia persica* (Meade-Waldo, 1911)**

Polybia persica Meade-Waldo, 1911: 108, ♀. - Iran.

Distribution in Iran: Khuzestan ([Meade-Waldo, 1911](#)).

General distribution: Eastern Palaearctic (Iran) ([Kojima & Carpenter, 1997](#)).

Genus: *Polistes* Latreille, 1802

Polistes Latreille, 1802, 363. Type species: *Vespa gallica* Linnaeus, 1767, by subsequent designation of Latreille, 1810.

***Polistes (Gyrostoma) olivaceus* (De Geer, 1773)**

Vespa olivacea De Geer, 1773: 582.

Distribution in Iran: Hormozgan ([Khoobdel et al., 2014](#)).

General distribution: Afrotropical (Madagascar, Mauritius, Oman, Réunion, Tanzania), Asutrasian (Australia - exotic), Eastern Palaearctic (Afghanistan, Iran, Japan (?), Pakistan), Neotropical (Chile - exotic), Oceanic (Fiji, French Polynesia, Hawaii - exotic, Marquesas, Marianas, New Zealand - exotic, Samoa, Tonga, Tuamotu Archipelago, New Caledonia), Oriental (Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam), Western Palaearctic (Egypt) ([Carpenter, 1996](#)).

***Polistes (Gyrostoma) rothneyi* Cameron, 1900**

Polistes rothneyi Cameron, 1900: 410, ♂. - Barrackpore, Bengal (Rothney).

Distribution in Iran: Kerman ([Nematy et al., 2016](#)).

General distribution: Eastern Palaearctic (Iran - [Nematy et al., 2016](#)), Oriental (India, Nepal) ([Carpenter, 1996](#)).

***Polistes (Gyrostoma) wattii* Cameron, 1900**

Polistes wattii Cameron, 1900: 416, ♀. – Bengal.

Distribution in Iran: Bushehr, Fars, Ilam, Kermanshah, (Ebrahimi & Carpenter, 2008), Hormozgan (Blüthgen & Gusenleitner, 1970; Guiglia, 1976; Ebrahimi & Carpenter, 2008), Kerman (Ebrahimi & Carpenter, 2008; Pashaei Rad et al., 2010), Khuzestan, Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008).

General distribution: Afrotropical (Mauritius, Oman, Saudi Arabia, UAE), Oriental (India), Eastern (Afghanistan, China, Iran, Pakistan; Tajikistan, Turkmenistan - Castro & Dvořák, 2010) and Western (Iraq) Palaeartic (Carpenter, 1996).

Remarks: This species has been recorded from Iran as *Polistes (Megapolistes) wattii* Cameron, 1900 (Blüthgen & Gusenleitner, 1970).

***Polistes (Polistes) associus* Kohl, 1898**

Polistes associa Kohl, 1889: 89, ♂. – Poros [Greece].

Distribution in Iran: Guilan (Castro & Dvořák, 2010).

General distribution: Oriental (India ?), Eastern (China ?); Iran, Pakistan, Tajikistan) and Western (Azerbaijan, Europe, Israel, Russia, Turkey) Palaeartic (Antropov & Fateryga, 2017).

***Polistes (Polistes) atrimandibularis* Zimmermann, 1930**

Polistes atrimandibularis Zimmermann, 1930: 611, ♂. – Toblach, [Italy].

Distribution in Iran: No locality cited (Carpenter, 1996).

General distribution: Eastern (Iran) and Western (Armenia, Europe, Egypt, Russia (Antropov & Fateryga, 2017), Turkey) Palaeartic (Carpenter, 1996).

***Polistes (Polistes) biglumis* (Linnaeus, 1758)**

Vespa biglumis Linnaeus, 1758: 573, ♀. – Europe.

Distribution in Iran: Semnan (Blüthgen & Gusenleitner, 1970).

General distribution: Oriental (India), Eastern (Iran, Kazakhstan, Kyrgyzstan, Korea, Mongolia, Pakistan, Turkmenistan) and Western (Caucasus, Europe, Iraq, Israel, North Africa, Syria, Russia, Turkey) Palaeartic (Antropov & Fateryga, 2017).

***Polistes (Polistes) bischoffi* Weyrauch, 1937**

Polistes bischoffi Weyrauch, 1937: 274, ♀♂. – Italy.

Distribution in Iran: No locality cited (Antropov & Fateryga, 2017).

General distribution: Eastern (Iran, Kazakhstan, Mongolia) and Western (Europe, North Africa, Russia, Turkey) Palaeartic (Antropov & Fateryga, 2017).

Remarks: According to Neumeier et al. (2015) this species might be *P. albellus* Giordani Soika, 1976.

***Polistes (Polistes) bucharensis* Erichson, 1849**

Polistes bucharensis Erichson, 1849: 307, ♀. – Uzbekistan.

Distribution in Iran: Alborz, Khorasan-e Razavi (Guiglia, 1977), Fars (Guiglia, 1976, 1977), Golestan (Weyrauch, 1939), Kordestan, Markazi (Ebrahimi & Carpenter, 2008), South Khorasan (Blüthgen & Gusenleitner, 1970), Tehran (Blüthgen & Gusenleitner, 1970; Guiglia, 1977), Zanjān (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Eastern (China, Iran, Mongolia, Uzbekistan) and Western (Azerbaijan, Cyprus, Egypt, Greece, Israel, Turkey) Palaearctic (Schmid-Egger et al., 2017).

