The Iranian fauna of the subfamilies Acaenitinae, Banchinae, Campopleginae, Ophioninae and Tryphoninae (Hymenoptera: Ichneumonidae) with some new records

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Masnadi-Yazdinejad, A., Jussila, R. & Riedel, M. 2010: The Iranian fauna of the subfamilies Acaenitinae, Banchinae, Campopleginae, Ophioninae and Tryphoninae (Hymenoptera: Ichneumonidae) with some new records. — Entomol. Fennica 21: 70–83.

This paper provides faunistic data for 24 species examined, belonging to 5 ichneumonid subfamilies: Acaentinae (6 species), Banchinae (4 species), Campopleginae (16 species), Ophioninae (4 species), and Tryphoninae (4 species). Of these, 6 species and 3 genera (*Arotes*, *Coleocentrus*, *Procinetus*) and 1 tribe (Coleocentrini) from Acaentinae, 4 species and 2 genera (*Arenetra* and *Exetastes*) from Banchinae, 7 species and 1 genus (*Rhimphoctona*) from Campopleginae, 4 species from Ophioninae and 4 species of Tryphoninae are new records for the Iranian ichneumonid fauna. Previously recorded species are also included. Distributional maps are given for all records. This study increases the number of known Iranian ichneumonids of Acaentinae to 7, Banchinae to 7, Campopleginae to 26, Ophioninae to 18, and Tryphoninae to 23 species.

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Received 25 June 2007, accepted 16 November 2009

1. Introduction

Iran is located in the western Palaearctic region with some Oriental characteristics introduced from the south-east. The distribution and biology of the majority of Iranian ichneumonid wasps are not well known. The hymenopterous family Ichneumonidae with 39 subfamilies and approximately 60,000 known species is one of the largest insect families of the world (Yu *et al.* 2005).

This paper provides additional records of ichneumonids from Iran, and presents their distribution within the country. It also refers to all previously recorded species from Iran.

The aim of this paper is to improve our understanding of and to provide more information about the fauna and distribution of the ichneumonid wasps from the subfamiles Acaentinae, Banchinae, Campopleginae, Ophioninae and Tryphoninae in Iran.

This paper is the last part in the series of Iranian ichneumonid wasp species which were pre-

Table 1. The Iranian species of Acaentinae. New records are indicated by an asterisk (*).

Species	References
Acaenitini	
**Arotes albicinctus* Gravenhorst, 1829	
Phaenolobus araxicola Kasparyan, 1985	Kolarov & Ghahari 2006
**Phaenolobus areolator* (Constantineanu & Constantineanu, 1968)	
**Phaenolobus fulvicornis* (Gravenhorst, 1829)	
Coleocentrini	
**Coleocentrus caligatus* Gravenhorst, 1829	
**Coleocentrus croceicornis* (Gravenhorst, 1829)	
**Procinetus decimator* (Gravenhorst, 1829)	

Table 2. The Iranian species of Banchinae. New records are indicated by an asterisk (*).

Species	References
Atrophini	
Arenetra agrotidis Kokujev, 1906	Aubert 1978, Kolarov & Ghahari 2005
**Arenetra pilosella* (Gravenhorst, 1829)	
Lissonota (*Loxonota*) *lineate* Gravenhorst, 1829	Aubert 1978, Kolarov & Ghahari 2005
**Lissonota magdalenae* Pfankuch, 1921	
Banchini	
Banchus dilatatorius (Thunberg, 1822)	Fitton 1985, Kolarov & Ghahari 2005
**Exetastes fornicator* (Fabricius, 1781)	
**Exetastes crassus* Gravenhorst, 1829	

viously authored by Masnadi-Yazdinejad and Jussila (2008a, b & 2009).

2. Material and methods

The material examined was mainly collected during 1999–2006 from several provinces of Iran. Additionally, material preserved at the Hayk Mirzayand Insect Museum (HMIM) was examined. The major sampling techniques used in this study were sweeping, Malaise trap, and light trap.

Identification was carried out referring to the following references: Meier (1968), Rossem (1969), Townes (1969, 1970), Kamath and Gupta (1972), Kasparyan (1974) and Schwarz (1999). However, some of the identifications were carried out or confirmed by the second and third authors. All the presented host data is based on Yu *et al.* (2005).

The entire known Iranian species of five subfamilies, Acaentinae, Banchinae, Campopleginae, Ophioninae and Tryphoninae with some new additional records are presented. One asterisk indicates new recorded species and 2 asterisks refer to newly recorded genera. The new tribe is marked with an asterisk. The geographical distributions along with dates and localities are given for all material examined. A short comment is presented for each examined species. The references are provided for each previously recorded species within the tables.

All examined materials are deposited in HMIM, located in the Insect Taxonomy Research Department of the Iranian Research Institute of Plant Protection.

3. Faunistics

For the subfamily Acaentinae, 6 species from 2 tribes are listed of which 6 species, 3 genera and one tribe are new records. For the Banchinae, 4 species from 2 tribes are included, of which 4 spe-

Table 3. The Iranian species of Campopleginae. New records are indicated by an asterisk (*).

