

## A new updated checklist of Iranian Collembola (Arthropoda: Hexapoda)

Masoumeh Shayanmehr<sup>1,\*</sup>, Elham Yoosefi Lafooraki<sup>1</sup> & Morteza Kahrarian<sup>2</sup>

1. Department of Plant Protection, Faculty of Crop Sciences, Sari University of Agricultural Sciences and Natural Resources (SANRU), Sari, Iran & 2. Faculty of Agriculture, Kermanshah Branch, Islamic Azad University, Kermanshah, Iran.

\* Corresponding author, E-mail: m.shayanmehr@sanru.ac.ir

### Abstract

The last checklist of Iranian Collembola (Hexapoda) including 112 species was published in 2013. After 2013, faunistic studies on Collembola were increased dramatically in Iran. During 2013-2018, 120 species from 78 genera belonging to 18 families were recorded or described. Hence, updating the list of recorded species from Iran seems necessary. Here an updated checklist of Iranian Collembola including 232 species within 95 genera together with their geographical distributions are provided. Considering the number of species, Isotomidae and Entomobryidae are the richest families. While, most of the families belonging to the Symphypleona represented by only one species.

**Key words:** new checklist, springtails, soil fauna, Iran.

### فهرست جدید گونه‌های پادمان (بندپایان: شش‌پایان) ایران

معصومه شایان مهر<sup>۱\*</sup>، الهام یوسفی لفورکی<sup>۲</sup> و مرتضی کهراریان<sup>۲</sup>

۱- گروه گیاه‌پزشکی، دانشکده علوم زراعی، دانشگاه علوم کشاورزی و منابع طبیعی ساری، ساری، ایران و ۲- دانشکده کشاورزی، واحد کرمانشاه، دانشگاه آزاد اسلامی، کرمانشاه، ایران

\* مسئول مکاتبات، پست الکترونیکی: m.shayanmehr@saru.ac.ir

### چکیده

آخرین فهرست پادمان ایران (Collembola, Hexapoda) که شامل ۱۱۲ گونه بود، در سال ۱۳۹۱ منتشر شد. از سال ۱۳۹۱ به بعد، مطالعه فون پادمان در ایران به طور چشم‌گیری افزایش یافت. به طوری که بین سال‌های ۱۳۹۷-۱۳۹۱، تعداد ۱۲۰ گونه جدید از ۷۸ جنس متعلق به ۱۸ خانواده جمع‌آوری یا توصیف شد. بر این اساس، تهیه یک چک لیست جدیدی برای گونه‌های پادمان ایران ضروری به نظر می‌رسید. در اینجا، یک فهرست جدید از پادمان ایران، شامل ۲۳۲ گونه متعلق به ۹۵ جنس، به همراه اطلاعات پراکنش جغرافیایی آنها ارائه شده است. از نظر تعداد گونه، خانواده‌های Isotomidae و Entomobryidae غنی‌ترین هستند. در حالی که بیشتر خانواده‌های Symphypleona فقط دارای یک گونه می‌باشند.

واژه‌های کلیدی: فهرست جدید، پادمان، فون خاک، ایران.

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### Introduction

A catalogue of Iranian Collembola has been published by Shayanmehr *et al.* (2013) in which 112 species belonging to 18 families and 78 genera was reported. Since 2013 more investigations have been carried out on the faunal diversity of Collembola in Iran (Kahrarian *et al.* 2013; 2014a,b; Yoosefi Lafooraki & Shayanmehr, 2013a,b, 2014a,b, 2015a,b,c; Bakhshi *et al.*, 2014; Qazi & Shayanmehr, 2014a,b, 2016; Yoosefi Lafooraki, 2014; Alijani, 2015; Amiri & Kahrarian, 2015; Arba & Kahrarian, 2015a,b, 2017; Balvasi *et al.*, 2015;

Hosseini *et al.*, 2015, 2016a,b; Mehrafrooz Mayvan *et al.*, 2015a,b; Potapov *et al.*, 2015; Darvish-Motevalli, 2016; Zamani, 2016; Smolis *et al.*, 2016a,b, 2017, 2018; Alijani-Ardeshir *et al.*, 2017; Ghasemi Cherati, 2017; Kaprus' *et al.* 2017; Mohammadi Nodeheki *et al.*, 2017, 2018 a,b; Ramezani & Mossadegh, 2017; Shayanmehr *et al.*, 2017; Abdolalizadeh, 2018; Yahyapour *et al.*, 2018a,b; Kahrarian, 2019). Hence, updating the list of recorded species from Iran seems necessary.

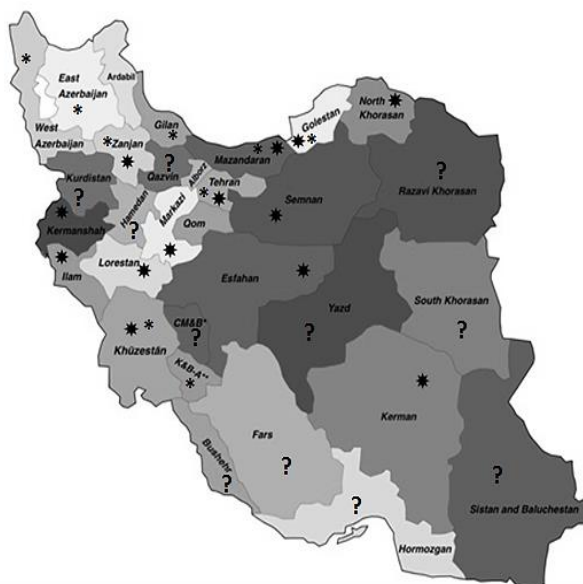
In this paper, an up-to-date checklist with 232 species, including 112 species published in the previous checklist (Shayanmehr *et al.*, 2013) and 120 newly reported species which were recorded or described during 2013-2018 are presented. Moreover, information of the species including geographical distributions and name of collectors are given. There is also a list of genera whose species is still unknown.

## Results

In the first Collembola checklist from Iran (Shayanmehr *et al.*, 2013), 112 species were reported, however from 2013 up to now, studies on Iranian Collembola increased significantly (Figure 1). Based on all published literatures from 2013 to 2018, 120 species were found and added to the Collembola list of Iran. These species are belonging to 18 families and 78 genera. By adding these species to 112 species, which were reported until 2013, complete list of all species reached to 232 species.

The largest share of the introduced species belongs to Mazandaran, Kermanshah and Golestan provinces, respectively. Most species belong to Isotomidae and Entomobyridae families. The list of all Iranian recorded species with adding 120 new reported species are listed alphabetically below, according to the family. Moreover, the information regarding each species is included. There are some recorded materials which were identified in the genus level and more studies are need to describe their species. The marked genera and species by one asterisk (\*) are new for Iran fauna and with two asterisks are new for science which collected and describeb from Iran.

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**Fig. 1.** Provinces with new reported species of Collembola for Iran fauna. They are marked by large asteriske and question mark (?) shows the provinces which species still remained unknown.

### List of Iranian Collembola (232 species)

#### Order Poduromorpha

#### Family Neanuridae (14 genera and 28 Species)

#### Subfamily Pseudachorutinae (8 species)

From subfamily Pseudachorutinae six species were reported before 2013 (Shayanmehr *et al.*, 2013). Two new recorded are added here.

#### Genus *Anurida* Laboulbne, 1865

##### 1. *Anurida ellipsoides* Stach, 1949

The species was reported by Cox (1982) from East Azarbaijan and West Azarbaijan, Guilan and East Azarbaijan, respectively (Shayanmehr *et al.*, 2013).

##### 2. *Anurida thalassophila* (Bagnall, 1939)

The species was reported by Cox (1982) from East and West Azarbaijan, Guilan and East Azarbaijan, respectively (Shayanmehr *et al.*, 2013).

##### 3. *Anurida sensillata* Gisin, 1953

The species was reported by Cox (1982) from East and West Azarbaijan, Guilan and East Azarbaijan, respectively (Shayanmehr *et al.*, 2013).

#### Genus *Israelimeria* Weiner & Kaprus', 2005\*

##### 4. *Israelimeria persica* Alijani *et al.*, 2015\*\*

This new genus and species were collected from soil in Mazandaran / Babol by Alijani *et al.* (2015).

**Genus *Pseudachorutes* Tullberg, 1871****5. *Pseudachorutes corticolus* (Schaffer, 1897)\***

This species was collected from leaf litter in Mazandaran / Sari by Ghasemi Cherati (2017).

**6. *Pseudachorutes dubius* Krausbauer, 1898**

This species was collected from soil, leaf litter and Chicken manure in Central, Guilan and Mazandaran/Amol by Cox (1982) and Mohammadi Nodeheki *et al.* (2018a).

**7. *Pseudachorutes parvulus* Börner, 1901**

This species was collected from soil and leaf litter in Central, Guilan and Kerman by Cox (1982) and Abdolalizadeh (2018).

**8. *Pseudachorutes subcrassus* Tullberg, 1871**

This species was collected from soil and leaf litter in Central, Guilan and Mazandaran/Sari by Cox (1982) and Ghasemi Cherati (2017).

***Pseudachorutes* spp.**

Some dispersed reports of the genus have been published from Golestan and Mazandaran collected from soil in forest by Khanahmadi (2018) and Yahyapour *et al.* (2018a).

**Subfamily Frieseinae (3 species)**

By adding two new recorded species to *Friesea mirabilis* (Tullberg, 1871) (Shayanmehr *et al.*, 2013), the number of Frieseinae species reaches to three.

**Genus *Friesea* Dalla Torre, 1895****9. *Friesea claviseta* Axelson, 1900\***

This species was collected from soil in Mazandaran / Babol; Amol by Mohammadi Nodeheki *et al.* (2018a).

**10. *Friesea afurcata* Tullberg, 1869\***

This species was collected from soil in Golestan / Gorgan, Golestan national Park by Khanahmadi *et al.* (2018).

**11. *Friesea mirabilis* (Tullberg, 1871)**

This species was collected from soil and leaf litter in Central Guilan, East Azarbaijan, Golestan, Golestan National Park by Cox (1982) and Khanahmadi *et al.* (2018).

***Friesea* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil in forest by Khanahmadi (2018).

**Subfamily Morulininae (1 species)****Genus *Morulina* Börner, 1906****12. *Morulina verrucosa* Börner, 1903**

This species was collected from soil in Guilan/Rasht by Daghighi (2012).

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**Subfamily Neanurinae (16 species)**

From this subfamily already six species were reported in the last checklist (Shayanmehr *et al.*, 2013) and 10 more species are added to the list.

**Genus *Bilobella* Caroli, 1912****13. *Bilobella aurantiaca* (Caroli, 1912)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan, East Azarbaijan by Cox (1982).

**Genus *Cryptonura* Cassagnau, 1979****14. *Cryptonura persica* Smolis *et al.*, 2012\*\*****15. *Cryptonura maxima* Smolis *et al.*, 2012\*\***

These two species were collected from soil and leaf litter in Golestan / Gorgan and described as new species by Smolis *et al.* (2012).

***Cryptonura* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from soil in forest by Yoosefi Lafooraki (2014).

**Genus *Deutonura* Cassagnau, 1979****16. *Deutonura decolorata* (Gama & Gisin, 1964)****17. *Deutonura persica* Smolis *et al.*, 2018\*\***

The species, *D. decolorata* (Gama & Gisin, 1964) was collected from soil and leaf litter in Mazandaran by Cox (1982) but later the species *D. persica* Smolis *et al.*, 2018 was collected and described as new species from Moss on tree, Leaf litter, dead wood in a hole of Persian ironwood in Mazandaran/ Neka, Hezarjarib forest by Smolis *et al.*, (2018).

