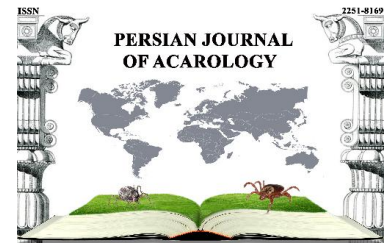




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## Article

### A catalogue of the Iranian Mesostigmata (Acari): additions and updates of the previous catalogue

Alireza Nemati<sup>1\*</sup>, Elham Riahi<sup>1</sup>, Arsalan Khalili-Moghadam<sup>1</sup> and Dariusz J. Gwiazdowicz<sup>2</sup>

1. Plant Protection Department, Agricultural College, Shahrekord University, Shahrekord, Iran; E-mails: [nemati.alireza@agr.sku.ac.ir](mailto:nemati.alireza@agr.sku.ac.ir) and [alireza.nemat@ymail.com](mailto:alireza.nemat@ymail.com), [plant.pro2@gmail.com](mailto:plant.pro2@gmail.com), [khalili92@ut.ac.ir](mailto:khalili92@ut.ac.ir)
2. Poznan University of Life Sciences, Department of Forest Pathology, Wojska Polskiego 71C, 60–625 Poznań, Poland; E-mail: [dagwiazd@up.poznan.pl](mailto:dagwiazd@up.poznan.pl)

\* Corresponding author

#### ABSTRACT

The present catalogue deals with the results of a survey carried out on available literature consisted of collected and identified mesostigmatic mites associated with different kinds of host/habitats in Iran. Some family, genera, and species of mesostigmatic mites of Iran which were not included in the checklist provided by Kazemi and Rajaei, 2013 as well as their distribution data are presented. Overall, a total of 371 species out of 127 genera belonging to 39 families were listed in the present paper. Consequently, by considering Phytoseiidae family, the list of mesostigmatic mites reported from different parts of Iran was increased into 47 families, 172 genera and 620 species. It is also worth mentioning that *Ololaelaps gamagarensis* Jordaan & Loots was considered as junior synonym of *O. mooiensis* Ryke and *Pseudoparasitus talebii* Nemati, Malekshahkoochi & Afshari, was considered as junior synonym of *P. hajiqaanbari* Kazemi.

**KEY WORDS:** Checklist; distribution; *Ololaelaps mooiensis*; *Pseudoparasitus hajiqaanbari*; synonymy.

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## INTRODUCTION

Iran with an area of 1,648,000 square kilometres, is a southwest Asian country of mountains and deserts, which based on size it ranks 18 among the world's countries. It encompasses two major range of mountains, the Alborz with the highest peak in Asia west of the Himalayas, Damavand and the Zagros extending from north-west to the southeast. A high plateau with large salt flats and vast sand deserts is located at eastern Iran. Farming and settlement are largely concentrated in the narrow plains or valleys in the west or north, where there is more rainfall. Actually, two sides of Iran are surrounded by sea, the Caspian coastline on the north and the southern coastline of Iran, including the Persian Gulf and Oman Sea. Furthermore, 7% of the country is forested, with the most extensive growths found on the mountain slopes rising from the Caspian Sea. These differences have resulted in the wide distribution of wildlife around the country.

According to the climate condition, Iran has been divided into four different climate zones: 1. BWh Climate, the western and southwestern areas which have a hot, dry desert climate with annual average temperatures above 18 °C; 2. BSh Climate, a small zone between the Persian Gulf the Turkish Border in the mid of Iran with a hot, dry climate with the annual average temperature above 18 °C; 3. Csa Climate, the eastern and northern areas of Iran having a mild, semi-humid climate with

dry summers, mild winters and the warmest month above 22° C, and 4. Dsa Climate, the mountainous regions of northern Iran having a cold snow climate with dry summers and wet winters with the warmest month over 22 °C and the coldest month below –3 °C. Surprisingly, Iran is one of the few countries that have all four distinguished seasons. On the other hand, at any time of a year, in each side of Iran, one of the four seasons can be occurred. Not only, the length of the seasons differs at various regions but also Iran's variety in terms of temperature, humidity and rainfall differs from region to region and season to season which all of these variations affect the country's flora and fauna, not only in quantity but also in the range of species. This variability in topography and climate has given Iran a diverse range of ecosystems.

The Mesostigmata, large and cosmopolitan assemblage of parasitiform mites, have a considerable diversity of lifestyle and habitats. The majority of species have been found in association with soil (Ryke 1963; Lapina 1976; Kavianpour *et al.* 2013a, b; Nemati and Kavianpour 2013); mammals (Gettinger *et al.* 2005); birds (Hyland *et al.* 1978) and arthropods (Ishikawa 1968; Hunter and Rosario 1988). Three suborders, 26 superfamilies, along with approximately 70 families have been considered for this order (Lindquist *et al.* 2009), of which 41 families as well as, 17 superfamilies have been distributed in Iran (Kazemi and Rajaei 2013).

Considering the facts, which argued above, and the amount of studies accomplished, not only preparing but also frequently updating the checklist for different Iranian animal and plant species is essential. There is a large volume of published studies describing and reporting the mesostigmatic mite fauna in Iran, especially during the last three decades. In 2001, Kamali *et al.* (2001) published a book in which they reported 159 families, 430 genera and about 1000 species of Acari from Iran of which 157 species belong to 88 genera of Mesostigmata. Kazemi and Rajaei (2013), published an annotated checklist of Iranian Mesostigmata in which they reported 348 species belonging to 128 genera, 39 families, and 17 superfamilies. In addition, Hajizadeh and Faraji (2016) provided valuable information concerning three subfamilies, 13 genera and 87 species of Phytoseiidae family with illustrated key as a book. We found that Kazemi and Rajaei (2013) have not reported 20 species from different families including Digamasellidae, Macronyssidae, Zerconidae, Melicharidae, Schizogyniidae, Laelapidae, Dermanyssidae, along with Parasitidae. As a consequence, in the current work, (i) We summarized the information of other unreported family, genera, and species, including their distribution and habitat or host; (ii) The available studies on Iranian mesostigmatic mites published after Kazemi and Rajaei (2013) were reviewed. We have attempted to find all available literature, but we acknowledge that some may have been overlooked.

## MATERIALS AND METHODS

The information on recorded species and their habitats or hosts were obtained from previous records in the literature about the mite fauna of Iran. The list of species was sorted by genera in each family and includes sampling information (locality, microhabitat or host). It is also worth mentioning that we cannot confirm the identification validity of all previously recorded species except the taxa which have been reported or described by authors of this paper.

In addition, the species identified at the generic level have been mentioned when the genus not referred at the species level. Furthermore, we did not include the longitude and latitude for the simple reason that this information was not present for the majority of the reported species. For this purpose, a simple map of Iran is presented to show the names of the provinces (Fig. 1). Due to the publication of Hajizadeh and Faraji (2016), we refrain from mentioning Phytoseiidae species.

Some species belonging to Laelapidae family temporarily relegated to the species “*incertae sedis*”. For this reason, we put them in the *Hypoaspis s. lat.* as long as a thorough investigation is carried out to find the proper genus.

## RESULTS

In addition to the species not included in the study of Kazemi and Rajaei (2013), during five years (2013–2018) the list of mesostigmatic species reported from different parts of Iran were increased into 533, which is the results of existing a great deal of variability in Iran's topography, temperate climatic zone, geological and geomorphic structure, as well as climate. Overall, a total of 371 species out of 127 genera belonging to 39 families are listed.



**Figure 1.** A simple map of Iranian provinces.

As a result of our review, we present the following list of species organized in two categories:

### **PART I: Mites not included (family, genera, species, or the species distribution) in the checklist provided by Kazemi and Rajaei (2013)**

Despite the very valuable work done by Kazemi & Rajaei (2013), the names of some mites at different taxonomic levels (one family, three genera, and 20 species) or their distribution have not been included. The names of the taxa (family, genera, and species) which have been omitted on the basis of different taxonomic levels are as follows.

Family Schizogyniidae Trägårdh, 1950: *Euroschizogynium calvum* Trach & Seeman, 2014 (see note under related name); *Cheiroseius borealis* (Berlese, 1904); *Dendrolaelaps acriluteus* Athias-Henriot, 1961; *Dendrolaelaps angulosus* (Willmann, 1936); *Dermanyssus americanus* Ewing, 1923; *Echinolaelaps echidninus* (Berlese, 1887); genus *Echinonyssus* Hirst, 1925: *E. butantanensis* (Fonseca, 1932); *Laelaps algericus* Hirst, 1925; *Laelaps ekstremi* Zachvatkin, 1948; *Lasioseius berlesei* (Oudemans, 1938); *Ornithonyssus bursa* (Berlese, 1888); *Ornithonyssus sylviarum* (Canestrini & Fanzago, 1877); *Proctolaelaps longisetosus* (Postner, 1951); *Prozercon dominiaki* Błaszak, 1979; genus *Steatonyssus* Koletani, 1858: *S. periblepharus* Kolenati, 1858; *Trachygamasus ambulacralis* (Willmann, 1949); genus *Tropilaelaps* Delfinado and Baker, 1961: *Tropilaelaps clareae* Delfinado and Baker, 1961; *Zercon adoxyphes* Błaszak, 1979; *Zercon berlesei* Sellnick, 1958 and *Zercon michejdai* Błaszak, 1979. For other taxa with unreported distribution, habitat/s or host/s, the related information is presented.

## FAMILY BLATTISOCIIDAE GARMAN, 1948

### Genus *Blattisocius* Keegan, 1944

#### ***Blattisocius mali* (Oudemans, 1929)**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

### Genus *Cheiroseius* Berlese, 1916

#### ***Cheiroseius borealis* (Berlese, 1904)**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

#### ***Cheiroseius necorniger* (Oudemans, 1903)**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

### Genus *Hoploseius* Berlese, 1914

#### ***Hoploseius bispinosetus* Faraji, Sakenin-Chelav & Karg, 2006**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

### Genus *Lasioseius* Berlese, 1916

#### ***Lasioseius berlesei* (Oudemans, 1938)**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

#### ***Lasioseius ometes* (Oudemans, 1903)**

*Distribution and habitats.* **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare et al. 2012).

#### ***Lasioseius youcefi* Athias-Herlese, 1959**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil of plum trees (Babakfard *et al.* 2007); **Zanjan Province** (Zanjan County), soil, rotten wood, fungi, litter, and dung (Zare *et al.* 2012).

### FAMILY DERMANYSIIDAE KOLENATI, 1859

#### Genus *Dermanyssus* Dugès, 1834

#### *Dermanyssus americanus* Ewing, 1923

*Distribution and habitats.* **Hormozgan Province** (Bandar-Abas), on the body of *Rattus norvegicus*, *Tatera indica* (Hanafi-Bojd *et al.* 2007).

#### *Dermanyssus gallinae* (De Geer, 1778)

*Distribution and habitats.* **Northwest Iran** (Region not mentioned), on *Mus musculus* (Allymehr *et al.* 2012).

#### Genus *Liponyssoides* Hirst, 1913

#### *Liponyssoides sanguineus* (Hirst, 1914)

*Distribution and habitats.* **Hormozgan Province** (Bandar-Abas), on the body of *Rattus norvegicus* (Hanafi-Bojd *et al.* 2007); **Kermanshah Province** (Sarpole-Zahab District), on *Mus musculus*, *Meriones persicus* and *Tatera indica* (Telmadarraiy *et al.* 2007).

### FAMILY DIGAMASELLIDAE EVANS, 1957

#### Genus *Dendrolaelaps* Halbert, 1915

#### *Dendrolaelaps acriluteus* Athias-Henriot, 1961

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Nemati *et al.* 2012).

#### *Dendrolaelaps angulosus* (Willmann, 1936)

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Nemati *et al.* 2012).

#### *Dendrolaelaps presepum* (Berlese, 1918)

*Distribution and habitats.* **Chaharmahal va Bakhtiari** (Shahrekord); **Khuzestan Province** (Izeh and Baghmalek), soil (Nemati *et al.* 2012).

### FAMILY LAELAPIDAE BERLESE, 1892

#### Genus *Androlaelaps* Berlese, 1903

#### *Androlaelaps fahrenheitzi* (Berlese, 1911)

*Distribution and habitats.* **Lorestan Province** (Khorram abad), on the body of *M. persicus*, *M. musculus*, *Mus socialis*, *Cricetulus migratorius*, *Ellobius fuscocapillus*, *Rattus rattus* (Shayan and Rafinejad 2006); **Hormozgan Province** (Bandar-Abas), on the body of *Rattus norvegicus*, *Tatera indica* (Hanafi-Bojd *et al.* 2007).

**Note:** This species was recorded as *Heamolaelaps glasgowi* (Ewing, 1925) by the mentioned researchers, but this is a junior synonym of mentioned name as above.



### Genus *Echinolaelaps* Ewing, 1929

#### *Echinolaelaps echidninus* (Berlese, 1887)

*Distribution and habitats.* **Mazandaran Province** (Sari), different species of rodents (Motevalli-Hagghi *et al.* 2000); (Sari), on the body of *R. rattus*, *R. norvegicus*, *M. musculus*, *Glis glis*, *Apodemus sylvaticus*, *Nesokia indica* and *Arvicola terrestris* (Motevalli-Hagghi *et al.* 2002); **Hormozgan Province** (Bandar Abbas), on the body of *R. norvegicus* and *T. indica* (Hanafi-Bojd *et al.* 2007).

### Genus *Echinonyssus* Hirst, 1925

**Note:** Despite Domrow's (1963) indication that *Hirstionyssus* should be considered as a junior synonym of *Echinonyssus*, most authors have continued to recognize *Hirstionyssus* as a valid name and the taxonomic status of the two genera has not been resolved. Tenorio and Radovsky (1979) discovered some species of *Hirstionyssus* with the antero-ventral seta of coxa II hypertrophied into a hook-like structure, apparently homologous to that found in *Echinonyssus nasutus* Hirst. This led them to reevaluate the status of *Echinonyssus* and *Hirstionyssus* and confirmed the idea of Domrow in treating *Hirstionyssus* as a junior synonym of *Echinonyssus*, that we also following this opinion and the definition of subfamily and genus. According to the International Code of Zoological Nomenclature, a family group name based on a type-genus rejected after 1960 as a junior synonym is not to be changed. Thus, *Hirstionyssinae* continues to be the valid name for the subfamily (Tenorio and Radovsky 1979).

#### *Echinonyssus butantanensis* (Fonseca, 1932)

*Distribution and habitats.* **Province and Region not mentioned**, may be on *Rattus* or *Mus* species (Herrin 1974); **Chaharmahal va Bakhtiari Province** (Shahrekord), on the body of *Rattus* or *Mus* species and nest materials of unknown rodents (Nemati *et al.* 2012).

**Note:** *Hirstionyssus laticutatus* (de Meillon and Lavoipierre, 1944) was considered as a junior synonym of *H. butantanensis* (Fonseca, 1932) by Herrin (1974).

### Genus *Gaeolaelaps* Evans & Till, 1966

#### *Gaeolaelaps aculeifer* (Canestrini, 1884)

*Distribution and habitats.* **Khuzestan Province** (Region not mentioned), associated with barley and pea (Habibpour *et al.* 2002).

### Genus *Laelaps* C.L. Koch, 1836

#### *Laelaps algericus* Hirst, 1925

*Distribution and habitats.* **Khuzestan Province** (Ahvaz), on the body of *Rattus rattus* (Nemati *et al.* 2012).

#### *Laelaps ekstremi* Zachvatkin, 1948

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), body of some unknown mice (Nemati *et al.* 2012).

#### *Laelaps nuttalli* (Hirst, 1955)

*Distribution and habitats.* **Hormozgan Province** (Bandar-Abas), on the body of *Rattus norvegicus*, *Tatera indica* (Hanafi-Bojd *et al.* 2007); **Kermanshah Province** (Sarpole-Zahab District), on *Mus*

*musculus*, *Meriones persicus* and *Tatera indica* (Telmadarraiy *et al.* 2007); **Hormozgan Province** (Bandar Abbas), on *R. norvegicus*, *R. rattus* and *M. musculus* (Kia *et al.* 2009).

### **Genus *Pneumolaelaps* Berlese, 1920**

#### ***Pneumolaelaps colomboi* (Evans & Till, 1966)**

*Distribution and habitats.* **Ardabil Province** (Meshkinshahr, Shahbil Region), associate with nest of *Bombus armeniacus* (Hymenoptera, Apidae) colony (Azhari *et al.* 2011).

#### ***Pneumolaelaps hyatti* (Evans & Till, 1966)**

*Distribution and habitats.* **Ardabil Province** (Meshkinshahr, Shahbil Region), associate with nest of *B. armeniacus* (Hymenoptera, Apidae) colony (Azhari *et al.* 2011).

#### ***Pneumolaelaps sclerotarsa* Costa, 1967**

*Distribution and habitats.* **Khuzestan Province** (Region not mentioned), associated with stored products (Habibpour *et al.* 2002).

**Note:** See the status of the genus at “*incertae sedis*” section.

### **Genus *Tropilaelaps* Delfinado & Baker, 1961**

#### ***Tropilaelaps clareae* Delfinado & Baker, 1961**

*Distribution and habitats.* **Province and Region not mentioned**, bee hives (Baker *et al.* 2005).

## **FAMILY MACRONYSSIDAE OUDEMANS, 1936**

### **Genus *Ornithonyssus* Sambon, 1928**

#### ***Ornithonyssus bacoti* (Hirst, 1913)**

*Distribution and habitats.* **Ardabil Province** (Meshkinshahr), *M. musculus* (Mohebbali *et al.* 1997); **Lorestan Province** (Region not mentioned), *T. indica* (Rafinejad *et al.* 2005); **Hormozgan Province** (Bandar Abbas), *T. indica* (Hanafi-Bojd *et al.* 2007); **Kermanshah Province** (Sarpole-Zahab District), on *M. musculus*, *M. persicus* and *T. indica* (Telmadarraiy *et al.* 2007); **Khuzestan Province** (Ahwaz), on the body of human (Rahdar and Vazirianzadeh 2009); **North Khorasan Province** (Esfarayen and Shirvan County); **Semnan Province** (Damghan and Shahrood), on *Rhombomys opimus* (Tajedin *et al.* 2009); **Northwest of Iran** (Region not mentioned), on *M. musculus* (Allymehr *et al.* 2012); **Tehran Province** (Evin, Darake, Velenjak, Darband and Dar-Abad), on *R. norvegicus* (Pakdad *et al.* 2012).

#### ***Ornithonyssus bursa* (Berlese, 1888)**

*Distribution and habitats.* **Mazandaran Province** (Region not mentioned), breeder flock (Rahbari *et al.* 2009).

#### ***Ornithonyssus sylviarum* (G. Canestrini & Fanzago, 1877)**

*Distribution and habitats.* **Lorestan Province** (Region not mentioned), *R. rattus* (Rafinejad *et al.* 2005); (Khoram-Abad District), on rodents (Shayan and Rafinejad 2006).

**Note:** Unknown species of this genus was reported from Khuzestan province, in honey bee hive by Mossadegh (1997).

**Genus *Steatonyssus* Koletani, 1858**

***Steatonyssus periblepharus* Kolenati, 1858**

*Distribution and habitats.* **Khuzestan Province** (Ahvaz, Shahid Chamrans' campus), on the body of bat (Kavianpour *et al.* 2012).