Species	References
Alcima pictor Aubert, 1971	Nikdel *et al.* 2004, Kolarov & Ghahari 2005
Bathyplectes anurus (Thomson 1887)	Rowshandel 2000, Kolarov & Ghahari 2005
Bathyplectes curculionis (Thomson, 1887)	Saeedi 2004, Sabahi *et al*. 2002, Kolarov & Ghahari 2005
Campoletis ensator (Gravenhorst, 1829)	Davachi & Shojaei 1968
**Campoletis mitis* (Holmgren, 1860)	
**Campoletis rapax* (Gravenhorst, 1829)	
Campoletis thomsoni (Roman, 1915)	Masnadi-Yazdinejad 2006
**Campoplex deficiens* Gravenhorst, 1829	
Campoplex multicinctus Gravenhorst, 1829	Masnadi-Yazdinejad 2006
Casinaria tenuiventris (Gravenhorst, 1829)	Herard *et al*. 1979, Rajabi 1986
Diadegma anurum (Thomson, 1887)	Golizadeh *et. al.* 2008
**Diadegma armillatum* (Gravenhorst, 1829)	
**Diadegma areolare* (Holmgren, 1860)	
**Diadegma crassicorne* (Gravenhorst, 1829)	
Diadegma majale (Gravenhorst, 1829)	Masnadi-Yazdinejad 2006
Diadegma semiclausum (Hellen, 1949)	Bagheri *et al*. 2004, Kolarov & Ghahari 2005
Enytus apostata (Gravenhorst, 1829)	Sooudi *et al*. 2006
Hellwigia elegans flava Hedwig, 1957	Horstmann 1969, Yu & Horstmann 1997, Kolarov & Ghahari 2005
Hyposoter albipes Hedwig, 1957	Horstmann 1969, Yu & Horstmann 1997, Kolarov & Ghahari 2005
Hyposoter notatus (Gravenhorst, 1829)	Masnadi-Yazdinejad 2006
Leptoperilissus areolaris (Hedwig, 1957)	Yu & Horstmann 1997, Kolarov & Ghahari 2005)
Leptoperilissus persicus Horstmann, 1993	Yu & Horstmann 1997, Kolarov & Ghahari 2005
Phobocampe unicincta (Gravenhorst, 1829)	Sedivy 2004, Kolarov & Ghahari 2005
**Rhimphoctona megacephalus* (Gravenhorst, 1829)	
Sinophorus brunnifemur Sanborne, 1984	Yu & Horstmann 1997, Kolarov & Ghahari 2005
Venturia canescens (Gravenhorst, 1829)	Kolarov & Ghahari 2005

cies and two genera are new records to Iran. For the subfamily Campopleginae, 23 species are provided including 4 species and 1 genus, which are recorded from Iran for the first time. Out of 18 species belonging to the Ophioninae, 4 species are recorded from Iran for the first time. For the Tryphoninae, 23 species from 2 tribes are included, of which 4 species are new records to Iran.

The complete list of all known species from the five subfamilies is given in Tables 1–5. It is based both on the material examined by the authors and the literature reviewed. The distributions of all species are presented in Figs. 1–3.

3.1. Subfamily Acaentinae

Acaentinae have 240 world-wide and approximately 75 Palaearctic known species (Yu & Horstmann 1997), and its diagnostic description is: The labrum is usually conspicuous and semicircular in appearance. The apex of the clypeus is often appearing thick because of its preapical ridge. The protarsal and mesotarsal claws have usually accessory teeth near apex. Apical 0.3–0.5 of the metasoma is laterally compressed. The female hypogeum is very large and triangular in its lateral view. Relatively few species have been reared; the hosts are larvae in wood or woody tissues (Coleoptera) and probably dubious records of Sesiidae (Lepidoptera) and Siricoidea (Hymenoptera) (Goulet & Huber 1993).

Only the species *Phaenolobus araxicola* Kasparyan, 1985 from the tribe Acaentini has been previously recorded from Iran (Kasparyan 1981, Kolarov & Ghahari 2005). The following list presents the faunistic data, of which, 6 species, 3 genera and 1 tribe are new records for the Iranian Acaentinae.

Table 4. The Iranian species of Ophioninae. New records are indicated by an asterisk (*).

Species	References
Enicospilus ahngeri Kokujev, 1907	Shestakov 1926, Meyer 1935, Hedwig 1957, Townes *et al*. 1965, Kolarov & Ghahari 2005
Enicospilus cruciator Victorov 1957	Kasparyan 1981, Kolarov 1984, Kolarov & Ghahari 2005
Enicospilus ocellatus Shestakov, 1926	Hedwig 1957, Kolarov & Ghahari 2005
Enicospilus perlatus Shestakov, 1926	Hedwig 1957, Horstmann 1981, Bordera *et al*. 1987, Kolarov & Ghahari 2006
Enicospilus stenopsis (Kohl, 1905)	Hedwig 1957, Townes *et al*. 1965, Kolarov & Ghahari 2006
**Enicospilus tournieri* (Vollenhoven, 1879)	
Enicospilus variicarpus Kokujev 1907	Viktorov 1957, Townes *et al*. 1965, Kolarov & Ghahari 2005
**Eremotylus boguschi* (Meyer, 1935)	
Eremotylus intermedius (Hedwig, 1957)	Horstmann 1981, Yu & Horstmann 1997
Eremotylus pumilus (Hedwig, 1957)	Horstmann 1981, Yu & Horstmann 1997
**Ophion luteus* (Linnaeus, 1758)	
Ophiom minutes Kriechbaumer, 1879	Hedwig 1957, Kolarov & Ghahari 2005
Ophion mirsa (Shestakov, 1926)	Townes *et al*. 1965, Yu & Horstmann 1997
Ophion mocsaryi Brauns, 1889	Hedwig 1957, Kolarov & Ghahari 2005
**Ophion obscuratus* Fabricius, 1798	
Ophion parvulus Kriechbaumer, 1879	Hedwig 1957, Kolarov & Ghahari 2005
Ophion turcomanicus Szepligeti, 1905	Townes *et al*. 1965, Sedivy, 1968, Yu & Hortstmann 1997, Kolarov & Ghahari 2005
Simophion calvus Victorov, 1961	Townes *et al*. 1965, Horstmann 1981, Aubert 1984, Kolarov & Ghahari 2005

3.1.1. Tribe Acaentini

***Arotes albicinctus* Gravenhorst, 1829

Phaenolobus moiwanus Matsumura, 1912

Sphalerus bifasciatus Kriechbumer, 1878

Material examined. Fars, 1 ♀, Marvdasht, 21.II.2000, A. Masnadi-yazdunejad.

Distribution. Oriental and Palaearctic.

Comments. The genus *Arotes* Gravenhorst, 1829 and the species *A. albicinctus* are newly recorded from Iran.

