



The checklist of Collembola (Hexapoda, Arthropoda) from west of Iran

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ABSTRACT. In this study, the list of Collembola from west of Iran and collection information such as study site, habitats, e.g. soils, grasslands, leaf-litter, vegetation, snowfields, etc., and collectors has been presented between years 2013-2018. Moreover some samples were collected and the identified by the author during 2017-2018. In the last case, Collembolans were extracted using the respirator or Berlese funnels. When greater clearing was required, Nesbitt's solution (40g chloral hydrate, 25 mL distilled water, and 2.5 mL concentrated acetic acid) was used for heavily pigmented specimens. In the first Iranian checklist of Collembola published in 2013, 17 species, 15 genera and seven families were introduced from west of Iran. After review and analysis of the available literature and the examination of samples collected by the author from west of Iran, were listed 88 species, belonging to 42 genera, 16 families and four orders. The genus *Entomobrya* and *Folsomia* are having highest number of species for analyzed region. An up-to-date systematic checklist of Collembolans has been provided.

Key words: Springtail, Species list, Western part of Iran

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Introduction

According the checklist of Iranian Collembola published in 2013, most recorded collembolan was introduced from northern parts of Iran (Shayanmehr et al., 2013) But in recent years the study of Collembola fauna in west of Iran also increased (Kahrarian et al., 2012, 2013, 2014a, 2014b; Kahrarian, 2012, 2017; Arebea & Kahrarian, 2015a, 2015b; Smolis et al., 2016a, 2016b).

The western part of Iran has moderate and warm climate, which borders with the

two countries of Iraq and Turkey. It comprised five major provinces: Kurdistan, Kermanshah, Ilam, Lorestan and Hamedan (Kahrarian, 2017). The first report of Collembola from west of Iran was from Entomobryidae which published in 2011 (Kahrarian et al., 2012). After that the number of reported species from this area were increased whereas in 2013, 17 species, 15 genera and seven families were recorded (Shayanmehr et al., 2013).

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Even until 2013, 12 new species were described to west of Iran: *Hypogastrura persica* sp. nov. (Kahrarian et al., 2013); *Isotoma iranica* sp. nov. and *Isotomodes korkorensis* sp. nov. (Arbea & Kahrarian, 2015a); *Folsomides halshinicus* sp. nov. and *Folsomides subvinosus* sp. nov. (Arbea & Kahrarian, 2015b); *Ephemerotoma skarzynskii* sp. nov. (Potapov et al., 2015); *Endonura dicaeta* sp. nov. *Endonura ceratolabralis* sp. nov. and *Endonura Persica* sp. nov. (Smolis et al., 2016a); *Protaphorura persica* sp. nov. (Arbea & Kahrarian, 2017); *Heteraphorura iranica* sp. nov. and *Spinonychiurus persicus* sp. nov. (Kaprus et al., 2017). The objective of this paper is to present the first checklist of the Collembola fauna from west of Iran.

Material and methods

The new checklist of Collembola from west of Iran was made based on the published literatures between years 2013 to 2018 and

unreported species of collembolan that have been collected by the author from different regions of Kermanshah and Lorestan provinces during 2017–2018 years (Fig. 1). In the latter state, several samples were taken from diverse habitats of Kermanshah, Lorestan and Kurdistan province like, soils, grasslands, leaf-litter, etc. Collembola were extracted using the respirator or Berlese funnels. When greater clearing was required, Nesbitt's solution (40g chloral hydrate, 25 mL distilled water, and 2.5 mL concentrated acetic acid) was used for heavily pigmented specimens (Jordana, 2012). The species were listed according to the system of Bellinger et al. (1996-2019), including the orders, the families, genera and the species.

For the new represented species in the list the general geographic distribution in the world and Iran and the resources are given. Records are updated to 28.08.2018.



Figure 1. The map of western provinces of Iran. ●: Region including collection points.

Results

After last checklist from Iran (2013) which including 17 species from west of Iran (Shayanmehr et al., 2013), the new update checklist comprised 71 species 28 genera and nine families. By adding these 71 species to previous, the total number of species from west of Iran reached to 88 species. These 88 species belonging to 43

genera and 16 families. The highest frequency percentage of species, (47.8%) was from order Entomobryomorpha, and after that orders Poduromorpha (42%) was placed (Fig. 2). Moreover, most total recorded of species and genera belong to families Isotomidae (26 species and 12 genera) and Onychiuridae (13 species and 7 genera).

