

RESEARCH ARTICLE

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Checklist of Collembola (Hexapoda) from Iran, Part II: Entomobryomorpha

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Abstract

The order Entomobryomorpha is one of the four important orders of the Collembola (Springtails). These arthropods are distinguished from the rest of the Collembola by having the third abdominal segment larger than the fourth segment and having scales in some species. In this study, the list of Entomobryomorpha species (Collembola) in Iran has been prepared based on scientific sources related to Collembola reports between 2020 and 2025 and the materials examined in the present study. This checklist includes 139 species in 41 genera belonging to six families of the order Entomobryomorpha along with the materials examined and distribution in the world and Iran. Three species, including one species from the family Entomobryidae, *Lepidocyrtus lignorum* (Fabricius, 1775), one species from the family Tomoceridae, *Tomocerus asiaticus* Martynova 1969, and the species *Desoria kaszabi* Dunger, 1982 from the family Isotomidae, are new to the fauna of Iran. A list of Entomobryomorpha species, descriptions of new records, along with some images and a key to the Iranian species of the family Tomoceridae are provided.

Keywords: Mazandaran, Mesofauna, soil-living animals, taxonomy.

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INTRODUCTION

Order Entomobryomorpha Börner, 1913 (Collembola), the elongate-bodied springtails, are ubiquitous, species-rich, and diversified hexapods (Yu et al., 2022). They have long and slim bodies unlike Symphypleona and Neelipleona orders which are known as globular springtails and a reduced prothorax unlike Poduromorpha order which have a well-developed prothorax (Hopkin, 1997). The members of main groups of Entomobryomorpha are cosmopolitan so that occur in any terrestrial niches (Yu et al., 2022).

The study of Collembola fauna in Iran has been increasing over the last few years so that several species have been described or recorded from the country. As a result, the endemism among Collembola species of Iran is increasing. The list of Iranian springtails published by Cox (1982) includes 31 species in 13 genera of Entomobryomorpha. In the checklist of Collembola species of Iran by Shayanmehr et al. (2013), 56 species in 23 genera of Entomobryomorpha were reported, and this number were increased to 105 species in 34 genera in the next list (Shayanmehr et al., 2020b). Present work deals with the list of

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Entomobryomorpha species based on published literature between 2020 and 2024 and the materials of present study.

MATERIAL AND METHODS

This checklist is based on the literature published between 2020 and 2025 and collected materials by authors. Leaf litter, soil, and dead wood were collected from various localities in Mazandaran province, North of Iran, specimens were extracted using Tullgren funnels and preserved in 75–80% alcohol. To prepare microscopic slides samples were cleared in 10% KOH and mounted on Hoyer's medium. The identification of specimens was carried out using valid identification keys such as Potapov (2001), Fjellberg (2007), Jordana (2012), and Winkler et al. (2020). The examined materials are deposited in Entomology lab of Sari University of Agricultural Sciences and Natural Resources, Iran.

RESULTS

The checklist of Entomobryomorpha order of Iran is provided here alphabetically. In total, this order currently comprises 139 species, 41 genera, and six springtails families recorded in Iran. Three species are newly recorded for Iran which are denoted by an asterisk (*).

Order Entomobryomorpha Börner, 1913
Family Entomobryidae Schäffer, 1896
Subfamily Entomobryinae Schäffer, 1896
Genus *Calx* Christiansen, 1958

Calx kailashi Mandal, 2018

General distribution: India and Iran (Mandal, 2018; Ahmadi et al., 2023).

Distribution in Iran: Kurdistan (Marivan-Pirsafa) province (Ahmadi et al., 2023).

Genus *Coecobrya* Yosii, 1956

Coecobrya caeca (Schött, 1896)

General distribution: Australia, North America (Greenslade, 1992).

Distribution in Iran: Kerman (Mahan) province as *Sinella* cf. *coeca* (Schött, 1896) (Abdolalizadeh, 2018).

Coecobrya tenebricosa (Folsom, 1902)

General distribution: Cosmopolitan (Jordana, 2012).

Distribution in Iran: Isfahan and Mazandaran (Babol) provinces as *Sinella tenebricosa* Folsom, 1902 (Nematollahi et al., 2009; Alijani-Ardeshtir et al., 2017).

Genus *Drepanura* Schött, 1891

Drepanura kirgisica Martynova, 1971

General distribution: Central and North Asia (Abdolalizadeh et al., 2019).

Distribution in Iran: Kerman province (Abdolalizadeh, 2018; Abdolalizadeh et al., 2019).

Drepanura pallens Rusek, 1981

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Fars province, synanthropic species (Semati et al., 2023).

Examined material: Mazandaran province, Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2.

Drepanura tuxeni Nosek, 1964**General distribution:** Palaearctic, Tajikistan (Rabieh et al., 2023).**Distribution in Iran:** South Khorasan (Birjand) province (Rabieh et al., 2023)**Genus *Entomobrya*** Rondani, 1861***Entomobrya albocincta*** (Templeton, 1836) in Templeton & Westwood 1836**General distribution:** Europe, Mediterranean (Bellinger et al., 2024).**Distribution in Iran:** Kohgiluyeh and Boyer-Ahmad (Cheram) province (Falahati Hosseiniabad et al., 2011).***Entomobrya atrocincta*** Schött, 1896**General distribution:** Europe, Mediterranean (Bellinger et al., 2024).**Distribution in Iran:** Golestan (Gorgan), Kermanshah (Harsin), Mazandaran (Behshahr, Qaemshahr, Sari, Savadkooh) and Tehran provinces (Yahyapour et al., 2011; Yoosefi Lafooraki, 2014; Kahrarian, 2015, 2019; Darvish-Motevalli, 2016; Hosseini et al., 2016a; Qazi & Shayanmehr, 2016; Yahyapour et al., 2020; Ghasemi Charati et al., 2022; Vahedi Moghadam et al., 2022).***Entomobrya corticalis*** (Nicolet, 1842)**General distribution:** Palaearctic (Bellinger et al., 2024).**Distribution in Iran:** Golestan (Golestan National Park), Guilan, Mazandaran (Sari), and North Khorasan (Darkesh-Jozak forest, Zoeram village) provinces (Cox, 1982; Khanahmadi, 2018; Yahyapour et al., 2018, 2019; Mehrafrooz Mayvan et al., 2022).**Examined material:** Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 3; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2.***Entomobrya handschini*** Stach, 1922**General distribution:** Europe, Poland to Iran to the south east of Black Sea (Baquero et al., 2008).**Distribution in Iran:** Kermanshah (Harsin, Kermanshah, Sarab-e-Nilufar) and Tehran provinces (Moravvej, 2003; Qazi & Shayanmehr, 2014; Kahrarian et al., 2014; Kahrarian, 2015, 2019).***Entomobrya indica*** (Baijal, 1955)**General distribution:** Tibet, India (Jordana, 2012, Yadav et al., 2018).**Distribution in Iran:** Kerman (Sirch village) province (Abdolalizadeh, 2018; Abdolalizadeh et al., 2019).***Entomobrya lanuginosa*** (Nicolet, 1842)**General distribution:** Central and Northern Europe (Jordana, 2012).**Distribution in Iran:** Central, East Azarbaijan, Guilan, Mazandaran, and North Khorasan (Darkesh-Jozak forest) provinces (Cox, 1982; Mehrafrooz Mayvan et al., 2022).***Entomobrya lindbergi*** Stach, 1960**General distribution:** Palaearctic (Bellinger et al., 2024).**Distribution in Iran:** Guilan (Rasht), Kermanshah (Derkah, Harsin, Sarab-e Nilufar, Sahneh), Mazandaran (Sari), and Tehran provinces (Daghighi et al., 2013; Moravvej, 2003; Qazi & Shayanmehr, 2014; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Kahrarian, 2015, 2019; Kahrarian et al., 2014).**Examined material:** Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 4; Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 3; Neka, Lemon

village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2; Sari, Marzrud village, 36°14'20" N, 53°39'10" E, 46 m a.s.l., 18-May-2020, leg. E. Yahyapour, n= 81; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 35; Sari, Goharbaran seashore, soil under eucalyptus, 36°73'12" N, 53°11'14" E, 5 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 6; Sari, Dashtenaz forest, 36°42'10"N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 6; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 6; Sari, rice field, 36°42'11"N, 53°10'12" E, 11 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 56.

Entomobrya mesopotamica Rusek, 1981

General distribution: Iraq (Jordana & Baquero 2010).