**Genus *Endonura* Cassagnau, 1979\*****18. *Endonura ceratolabralis* Smolis *et al.*, 2016\*\***

This species was collected from leaf litter in oak forest in Kermanshah/Osmanevand by Smolis *et al.* (2016a).

**19. *Endonura dentifera* (Smolis *et al.*, 2007)\*\***

This species was collected from soil in Kermanshah by Kahrarian (2015).

**20. *Endonura dictaeta* Smolis *et al.*, 2016\*\***

This species was collected from leaf litter in oak forest in Kermanshah/Osmanevand; Paveh; Kermanshah by Smolis *et al.* (2016a).

**21. *Endonura longirostris* Smolis *et al.*, 2017\*\*****22. *Endonura paracentaura* Smolis *et al.*, 2017\*\***

These two species were collected from leaf litter and soil in Mazandaran/Behshahr, Abbas-Abad forest; Noor, Kadirsar by Smolis *et al.* (2017).

**23. *Endonura persica* Smolis *et al.*, 2016\*\***

This species was collected and described from litter in willow shrubs in Kermanshah/Kermanshah; Osmanevand by Smolis *et al.* (2016a).

**Genus *Neanura* MacGillivray, 1893****24. *Neanura deharvengi* Smolis *et al.*, 2018\*\***

This species was collected from leaf litter and soil in Mazandaran / Behshahr, Abbas-Abad; Noor, Kadirsar by Smolis *et al.* (2018).

**25. *Neanura muscorum* (Templeton, 1835)**

This species was collected from leaf litter in Mazandaran / Sari, Guilan and Zanjan by Cox (1982) and Yahyapour (2012).

***Neanura* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Mazandaran collected from soil in forest by Kahrarian (2015) and Ghasemi Cherati (2017).

**Genus *Thaumanura* Börner, 1932****26. *Thaumanura echinata* (Kos, 1940)**

This species was collected from leaf litter and soil by Cox (1982).

**Genus *Persanura* Mayvan *et al.*, 2015\*\*****27. *Persanura hyrcanica* Mayvan *et al.*, 2015\*\***

This species was collected from soil and litter of oak-hornbeam forest in Mazandaran/Sari, Semeskandeh forest by Mehrafrooz Mayvan *et al.* (2015b) and Ghasemi Cherati (2017).

**Genus *Protanura* (Börner, 1906)****28. *Protanura papillata* (Cassagnau & Delamare Deboutteville 1955)\***

This species was collected from soil in Kermanshah by Kahrarian (2015) and Smolis *et al.* (2016b).

**Genus *Vitronura* Yosii, 1969\***

The genus *Vitronura* Yosii, 1969 was found in Iran and its species is remained unidentified.

***Vitronura* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from soil under fig tree by Yoosefi Lafooraki (2014).

**Family Brachystomellidae (1 genus and 2 species)****Genus *Brachystomella* Agren, 1903****29. *Brachystomella nubila* Gisin, 1957**

The species *B. nubila* Gisin, 1957 was collected from soil and leaf liter in Guilan, East Azarbaijan, and Zanjan by Cox (1982).

**30. *Brachystomella parvula* (Schäffer, 1896)**

The species *B. parvula* (Schäffer, 1896) was collected from Soil of alfalfa field also soil and leaf litter in Guilan, East Azarbaijan, Zanjan and Kerman, Bagher Abad village; Jopar region, Haft Makhzan garden by Cox (1982) and Abdolalizadeh (2018).

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***Brachystomella* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Kerman collected from soil under fig tree by Kahrarian (2015), Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

**Family Poduridae (1 genus and 1 species)****Genus *Podura* Linnaeus, 1758****31. *Podura aquatica* Linnaeus, 1758**

This species was collected from Central of Iran by Cox (1982).

**Family Hypogastruridae (8 genera and 28 species)**

From family Hypogastruridae already 13 species were recorded in the checklist of Shayanmehr *et al.* (2013) and 14 more species are added to the present list.

**Genus *Ceratophysella* Börner, 1932****32. *Ceratophysella alani* (Babenko, 1994)\***

This species was collected from soil in Golestan/Gorgan, Golestan National Park by Khanahmadi (2018).

**33. *Ceratophysella armata* (Nicolet, 1841)**

This species was collected from soil in Kohgiluyeh and Boyer-Ahmad, Charam; Kermanshah by Falahati *et al.* (2012) and Kahrarian (2015).

**34. *Ceratophysella borealis* Börner, 1932\***

The species was reported from Lorestan province by Moradi *et al.* (2018).

**35. *Ceratophysella denticulata* (Bagnall, 1941)**

This common species was collected from soil and leaf liter in Central, Mazandaran / Sari, Guilan, East Azarbaijan, West Azarbaijan, Zanjan, Kermanshah, Noor, Savadkooh, Babol, Kerman, Mahan, Golestan, Golestan National Park by Cox (1982), Yahyapour & Shayanmehr (2011), Yahyapour (2012), Ghahramaninezhad *et al.* (2013), Yoosefi Lafooraki (2014), Kahrarian (2015), Yoosefi Lafooraki & Shayanmehr (2015a,c), Alijani-Ardeshir *et al.* (2017), Abdolalizadeh (2018) and Khanahmadi (2018).

**36. *Ceratophysella engadinensis* (Gisin, 1949)\***

This species was collected from Soil in rice field in Mazandaran/Mahmood-abad by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2015c).

**37. *Ceratophysella gibosa* (Bagnall, 1940)\***

This species was collected from Soil in Tehran, Kermanshah and Lorestan by Moravvej (2003), Kahrarian (2018) and Moradi *et al.* (2018).

**38. *Ceratophysella stercoraria* Stach, 1963**

The species is common in soil and leaf liter in Kermanshah, Kohgiluyeh and Boyer-Ahmad, Tehran, Mazandaran, Kerman, Golestan, Golestan National Park and Lorestan Kahrarian *et al.* (2012), Falahati *et al.* (2012), Qazi & Shayanmehr (2014a), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2015c), Kahrarian (2015), Mehrafrooz

Mayvan *et al.* (2015a), Alijani-Ardeshir *et al.* (2017), Mohammadi Nodeheki *et al.* (2017), Abdolalizadeh (2018), Ghasemi Cherati (2017), Khanahmadi (2018), Khanahmadi *et al.* (2018) and Moradi *et al.* (2018).

**39. *Ceratophysella tuberculata* (Cassagnau, 1959)\***

This species was collected from Soil in Khuzestan by Ramezani & Mossadegh (2017).

***Ceratophysella* spp.**

Some dispersed reports of the genus have been published from Mazandaran, Kerman and Golestan collected from soil of forest by Ghasemi Cherati (2017), Abdolalizadeh (2018), Abdolalizadeh *et al.* (2018) and Khanahmadi (2018).

**Genus *Choreutinula* Paclt, 1944**

**40. *Choreutinula inermis* Tullberg, 1871**

This species was collected from Soil (*Prunus* sp., *Ficus* sp., *Platanus* sp., *Ulmus* sp., *Alnus* sp.) in Guilan/ Rasht by Daghighi (2012).

**Genus *Hypogastrura* Bourlet, 1839**

**41. *Hypogastrura assimilis* (Krausbauer, 1898)**

This species was collected from soil in Kohgiluyeh va Boyer-Ahmad by Falahati *et al.* (2012).

**42. *Hypogastrura ellisi* Skarżyński & Kahrarian, 2017\*\***

This species was collected from litter in oak forest in Lorestan / Kohdasht county; Kermanshah / Shabankareh village by Skarżyński *et al.* (2017).

**43. *Hypogastrura manubrialis* (Tullberg, 1869)**

This species was collected from soil, litter and chicken manure in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, Zanjan, Kohgiluyeh and Boyer-Ahmad, Tehran, Khuzestan, Mazandaran and Golestan by Cox (1982), Falahati *et al.* (2012), Qazi & Shayanmehr (2014a), Kahrarian (2015, 2017), Ramezani & Mossadegh (2017), Alijani-Ardeshir *et al.* (2017), Mohammadi Nodeheki *et al.* (2017) and Khanahmadi *et al.* (2018).

**44. *Hypogastrura martiani* Skarżyński & Kaprus', 2009**

This species was collected from litter in oak forest in Kermanshah / Kangavar; Kermanshah; Javanrud; Mazandaran/ Babol; Babolsar; Amol by Kahrarian *et al.* (2013), Kahrarian (2015) and Mohammadi Nodeheki *et al.* (2017).

**45. *Hypogastrura persica* Kahrarian *et al.* 2013\*\***

This species was collected from soil and litter, oak forest in Kermanshah / Sarpol-e-zahab by Kahrarian *et al.* (2013) and Kahrarian (2015).

**46. *Hypogastrura purpurescens* (Lubbock, 1867)\***

This species was collected from soil and litter in oak forest in Kermanshah/ Paveh; Islamabad-e Gharb; Chahar zebar-e-oliya; Kermanshah; Mazandaran/ Fereydunkenar and Lorestan by Kahrarian *et al.* (2013), Yoosefi Lafooraki (2014), Kahrarian (2015), Yoosefi Lafooraki & Shayanmehr (2015c), Ghavami (2016) and Moradi *et al.* (2018).



**47. *Hypogastrura socialis* (Uzel, 1891)\***

This species was collected from soil and litter in oak forest in Kermanshah / Kermanshah by Kahrarian *et al.* (2013) and Kahrarian (2015).

**48. *Hypogastrura tullbergi* (Schäffer, 1900)**

This species was collected from soil in Mazandaran and Guilan by Cox (1982).

**49. *Hypogastrura vernalis* (Carl, 1901)**

This species was collected from soil in meadows and olive garden in Kohgiluyeh and Boyer-Ahmad, Tehran and Mazandaran by Falahati *et al.* (2012), Qazi & Shayanmehr (2014a), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2013b, 2015c) and Mohammadi Nodeheki *et al.* (2017).

***Hypogastrura* spp.**

Some dispersed reports of the genus have been published from Kermanshah collected from soil of forest by Kahrarian (2015).

**Genus *Schoetella* Schäffer, 1896****50. *Schoetella ununguiculata* Tullberg, 1869\***

This species was collected from soil, leaf litter, moss, fungi and olive garden in Mazandaran/Larijan; Savadkooh; Babol; Babolsar by Yoosefi Lafooraki (2014), Balvasi *et al.* (2015), Yoosefi Lafooraki & Shayanmehr (2015c) and Mohamadi Nodeheki *et al.* (2017).

***Schoetella* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from soil of forest by Ghasemi Cherati (2017) and Khanahmadi (2018).

**Genus *Triacanthella* Schäffer, 1897****51. *Triacanthella intermedia* Dunger et Zivadinovic, 1984\***

This species was collected from leaf litter in Tehran; Mazandaran/Juybar; Khorasan-e-Shomali/Bojnurd, Babaaman Forestry Park by Qazi & Shayanmehr (2014a), Yoosefi Lafooraki & Shayanmehr (2015a) and Shayanmehr & Zamani (2016).

**Genus *Xenylla* Tullberg, 1869****52. *Xenylla humicola* (Fabricius, 1780)**

This species was collected from soil in Guilan, East Azarbaijan, and West Azarbaijan by Cox (1982).

**53. *Xenylla maritima* Tullberg, 1869**

This species was collected from soil in Guilan, East Azarbaijan, West Azarbaijan and Mazandaran by Cox (1982), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2015c) and Mohammadi Nodeheki *et al.* (2017).