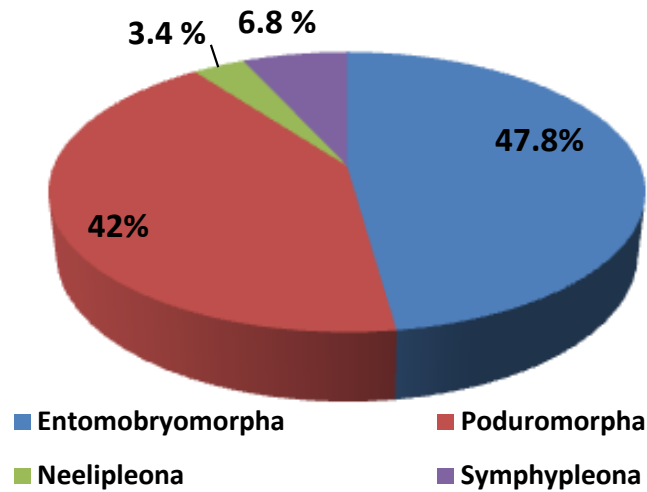


Figure 2. The frequency percentage of the different species of Collembola for each order.

Table 1. Checklist of Collembola from the western Iran. ** New for Science, * New for Iranian fauna.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Entomobryomorpha Börner, 1913		
Family: Lepidocyrtidae Wahlgren, 1906		
Genus: Cyphoderus Nicolet, 1842		
<i>Cyphoderus albinus</i> Nicolet, 1842	Kermanshah (Kahrarian et al., 2016a)	Soil (Elm tree)
<i>Cyphoderus bidenticulatus</i> * (Parona, 1888)	Kermanshah (Kahrarian et al., 2016a)	Soil (Elm tree)
Family: Entomobryidae Schäffer, 1896		
Genus: Drepanura Schött, 1897		
<i>Drepanura</i> sp.	Kermanshah (Kahrarian et al., 2014b)	Soil (Straw)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Genus: Entomobrya Rondani, 1861		
<i>Entomobrya atrocincta</i> Schött, 1897	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter (Oak jungle)
<i>Entomobrya handschini</i> Stach, 1922	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter
<i>Entomobrya lindbergi</i> Stach, 1960	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
<i>Entomobrya mesopotamica</i> Rusek, 1971	Kermanshah (Kahrarian et al., 2014b)	Soil (Walnut tree)
<i>Entomobrya nigrocincta</i> Denis, 1923	Kermanshah (Kahrarian et al., 2014b; Kahrarian et al., 2016a)	Soil (Elm tree)
<i>Entomobrya schoetti</i> * Stach, 1922	Kermanshah (Kahrarian et al., 2014b)	Soil (Apple tree)
Genus: Prodrepanura Stach, 1963		
<i>Prodrepanura</i> sp.	Kermanshah (Kahrarian et al., 2012)	Soil & Leaf litter
Genus: Pseudosinella Schäffer, 1897		
<i>Pseudosinella baghdadica</i> * Rusek, 1981	Kermanshah (Kahrarian et al., 2014b; Kahrarian et al., 2016a)	Soil (Walnut and Cherry tree)
<i>Pseudosinella octopunctata</i> Börner, 1901	Kermanshah (Kahrarian et al., 2014b, Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle), Grassland
<i>Pseudosinella sexoculata</i> (Schött, 1902)	Kermanshah (Shayanmehr et al., 2013)	Soil (Buttonwood)
Genus: Seira Lubbock, 1870		
<i>Seira domestica</i> (Nicolet, 1842)	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter (Oak jungle)
Family: Isotomidae Schäffer, 1896		
Genus: Anurophorus Nicolet, 1842		
<i>Anurophorus coiffaiti</i> Cassagnau & Delamare, 1955	Lorestan (present work)	Soil & Leaf litter (Oak jungle)
Genus: Desoria Nicolet, 1841		
<i>Desoria tigrina</i> Nicolet, 1842	Kermanshah (Shayanmehr et al., 2013) Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter (Pine & Oak)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
<i>Desoria zlotini</i> * Martynova, 1968	Kermanshah (Amiri & Kahrarian 2015, Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
Genus: <i>Ephemerotoma</i>** Potapov et al., 2015		
<i>Ephemerotoma skarzynskii</i> ** Potapov et al., 2015	Kermanshah (Potapov et al., 2015)	Soil & Leaf litter (Oak jungle)
Genus: <i>Folsomia</i> Willem, 1902		
<i>Folsomia asiatica</i> * Martynova, 1971	Kermanshah (Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a), Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter (Pine and Oak)
<i>Folsomia binocolata</i> (Wahlgren, 1899)	Kermanshah (Shayanmehr et al., 2013; Amiri & Kahrarian, 2015)	Soil & Leaf litter
<i>Folsomia manolachei</i> * Bagnall, 1939	Kermanshah (Arbea & Kahrarian, 2015a)	Soil (Cave)
<i>Folsomia penicula</i> Bagnall, 1939	Kermanshah (Arbea & Kahrarian, 2015a)	Soil (Walnut), Grassland
<i>Folsomia quadrioculata</i> (Tullberg, 1871)	Kermanshah (Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a); Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter (Oak jungle)
<i>Folsomia similis</i> Bagnall, 1939	Kermanshah (Amiri & Kahrarian, 2015; Arbea & Kahrarian, 2015a), Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter (Oak jungle)
Genus: <i>Folsomides</i> Stach, 1922		
<i>Folsomides halshinicus</i> ** Arbea & Kahrarian, 2015	Kermanshah (Arbea & Kahrarian, 2015a, 2015b)	Grassland, Soil & Leaf litter (Oak jungle)
<i>Folsomides marchicus</i> (Frenzel, 1941)	Kermanshah (Kahrarian & Arbea, 2013; Shayanmehr et al., 2013; Amiri & Kahrarian, 2015), Lorestan (Rad & Kahrarian, 2015)	Grassland, Soil & Leaf litter (Oak jungle)
<i>Folsomides parvulus</i> Stach, 1922	Kermanshah (Arbea & Kahrarian, 2015b)	Cave, Grassland, Soil & Leaf litter (Oak jungle)
<i>Folsomides subvinosus</i> ** Arbea & Kahrarian, 2015	Kermanshah (Arbea & Kahrarian, 2015b; Amiri & Kahrarian, 2015)	Grassland, Soil & Leaf litter (Oak jungle)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Genus: <i>Hemisotoma</i> Bagnall, 1949		
<i>Hemisotoma orientalis</i> (Stach, 1947)	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter
<i>Hemisotoma pontica</i> Stach, 1947	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter
<i>Hemisotoma quadrioculatus</i> * Martynova, 1967	Ilam (Shayanmehr et al., 2017)	Soil & Leaf litter
<i>Hemisotoma thermophila</i> (Axelson, 1900)	Kermanshah (Arbea & Kahrarian, 2015a)	Leaf litter (Oak jungle)
Genus: <i>Isotoma</i> Bourlet, 1839		
<i>Isotoma iranica</i> ** Arbea & Kahrarian, 2015	Kermanshah (Arbea & Kahrarian, 2015a)	Soil & Leaf litter (Oak jungle)
<i>Isotoma anglicana</i> * Lubbock, 1862	Ilam (Shayanmehr et al., 2017)	Soil & leaf litter (pine tree)
<i>Isotoma viridis</i> Bourlet, 1839	Kermanshah (Amiri & Kahrarian, 2015; Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
Genus: <i>Isotomodes</i> Axelson, 1907		
<i>Isotomodes korkorensis</i> ** Arbea & Kahrarian, 2015	Kermanshah (Arbea & Kahrarian, 2015a)	Grassland, Soil & Leaf litter (Oak jungle)
Genus: <i>Isotomiella</i> Bagnall, 1939		
<i>Isotomiella minor</i> (Schäffer, 1896)	Kermanshah (Shayanmehr et al., 2013); Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter (Oak jungle)
Genus: <i>Parisotoma</i> Bagnall, 1940		
<i>Parisotoma notabilis</i> (Schäffer, 1896)	Kermansha (Shayanmehr et al., 2013); Lorestan (Rad & Kahrarian, 2015)	Soil & Leaf litter
Genus: <i>Subisotoma</i> Stach, 1947		
<i>Subisotoma variabilis</i> * (Gisin, 1949)	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter
Genus: <i>Proisotoma</i> Börner, 1901		
<i>Proisotoma tenella</i> * (Reuter, 1895)	Lorestan (present work)	Soil & Leaf litter