Remarks: This species has been recorded from Iran as *Polistes iranus* Guiglia, 1976 (Guiglia, 1976, 1977; Abbasi et al., 2008; Pashaei Rad et al., 2010), as *Polistes gallica* var. *ornata* Weyrauch, 1938, as *Polistes (Polistes) dominulus bucharensis* Erichson, 1849 (Abbasi et al., 2008; Pashaei Rad et al., 2010) and as *Polistes gallicus bucharensis* Erichson, 1849 (Blüthgen & Gusenleitner, 1970).

***Polistes (Polistes) chinensis* (Fabricius, 1793)**

Vespa chinensis Fabricius 1793: 261.

Distribution in Iran: No locality cited (Antropov & Fateryga, 2017).

General distribution: Oceania (New Zealand - exotic), Eastern (China, Iran, Japan, Kazakhstan, Korea, Mongolia, Russia) and Western (Russia, Turkey) Palaearctic (Antropov & Fateryga, 2017).

***Polistes (Polistes) dominula* (Christ, 1791)**

Vespa dominula Christ, 1791: 229, ♀♂. - Germany.

Distribution in Iran: East Azarbaijan, Kordestan, Markazi (Ebrahimi & Carpenter, 2008).

General distribution: Afrotropical (Benin - exotic, Ethiopia, South Africa - exotic), Australasian (Australia - exotic), Nearctic (Canada - exotic, U.S.A - exotic), Neotropical (Chile - exotic), Oriental (India), Eastern (Afghanistan, Caucasus, central Asia, Iran, Mongolia, Pakistan, Russia) and Western (Europe, North Africa, Russia, Syria, Turkey) Palaearctic (Carpenter, 1996).

***Polistes (Polistes) foederata* Kohl, 1898**

Polistes foederata Kohl, 1898: 90, ♂. - Helenendorf [Azerbaijan].

Distribution in Iran: Mazandaran (Guiglia, 1976).

General distribution: Eastern (Iran - Guiglia, 1976) and Western (Caucasus (Guiglia, 1976), Azerbaijan, Europe, Turkey) Palaearctic (Schmid-Egger et al., 2017).

Remarks: This species has been recorded from Iran as *Polistes (Leptopolistes) foederatus* Kohl (Guiglia, 1976).

***Polistes (Polistes) gallicus* (Linnaeus, 1767)**

Vespa gallica Linnaeus, 1767: 949, Holotype ♂. - Europa australi [S Europe].

Distribution in Iran: Ardabil, East Azarbaijan, Fars, Golestan, Guilan, Hamadan, Hormozgan, Ilam, Isfahan, Kerman, Khuzestan, Kohgiluyeh-va Boyerahmad, Lorestan, Markazi, North Khorasan, Qom, (Ebrahimi & Carpenter, 2008), Kermanshah, Kordestan (du Buysson, 1912; Ebrahimi & Carpenter, 2008), Khorasan-e Razavi (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Mazandaran (Guiglia, 1976, 1977; Ebrahimi & Carpenter, 2008), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), South Khorasan (Blüthgen & Gusenleitner, 1970), Tehran (Ebrahimi & Carpenter, 2008), Zanzan (Abbasi et al., 2008), Various regions (Esmaili & Rastegar, 1974; Pashaei Rad et al., 2010); No locality cited (Morice, 1921).

General distribution: Afrotropical (Ethiopia), Eastern (Afghanistan, China, Iran, Mongolia) and Western (Armenia, Azerbaijan, Europe, Israel, North Africa, Russia, Turkey, Turkmenistan, Ukraine) Palaearctic (Carpenter, 1996).

Remarks: According to Schmid-Egger et al. (2017) this species might be *P. mongolicus* du Buysson, 1911 *in part*. This species was recorded from Iran as *Polistes* (*Leptopolistes*) *omissus* Weyr, 1939 (Blüthgen & Gusenleitner, 1970; Guiglia, 1976) and as *Polistes gallica* (Linnaeus, 1767) (Esmaili & Rastegar, 1974) from Iran.

***Polistes* (*Polistes*) *indicus* Stolfa, 1934**

Polistes indicus Stolfa, 1934: 47, ♀♂. – Pakistan.

Distribution in Iran: Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970).

General distribution: Afrotropical (Oman, UAE), Eastern (Afghanistan, Iran, Pakistan), and Western (Iraq) Palaeartic (Siddiqui et al., 2015).

Remarks: This species has been recorded from Iran as *Polistes* (*Leptopolistes*) *indicus* Stolfa, 1934 (Blüthgen & Gusenleitner, 1970).

***Polistes* (*Polistes*) *nimpha* (Christ, 1791)**

Vespa nimpha Christ, 1791: 232, ♀♂. – Kronberg, Taunus [Germany].

Distribution in Iran: Guilan, Tehran (Blüthgen & Gusenleitner, 1970), Mazandaran (Ebrahimi & Carpenter, 2008), Zanzan (Abbasi et al., 2008; Pashaei Rad et al., 2010).

General distribution: Oriental (India), Eastern (central Asia, China, Iran, Mongolia, Pakistan) and Western (Europe, Caucasus, Iraq, Israel, Madeiras, North Africa, Turkey) Palaeartic (Carpenter, 1996).

Remarks: The occurrence of this species in Iran was indicated by the subspecies *Polistes nimpha irakensis* Gusenleitner, 1976 (Abbasi et al., 2008; Pashaei Rad et al., 2010).