**54. *Xenylla mediterranea* da Gama, 1964\***

This species was collected from moss on tree and rock in Mazandaran/Amol, Halomsar Forest Park; Babol, Bezchaft forest park by Mohammadi Nodeheki (2018b).

**55. *Xenylla welchi* Folsom, 1916**

This species was collected from soil and leaf litter in Mazandaran and Kohgiluyeh and Boyer-Ahmad by Yahyapour & Shayanmehr (2011) and Falahati *et al.* (2012).

***Xenylla* spp.**

Some dispersed reports of the genus have been published from Kerman, Golestan and Mazandaran collected from soil of forest and cherry garden by Abdolalizadeh (2018), Abdolalizadeh *et al.* (2018), Khanahmadi (2018) and Yahyapour *et al.* (2018a).

**Genus *Willemia* Börner, 1901****56. *Willemia anophthalma* Börner, 1901**

This species was collected from soil in Central and East Azarbaijan by Cox (1982).

**57. *Willemia aspinata* Stach, 1949**

This species was collected from soil under *Pinus* sp. in Guilan by Daghighi (2012).

**58. *Willemia buddenbrocki* Huther, 1959\***

This species was collected from soil in Kermanshah by Kahrarian (2014).

**59. *Willemia scandinavica* Stach, 1949\***

This species was collected from Soil in Kermanshah by Kahrarian (2014).

**Genus *Acheroxenylla* Ellis, 1976\***

The genus *Acheroxenylla* Ellis, 1976 belonging to this family was reported from Iran, while its species is unknown.

***Acheroxenylla* sp.**

Some dispersed reports of the genus have been published from Kerman collected from soil of forest by Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

**Family Onychiuridae (14 genera, 27 species)****Subfamily Onychiurinae**

From this subfamily already eight species from Iran have been reported and in this new checklist 19 more species are added to list.

**Genus *Heteraphorura* Bagnall, 1948****60. *Heteraphorura iranica* Kaprus' *et al.*, 2017\*\***

This species was collected from Soil and leaf litter under oak and horn beam trees in Kermanshah/Chahar zebare-oliya; Osmanevarand; Cheshmehsorkh; Paveh; Shabankareh; Mazandaran/Nowshahr, Kajour, Lashkenar; Babolsar, Bahnamir; Sari, Semeskandeh forest; Golestan/Gorgan, Alangdarreh forest; Kordkuy, Imam Reza forest; Golestan National Park by Kaprus' *et al.* (2017), Arbea & Kahrarian (2017) and Khanahmadi (2018).

**61. *Heteraphorura japonica* (Yosii, 1967)**

This species was collected from soil in Kermanshah; Tehran; Mazandaran / Babol, Sari, Juybar; Golestan / Gorgan, Alangdarreh forest; Kordkuy, Imam Reza forest by Kahrarian (2015), Qazi & Shayanmehr (2016), Mehrafrooz Mayvan *et al.* (2015a), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017) and Ghasemi Cherati (2017).

***Heteraphorura* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil of forest by Khanahmadi (2018).

**Genus *Hymenaphorura* Gervais, 1841****62. *Hymenaphorura sibirica* (Tullberg, 1876)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, and Zanzan by Cox (1982).

***Hymenaphorura* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil of forest by Khanahmadi (2018).

**Genus *Micraphorura* Bagnall, 1949****63. *Micraphorura absoloni* (Börner, 1901)\***

This species was collected from soil in Kermanshah/Paveh by Arbea & Kahrarian (2017).

**Genus *Onychiuroides* Bagnall, 1948****64. *Onychiuroides granulatus* (Stach, 1930)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan and Zanzan by Cox (1982).

**65. *Onychiuroides pseudogranulosus* (Gisin, 1951)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan and Zanzan by Cox (1982).

**Genus *Orthonychiurus* Stach, 1954****66. *Orthonychiurus folsomi* (Schäffer, 1900)**

This species was collected from soil under pine and Oak in Mazandaran, Tehran and Kermanshah by Yahyapour & Shayanmehr (2011), Qazi & Shayanmehr (2014a, b, 2016) and Kahrarian *et al.* (2015).

**67. *Orthonychiurus rectopapillatus* (Stach, 1933)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan and Zanzan by Cox (1982).

**68. *Orthonychiurus stachianus* (Bagnall, 1939)\***

This species was collected from soil in Kermanshah; Tehran; Mazandaran / Babol by Kahrarian (2015), Qazi & Shayanmehr (2016), Alijani-Ardeshir *et al.* (2017) and Arbea & Kahrarian (2017).

**Genus *Protaphorura* Absolon, 1901****69. *Protaphorura aurantica* (Ridley, 1880)\***

This species was collected from leaf litter in forest in Semnan/Shahmirzad by Yoosefi Lafooraki & Shayanmehr (2013b).

**70. *Protaphorura bicampata* (Gisin, 1956)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan and Zanzan by Cox (1982).

**71. *Protaphorura cancellata* (Gisin, 1956)\***

This species was collected from soil in Kermanshah / Javanrud by Kahrarian (2015), Kahrarian *et al.* (2016) and Arbea & Kahrarian (2017).

**72. *Protaphorura fimata* (Gisin, 1952)**

This species was collected from soil and leaf litter in Central, Guilan, East Azarbaijan, West Azarbaijan, Zanzan, Isfahan, Mazandaran, Tehran, Kermanshah and Lorestan by Cox (1982), Yoosefi Lafooraki & Shayanmehr (2013b), Balvasi *et al.* (2015), Qazi & Shayanmehr (2016), Alijani-Ardeshtir *et al.* (2017), Arbea & Kahrarian (2017) and Shayanmehr *et al.* (2018).

**73. *Protaphorura golestanica* Kaprus *et al.*, 2017\*\***

This species was collected from soil and leaf litter under horn beam in Golestan, Gorgan region, Alangdarreh forest; Kordkuy, Imam Reza forest; Golestan National Park by Kaprus' *et al.*, (2017) and Khanahmadi (2018).

**74. *Protaphorura gisini* (Haybach, 1960)\***

This species was collected from soil in Lorestan / Khoram-Abad, Veysian, and Delbar Sadat village by Shayanmehr *et al.* (2018).

**75. *Protaphorura levantina* (Christiansen, 1956)\***

This species was collected from soil and leaf litter under oak trees, soil in wheat farm, grassland in Kermanshah/Sar-e-pol-e-Zahab, Patagh; Habibvand; Paveh, Shabankareh; Dehlilli; Chahar zeban-e-oliya; Mahidasht; Siah Khor; Golestan/Gorgan, Alangdarreh forest, Kordkuy, Imam Reza forest, Gorgan, Naharkhoran forest by Kahrarian (2015), Kahrarian *et al.* (2016), Hosseini *et al.* (2016a) and Arbea & Kahrarian (2017).

**76. *Protaphorura ombrophila* (Stach, 1960)\***

This species was collected from soil in Mazandaran/Sari by Ghasemi Cherati (2017).

**77. *Protaphorura persica* Arbea and Kahrarian, 2017\*\***

This species was collected from soil in Kermanshah/Bilevar by Arbea & Kahrarian (2017).

**78. *Protaphorura quadriocellata* (Gisin, 1947)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, Zanzan and Golstan by Cox (1982) and Khanahmadi *et al.* (2018).

**79. *Protaphorura sakatoi* (Yosii, 1966)\***

This species was collected from soil and leaf litter under elm and oak trees in Mazandaran/Noor, Sisangan wildlife refuge; Nowshahr, Kojur, Lashkenar; Babol, Sari, Juybar; Golestan/Gorgan, Alangdarreh forest, ordkuy, Imam Reza forest, Naharkhoran forest; Kermanhah / Eslamabad-e-Gharb, Harasam by Yoosefi Lafooraki (2014), Kahrarian

(2015), Yoosefi Lafooraki & Shayanmehr (2015a), Hosseini *et al.* (2016a), Kahrarian *et al.* (2016), Alijani-Ardeshir *et al.* (2017), Arbea & Kahrarian (2017) and Ghasemi Cherati (2017).

**80. *Protaphorura salsa* Kaprus, Pasnik, & Weiner, 2014\***

This species was collected from soil in Golestan / Gorgan, Alangdarreh forest, Kordkuy, Imam Reza forest, Naharkhoran forest by Hosseini *et al.* (2016a).

***Protaphorura* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil of forest by Khanahmadi (2018).

**Genus *Spinonychiurus* Weiner, 1996**

**81. *Spinonychiurus persicus* Kaprus *et al.*, 2017\*\***

This species was collected from soil and leaf litter in oak forest in Kermanshah/Osmanevand area, Dereh badam village by Kaprus' *et al.* (2017).

**82. *Spinonychiurus tianshanicus* Martynova, 1971\***

This species was collected from soil under pine, chestnut and cereal in Kermanshah/Sar-e-pol-e-Zahab area, Dereh badam village by Kahrarian (2015) and Arbea & Kahrarian (2017).

**Genus *Thalassaphorura* Bagnall, 1949**

**83. *Thalassaphorura encarpata* (Denis, 1931)\***

This species was collected from leaf litter under walnut poplar, date-plum and common fig Soil under oak trees in Mazandaran/Sari; Mahmood-abad; Noor; Babolsar; Qaemshahr Tehran/Laleh park, Niavaran park, Goftogo park, Golestan / Gorgan, Alangdarreh forest, Kordkuy, Imam Reza forest, Gorgan, Naharkhoran forest; Mazandaran/Babol; Lorestan/Khoram-Abad, Veysian, Delbar Sadat village by Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2013a,b, 2015a), Qazi & Shayanmehr (2016), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017) and Shayanmehr *et al.* (2018).

**84. *Thalassaphorura zchokkei* (Handschin, 1919)\***

This species was collected from Soil in Kermanshah; Lorestan / Khoram-Abad, Veysian, Delbar Sadat village by Kahrarian (2015, 2017) and Shayanmehr *et al.* (2018).

**Genus *Vibronychiurus* Pomorski, 1998**

**85. *Vibronychiurus archivari* (Christiansen, 1956)\***

This species was collected from soil and leaf litter under oak tree in Kermanshah/ Kermanshah, Cheshmeh sorkh, Osmanevand; Patat by Kahrarian *et al.* (2016) and Arbea & Kahrarian (2017).

**86. *Vibronychiurus hermonicus* (Gruia, Poliakov & Broza, 2000)**

This species was collected from soil in Kermanshah by Kahrarian (2015).

**Genus *Allonychiurus* Yoshii, 1995**

**Genus *Deuteraphorura* Absolon, 1901**

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**Genus *Onychiurus* Gervais, 1841****Genus *Sensillonychiurus* Pomorski et Sveenkova, 2006**

Four genera *Allonychiurus* Yoshii, 1995, *Deuteraphorura* Absolon, 1901, *Onychiurus* Gervais, 1841 and *Sensillonychiurus* Pomorski et Sveenkova, 2006 belonging to subfamily Onychiurinae were reported from Iran which their species are unknown.

***Deuteraphorura* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil of forest by Khanahmadi (2018).

***Allonychiurus* spp.**

Some dispersed reports of the genus have been published from Golestan and Tehran collected from soil of forest by Hosseini *et al.* (2016a) and Qazi and Shayanmehr (2014a,b).

***Onychiurus* sp.**

Some dispersed reports of the genus have been published from Mazanaran collected from soil of citrus garden by Alijani-Ardeshir *et al.* (2017).

***Sensillonychiurus* sp.**

Some dispersed reports of the genus have been published from Golestan collected from soil of forest by Khanahmadi (2018).