Distribution in Iran: Kermanshah (Gahvareh, Sarabe-bid, Sorkh) and Markazi (Arak) provinces (Shoeibi et al., 2013; Kahrarian et al., 2014; Kahrarian, 2015).

Entomobrya multifasciata (Tullberg, 1871)

General distribution: Holarctic (Babenko et al., 2019).

Distribution in Iran: Golestan (Gorgan, Kordkuy), Kurdistan (Marivan-Garan, Marivan-Pirsafa), and Mazandaran (Babol, Galugah, Juybar, Qaemshahr, Sari) provinces (Yahyapour et al., 2011; Yoosefi Lafooraki, 2014; Darvish-Motevalli, 2016; Hosseini et al., 2016; Alijani-Ardeshtir et al., 2017; Ghasemi Charati et al., 2022; Ahmadi et al., 2023).

Entomobrya muscorum (Nicolet, 1842)

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Kohgiluyeh and Boyer-Ahmad (Cheram) province (Falahati Hosseinabad et al., 2011).

Entomobrya nicoleti (Lubbock, 1868)

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Golestan (Gorgan, Kordkuy) province (Hosseini et al., 2016).

Entomobrya nigrocincta Denis, 1923

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Kermanshah (Char Zeban, Harasam, Qal'eh) and Mazandaran (Neka, Sari, Savadkooh) provinces (Kahrarian, 2015; Kahrarian et al., 2014; Yahyapour et al., 2018; Bakhshi et al., 2022; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran province, Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2; Sari, Goharbaran seashore, soil under eucalyptus, 36°42'12"N 53°11'14"E, 5 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 4.

Entomobrya nivalis (Linnaeus, 1758)

General distribution: Northern Holarctic (Babenko et al., 2019).

Distribution in Iran: Golestan (Gorgan, Kordkuy) province (Hosseini et al., 2016).

Entomobrya numidica Baquero, Hamra-Kroua & Jordana, 2009

General distribution: Algeria (Jordana, 2012).

Distribution in Iran: Golestan (Gorgan) province (Hosseini et al., 2016).

Entomobrya obscurella Brown, 1926

General distribution: Afghanistan, Palestine, Iraq (Jordana, 2012).

Distribution in Iran: Mazandaran (Sari, Savadkooh) province (Ghasemi Charati, 2017; Ghasemi Charati et al., 2022; Zamani Khormandichali et al., 2024).

Entomobrya quinquelineata Börner, 1901

General distribution: Europe (Jordana, 2012).

Distribution in Iran: Markazi (Arak) province (Shoeibi et al., 2013).

Entomobrya schoetti Stach, 1922

General distribution: Europe (Jordana, 2012).

Distribution in Iran: Guilan and Mazandaran (Neka) provinces (Kahrarian et al., 2014; Kahrarian, 2015; Yahyapour et al., 2018).

Entomobrya unostrigata Stach, 1930

General distribution: Mediterranean, Asia and possibly in USA (Jordana, 2012).

Distribution in Iran: Tehran province (Moravvej, 2003).

Genus *Mesentotoma* Salmon, 1942

Mesentotoma dollfussi (Denis, 1924)

General distribution: Europe, Algeria, Macaronesia (Jordana, 2012).

Distribution in Iran: Mazandaran (Qaemshahr) province (Darvish-Motevalli, 2016).

Mesentotoma subdollfusi Jacquemart, 1974

General distribution: Tunisia (Jordana, 2012).

Distribution in Iran: Golestan (Gorgan, Kordkouy), Guilan (Rasht), and Mazandaran (Qaemshahr, Savadkooh) provinces (Daghighi et al., 2013; Hosseini et al., 2016; Darvish-Motevalli, 2016; Zamani Khormandichali et al., 2024).

Genus *Prodrepanura* Stach, 1963

Prodrepanura sp.

Distribution in Iran: Kermanshah province (Kahrarian et al., 2012).

Genus *Sinella* Brook, 1882

Sinella curviseta Brook, 1882

General distribution: Probably Holarctic (Jordana, 2012).

Distribution in Iran: Kerman (Shahdad), Mazandaran (Babol, Qaemshahr, Savadkooh), and Tehran provinces (Moravvej, 2003; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Darvish-Motevalli, 2016; Alijani-Ardeshtir et al., 2017; Abdolalizadeh, 2018).

Subfamily *Lepidocyrtinae* Wahlgren, 1906

Genus *Lepidocyrtus* Bourlet, 1839

Lepidocyrtus bicoloris Mateos, 2012

General distribution: Spain (Mateos, 2012).

Distribution in Iran: Mazandaran (Neka) province (Bakhshi et al., 2022).

Examined material: Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 10; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 1.

Lepidocyrtus curvicolis Bourlet, 1839

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Kohgiluyeh and Boyer-Ahmad (Cheram) province (Falahati Hosseinabad et al., 2011).

Lepidocyrtus cyaneus Tullberg, 1871

General distribution: Cosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Gorgan, Kordkuy), Guilan, Mazandaran, and Zanzan provinces (Cox, 1982; Hosseini et al., 2016).

Examined material: Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 4.

Lepidocyrtus lanuginosus (Gmelin, 1788)

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Gorgan), Guilan, and Mazandaran (Neka) provinces (Cox, 1982; Hosseini et al., 2016; Bakhshi et al., 2022).

Examined material: Mazandaran province, Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 2; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Lepidocyrtus lignorum (Fabricius, 1775)* (Figures 1A, B)

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: The species is reported for the first time from Iran.

Material examined: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1.

Lepidocyrtus paradoxus Uzel, 1890

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Kohgiluyeh and Boyer-Ahmad (Cheram) province (Falahati Hosseinabad et al., 2011).

Lepidocyrtus ruber Schött, 1902

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Guilan, and Mazandaran provinces (Cox, 1982).

Genus *Pseudosinella* Schäffer, 1897*Pseudosinella alba* (Packard, 1873)

General distribution: Cosmopolitan (Fjellberg, 2007).

Distribution in Iran: Guilan (Rasht) and Kurdistan (Marivan-Garan, Marivan-Pirsafa) provinces (Daghighi et al., 2013; Ahmadi et al., 2023).

Examined material: Mazandaran province, Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1.

Pseudosinella baghdadica Rusek, 1981

General distribution: Iraq (Rusek, 1981).

Distribution in Iran: Kermanshah (Derkah, Gerdeh Now, Harsin, Quri Qal'eh, Sahneh, Satar, Sonqor, Tamark) and Khuzestan (Shush) provinces (Yoosefi Lafooraki et al., 2014; Kahrarian, 2015; Kahrarian et al., 2014).

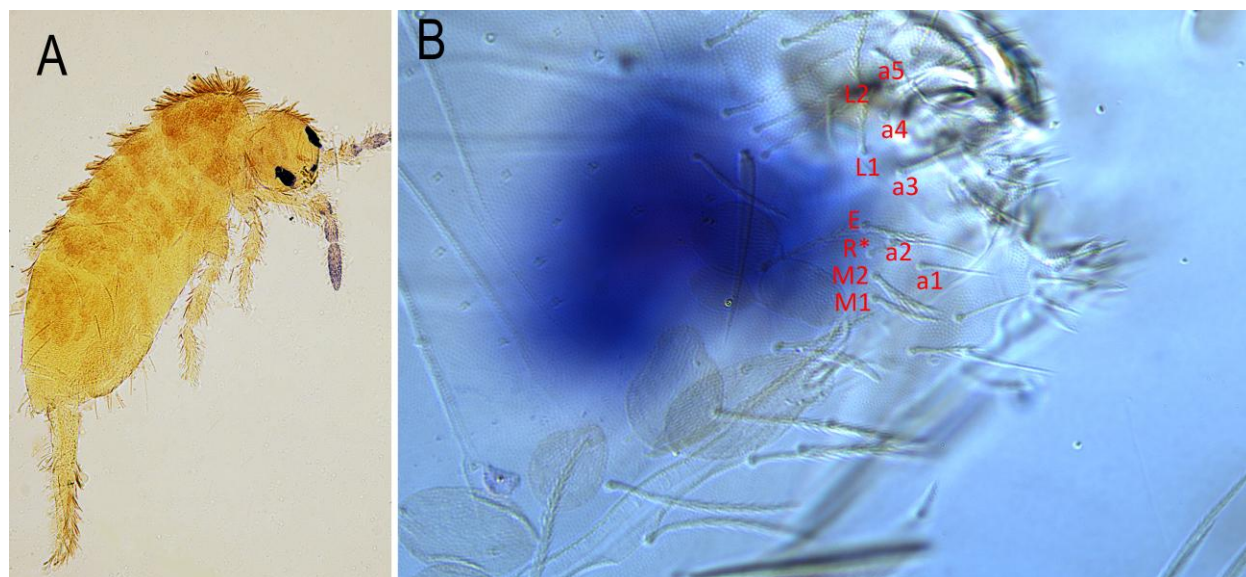


FIGURE 1. A) Habitus of *Lepidocyrtus lignorum* (Magnification 40X); B) Labium chaetotaxy of *Lepidocyrtus lignorum*; R* half in length than other setae (Magnification 100X).