**FAMILY MELICCHARIDAE HIRSCHMANN, 1962**

**Genus *Proctolaelaps* Berlese, 1923**

***Proctolaelaps longisetosus* (Postner, 1951)**

*Distribution and habitats.* **Ardabil Province** (Meshkinshahr, Shahbil Region), associate with nest of *Bombus armeniacus* (Hymenoptera, Apidae) colony (Azhari *et al.* 2011).

***Proctolaelaps pygmaeus* (Müller, 1860)**

*Distribution and habitats.* **Khuzestan Province** (Region not mentioned), associated with barley and lentils (Habibpour *et al.* 2002).

**FAMILY PACHYLAELAPIDAE BERLESE, 1913**

**Genus *Onchodellus* Berlese, 1904**

***Onchodellus karawaiawi* (Berlese, 1920)**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil (Babakfard *et al.* 2007).

**Genus *Pachylaelaps* Berlese, 1888**

***Pachylaelaps resinae* Karg, 1971**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil (Babakfard *et al.* 2007).

**FAMILY PARASITIDAE OUDEMANS, 1901**

**Genus *Parasitellus* Willmann, 1939**

***Parasitellus fucorum* (De Geer, 1778)**

*Distribution and habitats.* **Ardabil Province** (Meshkinshahr, Shahbil Region), associate with nest of *B. armeniacus* (Hymenoptera, Apidae) colony (Azhari *et al.* 2011).

**Genus *Rhabdocarpais* Athias-Henriot, 1981**

***Rhabdocarpais consanguineus* (Oudemans & Voigts, 1904)**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil at base of cherry, walnut, grape and apricot (Babakfard *et al.* 2007).

**Note.** This species was reported as a member of *Parasitus* genus in above reference.

***Rhabdocarpais mammillatus* (Berlese, 1905)**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil at base of cherry, walnut, grape and apricot (Babakfard *et al.* 2007).

**Note:** This species was reported as a member of *Parasitus* genus in above reference.



**Genus *Trachygamasus* Berlese, 1905**

***Trachygamasus ambulacralis* (Willmann, 1949)**

*Distribution and habitats.* **Kerman Province** (North Western, Bam, Mani Region), soil, litter (Sekahour Region), *Oryctes elegans* Prell (Mehrzaad *et al.* 2013).

**FAMILY SCHIZOGYNIDAE TRÄGÅRDH, 1950**

**Genus *Euroschizogynium* Trägårdh, 1950**

***Euroschizogynium calvum* Trach & Seeman, 2014**

*Distribution and habitats.* (**Province and Region not mentioned**), on the body of some members of Carabidae (Coleoptera) (Nemati *et al.* 2012).

**Note:** Nemati *et al.* (2012) reported it as an unidentified species of the genus *Schizogynium* Trägårdh, 1950.

**FAMILY VEIGAIIDAE OUDEMANS, 1939**

**Genus *Veigaia* Oudemans, 1905**

***Veigaia nemorensis* (C.L. Koch, 1892)**

*Distribution and habitats.* **Kermanshah Province** (Rijab), soil of plum trees (Babakfard *et al.* 2007).

**FAMILY ZERCONIDAE BERLESE, 1892**

**Genus *Prozercon* Sellnick, 1943**

***Prozercon dominiaki* Błazsak, 1979**

*Distribution and habitats.* **Mazandaran Province** (Rudbarak), litter from beech forest with hornbeam trees (Błazsak 1979); (Shahsavār), litter from sheer limestone rock with mosses and herbaceous vegetation, litter from beech forest with sycamore and lime trees, litter from limestone rocks (Błazsak 1979).

**Genus *Zercon* C.L. Koch, 1836**

***Zercon adoxyphes* Błazsak, 1979**

*Distribution and habitats.* **Mazandaran Province** (Shahsavār), litter from beech forest with sycamore and lime trees (Błazsak 1979).

***Zercon berlesei* Sellnick, 1958**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Nemati *et al.* 2012).

***Zercon michejdai* Błazsak, 1979**

*Distribution and habitats.* **Mazandaran Province** (Rudbarak), litter from beech forest with hornbeam trees; (Shahsavār), litter from beech forest with sycamore and lime trees, litter from sheer limestone rock with mosses and herbaceous vegetation (Błazsak 1979).

**PART II: Mites recorded after Kazemi & Rajaei (2013)**

**SUBORDER MONOGYNASPIDA**

**COHORT GAMASINA**

**SUBCOHORT DERMANYSSIAE (DERMANYSSINA)**

## SUPERFAMILY ASCOIDEA

### FAMILY AMEROSEIIDAE EVANS, 1961

#### Genus *Ameroseius* Berlese, 1903

##### *Ameroseius aegyptiacus* (Nasr & Abow-Awad, 1984)

*Distribution and habitats.* **Kerman Province** (Kerman County), cow manure and sheep manure (Arjomandi *et al.* 2013a); **Chaharmahal va Bakhtiari Province** (Shahrekord, Saman, Farokhshahr, Boldaji and Choghakhor), soil and decaying wood (Khalili-Moghadam and Saboori 2014); **Esfahan Province** (Esfahan), soil (Khalili-Moghadam and Saboori 2014); **Guilan Province** (Roodbar), soil in olive orchards (Mahjoori and Hajizadeh 2014); (Sangar City), rice hulls; (Sangar City, Eslamabad (Shaqaji) Village), woodchips (Hajizadeh and Karami 2017); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Khuzestan Province** (Izeh), soil (Khalili-Moghadam and Saboori 2014); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

**Note:** In all mentioned studies this species has been reported as a member of the genus *Sertitympanum*.

##### *Ameroseius corbiculus* (Sowerby, 1806)

*Distribution and habitats.* **East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Agricales* sp. (Khalili-Moghadam and Nemati 2014a); (Shahrekord, Boldaji, Choghakhor), soil and decaying wood (Khalili-Moghadam and Saboori 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Golestan Province** (Gorgan), leaf litter (Khalili-Moghadam and Saboori 2014); **Guilan Province** (Rostam Abad, Ganjeh, Roodbar and Manjil), soil in olive orchards (Mahjoori and Hajizadeh 2014); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **North Khorasan Province** (Region not mentioned), associated with the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

##### *Ameroseius furcatus* Karg, 1971

*Distribution and habitats.* **Guilan Province** (Damash and Rudbar), soil (Hajizadeh *et al.* 2013); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan and Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

##### *Ameroseius lidiae* Bregetova, 1977

*Distribution and habitats.* **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Ganjeh), soil in Olive orchards (Mahjoori and Hajizadeh 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Agricales* sp. (Khalili-Moghadam and Nemati 2014a); (Ben, Hafshejan, Farokhshahr, Dezak, Shahrekord and Saman), soil and rotting wood (Khalili-Moghadam and Saboori 2014); **West Azarbaijan Province** (Miandoab County), soil of apple orchards (Zarei and Kazemi 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Kerman Province** (Sirjan County), soil and manure (Masnavipour *et al.* 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); (Kerman County), poultry manure (Arjomandi *et al.* 2013a); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan**

**Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a); **Fars Province** (Northwestern of province, Region not mentioned), soil, debris (Abolghasemi and Kazemi 2016).

***Ameroseius sculptilis* Berlese, 1916**

*Distribution and habitats.* **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013).

***Ameroseius ulmi* Hirschmann, 1963**

*Distribution and habitats.* **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

**Genus *Epicriopsis* Berlese, 1916**

***Epicriopsis horridus* (Kramer, 1876)**

*Distribution and habitats.* **Lorestan Province** (Bishe District), soil under willow trees (Hasanvand *et al.* 2014b); (Khorramabad County), oak forest (Hasanvand *et al.* 2015); **Golestan Province** (Gorgan), leaf litter (Khalili-Moghadam and Saboori 2014); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ant's nests and fungi (Khalili-Moghadam and Saboori 2016a).

***Epicriopsis palustris* Karg, 1971**

*Distribution and habitats.* **Guilan Province** (Talesh, Shaft, Siahkal, Fuman and Rostamabad), soil (Hajizadeh *et al.* 2013); **Chaharmahal va Bakhtiari Province** (Saman City), litter (Khalili-Moghadam and Saboori 2016b); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), debris (Khalili-Moghadam and Saboori 2016a); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016).

**Genus *Kleemannia* Oudemans, 1930**

***Kleemannia bassolase* Vargas & Polaco, 2001**

*Distribution and habitats.* **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014).

***Kleemannia delicatus* Berlese, 1918**

*Distribution and habitats.* **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian *et al.* 2013); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015).

***Kleemannia insignis* (Bernhard, 1963)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b).

**Note:** Karami *et al.* (2017b) reported this species as *Ameroseius insignis* Bernhard, 1963.

***Kleemannia nova* Nasr & Abu-Awad, 1986**

*Distribution and habitats.* **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

**Note:** This species was reported as *Ameroseius nova* by the mentioned authors.

***Kleemannia parplumosa* Nasr & Abu-Awad, 1986**

*Distribution and habitats.* **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a); **Guilan Province** (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Khorasan Razavi Province** (Mashhad County), soil (Abbaspour *et al.* 2017).

**Note:** This species has been reported as *Ameroseius parplumosus* by the mentioned authors.

***Kleemannia pavid* (C. L. Koch, 1839)**

*Distribution and habitats.* **Kerman Province** (Sekonj), poultry manure (Arjomandi *et al.* 2013a); **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian *et al.* 2013); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Sangar City, Eslamabad Village; Shaft City, Jirdeh Village), rice hulls (Hajizadeh and Karami 2017); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

**Note:** Some mentioned authors reported this species as *Ameroseius lanceosetis* Livshitz and Mitrofanov, 1975.

***Kleemannia plumea* Oudemans, 1930**

*Distribution and habitats.* **Chaharmahal va Bakhtiari, Esfahan, Khuzestan and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a).

**Note:** This species was recorded as a member of *Ameroseius* by mentioned authors.

***Kleemannia plumosa* Oudemans, 1902**

*Distribution and habitats.* **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Khalili-Moghadam and Saboori 2014); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016a); **Khorasan Razavi Province** (Mashhad County), soil (Abbaspour *et al.* 2017).

***Kleemannia pseudoplumosa* (Rack, 1972)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord City, Lordegan City), soil, litter; **Khuzestan Province** (Ahvaz City), soil of ant nest (Khalili-Moghadam and Saboori 2016b); **Chaharmahal va Bakhtiari, Esfahan, Khuzestan, and Golestan Provinces** (Region not mentioned), soil, debris, soil of ants' nests and fungi (Khalili-Moghadam and Saboori 2016b); **Guilan Province** (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Kerman Province** (Kerman County), cow manure, poultry manure and sheep manure (Arjomandi *et al.* 2013a).

**Note:** This species was cited as *Ameroseius eumorphus* Bregetova, 1977 in some of above mentioned references, but it is a junior synonym of *K. pseudoplumosa*.

**FAMILY ASCIDAE OUDEMANS, 1905**  
**Genus *Antennoseius* Berlese, 1916**

***Antennoseius (Antennoseius) bacatus* Athias-Henriot, 1961**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), in oak forests (Kazemi and Yazdanpanah 2013a); (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Region not mentioned), soil, debris (Abolghasemi and Kazemi 2016); **Lorestan Province** (Ghalesangi and Zarinchogha Districts), soil of apple orchard and under oak trees (Hasanvand *et al.* 2014b); (Khorramabad County), orchard, oak forest and feild (Hasanvand *et al.* 2015); **Chaharmahal va Bakhtiari Province** (Shahrekord); **Khuzestan Province** (Izeh), soil (Mohseni and Nemati 2014); (Saman City, Shahrekord Region), soil of ant nests, *Monomorium* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Khanmirza Region, Salehat Village; Chahgah Village; Felard Region, Pol-e- Gharah; Poshtkouh; Dalvara; Monj Region, Goud sardeh, Ghaleh madreseh; Central Region, Tang keloureh), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Kerman Province** (Sirjan County), soil, leaf litter and manure (Masnavipour *et al.* 2014); (Kerman County), cow manure and sheep manure (Arjomandi *et al.* 2013a); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan, Aynalu; Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Guilan Province** (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); (Rasht, Saravan forest), soil of forest trees (Karami *et al.* 2017a).

***Antennoseius (Antennoseius) bytinskii* Costa, 1969**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord) and **Khuzestan Province** (Izeh), soil (Mohseni and Nemati 2014).

***Antennoseius (Antennoseius) gwiazdowiczi* Kavianpour & Nemati, 2013**

*Distribution and habitats.* **Esfahan Province** (Shahreza), soil of a pomegranate orchard (Kavianpour *et al.* 2013a); **Fars Province** (Koohmare-Sorkhi Region), oak forest, soil and leaf litter (Yazdanpanah and Kazemi 2014a).

***Antennoseius (Antennoseius) hispaniensis* Bernhard, 1963**

*Distribution and habitats.* **Tehran Province** (agricultural fields of Faculty of Agriculture, Tarbiat Modares University), soil and litter (Kazemi and Yazdanpanah 2013a); **Kerman Province** (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Khorramabad County), oak forest (Hasanvand *et al.* 2015).

***Antennoseius (Antennoseius) longisetus* Eidelberg, 2000**

*Distribution and habitats.* **Mazandaran Province** (Tirtash Region), ex *Idiomelas* (s. str.) *morio* (Ménétriés); **Razavi Khorasan Province** (Mashad County), under elytra of an unknown species of Carabidae (Kazemi and Moraza 2013).

***Antennoseius (Antennoseius) maltzevi* Eidelberg, 1994**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), in oak forests (Kazemi and Yazdanpanah 2013a); (Koohmare-Sorkhi Region), oak forest, soil and leaf litter (Yazdanpanah and Kazemi 2014a); **Lorestan Province** (Khorramabad County), oak forest (Hasanvand *et al.* 2015).



***Antennoseius (Antennoseius) masoviae* Sellnick, 1943**

*Distribution and habitats.* **North Khorasan Province** (Mane and Samalghan), ex *Harpalus (Pseudoophonus) rufipes* (Degeer) (Kazemi and Moraza 2013); **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Mohseni and Nemati 2014); (Saman City, Shahrekord Region), soil of ant nests, *Monomorium* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Monj Region, Barz; Showarz), soil from different parts of oak forests (Bagheri Kordeshami et al. 2015); **Khorasan Razavi Province** (Sarakhs Region), ex *Calathus (Neocalathus) ambiguus* (Paykull); **Khuzestan Province** (Izeh), soil (Mohseni and Nemati 2014); **Tehran Province** (Tehran City, Police Park), soil (Maleki et al. 2016).

***Antennoseius (Antennoseius) sabolicola* Gilyarov & Bregetova, 1977**

*Distribution and habitats.* **Khorasan Razavi Province** (Sarakhs Region), ex *Cymindis (Eremocymindis) pallidula* Chaudoir (Kazemi and Moraza 2013); **Kerman Province** (Kerman City, parks, and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Khorramabad county), oak forest (Hasanvand et al. 2015).

***Antennoseius (Antennoseius) sharonovi* Eidelberg, 1989**

*Distribution and habitats.* **North Khorasan Province** (Mane and Samalghan), ex *Harpalus (Pseudoophonus) rufipes* (Degeer) (Kazemi and Moraza 2013).

***Antennoseius (Antennoseius) matalini* Eidelberg, 2001**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord) and **Khuzestan Province** (Izeh), soil (Mohseni and Nemati 2014).

**Genus *Arctoseius* Thor, 1930*****Arctoseius cetratus* (Sellnick, 1940)**

*Distribution and habitats.* **Bushehr Province** (Asaluyeh Port), soil (Kazemi and Alikhani 2013); **Esfahan Province** (Esfahan), soil (Kadkhodaei et al. 2013); **Guilan Province** (Region not mentioned), associated with eriophyid mite [*Aceria geranii* (Canestrini)] (Adeli et al. 2013); **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian et al. 2013); **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); **Yazd Province** (Region not mentioned), soil (Kafi et al. 2014); **Markazi Province** (Saveh Region), associated with the Mediterranean pine beetle, *Orthotomicus erosus* (Wollaston) (Farmahiny Farahani et al. 2013); (Arak Region), soil (Jadidi and Joharchi 2014); **Kerman Province** (Sirjan County, Shahr-e-Babak county), soil and manure (Masnavipour et al. 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Bishe and Badrabad Districts), soil of walnut trees and peach orchard (Hasanvand et al. 2014b); (Khorramabad County), orchard, oak forest, ant nest and feild (Hasanvand et al. 2015); **Zanjan Province** (Region not mentioned), soil (Bigdeli et al. 2014); **Chaharmahal va Bakhtiari Province** (Saman City, Shahrekord Region), soil of ant nests, *Monomorium* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Khanmirza Region, Salehat Village; Monj Region, Ghale madreseh Village; Pol borideh Village), soil from different parts of oak forests (Bagheri Kordeshami et al. 2015); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian et al. 2015); (Mashhad County), soil (Abbaspour et al. 2017); **Tehran Province** (Tehran City, Police Park), soil (Maleki et al. 2016).

***Arctoseius pristinus* Karg, 1962**

*Distribution and habitats.* **Esfahan Province** (Esfahan), soil (Kadkhodaei *et al.* 2013); **Guilan Province** (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); (Sangar City, Sarvandan Village), manure (Karami *et al.* 2017a); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

***Arctoseius semiscissus* (Berlese, 1892)**

*Distribution and habitats.* **Kerman Province** (Sirjan County), leaf litter (Masnavipour *et al.* 2014); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Kalaleh; Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

***Arctoseius venustus* (Berlese, 1917)**

*Distribution and habitats.* **Esfahan Province** (Esfahan City), soil (Kadkhodaei *et al.* 2013).

**Genus *Asca* von Heyden, 1826*****Asca aphidioides* (Linnaeus, 1758)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Guilan Province** (Ganjeh, Roodbar and Manjil), soil in olive orchards (Mahjoori and Hajizadeh 2014); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); (Sangar City), soil (Karami *et al.* 2017a); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Asca bicornis* (Canestrini & Fanzago, 1887)**

*Distribution and habitats.* **Guilan Province** (Rostam Abad and Roodbar), soil in olive orchards (Mahjoori and Hajizadeh 2014); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); (Rostamabad City, Kaluraz Village), from olive soil (Karami *et al.* 2017a); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

**Genus *Gamasellodes* Athias-Henriot, 1961*****Gamasellodes bicolor* (Berles, 1918)**

*Distribution and habitats.* **Esfahan Province** (Esfahan City), soil (Kadkhodaei *et al.* 2013); **Southwest of East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Guilan Province** (Rostam Abad, Roodbar), leaf litter in olive orchards (Mahjoori and Hajizadeh 2014); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); (Roodbar, Nesfi Village), from weed floor of olive Garden (Karami *et al.* 2017a); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Chaharmahal va Bakhtiari Province** (Lordegan County, Khanmirza Region, Salehat Village; Monj Region, Cheshmeh khani Village; Joub nesa Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Gamaselodes vulgator* Athias-Henriot, 1961**

*Distribution and habitats.* **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

**Genus *Iphidozercon* Berlese, 1903*****Iphidozercon caspius* Hajizadeh, Mortazavi & Nazari, 2014**

*Distribution and habitats.* **Guilan Province** (Langarud City), soil under citrus trees (Hajizadeh *et al.* 2014).