***Polistes* (*Polistes*) *semenowi* Morawitz, 1889**

Polistes semenowi Morawitz, 1889: 552, syntypes ♀. – Turkmenistan.

Distribution in Iran: Tehran (Ebrahimi & Carpenter, 2008), Mazandaran (Guiglia, 1976; Ebrahimi & Carpenter, 2008).

General distribution: Eastern (Iran, Turkmenistan) and Western (Caucasus, Europe; Israel - Castro & Dvořák, 2009; North Africa, Russia, Turkey) Palaeartic (Carpenter, 1996).

Remarks: This species has been recorded from Iran as *Sulcopolistes semenowi* (Morawitz, 1889) (Guiglia, 1976) and as *Polistes sulcifer* Zimmermann, 1930 (Ebrahimi & Carpenter, 2008).

***Polistes* sp.**

Distribution in Iran: No locality cited (Esmaili & Rastegar, 1974).

Subfamily: Vespinae Latreille, 1802

Genus: *Dolichovespula* Rohwer, 1916

Dolichovespula Rohwer, 1916: 642. Type species: *Vespa maculata* Linnaeus, 1763, by original designation.

***Dolichovespula omissa* (Bischoff, 1931)**

Vespa omissa Bischoff, 1931: 6, ♀. – Germany.

Distribution in Iran: Tehran (Dvořák et al., 2012).

General distribution: Eastern (Iran) and Western (Europe, Russia, Turkey) Palaeartic (Carpenter & Kojima, 1997).

Dolichovespula sylvestris* (Scopoli, 1763)Vespa sylvestris* Scopoli, 1763: 309 - Slovenia.

Distribution in Iran: East Azerbaijan (Ebrahimi & Carpenter, 2008), Golestan (Dvořák et al., 2012), Guilan, Khuzestan (Archer, 1981), Kohgiluyeh-va Boyer-Ahmad (Castro & Dvořák, 2009), Mazandaran (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Tehran (Archer, 1981; Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), West Azerbaijan (Blüthgen & Gusenleitner, 1970; Archer, 1981); No locality cited (Birula, 1930).

General distribution: Oriental (India), Eastern (Afghanistan, central Asia, China, Iran, Mongolia, Pakistan) and Western (Armenia, Europe, Russia, Turkey) Palaearctic (Carpenter & Kojima, 1997).

Remarks: This species has been recorded from Iran as *Dolichovespula sylvestris sumptuosa* (du Buysson, 1905) (Birula 1930; Blüthgen & Gusenleitner, 1970; Archer, 1981).

Genus: *Vespa* Linnaeus, 1758

Vespa Linnaeus, 1758: 343, 572. Type species: "*Vespa crabro*, Fab." [= *Vespa crabro* Linnaeus, 1758], by subsequent designation of Latreille, 1810.

***Vespa crabro* Linnaeus, 1758**

Vespa crabro Linnaeus, 1758: 572. "in Europae" (holotype ♀. - Linnaean Society, London).

Distribution in Iran: Golestan (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Guilan (Perez, 1910; Morice, 1921; Ebrahimi & Carpenter, 2008), Ilam (Dvořák et al., 2012), Mazandaran (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), North of Iran (Esmaili & Rastegar, 1974).

General distribution: Eastern Palaearctic (China, Iran, Japan, Kazakhstan, Korea, Mongolia), Nearctic (North America - exotic), Neotropical (Guatemala - exotic), Oriental (Taiwan), Western Palaearctic (Caucasus, Europe, Russia, Turkey) (Carpenter & Kojima, 1997).

Remarks: This species has been recorded from Iran as *Vespa crabro caspica* Perez, 1910 (Perez, 1910; Esmaili & Rastegar, 1974).

***Vespa orientalis* Linnaeus, 1771**

Vespa orientalis Linnaeus, 1771: 540, "Oriente" (holotype ♀. - Linnaean Society, London).

Distribution in Iran: Alborz (Guiglia, 1976, 1977), Ardabil (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Bushehr (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), East Azerbaijan (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012; Fars (Guiglia, 1976, 1977; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Golestan (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Guilan (Dvořák et al., 2012), Hamadan (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Hormozgan (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012; Khoobdel et al., 2014), Ilam (Dvořák et al., 2012), Isfahan (Blüthgen & Gusenleitner, 1970; Dvořák et al., 2012), Kerman (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Kermanshah (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Khorasan-e Razavi (Guiglia, 1976, 1977; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Khuzestan (du Buysson, 1912; Ebrahimi & Carpenter, 2008, 2012, Dvořák et al., 2012), Kohgiluyeh-va Boyer-Ahmad (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Kordestan (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Lorestan (du Buysson, 1912; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Markazi (Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), Mazandaran (Dvořák et al., 2012),

North Khorasan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Qazvin (Morice, 1921; Ebrahimi & Carpenter, 2008, 2012), Qom (Ebrahimi & Carpenter, 2008), Semnan (Dvořák et al., 2012), Sistan-o Baluchestan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), South Khorasan (Dvořák et al., 2012), Tehran (du Buysson, 1912; Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008, 2012; Dvořák et al., 2012), West Azerbaijan (Dvořák et al., 2012), Yazd (Dvořák et al., 2012), Zanzan (Abbasi et al., 2008; Ebrahimi & Carpenter, 2012; Dvořák et al., 2012), Different regions of Iran (Esmaili & Rastegar, 1974).