***Pseudosinella cf. decipiens* Denis, 1924**

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Mazandaran (Sari) province (Shayanmehr et al., 2024).

***Pseudosinella duodecimpunctata* Denis, 1931**

General distribution: Europe (Bellinger et al., 2024).

Distribution in Iran: East Azarbaijan province (Cox, 1982).

***Pseudosinella immaculata* (Lie Pettersen, 1896)**

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Mazandaran (Sari) province (Shayanmehr et al., 2024).

***Pseudosinella imparipunctata* Gisin, 1953**

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Guilan, Mazandaran, and Zanzan provinces (Cox, 1982).

***Pseudosinella octopunctata* Börner, 1901**

General distribution: Cosmopolitan (Fjellberg, 2007).

Distribution in Iran: Central, East Azarbaijan, Golestan (Gorgan, Kordkuy), Guilan, Ilam, Isfahan (Zarrinshahr), Kerman (Shahdad), Kermanshah (Eslamabad-e-gharb, Gahvareh, Guilan-e-Gharb, Harsin, Javanrud, Kangavar, Kermanshah, Paveh, Qasr-e-shirin, Sahneh, Sar-e-pol-e- Zahab, Sonqor, Sonqor, Tazeh abad), Kohgiluyeh and Boyer-Ahmad, Kurdistan (Marivan-Garan, Marivan-Pirsafa), Lorestan, Markazi, Mazandaran (Babol, Babolsar, Behshahr, Larijan, Qaemshahr, Sari, Savadkooh), North Khorasan (Darkesh-Jozak forest, Golil-Sarany rangeland, Oghaz village), Tehran, West Azarbaijan, and Zanzan provinces (Cox, 1982; Yahyapour et al., 2011; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Qazi & Shayanmehr, 2014; Kahrarian et al. 2014; Balvasi et al., 2015; Kahrarian, 2015; Darvish-Motevalli, 2016; Hosseini et al., 2016; Alijani-Ardeshtir et al., 2017; Abdolalizadeh, 2018; Ghasemi Charati, 2017; Moradi et al., 2018; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Vahedi Moghadam et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 9; Neka, Lemon village, Hezarjirib

forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 4; Sari, Goharbaran seashore, soil under eucalyptus, 36°42'12"N 53°11'14"E, 5 m a.s.l., 12-May-2020, leg. E. Yahyapour, n=1.

***Pseudosinella sexoculata* Schött, 1902**

General distribution: Cosmopolitan (Fjellberg, 2007).

Distribution in Iran: Kermanshah and Kurdistan (Marivan-Garan, Marivan-Pirsafa) provinces (Ghahramaninezhad et al., 2013; Kahrarian, 2015; Ahmadi et al., 2023).

Subfamily Seirinae Yosii, 1961

Genus *Seira* Lubbock, 1870

***Seira atlantica* Negri, Pellecchia & Fanciulli, 2005**

General distribution: Morocco (Negri et al., 2005).

Distribution in Iran: North Khorasan (Varaghi village) and Zanzan provinces (Shayanmehr et al., 2020a,b; Mehrafrooz Mayvan et al., 2022).

***Seira domestica* (Nicolet, 1842)**

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Golestan (Gorgan, Kordkouy), Guilan (Rasht), Kermanshah (Harsin), and Mazandaran (Sari, Savadkooh, Qaemshahr) provinces (Yahyapour et al., 2011; Kahrarian et al., 2011; Daghighi et al., 2013; Darvish-Motevalli, 2016; Hosseini et al., 2016; Ghasemi Charati, 2017; Yahyapour et al., 2020; Ghasemi Charati et al., 2022; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran province, Sari, Goharbaran seashore, soil under eucalyptus, 36°42'12"N 53°11'14"E, 5 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 16.

***Seira dori* Gruia, Poliakov & Broza, 2000**

General distribution: Mediterranean (Gruia et al., 2000).

Distribution in Iran: Kurdistan (Marivan-Garan) province (Ahmadi et al., 2023).

Subfamily Willowsiinae Yoshii & Suhardjono, 1989

Genus *Drepanosira* Bonet, 1942

***Drepanosira gisini* Nosek, 1964**

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: South Khorasan (Birjand) province (Rabieh et al., 2023).

***Drepanosira hussi* Neuherz 1976**

General distribution: Paleotropical (Baquero et al., 2015).

Distribution in Iran: North Khorasan (Darkesh-Jozak forest) province (Mehrafrooz Mayvan et al., 2022).

Genus *Willowsia* Shoebotham, 1917

***Willowsia bartkei* Stach, 1965**

General distribution: Vietnam (Zhang, 2015).

Distribution in Iran: North Khorasan (Darkesh-Jozak forest) province (Mehrafrooz Mayvan et al., 2022).

Willowsia buski (Lubbock, 1870)**General distribution:** Cosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Kogiluyeh and Boyer-Ahmad (Cheram) province (Falahati Hosseinabad et al., 2011).*Willowsia nigromaculata* (Lubbock, 1873)**General distribution:** Holarctic (Babenko et al., 2019).**Distribution in Iran:** Guilan (Rasht) province (Daghighi et al., 2013).**Family Orchesellidae Börner, 1906****Subfamily Heteromurinae Absolon & Kseneman, 1942****Genus *Heteromurtrella* Mari Mutt, 1979***Heteromurtrella* sp.**Distribution in Iran:** North Khorasan (Golil-Sarany rangeland) province (Mehrafrooz Mayvan et al., 2022).**Genus *Heteromurus* Wankel, 1860***Heteromurus gigans* Mari Mutt & Stomp, 1980**General distribution:** Portugal (Arbea, 2021).**Distribution in Iran:** Kurdistan (Marivan-Pirsafa) and Mazandaran (Babol, Sari) provinces (Ghasemi Cherati, 2017; Yahyapour et al., 2020; Ghasemi Charati et al., 2022; Ahmadi et al., 2023).*Heteromurus major* (Moniez, 1889)**General distribution:** Subcosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Central, East Azarbaijan, Golestan (Gorgan), Guilan (Rasht), Kermanshah (Harsin, Kermanshah, Paveh), Kurdistan (Marivan-Garan, Marivan-Pirsafa), Lorestan, Mazandaran (Babol, Behshahr, Larijan, Neka, Noor, Qaemshahr, Sari, Savadkooh), and Tehran provinces (Cox, 1982; Yahyapour et al., 2011; Daghighi et al., 2013; Qazi & Shayanmehr, 2014; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Balvasi et al., 2015; Hosseini et al., 2016; Mehrafrooz Mayvan et al., 2015; Kahrarian et al., 2014, 2016; Darvish-Motevalli, 2016; Alijani-Ardeshtir et al., 2017; Ghasemi Charati, 2017; Moradi et al., 2018; Bakhshi et al., 2022; Ghasemi Charati et al., 2022; Vahedi Moghadam et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).**Examined material:** Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n>100; Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n>100; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 39; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 62; Sari, Marzrud village, 36°14'20" N, 53°39'10" E, 46 m a.s.l., 18-May-2020, leg. E. Yahyapour, n>100; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n>100; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 99; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 64.*Heteromurus nitidus* (Templeton, 1836) in Templeton & Westwood 1836**General distribution:** Subcosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Golestan (Kordkouy), Guilan, Kermanshah (Harsin), Kohgiluyeh and Boyer-Ahmad, Mazandaran (Babol, Behshahr, Neka, Qaemshahr, Sari, Savadkooh), and North Khorasan (Darkesh-Jozak forest, Golil-Sarany rangeland, Mayvan village) provinces (Cox, 1982; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Hosseini et al., 2016; Kahrarian, 2015; Kahrarian et al., 2014, 2016; Darvish-Motevalli, 2016; Alijani-Ardeshtir et al., 2017; Ghasemi Cherati,

2017; Bakhshi et al., 2022; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Vahedi Moghadam et al., 2022; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 4; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 9; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Heteromurus sexoculatus Brown, 1926

General distribution: Asia Minor (Dányi & Traser 2008).