***Iphidozercon gibbus* (Berlese, 1903)**

*Distribution and habitats.* **Kerman Province** (Shahr-e-Babak County), soil and manure (Masnavipour *et al.* 2014); **Lorestan Province** (Veisian District), soil under walnut trees (Hasanvand *et al.* 2014b); (Khorramabad County), oak forest (Hasanvand *et al.* 2015); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**Genus *Protogamasellus* Karg, 1962*****Protogamasellus bifurcalis* Genis, Loots & Ryke, 1967**

*Distribution and habitats.* **Fars Province** (Jahrom Region), soil of citrus orchards (Khademi and Saboori 2013).

***Protogamasellus massula* (Athias-Henriot, 1961)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mites [*Aceria oleae* (Nalepa); *Tegonotus hassani* (Keifer)] (Adeli *et al.* 2013); (Rostam Abad, Roodbar and Manjil), soil and leaf litter in olive orchards (Mahjouri and Hajizadeh 2014); (Sangar City, Eslamabad (Shaqaji) Village), from Chicken manure (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014).

***Protogamasellus mica* (Athias-Henriot, 1961)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mites [*Acaphylla distata* (Keifer); *Aculops rhodensis* (Keifer)] (Adeli *et al.* 2013); (Rostam Abad, Roodbar and Manjil), soil in olive orchards (Mahjouri and Hajizadeh 2014); (Sangar City, Eslamabad (Shaqaji) Village), from Chicken manure (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood and manure (Karami *et al.* 2017b).

**Genus *Zerconopsis* Hull, 1918*****Zerconopsis michaeli* Evans & Hyatt, 1960**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan and Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Guilan Province** (Rasht, Saravan forest), from forest soil (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b).

***Zerconopsis remiger* (Kramer, 1876)**

*Distribution and habitats.* **East Azarbaijan Province** (forests of the Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); **Guilan Province** (Langarud and Chaboksar), soil samples of citrus garden (Karami *et al.* 2017a).

**FAMILY MELICHARIDAE HIRSCHMANN, 1962****Genus *Orthadenella* (Athias-Henriot 1973)*****Orthadenella lawrencei* (Evans, 1958)**

*Distribution and habitats.* **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

**Note:** According to the observation of the senior author of this paper (A. Nemati) on some specimens of this species which have been collected from this region and some parts of north of Iran, probably this is *Orthadenella multipilisaccula* Ostovan and Faraji, 2014. The specimens of this species (*O. lawrencei*), which reported by Malekshahkoobi *et al.* (2011) from Iran was misidentification of *O. multipilisaccula*.

***Orthadenella multipilisaccula* Ostovan & Faraji, 2014**

*Distribution and habitats.* **Mazandaran Province** (Babolsar), forests soil (Ostovan and Faraji 2014).

**Genus *Proctolaelaps* Berlese, 1923*****Proctolaelaps bickleyi* (Bram, 1956)**

*Distribution and habitats.* **Fars Province** (Shiraz), associated with insectariums (potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014).

***Proctolaelaps brevipilis* (Westerboer, 1963)**

*Distribution and habitats.* **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

***Proctolaelaps fiseri* Samšičák, 1960**

*Distribution and habitats.* **Guilan Province** (Rasht, University of Guilan), on body of rove beetle (Staphylinidae) (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b).

***Proctolaelaps intermedius* Athias-Henriot, 1959**

*Distribution and habitats.* **Lorestan Province** (Khorramabad), orchard and oak forest (Hasanvand *et al.* 2015).

***Proctolaelaps pygmaeus* (Müller, 1860)**

*Distribution and habitats.* **Esfahan Province** (Esfahan), soil (Kadkhodaei *et al.* 2013); **North East of Iran** (Region not mentioned), stored food products (Khaleghabadian *et al.* 2013); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a); (Sirjan, Rafsanjan, Shahr-e-Babak), soil, manure and leaf litter (Masnavipour *et al.* 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Rasht, Pir Kola Chah Village and Somesara), rice hulls; (Sangar, Sarvandan Village, Eslamabad (Shaqaji) Village), soil of spruce tree and manure (Karami *et al.*

2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b); **Chaharmahal va Bakhtiari Province** (Region not mentioned), *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Lorestan Province** (Babazeid and Mehdiabad Districts), soil of lemon orchard and vine orchard, (Hasanvand *et al.* 2014b); (Khorramabad), orchard, oak forest and manure (Hasanvand *et al.* 2015); **Fars Province** (Shiraz), associated with insectariums (potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015); (Mashhad), soil and manure (Abbaspour *et al.* 2017); **East Azarbaijan Province** (Arasbaran Forests, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **North Khorasan Province** (Region not mentioned), in the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

### ***Proctolaelaps scolyti* Evans, 1958**

*Distribution and habitats.* **Guilan Province** (Rasht, Emamzadeh Hashem), rotten fruit of pomegranate (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b).

### ***Proctolaelaps ventrianalis* Karg, 1971**

*Distribution and habitats.* **North East of Iran** (Region not mentioned), stored food products (Khaleghabadian *et al.* 2013); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015); **Guilan Province** (Langarud), soil of citrus garden (Karami *et al.* 2017a); (Region not mentioned), soil, stored products, debris, plant foliage, leaves, wood, and manure (Karami *et al.* 2017b).

## SUPERFAMILY DERMANYSSOIDEA FAMILY DERMANYSSIDAE KOLENATI, 1859 Genus *Dermanyssus* Dugès, 1834

### ***Dermanyssus brevis* Ewing, 1936**

*Distribution and habitats.* **Khorasan Province** (Ghaen), Crested Lark *Galerida cristata* (Alaudidae) (Moodi *et al.* 2014).

### ***Dermanyssus gallinae* (De Geer, 1778)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and poultry manure (Arjomandi *et al.* 2013a); **West Azarbaijan Province** (Urmia), diferent bird nests, especially in the barn swallow (*Hirundo rustica*) nests (Mohamadi Ghalehjoughi *et al.* 2017).

## Genus *Liponyssoides* Hirst, 1913

### ***Liponyssoides sanguineus* (Hirst, 1914)**

*Distribution and habitats.* **Khuzestan Province** (Ahvaz and Hovizeh), on *R. norvegicus* (Rahdar *et al.* 2015); **Kurdistan Province** (Region not mentioned), associated with stored flour and wheat (Maroufpoor *et al.* 2017).

## FAMILY MACRONYSSIDAE OUDEMANS, 1936



### Genus *Ornithonyssus* Sambon, 1928

#### ***Ornithonyssus sylviarum* (Canestrini & Fanzago, 1877)**

*Distribution and habitats.* **Khorasan Province** (Tandoureh National Park), on Mourning Wheatear *Oenanthe lugens* (Turdidae) (Moodi *et al.* 2014).

### FAMILY LEPTOLAEAPIDAE KARG, 1978

#### Genus *Indutolaelaps* Karg, 1997

#### ***Indutolaelaps jiroftensis* Hajizadeh *et al.*, 2017**

*Distribution and habitats.* **Kerman Province** (Jiroft), soil and litter at the base of *Phoenix dactylifera* (Arecaceae), of *Medicago sativa* (Fabaceae), and of *Citrus sinensis* Osbeck (Rutaceae) (Hajizadeh *et al.* 2017).

### FAMILY LAELAPIDAE BERLESE, 1892

#### Genus *Androlaelaps* Berlese, 1903

#### ***Androlaelaps aegypticus* Hafez, Elbadry & Naser, 1982**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

#### ***Androlaelaps casalis* (Berlese, 1887)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); **Kerman Province** (Kerman), cow manure, poultry manure and sheep manure (Arjomandi *et al.* 2013a); **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); (Shiraz), associated with insectariums (samples taken from potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); (Mashhad), stored food products (Khaleghabadian *et al.* 2015); (Mashhad), soil and manure (Abbaspour *et al.* 2017); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar), soil (Heydari *et al.* 2014b); (Kuhdasht), soil (Heydari *et al.* 2014a); **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian *et al.* 2013); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); (Shahrekord), different habitats (Nemati *et al.* 2017a); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

#### ***Androlaelaps fenilis* (Megnin, 1876)**

*Distribution and habitats.* **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian *et al.* 2013); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Shahrekord), soil of ant nests, unknown ant (Hym.: Formicidae) (Khalili- Moghadam and Saboori 2015); (Lordegan County, Felard Region, Poshtkouh; Pol e Gharah; Khanmirza Region, Salehat Village; Monj Region, Ghale madreseh Village; Pol borideh Village; Cheshmeh khani Village; Joub nesa Village), soil from different parts of oak forests

(Bagheri Kordeshami *et al.* 2015); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Androlaelaps hermaphrodita* (Berlese, 1887)**

*Distribution and habitats.* **Sistan va Baluchistan Province** (Bampoor, Daman, Iranshahr District, Qasre Qand, Nikshahr), on the body of *Tetera indica*, *Meriones hurrianae*, *Meriones libycus* and *Gerbillus nanus* (Nateghpour *et al.* 2013).

***Androlaelaps shealsi* Costa, 1968**

*Distribution and habitats.* **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Kuhdasht District), soil (Heydari *et al.* 2014a); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Manjil, Roodbar and Nesfi), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman and Shahrekord), soil (Amani *et al.* 2015); (Lordegan County, Khanmirza Region, Salehat Village; Monj Region, Ghale madreseh Village; Pol borideh Village; Cheshmeh khani Village and Joub nesa Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Saman), soil (Shariati *et al.* 2017); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

***Androlaelaps schusteri* Hirschmann, 1966**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Lordegan County, Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015).

**Genus *Coleolaelaps* Berlese, 1914**

***Coleolaelaps asiaticus* Karg, 1999**

*Distribution and habitats.* **North Khorasan Province** (Region not mentioned), on the body of *Polyphylla adspersa* Motschulsky, 1853 (Rezaei *et al.* 2016).

***Coleolaelaps costai* Joharchi & Halliday, 2011**

*Distribution and habitats.* **Alborz Province** (Karaj), associated with *Polyphylla olivieri* (Razavi Susan *et al.* 2013).

***Coleolaelaps massoumii* Khanjani, Ghaedi & Ueckermann, 2013**

*Distribution and habitats.* **Hamedan Province** (Region not mentioned), from adults of *P. olivieri* on cherry trees (Khanjani *et al.* 2013).

**Genus *Cosmolaelaps* Berlese, 1903**

***Cosmolaelaps angustiscutatus* (Willmann, 1951)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c).

**Note:** Ramroodi *et al.* (2014c) reported this species as a member of *Gaeolaelaps* genus. This species was transferred to *Cosmolaelaps* genus by Nemati and Gwiazdowicz (2016b). *Cosmolaelaps subacutiscutus* also was reported by Ramroodi *et al.* (2014c), but this species was considered as junior synonym of *C. angustiscutus* by Nemati and Gwiazdowicz (2016b).

***Cosmolaelaps brevipedestra* (Karg, 1985)**

*Distribution and habitats.* **Bushehr Province** (Bushehr), soil of unknown ant nest (Nemati and Gwiazdowicz 2016b); **Fars Province** (Shiraz), soil of unknown ant nest (Nemati and Gwiazdowicz 2016b); **Khuzestan Province** (Ahwaz), *Tapinoma simrothi* Krausse, in the nest of *Pheidole pallidula* Nylander and *Monomorium destructor* (Jerdon); (Izeh), soil of nest *Tapinoma sp.* (Nemati and Gwiazdowicz 2016b); (Region not mentioned), soil (Nemati *et al.* 2017b).

***Cosmolaelaps claviger* (Berlese, 1882)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); **Guilan Province** (Roodbar and Majil), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c).

***Cosmolaelaps dorfakiensis* Ramroodi, Hajizadeh & Joharchi, 2014**

*Distribution and habitats.* **Guilan Province** (Astara Town, Khotbesara Village, Rasht Town, Amlash Twon), soil and leaf litter (Ramroodi *et al.* 2014a).

***Cosmolaelaps leptochaetes* Ma & Ling, 2009**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c).

***Cosmolaelaps lutegiensis* (Shcherbak, 1971)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants' nests (Ghafarian *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Mazandaran Province** (Region not mentioned), soil (Kazemi *et al.* 2013c); (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); (Nowshahr, Ecological (Botanical) Garden), soil and litter (Sabeti *et al.* 2016); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Guilan Province** (Roodbar, Majil, Rostamabad and Nesfi), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Cosmolaelaps malmiriensis* Nemati & Gwiazdowicz, 2016**

*Distribution and habitats.* **Khuzestan Province** (Izeh), soil of ant nest (*Tapinoma sp.*) and soil of unknown ant nest (Nemati and Gwiazdowicz 2016b).

***Cosmolaelaps michaeli* (Huhta & Karg, 2010)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Saman and Shahrekord), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015).

***Cosmolaelaps mixta* (Shcherbak, 1971)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), different habitats (Nemati et al. 2017a).

***Cosmolaelaps ornatus* (Berlese, 1903)**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan et al. 2013); **Mazandaran Province** (Region not mentioned), soil (Kazemi et al. 2013c); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi et al. 2014c).

***Cosmolaelaps pinnatus* Ramroodi, Hajizadeh & Joharchi, 2014**

*Distribution and habitats.* **Guilan Province** (Shaft Town, Chobar Village; Rostamabad Town), soil and leaf litter (Ramroodi et al. 2014a); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh et al. 2017).

***Cosmolaelaps rectangularis* (Sheals, 1962)**

*Distribution and habitats.* **Lorestan Province** (Kuhdasht District), soil (Heydari et al. 2014a); (Khorramabad), soil (Hasanvand et al. 2014a); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi et al. 2014c); **Chaharmahal va Bakhtiari Province** (Lordegan County, Khanmirza Region, Salehat Village; Central Region, Tang keloureh), soil from different parts of oak forests (Bagheri Kordeshami et al. 2015); **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh et al. 2017).

***Cosmolaelaps vacua* (Michael, 1891)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Fars Province** (Neyriz), soil (Bazrafshan et al. 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian et al. 2013a); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Damavand Region), habitats such as soil, leaf litter and dung, green spaces and orchards (Baroozeh et al. 2013); (Tehran City, Police Park), soil (Maleki et al. 2016); **East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir et al. 2013); (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf et al. 2016a); (Arasbaran Forests, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf et al. 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian et al. 2017); (Maragheh Region), soil in orchards (Valizadeh et al. 2017); **Lorestan Province** (Region not mentioned), soil (Heydari et al. 2013); (Poledokhtar District), soil (Heydari et al. 2014b); (Kuhdasht District), soil (Heydari et al. 2014a); (Khorramabad), soil (Hasanvand et al. 2014a); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); (Region not mentioned), associated with ants nest, (Khalili Moghadam and Nemati 2014b); (Shahrekord), different habitats (Nemati et al. 2017a); **Kerman Province** (Rafsanjan), soil, manure and leaf litter (Masnavipour et al. 2014); (Kerman, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam et al. 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli et al. 2014); **Yazd Province** (Region not mentioned), soil (Kafi et al. 2014); **Guilan Province** (Majil and Rostamabad), soil in olive orchard (Mahjoori et al. 2014); (Region not mentioned), soil and litter (Ramroodi et al. 2014c); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi

*et al.* 2015); **North Khorasan Province** (Region not mentioned), associated with the nests of ants of family Formicidae (Rezaei *et al.* 2016); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

### **Genus *Dinogamasus* Kramer, 1898**

#### ***Dinogamasus kazerunensis* Joharchi, Khodaparast & Ghasemi-Moghadam, 2016**

*Distribution and habitats.* **Fars Province** (Kazerun, Bid Zard), associated with *Xylocopa (Koptortosoma) pubescens* Spinola (Hymenoptera: Apidae) (Joharchi *et al.* 2016b).

### **Genus *Echinonyssus* Hirst, 1925**

#### ***Echinonyssus butantanensis* (Fonseca, 1932)**

*Distribution and habitats.* **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a).

#### ***Echinonyssus meridianus* (Zemskaja, 1955)**

*Distribution and habitats.* **Khorasan Razavi Province** (Mashhad), associated with rodents (*Meriones libycus* Lichtenstein) (Kazemi *et al.* 2015).

**Note:** Both of the above-mentioned species have been previously reported in the *Hirstionyssus* genus.

### **Genus *Euandrolaelaps* Bregetova, 1977**

#### ***Euandrolaelaps karawaiawi* (Berlese, 1903)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Sabzevar, Zivdar, Zorandol and Veisian), soil of pomegranate orchards, raspberry shrub and apple orchards (Hasanvand *et al.* 2014b); (Poledokhtar), soil (Heydari *et al.* 2014b); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a); (Sirjan), leaf litter (Masnavipour *et al.* 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); (Region not mentioned), associated with ants nest (Khalili-Moghadam and Nemati 2014b); (Saman and Shahrekord cities), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) and soil of ant nests, unknown ant (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Saman), soil (Amani *et al.* 2015); (Lordegan County, Felard Region, Pol-e-Gharah and Poshtkouh), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Roodbar, Majil and Nesfi), soil in olive orchard (Mahjoori *et al.* 2014); (Saravan, Emamzadeh Hashem and Rostamabad), soil (Ramroodi *et al.* 2015); **North Khorasan Province** (Region not mentioned), associated with the nests of *Pheidole* sp. (Formicidae) (Rezaei *et al.* 2016); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).



**Note:** Nemati *et al.* (2017b) reported this species as *Hypoaspis karawaiewi* (Berlese, 1903).

***Euandrolaelaps sardoa* (Berlese, 1911)**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants' nests (Ghafarian *et al.* 2013a); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Roodbar, Majil and Ganjeh), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

**Genus *Eulaelaps* Berlese, 1903**

***Eulaelaps stabularis* (C.L. Koch, 1839)**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

**Genus *Gaeolaelaps* Evans & Till, 1966**

***Gaeolaelaps aculeifer* (Canestrini, 1884)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ant's nests (Ghafarian *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Greet District), soil of willow tree (Hasanvand *et al.* 2014b); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Kuhdasht District), soil (Heydari *et al.* 2014a); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Rostamabad, Roodbar), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015); **Fars Province** (Larestan), associated with date palm (leaves, fruits, trunk fiber and soil) (Majidi and Akrami 2013); (Neyriz Region), soil (Bazrafshan *et al.* 2013); (Estahban), associated with fig trees (Daveshvar and Akrami 2013); (Estahban), associated with fig trees, soil, leaves, fruits, and trunk samples (Daneshnia and Akrami 2013); (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Shiraz), associated with insectariums (samples taken from potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016); **Mazandaran Province** (Region not mentioned), soil (Kazemi *et al.* 2013c); (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); (Nowshahr, Ecological (Botanical) Garden), soil and litter (Saberi *et al.* 2016); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), habitats such as soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013); (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Kerman Province** (Sirjan, Rafsanjan and Shahr-e-Babak), soil and manure (Masnavipour *et al.* 2014); (Kerman City, parks and

landscapes), soil (Arjomandi and Kazemi 2014b); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with ants nest, (Khalili Moghadam and Nemati 2014b); (Saman, Boldaji, Lordegan and Shahrekord cities), soil of ant nests, *Tapinoma* sp. and *Cataglyphis* sp (Hym.: Formicidae) (Khalili-Moghadam and Nemati 2014b; Khalili- Moghadam and Saboori 2015); (Saman and Shahrekord), soil (Amani *et al.* 2015); (Lordegan County, Monj Region, Pol borideh Village; Cheshmeh khani Village; Joub nesa Village and Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Saman), soil (Shariati *et al.* 2017); (Shahrekord), different habitats (Nemati *et al.* 2017a); **North Khorasan Province** (Region not mentioned), associated with the nests of ants of family Formicidae (Rezaei *et al.* 2016); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

#### ***Gaeolaelaps ahangarani* Kazemi, Rajaei & Beaulieu, 2014**

*Distribution and habitats.* **Mazandaran Province** (Tonekabon, Tirom forest), decayed wood of beech trees (Kazemi *et al.* 2014b).