**Phaenolobus areolator* (Constantineanu & Constantineanu, 1968)

Moldacoenitus areolator Constantineanu & Constantineanu, 1968

Material examined. Tehran, 1 ♀, Taleghan, Kalanal 1,800 m a.s.l., 26.VI.1991, Badii.

Distribution. Palaearctic.

Comments. This species is newly recorded from Iran.

**Phaenolobus fulvicornis* (Gravenhorst, 1829)

Collyria erythrogaster Lucas, 1849

Material examined. Ardebil, 1 ♂, Meshkinshahr, Ilandu 1,800 m a.s.l., 3.VII.1997. M. Mofidi.

Distribution. Western Palaearctic.

Comments. This species is newly recorded from Iran and its major host species are *Phytoecia cephalotes* and *Phytoecia coerulescens* (Col. Cerambucidae).

*3.1.2. Tribe *Coleocentrini*

***Coleocentrus caligatus* Gravenhorst, 1829

Coleocentrus maximus Rudow, 1881

Material examined. Kerman, 1 ♀, Koohbanan, 25.III.2006, S. Poor-Mohammadi.

Distribution. Western Palaearctic, eastern Palaearctic.

Comments. This is newly record for the tribe Coleocentrini from Iran. Some of the known host species are *Callidium aeneum* (Col., Cerambycidae), *Phymatodes testaceus* (Col., Cerambycidae) and *Urocerus gigas* (Hym., Siricidae).

Table 5. The Iranian species of Tryphoninae. New records are indicated by an asterisk (*).

Species	References
Phytodietini	
Netelia arabs (Strand, 1911)	Horstmann 1981, Kolarov & Ghahari 2006
**Netelia armeniaca* Tolkanitz, 1971	
Netelia cristata (Thomson, 1888)	Kolarov & Ghahari 2006
Netelia dilatata (Thomson, 1888)	Tolkanitz 1981, Kasparyan 1981, Kasparyan & Tolkanitz 1999, Kolarov & Ghahari 2005
Netelia fuscicornis (Holmgren, 1980)	Kolarov & Ghahari 2006
**Netelia grumi* (Kokujev, 1906)	
Netelia krishtali Tolkanitz, 1971	Kasparyan 1981, Kolarov 1994, Kasparyan & Tolkanitz 1999, Kolarov & Ghahari 2005
Netelia latungula (Thomson, 1888)	Kolarov & Ghahari 2006
Netelia lineolata (Costa, 1883)	Kolarov & Ghahari 2006
Netelia nigricornis Horstmann, 1981	Yu & Hortstmann 1997
**Netelia ocellaris* (Thomson, 1888)	
Netelia semenovi (Kokujev, 1899)	Townes *et al*. 1965, Kolarov & Ghahari, 2005
Netelia testacea (Gravenhorst, 1829)	Hedwig 1957, Townes *et al*. 1965, Constantineanu 1983, Kolarov & Ghahari 2005
Netelia thoracica (Woldstedt, 1880)	Townes *et al*. 1965, Kasparyan 1981, Kasparyan & Tolkanitz 1999, Kolarov & Ghahar 2005
Netelia tunetana (Habermehl, 1923)	Kolarov & Ghahari 2006
Netelia turanica (Kokujev, 1899)	Kolarov & Ghahari 2006
Netelia vinulae (Scopoli, 1763)	Tolkanitz 1981, Kasparyan 1981, Kasparyan & Tolkanitz 1999, Kolarov & Ghahari 2005
Tryphonini	
Tryphon atriceps Stephans, 1835	Kasparyan 1973, Kolarov & Ghahari 2005
**Tryphon hinzi* Heinrich, 1953	
Tryphon psilosagator Aubert, 1966	Kolarov & Ghahari 2006
Tryphon rutilator (Linnaeus, 1761)	Kasparyan 1973, Kolarov 1977, Kolarov & Andoni 1995, Kolarov *et al*. 1999, Kolarov & Ghahari 2005
Zaglyptus multicolor (Gravenhorst, 1829)	Kolarov & Ghahari 2006
Zaglyptus varipes (Gravenhorst, 1829)	Kolarov & Ghahari 2006

**Coleocentrus croceicornis* (Gravenhorst, 1829)

Macrus soleatus Gravenhorst, 1829

Material examined. Mazandaran, 1 ♂, Behshar, 13.VII.2000. M. Mofidi & E. Ebrahimi.

Distribution. Western Palaearctic and eastern Palaearctic.

Comments. This species is newly recorded from Iran.

***Procinetus decimator* (Gravenhorst, 1829)

Heterolabis aberrans Kriechbaumer, 1889

Heterolabis crassula Kriechbaumer, 1889

Leptobatus biroi Kiss, 1933

Tryphon maculates Gravenhorst, 1829

Material examined. Kohkiluyeh, Boyer-ahmad, 1 ♂, Yasuj, Tang-e Meymand 1,700 m a.s.l., 23.XI.1998, E. Ghilasian.

Distribution. Western Palaearctic and eastern Palaearctic.

Comments. The genus *Procinetus* Forster, 1869 and the species *P. decimator* are new records from Iran.