Distribution in Iran: Mazandaran and Kermanshah (Char Zebar) provinces (Cox, 1982; Kahrarian et al., 2014; Kahrarian, 2015, 2019).

Heteromurus variabilis (Martynova, 1974) in Martynova et al. (1974)

General distribution: Tajikistan (Martynova et al., 1974).

Distribution in Iran: Kermanshah (Patagh, Sar-e-pole-Zahab), Mazandaran (Behshahr, Sari, Savadkooh) and North Khorasan (Darkesh-Jozak forest) provinces (Kahrarian, 2015; Kahrarian et al., 2015; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Vahedi Moghadam et al., 2022; Zamani Khormandichali et al., 2024).

Subfamily Orchesellinae Börner, 1906

Genus Orchesella (Templeton, 1836) in Templeton & Westwood 1836

Orchesella cincta (Linnaeus, 1758)

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Golestan (Kordkuy) and Mazandaran (Babol, Behshahr, Larijan, Neka, Sari, Savadkooh), North Khorasan (Darkesh-Jozak forest, Golil-Sarany rangeland) provinces (Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Balvasi et al., 2015; Hosseini et al., 2016; Yahyapour et al., 2018, 2020; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Vahedi Moghadam et al., 2022).

Examined material: Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 14; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 24; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 14; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 5.

Orchesella flavescens (Bourlet, 1839)

General distribution: Holarctic (Fjellberg, 2007).

Distribution in Iran: North Khorasan (Golil-Sarany rangeland) province (Mehrafrooz Mayvan et al., 2022).

Orchesella spectabilis Tullberg, 1871

General distribution: Palaearctic (Fjellberg 2007).

Distribution in Iran: Mazandaran (Sari) province (Ghasemi Charati, 2017; Ghasemi Charati et al., 2022).

Family Paronellidae Börner, 1913
Subfamily Cyphoderinae Börner, 1913
Genus *Cyphoderus* Nicolet, 1842

Cyphoderus agnotus Börner, 1906

General distribution: Boreal and Neotropical (Lima & Zeppelini, 2021).

Distribution in Iran: Golestan (Gorgan, Kordkuy) province (Hosseini et al., 2016).

Cyphoderus albinus Nicolet, 1842

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Guilan (Rasht), Isfahan (Zarrinshahr), Kerman (Shahdad), Kermanshah (Parviz Khan, Qasr-e-shirin), Khuzestan, Kohgiluyeh and Boyer-Ahmad, Kurdistan (Marivan-Garan), Mazandaran (Babolsar, Qaemshahr), North Khorasan (Darkesh-Jozak forest), and Tehran provinces (Daghighi, 2012; Qazi & Shayanmehr, 2014; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Darvish-Motevalli, 2016; Kahrarian et al., 2016; Abdolalizadeh, 2018; Kahrarian, 2019; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023).

Cyphoderus bidenticulatus Parona, 1888

General distribution: Palaearctic (Thibaud 2017).

Distribution in Iran: Kermanshah (Harsin, Tamark) and Lorestan provinces (Kahrarian, 2015; Kahrarian et al., 2015; Ghavami, 2016).

Family Isotomidae Schäffer, 1896
Subfamily Anurophorinae Börner, 1901
Genus *Anurophorus* Nicolet, 1842

Anurophorus alpinus Potapov & Stebaeva, 1990

General distribution: Caucasus (Potapov, 2001).

Distribution in Iran: Mazandaran (Sari) province (Shayanmehr et al., 2024).

Anurophorus coiffaiti Cassagnau & Delamare, 1955

General distribution: Armenia, Lebanon, Syria (Potapov, 2001).

Distribution in Iran: Golestan (Gorgan), Guilan (Rasht), and Lorestan provinces (Daghighi, 2012; Falahati et al., 2013; Moradi et al., 2018).

Anurophorus septentrionalis Palissa, 1966

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Mazandaran (Amol, Nowshahr) province (Mohammadi Nodehaki & Shayanmehr, 2020).

Anurophorus silvaticus Potapov & Stebaeva, 1990

General distribution: Russia and Caucasus (Potapov, 2001).

Distribution in Iran: Mazandaran (Behshahr, Qaemshahr, Savadkooh) province (Yoosefi Lafooraki et al., 2019; Vahedi Moghadam et al., 2022).

Examined material: Mazandaran province, Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n=3.

Genus *Bagnallella* Salmon, 1951

Bagnallella tenella (Reuter, 1895)

General distribution: Cosmopolitan (Potapov et al., 2021).

Distribution in Iran: Guilan (Rasht) province (Daghighi, 2012; Daghighi et al., 2013).

Genus *Ballistura* Börner, 1906

Ballistura schoetti (Dalla Torre, 1895)

General distribution: Cosmopolitan (Potapov, 2001; Fjellberg, 2007).

Distribution in Iran: Guilan province (Cox, 1982).

Ballistura tuberculata (Stach, 1947)

General distribution: Central, Eastern Europe and N America (Potapov, 2001) and Iran

Distribution in Iran: Khuzestan province (Ramezani & Mossadegh, 2017).

Genus *Ephemerotoma* Potapov, Kahrarian, Deharveng & Shayanmehr, 2015

Ephemerotoma skarzynskii Potapov, Kahrarian, Deharveng & Shayanmehr, 2015

General distribution: Iran (Potapov et al., 2015).

Distribution in Iran: Kermanshah (Cheshmeh Sorkh, Osmanvand) province (Potapov et al., 2015).

Genus *Folsomia* Willem, 1902

Folsomia asiatica Martynova, 1971

General distribution: Tajikistan and Azerbaijan (Potapov, 2001).

Distribution in Iran: Golestan (Azadshahr, Kuhmian), Kermanshah (Paveh, Quri Qual'eh), and Lorestan provinces (Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a; Ahmadi-Rad & Kahrarian, 2015; Yoosefi Lafooraki et al., 2020b).

Folsomia binoculara (Wahlgren, 1899)

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Kermanshah province (Ghahramaninezhad et al., 2013).

Folsomia brevifurca (Bagnall, 1949)

General distribution: Palaearctic (Dányi and Traser, 2008).

Distribution in Iran: Mazandaran province (Cox, 1982).

Folsomia candida (Willem, 1902)

General distribution: Cosmopolitan (Potapov, 2001; Fjellberg, 2007).

Distribution in Iran: Central, East Azarbaijan, Golestan (Aliabad, Azadshahr, Kuhmian), Guilan (Fuman, Rezwanshahr), Kurdistan (Marivan-Pirsafa), and Mazandaran (Abbas-Abad, Sari) provinces (Cox, 1982; Yahyapour, 2012; Yoosefi Lafooraki et al., 2020b; Ahmadi et al., 2023).

Folsomia diplophthalma (Axelson, 1902)

General distribution: Palaearctic (Babenko et al., 2019).

Distribution in Iran: Kerman (Mahan) province (Abdolalizadeh, 2018; Abdolalizadeh et al., 2018).

Folsomia fimetaria (Linnaeus, 1758)

General distribution: Holarctic (Babenko et al., 2019).

Distribution in Iran: Central, Guilan, and Mazandaran provinces (Cox, 1982).

Folsomia inoculata Stach, 1947

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Mazandaran (Sari) province (Yahyapour et al., 2020).

Folsomia ksenemani Stach, 1947

General distribution: Europe, West Caucasus, Lebanon (Potapov, 2001).

Distribution in Iran: Mazandaran (Noor, Savadkooh) and Tehran provinces (Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Qazi and Shayanmehr, 2016).

Folsomia manolachei Bagnall, 1939

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Golestan (Gorgan), Kermanshah, Kurdistan (Marivan-Pirsafa), and Mazandaran (Behshahr) provinces (Arbea & Kahrarian, 2015b; Yoosefi Lafooraki et al., 2020b; Vahedi Moghadam et al., 2022; Ahmadi et al., 2023).

Examined material: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 5; Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 7; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 20.

Folsomia penicula Bagnall, 1939

General distribution: Holarctic (Bellinger et al., 2024).