#### ***Gaeolaelaps angusta* (Karg, 1965)**

*Distribution and habitats.* **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); (Mashhad County), soil and manure (Abbaspour *et al.* 2017); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden), soil and litter (Saber *et al.* 2016); **North Khorasan Province** (Region not mentioned), associated with beetles of family Scarabaeidae (Rezaei *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Shahrekord), different habitats (Nemati *et al.* 2017a); **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

#### ***Gaeolaelaps deinos* (Zeman, 1982)**

*Distribution and habitats.* **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

#### ***Gaeolaelaps farajii* Nemati & Mohseni, 2013**

*Distribution and habitats.* **Khuzestan Province** (Izeh), soil (Nemati and Mohseni 2013); (Region not mentioned), soil (Nemati *et al.* 2017b).

#### ***Gaeolaelaps iranicus* Kavianpour & Nemati, 2013**

*Distribution and habitats.* **Esfahan Province** (Shahreza); **Chaharmahal va Bakhtiari Province** (Shahrekord) and **Khuzestan Province** (Baghmalek, Ghaletol, Izeh), soil (Kavianpour *et al.* 2013b); (Region not mentioned), soil (Nemati *et al.* 2017b); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp., and with ants nest (Khalili Moghadam and Nemati 2014a); (Saman), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and

Saboori 2015); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

***Gaeolaelaps izajiensis* Saeidi, Nemati & Khalili-Moghadam, 2016**

*Distribution and habitats.* **Khuzestan Province** (Izeh and Ghaletol), soil (Saeidi *et al.* 2016).

***Gaeolaelaps jondishapouri* Nemati & Kavianpour, 2013**

*Distribution and habitats.* **Khuzestan Province** (Ahwaz), soil and litters (Nemati and Kavianpour 2013); (Region not mentioned), soil (Nemati *et al.* 2017b); **Esfahan Province** (Shahreza), soil (Nemati and Kavianpour 2014); **Kerman Province** (Jiroft), cow manure, soil and litter in a citrus orchard (Kazemi *et al.* 2014b).

***Gaeolaelaps kargi* (Costa, 1968)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Fars Province** (Neyriz Region), soil (Bazrafshan *et al.* 2013); **Kerman Province** (Kerman County), sheep manure (Arjomandi *et al.* 2013a); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Rostamabad, Roodbar), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015); **Chaharmahal va Bakhtiari Province** (Saman and Shahrekord), soil (Amani *et al.* 2015); (Saman), soil (Shariati *et al.* 2017); (Shahrekord), different habitats (Nemati *et al.* 2017a); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Gaeolaelaps khajooii* Kazemi, Rajaei & Beaulieu, 2014**

*Distribution and habitats.* **Kerman Province** (Baft), soil and litter at an alfalfa farm (Kazemi *et al.* 2014b).

***Gaeolaelaps lenis* Vatankhah & Nemati, 2016**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), nest of *Formica* sp. (Formicidae) (Vatankhah *et al.* 2016).

***Gaeolaelaps minor* (Costa, 1968)**

*Distribution and habitats.* **Bushehr and Hormozgan Provinces** (Lenge Port), soil (Kazemi and Alikhani 2013); **Fars Province** (Larestan), associated with date palm (leaves, fruits, trunk fiber and soil) (Majidi and Akrami, 2013); (Neyriz), soil (Bazrafshan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Chaharmahal va Bakhtiari Province** (Lordegan, Khanmirza Region, Salehat Village; Felard Region, Poshtkouh and Pol e Gharah), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Shahrekord), different habitats (Nemati *et al.* 2017a); **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b); **Qom Province**

(Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

***Gaeolaelaps mossadeghi* Kavianpour & Nemati, 2014**

*Distribution and habitats.* **Esfahan Province** (Shahreza), soil of a garden (Kavianpour and Nemati 2014); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Gaeolaelaps nolli* (Karg, 1962)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Kuhdasht District), soil (Heydari *et al.* 2014a); (Khorramabad), soil (Hasanvand *et al.* 2014a); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Guilan Province** (Roodbar), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); (Region not mentioned), associated with ants nest (Khalili Moghadam and Nemati 2014b); (Saman, Boldaji (Cheghakhor), Lordegan and Shahrekord Cities), soil of ant nests, *Tapinoma* sp. and *Cataglyphis* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Saman, Shahrekord), soil (Amani *et al.* 2015); (Shahrekord), different habitats (Nemati *et al.* 2017a); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Gaeolaelaps orbiculatus* Nemati & Mohseni, 2013**

*Distribution and habitats.* **Khuzestan Province** (Izeh), soil (Nemati and Mohseni 2013).

***Gaeolaelaps oreithyiae* (Walter & Oliver, 1989)**

*Distribution and habitats.* **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Kerman Province** (Kerman, parks and landscapes), soil (Arjomandi and Kazemi 2014b); (Shahrekord), different habitats (Nemati *et al.* 2017a); **Chaharmahal va Bakhtiari Province** (Lordegan, Khanmirza, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015).

***Gaeolaelaps praesternalis* (Willmann, 1949)**

*Distribution and habitats.* **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Kuhdasht District), soil (Heydari *et al.* 2014a); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Roodbar), soil in olive orchard (Mahjoori *et al.* 2014); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi *et al.* 2015); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Gaeolaelaps queenslandicus* (Womresley, 1956)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Faculty of Agricultural (University of Lorestan)), soil of cypress tree (Hasanvand *et al.* 2014b); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Kuhdasht District), soil (Heydari *et al.* 2014a); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Mazandaran Province** (Region not mentioned), soil (Kazemi *et al.* 2013c); (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Roodbar), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi *et al.* 2015); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); (Mashhad), soil (Abbaspour *et al.* 2017); **Kerman Province** (Sirjan, Rafsanjan and Shahr-e-Babak), soil, manure and leaf litter (Masnavipour *et al.* 2014); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Yazd Province**, (Region not mentioned), soil (Kafi *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Shahrekord), soil (Amani *et al.* 2015); (Shahrekord), different habitats (Nemati *et al.* 2017a); **Fars Province** (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

**Genus *Gymnolaelaps* Berlese, 1916*****Gymnolaelaps artavilensis* Joharchi & Halliday, 2013**

*Distribution and habitats.* **Ardabil Province** (Region not mentioned), nest of *Pheidole pallidula* (Formicidae) (Joharchi and Halliday 2013).

***Gymnolaelaps laevis* (Michael, 1891)**

*Distribution and habitats.* **Alborz Province** (Karaj); **Yazd Province** (Region not mentioned), nest of *Tetramorium caespitum* (Joharchi and Halliday 2013).

***Gymnolaelaps longiosetae* Ramroodi, Joharchi & Hajizadeh, 2015**

*Distribution and habitats.* **Guilan Province** (Shaft, Chobar Forest, Emamzadeh Ebrahim), in nest of *Myrmica* sp. (Formicidae) (Ramroodi *et al.* 2015b); (Emamzadeh Hashem, Rudbar), soil (Ramroodi *et al.* 2015a); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

***Gymnolaelaps messor* Joharchi *et al.*, 2011**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Tehran Province** (Shemiranat, Rodbar Ghasran Region), soil and litter (Joharchi and Halliday 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c).

***Gymnolaelaps myrmecophilus* (Berlese, 1892)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); (Savojbolagh, Taleghan), nest of *Formica* sp. (Joharchi and Halliday 2013);



**Kerman Province** (Kerman County), cow manure (Arjomandi *et al.* 2013a); **Khorasan Razavi Province** (Mashhad), soil, litter and associated with ants nests (Ghafarian *et al.* 2013a); **Guilan Province** (Ganjeh, Majil), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015a); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman, Shahrekord), soil (Amani *et al.* 2015; Shariati *et al.* 2017); **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017).

***Gymnolaelaps myrmophilus* (Michael, 1891)**

*Distribution and habitats.* **Alborz Province** (Karaj), nest of *Tetramorium caespitum* (Joharchi and Halliday 2013); **Mazandaran Province** (Region not mentioned), soil (Kazemi *et al.* 2013c); **Tehran Province** (Shemiranat, Rodbar Ghasran Region), soil and litter (Joharchi and Halliday 2013); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2013; Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015a); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a).

***Genus Hypoaspis* G. Canestrini, 1884**

***Hypoaspis alborzensis* Razavi Susan & Joharchi, 2014**

*Distribution and habitats.* **Alborz Province** (Karaj), on adult female of *Oryctes* sp. (Coleoptera: Scarabaeidae) under plane trees (Platanaceae: *Platanus* sp.) (Razavi Susan *et al.* 2014).

***Hypoaspis elegans* Joharchi, Ostovan & Babaeian, 2014**

*Distribution and habitats.* **Kerman Province** (Bam), on adult female *Oryctes elegans* Prell. (Coleoptera: Scarabaeidae) (Joharchi *et al.* 2014b).

***Hypoaspis integer* (Berlese, 1911)**

*Distribution and habitats.* **Alborz Province** (Karaj), associated with *Polyphylla* sp. (Razavi Susan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil, litter and associated with ants nests (Ghafarian *et al.* 2013a).

***Hypoaspis krameri* (G. & R. Canestrini, 1881)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Hypoaspis maryamae* Joharchi & Halliday, 2011**

*Distribution and habitats.* **Alborz Province** (Karaj), associated with *Polyphylla* sp. (Razavi Susan *et al.* 2013); **Hamedan Province** (Region not mentioned), from adults of *Polyphylla olivieri* Castelnau (Coleoptera: Scarabaeidae) (Khanjani *et al.* 2013); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016).

**Note:** *Hypoaspis surii* Khanjani, Ghaedi & Ueckermann, 2013 was considered as a junior synonym of above species by Joharchi *et al.* (2014).

*Distribution and habitats.*

***Hypoaspis pentodoni* Costa, 1971**

*Distribution and habitats.* **Alborz Province** (Karaj), associated with *Polyphylla* sp. (Razavi Susan *et al.* 2013); **North Khorasan Province** (Region not mentioned), on the body of *Polyphylla* sp. larvae (Scarabaeidae) (Rezaei *et al.* 2016).

***Hypoaspis rhinocerotis* Oudemans, 1925**

*Distribution and habitats.* **Alborz Province** (Karaj), on adult female of *Oryctes* sp. (Coleoptera: Scarabaeidae) under plane trees (Platanaceae: *Platanus* sp.) (Razavi Susan *et al.* 2014).

***Hypoaspis surenai* Joharchi & Shahedi, 2016**

*Distribution and habitats.* **Yazd Province** (Taft, Kahduiyeh), on adult females of *Oryctes* sp. (Coleoptera: Scarabaeidae) (Joharchi and Shahedi 2016).

***Hypoaspis terrestris* (Leonardi, 1899)**

*Distribution and habitats.* **Alborz Province** (Karaj), associated with *P. olivieri* (Razavi Susan *et al.* 2013).

**Genus *Julolaelaps* Berlese, 1916*****Julolaelaps hallidayi* Nemati, Riahi & Gwiazdowicz, 2015**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Brujen Region); **Esfahan Province** (Shahreza), soil (Nemati *et al.* 2015).

**Genus *Laelaps* C.L. Koch, 1836*****Laelaps algericus* Hirst, 1925**

*Distribution and habitats.* **Khorasan Razavi Province** (Mashhad), associated with rodents (*Mus musculus*) (Kazemi *et al.* 2015); **Khorasan Razavi Province** (Mashhad), on *M. musculus* (Moravvej *et al.* 2016).

***Laelaps acuminata* Furman, 1972**

*Distribution and habitats.* **Sistan va Baluchistan Province** (Bampoor, Daman, Iranshahr, and Qasre Qand, Nikshahr), on the body of *Tetera indica*, *Meriones hurrianae*, *Meriones libycus* and *Gerbillus nanus* (Nateghpour *et al.* 2013).

***Laelaps nuttalli* (Hirst, 1955)**

*Distribution and habitats.* **Golestan Province** (Gomishan and Bandar Turkmen), on *M. musculus* (Gholipoury *et al.* 2016).

**Genus *Laelaspis* Berlese, 1903*****Laelaspis astronomicus* (C.L. Koch, 1839)**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants' nests (Ghafarian *et al.* 2013a); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Majil), soil in olive orchard (Mahjoori *et al.* 2014); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi *et al.* 2015); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Hamedan Province** (Hamedan), on *M. musculus*, *R. rattus* and *R. norvegicus* (Zendehefili *et al.* 2015); **Mazandaran Province** (Nowshahr, Ecological

(Botanical) Garden), soil and litter (Saber *et al.* 2016); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh and Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Laelaspis calidus* Berlese, 1924**

*Distribution and habitats.* **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Laelaspis dariusi* Joharchi & Jalaeian, 2012**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Roodbar, Majil), soil in olive orchard (Mahjoori *et al.* 2014); (Rudsar, Lahijan, Amlash, Fuman, Roudkhan castle and Rostamabad), soil and leaf litter (Ramroodi *et al.* 2015b); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi *et al.* 2015a); **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

***Laelaspis elongatus* Kazemi, Mehrzad & Latifi, 2016**

*Distribution and habitats.* **Kerman Province** (Bam), under elytra of *Acinopus* (*Acinopus*) *picipes* (Olivier) (Col.: Carabidae); **Khuzestan Province** (Ahwaz), associated with *Pheidole pallidula* (Nylander) (Hym., Formicidae) (Kazemi *et al.* 2016a).

***Laelaspis equitans* (Michael, 1891)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Laelaspis guilaniensis* Ramroodi, Joharchi & Hajizadeh, 2014**

*Distribution and habitats.* **Guilan Province** (Talesh, Gisoom forest), soil under alder trees in forest (Ramroodi *et al.* 2014 b).

***Laelaspis humeratus* (Berlese, 1904)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden), soil and litter (Saber *et al.* 2016); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Laelaspis kamalii* Joharchi *et al.*, 2012**

*Distribution and habitats.*  **Lorestan Province** (Kuhdasht), soil (Heydari *et al.* 2014a); **Chaharmahal va Bakhtiari Province** (Saman and Shahrekord), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) and soil of ant nests, unknown ant (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Laelaspis morazae* Kazemi, 2015**

*Distribution and habitats.* **Esfahan Province** (Shahreza, Chaqad Region), nest of unknown ant; **Khorasan Razavi Province** (Mashad), *Lepisiota semenovi* (Ruzsky) (Formicinae) (Kazemi 2015).

***Laelaspis mossadeghi* Babaeian & Joharchi, 2013**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Lorestan Province** (Kuhdasht), soil (Heydari *et al.* 2014a); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

***Laelaspis natanziensis* Masoomi, Joharchi & Jalalizand, 2016**

*Distribution and habitats.* **Esfahan Province** (Natanz), in nest of *Tetramorium sp.* (Formicidae) (Masoomi *et al.* 2016).

***Laelaspis pennatus* Joharchi & Halliday, 2012**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Rostamabad and Taklim), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a); **Fars Province** (Koohmare-Sorkhi, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a).

***Laelaspis persicus* Joharchi & Halliday, 2012**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Rudbar), soil and leaf-litters (Ramroodi *et al.* 2015b); **Kerman Province** (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); (Kerman), nest of *Tetramorium sp.*, in an alfalfa field (Kazemi 2015); **Tehran Province** (Tehran), nest of an unknown ant (Kazemi 2015); **Khuzestan Province** (Dezful), soil and moss in lemon and orange orchard; (Region not mentioned), soil (Nemati *et al.* 2017b).

***Laelaspis vitzthumi* (Womersley, 1956)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a).

**Genus *Myonyssus* Tiraboschi, 1904**

***Myonyssus gigas* (Oudemans, 1912)**

*Distribution and habitats.* **East Azarbaijan Province** (Aynalu Region, Arasbaran Forests), soil and litter near an unknown small mammal nest (Kazemi and Mohammad-Dustar-Sharaf 2015); (Arasbaran Forests, Aynalu), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

**Genus *Myrmozercon* Berlese, 1902**

***Myrmozercon brachytrichos* Joharchi, Arjomandi & Trach, 2017**

*Distribution and habitats.* **Alborz Province** (Savojbolagh, Khoznan; Damavand mountain), on the head of *Crematogaster inermis* Mayr (Formicidae) in the bark of grapevine (Joharchi *et al.* 2017).

**Note:** This species has previously reported as *Myrmozercon tauricus* Trach & Khaustov, 2011 from Alborz Province (Damavand mountain), clinging to the head of *Crematogaster schmidtii* (Mayr) (Formicidae) in the bark of grapevine (Joharchi and Moradi 2013). Joharchi *et al.* (2017) considered it as misidentification and described as a new species as above.

***Myrmozercon brevipes* Berlese, 1902**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Saman), from the nest of *Tapinoma sp.* (Khalili-Moghadam and Nemati 2014b; Khalili-Moghadam and Saboori 2015).

***Myrmozercon crinitus* Joharchi, 2013**

*Distribution and habitats.* **Alborz Province** (Karaj), on the head of soldiers of *Pheidole pallidula* (Formicidae) (Joharchi and Moradi 2013).

***Myrmozercon cyrusi* Ghafarian & Joharchi, 2013**

*Distribution and habitats.* **Khorasan Razavi Province** (Mashhad County), nest of *Monomorium* sp. (Ghafarian *et al.* 2013b).

***Myrmozercon hunteri* Joharchi, Babaeian & Seeman, 2015**

*Distribution and habitats.* **Alborz Province** (Savojbolagh, Khoznan), on the abdomen of soldiers of *Myrmica* sp. (Formicidae) (Joharchi *et al.* 2015).

***Myrmozercon iranicus* Babaeian & Nemati, 2014**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Taghanak), soil of ant nests, *Formica* sp. (Khalili-Moghadam and Saboori 2015); (Shahrekord), nest of *Messor* sp.; **Yazd Province** (Taft), nest of *Messor* sp. (Babaeian *et al.* 2014b).

***Myrmozercon michaeli* Joharchi, 2013**

*Distribution and habitats.* **Alborz Province** (Damavand Mountain, Karaj), in the nest of *Messor* sp. (Joharchi and Moradi 2013).

***Myrmozercon sternalis* Babaeian, Joharchi & Saboori, 2013**

*Distribution and habitats.* **Alborz Province** (Karaj, Najm Abad), in the nest of *Formica* sp. (Babaeian *et al.* 2013); **Chaharmahal va Bakhtiari Province** (Saman), associated with ants nest, (Khalili-Moghadam and Nemati 2014b; Khalili-Moghadam and Saboori 2015).