**Subfamily Tetrodontophorinae****Genus *Tetrodontophora* Reuter, 1882****87. *Tetrodontophora bielensis* (Waga, 1842)**

This species was collected from soil under *Ulmus* sp., *Prunus* sp., *Alnus* sp., *Parrotia persica*, *Acer* sp., *Salix alba*, *Punica* sp., *Robinia* sp., *Eriobotrya* sp. and *Populus* sp. in Guilan by Daghighi (2012).

**Family Tullbergiidae (5 genera, 12 species)**

From this family already three species including, *Mesaphorura krausbaueri* (Börner, 1901), *Metaphorura affinis* Börner, 1902 and *Paratullbergia callipygos* (Börner, 1902) were recorded and nine more species are added here.

**Genus *Fissuraphorura* (Rusek, 1991)****88. *Fissuraphorura duplex* (Lucianez & Simon, 1992)**

This species was collected from soil and leaf litter under oak trees in Kermanshah / Osmanevand by Kahrarian *et al.* (2014b) and Kahrarian (2015).

**Genus *Mesaphorura* Börner, 1901****89. *Mesaphorura critica* Ellis, 1976\***

This species was collected from soil in Golestan/Kordkuy, Palangpa forest, Imam Reza forest by Hosseini *et al.* (2016a).

**90. *Mesaphorura hylophila* (Rusek, 1982)\***

This species was collected from soil and leaf litter under elm trees in Kermanshah / Harasam by Kahrarian *et al.* (2014b) and Kahrarian (2015).

**91. *Mesaphorura italica* (Thibaud, 1996)\***

This species was collected from soil and leaf litter under oak trees in Kermanshah/Patagh; Chahar zebar-e-oliya by Kahrarian *et al.* (2014b) and Kahrarian (2015).

**92. *Mesaphorura krausbaueri* (Börner, 1901)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan and Zanjan by Cox (1982).

**93. *Mesaphorura macrochaeta* (Rusek, 1976)\***

This species was collected from soil and leaf litter under walnut, oak, Elm trees in Kermanshah / Sorkkeh direh; Shabankareh; Harasam by Kahrarian *et al.* (2014b) and Kahrarian (2015).

**94. *Mesaphorura yosii* Rusek, 1967\***

This species was collected from soil in Golestan/Gorgan, Alangdarreh forest, Kordkuy, Palangpa forest, Imam Reza forest by Hosseini *et al.* (2016b).

**Genus *Metaphorura* Stach, 1954****95. *Metaphorura affinis* Börner, 1902**

This species was collected from soil and leaf litter in Central, Guilan, East Azarbaijan, Guilan and Kermanshah by Cox (1982), Daghighi (2012), Ghahramaninezhad *et al.* (2013), Kahrarian *et al.* (2014b) and Kahrarian (2015).

**96. *Metaphorura denisi* Simon, 1985\***

This species was collected from soil and leaf litter under oak, willow, walnut trees in Kermanshah/Osmanevand; Kermanshah; Ghaleh Shahin; Patagh; Sorkkeh direh; Chahar zebar-e-oliya; Shabankareh; Lorestan/Khoram-Abad, Veysian, Delbar Sadat village by Kahrarian *et al.* (2014b), Kahrarian (2015) and Shayanmehr *et al.* (2018).

**97. *Metaphorura riozoi* Castaño-Meneses, Palacios-Vargas & Traser, 2000\***

This species was collected from soil and leaf litter under cypress and oak trees in Ilam/Gachan Mountain by Shayanmehr *et al.* (2017).

**Genus *Paratullbergia* Womersley, 1930****98. *Paratullbergia callipygos* (Börner, 1902)**

This species was collected from soil in Central and Zanjan by Cox (1982).

**Genus *Tullbergia* Lubbock, 1876****99. *Tullbergia simplex* Gisin, 1958\***

This species was collected from moss in Mazandaran/Savadkooh by Yoosefi Lafooraki & Shayanmehr (2013a, b) and Yoosefi Lafooraki (2014).

**Family Odontellidae (3 genera, 3 species)**

From this family already one species including, *Axenyllodes bayeri* Kseneman, 1935 was recorded and one more species is added here.

**Genus *Axenyllodes* Stach 1949****100. *Axenyllodes bayeri* Kseneman, 1935**

This species was collected from soil in Guilan, East Azarbaijan and Kermanshah by Cox (1982) and Kahrarian (2014, 2015).

**101. *Axenyllodes monoculatus* (Jordana & Ardanaz, 1981)\***

This species was collected from soil in Kermanshah by Kahrarian (2014, 2015).

**Genus *Superodontella* Stach 1949**

**102. *Superodontella lamellifera* (Axelson, 1903)**

This species was collected from soil in East Azarbaijan by Cox (1982).

**Genus *Odontella* Agardh, 1832**

In addition to above genera, *Odontella* Agardh, 1832 was reported from Iran, too. More studies are needed to identify the specimen in species level.

***Odontella* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from dead wood by Yoosefi Lafooraki (2014).

**Order Entomobryomorpha**

**Family Isotomidae (19 genera, 53 species)**

From family Isotomidae already 27 species were reported (Shayanmehr *et al.*, 2013) and 24 more species are added to list.

**Genus *Anurophorus* Nicolet, 1842**

**103. *Anurophorus coiffaiti* Cassagnau and Delamare, 1955**

This species was collected from soil (*Ulmus* sp., *Punica* sp.) in Guilan / Rasht, Golestan / Gorgan and Lorestan by Daghighi (2012), Falahati *et al.* (2013a) and Moradi *et al.* (2018).

**104. *Anurophorus silvaticus* Potapov & Stebaeva, 1990\***

The species was reported from Mazandaran by Yoosefi Lafooraki *et al.* (2019).

***Anurophorus* sp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014) and Hosseini *et al.* (2016a).

**Genus *Ballistura* Börner, 1906**

**105. *Ballistura tuberculata* (Stach), 1947\***

This species was collected from soil in Khuzestan by Ramezani & Mossadegh (2017).

**106. *Ballistura schoetti* (Dalla Torre, 1895)**

This species was collected from soil and leaf litter in Guilan by Cox (1982).

**Genus *Ephemerotoma* Potapov *et al.*, 2015**

**107. *Ephemerotoma skarzynskii* Potapov *et al.*, 2015\***

This species was collected from leaf litter in oak forest in Kermanshah/Osmanvand, Cheshmeh Sorkh by Potapov *et al.* (2015).

**Genus *Hemisotoma* Bagnall, 1949**

**108. *Hemisotoma orientalis* Stach, 1947**

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This species was collected from Soil, Leaf litter in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, Kermanshah/ Patagh, Chahar Zebar-e-Oliya by Cox (1982), Amiri and Kahrarian (2016), Arbea & Kahrarian (2015a), Kahrarian (2015) and Kahrarian (2016).

**109. *Hemisotoma pontica* Stach, 1947**

This species was collected from soil and leaf litter under poplar and common reed rice field in Central, Guilan, East Azarbaijan, West Azarbaijan, Tehran, Kermanshah, Mazandaran / Sari, Simorq, Mahmood-abad, Babol, Qaemshahr nad Lorestan by Cox (1982), Moravvej *et al.* (2007), Kahrarian *et al.* (2012), Yahyapour (2012), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Darvish-Motevalli (2016) and Alijani-Ardeshir *et al.* (2017) and Moradi *et al.* (2018).

**110. *Hemisotoma thermophila* (Axelson, 1900)**

This species was collected from Soil (*Ulmus* sp., *Ficus* sp., *Ziziphus* sp., *Populus* sp.) Leaf litter, Soil and leaf litter under poplar and oak in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, Guilan/Rasht, Mazandaran/ Mahmood-abad, Noor, Royan; Larijan, Kermanshah/ Derkah village, Shikh salaeh village, Rijab city by Cox (1982), Daghighi (2012), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Balvasi *et al.* (2015) and Arbea & Kahrarian (2015a).

**111. *Hemisotoma quadrioculatus* Martynova, 1967\***

This species was collected from soil under oak trees in Ilam/Arghavan Forest Park by Shayanmehr *et al.* (2017).

***Hemisotoma* sp.**

Some dispersed reports of the genus have been published from Kerman collected from leaf litter and soil by Abdolalizadeh (2018).

**Genus *Desoria* Nicolet, 1841**

**112. *Desoria neglecta* Schaeffer, 1900\***

The species was reported from Lorestan province by Moradi *et al.* (2018).

**113. *Desoria olivacea* (Tullberg, 1871)**

This species was collected from soil and litter in East Azarbaijan by Cox (1982).

**114. *Desoria tigrina* Nicolet, 1842**

This species was collected from soil in Kermanshah/ Derkah and Lorestan by Kahrarian *et al.* (2012), Kahrarian (2015), Kahrarian & Arbea (2015), Arbea & Kahrarian (2015a), Kahrarian (2019) and Moradi *et al.* (2018).

**115. *Desoria zlotini* Martynova, 1962\***

This species was collected from soil and leaf litter under oak trees in Kermanshah/Osmanevad area (Sragool village) by Amiri & Kahrarian (2015) and Kahrarian *et al.* (2015).

***Desoria* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Mazandaran collected from leaf litter and soil of forest by Kahrarian (2015) and Yahyapour *et al.* (2018a).

**Genus *Folsomia* Willem, 1902****116. *Folsomia asiatica* Martynova, 1971\***

This species was collected from walnut garden, soil and leaf litter in Kermanshah/Quri Qual'eh, Paveh; Lorestan by Amiri & Kahrarian (2015), Arbea & Kahrarian (2015a) and Ahmadi-Rad & Kahrarian (2015).

**117. *Folsomia binocolata* (Wahlgren 1899)**

This species was collected from soil in Kermanshah by Ghahramaninezhad *et al.* (2013).

**118. *Folsomia brevifurca* (Bagnall, 1949)**

This species was collected from soil and leaf litter in Mazandaran by Cox (1982).

**119. *Folsomia candida* (Willem, 1902)**

This species was collected from soil in Central, Guilan, E. Azarbaijan and Mazandaran/Sari by Cox (1982) and Yahyapour (2012).

**120. *Folsomia diplophthalma* (Axelson, 1902)\***

This species was collected from soil of cherry garden in Kerman / Mahan, Sekonj vilage by Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

**121. *Folsomia fimetaria* (Linnaeus, 1758)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan by Cox (1982).

**122. *Folsomia penicula* Bagnall, 1939**

This species was collected from soil (*Quercus* sp.) and leaf litter under oak in Central, E. Azarbaijan, Golestan/ Gorgan, Guilan/Rasht, Tehran, Mazandaran, Nowshahr, Kojur, Lashkenar; Bahnamir, Kermanshah/ Shikh salaeh village, Ghap Gholi village by Cox (1982), Falahati *et al.* (2011), Daghighi (2012), Falahati (2012), Falahati *et al.* (2013), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Qazi & Shayanmehr (2014a,b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Arbea & Kahrarian (2015a), Kahrarian (2015), Mehrafrooz Mayvan *et al.* (2015a) and Ghasemi Cherati (2017).

**123. *Folsomia quadrioculata* (Tullberg, 1871)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan, E. Azarbaijan, W. Azarbaijan, Kermanshah/ Char zabar, Shikh salaeh village, Ghap Gholi village, Sia Khor village and Lorestan by Cox (1982), Amiri & Kahrarian (2015), Arbea & Kahrarian (2015a), Kahrarian (2015) and Moradi *et al.* (2018).