Distribution in Iran: Central, Guilan (Astaneh-ashrafiyeh, Fuman, Rasht, Rezwanshahr, Rudbar, Shaft), Kermanshah, Kurdistan (Marivan-Pirsafa), Mazandaran (Abbas-Abad, Amol, Behshahr, Chalus, Galugah, Neka, Noor, Nowshahr, Qaemshahr, Sari, Savadkooh, Tonekabon), East Azarbaijan, Golestan (Aliabad, Bandar Gaz), North Khorasan (Darkesh-Jozak forest), and Tehran provinces (Cox, 1982; Falahati et al., 2011; Daghighi, 2012; Falahati et al., 2013; Daghighi et al., 2013; Qazi & Shayanmehr, 2014; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Arbea & Kahrarian, 2015; Yoosefi Lafooraki et al., 2020b; Bakhshi et al., 2022; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran Province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 7; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 9; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 21.

Folsomia quadrioculata (Tullberg, 1871)

General distribution: Subcosmopolitan (Checklist of the Collembola of the World 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Bandar Gaz, Nowkandeh), Guilan (Shaft), Ilam (Choqa-Sabz Forest Park), Kermanshah (Char zabar, Shikh salaeh village, Ghap Gholi village, Sia Khor village), Kurdistan (Marivan-Pirsafa), Lorestan, Mazandaran (Abbas-Abad, Nowshahr), North Khorasan (Darkesh-Jozak forest, Golil-Sarany rangeland), and West Azarbaijan provinces (Cox, 1982; Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a; Moradi et al., 2018; Shayanmehr et al., 2019; Yoosefi Lafooraki et al., 2020b; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023).

Folsomia similis Bagnall, 1939

General distribution: Holarctic (Babenko et al., 2019)

Distribution in Iran: Guilan (Rasht), Kermanshah (Paveh), and Tehran provinces (Moravvej et al., 2007; Daghighi, 2012; Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a).

Folsomia trisetata Jordana & Ardanaz, 1981

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Mazandaran (Neka) province (Bakhshi et al., 2022).

Genus *Folsomides* Stach, 1922

Folsomides angularis (Axelson, 1905)

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Guilan (Rasht, Rudbar, Shaft) and Kurdistan (Marivan-Pirsafa) provinces (Daghighi et al., 2013; Yoosefi Lafooraki et al., 2020b; Ahmadi et al., 2023).

Folsomides halshinicus Arbea & Kahrarian, 2015

General distribution: Iran (Arbea & Kahrarian, 2015a).

Distribution in Iran: Kermanshah (Char zabar, Hassan Abad village, Islam Abad-e Gharb, Shabankareh village, Sia Khor village) and Kurdistan (Marivan-Pirsafa) provinces (Kahrarian, 2015; Ahmadi et al., 2023).

Folsomides marchicus (Frenzel, 1941)

General distribution: Palaearctic (Bellinger et al., 2024).

Distribution in Iran: Ilam (Choqa-Sabz Forest Park, Dalab Forest Park, Gachan Mountains), Kermanshah (Eslamabade-Gharb), Kurdistan (Marivan-Garan, Marivan-Pirsafa), and Lorestan provinces (Kahrarian et al., 2012; Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a; Kahrarian, 2015, 2019; Moradi et al., 2018; Shayanmehr et al., 2019; Ahmadi et al., 2023).

Folsomides parvulus (Starch, 1922)

General distribution: Cosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Gonbade Qabus, Kordkuy, Minudasht), Guilan (Rasht), Kerman (Mahan), Kermanshah (Chahar Zabar-e-Oliya, Harsin), Kurdistan (Marivan-Garan), Lorestan, Mazandaran (Babol, Babolsar, Neka, Qaemshah, Sari, Savadkooh), North Khorasan (Golil-Sarany rangeland), Semnan (Mahdishahr), Tehran, and West Azarbaijan provinces (Cox, 1982; Yahyapour, 2012; Kahrarian et al., 2012; Daghighi, 2012; Daghighi et al., 2013; Qazi & Shayanmehr, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Amiri & Kahrarian, 2015; Kahrarian, 2015; Hosseini et al., 2016; Alijani-Ardeshtir et al., 2017; Arbea & Kahrarian, 2017; Abdolalizadeh, 2018; Moradi et al., 2018; Yoosefi Lafooraki et al., 2020b; Bakhshi et al., 2022; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1.

Folsomides subvinosus Arbea & Kahrarian, 2015

General distribution: Iran (Arbea and Kahrarian, 2015a,b).

Distribution in Iran: Kermanshah (Char zabar, Islam Abad-e Gharb, Shabankareh village, Sia Khor village) province (Arbea & Kahrarian, 2015; Kahrarian, 2015).

Genus *Gnathofolsomia* Deharveng & Christian, 1984

***Gnathofolsomia* sp.**

Distribution in Iran: Kermanshah province (Shayanmehr et al., 2019, 2020).

Genus *Hemisotoma* Bagnall, 1949

Hemisotoma orientalis (Stach, 1947)

General distribution: Ukraine, Kazakhstan, S Siberia, SE France (Potapov, 2001).

Distribution in Iran: Central, East Azarbaijan, Guilan, Kermanshah (Chahar Zebar-e-Oliya, Patagh), Mazandaran, and West Azarbaijan provinces (Cox, 1982; Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a; Kahrarian, 2015).

Hemisotoma pontica Stach, 1947

General distribution: Palaearctic (Bellinger et al., 2024)

Distribution in Iran: Central, East Azarbaijan, Golestan (Aqqala, Bandar Torkmen), Guilan, Ilam (Arghavan Forest Park), Kermanshah, Kurdistan (Marivan-Garan, Marivan-Pirsafa), Lorestan, Mazandaran (Amol, Babol, Mahmood-abad, Qaemshahr, Sari, Simorq), North Khorasan (Darkesh-Jozak forest), Tehran, and West Azarbaijan provinces (Cox, 1982; Moravvej et al., 2007; Kahrarian et al., 2012; Yahyapour, 2012; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Darvish-Motevalli, 2016; Alijani-Ardeshtir et al., 2017; Moradi et al., 2018; Shayanmehr et al., 2019; Yoosefi Lafooraki et al., 2020b; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023).

Hemisotoma quadrioculata (Martynova, 1968): Martynova, 1968a

General distribution: Middle Asia, Tajikistan (Potapov, 2001).

Distribution in Iran: Ilam (Arghavan Forest Park) and Kurdistan (Marivan-Pirsafa) provinces (Shayanmehr et al., 2017; Ahmadi et al., 2023).

Hemisotoma thermophila (Axelson, 1900)

General distribution: Cosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Aqqala, Azadshahr, Galikesh, Gorgan, Kordkuy, Maraveh Tappeh, Minudasht), Guilan (Rasht, Masal), Kermanshah (Derkah village, Shikh salaeh village, Rijab), Mazandaran (Amol, Larijan, Mahmood-abad, Noor), and West Azarbaijan provinces (Cox, 1982; Daghighi, 2012; Daghighi et al., 2013; Yoosefi Lafooraki (2014), Yoosefi Lafooraki & Shayanmehr, 2014a; Balvasi et al., 2015; Arbea & Kahrarian, 2015a; Yoosefi Lafooraki et al., 2020b).

Examined material: Mazandaran province, Sari, Goharbaran seashore, soil under eucalyptus, 36°42'12" N 53°11'14" E, 5 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 1.

Genus *Isotomiella* Bagnall, 1939

Isotomiella gracilimucronata Rusek, 1981

General distribution: Iraq (Potapov, 2001).

Distribution in Iran: North Khorasan (Golil-Sarany rangeland) province (Mehrafrooz Mayvan et al., 2022).

Isotomiella minor (Schäffer, 1896)

General distribution: Cosmopolitan (Bellinger et al., 2024).