3.2. Subfamily Banchinae

Banchinae have 1,500 world-wide and approximately 440 Palaearctic known species (Yu & Horstmann 1997), and its diagnostic description is: Small to large (fore wing 3–16 mm long). Clypeus convex and often not separated from face by groove, the apical margin often with median point; postpectal carina usually complete; fore wing with areolet open; metasomal segment 1 long and slender, without glymma, with no trace

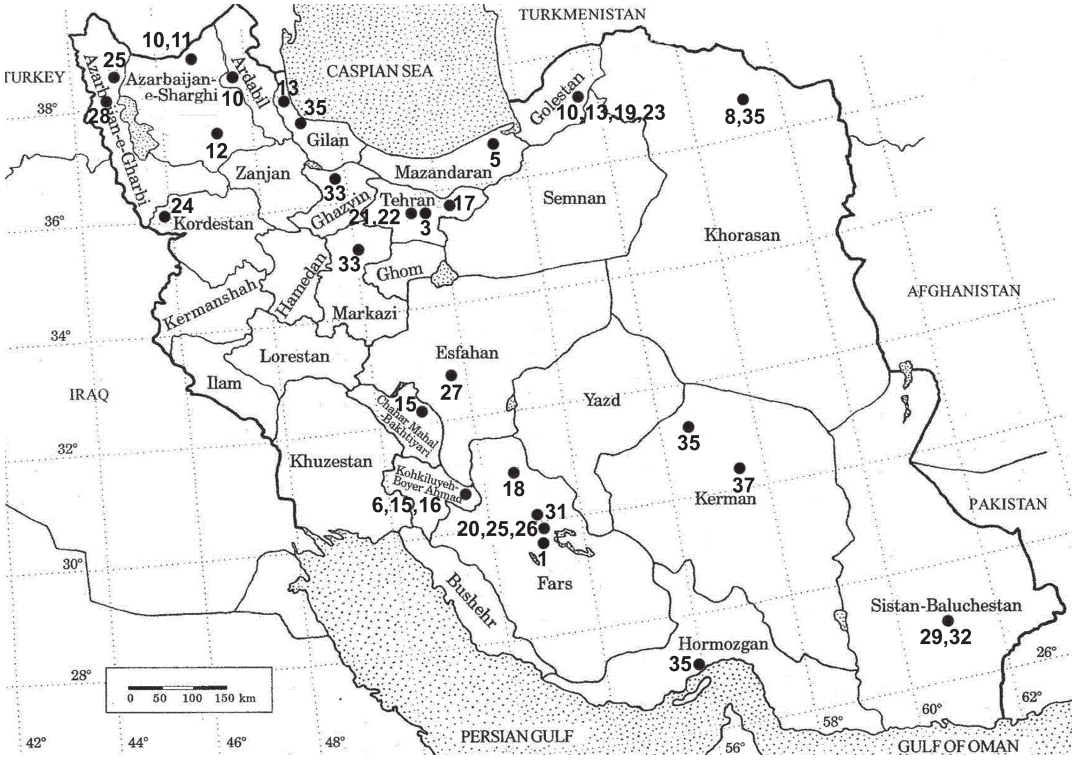

Fig. 1. Distribution of the Iranian species of the subfamilies Acaentinae, Banchinae and Campopleginae. The species with an asterisk has been recorded from Iran without any locality information.

Acaentinae: 1, *Arotes albicinctus*; 2, *Phaenolobus araxicola**;3, *Phaenolobus areolator*; 4, *Coleocentrus caligatus**; 5, *Coleocentrus croceicornis*; 6, *Procinetus decimator*.

Banchinae: 7, *Arenetra agrotidis**; 8, *Arenetra pilosella*; 9, *Banchus dilatatorius**; 10, *Lissonota lineate*; 11, *Lissonota magdalenae*; 12, *Exetastes fornicator*; 13, *Exetastes crassus*.

Campopleginae: 14, *Alcima pictor*; 15, *Bathyplectes anurus*; 16, *Bathyplectes curculionis*; 17, *Campoletis ensator*; 18, *Campoletis mitis*; 19, *Campoletis rapax*; 20, *Campoletis thomsoni*; 21, *Campoplex multicinctus*; 22, *Casinaria tenuiventris*; 23, *Diadegma anurum*; 24, *Diadegma armillatum*; 25, *Diadegma crassicorne*; 26, *Diadegma majale*; 27, *Diadegma semiclausum*; 28, *Enytus apostate*; 29, *Hellwigia elegans flava*; 30, *Hyposoter albipes**; 31, *Hyposoter notatus*; 32, *Leptoperilissus areolaris*; 33, *Leptoperilissus persicus*; 34, *Phobocampe unicincta**; 35, *Rhimphoctona megacephalus*; 36, *Sinophorus brunnifemur**; 37, *Venturia canescens*.

of tergal sternal suture, and with spiracle near apex. This subfamily is known as koinobiont endoparasit of Lepidoptera larvae, parasitizing caterpillars in leaf rolls, tunnels, buds and other concealed situations; however, Banchini parasitize more exposed hosts (specially Noctuidae) (Goulet & Huber 1993).

Three species belonging to the subfamily Banchinae have been previously recorded from Iran (Kolarov & Ghahari 2005). The following list provides the faunistic data for 4 new Iranian species from the Atrophini and Banchini.

3.2.1. Tribe Atrophini

***Arenetra pilosella* (Gravenhorst, 1829)

Arenetra agrotidis, Kokujev, 1906

Material examined. Khorasan 1 ♂, Mazare-e Astan-e Ghods Unit 2,280 m a.s.l., 18.IV.1997, A. Sarafrazi.

Distribution. Palaearctic.

Comments. The genus *Arenetra* Holmgren, 1859 and the species *A. pilosella* are newly recorded from Iran. Its host species is *Phigalia pilosaria* (Lep., Geometridae).

Fig. 2. Distribution of the Iranian species of Ophioninae. The species with an asterisk has been recorded from Iran without any locality information. 1, *Enicospilus ahngeri**; 2, *Enicospilus cruciator**; 3, *Enicospilus ocellatus**; 4, *Enicospilus perlatus**; 5, *Enicospilus stenopsis**; 6, *Enicospilus tournieri*; 7, *Enicospilus variicarpus*; 8, *Eremotylus boguschi*; 9, *Eremotylus intermedius*; 10, *Eremotylus pumilus*; 11, *Ophion luteus*; 12, *Ophion minutes*; 13, *Ophion mocsaryi**; 14, *Ophion mirsa**; 15, *Ophion obscuratus*; 16, *Ophion parvulus*; 17, *Ophion turcomanicus**; 18, *Simophion calvus**.