**124. *Folsomia similis* Bagnall, 1939**

This species was collected from soil (*Ficus* sp., *Pinus* sp.), soil and leaf litter under oak trees in Tehran, Guilan/Rasht, Kermanshah/ Paveh, Shabankareh village by Moravvej *et al.* (2007), Daghighi (2012), Amiri & Kahrarian (2015) and Arbea & Kahrarian (2015a).

**125. *Folsomia ksenemani* Stach, 1947\***

This species was collected from leaf litter under oak and plum in Mazandaran/Noor, Royan, Kodirsar; Savadkooh, Alasht, Serin village; Savadkooh, Forest of Jawarom wildlife refuge by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2014a).

**126. *Folsomia manolachei* Bagnall, 1939\***

This species was collected from soil in Kermanshah/Bilevar by Arbea & Kahrarian (2015a).

***Folsomia* spp.**

Some dispersed reports of the genus have been published from Mazandaran, Golestan and Kerman collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014), Hosseini *et al.* (2016a), Abdolizadeh (2018) and Yahyapour *et al.* (2018a).

**Genus *Folsomides* Stach, 1922****127. *Folsomides angularis* Axelson, 1905**

This species was collected from Soil (*Prunus* sp.) in Guilan/ Rasht by Daghighi (2012), Daghighi *et al.* (2013a) and Daghighi *et al.* (2013b).

**128. *Folsomides halshinicus* Arbea & Kahrarian, 2015\*\***

This species was collected from forest soil and leaf litter in Kermanshah/Shabankareh village, Islam Abad-e Gharb, Sia Khor village, Char zabar, Hassan Abad village by Arbea & Kahrarian (2015a,b).

**129. *Folsomides subvinosus* Arbea & Kahrarian, 2015\*\***

This species was collected from grassland soil and forest soil and leaf litter in Kermanshah/Shabankareh village, Islam Abad-e Gharb, Sia Khor village, Char zabar by Arbea & Kahrarian (2015b) and Kahrarian (2015).

**130. *Folsomides marchicus* (Frenzel, 1941)**

This species was collected from soil in Kermanshah, Eslamabade-Gharb and Lorestan by Kahrarian *et al.* (2012), Amiri & Kahrarian (2015), Arbea & Kahrarian (2015a), Kahrarian (2015, 2019) and Moradi *et al.* (2018).

**131. *Folsomides parvulus* Stach, 1922**

This species was collected from soil (*Morus* sp.), and leaf litter, soil of black cherry garden in Central, E. Azarbaijan, W. Azarbaijan, Kermanshah, Harsin, Chahar Zebar-e-Oliya, Guilan/ Rasht, Tehran, Semnan / Mahdishahr, Mazandaran/ Savadkooh, Forest of Jawarom wildlife refuge; Alasht, Serin village; Babolsar; Qaemshahr; Babol; Sari, Golestan/ Kordkuy, Palangpa forest, Kerman, Mahan, Sekonj village and Lorestan by Cox (1982),

Yahyapour (2012), Kahrarian *et al.* (2012), Daghighi (2012), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Qazi & Shayanmehr (2014a,b), Yoosefi Lafooraki & Shayanmehr (2013b, 2014a), Amiri & Kahrarian (2015), Kahrarian (2015), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017), Arbea & Kahrarian (2017), Abdolalizadeh (2018) and Moradi *et al.* (2018).

***Folsomides* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest by Yahyapour *et al.* (2018a).

**Genus *Isotoma* Bourlet, 1839**

**132. *Isotoma anglicana* Lubbock, 1862\***

This species was collected from soil and leaf litter under Scotch and oak pine in Ilam/Dalab Forest Park, Arghavan Forest Park; Gachan Mountain by Shayanmehr *et al.* (2017).

**133. *Isotoma iranica* Arbea & Kahrarian, 2015\*\***

This species was collected from walnut garden in Kermanshah / Paveh, Shahu city and Lorestan by Arbea & Kahrarian (2015a) and Moradi *et al.* (2018).

**134. *Isotoma riparia* (Nicolet, 1842)\***

This species was collected from soil in Mazandaran/Babol by Alijani-Ardeshir *et al.* (2017).

**135. *Isotoma viridis* Bourlet, 1839**

This species was collected from soil and leaf litter in Central, Mazandaran, East Azarbaijan, West Azarbaijan, Mazandaran / Sari, Babol, Kermanshah / Shabankareh, Paveh, Golestan, Golestan National Park by Cox (1982), Yahyapour (2012), Amiri & Kahrarian (2015), Kahrarian (2015, 2019), Alijani-Ardeshir *et al.* (2017) and Khanahmadi (2018).

***Isotoma* spp.**

Some dispersed reports of the genus have been published from Golestan and Mazandaran collected from leaf litter and soil of forest by Hosseini *et al.* (2016b) and Alijani-Ardeshir *et al.* (2017).

**Genus *Isotomodella* Martynova, 1968**

**136. *Isotomodella alticola* (Bagnall, 1949)\***

This species was collected from soil in Lorestan/Khoram-Abad, Veysian, Delbar Sadat village by Shayanmehr *et al.* (2018).

**Genus *Isotomodes* Axelson, 1907**

**137. *Isotomodes korkorensis* Arbea and Kahrarian, 2015\*\***

This species was collected from oak jungle soil and leaf litter in Kermanshah/Char zabar (Kor Kor Mountain) by Arbea & Kahrarian (2015a).

**Genus *Isotomurus* Börner, 1903**

**138. *Isotomurus afghanicus* Yosii, 1963\***

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This species was collected from soil and leaf litter in Mazandaran/Mahmood-abad; Miandorud; Noor, Forest of Sisangan wildlife refuge; Amol; Neka, Hezarjerib forest by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2014a).

**139. *Isotomurus antennalis* (Bagnall, 1940)\***

This species was collected from soil in Mazandaran/Babol by Alijani-Ardeshir *et al.* (2017).

**140. *Isotomurus balteatus* Reuter, 1876\***

This species was collected from leaf litter in Golestan/Kordkuy, Imam Reza forest by Hosseini *et al.* (2016a).

**141. *Isotomurus cassagnai* Deharveg & Lek, 1993\***

This species was collected from rapessed field in Mazandaran/Sari by Zamani (2016).

**142. *Isotomurus fucicolus* (Schött, 1893)\***

This species was collected from soil in rice field in Mazandaran/Qaemshahr by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2013a,b, 2014a).

**143. *Isotomurus italicus* (Carapelli *et al.*, 1995)\***

This species was collected from leaf litter in Mazandaran/Sari by Ghasemi Cherati (2017) and Mehrafrooz *et al.* (2015a).

**144. *Isotomurus stuxbergi* (Tullberg, 1876)\***

This species was collected from rice field in Mazandaran / Qaemshahr by Darvish-Motevalli (2016).

**145. *Isotomurus maculatus* (Schäffer, 1869)**

This species was collected from soil in Golestan / Gorgan by Falahati (2012), Falahati *et al.* (2013) and Falahati *et al.* (2011).

**146. *Isotomurus palustris* (Muller, 1776)**

This species was collected from soil, leaf litter of rapessed field in Central, Mazandaran, Guilan, Golestan/ Kordkuy, Palangpa forest, Imam Reza forest, Mazandaran / Sari, Khuzestan by Cox (1982), Hosseini *et al.* (2016a), Zamani (2016) and Ramezani & Mossadegh (2017).

**147. *Isotomurus punctiferus* Yosii, 1963**

This species was collected from soil in Golestan/Gorgan and Guilan / Rasht by Falahati (2012), Daghighi (2012), Falahati *et al.* (2013), Daghighi *et al.* (2013a) and Daghighi *et al.* (2013b).

***Isotomurus* spp.**

Some dispersed reports of the genus have been published from Mazandaran, Golestan and Kerman collected from leaf litter and soil of forest, soil of rice field and soil of bed river by Alijani-Ardeshir *et al.* (2017), Hosseini *et al.* (2016a), Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

**Genus *Isotomiella* Bagnall, 1939**

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**148. *Isotomiella minor* (Schäffer, 1896)**

This common species was collected from soil (*Quercus* sp., *Prunus* sp., *Pinus* sp.), leaf litter, soil of lawn and also soil next to river in Mazandaran, Guilan, E. Azarbaijan, Tehran, Mazandaran/ Sari, Guilan/Rasht, Kermanshah, Mazandaran/ Nowshahr; Noor, Forest of Sisangan wildlife refuge, Kermanshah/ Shabankareh village, Patagh, Golestan/ Kordkuy, Palangpa forest, Kerman, Koohpayeh village and Lorestan by Cox (1982), Moravvej *et al.* (2007), Yahyapour (2012), Daghighi (2012), Ghahramaninezhad *et al.* (2013), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Amiri & Kahrarian (2015), Arbea & Kahrarian (2015a), Kahrarian (2015, 2019), Mehrafrooz Mayvan *et al.* (2015a), Hosseini *et al.* (2016a), Ghasemi Cherati (2017), Abdolalizadeh (2018) and Moradi *et al.* (2018).

**Genus *Parisotoma* Bagnall, 1940****149. *Parisotoma notabilis* (Schäffer, 1896)**

This cosmopolitan species was collected from soil and leaf litter in different habitat in Central, E. Azarbaijan, W. Azarbaijan, Zanjan, Tehran, Kermanshah, Guilan/ Rasht, Mazandaran/ Noor, Royan, Kodirsar, Kermanshah/ Shabankareh village, Patagh, Golestan/ Kordkuy, Palangpa forest, Golestan National Park, Khuzestan, Kerman, Shahdad, Sirch village; Mahan, Sekonj village; Koohpayeh village and Lorestan by Cox (1982), Moravvej *et al.* (2007), Kahrarian *et al.* (2012), Daghighi (2012), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Amiri & Kahrarian (2015), Arbea & Kahrarian (2015a), Kahrarian (2015, 2019), Hosseini *et al.* (2016a), Ramezani & Mossadegh (2017), Abdolalizadeh (2018), Khanahmadi (2018) and Moradi *et al.* (2018).

***Parisotoma* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014).

**Genus *Proisotoma* Börner, 1901****150. *Proisotoma minuta* (Tullberg, 1871)**

The species was collected from soil, leaf litter, African violet soil in rice field in Central, Mazandaran, Guilan, East Azarbaijan, West Azarbaijan, Mazandaran/ Mahmood-abad; Larijan, Golestan/ Kordkuy, Palangpa forest by Cox (1982), Nematollahi *et al.* (2009), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Balvasi *et al.* (2015) and Hosseini *et al.* (2016a).

**151. *Proisotoma minima* Absolon, 1901\***

The species was collected from leaf litter and leaf litter of Japanese medlar in Golestan, Golestan National Park by Yoosefi Lafooraki & Shayanmehr (2014a) and Khanahmadi (2018).

**152. *Proisotoma subminuta* Denis, 1931**

The species was collected from soil (*Ulmus* sp.) and also soil of barley field in Tehran, Guilan/Rasht and Mazandaran/Amol by Moravvej *et al.* (2007), Daghighi (2012), Daghighi *et al.* (2013a), Daghighi *et al.* (2013b), Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2014a).

**153. *Proisotoma tenella* Reuter, 1895**

The species was collected from Soil (*Melia* sp.) in Guilan/Rasht by Daghighi (2012), Daghighi *et al.* (2013a) and Daghighi *et al.* (2013b).

***Proisotoma* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014) and Hosseini *et al.* (2016a).

**Genus *Pseudisotoma* Handschin, 1924\***

**154. *Pseudisotoma sensibilis* (Tullberg, 1876)\***

This species was collected from dead wood in Mazandaran / Noor / Royan by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2014a).