General distribution: Afrotropical (Bahrein, Ethiopia, Oman, Saudi Arabia, Somalia, UAE, Yemen; Madagascar - exotic), Oriental (India, Nepal), Eastern (Afghanistan, China, Iran, Pakistan, Tajikistan, Turkmenistan, Uzbekistan) and Western (Algeria, Cyprus, Egypt, Europe, Iraq, Israel, Jordan, Lebanon, Libya, Russia, Syria, Turkey) Palaearctic (Carpenter & Kojima, 1997).

Remarks: This species has been recorded from Iran as *Vespa orientalis aegyptiaca* André, 1884 (Morice, 1921).

Genus: *Vespa* Thomson, 1869

Vespa Thomson, 1869: 79. Type species: *Vespa austriaca* Panzer, 1799, by subsequent designation of Ashmead, 1902.

Vespa germanica (Fabricius, 1793)

Vespa germanica Fabricius 1793: 256, Type unknown; "Kiliae" (Germany).

Distribution in Iran: East Azerbaijan (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Fars (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Golestan (Dvořák et al., 2012), Guilan (Morice, 1921; Blüthgen & Gusenleitner, 1970; Dvořák et al., 2012), Hamadan (Dvořák et al., 2012), Hormozgan (Khoobdel et al., 2014), Isfahan (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Kerman (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Kermanshah (du Buysson, 1912; Morice, 1921; Dvořák et al., 2012), Khorasan-e Razavi (Guiglia, 1976, 1977; Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Khuzestan (Dvořák et al., 2012), Kohgiluyeh-va Boyer-Ahmad (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Kordestan (du Buysson, 1912; Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Lorestan (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Markazi (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Mazandaran (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), North Khorasan (Blüthgen & Gusenleitner, 1970; Ebrahimi & Carpenter, 2008), Qazvin (Morice, 1921; Dvořák et al., 2012), Qom (Ebrahimi & Carpenter, 2008), Semnan (Dvořák et al., 2012), Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008), South Khorasan (Morice, 1921; Blüthgen & Gusenleitner, 1970; Dvořák et al., 2012), Tehran (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), West Azerbaijan (Ebrahimi & Carpenter, 2008; Dvořák et al., 2012), Yazd (Dvořák et al., 2012), Zanzan (Abbasi et al., 2008; Dvořák et al., 2012), Different regions of Iran (Esmaili & Rastegar, 1974).

General distribution: Afrotropical (Ascension Island, South Africa - exotic), Asutrasian (Australia - exotic), Eastern Palaearctic (Afghanistan, China, Iran, Kazakhstan, Korea, Mongolia, Pakistan, Tajikistan, Turkmenistan, Uzbekistan), Nearctic (Canada and U.S.A. - exotic), Neotropical (Argentina and Chile - exotic), Oceanic (New Zealand - exotic), Oriental (India, Taiwan), Western Palaearctic (Algeria, Caucasus, Europe, Iceland - exotic, Israel, Morocco, Russia, Syria, Tunisia, Turkey) (Carpenter & Kojima, 1997).

Remarks: This species has been recorded from Iran as *Paravespula germanica* (Fabricius, 1793) (Blüthgen & Gusenleitner, 1970).

Vespula vulgaris (Linnaeus, 1758)

Vespa vulgaris Linnaeus, 1758: 572, Europa (lectotype ♀. – Linnaean Society, London).

Distribution in Iran: Khorasan-e Razavi (Dvořák et al., 2012), North Khorasan (Archer, 1989).

General distribution: Australasian (Australia - exotic), Neotropical (Argentina and Chile - exotic), Oceanic (French Polynesia and New Zealand - exotic), Oriental (India), Eastern (China, Iran, Japan, Kazakhstan, Kyrgyzstan, Korea, Mongolia) and Western (Europe, Georgia, Iceland - exotic, Russia, Turkey) Palaearctic (Carpenter & Kojima, 1997).

Irrelevant records

A few vespid species are recorded from Iran on the basis of specimens which have never gone through the relevant identification by the experts mentioned as co-authors. The masarine species listed by Abd-Rabou et al. (2005) are obviously elements of the Afrotropical region (Gess & Gess, 2010) or have restricted distribution areas in south-western Europe (Mauss & Castro, 2000, Mauss in litt. 2019), so that their occurrence in Iran is particularly unlikely. Considering the unreliable data that appeared in those publications, all the species records from these surveys are excluded from the fauna of Iran, until they may be found and confirmed in future reputable studies (Table 1).

Discussion

A total of 231 vespid species (235 species including unidentified taxa) belonging to 55 genera and 4 subfamilies are recorded from various parts of Iran. The subfamilies Eumeninae, Masarinae, Polistinae and Vespinae are represented by 184 species in 45 genera, 24 species in 5 genera, 17 species in 2 genera, and 6 species in 3 genera, respectively (Fig. 1). Two species, *Stenancistrocerus transcaspicus* (Kostylev, 1935) and *Pseudepipona tricolor* Gusenleitner, 1976 were originally described from the Transcaspien region (Farab) and from the Caucasus region (Russia: Dagestan), respectively. These species are listed in Gusenleitner (2013) as elements of the Iranian fauna. Since those areas are now separated from Iran the above mentioned species were also excluded from this checklist.