**Lissonota magdalenae* Pfankuch, 1921
Lissonota vernalis Roman, 1925

Material examined. Ardabil, 1 ♂, Sabalan, Ghotur, 2,300 m a.s.l., 28.V.1985, H. Mirzayans & A. Pazuki; Gholestan, 4 ♀♀, Park-e Melli-e Golestan, Tangegol, 700 m a.s.l., 25.VIII.1996, E. Ebrahimi; Azarbaijan-e Sharghi, 2 ♀♀, Kaleibar, Vayeghan, 1,440 m a.s.l., 5.VIII.1992, M. Parchami-Araghi & M. Badii.

Distribution. Western Palaearctic.

Comments. This species is newly recorded from Iran.

3.2.2. Tribe Banchini

***Exetastes fornicator* (Fabricius, 1781)
Ichneumon fornicator Fabricius, 1781
Ichneumon expansor Thunberg, 1822
Banchus nervulus Say, 1835
Exetastes punctulatus Kokujev, 1905
Exetastes chosensis Uchida, 1955

Material examined. Azarbaijan-e Sharghi, 1 ♀, Kaleybar, Vayeghan, 1,440 m a.s.l., 5.VIII.1992, M. Parchami-Araghi & M. Badii.

Distribution. Palaearctic, Oriental, Nearctic and Neotropical parts.

Comments. The genus *Exetastes* Gravenhorst, 1829 and the species *E. fornicator* are new records from Iran. This species is attracted to light and its host species are *Abagrotis alternate*, *Cucullia asteris*, *Cucullia balsamitae*, *Cucullia lactucae*, *Lacanobia oleracea* and *Mamestra brassicae* (Lep., Noctuidae), as well as *Mimas tiliae* (Lep., Sphingidae), *Rhyparia purpurata* (Lep., Arctidae) and *Trichiosoma sorbi* (Hym., Cimbicidae).

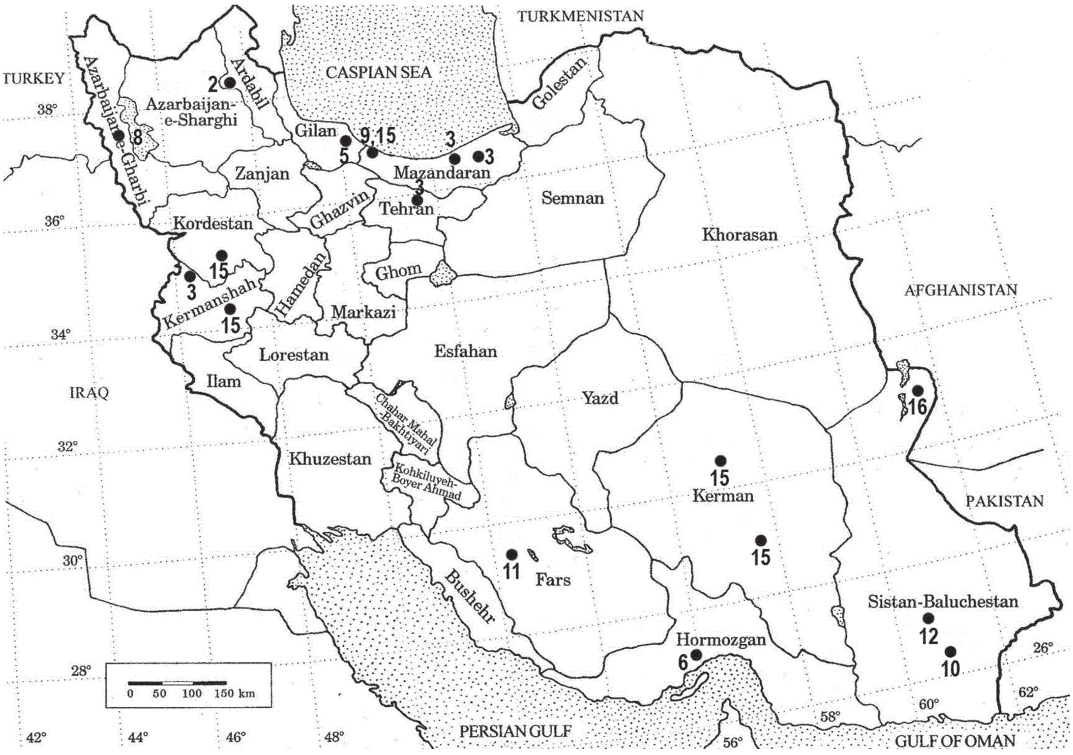

Fig. 3. Distribution of the Iranian species of Tryphoninae. The species with an asterisk has been recorded from Iran without any locality information. 1, *Netelia arabs**; 2, *Netelia armeniaca*; 3, *Netelia cristata*; 4, *Netelia dilatata**; 5, *Netelia fuscicornis*; 6, *Netelia grumi*; 7, *Netelia krishtali**; 8, *Netelia latungula*; 9, *Netelia lineolata*; 10, *Netelia nigricornis*; 11, *Netelia ocellaris*; 12, *Netelia semenovi*; 13, *Netelia testacea**; 14, *Netelia thoracica**; 15, *Netelia tunetana*; 16, *Netelia turanica*; 17, *Netelia vinulae**.

**Exetastes crassus* Gravenhorst, 1829

Exetastes bicoloratus Gravenhorst, 1829

Material examined. Ghilan, 1 ♀, Asalem, 1,250 m a.s.l., 30.VII.1976, H. Bromand & A. Pazuhi.

Distribution. Palaearctic.

Comments. This species is newly recorded from Iran. Its host species are *Colocasia coryli* (Lep., Pantheidae), *Eligmodonta ziczac* (Lep., Notodontidae), *Periphanes delphinii*, *Shargacucullia caninae*, *Shargacucullia lychnitis* and *Shargacucullia scrophulariae* (Lep., Noctuidae).