**Genus *Subisotoma* (Stach, 1947)\***

**155. *Subisotoma variabilis* (Gisin, 1949)\***

This species was collected from soil and leaf litter under oak trees in Kermanshah / Sar-e-pole-Zahab, Patagh by Kahrarian (2015) and Kahrarian *et al.* (2015).

**Genus *Gnathofolsomia* Deharveng & Christian, 1984\***

***Gnathofolsomia* sp.**

Some dispersed reports of the genus have been published from Kermanshah collected from leaf litter and soil by Amiri and Kahrarian (2015).

**Genus *Pachyotoma* Bagnall, 1949, sensu Deharveng, 1977\***

***Pachyotoma* sp.**

Some dispersed reports of the genus have been published from Kermanshah collected from leaf litter and soil by Amiri and Kahrarian (2015).

**Genus *Vertagopus* Börner, 1906\***

***Vertagopus* sp.**

Some dispersed reports of the genus have been published from Golestan collected from leaf litter and soil by Hosseini *et al.* (2016a).

**Family Entomobryidae (11 genera and 42 species)**

**Subfamily Entomobryinae (22 species)**

From subfamily Entomobryinae already 11 species were reported (Shayanmehr *et al.*, 2013) and 11 more species are added to list.

**Genus *Drepanura* Schött, 1891**

**156. *Drepanura kirgisica* Martynova, 1971\***

This species was collected from soil in Kerman by Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

***Drepanura* spp.**

Some dispersed reports of the genus have been published from Kermanshah, Kerman and Golestan collected from leaf litter and soil of forest and fig garden by Kahrarian *et al.* (2014a), Kahrarian (2015), Abdolalizadeh (2018), Abdolalizadeh *et al.* (2018) and Khanahmadi (2018).

**Genus *Entomobrya* Rondani, 1861**

**157. *Entomobrya obscuralla* (Brown, 1926)\***

This species was collected from leaf litter in Mazandaran / Sari by Ghasemi Cherati (2017).

**158. *Entomobrya atrocincta* Schött, 1986**

This species was collected from leaf litter and Rice field in Mazandaran / Sari, Savadkooh, Qaemshahr, Golestan/ Gorgan, Naharkhoran forest, Kermanshah / Harsin by Yahyapour *et al.* (2011), Yahyapour (2012), Yoosefi Lafooraki (2014), Qazi & Shayanmehr 2014b, Kahrarian (2015, 2019), Darvish-Motevalli (2016), Hosseini *et al.* (2016a), Kahrarian *et al.* (2012) and Ghasemi Cherati (2017).

**159. *Entomobrya corticalis* (Nicolet, 1841)**

This species was collected from soil and leaf litter in Guilan, and Golestan, Golestan National Park by Cox (1982) and later by Khanahmadi (2018).

**160. *Entomobrya dollfusi* Denis, 1924**

This species was collected from leaf litter in Mazandaran / Sari by Yahyapour (2012).

**161. *Entomobrya lindbergi* Stach, 1960**

This species was collected from soil (*Alnus* sp. and *Ulmus* sp.), soil and leaf litter under walnut trees in Guilan / Rasht, Tehran, Mazandaran / Sari, Kermanshah / Sarab-e-Nilufar, Sahneh, Derkah, Harsin by Daghighi (2012), Daghighi *et al.* (2013b), Moravvej (2003), Qazi & Shayanmehr (2014a,b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Kahrarian (2015, 2019) and Kahrarian *et al.* (2014a).

**162. *Entomobrya lanuginosa* (Nicolet, 1841)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan and East Azarbaijan by Cox (1982).

**163. *Entomobrya handschini* Stach, 1922**

This species was collected from soil in Tehran, Kermanshah / Harsin, Harsin; Kermanshah, Sarab-e-Nilufar by Moravvej (2003), Qazi & Shayanmehr (2014a), Kahrarian *et al.* (2014a), Kahrarian (2015, 2019).

**164. *Entomobrya indica* (Baijal, 1955)\***

This species was collected from soil of fig village in Kerman / Sirch village by Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

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**165. *Entomobrya mesopotamica* Rusek, 1981\***

This species was collected from soil under walnut and apple trees in Markazi / Arak, Wildlife refuge; Kermanshah / Sarabe-bid; Sorkh; Gahvareh by Shoeibi *et al.* (2013), Kahrarian *et al.* (2014a) and Kahrarian (2015).

**166. *Entomobrya multifasciata* Tullberg, 1871**

This species was collected from leaf litter and Rice field in Mazandaran / Sari; Babol, Galugah, Juybar, Qaemshahr, Golestan / Gorgan, Naharkhoran forest; Kordkuy, Imam Reza forest by Yahyapour *et al.* (2011), Yahyapour (2012), Yoosefi Lafooraki (2014), Darvish-Motevalli (2016), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017) and Ghasemi Cherati (2017).

**167. *Entomobrya nicoleti* Lubbock, 1868\***

This species was collected from soil and leaf litter in Golestan / Gorgan, Naharkhoran forest; Kordkuy, Imam Reza forest by Hosseini *et al.* (2016a).

**168. *Entomobrya nigrocincta* Denis, 1923\***

This species was collected from soil under elm tree in Kermanshah / Qal'eh; Harasam; Char Zebar; Mazandaran/Sari by Kahrarian (2015), Kahrarian *et al.* (2014a, 2015) and Yahyapour *et al.* (2018a).

**169. *Entomobrya nivalis* Linnaeus, 1758\***

This species was collected from soil and leaf litter near Iron wood, soil of rice and wheat field in Golestan/Gorgan, Naharkhoran forest; Kordkuy by Hosseini *et al.* (2016a).

**170. *Entomobrya numidica* Baquero, Hamra-Kroua and Jordana, 2009\***

This species was collected from soil and leaf litter in Golestan / Gorgan, Naharkhoran forest by Hosseini *et al.* (2016a,b).

**171. *Entomobrya quinquelineata* Börner, 1901\***

This species was collected from soil and leaf litter in Markazi / Arak, Industrial park by Shoeibi *et al.* (2013).

**172. *Entomobrya schoetti* Stach, 1922\***

This species was collected from soil under apple tree in Kermanshah/Gahvareh; Mazandaran/Neka by Kahrarian *et al.* (2014a), Kahrarian (2015) and Yahyapour *et al.* (2018b).

**173. *Entomobrya unostriata* Stach, 1930**

This species was collected from soil in Tehran by Moravvej (2003).

**174. *Entomobrya vafaeii* Kahrarian (2015)\*\***

The specimens from this new species was collected from soil under walnut in Kermanshah/ Quri Qual'eh by Kahrarian (2015).

***Entomobrya* spp.**

Some dispersed reports of the genus have been published from Mazandaran, Kermanshah, Kerman and Golestan collected from leaf litter and soil of forest and soil of bed river by

Yoosefi Lafooraki (2014), Kahrarian (2015), Kahrarian *et al.* (2015), Abdolalizadeh (2018), Abdolalizadeh *et al.* (2018) and Khanahmadi (2018).

**Genus *Mesentotoma* Salmon, 1942**

**175. *Mesentotoma* cf. *dollfussi* (Denis, 1924)\***

This species was collected from rice field in Mazandaran/Qaemshahr by Darvish-Motevalli (2016).

**176. *Mesentotoma* *subdollfusi* Jacquemart, 1974**

This species was collected from soil (*Alnus* sp., *Ulmus* sp., *Parrotia persica*, *Acer* sp. and *Salix alba*) and rice field in Guilan/Rasht, Mazandaran/ Qaemshahr, Golestan / Gorgan / Ziarat village; kordkouy / Palangpa forest by Daghighi (2012), Daghighi *et al.* (2013b), Hosseini *et al.* (2015, 2016a) and Darvish-Motevalli (2016).

**Genus *Sinella* Brook, 1882**

**177. *Sinella* cf. *coeca* (Schött, 1896)\***

This species was collected from soil of cherry garden in Kerman / Mahan, Sekonj village by Abdolalizadeh (2018).

**178. *Sinella* *curviseta* Brook, 1882**

This species was collected from soil, leaf litter under poplar, rice field also soil next to river in Tehran, Mazandaran / Savadkooch, Forest of Jawarom wildlife refuge; Babol Qaemhah, Kerman, Shahdad, Sirch village by Moravvej (2003), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Darvish-Motevalli (2016), Alijani-Ardeshir *et al.* (2017) and Abdolalizadeh (2018).

**179. *Sinella* *tenebricosa* Folsom, 1902**

This species was collected from as pest in vegetables and cucumber greenhouses in Isfahan/ Isfahan by Nematollahi *et al.* (2009) and also from leaf liter in Mazandaran / Babol by Alijani-Ardeshir *et al.* (2017).

**Genus *Prodrepanura* Stach, 1963\***

The genus *Prodrepanura* Stach, 1963 belonging to this subfamily was reported from Iran, but its species is unknown.

***Prodrepanura* sp.**

Some dispersed reports of the genus have been published from Kermanshah collected from leaf litter and soil of forest by Kahrarian *et al.* (2012).

**Subfamily *Lepidocyrtinae* (9 species)**

From this subfamily already eight species were reported in the last checklist of Iran (Shayanmehr *et al.*, 2013) and one more species is added to list.

**Genus *Lepidocyrtus* Bourlet, 1839**

**180. *Lepidocyrtus* *cyaneus* Tullberg, 1871**

This species was collected from soil, leaf litter, soil and leaf litter under Iron wood in Central, Mazandaran, Guilan, East Azarbaijan, Zanzan, Glestan / Gorgan, Alangdarreh forest;

Kordkuy, Imam Reza forest; Kordkuy, Palangpa forest, soil near Oak trees by Cox (1982) and Hosseini *et al.* (2016a).

**181. *Lepidocyrtus lanuginosus* (Gmelin, 1788)**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan, East Azarbaijan, Golestan/ Gorgan, Palangpa forest by Cox (1982) and Hosseini *et al.* (2016a).

**182. *Lepidocyrtus ruber* Schött, 1902**

This species was collected from soil and leaf litter in Central, Mazandaran, Guilan, East Azarbaijan by Cox (1982).

***Lepidocyrtus* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014), Mehrafrooz Mayvan *et al.* (2015a), Ghasemi Cherati (2017), Ghasemi Cherati *et al.*, (2016), Khanahmadi (2018) and Yahyapour *et al.* (2018a).

**Genus *Pseudosinella* Schaefer, 1897**

**183. *Pseudosinella alba* (Packard, 1873)**

This species was collected from soil (*Quercus* sp., *Ulmus* sp., *Platanus* sp., *Alnus* sp., *Parrotia persica*, *Acer* sp. *Salix alba*, *Punica* sp.) in Guilan / Rasht by Daghighi (2012), Daghighi *et al.* (2013b).

**184. *Pseudosinella baghdadica* Rusek, 1981\***

This species was collected from soil under walnut, cherry and apricot trees in Khuzestan/Shush Kermanshah/Derkah; Harsin; Satar; Quri Qal'eh; Tamark; Gerdeh Now, Sahneh (Derkah), Sonqor (Satar) by Yoosefi Lafooraki *et al.* (2014c), Kahrarian (2015) and Kahrarian *et al.* (2014a, 2015).

**185. *Pseudosinella duodecimpunctata* Denis, 1931**

This species was collected from soil and leaf litter in East Azarbaijan by Cox (1982).

**186. *Pseudosinella imparipunctata* Gisin, 1953**

This species was collected from soil and leaf litter in Mazandaran, Guilan, Zanjan by Cox (1982).