**Genus *Ololaelaps* Berlese 1904*****Ololaelaps mooiensis* Ryke, 1962**

*Ololaelaps gamagarensis* Jordaan & Loots, 1987: **syn. nov.**

*Distribution and habitats.* **Golestan Province** (Gorgan Region forests), soil and litter (Arjomandi & Kazemi 2014a); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem), soil (Ramroodi *et al.* 2015a); **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a); **Chaharmahal va Bakhtiari Province** (Shahrekord), soil of unknown ant nests (Khalili-Moghadam & Saboori 2015); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b); **East Azarbaijan Province** (Arasbaran forests), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017).

**Note:** 1. Some above authors: Ramroodi *et al.* (2014c), Ramroodi *et al.* (2015a), Ordoukhanian *et al.* (2017) and Valizadeh *et al.* (2017) reported this species as *O. gamagarensis*; 2. Jordaan & Loots (1987) declared the sternal setae lengths as only difference between *O. gamagarensis* and *Ololaelaps mooiensis*. So that in the later, sternal setae II and III conspicuously longer than sternal setae I, while in the first species those are approximately of equal length. Marais & Loots (1972) redescribed *O. mooiensis* and discussed the existence of intra-specific variations in populations of Angula and South Africa. In this study, these intra-specific differences also compared with type materials. Our observations on several specimens that were determined as *O. mooiensis* and collected from different parts of Iran, showed variation in different morphological characters including sternal setae lengths that are equal in some specimens. According to this explanation, *O. gamagarensis* could be considered as junior synonym of *O. mooiensis*.



***Ololaelaps placentula* (Berlese, 1887)**

*Distribution and habitats.* **Khorasan Razavi Province** (Mashhad), soil, litter and associated with ants nests (Ghafarian *et al.* 2013a); **Golestan Province** (Gorgan Region forests), soil and litter (Arjomandi and Kazemi 2014a); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Ololaelaps ussuriensis* Bregetova & Koroleva, 1964**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2013; Ramroodi *et al.* 2014c); (Roodbar, Majil), soil in olive orchard (Mahjoori *et al.* 2014); **Golestan Province** (Gorgan Region forests), soil and litter (Arjomandi and Kazemi 2014a).

**Genus *Persicolaelaps* Kazemi & Beaulieu, 2016*****Persicolaelaps hallidayi* Kazemi & Beaulieu, 2016**

*Distribution and habitats.* **Golestan Province** (Qarn-Abad Forest); **Mazandaran Province** (Noor), rotten wood, soil and litter (Kazemi and Beaulieu 2016).

**Genus *Pogonolaelaps* Nemati & Gwiazdowicz, 2016*****Pogonolaelaps beaulieui* Nemati & Gwiazdowicz, 2016**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), soil; (Shahrekord University), nest materials of unknown ant; (Saamaan, Cham-Khalifeh), walnut rooting wood (Nemati and Gwiazdowicz 2016a); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden), soil and litter (Saberi *et al.* 2016).

***Pogonolaelaps canestrinii* (Berlese, 1903)**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Rostamabad and Majil), soil in olive orchard (Mahjoori *et al.* 2014); (Saravan, Emamzadeh Hashem, Rostamabad and Rudbar), soil (Ramroodi *et al.* 2015); **Tehran Province** (Rodbar ghasran Region (Shemiranat)), soil and litter (Joharchi and Halliday 2013); (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants nests (Ghafarian *et al.* 2013a); (Mashhad County), soil and manure (Abbaspour *et al.* 2017); **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Mazandaran Province** (Lavij Region of Nour County), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014); (Nowshahr, Ecological (Botanical) Garden), soil and litter (Saberi *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Lordegan, Khanmirza Region, Salehat Village, Central Region, Abchenar Armand Village, Pol-e-Armand Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Boldaji (Cheghakhor)), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Shahrekord, Lordegan, Naghan and Ben), soil (Nemati and Gwiazdowicz 2016a); **Esfahan Province** (Esfahan, Kashan and Shahreza), soil (Nemati and Gwiazdowicz 2016a); **Khuzestan Province** (Ahwaz), nest of unknown ant; (Baghmalek), soil; (Ghaletol), soil and nest materials of unknown ant; (Izeh and Masjed-Soleiman), soil (Nemati and Gwiazdowicz 2016a); **North Khorasan Province** (Region not mentioned), associated with the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016); **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

**Note:** Some authors reported this species as *Laelaspisella berlesei* Joharchi *et al.* (2016) and *Laelaspisella canestrinii* (Berlese, 1903) from Iran.

### **Genus *Pneumolaelaps* Berlese, 1920**

***Pneumolaelaps (Hypoaspisella) berlesei* (Bernhard in Hirschamnn *et al.*, 1969)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Saman, Lordegan, Naghan, Borujen, Farrokhsahr Regions); **Esfahan Province** (Esfahan and Zarrinshahr Regions); **Khuzestan Province** (Region not mentioned), soil, debris, nest of ants and fungi (Khalili Moghadam *et al.* 2016a).

***Pneumolaelaps (Hypoaspisella) lubricoides* (Karg, 1971)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Saman, Lordegan, Naghan, Borujen, Farrokhsahr Regions); **Esfahan Province** (Esfahan and Zarrinshahr Regions); **Khuzestan Province** (Region not mentioned), soil, debris, nest of ants and fungi (Khalili Moghadam *et al.* 2016b).

### **Genus *Pseudoparasitus* Oudemans, 1902**

***Pseudoparasitus dentatus* (Halbert, 1920)**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Guilan Province** (Region not mentioned), soil (Ramroodi *et al.* 2013); (Majil and Rostamabad), soil in olive orchard (Mahjoori *et al.* 2014); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem, Rostamabad, Rudbar), soil (Ramroodi *et al.* 2015a); **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Aynalu, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

***Pseudoparasitus hajiqanbari* Kazemi, 2014**

*Pseudoparasitus talebii* Nemati, Malekshahkoochi & Afshari, 2014 (*nomen nudum*): **syn. nov.**

*Distribution and habitats.* **Golestan Province** (Gorgan, Ghorogh forest), litter (Malekshah-koochi *et al.* 2014); (Jafarabad, Forest Park), forest litter (Kazemi 2014); **Mazandaran Province** (Sisangan Forest Park), forest litter (Kazemi 2014); (Nour County, Lavij Region), soil, humus and litter (Ghasemi-Moghadam *et al.* 2014).

### **Genus *Reticulolaelaps* Costa, 1968**

***Reticulolaelaps costai* Joharchi & Babaeian, 2015**

*Distribution and habitats.* **Qazvin Province** (Savojbolagh, Khoznan), associated with *Tapinoma* sp. (Joharchi and Babaeian 2015).

***Reticulolaelaps faini* Costa, 1968**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Lordegan); **Khuzestan Province** (Izeh, Ghaletol), soil (Nemati *et al.* 2013a); **Khorasan Razavi Province** (Mashhad), soil, litter and associated with ants' nests (Ghafarian *et al.* 2013a); **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

***Reticulolaelaps hallidayi* Joharchi, Nemati & Babaeian, 2013**

*Distribution and habitats.* **Alborz Province** (Taleghan), in the nest of *Tapinoma* sp.; **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2013a); **Lorestan Province** (Kuhdasht District), soil (Heydari *et al.* 2014a).

**Genus *Stratiolaelaps* Berlese, 1916*****Stratiolaelaps scimitus* (Womersley, 1956)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord), different habitats (Nemati *et al.* 2017a); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

**FAMILY PSEUDOLAELAPIDAE EVANS & TILL, 1966****Genus *Pseudolaelaps* Berlese, 1916*****Pseudolaelaps doderoi* (Berlese, 1910)**

*Distribution and habitats.* **Lorestan Province** (Khorramabad), orchard (Hasanvand *et al.* 2015); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016).

***Pseudolaelaps laevidorsatus* Mašán, Hajizadeh & Ramroodi, 2015**

*Distribution and habitats.* **Guilan Province** (Talesh, Asalem, Fuman, Rasht), soil detritus of alder trees (*Alnus glutinosa*); (Sangar, Shahrestan Village), soil detritus of elm forest (*Ulmus carpinifolia*); (Saravan), soil detritus of deciduous forest, oak forest (*Ulmus* sp., *Quercus castaneifolia*, *Alnus glutinosa* and *Parrotia persica*); (Rezvanshahr Punel Village), decomposing plant remnants of deciduous forest; (Rudsar, Kelachai, Javaher Dasht Village), soil detritus of deciduous forest (*Ulmus* sp., *Quercus* sp. and *Alnus glutinosa*); (Shaft, Chubar Village), decomposing plant remnants of deciduous forest; (Siahkal, Daylaman), soil detritus of unknown bush plant (Mašán *et al.* 2015).

***Pseudolaelaps semiduplicans* Mašán, Hajizadeh & Ramroodi, 2015**

*Distribution and habitats.* **Guilan Province** (Rasht, Saravan Forest), soil detritus of deciduous forest (*Ulmus* sp., *Quercus* sp., *Alnus glutinosa* and *Parrotia persica*); (Fuman), soil detritus of alder forest (*Alnus glutinosa*); (Shaft, Chubar Village), decomposing plant remnants of deciduous forest (Mašán *et al.* 2015).

***Pseudolaelaps venustus* Mašán, Hajizadeh & Ramroodi, 2015**

*Distribution and habitats.* **Guilan Province** (Masal, Shanderman Village), decomposing plant remnants, soil detritus of orchard and maple forest (with *Acer platanoides*); (Rudbar, Rostamabad), soil detritus of vegetation with walnut trees (*Juglans regia*); (Rudsar), soil detritus of vegetation with hazelnut trees (*Corylus avellana*); (Talesh, Gisum Forest), moss (Mašán *et al.* 2015).

**FAMILY RHINONYSSIDAE TROUESSART, 1895****Genus *Ptilonyssus* Berlese & Trouessart, 1889*****Ptilonyssus hirsti* Castro & Periera, 1947**

*Distribution and habitats.* **Khorasan Province** (Kalat Nader and Bojnord), on *Passer montanus* and *Passer domesticus* (Passeridae) (Moodi *et al.* 2014).

***Ptilonyssus icteridius* Strandtmann & Furman, 1956**

*Distribution and habitats.* **Khorasan Province** (Tandoureh National Park), on red-headed bunting

*Emberiza bruniceps* (Emberizidae) (Moodi *et al.* 2014).

***Ptilonyssus pirangae* Cerny, 1969**

*Distribution and habitats.* **Khorasan Province** (Shirvan), on common greenfinch *Carduelis chloris* (Fringillidae) (Moodi *et al.* 2014).

**FAMILY VARROIDAE DELFINADO & BAKER, 1974**

**Genus *Varroa* Oudemans, 1904**

***Varroa destructor* Anderson & Trueman, 2000**

*Distribution and habitats.* **Alborz, Ardabil, Esfahan Guilan, Khorasan (Suoth, North and Razavi), Kurdistan, Mazandaran, Sistan va Balouchistan and Tehran Provinces** (Region not mentioned), *Apis mellifera* (Farjamfar *et al.* 2017); **Ardabil, Alborz, Markazi, North Khorasan, Qazvin, Qom, and Semnan Provinces** (Region not mentioned), from stayed apiaries without migration (Dadgostar and Nozari 2018).

**SUPERFAMILY EVIPHIDOIDEA**

**FAMILY EVIPHIDIDAE BERLESE, 1913**

**Genus *Alliphis* Halbert, 1923**

***Alliphis halleri* (G. & R. Canestrini, 1884)**

*Distribution and habitats.* **Fars Province** (Estahban), associated with fig trees, soil, leaves, fruits, and trunk samples (Daneshnia and Akrami 2013); (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016); **Hamedan Province** (Sarab Gamasiab of Nahavand vicinity), from soil and litter of Chicory, *Cichorium intybus* L. (Masoudian and Khanjani 2013); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a); (Rafsanjan), soil, manure and litter (Masnavipour *et al.* 2014); **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Shahrekord Region, Saman City), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and Nemati 2014b; Khalili-Moghadam and Saboori, 2015); **Lorestan Province** (Khorramabad), orchard, oak forest, ant nest and field (Hasanvand *et al.* 2015); **Esfahan Province** (Kashan Region, Hanjan; Jowshaqan; Niyasar and Qamsar), rose and almond plantations, turnip and tomato patches (Abutaleb Kermani *et al.* 2017); **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Alliphis scarabaeorum* Ogandzhanyan, 1969**

*Distribution and habitats.* **Khorasan Razavi, North Khorasan, Golestan, Kerman and Khuzestan Provinces** (Regions not mentioned), associated with scarab beetles of the genus *Scarabaeus* Linnaeus (Kazemi and Payandeh 2014).

**Genus *Copriphis* Berlese, 1910**

***Copriphis falcinellus* (R. Canestrini & G. Canestrini, 1882)**

*Distribution and habitats.* **Lorestan Province** (Selseleh County, Aleshtar City, Garrin Mountain, Soltan Taher Region), phoretic on an unidentified dung beetle (Scarabaeidae) (Ghasemi Moghadam *et al.* 2016).

***Copriphs hastatellus* Berlese, 1910**

*Distribution and habitats.* **Kerman Province** (Jiroft), associated with beetles of *Heliocopris gigas* (Linnaeus) (Kazemi 2017).

**Genus *Evimirus* Karg, 1963*****Evimirus uropodinus* (Berlese, 1903)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden), soil and litter (Sabeti *et al.* 2016); **Northwestern of Fars Province** (Region not mentioned), soil and debris (Abolghasemi and Kazemi 2016).

**Genus *Eviphis* Berlese, 1903*****Eviphis ostrinus* (Koch, 1835)**

*Distribution and habitats.* **Mazandaran Province** (Dimron Region), soil (Kazemi and Ahangaran 2013).

**Genus *Pedoniphis* Joharchi, Mařán & Babaeian, 2014*****Pedoniphis persicus* Joharchi, Mařán & Babaeian, 2014**

*Distribution and habitats.* **West Azarbaijan Province** (Ardabil, Sabalan Mountains), in sandy soil (Joharchi *et al.* 2014a).

**Genus *Pelethiphis* Berlese, 1911*****Pelethiphis opucus* Koyumdjieva, 1981**

*Distribution and habitats.* **Khuzestan Province** (Ahvaz), from *Copris* sp. (Kazemi *et al.* 2013a).

**Genus *Pseudoalliphis* Mařán & Halliday, 2009*****Pseudoalliphis sculpturatus* (Karg, 1963)**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Region not mentioned), soil and litter (Nemati *et al.* 2014).

**Genus *Scarabaspis* Womersley, 1956*****Scarabaspis inexpectatus* (Oudemans, 1903)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a).

**Genus *Uroiphis* Berlese, 1903*****Uroiphis scabratus* Berlese, 1903**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), soil and litter of oak forests (Yazdanpanah and Kazemi 2014b).

**FAMILY MACROCHELIDAE VITZTHUM, 1930****Genus *Geholaspis* Berlese, 1918**



***Geholaspis (Geholaspis) pennulatus* Babaeian, Halliday & Saboori, 2015**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr Kheyroodkenar forest), leaf-litter (Babaeian *et al.* 2015).

***Geholaspis (Longicheles) cf. longulus* (Berlese, 1887)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

**Genus *Glypholaspis* Filipponi & Pegazzano, 1960*****Glypholaspis americana* (Berlese, 1888)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

***Glypholaspis confusa* (Foà, 1900)**

*Distribution and habitats.* **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

**Genus *Holostaspella* Berlese, 1903*****Holostaspella bifoliata* (Trägårdh, 1952)**

*Distribution and habitats.* **Kerman Province** (Region not mentioned), soil and manure (Hosseinpour and Latifi 2014); (Shahr-e-Babak), soil and manure (Masnavipour *et al.* 2014).

***Holostaspella exornata* Filipponi & Pegazzano, 1967**

*Distribution and habitats.* **Lorestan Province** (Selseleh, Aleshtar, Gereyrān Village), phoretic on an unidentified dung beetle (Scarabaeidae) (Ghasemi Moghadam *et al.* 2016).

***Holostaspella ornata* (Berlese, 1904)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014).

**Genus *Macrholaspis* Oudemans, 1931*****Macrholaspis recki* (Bregetova & Koroleva, 1960)**

*Distribution and habitats.* **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran forests, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Fars Province** (Northwestern), soil, debris (Abolghasemi and Kazemi 2016); **Esfahan Province** (Kashan, Qamsar), apricot plantation (Abutaleb Kermani *et al.* 2017).

**Genus *Macrocheles* Latreille, 1829*****Macrocheles glaber* (Müller, 1860)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and poultry manure (Arjomandi

*et al.* 2013a); **Gulian Province** (Eshkavarat and Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **East Azarbaijan Province** (Arasbaran Forests, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); **Khorasan Razavi Province** (Mashhad), soil (Abbaspour *et al.* 2017).

#### ***Macrocheles insignitus* Berlese, 1918**

*Distribution and habitats.* **East Azarbaijan Province** (Southwest), soil (Hashemi Khabir *et al.* 2013); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Kerman Province** (Region not mentioned), soil and manure (Hosseinpour and Latifi 2014); (Sirjan, Rafsanjan, Shahr-e-Babak), soil and manure (Masnavipour *et al.* 2014); **Lorestan Province** (Khorramabad), manure (Hasanvand *et al.* 2015); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); **Esfahan Province** (Kashan, Qamsar), apricot plantation (Abutaleb Kermani *et al.* 2017).

#### ***Macrocheles mammifer* Berlese, 1918**

*Distribution and habitats.* **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Markazi Province** (Sāveh County, Āveh Region), vermicompost (Ahadiyat *et al.* 2014); **Tehran Province** (Tehran City, District 18 and 19 of Tehran Municipality, Moallem Boulevard, Ghāem Park and Khordād Street), vermicompost (Ahadiyat *et al.* 2014).

#### ***Macrocheles merdarius* (Berlese, 1889)**

*Distribution and habitats.* **North East of Iran** (Region not mentioned), stored food products (Khaleghabadian *et al.* 2013); **Kerman Province** (Kerman County), cow manure and poultry manure (Arjomandi *et al.* 2013a); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); (Region not mentioned), soil and manure (Hosseinpour and Latifi 2014); (Sirjan, Rafsanjan, Shahr-e-Babak), soil, manure and decaying wood (Masnavipour *et al.* 2014); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015); **Lorestan Province** (Khorramabad), orchard, oak forest, ant nest and manure (Hasanvand *et al.* 2015); **North Khorasan Province** (Region not mentioned), associated with *Onthophagus* sp. (Scarabaeidae) and *Xylocopa* sp. (Apidae) (Rezaei *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); **Esfahan Province** (Jowshaqan, Kashan), empty pastures and vineyards (Abutaleb Kermani *et al.* 2017); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

#### ***Macrocheles muscaedomesticae* (Scopoli, 1772)**

*Distribution and habitats.* **North East of Iran** (Region not mentioned), associated with stored food products (Khaleghabadian *et al.* 2013); **Kerman Province** (Kerman County), cow manure and poultry manure (Arjomandi *et al.* 2013a); (Region not mentioned), soil and manure (Hosseinpour and Latifi 2014); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Khorasan Razavi Province** (Mashhad), stored food products (Khaleghabadian *et al.* 2015); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); **Esfahan Province** (Kashan Region (Jowshaqan and Qamsar)), empty pastures and tomato patches (Abutaleb Kermani *et al.* 2017).