There are 48 species belonging to the following genera that are exclusively recorded from Iran. *Alastor* Lepeletier (4 species), *Ancistrocerus* Wesmael (1), *Antepipona* de Saussure (2), *Chlorodynerus* Blüthgen (3), *Eumenes* Latreille (1), *Euodynerus* Dalla Torre (5), *Eustenancistrocerus* Blüthgen (4), *Extraepipona* Gusenleitner (1), *Hemipterochilus* Fertton (1), *Labochilus* Blüthgen (1), *Leptochilus* de Saussure (3), *Onychopterocheilus* Blüthgen (1), *Paragymnomerus* Blüthgen (1), *Parodontodynerus* Blüthgen (1), *Pterocheilus* Klug (2), *Raphiglossa* S. S. Saunders (1), *Stenodynerus* de Saussure (1), *Tachyancistrocerus* Giordani Soika (1), *Pseudosymmorphus* Blüthgen (2), *Celonites* Latreille (6), *Jugurtia* de Saussure (2), *Masaris* Fabricius (1), *Quartinia* André (2) and *Parapolybia* de Saussure (1). Fifteen new species have been described during the time period 2000–2019 on the basis of the material collected from Iran, including *Eustenancistrocerus spinosissimus* Gusenleitner, 2000; *Labochilus orientalis* Gusenleitner, 2001; *Eumenes modestus* Gusenleitner, 2006; *Ancistrocerus tenebrosus* Gusenleitner, 2010; *Euodynerus amplus* Gusenleitner, 2011; *Stenodynerus cyrus* Gusenleitner, 2012; *Quartinia irana* Gusenleitner, 2012; *Pterocheilus persicus* Gusenleitner & Fallahzadeh, 2013; *Eustenancistrocerus iranicus* Gusenleitner, 2013; *Extraepipona occulta* Gusenleitner, 2014;

Leptochilus simurgh Gusenleitner, 2016; *Celonites iranus* Gusenleitner, 2018; *Pseudosymmorphus angulatus* Gusenleitner & Ockermüller, 2018; *Pseudosymmorphus capillus* Gusenleitner & Ockermüller, 2018 and *Masaris agnolii* Selis, 2019. None of these species are recorded from other countries yet.

The genera *Euodynerus*, *Polistes* and *Eumenes* are the most species-rich groups in the vespid fauna of Iran with 18, 15 and 12 species respectively (Fig. 2). On the other hand, some genera including *Acanthodynerus* Gusenleitner, *Antodynerus* de Saussure, *Brachyodynerus* Blüthgen, *Brachypipona* Gusenleitner, *Cephalochilus* Blüthgen, *Cyphodynerus* van der Vecht, *Extraepipona* Gusenleitner, *Gymnomerus* Blüthgen, *Knemodynerus* Blüthgen, *Labochilus* Blüthgen, *Paraleptomenes* Giordani Soika, *Pseudodontodynerus* Blüthgen, *Stenancistrocerus* de Saussure, *Syneuodynerus* Blüthgen and *Ceramius* Latreille are each represented by a single species in Iran. The monotypic genus, *Extraepipona* represented by *Extraepipona occulta* Gusenleitner is from Fars province in the South-central Iran. The main studies have been focused on the areas of South-east, North-central, South and North-central of the country (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970; Gusenleitner, 1973b; Ebrahimi & Carpenter, 2008), represented by Sistan-o Baluchestan (26 genera, 42 species), Alborz (23 genera, 42 species), Fars (22, 39) and Tehran (16, 38) provinces, respectively. Some other provinces in the south-west (Khuzestan: 21, 34) and south-east (Kerman: 21, 31) were also explored considerably (Table 2). In his long series of taxonomic papers, Gusenleitner (1973b, 1985b, 1986b, 1995a, 1998c, 2000c, 2001, 2006a, 2010a, 2011a, 2012a, 2012b, 2014, 2016, 2018) described 20 new species from 10 provinces, mainly from south and south-eastern areas in Fars, Hormozgan and Kerman provinces, with 6, 4 and 3 new species, respectively. The provincial distribution for many species is unclear, since the locality data are not recorded properly, or local names were used. Some of these species were recovered by the subsequent studies which provide the locality data. Furthermore, there were not sufficient data to assign the (five) species (Kohl & Handlirsch, 1889; Kostylev, 1935; Gusenleitner, 1972) recorded from the former Khorasan province, until it was subdivided into three separate provinces in 2004: Khorasan-e Razavi, North Khorasan and South Khorasan.

More than 47 subspecies belonging mainly to the subfamily Eumeninae (43) (Fig. 1) are recorded from various regions of Iran (Blüthgen & Gusenleitner, 1970; Giordani Soika, 1970; Gusenleitner, 1972; Kurzenko, 1977; Gusenleitner, 2000b; 2004; Abbasi et al., 2008; Ebrahimi & Carpenter, 2008; Gusenleitner, 2010a; Pashaei Rad et al., 2010; Gusenleitner, 2013). Some of these subspecies were later raised to separate species or synonymized (Kostylev, 1937, 1940; Giordani Soika, 1961; Blüthgen & Gusenleitner, 1970; Gusenleitner, 1972; Ebrahimi & Carpenter, 2008). Further discussion about validity of these subspecies attributed to the knowledge about evolutionary patterns of the vespid lineages (Cumming, 1989; Carpenter, 2003). Additional investigations on both zoogeography and habitat preference, supplemented with molecular data are needed to define the taxonomic situation of these subspecies. A similar situation was also suggested for the sphecid fauna of Iran with many subspecies (Jahantigh et al., 2017). An overall analysis of the vespid fauna of Iran (Table 3) indicates the majority of species (77.1%) are distributed only in the (Eastern and Western) Palaearctic regions. The rest include the species that have a broader area of distribution, expanded into the Afrotropical Region, Oriental Region or both. A higher percentage of the species (11.3%) are found in Afrotropics compared to the Oriental Region (4.8%). There are few Palaearctic species that are found also in the Nearctic (1 species - *Pseudepipona herrichii*) or Neotropical region (1 species - *Eumenes dubius*).