**187. *Pseudosinella octopunctata* Böner, 1901**

This species was collected from soil, leaf litter, moss on rocks, rice field, soil next to river in Zanjan, Central, Guilan, E. Azarbaijan, W. Azarbaijan, Zanjan, Mazandaran/ Sari, Babolsar, Qaemshahr, Larijan, Babol, Tehran, Isfahan/ Zarrinshahr, Golestan/ Kordkuy, Imam Reza forest, Palangpa forest; Gorgan, Alangdarreh forest, Naharkhoran forest, Ziarat, Kermanshah/ Sar-e-pol-e- Zahab (Patagh, Qareh Bolagh, Rijab, Habibvand), Sahneh (Derkah, Samangan-e-Olya), Sonqor (Khaneghah-e-Sofla), Guilan-e-Gharb (Kaseh Gara), Qasr-e-shirin (Parviz khan), Kangavar (Ghoreh jil), Paveh (Shahu), Harsin (Harsin, Tamark), Kermanshah (Sarab-e-Nilufar, Char Zabar), Gahvareh (Kand-e-Rashid Khan), Eslamabad-e-gharb (Qal'eh Harasam, Sia Khor), Tazeh abad (Sia Tahir, Gerdeh Now), Javanrud (Safi

Abad, Kani Gavhar), Sonqor (Satar, Kartoej) and Kerman, Shahdad, Sirch village and Lorestan by Cox (1982), Yahyapour *et al.* (2011), Yahyapour (2012), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2013b, 2014a), Qazi & Shayanmehr (2014a,b), Kahrarian *et al.* (2014a, 2015), Balvasi *et al.* (2015), Kahrarian (2015), Mehrafrooz Mayvan *et al.* (2015a), Darvish-Motevalli (2016), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017), Abdolalizadeh (2018), Ghasemi Cherati (2017) and Moradi *et al.* (2018).

**188. *Pseudosinella sexoculata* (Schött, 1902)**

This species was collected from soil in Kermanshah by Ghahramaninezhad *et al.* (2013) and Kahrarian (2015).

***Pseudosinella* spp.**

Some dispersed reports of the genus have been published from Kerman, Golestan and Mazandaran collected from leaf litter and soil of forest by Abdolalizadeh (2018), Abdolalizadeh *et al.* (2018), Khanahmadi, (2018) and Yahyapour *et al.* (2018a).

**Subfamily Orchesellinae (7 species)**

From subfamily Orchesellinae already three species including, *Heteromurus major* (Moniez, 1889), *H. nitidus* (Templeton, 1835) and *H. sexoculatus* Brown, 1926 were recorded (Shayanmehr *et al.*, 2013) and four more species are added to list.

**Genus *Heteromurus* Wankel, 1860**

**189. *Heteromurus gigans* (Mari Muttt & Stomp, 1980)\***

The species was collected from leaf litter in Mazandaran / Sari by Ghasemi Cherati (2017).

**190. *Heteromurus variabilis* (Martynova, 1974)\***

The species was collected from leaf litter in Mazandaran / Sari by Ghasemi Cherati (2017).

**191. *Heteromurus major* (Moniez, 1889)**

The species is common and collected from soil and leaf litter in many habitats in Central, Mazandaran, Guilan, E. Azarbaijan, Mazandaran/ Sari, Guilan/ Rasht, Tehran, Mazandaran/ Savadkooh, Lafoor, Noor, Katel-shani, Sari, Noor, Forest of Sisangan wildlife refuge; Larijan, Kermanshah/ Kermanshah (Chalabeh, Char, Zabar), Paveh (Shahu, Quri Qal'eh), Harsin, Mazandaran, Babol/ Qaemshahr, Golestan/ Gorgan/ Alangdarre forest and Lorestan by Cox (1982), Yahyapour *et al.* (2011), Yahyapour (2012), Daghighi (2012), Daghighi *et al.* (2013b), Qazi & Shayanmehr (2014a,b), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Balvasi *et al.* (2015), Hosseini *et al.* (2015, 2016a), Kahrarian (2015), Mehrafrooz Mayvan *et al.* (2015a), Kahrarian *et al.* (2014a, 2016), Darvish-Motevalli (2016), Alijani-Ardeshir *et al.* (2017), Ghasemi Cherati (2017) and Moradi *et al.* (2018).

**192. *Heteromurus nitidus* (Templeton, 1835)**

The species was collected from soil and leaf litter in Mazandaran, Guilan, Mazandaran / Savadkooh, Sari, Kermanshah / Harsin (Harsin), Mazandaran, Babol, Qaemshahr, Golestan/kordkouy / Crop field; kordkouy/Palangpa forest by Cox (1982), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Hosseini *et al.* (2015, 2016a), Kahrarian

(2015), Mehrafrooz *et al.* (2015a), Kahrarian *et al.* (2014a, 2016), Darvish-Motevalli (2016), Alijani-Ardeshir *et al.* (2017) and Ghasemi Cherati (2017).

### **193. *Heteromurus sexoculatus* Brown, 1926**

The species was collected from soil and leaf litter in Mazandaran and Kermanshah/ Char Zebar by Cox (1982), Kahrarian *et al.* (2014a) and Kahrarian (2015, 2019).

#### ***Heteromurus* sp.**

Some dispersed reports of the genus have been published from Golestan collected from leaf litter and soil of forest by Khanahmadi (2018).

### **Genus *Orchesella* Templeton, 1836**

#### **194. *Orchesella cincta* (Linnaeus, 1758)**

This species was collected from leaf litter, moss on the rock in Mazandaran/Savadkooh, Forest of Jawarom wildlife refuge; Alasht, Serin village; Larijan; Golestan/Kordkuy, Imam Reza forest, Palangpa forest; Mazandaran / Babol, Neka by Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2013a, 2014a), Balvasi *et al.* (2015), Hosseini *et al.* (2016a) and Yahyapour *et al.* (2018a).

#### **195. *Orchesella spectabilis* (Stach, 1960)**

This species was collected from leaf litter in Mazandaran / Sari by Ghasemi Cherati (2017).

#### **Subfamily Seirinae (3 species)**

From this family already one species including, *Seira domestica* Nicolet, 1842 was reported and two more species is added to list.

### **Genus *Seira* Lubbock, 1870**

#### **196. *Seira atlantica* Negri *et al.*, 2005\***

This species was collected from alfalfa farm in Zanjan by Shayanmehr *et al.* (2020).

#### **197. *Seira domestica* Nicolet, 1842**

This species was collected from leaf litter, soil (*Magnolia* sp., *Ficus* sp., *Ulmus* sp., *Prunus* sp.), rice field in Mazandaran / Sari, Qaemshahr, Kermanshah / Harsin, Guilan/ Rasht and Golestan / Kordkouy / Crop field; Kordkouy / Palangpa forest; Gorgan / Alangdarreh forest by Yahyapour *et al.* (2011), Kahrarian *et al.* (2011), Yahyapour (2012), Daghighi (2012), Daghighi *et al.* (2013b), Darvish-Motevalli (2016), Hosseini *et al.* (2015, 2016a) and Ghasemi Cherati (2017).

#### **198. *Seira shayanmehrae* Kahrarian (2015)\*\***

The specimens from this new species was collected from soil in Kermanshah by Kahrarian (2015).

#### ***Seira* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Kerman collected from leaf litter and soil of forest by Kahrarian *et al.* (2015), Abdolalazadeh (2018) and Abdolalazadeh *et al.* (2018).

**Subfamily Willowsiinae (1 species)****Genus *Willowsia* Shoebotam, 1917****199. *Willowsia nigromaculata* Lubbock, 1873**

This species was collected from soil (*Platanus* sp., *Prunus* sp., *Ulmus* sp., *Ficus* sp., *Alnus* sp., *Quercus* sp.) in Guilan / Rasht by Daghighi (2012) and Daghighi *et al.* (2013b).

**Family Paronellidae (1 genus, 3 species)**

From family Paronellidae already one species including, *Cyphoderus albinus* Nicolet, 1842 was reported and two more species are added to list.

**Genus *Cyphoderus* Nicolet, 1982****200. *Cyphoderus agnotus* Böner, 1906\***

This species was collected from soil in Golestan / Gorgan, Naharkhoran forest, Kordkuy by Hosseini *et al.* (2016a).

**201. *Cyphoderus albinus* Nicolet, 1842**

This species was collected from soil (*Platanus* sp.), leaf litter in citrus garden, rice field in Guilan / Rasht, Tehran, Isfahan, Zarrinshahr, Mazandaran / Babolsar, Qaemshahr, Kermanshah / Qasr-e-shirin, Parviz Khan and Kerman, Shahdad by Daghighi (2012), Qazi & Shayanmehr (2014a), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2013b, 2014a), Darvish-Motevalli (2016), Kahrarian *et al.* (2016b), Abdolalizadeh (2018) and Kahrarian (2019).

**202. *Cyphoderus bidenticulatus* Parona, 1888\***

This species was collected from soil and litter in walnut orchard in Kermanshah/Harsin, Tamark; Lorestan by Kahrarian (2015), Kahrarian *et al.* (2015) and Ghavami (2016).

***Cyphoderus* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Kerman collected from leaf litter and soil of date garden by Yoosefi Lafooraki (2014), Abdolalizadeh (2018) and Abdolalizadeh *et al.* (2018).

**Family Tomoceridae (2 genera, 3 species)**

From this family already two species including, *Tomocerus minor* (Lubbock, 1862) and *Tomocerus vulgaris* (Tullberg, 1871) were reported and one more species is added to list.

**Genus *Pogonognathellus* (Tullberg, 1871)****203. *Pogonognathellus flavescens* (Tullberg, 1871)\***

This species was collected from soil and leaf litter in Mazandaran/Sari; Tonekabon; Babol; Neka by Yahyapour *et al.* (2018a).

**Genus *Tomocerus* Nocolet, 1842****204. *Tomocerus minor* (Lubbock, 1862)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, Zanjan, Golestan and Kerman by Cox (1982), Hosseini *et al.* (2016a) and Abdolalizadeh (2018).

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**205. *Tomocerus vulgaris* (Tullberg, 1871)**

This species was collected from soil in Central, Mazandaran, Guilan, East Azarbaijan, Zanjan, Kermanshah and Golestan by Cox (1982), Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014a), Balvasi *et al.* (2015), Kahrarian (2015), Mehrafrooz *et al.* (2015a), Kahrarian *et al.* (2014a, 2015), Hosseini *et al.* (2016a), Alijani-Ardeshir *et al.* (2017), Ghasemi Cherati (2017) and Khanahmadi (2018).

***Tomocerus* sp.**

Some dispersed reports of the genus have been published from Golestan collected from leaf litter and soil of forest by Khanahmadi (2018).

**Family Oncopoduridae****Genus *Oncopodura* Carl and Lebedinsky, 1905****206. *Oncopodura ambigua* Christiansen, 1957**

This species was collected from soil in Mazandaran and Guilan by Cox (1982).

**207. *Oncopodura hamata* Carl et Lebedinsky 1905**

This species was collected from soil in Guilan by Daghighi (2012).

***Oncopodura* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014).

**Order Neelipleona****Family Neelidae**

From family Neelidae already one species including, *Neelus murinus* Folsom, 1896 was recorded (Shayanmehr *et al.*, 2013) and three more species are added to list.

**Genus *Megalothorax* Willem, 1900****208. *Megalothorax incertus* Börner, 1903\***

This species was collected from soil and leaf litter in Mazandaran/Savadkooh; Kermanshah by Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014b) and Kahrarian (2015).