***Macrocheles peniculatus* Berles, 1918**

*Distribution and habitats.* **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

***Macrocheles robustulus* (Berlese, 1905)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Kerman Province** (Region not mentioned), soil and manure (Hosseinpour and Latifi 2014); **Lorestan Province** (Badrabad District), soil under cedar trees (Hasanvand *et al.* 2014b); (Khorramabad), orchard and oak forest (Hasanvand *et al.* 2015); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

***Macrocheles scutatus* (Berlese, 1904)**

*Distribution and habitats.* **Lorestan Province** (Khorramabad), oak forest, field and manure (Hasanvand *et al.* 2015).

***Macrocheles subbadius* (Berlese, 1904)**

*Distribution and habitats.* **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Markazi Province** (Arak Region), soil (Jadidi and Joharchi 2014); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

***Macrocheles cf. nataliae* (Koroleva, 1960)**

*Distribution and habitats.* **Esfahan Province** (Kashan Region (Abyaneh and Aran and Bidgol)), enriched soil and pomegranate plantation (Abutaleb Kermani *et al.* 2017).

***Macrocheles terreus* Canestrini & Fanzago 1877**

*Distribution and habitats.* **Kerman Province** (Region not mentioned), soil (Hosseinpour & Latifi 2014).

**Genus *Nothrolaspis* Berlese, 1918*****Nothrolaspis carinatus* (Koch, 1939)**

*Distribution and habitats.* **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014).

***Nothrolaspis montanus* Willmann, 1951**

*Distribution and habitats.* **Gulian Province** (Eshkavarat, Astara), soil of hazelnut orchard (Arjimandi-Nezhad and Babaeian 2014); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

***Nothrolaspis saboorii* Babaeian & Joharchi, 2014**

*Distribution and habitats.* **Alborz Province** (Karaj), soil (Babaeian *et al.* 2014a).

**Genus *Reductholaspis* Emberson, 2010*****Reductholaspis analis* (Hyatt & Emberson, 1988)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of

Nowshahr), soil and litter (Saber *et al.* 2016); **Esfahan Province** (Kashan), soil (Abutaleb Kermani *et al.* 2017).

**FAMILY PACHYLAELAPIDAE BERLESE, 1913**  
**Genus *Olopachys* Berlese, 1910**

***Olopachys caucasicus* (Koroleva, 1976)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests, Vaygan, Aynalu Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016); **Guilan Province** (Saravan forest), soil under pine trees; (Rezvanshahr-Talesh Gisoum forest), moss of oak tree; (Guilan University pine forest), soil under pine tree (Mojahed *et al.* 2017).

***Olopachys compositus* Koroleva, 1976**

*Distribution and habitats.* **North Khorasan Province** (Region not mentioned), in the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016); **Guilan Province** (Saravan forest), soil under pine and oak trees; (Emamzadeh Hashem (forest area)), soil under poplar trees (Mojahed *et al.* 2017).

**Genus *Onchodellus* Berlese, 1904**

***Onchodellus alpinus* (Willmann, 1953)**

*Distribution and habitats.* **Guilan Province** (Saravan forest), soil under pine tree (Mojahed *et al.* 2017).

***Onchodellus hispani* (Berlese, 1908)**

*Distribution and habitats.* **Guilan Province** (Saravan forest), soil under pine tree (Mojahed *et al.* 2017).

***Onchodellus karawaiawi* (Berlese, 1920)**

*Distribution and habitats.* **East Azarbaijan Province** (Southwest), soil (Hashemi Khabir *et al.* 2013); (Arasbaran Forests, Vaygan, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Tehran Province** (Region not mentioned), associated with ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Kerman Province** (Shahr-e-Babak), soil and manure (Masnavipour *et al.* 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Bishe and Sabzevar Districts), soil of walnut trees and soil of peach orchard (Hasanvand *et al.* 2014b); (Badrabad District), soil under cedar trees (Hasanvand *et al.* 2014b); (Khorramabad), orchard, oak forest, ant nest and field (Hasanvand *et al.* 2015); **Fars Province** (Shiraz), associated with insectariums, potato, zucchini, flour and the floor of insectariums (Granpayeh and Ostovan 2014); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Esfahan Province** (Kashan, Hanjan), persimons plantation and fava beans fields (Abutaleb Kermani *et al.* 2017); **Khorasan Razavi Province** (Mashhad), soil (Abbaspour *et al.* 2017).

***Onchodellus siculus* (Berlese, 1892)**

*Distribution and habitats.* **Guilan Province** (Emamzadeh Hashem (forest area)), soil under poplar tree; (Astaneh-Ashrafieh Safrabasteh forest), soil under oak tree (Mojahed *et al.* 2017).

***Onchodellus squamosus* (Koroleva, 1977)**

*Distribution and habitats.* **Guilan Province** (Emamzadeh Hashem (forest area)), soil under poplar tree (Mojahed *et al.* 2017).

***Onchodellus strigifer* (Berlese, 1892)**

*Distribution and habitats.* **Guilan Province** (Saravan forest), soil under oak tree (Mojahed *et al.* 2017).

**Genus *Pachylaelaps* Berlese, 1888*****Pachylaelaps grandis* Koroleva, 1977**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016); **Guilan Province** (Shaft Chubar forest), soil under pine, oak and poplar trees; (Astaneh-Ashrafieh Safrabasteh forest), soil under oak trees; (Saravan forest), soil under ironwood (*Parrotia persica*, Hamamelidaceae), oak, hawthorn trees and pine trees; (Rezvanshahr-Talesh Gisoum forest), soil and moss under pine trees; (Guilan University pine forest), soil under pine trees (Mojahed *et al.* 2017).

***Pachylaelaps imitans* Berlese, 1920**

*Distribution and habitats.* **Guilan Province** (Saravan forest), soil under ironwood (Mojahed *et al.* 2017).

***Pachylaelaps insularis* (Berlese, 1883)**

*Distribution and habitats.* **Lorestan Province** (Khorramabad), orchard (Hasanvand *et al.* 2015).

***Pachylaelaps longisetis* Halbert, 1915**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

***Pachylaelaps pectinifer* (G. Canestrini, 1881)**

*Distribution and habitats.* **East Azarbaijan Province** (Southwest), soil (Hashemi Khabir *et al.* 2013); **Kerman Province** (Shahr-e-Babak), soil and manure (Masnavipour *et al.* 2014); **Lorestan Province** (Shirkhani District), soil of apricot orchard (Hasanvand *et al.* 2014b); (Khorramabad), orchard, oak forest, ant nest and field (Hasanvand *et al.* 2015); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017); **Esfahan Province** (Kashan, Niyasar), road side soil (Abutaleb Kermani *et al.* 2017); **Guilan Province** (Astaneh-Ashrafieh Safrabasteh forest), soil under oak trees; (Shaft Chubar forest), soil under pine and oak trees (Mojahed *et al.* 2017).

***Pachylaelaps (Longipachylaelaps) vicarius* Mašán, 2007**

*Distribution and habitats.* **Alborz Province** (Karaj), in nest of *Tapinoma* sp. (Shahrestānak), in nest of *Camponotus* sp.; **Tehran Province** (Shemirānāt County, Roodbār Ghasrān Region, Fasham, Shāhed Boulevard, Ahār Village, Igel Village), soil under cherry tree, willow tree debris and humus, soil near root collar of willow tree (Ahadiyat *et al.* 2014).

**Genus *Pachyseius* Berlese, 1910*****Pachyseius angustoides* Babaeian & Mašán, 2016**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Shahrekord, Saman, Dashti Village), soil and leaf litter (Babaeian *et al.* 2016).

***Pachyseius humeralis* Berlese, 1910**

*Distribution and habitats.* **Fars Province** (Eghlid Region), soil of apple trees (Gholami and Ostovan 2013).



***Pachyseius Mašánisimilis* Ahadiyat & Ghasemi Moghadam, 2016**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); **Tehran Province** (Shemirānāt, Rudbāre Qasrān District, Fasham City, Shemshak City, Garmābdar Village), soil, humus and leaf litter (Ahadiyat *et al.* 2016).

***Pachyseius persicus* Babaeian & Mašán, 2016**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr City, Koliak Village), leaf litter and soil (Babaeian *et al.* 2016).

**FAMILY PARHOLASPIDIDAE EVANS, 1956****Genus *Gamasholaspis* Berlese, 1903*****Gamasholaspis gamasoides* Berlese, 1904**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**Note:** Maleki *et al.* (2016) reported this species as *Gamasholaspis* sp. near *gamasoides* Berlese, 1829.

***Gamasholaspis incisus* Petrova, 1968**

*Distribution and habitats.* **Mazandaran Province** (Region not mentioned), soil and litter (Kazemi *et al.* 2014a); (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016).

**Genus *Holaspina* Berlese, 1916*****Holaspina alstoni* (Evans, 1956)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Kerman Province** (Rafsanjan), soil, manure and litter (Masnavipour *et al.* 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Mazandaran Province** (Region not mentioned), soil and litter (Kazemi *et al.* 2014a); (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016).

**Genus *Holaspulus* Berlese, 1904*****Holaspulus tenuipes* (Berlese, 1904)**

*Distribution and habitats.* **Mazandaran Province** (Region not mentioned), soil and litter (Kazemi *et al.* 2014a); (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016).

**Genus *Neparholaspis* Evans, 1965*****Neparholaspis arcuatus* Petrova, 1977**

*Distribution and habitats.* **Mazandaran Province** (Region not mentioned), soil and litter (Kazemi *et al.* 2014a); (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016).

**Genus *Proparholaspulus* Ishikawa, 1980*****Proparholaspulus angustatus* Ishikawa, 1987**

*Distribution and habitats.* **Esfahan Province** (Esfahan), soil (Kadkhodaei *et al.* 2013).

**SUPERFAMILY PHYTOSEOIDEA**  
**FAMILY BLATTISOCIIDAE GARMAN, 1948**  
**Genus *Blattisocius* Keegan, 1944**

***Blattisocius dentriticus* (Berlese, 1918)**

*Distribution and habitats.* **Fars Province** (Shiraz), associated with insectariums (samples taken from potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014).

***Blattisocius damghaniae* Shams, Kazemi & Saboori, 2016**

*Distribution and habitats.* **Semnan Province** (Damghan City, Agareh Village), rotting sawdust (Shamsi *et al.* 2016).

***Blattisocius keegani* Fox, 1947**

*Distribution and habitats.* **Kurdistan Province** (Region not mentioned), associated with stored flour and wheat (Maroufpoor *et al.* 2017).

***Blattisocius tarsalis* (Berlese, 1918)**

*Distribution and habitats.* **Fars Province** (Shiraz), associated with insectariums (samples taken from potato, zucchini, flour and the floor of insectariums) (Granpayeh and Ostovan 2014).

**Genus *Cheiroseius* Berlese, 1916**

***Cheiroseius borealis* (Berlese, 1904)**

*Distribution and habitats.* (Province and Region not mentioned), soil (Bigdeli *et al.* 2014).

***Cheiroseius curtipes* (Halbert, 1923)**

*Distribution and habitats.* **Guilan Province** (Taklim), collected from soil and soil under olive trees (Mahjoori *et al.* 2015).

***Cheiroseius longipes* (Willmann, 1949)**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mite [*Aceria granati* (Canestrini and Massalongo)] (Adeli *et al.* 2013); (Manjil), collected from foliage, soil under olive trees (Mahjoori *et al.* 2015).

***Cheiroseius manouchehrü* Shamsi & Saboori, 2013**

*Distribution and habitats.* **Semnan Province** (Damghan, Agareh Village), soil mixed with the hairy roots of a willow tree near the pool of a stream (Shamsi and Saboori 2013).

***Cheiroseius necorniger* (Oudemans, 1903)**

*Distribution and habitats.* **Kerman Province** (Kerman City, parks, and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Shirkhani District), soil under walnut trees (Hasanvand *et al.* 2014b).

***Cheiroseius samani* Mehranian, 2014**

*Distribution and habitats.* **Khorasan Razavi Province** (Neyshabur), moist soil and litter in an apple orchard (Mehranian 2014).

***Cheiroseius unguiculatus* (Berlese, 1887)**

*Distribution and habitats.* **Golestan Province** (Ziarat Village), leaf litter (Arjomandi *et al.* 2013b).

### Genus *Hoploseius* Berlese, 1914

#### ***Hoploseius bispinosetus* Faraji, Sakenin-Chelav & Karg, 2006**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a).

### Genus *Lasioseius* Berlese, 1916

#### ***Lasioseius confusus* Evans, 1958**

*Distribution and habitats.* **East Azarbaijan Province** (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

#### ***Lasioseius dentatus* (Fox, 1946)**

*Distribution and habitats.* **Kerman Province** (Kerman City, parks, and landscapes), soil (Arjomandi and Kazemi 2014).

**Note:** This species was reported by mentioned authors as *Lasioseius scapulatus* Kennett, 1958, but Lindquist (1964) considered it as junior synonym of *L. dentatus* (De Moraes *et al.* 2015).

#### ***Lasioseius frankbakkeri* Faraji & Karg, 2005**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mites [*Aceria ficus* (Cotte); *Aculus epiphyllus* (Nalepa); *Calepitrimerus baileyi* Keifer; *Colomerus vitis* (Pagenstecher); *Diptacus giganorhynchus* (Nalepa)] (Adeli *et al.* 2013); (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Roodbar), soil; (Rostamabad), on the olive leaves (Mahjoori *et al.* 2015).

#### ***Lasioseius parberlesei* Bhattacharyya, 1968**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mite [*Calepitrimerus baileyi* Keifer] (Adeli *et al.* 2013).

**Note:** This species was reported as *L. extremus* in mentioned reference. Nemati *et al.* (2012) proposed the correct name as *L. parberlesei* for the first time and Moraes *et al.* (2015) considered it as a junior synonym of *L. parberlesei*.

#### ***Lasioseius sugawarai* Ehara, 1964**

*Distribution and habitats.* **Esfahan Province** (Esfahan City), soil (Kadkhodaei *et al.* 2013); **Guilan Province** (Manjil), soil and on the olive leaves (Mahjoori *et al.* 2015).

#### ***Lasioseius youcefi* Athias-Henriot, 1959**

*Distribution and habitats.* **Guilan Province** (Region not mentioned), associated with eriophyid mite [*Eriophyes pyri* (Pagenstecher)] (Adeli *et al.* 2013); **East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013); **Esfahan Province** (Esfahan City), soil (Kadkhodaei *et al.* 2013); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); (Boldaji City (Cheghakhor) and Shahrekord), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Hamedan Province** (Sarab Gamasiab of Nahavand vicinity), from soil and litter of russian knapweed, *Acroptilon repens* (L.) (Masoudian and Khanjani 2013); **Kerman Province** (Sirjan county), soil, leaf litter and manure (Masnavipour *et al.* 2014); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Kakareza District), soil of apple orchard (Hasanvand *et al.* 2014b); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014);

**Northwestern of Fars Province** (Region not mentioned), soil, debris (Abolghasemi and Kazemi 2016); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

### **Genus *Platyseius* Berlese, 1916**

#### ***Platyseius persicus* Kazemi, Payandeh & Saberi, 2016**

*Distribution and habitats.* **Khorasan Razavi Province** (Kashmar County); **Mazandaran Province** (Nowshahr County), soil and litter (Kazemi *et al.* 2016c).

### **FAMILY PODOCINIDAE BERLESE, 1913**

#### **Genus *Podocinum* Berlese, 1882**

#### ***Podocinum pacificum* (Berlese, 1895)**

*Distribution and habitats.* **Lorestan Province** (Veisian District), soil under sycamore (Hasanvand *et al.* 2014b); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016).

### **SUPERFAMILY RHODACAROIDEA**

#### **FAMILY RHODACARIDAE OUDEMANS, 1902**

#### **Genus *Multidentorhodacarus* Shcherbak, 1980**

#### ***Multidentorhodacarus denticulatus* (Berlese, 1920)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saberi *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil (Abbaspour *et al.* 2017).

#### ***Multidentorhodacarus saboorii* Castilho, Jalaeian & de Moraes, 2012**

*Distribution and habitats.* **Fars Province** (Larestan), leaves, fruits, trunk fiber and soil of date palm (Majidi and Akrami 2013); **Khorasan Razavi Province** (Region not mentioned), orchards (Jalaeian *et al.* 2013); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014).

#### ***Multidentorhodacarus sogdianus* (Shcherbak, 1980)**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), ornamental plants (Hamidi *et al.* 2013).

### **Genus *Rhodacarellus* Willmann, 1935**

#### ***Rhodacarellus epigynialis* Sheals, 1956**

*Distribution and habitats.* **East Azarbaijan Province** (Southwest), soil (Hashemi Khabir *et al.* 2013).

#### ***Rhodacarellus iraniensis* Castilho, Jalaeian & de Moraes, 2012**

*Distribution and habitats.* **Khorasan Razavi Province** (Region not mentioned), orchards (Jalaeian *et al.* 2013); **Fars Province** (Larestan), leaves, fruits, trunk fiber and soil of date palm (Majidi and Akrami 2013); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a).

***Rhodacarellus cf. iraniensis* Castilho, Jalaeian & Moraes, 2012**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b).

***Rhodacarellus silesiacus* Willmann, 1936**

*Distribution and habitats.* **Tehran Province** (Region not mentioned), ornamental plants (Hamidi *et al.* 2013); **Kerman Province** (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); (Sirjan), soil and leaf litter (Masnavipour *et al.* 2014); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

**Genus *Rhodacarus* Oudemans, 1902*****Rhodacarus coronatus* (Berlese, 1921)**

*Distribution and habitats.* **Kerman Province** (Sirjan), soil and leaf litter (Masnavipour *et al.* 2014).

**FAMILY HALOLAELAPIDAE KARG, 1965****Genus *Halolaelaps* Berlese & Trouessart, 1889*****Halolaelaps sexclavatus* (Berlese, 1921)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and sheep manure (Arjomandi *et al.* 2013a); (Sirjan), soil and leaf litter (Masnavipour *et al.* 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014).

**Genus *Saproaelaps* (Leitner, 1946)*****Saproaelaps* sp.**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**FAMILY DIGAMASELLIDAE EVANS, 1957****Genus *Dendrolaelaps* Halbert, 1915*****Dendrolaelaps brevipilis* Leitner, 1949**

*Distribution and habitats.* **Southwest of East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013).

***Dendrolaelaps longiusculus* Hirschmann, 1960**

*Distribution and habitats.* **Northwestern of Fars Province** (gardens of Komher Region), soil and debris (Abolghasemi and Kazemi 2016).

***Dendrolaelaps presepum* (Berlese, 1918)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure, poultry manure and sheep manure (Arjomandi *et al.* 2013a).

***Dendrolaelaps quadrisetus* (Berlese, 1921)**

*Distribution and habitats.* **Tehran and Markazi Province** (Saveh and Mahallat Region), associated with the mediterranean pine beetle, *Orthotomicus erosus* (Wollaston) (Farmahiny Farahani *et al.*



2013).

***Dendrolaelaps cf. willmanni* Hirschmann, 1960**

*Distribution and habitats.* **Bushehr Province** (Asaluyeh Port), soil (Kazemi and Alikhani 2013).

***Dendrolaelaps zwoelferi* Hirschmann, 1960**

*Distribution and habitats.* **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014).