Table 1. Irrelevant records of Vespidae species that should be excluded from the fauna of Iran.

Excluded species	References	General distribution*
<i>Ceramius bicolor</i> (Thunberg, 1815)	Abd-Rabou et al., 2005	Afrotropical
<i>Ceramius capicola</i> Brauns, 1902	Abd-Rabou et al., 2005	Afrotropical
<i>Ceramius fonscolombi</i> Latreille, 1810	Abd-Rabou et al., 2005	Western Palaearctic (Atlanto-Mediterranean)
<i>Ceramius hispanicus</i> Dusmet, 1909	Abd-Rabou et al., 2005	Western Palaearctic (Iberian)
<i>Ceramius tuberculifer</i> de Saussure, 1853	Abd-Rabou et al., 2005	Western Palaearctic: (Atlanto-Mediterranean)
<i>Jugurtia braunsi</i> (Schulthess, 1922)	Abd-Rabou et al., 2005	Afrotropical
<i>Masarina familiaris</i> Richards, 1962	Abd-Rabou et al., 2005	Afrotropical
<i>Dolichovespula media</i> (Retzius, 1783)	Abd-Rabou et al., 2005; Sakenin et al., 2010b	Eastern and Western Palaearctic
<i>Dolichovespula saxonica</i> (Fabricius, 1793)	Abd-Rabou et al., 2005; Sakenin et al., 2010b	Eastern and Western Palaearctic
<i>Vespula rufa</i> (Linnaeus, 1758)	Abd-Rabou et al., 2005; Sakenin et al., 2010a, 2010b	Eastern and Western Palaearctic, Oriental

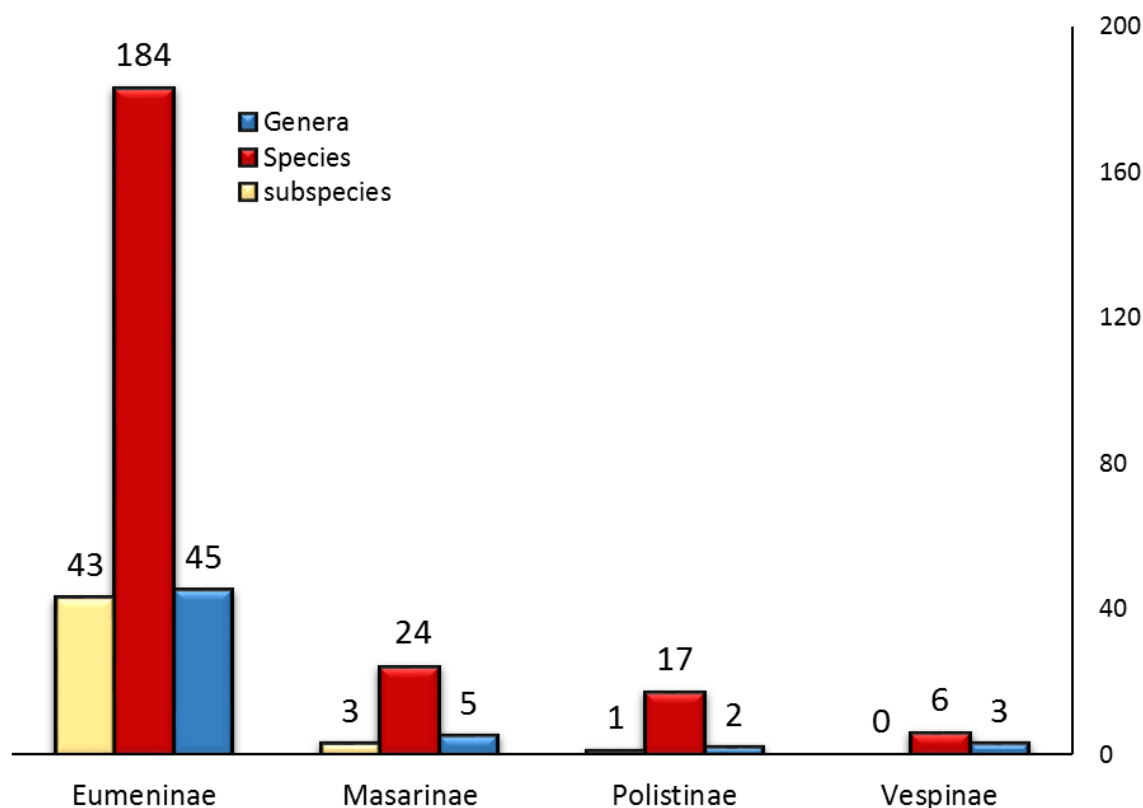


Figure 1. A comparison of the number of genera and species of four subfamilies of Vespidae in Iran.