**209. *Megalothorax willemi* Schneider & D'Haese, 2013\***

This species was collected from from soil and leaf litter in Mazandaran / Neka; Behshahr; Noor; Sari by Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014b), Kahrarian (2015) and Ghasemi Cherati (2017).

**210. *Megalothorax perspicillum* Schneider & D'Haese, 2013\***

This species was collected from soil, leaf litter and dead wood in Mazandaran/Neka, Behshahr; Kermanshah by Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr (2014b) and Kahrarian (2015).

***Megalothorax* spp.**

Some dispersed reports of the genus have been published from Kermanshah collected from leaf litter and soil of forest by Kahrarian (2015).

**Genus *Neelus* Folsom, 1896****211. *Neelus murinus* Folsom, 1896**

This species was collected from soil and leaf litter in Central, Mazandaran, East Azarbaijan

Mazandaran/ Sari by Cox (1982) and Ghasemi Cherati (2017).

***Neelus* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest by Yoosefi Lafooraki (2014).

**Order Symphypleona****Family Arrhopalitidae (3 species)**

From this family one species including, *Arrhopalites caecus* (Tullberg, 1871) was reported and one more species is added to list.

**Genus *Arrhopalites* Börner, 1906****212. *Arrhopalites caecus* (Tullberg, 1871)**

This species was collected from soil and leaf litter in Guilan, East Azarbaijan and Kermanshah by Cox (1982), Ghahramaninezhad *et al.* (2013) and Kahrarian (2015).

**213. *Arrhopalites persicus* Vargovitsh & Kahrarian, 2020\*\***

The species was collected from Kermanshah by Vargovitsh & Kahrarian (2020).

**214. *Arrhopalites principalis* Stach, 1945\***

This species was collected from soil and leaf litter in Mazandaran/Sari, Chahardangeh, Langar village by Yahyapour *et al.* (2018b).

***Arrhopalites* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Golestan collected from leaf litter and soil of forest by Kahrarian (2015) and Khanahmadi (2018).

**Family Katiannidae (6 species)**

From family Katiannidae already five species were recorded (Shayanmehr *et al.*, 2013) and one more species is added to list.

**Genus *Sminthurinus* Börner, 1901****215. *Sminthurinus aureus* Lubbock, 1862**

This species was collected from leaf litter and soil (*Ulmus* sp., *Prunus* sp., *Acer* sp., *Cupressus* sp., *Robinia* sp., *Populus* sp.) in Mazandaran/ Sari, Guilan/Rasht by Yahyapour & Shayanmehr (2011), Yahyapour (2012), Daghighi (2012) and Daghighi *et al.* (2013b).

**216. *Sminthurinus bimaculatus* (Axelson, 1902)**

This species was collected from soil, and leaf litter in Guilan by Cox (1982).

**217. *Sminthurinus elegans* Fitch, 1863**

This species was collected from soil, leaf litter and moss on tree in Mazandaran / Sari, Golestan / Gorgan, Kermanshah, Mazandaran / Noor, Royan; Neka, Hezar jrib forest; Behshahr, Abbas-Abad, Sari, Juybar and Kerman and Lorestan by Cox (1982), Yahyapour



& Shayanmehr (2011), Yahyapour(2012), Falahati (2012), Ghahramaninezhad *et al.* (2013), Yoosefi Lafooraki (2014), Kahrarian (2015), Mehrafrooz *et al.* (2015a), Yoosefi Lafooraki & Shayanmehr (2015b), Ghasemi Cherati (2017), Abdolalizadeh (2018) and Moradi *et al.* (2018).

**218. *Sminthurinus gisini* da Gama, 1956\***

This species was collected from split of tree and moss on tree in Mazandaran/Neka, Hezar jrib forest; Savadkooh, Alasht by Yoosefi Lafooraki (2014) and Yoosefi Lafooraki & Shayanmehr (2013a, 2015b).

***Sminthurinus* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from leaf litter and soil of forest by Ghasemi Cherati (2017) and Khanahmadi (2018).

**Family Sminthurididae (2 genera, 2 species)**

**Genus *Sphaeridia* Linnaniemi, 1912**

**219. *Sphaeridia pumilis* (Krausbauer, 1898)**

This species was collected from soil, and leaf litter in Central, Guilan Kermanshah / Sahneh / Harsin, Mazandaran / Neka, Hezar jrib forest; Sari; Behshahr, Abbas-Abad; Noor, Royan and Lorestan by Cox (1982), Kahrarian *et al.* (2012), Yoosefi Lafooraki (2014), Kahrarian (2015) and Yoosefi Lafooraki & Shayanmehr (2015b) and Moradi *et al.* (2018).

***Sphaeridia* spp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest and dead wood by Yoosefi Lafooraki (2014) and Mehrafrooz Mayvan *et al.* (2015a).

**Genus *Sminthurides* Börner, 1900**

**220. *Sminthurides malmgreni* (Tullberg, 1876)**

This species was collected from soil and leaf litter in Central, Guilan, East Azarbaijan by Cox (1982).

**Family Sminthuridae (6 genera, 7 species)**

From this family two species were reported (Shayanmehr *et al.*, 2013) and five more species are added to list.

**Genus *Allacma* Börner, 1906**

**221. *Allacma fusca* (Linnaeus, 1758)**

This species was collected from pit fall trap in forest in Mazandaran/Sari by Bakhshi *et al.* (2014).

**Genus *Caprainea* Dallai 1970**

**222. *Caprainea marginata* (Schott, 1893)**

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This species was collected from soil in forest in Mazandaran and Kermanshah/Sahneh/Harsin by Yahyapour & Shayanmehr (2011), Kahrarian *et al.* (2012) and Mehrafrooz Mayvan *et al.* (2015a).

**Genus *Lipothrix* Börner, 1906**

**223. *Lipothrix lubbocki* (Tullberg, 1872)\***

This species was collected from leaf litter in Mazandaran / Sari; Tonekabon by Mehrafrooz Mayvan *et al.* (2015a) and Yahyapour *et al.* (2018b).

**Genus *Paralipothrix* Bretfeld, 1999**

**224. *Paralipothrix natalicius* (Ellis, 1974)\***

This species was collected from leaf litter in Mazandaran / Sari by Mehrafrooz Mayvan *et al.* (2015a).

**Genus *Sminthurus* Latreille, 1804**

**225. *Sminthurus ghilarovi* Stebaeva, 1966\***

This species was collected from leaf litter in Mazandaran / Sari by Mehrafrooz Mayvan *et al.* (2015a).

**226. *Sminthurus nigromaculatus* (Tullberg, 1872)\***

This species was collected from meadows in Mazandaran / Savadkooh by Yoosefi Lafooraki & Shayanmehr (2013a,b) and Yoosefi Lafooraki (2014).

**227. *Sminthurus viridis* Linnaeus, 1758**

This species was collected from wheat and alfalfa fields in Khuzestan, Kermanshah and Lorestan by Farahbakhsh (1961) and later by Kahrarian (2015) and Moradi *et al.* (2018).

***Sminthurus* spp.**

Some dispersed reports of the genus have been published from Kermanshah and Mazandaran collected from leaf litter and soil of forest by Kahrarian (2015) and Yahyapour *et al.* (2018a).

**Genus *Sphyrotheca* Börner, 1906\***

The genus *Sphyrotheca* Börner, 1906 belonging to this family has been reported from Iran with unknown species.

***Sphyrotheca* sp.**

Some dispersed reports of the genus have been published from Mazandaran collected from leaf litter and soil of forest by Ghasemi Cherati (2017).

**Family Dicyrtomidae (3 genera, 5 species)**

From family Dicyrtomidae already three species including, *Dicyrtomina ornata* Nicolet, 1842, *Dicyrtoma minuta* (Fabricius, 1783) and *D. fusca* Lubbock, 1873 were recorded and one more species is added to list.

**Genus *Dicyrtoma* Bourlet, 1841**

**228. *Dicyrtoma ghilarovi* Bretfeld, 1996\***

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This species was collected from leaf litter in Mazandaran / Sari and Lorestan by Mehrafrouz Mayvan *et al.* (2015a) and Moradi *et al.* (2018).

**229. *Dicyrtoma grinbergi* Stebaeva, 1966\***

The species was reported from Lorestan province by Moradi *et al.* (2018).

**230. *Dicyrtoma minuta* (Fabricius, 1783)**

This species was collected from soil and leaf litter in Mazandaran and Guilan by Cox (1982).

**231. *Dicyrtoma fusca* Lubbock, 1873**

This species was collected from leaf litter in Mazandaran / Sari by Yahyapour & Shayanmehr (2011) and Yahyapour (2012).

***Dicyrtoma* spp.**

Some dispersed reports of the genus have been published from Mazandaran and Golestan collected from leaf litter and soil of forest by Ghasemi Cherati (2017) and Khanahmadi (2018).

**Genus *Dicyrtomina* Börner, 1903**

**232. *Dicyrtomina ornata* Nicolet, 1842**

This species was collected from leaf litter in Mazandaran / Sari by Yahyapour & Shayanmehr (2011) and Yahyapour (2012).

**Genus *Neosminthurus* Mills 1934\***

Another genus belonging to this family, *Neosminthurus* Mills 1934 was reported from Iran with unknown species.

***Neosminthurus* sp.**

Some dispersed reports of the genus have been published from Golestan collected from leaf litter and soil of forest by Khanahmadi (2018).

## Discussion

The oldest Iranian Collembola list were published in 1982 by Cox and after more than three decades delay in faunastic study on Collembola, we can see an increase in recorded species for Iranian springtails in Iran. So that, this updated list contains 120 more species, almost in same amount in comparison of last checklist of Iranian Collembola published five years ago (Shayanmehr *et al.*, 2013). With adding these 120 Collembola species, the number of all recorded species reached to 232. However, still it is a rather few number referring to this relatively large country. Iran is a big country with an area of 1,648,195 km<sup>2</sup> (636,372 sq mi) and spans several different climatic zones and biomes, therefore the diversity of animals is high and this presumably also applies to those livings in soil (Shayanmehr *et al.*, 2013). According to biogeographic zonation, Iran has been considered part of the Palearctic region by most authors. However, some parts in the southern Iran, such as Khuzestan Plain and

Persian Gulf coast, have been considered as Ethiopian (Cox 1982). Until now, Collembola species were reported only from 19 provinces mainly in Palearctic region including nine provinces with less than 10 recorded species and just four provinces have more than 50 reported species. Lack of researchers who study Collembola could be the main reason for this situation. The majority of species have been reported from Mazandaran (79 species), Kermanshah (60 species) and Golestan (43 species) provinces from 2013 to 2018. Mazandaran and Golestan provinces contain parts of Hyrcanian forests in north of Iran and are located in south part of Caspian Sea. Kermanshah province in western part of Iran has a climate which is heavily influenced by the proximity of Zagros Mountains, classified as a hot-summer Mediterranean climate. However, the fauna of Iranian Collembola in most parts of country still remained unknown. Investigations in recent years result in describing several new species and even new genera such as *Persanura* (Mehrafrooz Mayvan *et al.*, 2015b). Totally, among 18 recorded Collembola families from Iran, family Isotomidae with 19 genera and 53 species is the most diverse family. The next family is Entomobryidae with 11 genera and 42 species. Family Neanuridae with 14 recorded genera and only 28 species has third place. Families Hypogastruridae, Onychiuridae and Tullbergiidae have 28, 27 and 12 reported species, respectively. Other families have been reported with less than ten species. So, it seems with more investigations in other provinces of Iran and attending to other Collembola families the number of Iranian Collembola species would increase much more than the present number.

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