**Genus *Dendrolaelaspis* Lindquist, 1975**

***Dendrolaelaspis lindquisti* (Shcherbak, 1978)**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014).

***Dendrolaelaspis lobatus* (Scherbak & Chelebier, 1977)**

*Distribution and habitats.* **Southwest of East Azarbaijan Province** (Region not mentioned), soil (Hashemi Khabir *et al.* 2013).

**Genus *Oligodentatus* Shcherbak, 1980**

***Oligodentatus* sp.**

*Distribution and habitats.* **Khorasan Razavi Province** (Region not mentioned), collected from orchards (Jalaeian *et al.* 2013).

**FAMILY OLOGAMASIDAE RYKE, 1962**

**Genus *Allogamasellus* Athias-Henriot, 1961**

***Allogamasellus castilhoi* Nemati & Vatankhah, 2016**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Lordegan, Felard Region, Poshtkouh; Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Shahrekord environs), nest of *Formica* (Formicidae) (Nemati and Vatankhah 2016).

**Note:** Bagheri Kordeshami *et al.* (2015) reported *Allogamasellus* sp., and our observation show that those belong to the mentioned species.

**Genus *Gamasiphis* Berlese, 1904**

***Gamasiphis furcatus* Karg, 1990**

*Distribution and habitats.* **Kerman Province** (Dosari Region), soil and litter (Khalesi and Kazemi 2017).

***Gamasiphis lanceolatus* Karg, 1987**

*Distribution and habitats.* **Kerman Province** (Kerman County), cow manure (Arjomandi *et al.* 2013a); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016); **North Khorasan Province** (Region not mentioned), in the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016).

***Gamasiphis pulchellus* (Berlese, 1887)**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**Genus *Neogamasus* Tichomirov, 1969*****Neogamasus cervicornis* Van Daele, 1975**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**Genus *Ologamasus* Berlese, 1888*****Ologamasus* sp.**

*Distribution and habitats.* **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013).

**Genus *Sessiluncus* G. Canestrini, 1898*****Sessiluncus hungaricus* Karg, 1964**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); **Chaharmahal va Bakhtiari Province** (Lordegan, Khanmirza Region, Salehat Village; Monj Region, Pol borideh Village, Cheshmeh khani Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015).

**SUPERFAMILY VEIGAIIOIDEA**  
**FAMILY VEIGAIIDAE OUDEMANS, 1939**  
**Genus *Veigaia* Oudemans, 1905**

***Veigaia decurtata* Athias-Henriot, 1961**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014).

***Veigaia exigua* (Berlese, 1917)**

*Distribution and habitats.* **Kerman Province** (Sirjan), soil and leaf litter (Masnavipour *et al.* 2014); **East Azarbaijan Province** (Arasbaran forests), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017).

***Veigaia nemorensis* (C.L. Koch, 1892)**

*Distribution and habitats.* **Hamedan Province** (Sarab Gamasiab of Nahavand vicinity; Ganjnameh Region), from soil and litter of Chicory, *Cichorium intybus* L. (Masoudian and Khanjani 2013); **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Lorestan Province** (Makhmalkooh District), soil under willow tree (Hasanvand *et al.* 2014b); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), ants nest and *Fomes* sp. (Khalili-Moghadam and Nemati 2014a); (Saman), soil of ant nests, *Tapinoma* sp. (Hym. Formicidae) (Khalili-Moghadam and Saboori 2015); **East Azarbaijan Province** (Arasbaran forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris, leaf-litter (Mohammad-Dustar-Sharaf *et al.* 2016a, b; Ordoukhanian *et al.* 2017).

***Veigaia planicola* Berlese, 1882**

*Distribution and habitats.* **Lorestan Province** (Bishe District), soil under cedar tree (Hasanvand *et al.* 2014b); **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil, leaf-litter and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016 a,b; Ordoukhanian *et al.* 2017); **Chaharmahal va Bakhtiari Province** (Lordegan, Khanmirza Region, Salehat Village; Monj Region, Ghale madreseh, Pol borideh, Cheshmeh khani Villages), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); (Saman), soil (Shariati *et al.* 2017); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2016); **North Khorasan Province** (Region not mentioned), in the nests of *Tapinoma* sp. (Formicidae) (Rezaei *et al.* 2016).

**Note:** We examined specimens of *Veigaia* sp. nr. *indica* [**Fars Province** (Estahban), soil, leaves, fruits, and trunk of fig trees] which was recorded by Daneshnia and Akrami 2013, and determined it as *V. planicola*.

***Veigaia uncata* Farrier, 1957**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr and Ecological (Botanical) Garden of Nowshahr), soil and litter (Sabeti *et al.* 2014; Sabeti *et al.* 2016).

**SUBCOHORT EPICRIIAE**  
**SUPERFAMILY EPICRIOIDEA**  
**FAMILY EPICRIIDAE BERLESE, 1885**  
**Genus *Epicrius* G. Canestrini & Fanzago, 1877**

***Epicrius cf. bulgaricus* Balogh, 1958**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Aynalu, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

***Epicrius tauricus* Bregetova, 1977**

*Distribution and habitats.* **Mazandaran Province** (Amol), soil and forest litter (Kazemi and Paktinat Saeji 2013b).

**SUPERFAMILY ZERCONOIDEA**  
**FAMILY ZERCONIDAE BERLESE, 1892**  
**Genus *Prozercon* Sellnick, 1943**

***Prozercon bircanae* Urhan, 1998**

*Distribution and habitats.* **East Azarbaijan Province** (Kaleybar), moss from soil layer (Karaca *et al.* 2017).

***Prozercon dominiaki* Blaszak, 1979**

*Distribution and habitats.* **East Azarbaijan Province** (Kaleybar), leaf-litter from mixed forest, moss from soil layer (Karaca *et al.* 2017).

***Prozercon iranensis* Ujvári, Moradian & Ostovan, 2013**

*Distribution and habitats.* **Kohgiluyeh va Boyer-Ahmad Province** (Gachsaran), soil of corn field (Ujvári *et al.* 2013).

***Prozercon norae* Ujviiri, 2011**

*Distribution and habitats.* **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran Forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b).

**Genus *Zercon* C.L. Koch, 1836*****Zercon berlesei* Sellnick, 1958**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Lordegan); **Khuzestan Province** (Baghmalek), soil (Nemati *et al.* 2013b).

***Zercon colligans* Berlese, 1920**

*Distribution and habitats.* **East Azarbaijan Province** (Hamneshin, Khoda Afarin), leaf-litter from mixed forest, moss from soil layer (Karaca *et al.* 2017).

***Zercon michejdai* Blaszk, 1979**

*Distribution and habitats.* **East Azarbaijan Province** (Kaleybar), moss from soil layer (Karaca *et al.* 2017).

***Zercon notabilis* Blaszk, 1979**

*Distribution and habitats.* **East Azarbaijan Province** (Kaleybar), moss from soil layer; **Lorestan Province** (Amir), leaf-litter from mixed forest, moss from soil layer (Karaca *et al.* 2017).

***Zercon turcicus* Urhan & Ayyıldız, 1994**

*Distribution and habitats.* **East Azarbaijan Province** (Khoda Afarin, Kaleybar), leaf-litter from mixed forest, moss from soil layer (Karaca *et al.* 2017).

**SUBCOHORT PARASITIAE (PARASITINA)****SUPERFAMILY PARASITOIDEA****FAMILY PARASITIDAE OUDEMANS, 1901****Genus *Cornigamasus* Evans & Till, 1979*****Cornigamasus lunaris* (Berlese, 1882)**

*Distribution and habitats.* **Guilan Province** (Roudsar, Kelachay), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a).

**Genus *Eugamasus* Berlese, 1893*****Eugamasus berlesei* Willmann, 1935**

*Distribution and habitats.* **Guilan Province** (Lahijan; Fouman, Makluwan; Rasht, Khomam, Sangar, Talem Seshanbeh, Rasht, University), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

***Eugamasus cavernicola* Trägårdh, 1912**

*Distribution and habitats.* **Guilan Province** (University of Guilan; Rasht, Saravan, Khomam, Lahijan, Roudsar, Roudbar, Rostamabad, Noghlebar, Fuman, Masouleh, Rasht, Emamzadeh Hashem), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

### Genus *Gamasodes* Oudemans, 1939

#### *Gamasodes fimbriatus* Karg, 1971

*Distribution and habitats.* **Guilan Province** (Somesara, Kelidbar, Roudbar, Rostamabad), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

#### *Gamasodes spiniger* (Trägårdh, 1910)

*Distribution and habitats.* **Guilan Province** (Chaboksar), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **East Azarbaijan Province** (Arasbaran Forests, Vaygan, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b).

### Genus *Neogamasus* Tikhomirov, 1969

#### *Neogamasus cervicornis* (van Daele, 1975)

*Distribution and habitats.* **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014).

#### *Neogamasus insignis* (Holzmann, 1969)

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

### Genus *Paragamasus* Hull, 1918

#### *Paragamasus* sp.

*Distribution and habitats.* **Guilan Province** (Rasht, Kuchesfahan, Jafarabad, Rasht, Lahijan), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

### Genus *Parasitus* Latreille, 1795

#### *Parasitus coleoptratorum* (Linnaeus, 1758)

*Distribution and habitats.* **Guilan Province** (Rasht, Sangar, Shahrestan, Amlash), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

#### *Parasitus copridis* (Costa, 1963)

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests, Aynalu, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b).

#### *Parasitus fimetorum* (Berlese, 1903)

*Distribution and habitats.* **Guilan Province** (Manjil, Talesh, Hovigh, Sangar, Rudbar, Lowshan, Rostamabad, Langarud, Hashtpar, Asalem, Roudsar, Rahimabad), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Kerman Province** (Kerman), sheep manure, cow manure and poultry manure (Arjomandi *et al.* 2013a); (Kerman City, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Lorestan Province** (Bishe, Chamseyedi Districts), soil and litter (Hasanvand *et al.* 2014b); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Khorasan Razavi Province** (Mashhad), soil and manure (Abbaspour *et al.* 2017).

#### *Parasitus hyalinus* (Willmann, 1949)

*Distribution and habitats.* **Kerman Province** (Kerman Province), cow manure (Arjomandi *et al.*



2013a); **Tehran Province** (Region not mentioned), ornamental plants (Hamidi *et al.* 2013); **Guilan Province** (Shaft, Choubar, Fuman, Masouleh, Makluwan), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

***Parasitus insignis* (Holzmann, 1969)**

*Distribution and habitats.* **Guilan Province** (Rasht, Sangar, Shahrestan, Saravan, Hashtpar, Asalem, Langarud, Fuman, Masouleh, Makluwan, Somesara, Gysum, University of Guilan, Aqa Seyyed Sharif, Falakdeh, Kuchesfahan, Jafarabad, Emamzadeh Ebrahim, Lahijan, Roudsar, Kelachay, Vajargah, Chaboksar, Siahkalroud, Ghasemabad), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

***Parasitus kempersi* Oudemans, 1902**

*Distribution and habitats.* **Guilan Province** (Shaft, Rasht, Kuchesfahan, Aqa Seyyed Sharif, Lulaman, Lahijan, Roudsar, Rahimabad, Chaboksar, Kelachay, Vajargah, Langarud, Siahkalroud), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

***Parasitus loricatus* (Wankel, 1861)**

*Distribution and habitats.* **Guilan Province** (Rasht, Falakdeh, Saravan, Somesara, Behanbar, Khomam, Chapar Khaneh, Sangar, Chaboksar, Shanderman, Aqa Seyyed Sharif, Fuman, Lishavandan, Masouleh, Lavandevil), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

***Parasitus mycophilus* Karg, 1971**

*Distribution and habitats.* **Kerman Province** (Kerman), sheep manure (Arjomandi *et al.* 2013a); **Yazd Province** (Region not mentioned), soil (Kafi *et al.* 2014); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

**Genus *Pergamasus* Berlese, 1903**

***Pergamasus brevicornis* (Berlese, 1903)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

***Pergamasus crassipes* Halbert, 1923**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

***Pergamasus falculiger* Berlese, 1906**

*Distribution and habitats.* **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), manure (Abbaspour *et al.* 2017).

**Genus *Rhabdocarpais* Athias-Henriot, 1981**

***Rhabdocarpais consanguineus* (Oudemans and Voigts, 1904)**

*Distribution and habitats.* **Guilan Province** (Rasht, Aqa Seyyed Sharif, Fuman, Lishavandan, Masouleh, Makluwan, Rudbar, Lowshan, Langarud), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Kerman Province** (Kerman), cow manure (Arjomandi *et al.* 2013a); **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Northwestern),

soil and debris (Abolghasemi and Kazemi 2016); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with ants nest (Khalili Moghadam and Nemati 2014b); (Saman), soil of ant nests, *Tapinoma* sp. (Hym: Formicidae) (Khalili Moghadam and Saboori 2015); (Saman), soil (Shariati *et al.* 2017); **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil (Abbaspour *et al.* 2017);  
**Note:** All above mentioned references cited this species in *Parasitus* genus.

### **Genus *Vulgarogamasus* Tichomirov, 1969**

#### ***Vulgarogamasus kraepelini* (Berlese, 1905)**

*Distribution and habitats.* **Guilan Province** (Rasht, Somesara, Ziabar, Roudsar, Shanderman, Emamzadeh Hashem, Shaft, Choubar), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013).

#### ***Vulgarogamasus oudemansi* (Berlese, 1903)**

*Distribution and habitats.* **Guilan Province** (Rasht, Asalem, Lowshan, Emamzadeh Hashem, Anzali), soil, debris, litters and plant foliage (Nazari and Hajizadeh 2013); **Chaharmahal va Bakhtiari Province** (Saman), soil (Shariati *et al.* 2017).

### **SUBCOHORT UROPODIAE SUPERFAMILY POLYASPIDOIDEA FAMILY POLYASPIDIDAE BERLESE, 1913 Genus *Polyaspis* Berlese, 1881**

#### ***Polyaspis patavinus* Berlese, 1881**

*Distribution and habitats.*  **Lorestan Province** (Khorramabad), soil and litter of oak forests (Kazemi *et al.* 2013b); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Golestan, Guilan and Mazandaran Provinces** (Region not mentioned), forest litter; **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter, dead wood, nest of *Lucanus* sp. (Babaeian *et al.* 2017).

#### ***Polyaspis repandus* Berlese, 1904**

*Distribution and habitats.* **Kerman Province** (Anbar Abad), soil and debris (Khalesi and Kazemi 2016).

### **FAMILY TRACHYTIDAE TRÄGÅRDH, 1938 Genus *Trachytes* Michael, 1894**

#### ***Trachytes baloghi* Hirschmann & Zirngiebl-Nicol, 1964**

*Distribution and habitats.* **Kerman Province** (Jupar), cow manure (Arjomandi *et al.* 2013a); **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter (Babaeian *et al.* 2017).

#### ***Trachytes cf. aegrota* (C.L. Koch, 1841)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b).

### **Genus *Uroseius* Berlese, 1888**

#### ***Uroseius infirmus* Berlese, 1887**

*Distribution and habitats.* **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016).

#### ***Uroseius traegardhi* Hirschmann & Zimgieble-Nicol, 1969**

*Distribution and habitats.* **Esfahan Province** (Esfahan), soil (Kadkhodaei *et al.* 2013).

### **SUPERFAMILY UROPODOIDEA FAMILY MACRODINYCHIDAE HIRSCHMANN, 1979 Genus *Macrodinychus* Berlese, 1917**

#### ***Macrodinychus bregetovaae* (Hirschmann, 1975)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests, Vaygan, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Mazandaran Province** (Nowshahr, Kheyroud forest), soil, dead wood, nest of *Crematogaster* sp. (Babaeian *et al.* 2017).

### **FAMILY OPLITIDAE HIRSCHMANN & ZIRNGIEBL-NICOL, 1964 Genus *Oplitis* Berlese, 1884**

#### ***Oplitis exopodi* Hunter & Farrier, 1975**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud- Kenar forest), leaf-litter (Babaeian *et al.* 2016).

#### ***Oplitis quadrigenitalis* Babaeian, 2018**

*Distribution and habitats.* **Alborz Province** (Taleghan Region), in the nest of *Lasius neglectus* (Hymenoptera: Formicidae) (Babaeian and Nozad 2018).

#### ***Oplitis sarcinulus* Hunter & Farrier, 1976**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud- Kenar forest), leaf-litter (Babaeian *et al.* 2016).

### **SUPERFAMILY TRACHYUROPODOIDEA FAMILY TRACHYUROPODIDAE BERLESE, 1917 Genus *Gamasolaelaps* Berlese, 1904**

#### ***Gamasolaelaps whartoni* (Farrier, 1957)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Ecological (Botanical) Garden of Nowshahr), soil and litter (Saber *et al.* 2016).

### **Genus *Leonardiella* Berlese, 1903**

#### ***Leonardiella riccardiana* (Leonardi, 1895)**

*Distribution and habitats.* **Kerman Province** (Kerman, parks and landscapes), soil (Arjomandi and Kazemi 2014b).

### Genus *Trachyuropoda* Berlese, 1888

#### *Trachyuropoda hirschmanni* Pečina, 1980

*Distribution and habitats.* **Mazandaran Province** (Tonekabon, Shorum forest), soil, litter and cow manure (Kazemi *et al.* 2016b).

### Genus *Urojanetia* Berlese, 1903

#### *Urojanetia excavata* (Wasmann, 1899)

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Botanical Garden), soil and litter (Kazemi *et al.* 2016b).

## FAMILY URODIASPIDIDAE TRÄGÅRDH, 1944

### Genus *Urodiaspis* Berlese, 1916

#### *Urodiaspis pannonica* Willmann, 1951

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and litter (Kazemi *et al.* 2016b).

#### *Urodiaspis tecta* (Kramer, 1876)

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and litter (Kazemi *et al.* 2016b).

## FAMILY TREMATURIDAE BERLESE, 1917

### Genus *Nenteria* Oudemans, 1915

#### *Nenteria bastanii* Kazemi & Abolghasemi, 2016

*Distribution and habitats.* **Kerman Province** (Kerman, Shora Park); **Tehran Province** (Tehran, Taleghani Park), soil and litter (Kazemi and Abolghasemi 2016).

#### *Nenteria stylifera* (Berlese, 1904)

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and sheep manure (Arjomandi *et al.* 2013a); (Kerman, parks and landscapes), soil (Arjomandi and Kazemi 2014b); **Tehran Province** (Regions not mentioned), ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Lorestan Province** (Faculty of Agricultural, University of Lorestan), soil of cypress trees (Hasanvand *et al.* 2014b); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014); **East Azarbaijan Province** (Arasbaran Forests, Aynalu); (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a,b); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016).

### Genus *Trichouropoda* Berlese, 1916

#### *Trichouropoda elegans* (Kramer, 1882)

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests, Aynalu, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016).

#### *Trichouropoda hispanica* Hirschmann & Zirngiebl-Nicol, 1961

*Distribution and habitats.* **Alborz Province** (Taleghan), in the nest of *Messor* sp. (Babaeian and

Nozaad 2017).

***Trichouropoda ovalis* (Koch, 1839)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran forests, Vaygan, Aynalu, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b); **Mazandaran Province** (Nowshahr, Kheyroud forest), soil, leaf-litter and dead wood (Babaeian *et al.* 2017).