3.3. Subfamily Campopleginae

Campopleginae has 2,200 world-wide and approximately 1,000 Palaearctic known species (Yu & Horstmann 1997), and its diagnostic description is: The face of the wasps is usually entirely black; the clypeus is not distinctly separated from the face, and the mandible has a ventral flange; the fore wing has a slender stigma; the ventroposterior corner of the propleuron has a strongly produced lobe touching or overlapping the pronotum; the mesotibial and metatibial spurs are not separated from the first tarsomere by a sclerotized bridge; ovipositor is often upcurved, its dorsal subapical notch is almost always present; the predominant colour is black or black and red; face is rarely pale in the Holarctic species. This subfamily is well known as koinobiont endoparasitoids of Lepidoptera or Symphyta larvae. However, a few of them parasitize Raphidae (Raphidioptera) (Goulet & Huber 1993). Campopleginae is formerly known as Porizontinae (Townes 1969).

From this subfamily, 18 species have previously been recorded from Iran (Shojaei 1968, Herard *et al.* 1979, Kasparyan 1981, Kolarov &

Ghahari, 2005, Masnadi-Yazdinejad 2006). The following data provide more information for 16 examined species, of which 7 species and 1 genus are new records to Iran.

**Campoletis mitis* (Holmgren, 1860)
Sagaritis mitis Holmgren, 1860
Campoplex latrator Gravenhorst, 1829
Sagaritis latratrix Schulz, 1906
Omorgus bicingulatus Szépligeti, 1916
Material examined. Fars, 1 ♀, Eghlid, Khosroshirin, 2,300 m a.s.l., 22.V.1995, A. Sarafrazi & M. Badii; 1 ♀, Neyriz, 1,950 m a.s.l., 4.V.1996, M. Badii.
Distribution. Western Palaearctic, Europe.
Comments. This species is newly recorded from Iran.

Campoletis ensator (Gravenhorst, 1829)
Sagaritis holmgreni Tschek, 1871
Distribution. Eastern and western Palaearctic, Oriental, Iran (Davachi & Shojaei 1968).
Comments. Some of the important host species are *Agrotis segetum* (Lep., Noctuidae), *Plusia modesta* (Lep., Noctuidae) and *Yponomeuta plumbella* (Lep., Yponomeutidae).

**Campoletis rapax* (Gravenhorst, 1829)
Campoples rapax Gravenhorst, 1829
Omorgus curticaudis Szépligeti, 1916
Sagaritis erythropus Thomson, 1887
Material examined. Golestan, 1 ♀, Park-e Melli Golestan, Dasht-e shad, 1,390 m a.s.l., 25.VII.1996, E. Ebrahimi & V. Nazari.
Distribution. Eastern and western Palaearctic.
Comments. The species is newly recorded for the Iranian fauna. Some of the important host species are *Autographa gamma* (Lep., Noctuidae), *Lymantria dispar* (Lep., Lymantridae) and *Ostrinia nubilalis* (Lep., Pyralidae).

Campoletis thomsoni (Roman, 1915)
Sagritis thomsoni Roman, 1915
Material examined. Fars, 2 ♀♀, Shiraz, 23.VI.1999, A. Masnadi-Yazdinejad; 1 ♂, Bidezard, 30.VIII.1999. A. Masnadi-Yazdinejad.
Distribution. Western Palaearctic, Iran (Masnadi-Yazdinejad 2006)

**Campoplex deficiens* Gravenhorst, 1829
Omorga algerica Hambermehl, 1922
Material examined. Tehran, 1 ♀, Robat Karim, Yagheh, 1,000 m a.s.l., M. Badii.
Distribution. Palaearctic.
Comments. This species is newly recorded from Iran and its important host species is *Eupithecia pulchellata* (Lep., Geometridae).

Campoplex multicinctus Gravenhorst, 1829
Campoples multicinctus Gravenhorst, 1829
Omorgus excentricus Bauer, 1937
Material examined. Tehran, 1 ♀, Tehran, 1974, Monajjemi.
Distribution. Western Palaearctic, Oriental, Iran (Masnadi-Yazdinejad 2006).
Comments.This species overwinters as larvae. Some of the important host species are *Anthonomus pomorum* (Col., Curculionidae), *Helicoverpa armigera* (Lep., Noctuidae) and *Pandemis corylana* (Lep., Tortricidae).

Casinaria tenuiventris (Gravenhorst, 1829)
Campoples tenuiventris Gravenhorst, 1829
Campoplex conica Ratzeburg, 1844
Casinaria latifrons Holmgren, 1860
Casinaria protensa Thomson, 1887
Material examined. Tehran, 1 ♂, Evin, 1986, M. Abaei & Gh. Rajabi.
Distribution. Eastern and western Palaearctic, Iran (Herard *et al*. 1979, Rajabi 1986).
Comments. Some of the important host species are *Lymantria dispar* (Lep., Lymantridae) and *Pieris rapae* (Lep., Pieridae).

Diadegma anurum (Thomson, 1887)
Angita anura Thomson, 1889
Material examined. Golestan, 1 ♀, Parke-e Melli Golestan, Sulgerd, 1,150 m a.s.l., 8.V.1999, H. Barari.
Distribution. Western Palaearctic, Iran (Golizadeh *et al*. 2008).
Comments. The important host species is *Tischeria ekebladella* (Lep., Tischeriidae).

**Diadegma areolare* (Holmgren, 1860)
Limneria areolaris
Material examined. Azarbayejan-e Sharghi, 1 ♂, Marand, 22.V.2007, H. Lotfalizade.
Distribution. Palaearctic.

Comments. This species is newly recorded from Iran. The important host species are *Cochylis posterana* (Lep., Tortricidae), *Euclidia glyphica* (Lep., Noctuidae).

**Diadegma armillatum* (Gravenhorst, 1829)
Angitia monospila Thomson, 1887
Angitia pseudocombinata Szepligeti, 1916
Campoplex tibialis Brischke, 1880
Material examined. Kordestan, 1 ♀, Bane, 10.VI.1998, A. Masnadi-yazdinejad
Distribution. Palaearctic.
Comments. This species is newly recorded from Iran. The important host species are *Agonopterix subpropinquella* (Lep., Oecophoridae), *Hellula undalis* (Lep., Pyralidae), *Paraswammerdamia lutarea* (Lep., Yponomeutidae), *Plutella xylostella* (Lep. Plutellidae), *Tebenna bjerkandrella* (Lep, Choreutidae).