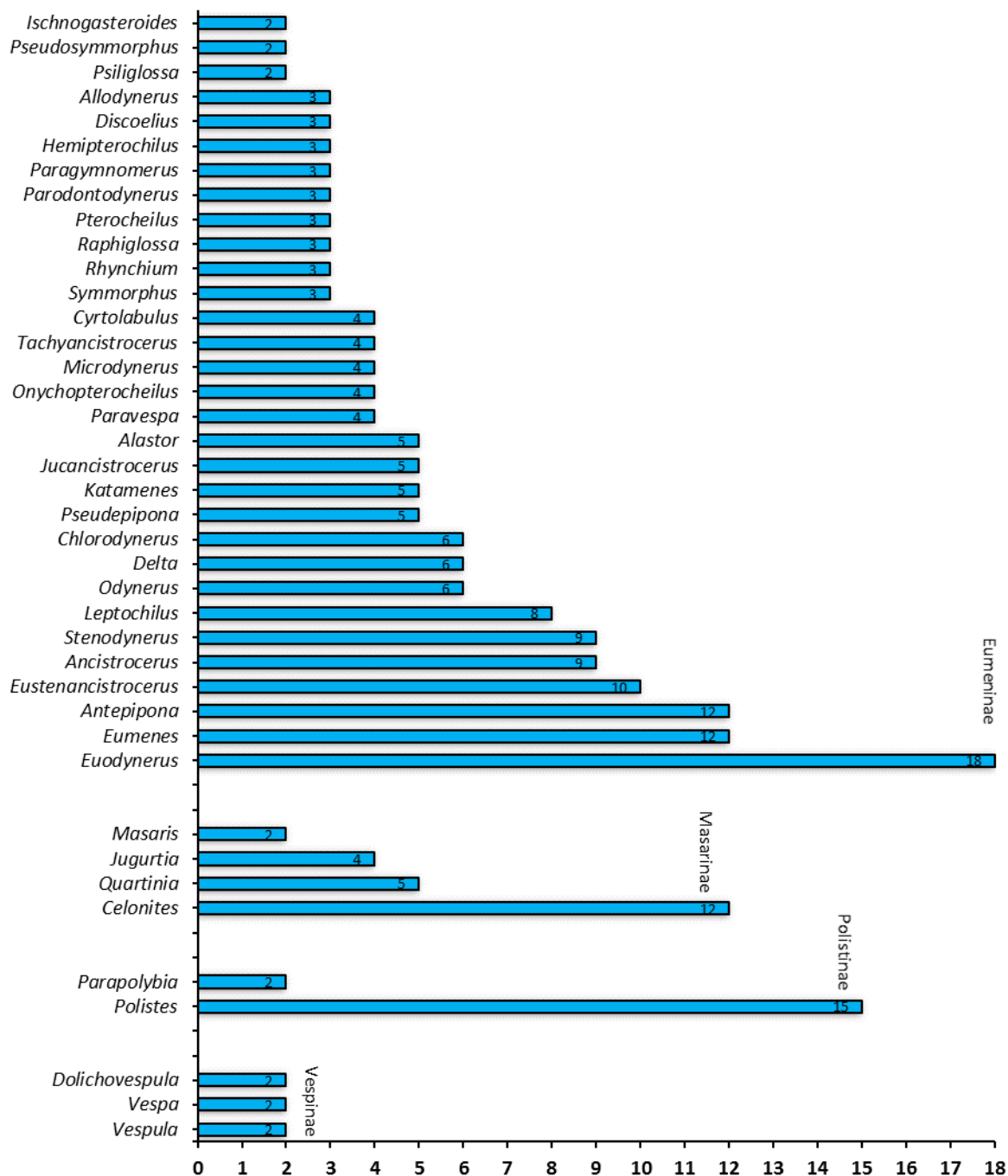


Figure 2. Number of recorded species for the Vespidae genera in Iran. Genera with fewer than two species are excluded.

On the other hand, there are some species (*Polistes olivaceus*, *Polistes dominula*, *Vespula germanica*), that are widely distributed in various biogeographical regions both in the northern and southern Hemisphere. These species expanded their distribution through the association with human global transportation (Liebert et al., 2006; Masciocchi & Corley, 2013; Hammer & Jensen, 2019).

Table 2. Number of recorded genera and species of Vespidae from Iranian provinces.