***Trichouropoda patavina* (G. Canestrini, 1885)**

*Distribution and habitats.* **Kerman Province** (Kerman), poultry manure (Arjomandi *et al.* 2013a); **West Azarbaijan Province** (Miandoab), soil of apple orchards (Zarei and Kazemi 2014).

***Trichouropoda spatulifera* (Moniez, 1892)**

*Distribution and habitats.* **Mazandaran Province** (Tonekabon, Jasid forest), soil and litter (Kazemi and Kontschán 2014).

**FAMILY DINYCHIDAE BERLESE, 1916**

**Genus *Dinychus* Kramer, 1882**

***Dinychus bincheaecarinatus* Hirschmann, Wagrowska-Adameczyk & Zirngiebl-Nicol, 1984**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter, dead wood (Babaeian *et al.* 2017).

***Dinychus woelkei* Hirschmann & Zirngiebl-Nicol, 1969**

*Distribution and habitats.* **Golestan Province** (Gorgan, Qarn-Abad forest), decaying trunk (Arjomandi and Kazemi 2015).

**Genus *Uroobovella* Berlese, 1903**

***Uroobovella difoveolata* Hirschmann & Zirngiebl-Nicol, 1969**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and sheep manure (Arjomandi *et al.* 2013a); **Lorestan Province** (Veisian and Rashnoo Districts), soil of walnut trees and vine orchard (Hasanvand *et al.* 2014b); **Fars Province** (Northwestern), soil and debris (Abolghasemi and Kazemi 2016).

***Uroobovella flagelliger* (Berlese, 1910)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter, dead wood (Babaeian *et al.* 2017).

***Uroobovella fracta* (Berlese, 1916)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter, dead wood (Babaeian *et al.* 2017).

***Uroobovella marginata* (C.L. Koch, 1839)**

*Distribution and habitats.* **Kerman Province** (Kerman), cow manure and poultry manure (Arjomandi *et al.* 2013a); **Sistan va Baluchestan Province** (Mehrestan), *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae) (Farmahiny Farahani *et al.* 2016); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad City), soil and leaf litter (Abbaspour *et al.* 2017).



***Uroobovella obovata* (G. Canestrini & Berlese, 1884)**

*Distribution and habitats.* **Fars Province** (Larestan), leaves, fruits, trunk fiber and soil of date palm (Majidi and Akrami 2013); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Tehran Province** (Regions not mentioned), ornamental plants (Hamidi *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016).

***Uroobovella vinicolora* (Vitzthum, 1926)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter, dead wood (Babaeian *et al.* 2017).

**FAMILY UROPODIDAE KRAMER, 1881****Genus *Centrouropoda* Berlese, 1916*****Centrouropoda almerodai* Hiramatsu & Hirschmann, in Wiśniewski, Hirschmann & Hiramatsu 1992**

*Distribution and habitats.* **Sistan va Baluchestan Province** (Mehrestan), *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae) (Farmahiny Farahani *et al.* 2016).

**Genus *Discourella* Berlese, 1910*****Discourella modesta* (Leonardi, 1899)**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **Lorestan Province** (Badrabad District), soil under cedar trees (Hasanvand *et al.* 2014b); **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran Forests, Vaygan Aynalu Kalaleh Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a, b).

**Genus *Neodiscopoma* Vitzthum, 1943*****Neodiscopoma splendida* (Kramer, 1882)**

*Distribution and habitats.* **Mazandaran Province** (Chalous, Roshandarreh forest; Tonekabon, Jasid, Dimron forest; Nowshahr, Sisangan Forest Park), soil and litter (Kazemi and Kontschán 2014).

**Genus *Trachycilliba* Berlese, 1903*****Trachycilliba abantica* (Bal & Özkan, 2007)**

*Distribution and habitats.* **Mazandaran Province** (Ecological Garden of Nowshahr), soil and litter (Kazemi and Abolghasemi 2016).

***Trachycilliba splendida* (Kramer, 1882)**

*Distribution and habitats.* **Mazandaran Province** (Nowshahr, Kheyroud forest), leaf-litter and dead wood (Babaeian *et al.* 2017).

**Genus *Uropoda* Latreille, 1806*****Uropoda fumicola* (Schweizer, 1961)**

*Distribution and habitats.* **Mazandaran Province** (Tonekabon, Dimron and Tonekabon, Jasid,

forest), soil, litter (Kazemi and Kontschán 2014); **East Azarbaijan Province** (Arasbaran Forests, Kalaleh Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

***Uropoda orbicularis* (Müller, 1776)**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); (Northwestern), soil and debris (Abolghasemi and Kazemi 2016); **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); **Lorestan Province** (Ghalesangi District), soil of apple orchard (Hasanvand *et al.* 2014b); **Tehran Province** (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil (Abbaspour *et al.* 2017); **Mazandaran Province** (Nowshahr, Kheyrood- Kenar forest), dead wood, leaf-litter, *Lucanus* sp. (Babaeian *et al.* 2017).

**SUBORDER TRIGYNASPIDA**  
**FAMILY ASTERNOSEIIDAE VALLE, 1954**  
**Genus *Asternoseius* Berlese, 1910**

***Asternoseius* sp.**

*Distribution and habitats.* **Mazandaran Province** (Amol), soil and forest litter (Kazemi and Paktinat Saej 2013a).

**FAMILY ANTENNOPHORIDAE BERLESE, 1892**  
**Genus *Antennophorus* Haller, 1877**

***Antennophorus foreli* Wasmann, 1902**

*Distribution and habitats.* **Chaharmahal va Bakhtiari Province** (Regions not mentioned), ant nest (Khalili-Moghadam and Nemati 2014b); (Saman, Shahrekord), *Plagiolepis* sp. (Hym. Formicidae) (Khalili-Moghadam and Saboori 2015).

**SUPERFAMILY CELAENOPSOIDEA**  
**FAMILY CELAENOPSIDAE BERLESE, 1892**  
**Genus *Celaenopsis* Berlese, 1892**

***Celaenopsis badius* (C.L. Koch, 1839)**

*Distribution and habitats.* **East Azarbaijan Province** (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Aynalu, Kalaleh), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

**Genus *Pleuronectocelaeno* Vitzthum, 1926**

***Pleuronectocelaeno barbara* Athias-Henriot, 1959**

*Distribution and habitats.* **Markazi Province** (Saveh and Mahallat Region), associated with the mediterranean pine beetle, *Orthotomicus erosus* (Wollaston) (Farmahiny Farahani *et al.* 2013).

**FAMILY SCHIZOGYNIIDAE TRÄGÅRDH, 1950**  
**Genus *Euroschizogynium* Trägårdh, 1950**

***Euroschizogynium calvum* Trach & Seeman, 2014**

*Distribution and habitats.* **Khuzestan Province** (Ahvaz), separated from around mouth parts of

carabid beetles *Scarites* sp. (Coleoptera: Carabidae) (Nemati and Khalili-Moghadam 2018).

**COHORT CERCOMEGISTINA**  
**SUPERFAMILY CERCOMEGISTOIDEA**  
**FAMILY CERCOMEGISTIDAE TRÄGÅRDH, 1937**  
**Genus *Cercoleipus* Kinn, 1970**

***Cercoleipus kuznetsovi* Khaustov, 1997**

*Distribution and habitats.* **Markazi Province** (Saveh Region), associated with *Orthotomicus erosus* (Wollaston) (Farmahiny Farahani *et al.* 2013).

**SUBORDER SEJIDA**  
**SUPERFAMILY SEJOIDEA**  
**FAMILY SEJIDAE BERLESE, 1885**  
**Genus *Sejus* C.L. Koch, 1836**

***Sejus* sp.**

*Distribution and habitats.* **Fars Province** (Larestan), leaves, fruits, trunk fiber and soil of date palm (Majidi and Akrami 2013); **East Azarbaijan Province** (Arasbaran Forests, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b).

***SPECIES INQUIRENDA***

The following species temporarily relegated to the species “*incertae sedis*” because the descriptions do not include information about some important characters needful for their specific identification or they need to study more in terms of the features they need to be in a particular genus. For this reason, we put them in the *Hypoaspis* s. lat. as long as a thorough investigation is carried out.

***Hypoaspis aegypticus* (Nasr & Momen, 2015)**

*Distribution and habitats.* **East Azarbaijan Province** (Maragheh), soil in orchards (Valizadeh *et al.* 2017).

**Note:** This species was considered in *Cosmolaelaps* genus by mentioned authors.

***Hypoaspis elsae* (Joharchi, Babaeian & Jalalizand, 2016)**

*Distribution and habitats.* **Esfahan Province** (Esfahan), bark of elm trees (Joharchi *et al.* 2016a).

**Note:** This species was described in *Laelaspisella* genus (Joharchi *et al.* 2016a).

***Hypoaspis asperatus* Berlese, 1904**

*Distribution and habitats.* **Kerman Province** (Kerman County), cow manure (Arjomandi, *et al.* 2013a); **Lorestan Province** (Region not mentioned), soil (Heydari *et al.* 2013); (Poledokhtar District), soil (Heydari *et al.* 2014b); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad), soil, litter and associated with ants nests (Ghafarian *et al.* 2013a); (Mashhad County), soil (Abbaspour *et al.* 2017); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Chaharmahal va Bakhtiari Province** (Region not mentioned), associated with ants nest (Khalili Moghadam and Nemati 2014b); (Saman, Shahrekord), soil (Amani *et al.* 2015); (Saman, Shahrekord), soil of ant nests, *Tapinoma* sp. (Khalili-Moghadam and Saboori 2015); **East Azarbaijan Province** (Arasbaran forests), soil, leaf-litter and plant debris

(Ordoukhanian *et al.* 2017); (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha-Alikhani *et al.* 2017).

**Note:** This species was reported as *Pneumolaelaps asperatus* (Berlese, 1904). Valizadeh *et al.* (2017), Agha-Alikhani *et al.* (2017), Ordoukhanian *et al.* 2017 and Nemati *et al.* (2017b) reported it in *Hypoaspis s. lat.*

#### ***Hypoaspis golanii* Costa, 1969**

*Distribution and habitats.* **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

#### ***Hypoaspis kabitae* (Bhattacharyya, 1968)**

*Distribution and habitats.* **Alborz Province** (Karaj), nest of *Pheidole pallidula* (Joharchi and Halliday 2013).

**Note:** This species was considered in *Laelaspisella* and *Gymnolaelaps* genera by Joharchi *et al.* (2016a) and Nemati and Gwiazdowicz (2016a) respectively.

#### ***Hypoaspis linteyini* Samšić, 1964**

*Distribution and habitats.* **East Azarbaijan Province** (Maragheh Region), soil in orchards (Valizadeh *et al.* 2017); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

**Note:** Both of mentioned references reported this species as the same as mentioned above.

#### ***Hypoaspis lubrica* Voigts & Oudemans, 1904**

*Distribution and habitats.* **Kerman Province** (Kerman County), cow manure and poultry manure (Arjomandi *et al.* 2013a); **Guilan Province** (Somesara), on raspberry shrubs (*Rubus* spp.) (Tajmiri and Hajizadeh 2013); (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); **Lorestan Province** (Kuhdasht District), soil (Heydari *et al.* 2014a); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Kurdistan Province** (Region not mentioned), associated with stored flour and wheat (Maroufpoor *et al.* 2017).

**Note:** This species was reported as *Pneumolaelaps lubrica* (Voigts & Oudemans, 1904).

#### ***Hypoaspis missouriensis* (Ewing, 1909)**

*Distribution and habitats.* **Fars Province** (Neyriz), soil (Bazrafshan *et al.* 2013); **Khorasan Razavi Province** (Mashhad), soil-litter and associated with ants' nests (Ghafarian *et al.* 2013a); **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **East Azarbaijan Province** (Tabriz), soil and foliage of poplar and elm trees (Rahbar Shahlan *et al.* 2014); (Arasbaran Forests), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016a); (Arasbaran Forests, Kalaleh, Garmanab), soil and plant debris (Mohammad-Dustar-Sharaf *et al.* 2016b); (forests of Arasbaran Region), soil, leaf-litter and plant debris (Ordoukhanian *et al.* 2017); (Maragheh), soil in orchards (Valizadeh *et al.* 2017); **Zanjan Province** (Region not mentioned), soil (Bigdeli *et al.* 2014); **Lorestan Province** (Kuhdasht), soil (Heydari *et al.* 2014a); (Khorramabad), soil (Hasanvand *et al.* 2014a); **Chaharmahal va Bakhtiari Province** (Boldaji City (Cheghakhor)), soil of ant nests, *Tapinoma* sp. (Hym.: Formicidae) (Khalili-Moghadam and Saboori 2015); (Lordegan County, Monj Region, Pol borideh Village; Joub nesa Village; Khanmirza Region, Salehat Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Guilan Province** (Region not mentioned), soil and litter (Ramroodi *et al.* 2014c); (Saravan, Emamzadeh Hashem and Rostamabad), soil (Ramroodi *et al.* 2015a); **North Khorasan Province** (Region not mentioned), associated with the nests of *Messor* sp., *Tapinoma* sp. and *Pheidole* sp. (Formicidae) (Rezaei *et al.* 2016); **Qom Province** (Region not mentioned), soil, dung, compost and plant-litters of crops, lawns, shrubs and trees in farms, forests, orchards and parks (Agha Alikhani *et al.* 2017).

**Note:** Further investigation needed to assign this species to a proper genus.

***Hypoaspis obscuroides* Costa, 1968**

*Distribution and habitats.* **Fars Province** (Koohmare-Sorkhi Region), oak forests (Kazemi and Yazdanpanah 2013b); (Shiraz), litter (Joharchi and Halliday 2013); (Koohmare-Sorkhi Region, oak forest), soil and leaf litter (Yazdanpanah and Kazemi 2014a); **Lorestan Province** (Khorramabad), soil (Hasanvand *et al.* 2014a); **Chaharmahal va Bakhtiari Province** (Saman, Shahrekord), soil (Amani *et al.* 2015); (Lordegan, Khanmirza Region, Salehat Village, Central Region, Bougar Village), soil from different parts of oak forests (Bagheri Kordeshami *et al.* 2015); **Khuzestan Province** (Region not mentioned), soil (Nemati *et al.* 2017b).

**Note:** This species was considered as a member of *Gymnolaelaps* by Joharchi and Halliday (2013); Kazemi and Yazdanpanah (2013b) and Yazdanpanah and Kazemi (2014a). Hasanvand *et al.* (2014a) and Nemati *et al.* (2017a) reported this species in *Hypoaspis s. lat.*

***Hypoaspis propomacrus* (Joharchi, Halliday & Beyzavi, 2013)**

*Distribution and habitats.* **Fars Province** (Kamfiruz Region), on adult of *Propomacrus bimucronatus* (Joharchi *et al.* 2013).

**Note:** This species was described in the genus *Promacrolaelaps* Costa, 1971 (Joharchi *et al.* 2013). The original description fit well in the definition of this genus as proposed by Costa (1971), but this genus is morphologically very close to the *Hypoaspis s. str.* and has little differences with it. The presence or absence of a hypotrichosis condition, the shape of the second tarsus setae, are very small and is not enough to create a distinct genus. The presence of such a variety is also observed in other genera of Laelapidae family. Therefore, a more detailed examination on type materials of *H. hunteri* (Costa 1971) is needed to create an independent genus. Until such a precise study, we put them in the *Hypoaspis* genus.

***Hypoaspis saboorii* (Joharchi & Babaeian, 2014)**

*Distribution and habitats.* **Mazandaran Province** (Polur), on *Acinopus* sp. (Joharchi and Babaeian 2014).

**Note:** Joharchi and Babaeian (2014) described this species in *Gaeolaelaps* genus, but transferred to *Cosmolaelaps* by Kazemi *et al.* (2016). The senior author of present paper borrowed and studied some of the slides identified by Sh. Kazemi with the same name. These slides fit perfectly with the description in the original article, and we confirm Kazemi *et al.* (2016). Our attempt to study type materials of this species was unsuccessful.

***Hypoaspis sclerotarsus* Costa, 1968**

*Distribution and habitats.* **Alborz Province** (Region not mentioned), soil (Keshavarz Jamshidian and Babaeian 2013); **Kerman Province** (Kerman County), cow manure and sheep manure (Arjomandi *et al.* 2013a); **Chaharmahal va Bakhtiari Province** (Mashhad), soil, litter and associated with ants nests (Ghafarian *et al.* 2013a); (Shahrekord), soil of unknown ant nests (Khalili-Moghadam and Saboori 2015); **Tehran Province** (Tehran, Varamin, Shahr-e Rey, Firouzkooh, Dmavand Region), soil, leaf litter and dung, green spaces and orchards (Baroozeh *et al.* 2013); (Tehran City, Police Park), soil (Maleki *et al.* 2016); **Khorasan Razavi Province** (Mashhad County), soil (Abbaspour *et al.* 2017).

**Note:** This species was reported as *Pneumolaelaps sclerotarsus* (Costa, 1968).



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## کاتالوگ کنه‌های میان‌استیگمای ایران: افزوده‌های نو و به‌روزرسانی کاتالوگ پیشین

علیرضا نعمتی<sup>۱\*</sup>، الهام ریاحی<sup>۱</sup>، ارسلان خلیلی-مقدم<sup>۱</sup> و داریوش جی. گویازدویچ<sup>۲</sup>

۱. گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه شهرکرد، ایران؛ رایانامه: *nemati.alireza@agr.sku.ac.ir* و *alireza.nemat@ymail.com*

*khalili92@ut.ac.ir* *plant.pro2@gmail.com*

۲. دانشگاه علوم زیستی پوزنان، گروه بیماری‌شناسی جنگل، وجسکا پولسکیگو ۷۱ سی، ۶۰-۶۲۵ پوزنان، لهستان؛ رایانامه:

*dagwiazd@up.poznan.pl*

\* نویسنده مسئول

### چکیده

کاتالوگ حاضر به نتایج پژوهشی می‌پردازد که روی منابع موجود در زمینه کنه‌های میان‌استیگمای همراه با میزبان یا زیستگاه‌های مختلف در ایران انجام شده است. تاکسون‌هایی از خانواده، جنس‌ها و گونه‌های کنه‌های میان‌استیگمای ایران و همچنین داده‌های پراکندگی آنها که در فهرست مشروح کاظمی و رجایی (۲۰۱۳) وارد نشده، ارائه می‌شوند. در مجموع ۳۷۱ گونه از ۱۲۷ جنس متعلق به ۳۹ خانواده در این مقاله ذکر شده‌اند. در نتیجه با در نظر گرفتن خانواده *Phytoseiidae*، فهرست کنه‌های میان‌استیگما که از نقاط مختلف ایران گزارش شده‌اند به ۴۷ خانواده، ۱۷۲ جنس و ۶۲۰ گونه افزایش یافت. همچنین لازم به ذکر است که *Ololaelaps gamagarensis* Jordaan & Loots به عنوان مترادف کم‌سابقه *Ololaelaps mooiensis* Ryke و *Pseudoparasitus talebii* Nemati, Malekshahkoochi and Afshari نیز به عنوان مترادف کم‌سابقه گونه *P. hajiqanbari* Kazemi در نظر گرفته شده است.

**واژگان کلیدی:** فهرست؛ پراکندگی؛ *Pseudoparasitus hajiqanbari*; *Ololaelaps mooiensis*؛ مترادف شدن.

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