**Diadegma crassicorne* (Gravenhorst, 1829)
Campoples crassicornis Gravenhorst, 1829
Campoplex carnifex Gravenhorst, 1829
Limneria noromannica Rudow, 1883
Material examined. Azarbaijan-e-Gharbi, 1 ♂, Khoy, Habash-e Solfa, 1,825 m a.s.l., 19.VIII.1994, A. Safarrazi & E. Ebrahimi; Fars, 1 ♀, Shiraz, Bamu, Parke-e Melli, 1,590 m a.s.l., 14.XI.1997, V. Nazari & M. Mofidi- Neyestank.
Distribution. Eastern and western Palaearctic.
Comments. This species is newly recorded from Iran. Some of the important host species are *Agrotis segetum* (Lep., Noctuidae) and *Ostrinia nubilalis* (Lep., Pyralidae).

Diadegma majale (Gravenhorst, 1829)
Campoplex majalis Gravenhorst, 1829
Angitia claripennis Thomson, 1887
Material examined. Fars, 2 ♀♀, Shiraz, 11.II.1999, A. Masnadi-Yazdinejad; Bajgah, 1 ♀ and 1 ♂, 27.VIII.1999, A. Masnadi-Yazdinejad.
Distribution. Eastern and western Palaearctic, Iran (Masnadi-Yazdinejad 2006).
Comments. Some of the important host species are *Plutella xylostella* (Lep., Plutellidae), *Vanessa atalanta* (Lep., Nymphalidae), *Yponomeuta malinella* and *Yponomeuta padella* (Lep., Yponomeutidae).

Enytus apostata (Gravenhorst, 1829)
Campoplex apostata Gravenhorst, 1829
Angitia crataegellae Thomson, 1887
Campoplex exareolatus Habermehl, 1922
Horogenes patens Townes, 1945
Material examined. Azarbaija-e Gharbi: 4 ♀♀, Kahriz, 6.VIII.2003, Akbarzade.
Distribution. Eastern and western Palaearctic, Ethiopian, Oriental districts and Iran (Sooudi *et al.* 2006).
Comments. The major host species are *Anthonomus pomorum* (Col., Curculionidae), *Archips rosana* (Lep., Tortricidae), *Cydia pomonella* (Lep., Tortricidae), *Ostrinia nubilalis* (Lep., Pyralidae), *Tortrix viridana* (Lep., Tortricidae), *Vanessa cardui* (Lep., Nymphalidae), *Yponomeuta malinella* and *Yponomeuta padella* (Lep., Yponomeutidae).

Hyposoter notatus (Gravenhorst, 1829)
Campoplex notatus Gravenhorst, 1829
Material examined. Fars, 1 ♀, Bajgah, 27.III.2000, A. Masnadi-Yazdinejad; 1 ♂, Marvdasht, 3.VI.2000, A. Masnadi-Yazdinejad.
Distribution. Eastern and western Palaearctic, Nearctic, Iran (Masnadi-Yazdinejad 2006).
Comments. Some of the important host species are *Agrotis segetum* (Lep., Noctuidae), *Helicoverpa zea* (Lep., Noctuidae) and *Polyommatus icarus* (Lep., Lycaenidae).

Leptoperilissus areolaris (Hedwig, 1957)
Leptoperilissus areolaris Hedwig, 1957
Nepiesta ocellator Aubert, 1966
Material examined. Kerman, 9 ♂♂ and 5 ♀♀, Jiroft, Kahnui 5km., 420 m a.s.l., 13.III.1978, A. Pazuki.
Distribution. Eastern and western Palaearctic, Ethiopian, Iran (Hedwig 1957).

***Rhimphoctona megacephalus* (Gravenhorst, 1829)
Campoples megacephalus Gravenhorst, 1829
Material examined. Hormozgan, 1 ♂, Geno, 1,550 m a.s.l., 19.IV.1994, M. Parchami-Araghi & E. Ebrahimi.
Distribution. Eastern and western Palaearctic, Oriental.
Comments. The genus *Rhimphoctona* Foerster, 1869 and the species *R. megacephalus* are new records for the Iranian fauna.

3.4. Subfamily Ophioninae

Ophioninae has 1,200 world-wide and approximately 190 Palaearctic known species (Yu & Horstmann 1997), and its diagnostic description is: Medium to large specimens (fore wing 6–29 mm). The clypeus is separated from the face by a distinct groove, the apical margin has no teeth; the ocelli are always large, with lateral ocelli separated from the eyes by less than their diameter; the antenna has often more than 55 flagellomers. The fore wing has an open areolet, with the vein 3r-m apical to the vein 2m-cu. The metasomal segment 1 is long, without glymmae and with no trace of tergal-sternal suture; the ovipositor is short, equal to the metasomal height at its apex. This subfamily is well known as koinobiont endoparasitoids of Lepidoptera; nevertheles one species parasitizes Scarabaeidae (Coleoptera) (Goulet & Huber 1993).

Fourteen species of Ophioninae have previously been recorded from Iran (Kolarov & Ghahari 2005, Shestakov 1926, Meyer 1935, Hedwig 1957, Viktorov 1957, Townes *et al*. 1965, Horstmann 1981, Yu & Horstmann 1997, Šedivy 1968, Morley 1913, Aubert 1984, Kasparyan 1981). The following list provides faunistic data for 4 examined species. All of them are new records for the Iranian fauna.