Locality (Provinces)	Area (km ²)	Eumeninae		Masarinae		Polistinae		Vespinae		Total	
		Gen.*	sp.**	Gen.	sp.	Gen.	sp.	Gen.	sp.	Gen.	sp.
Alborz	5.128	17	33	4	7	1	1	1	1	23	42
Ardabil	179.02	2	2	0	0	1	1	1	1	4	5
Bushehr	22.820	4	4	0	0	2	2	1	1	7	7
Charmahal-o Bakhtiari	16.305	0	0	1	1	0	0	0	0	1	1
East Azerbaijan	45.757	10	17	1	1	1	2	3	3	15	24
Fars	122.779	16	27	3	7	1	3	2	2	22	39
Golestan	20.206	3	5	0	0	1	2	3	4	7	11
Guilan	14.086	4	4	0	0	1	3	3	4	8	11
Hamadan	19.329	3	3	0	0	1	1	3	2	7	6
Hormozgan	70.743	9	13	2	3	1	3	2	2	14	21
Ilam	20.023	1	1	0	0	1	2	1	2	3	5
Isfahan	106.754	2	2	1	1	1	1	2	2	6	6
Kerman	179.469	15	23	2	2	2	4	2	2	21	31
Kermanshah	24.867	2	2	0	0	1	2	2	2	5	6
Khorasan-e Razavi	127.223	6	10	1	1	1	2	2	3	10	16
Khuzestan	63.928	14	25	2	2	2	4	3	3	21	34
Kohgiluyeh-va Boyerahmad	15.498	3	3	0	0	1	1	3	3	7	7
Kordestan	29.048	3	6	1	1	1	3	2	2	7	12
Lorestan	28.199	5	6	0	0	2	2	2	2	9	10
Markazi	29.088	9	15	2	2	1	3	2	2	14	22
Mazandaran	23.725	6	9	0	0	1	4	3	4	10	17
North Khorasan	28.341	2	2	0	0	1	1	2	3	5	6
Qazvin	15.559	4	4	0	0	0	0	2	2	6	6
Qom	11.514	1	1	0	0	1	1	2	2	4	4
Semnan	97.193	5	5	0	0	1	1	2	2	8	8
Sistan-o Baluchestan	178.850	22	35	1	2	1	3	2	2	26	42
South Khorasan	138.845	4	7	0	0	1	2	2	2	7	11
Tehran	13.688	11	28	1	2	1	4	3	4	16	38
West Azarbaijan	37.393	0	0	0	0	0	0	3	3	3	4
Yazd	73.551	1	1	0	0	0	0	2	2	3	3
Zanjan	21.783	9	16	0	0	1	3	2	2	12	21

*Gen. = genus; **Sp. = species

Table 3. Biogeographical distribution of the vespid species in Iran.

Area of distribution	No of species	Frequency (%)
Palearctic	178	77.1
Palearctic and Afrotropical	26	11.3
Palearctic and Oriental	11	4.8
Palearctic, Afrotropical and Oriental	7	3
Holarctic (Palearctic and Nearctic)	1	0.4
Palearctic and Neotropical	1	0.4

While many areas remained unexplored, the known Vespidae of Iran indicate a rich fauna that needs further studies in different habitats. No comparison was done to determine the faunal similarity with the neighbouring countries, but the number of species (Turkey: 298 (species and subspecies) (Yildirim & Gusenleitner, 2012), Russia: 197 (Antropov & Fateryga, 2017), Pakistan: 79 (Rafi et al., 2017)) indicates a moderately well developed knowledge about the vespidae fauna of Iran.

Acknowledgements

This work was supported by the Grant No. UOZ-GR-9618-6, University of Zabol to E. Rakhshani. James M. Carpenter was supported by his institute. Our sincere thanks to Volker Mauss (State Museum of Natural History Stuttgart) for editing both early and final version of the manuscript.

Conflict of Interests

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

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¹ V. Mauss and J. Plant did not publish this article and repudiate to be coauthors of this publication (Mauss in litt. 2019).

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<https://doi.org/10.3906/zoo-1012-62>

فهرست به روز زنبورهای خانواده (Hymenoptera) Vespidae در ایران

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تاریخ دریافت: ۱۱ دی ۱۳۹۸، تاریخ پذیرش: ۲۷ دی ۱۳۹۸، تاریخ انتشار: ۱۱ بهمن ۱۳۹۸

چکیده: ۲۳۱ گونه از بال غشاییان خانواده Vespidae (Hymenoptera, Vespoidea) ایران متعلق به ۵۵ جنس و چهار زیرخانواده شامل Eumeninae (۴۵ جنس، ۱۸۴ گونه)، Masarinae (۵ جنس، ۲۴ گونه)، Polistinae (۲ جنس، ۱۷ گونه) و Vespinae (۳ جنس، ۶ گونه) فهرست شدند. ارزیابی کلی از الگوی پراکنش گونه‌های این خانواده در ایران، نشان دهنده یک فون مرکب متأثر از مناطق بیوجغرافیایی مختلف است. ۱۱۱ گونه در هر دو منطقه شرق و غرب پالئارکتیک یافت شده‌اند، در حالی که ۶۷ گونه تنها در منطقه شرق پالئارکتیک انتشار دارند. تعداد اندکی از گونه‌ها (۱۴ گونه، ۶/۱٪) متعلق به جنس‌های مختلف، در نواحی مرکزی و غربی آسیا پراکنش داشته و گزارشی از حضور آنها در اروپا (غرب پالئارکتیک) و خاور دور وجود ندارد. گونه‌هایی که در هر دو منطقه اورینتال و آفروتروپیکال یافت شده‌اند، به ترتیب ۱۱/۷ و ۱۵/۶ درصد از فون زنبورهای وسیع ایران را شامل می‌شوند. گونه‌های متعددی (۴۸، ۲۰/۸٪) منحصراً از ایران گزارش شده و هنوز هیچ گزارشی از پراکنش این گونه‌ها در سایر کشورها ثبت نشده است. بیشترین تعداد گونه‌ها به ترتیب از استان‌های سیستان و بلوچستان (۴۲ گونه، ۱۸/۲٪)، البرز (۴۲ گونه، ۱۸/۲٪)، فارس (۳۹ گونه، ۱۶/۹٪) و تهران (۳۸ گونه، ۱۶/۵٪) به عنوان مناطق شاخص از جنوب شرق و بخش‌های مرکزی شمال و جنوب کشور گزارش شده‌اند.

واژگان کلیدی: کاتالوگ، پراکنش، زنبورهای سرخ، زنبورهای کوزه‌گر، زنبورهای کاغذساز، زنبورهای گرده‌خوار، زنبورهای زرد

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