Distribution in Iran: East Azarbaijan, Golestan (Ali-abad, Bandar Gaz, Gorgan, Kordkuy, Ramian), Guilan (Fuman, Lahijan, Rasht, Rudsar, Talesh), Kerman (Koohpayeh village), Kermanshah (Shabankareh village, Patagh), Kurdistan (Marivan-Garan), Lorestan, Mazandaran (Abbas-Abad, Amol, Behshahr, Qaemshahr, Neka, Noor, Nowshahr, Sari, Savadkooh), North Khorasan (Golil-Sarany rangeland), and Tehran provinces (Cox, 1982; Moravvej et al., 2007; Yahyapour, 2012; Daghighi, 2012; Ghahramaninezhad et al., 2013; Daghighi et al., 2013; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Amiri & Kahrarian, 2015; Arbea & Kahrarian 2015a; Kahrarian, 2015, 2019; Hosseini et al., 2016; Ghasemi Charati, 2017; Abdolalizadeh, 2018; Moradi et al., 2018; Yoosefi Lafooraki et al., 2020b; Bakhshi et al., 2022; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Examined material: Mazandaran Province, Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Genus *Proisotoma* Börner, 1903

***Proisotoma minima* Absolon, 1901**

General distribution: Holarctic with some records from the southern hemisphere (Babenko et al. 2019).

Distribution in Iran: Golestan (Golestan National Park) and Mazandaran (Sari) provinces (Yoosefi Lafooraki & Shayanmehr, 2014; Yahyapour et al., 2020).

***Proisotoma minuta* (Tullberg, 1871)**

General distribution: Cosmopolitan (Babenko et al., 2019).

Distribution in Iran: Central, East Azarbaijan, Golestan (Kordkuy, Palangpa forest), Guilan (Parehsar, Rasht, Rezwanshahr, Rudbar), Isfahan, Mazandaran (Chalus, Larijan, Mahmoodabad), and West Azarbaijan provinces (Cox, 1982; Nematollahi et al., 2009; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Balvasi et al., 2015; Hosseini et al., 2016; Yoosefi Lafooraki et al., 2020b).

***Proisotoma subminuta* Denis, 1931**

General distribution: Cosmopolitan (Fjellberg, 2007).

Distribution in Iran: Golestan, Guilan (Rasht), Mazandaran (Amol), and Tehran provinces (Moravvej et al., 2007; Daghighi, 2012; Daghighi et al., 2013; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Yoosefi Lafooraki et al., 2020b).

Genus *Subisotoma* (Stach, 1947)

***Subisotoma variabilis* (Gisin, 1949)**

General distribution: Switzerland, Austria, Poland, Slovakia, France, Iberian Peninsula, Siberia, Kazakhstan, and Central Asia (Potapov, 2001).

Distribution in Iran: Kermanshah (Patagh, Sar-e-pole-Zahab) province (Kahrarian, 2015; Kahrarian et al., 2015).

Subfamily Isotominae Schäffer, 1896

Genus *Agrenia* Börner, 1906

***Agrenia* sp.**

Distribution in Iran: North Khorasan (Zoeram village) province (Mehrafrooz Mayvan et al., 2022).

Genus *Desoria* Agassiz & Nicolet, 1841 in Desor (1841)

***Desoria neglecta* (Schäffer, 1900)**

General distribution: Holarctic (Fjellberg, 2007).

Distribution in Iran: Kurdistan (Marivan-Pirsafa), Lorestan, and Mazandaran (Savadkooh) provinces (Moradi et al., 2018; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Desoria kaszabi* Dunger, 1982

General distribution: Palearctic (Bellinger et al., 2024).

Distribution in Iran: This species is recorded for the first time from Iran.

Examined material: Mazandaran province, Sari, Marzrud village, 36°14'20" N, 53°39'10" E, 46 m a.s.l., 18-May-2020, leg. E. Yahyapour, n=47; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l.,

20-May-2020, leg. E. Yahyapour, n= 4; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 2.

Desoria olivacea (Tullberg, 1871)

General distribution: Holarctic (Fjellberg, 2007).

Distribution in Iran: East Azarbaijan province (Cox, 1982).

Desoria tigrina Nicolet, 1842

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Kermanshah (Derkah) and Lorestan provinces (Kahrarian et al., 2012; Kahrarian, 2015; Kahrarian & Arbea, 2015; Arbea & Kahrarian, 2015a; Kahrarian, 2019; Moradi et al., 2018).

Desoria trispinata (MacGillivray, 1896)

General distribution: Cosmopolitan (Babenko et al., 2019).

Distribution in Iran: North Khorasan (Darkesh-Jozak forest) province (Mehrafrouz Mayvan et al., 2022).

Desoria zlotini Martynova, 1968: Martynova, 1968b

General distribution: Kirghisia, Tajikistan, Mongolia (Potapov, 2001).

Distribution in Iran: Kermanshah (Osmanevad, Sragool village) province (Amiri & Kahrarian, 2015; Kahrarian et al., 2015).

Genus *Isotoma* Bourlet, 1839

Isotoma anglicana Lubbock, 1862

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Ilam (Arghavan Forest Park, Dalab Forest Park, Gachan Mountain) province (Shaynmehr et al., 2017).

Additional localities: Mazandaran province, Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 2; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 2.

Isotoma iranica Arbea & Kahrarian, 2015

General distribution: Iran (Arbea and Kahrarian, 2015b).

Distribution in Iran: Golestan (Galikesh, Minudasht, Ramian), Kermanshah (Paveh, Shahu city), Lorestan, and Mazandaran (Savadkooh) provinces (Arbea & Kahrarian, 2015a; Moradi et al., 2018; Yoosefi Lafooraki et al., 2020b; Zamani Khormandichali et al., 2024).

Additional localities: Mazandaran province, Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Isotoma cf. riparia (Nicolet, 1842)

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Mazandaran (Babol) province (Alijani-Ardeshtir et al., 2017).

Isotoma viridis Bourlet, 1839

General distribution: Holarctic (Babenko et al., 2019).

Distribution in Iran: Central, East Azarbaijan, Golestan (Golestan National Park), Kermanshah (Paveh, Shabankareh), Kurdistan (Marivan-Garan, Marivan-Pirsafa), Mazandaran (Babol, Sari), North Khorasan (Darkesh-Jozak forest), and West Azarbaijan provinces (Cox, 1982; Yahyapour, 2012; Amiri & Kahrarian, 2015; Kahrarian, 2015, 2019; Alijani-Ardeshtir et al., 2017; Mehrafrouz Mayvan et al., 2022; Ahmadi et al., 2023).

Genus *Isotomodella* Martynova, 1968***Isotomodella alticola*** (Bagnall, 1949)**General distribution:** Palaearctic (Fjellberg, 2007).**Distribution in Iran:** Lorestan (Khoram-Abad, Veysian, Delbar Sadat village) province (Shayanmehr et al., 2018).**Genus *Isotomodes* Axelson, 1907*****Isotomodes golestanii*** Yoosefi Lafooraki, Hajizadeh, Shayanmehr & Hosseini, 2020**General distribution:** Iran (Yoosefi Lafooraki et al., 2020b).**Distribution in Iran:** Golestan (Gonbade Qabus) province (Yoosefi Lafooraki et al., 2020b).***Isotomodes korkorensis*** Arbea & Kahrarian, 2015**General distribution:** Iran (Arbea & Kahrarian, 2015b).**Distribution in Iran:** Kermanshah (Char zabar, Kor Kor Mountain) province (Arbea & Kahrarian, 2015a).**Genus *Isotomurus* Börner, 1903*****Isotomurus afghanicus*** Yosii, 1966**General distribution:** Iran and Afghanistan (Yoosefi Lafooraki et al., 2023).**Distribution in Iran:** Mazandaran (Amol, Mahmood-Abad, Neka, Noor, Nowshahr, Sari) province (Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Bakhshi et al., 2022; Yoosefi Lafooraki et al., 2023).**Additional localities:** Mazandaran province, Sari, Marzrud village, 36°14'20" N, 53°39'10" E, 46 m a.s.l., 18-May-2020, leg. E. Yahyapour, n= 76; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 14; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 13; Sari, Dashtenaz forest, 36°42'10" N, 53°09'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 6.***Isotomurus antennalis*** Bagnall, 1940**General distribution:** Palaearctic (Potapov, 2001).**Distribution in Iran:** Mazandaran (Babol) province (Alijani-Ardeshtir et al., 2017).***Isotomurus cf. balteatus*** (Reuter, 1876)**General distribution:** Unclear (revision needed) (Fjellberg, 2007).**Distribution in Iran:** Golestan (Kordkuy) province (Hosseini et al., 2016).***Isotomurus cassagnai*** Deharveg & Lek, 1993**General distribution:** France (Thibaud, 2017).**Distribution in Iran:** Mazandaran (Sari) province (Zamani, 2016).***Isotomurus fucicola*** (Schött, 1893)**General distribution:** Subcosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Mazandaran (Qaemshahr) province (Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014).**Additional localities:** Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 3; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Isotomurus graminis Fjellberg, 2007**General distribution:** Palaearctic (Bellinger et al., 2024).**Distribution in Iran:** North Khorasan (Golil-Sarany rangeland) province (Mehrafrooz Mayvan & Greenslade, 2020; Mehrafrooz Mayvan et al., 2022).*Isotomurus hyrcanicus* Yoosefi Lafooraki & Shayanmehr, 2023 in Yoosefi Lafooraki et al. (2023)**General distribution:** Iran (Yoosefi Lafooraki et al., 2023).**Distribution in Iran:** Golestan (Bandar Gaz, Bandar Torkaman) and Mazandaran (Sari, Savadkooh) provinces (Yoosefi Lafooraki et al., 2023; Zamani Khormandichali et al., 2024).*Isotomurus katule* Yoosefi Lafooraki & Shayanmehr, 2023 in Yoosefi Lafooraki et al. (2023)**General distribution:** Iran (Yoosefi Lafooraki et al., 2023).**Distribution in Iran:** Golestan (Aliabad-e katul) and Mazandaran (Savadkooh) provinces (Yoosefi Lafooraki et al., 2023; Zamani Khormandichali et al., 2024).*Isotomurus maculatus* (Schäffer, 1896)**General distribution:** unclear (revision needed) (Fjellberg, 2007).**Distribution in Iran:** Golestan (Gorgan) and Mazandaran (Sari) provinces (Falahati et al., 2011, 2013; Yoosefi Lafooraki et al., 2023).*Isotomurus matanicus* Shayanmehr, Yoosefi & Zamani, 2024 in Zamani Khormandichali et al. 2024**General distribution:** Iran (Zamani Khormandichali et al., 2024).**Distribution in Iran:** Mazandaran (Savadkooh) province (Zamani Khormandichali et al., 2024).*Isotomurus palustris* (Müller, 1776)**General distribution:** Cosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Central, Golestan (Kordkuy, Palangpa forest, Imam Reza forest), Guilan, Khuzestan, and Mazandaran (Sari) provinces (Cox, 1982; Hosseini et al., 2016; Zamani, 2016; Ramezani & Mossadegh, 2017).