**Enicospilus tournieri* (Vollenhoven, 1879)
Ophion tourneri Vollenhoven, 1879
Enicospilus contributus Shestakov, 1926
Henicospilus rossicus Kokujev, 1907
Material examined. Fars, 1 ♀, Shiraz, 20.VI.2000, A. Masnadi-Yazdinejad
Distribution. Eastern and western Palaearctic.
Comments.This species is newly recorded for the Iranian fauna and the noctuid host species are *Agrotis ipsilon* and *Agrotis segetum* (Lep., Noctuidae).

**Eremotylus boguschi* (Meyer, 1935)
Ophion boguschi Meyer, 1935
Clistorapha ventosa Viktorov, 1961
Material examined. Tehran, 1 ♀, Malard, Khushnam, 25.XII.1991, E. Ebrahimi.
Distribution. Eastern and western Palaearctic, Ethiopian.
Comments. This species is newly recorded for the Iranian fauna.

**Ophion luteus* (Linnaeus, 1758)
Ichneumon luteus Linnaeus, 1758
Ichneumon fulvus Fabricius, 1775
Ichneumon vinulae Scopoli, 1763
Ophion calcaratus Morley, 1915
Ophion dispar Branus, 1895
Ophion distans Thomson, 1884
Ophion pictus Habermehl, 1921
Ophion scutellaris Thomson, 1888
Ophion slaviceki Kriechbaumer, 1892
Material examined. Golestan, 5 ♀♀, Park-e Melli Golestan, Tang-e Gol, 5.V.1999, H. Barari.
Distribution. Almost worldwide (Australian, eastern and western Palaearctic, Nearctic, Neotropical, Oriental).
Comments. This species is first recorded from Iran and has more than 56 known host species, including *Agrotis segetum* (Lep., Noctuidae) and *Cydia pomonella* (Lep., Tortricidae).

**Ophion obscuratus* Fabricius, 1798
Ophin obscuratus Fabricius, 1798
Ichneumon polyguttator Thunberg, 1822
Ophion flavopictus Smith, 1874
Material examined. Tehran,12 ♀♀, Lavasan, Naran, 1,650 m a.s.l., 30.IV.1991, E. Ebrahimi & M. Badii; Golestan, 2 ♀♀, Park-e Melli Golestan, Sulgerd 1,150 m a.s.l., H. Barrari & M. Moghaddam; Hormozgan, 1 ♀, Haji Abad, 900 m a.s.l., 12.III.1995, A. Sarafrazi & M. Baddii; Kerman, 1 ♀, Baft Ghanat-e Marwan, 2,800 m a.s.l., 22.V.1977, M. Safavi; Fars, 1 ♀ Gavkoshak, 10.IV.1976, M. Abaei.
Distribution. Western and eastern Palaearctic.
Comments. This newly recorded species is attracted to light and some of the major host species are *Eriogaster lanestris*, *Malacosoma neustria* (Lep., Lasiocampidae) and *Noctua fimbriata* (Lep., Noctuidae).

3.5. Subfamily Tryphoninae

Tryphoninae has 1,300 world-wide and approximately 570 Palaearctic known species (Yu & Horstmann 1997), and its diagnostic description is: Small to large specimens. The clypeus is large

and convex, and separated from the face by a groove and its apical margin with a fringe of long parallel setae. The tarsal claws are usually pectinate; the metasomal segment 1 is stout to slender, with the glymma usually present and large. The ovipositor is usually short, not longer than the metasomal height at its apex, without a dorsal subapical notch. The ovipostor has often attached eggs. Most species are ectoparasitoids of Symphyta larvae (Goulet & Huber 1993). The egg is large and attached to the host by a stalk that is imbedded into the host. Two tribes, Phytodietini and Eclytini attack mainly or only lepidopterous larvae (Townes 1969).

Nineteen species of Tryphoninae have previously been recorded from Iran (Meyer 1931, Townes *et al.* 1965, Kasparyan 1973, 1981, Horstmann 1981, Tolkanitz 1981, Constantineanu 1983, Kolarov 1994, Kolarov & Andoni 1995, Kasparyan & Tolkanitz 1999, Kolarov & Ghahari 2005, 2006). The following results provide faunistic data for 4 examined species from two tribes that are all presented as new records for the Iranian fauna.

3.5.1. Tribe Phytodietini

**Netelia armeniaca* Tolkanitz, 1971
Netelia armenica Tolikanitz, 1971
Material examined. Ardabil, 1 ♂, Sabalan, Ghotursui, 2,300 m a.s.l., 28.VI.1985, H. Mirzayans & A. Pazuki.
Distribution. Eastern and western Palaearctic.
Comments. This species is newly recorded for the Iranian fauna.

**Netelia grumi* (Kokujev, 1906)
Paniscus grumi Kokujev, 1971
Material examined. Hormozgan, 1 ♀, Geno, 1,550 m a.s.l., 18.IV.1994, M. Parchami-Araghi & E. Ebrahimi.
Distribution. Eastern and western Palaearctic.
Comments. This species is newly recorded for the Iranian fauna and the host species is *Orthosia incerta* (Lep., Noctuidae).

**Netelia ocellaris* (Thomson, 1888)
Paniscus ocellaris Thomson, 1888
Paniscus longitarsis Cameron, 1899
Material examined. Fars, 1 ♀, Dashtarjan, 20.VI.1999, A. Masnadi-Yazdinejad.
Distribution. Eastern and western Palaearctic, Oriental.
Comments. This newly recorded species is attracted to light and is known as a koinobiont endoparasitoid of larva of *Helicoverpa armigera* (Lep., Noctuidae), *Lacanobia suasa* (Lep., Noctuidae) and *Smerinthus ocellatus* (Lep., Sphingidae).

3.5.2. Tribe Tryphonini

**Tryphon hinzi* Heinrich, 1953
Tryphon hinzi Heinrich, 1953
Tryphon clauseni Uchida, 1955
Material examined. Tehran, 1 ♂, Robat Karim, Yagheh, 1,000 m a.s.l., 19.V.1992, E. Ebrahimi & M. Badii.
Distribution. Eastern and western Palaearctic.
Comments. This species is the first record of the tribe from Iran.

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