Additional localities: Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2; Sari, Marzrud village, 36°14'20" N, 53°39'10" E, 46 m a.s.l., 18-May-2020, leg. E. Yahyapour, n= 2; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Isotomurus potapovi Yoosefi Lafooraki & Shayanmehr, 2023 in Yoosefi Lafooraki et al. (2023)**General distribution:** Iran (Yoosefi Lafooraki et al., 2023).**Distribution in Iran:** Golestan (Bandar Gaz, Kordkuy), Guilan (Amlash, Falakdeh, Ostad-Kalayeh, Rasht, Roodbar), and Mazandaran (Abbas-Abad, Savadkooh, Tonekabon) provinces (Yoosefi Lafooraki et al., 2023; Zamani Khormandichali et al., 2024).*Isotomurus punctiferus* Yosii, 1963**General distribution:** Palaearctic (Bellinger et al., 2024).**Distribution in Iran:** Golestan (Gorgan) and Guilan (Rasht) provinces (Falahati et al., 2013; Daghighi et al., 2013; Yoosefi Lafooraki et al., 2023).

Additional localities: Mazandaran province, Sari, rice field, 36°42'10" N, 53°10'12" E, 11 m a.s.l., 12-May-2020, leg. E. Yahyapour, n= 30.

Isotomurus stuxbergi (Tullberg, 1876)**General distribution:** Holarctic (Babenko et al., 2019).**Distribution in Iran:** Mazandaran (Qaemshahr) province (Darvish-Motevalli, 2016).

Genus *Pachyotoma* Bagnall, 1949***Pachyotoma* sp.**

Distribution in Iran: Kermanshah province (Amiri & Kahrarian, 2015).

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

General distribution: Cosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan (Aliabd, Bandar Gaz, Bandar Torkmen, Golestan National Park, Kalaleh, Kordkuy, Maraveh Tappe, Palangpa forest), Guilan (Astaneh-ashrafiyeh, Fuman, Langrud, Rasht, Rezwanshahr, Rudbar, Rudsar, Shaft, Somesara, Talesh), Kerman (Mahan, Shahdad), Kermanshah (Patagh, Shabankareh villag), Kermanshah, Khuzestan, Kurdistan (Marivan-Garan, Marivan-Pirsafa), Lorestan, Mazandaran (Behshahr, Chalus, Galugah, Qaemshahr, Kodirsar, Mahmood-Abad, Neka, Noor, Nowshahr, Royan, Savadkooh), North Khorasan (Darkesh-Jozak forest, Gelyan village, Golil-Sarany rangeland), Tehran, West Azarbaijan, and Zanzan provinces (Cox, 1982; Moravvej et al., 2007; Kahrarian et al., 2012; Daghighi et al., 2013; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a; Kahrarian, 2015, 2019; Hosseini et al., 2016; Ramezani & Mossadegh, 2017; Abdolalizadeh, 2018; Moradi et al., 2018; Yoosefi Lafooraki et al., 2020; Bakhshi et al., 2022; Mehrafrooz Mayvan et al., 2022; Ahmadi et al., 2023; Zamani Khormandichali et al., 2024).

Additional localities: Mazandaran province, Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 3; Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 46; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 16; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 15; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 56; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 3; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 13.

Genus *Pseudisotoma* Handschin, 1924***Pseudisotoma sensibilis* (Tullberg, 1876)**

General distribution: Palaearctic (Fjellberg, 2007).

Distribution in Iran: Kurdistan (Marivan-Garan, Marivan-Pirsafa) and Mazandaran (Noor, Royan) provinces (Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Ahmadi et al., 2023).

Genus *Vertagopus* Börner, 1906***Vertagopus persicus* Potapov, Yoosefi & Shayanmehr, 2020 in Yoosefi Lafooraki et al. 2020a**

General distribution: West Asia (Bellinger et al., 2024).

Distribution in Iran: Golestan (Nokandeh), Guilan (Shaft), and Mazandaran (Abbas-Abad) provinces (Yoosefi Lafooraki et al., 2020a).

Additional localities: Mazandaran Province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 24; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 2; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 10.

Family Oncopoduridae Carl & Lebedinsky, 1905**Genus *Oncopodura* Carl & Lebedinsky, 1905***Oncopodura ambigua* Christiansen, 1957**General distribution:** Lebanon (Christiansen, 1957).**Distribution in Iran:** Guilan and Mazandaran provinces (Cox, 1982).*Oncopodura hamata* Carl & Lebedinsky, 1905**General distribution:** Europe (Arbea, 2021).**Distribution in Iran:** Guilan province (Daghighi, 2012).**Family Tomoceridae Schäffer, 1896****Genus *Pogonognathellus* Paclt, 1944***Pogonognathellus flavescens* (Tullberg, 1871) (Figure 2)**General distribution:** Palaearctic and Nearctic (Babenko et al., 2019).**Distribution in Iran:** Mazandaran (Babol, Neka, Sari, Tonekabon) province (Yahyapour et al., 2018).**Genus *Tomocerina* Yosii, 1955***Tomocerina minuta* (Tullberg, 1876) (Figure 3B)**General distribution:** Subcosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Mazandaran (Neka, Sari) province (Yahyapour et al., 2021; Bakhshi et al., 2022).**Examined material:** Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 8; Behshahr, Zenget village, Hezarjirib forest, 36°25'15" N, 53°34'16" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Neka, Lemon village, Hezarjirib forest, 36°27'18" N, 53°34'04" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 10; Neka, Sapelmiun village, 36°23'11" N, 53°34'18" E, 1057 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 8; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 60; Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 17.**Genus *Tomocerus* Nicolet, 1842***Tomocerus asiaticus* Martynova 1969***General distribution:** West and Central Asia (Bellinger et al., 2024).**Distribution in Iran:** The species is reported for the first time from Iran.

Additional localities: Mazandaran province, Sari, Zarrin-Abad forest, 36°32'44" N, 53°07'53" E, 113 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1; Sari, Dashtenaz forest, 36°42'10" N, 53°9'11" E, 11 m a.s.l., 20-May-2020, leg. E. Yahyapour, n= 1.

Tomocerus minor (Lubbock, 1862) (Figure 4A)**General distribution:** Subcosmopolitan (Bellinger et al., 2024).**Distribution in Iran:** Central, East Azarbaijan, Golestan, Guilan, Kerman, Mazandaran, and Zanjan provinces (Cox, 1982; Hosseini et al., 2016; Abdolalizadeh, 2018).**Examined material:** Mazandaran province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 4.



FIGURE 2. Inner side of dens with a broad pointed scale near base base in *Pogonognathellus flavescens* (Yahyapour et al., 2018).

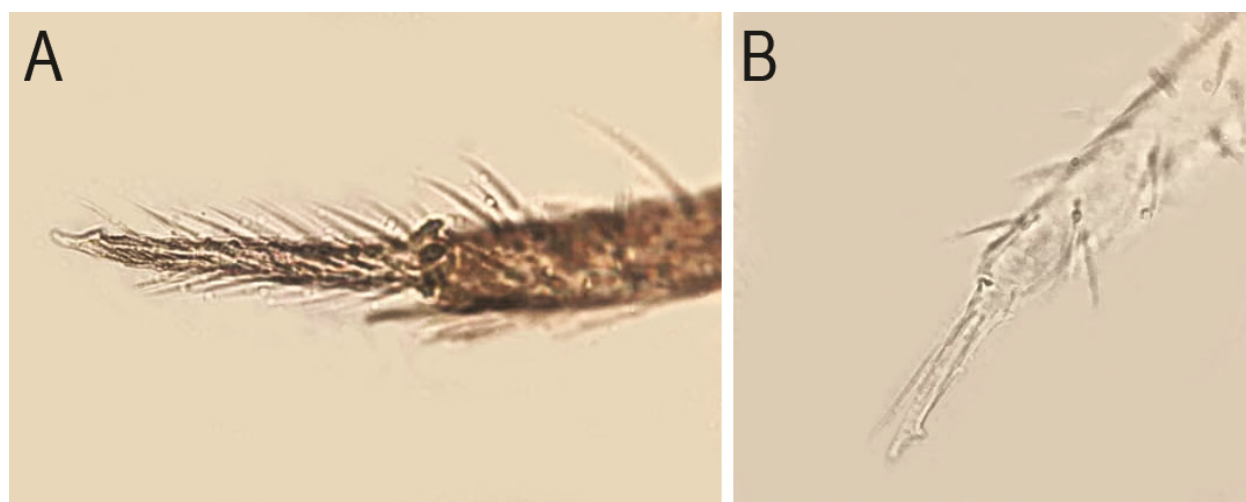


FIGURE 3. A) Mucro with two dorsal lamella, mid-section of mucro with more than three teeth in *Tomocerus vulgaris*, B) Mid-section of mucro at most with three teeth in *Tomocerina minuta* (Magnification 40X).

Tomocerus vulgaris (Tullberg, 1871) (Figure 3B, 4B)

General distribution: Subcosmopolitan (Bellinger et al., 2024).

Distribution in Iran: Central, East Azarbaijan, Golestan, Guilan, Kermanshah, Mazandaran (Behshahr, Sari, Tonekabon), North Khorasan (Darkesh-Jozak forest), and Zanzan provinces (Cox, 1982; Yoosefi Lafooraki, 2014; Yoosefi Lafooraki & Shayanmehr, 2014; Balvasi et al., 2015; Kahrarian, 2015; Kahrarian et al., 2014, 2015; Hosseini et al., 2016; Alijani-Ardeshtir et al., 2017; Yahyapour et al., 2020; Ghasemi Charati et al., 2022; Mehrafrooz Mayvan et al., 2022; Vahedi Moghadam et al., 2022).

Examined material: Mazandaran Province, Behshahr, Rudbar village, Hezarjirib forest, 36°27'18" N, 53°34'47" E, 46 m a.s.l., 10-May-2020, leg. E. Yahyapour, n= 1; Sari, Abmal forest, 36°42'52" N, 53°06'00" E, 10 m a.s.l., 24-May-2020, leg. E. Yahyapour, n= 1.

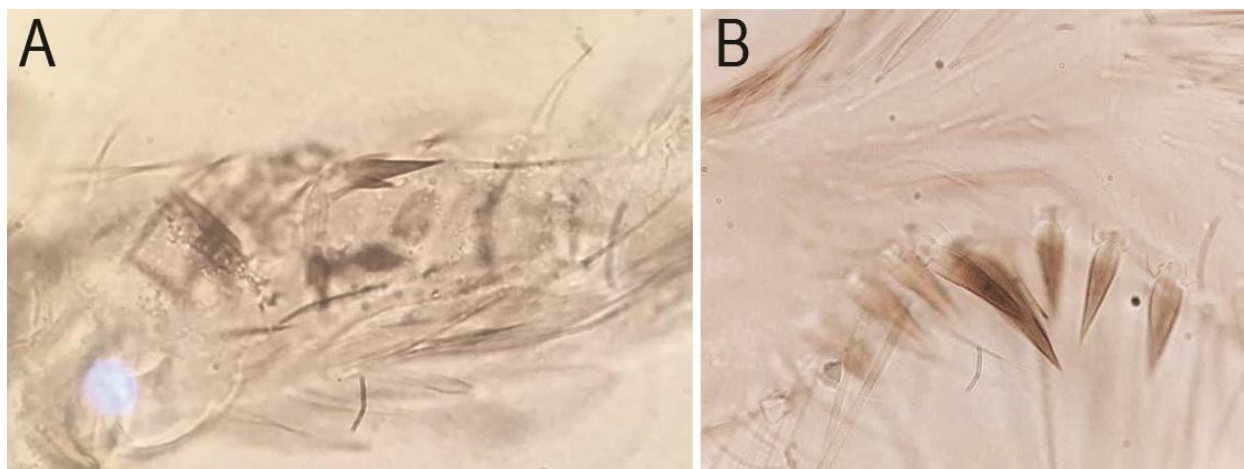


FIGURE 4. A) Dorsal spines of dens 3-forked in *Tomocerus minor*, B) Simple spines on dorsal side of dens in *Tomocerus vulgaris* (Magnification 100X).

Key to species of Tomoceridae family in Iran (according to Fjellberg, 2007):

- 1- Inner side of dens with a broad pointed scale near base (Fig. 3). Basolateral field of labium with more than five setae. Mucro with one dorsal lamella *ogonognathellus flavescens* (Tullberg, 1871)
- Inner side of dens without broad scale. Basolateral field of labium with 5 setae. Mucro with two dorsal lamella (Fig. 4), the outer one with small teeth 2
- 2- All tibiotarsi with several differentiated macrochaetae on inner side. Mid-section of mucro with more than 3 teeth (Fig. 4), outer basal tooth with a small secondary tooth *Tomocerus* Nicolet 3
- Tibiotarsi 1-2 without, tib. 3 with one inner macrochaetae. Mid-section of mucro at most with 3 teeth (Fig. 5), outer basal tooth simple *Tomocerina minuta* (Tullberg, 1876)
- 3- Dorsal spines of dens 3-forked (Fig. 6) *Tomocerus minor*
- Dorsal spines of dens simple (Fig. 7) 4
- 4- Empodium without teeth *Tomocerus asiaticus*
- Empodium with one inner tooth *Tomocerus vulgaris*

DISCUSSION

Our comprehensive study documents 139 species from 41 genera across six families of Entomobryomorpha in Iran, including three newly reported species. The family-level diversity shows Isotomidae as the most speciose (69 species, 21 genera), followed by Entomobryidae (51 species, 12 genera), Orchesellidae (9 species, 3 genera), Tomoceridae (5 species, 3 genera), Paronellidae (3 species, 1 genus), and Oncopoduridae (2 species, 1 genus). A particularly noteworthy finding emerges when comparing our results with the previous checklist by Shayanmehr et al. (2020). In just five years, we've witnessed remarkable growth in documented Entomobryomorpha diversity: from 34 to 105 species (309% increase) in the Isotomidae family, from 34 total species reported in 2020 to 139 species currently known, 2.9-fold increase in recorded species richness, and 15 new genera added to Iran's fauna. This dramatic expansion can be attributed to intensive sampling in previously unexplored regions and re-examination of historical collections.

The rapid discovery rate suggests Iran likely represents a biodiversity hotspot for Collembola and many species remain to be discovered. Therefore we recommend targeted sampling in understudied ecoregions and development of regional identification keys. This study establishes a new baseline for understanding Collembola diversity in Western Asia and highlights the importance of sustained taxonomic research on microarthropods.

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