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Family: Orchesellidae Börner 1906		
Genus: <i>Heteromurus</i> Wankel, 1860		
<i>Heteromurus major</i> (Moniez, 1889)	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
<i>Heteromurus nitidus</i> (Templeton, 1836)	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
<i>Heteromurus sexoculatus</i> Brown, 1926	Kermanshah (Kahrarian et al., 2014b; 2016a)	Soil & Leaf litter (Oak jungle)
Family: Tomoceridae Schäffer, 1896		
Genus: <i>Tomocerus</i> Nicolet, 1842		
<i>Tomocerus vulgaris</i> (Tullberg, 1871)	Kermanshah (Kahrarian et al., 2016a)	Soil & Leaf litter (Oak jungle)
Order: Poduromorpha Börner, 1913		
Family: Hypogastruridae Börner, 1906		
Genus: <i>Ceratophysella</i> Börner, 1932		
<i>Ceratophysella armata</i> (Nicolet, 1841)	Kermanshah (present work)	Soil & Leaf litter
<i>Ceratophysella denticulata</i> (Bagnall, 1941)	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter (Pine & Oak tree)
<i>Ceratophysella stercoraria</i> Stach, 1963	Kermanshah, Marivan (Shayanmehr et al., 2013)	Soil & Leaf litter (Pine & Oak tree)
<i>Ceratophysella gibbosa</i> (Bagnall, 1940)	Kermanshah, Marivan (present work)	Soil & Leaf litter (Oak jungle)
Genus: <i>Hypogastrura</i> Bourlet, 1839		
<i>Hypogastrura manubrialis</i> (Tullberg, 1869)	Kermanshah (present work)	Soil & Leaf litter
<i>Hypogastrura martiani</i> * Skarzynski & Kaprus, 2009	Kermanshah (Kahrarian et al., 2013)	Soil & Leaf litter (Oak jungle)
<i>Hypogastrura purpurescens</i> * (Lubbock, 1867)	Kermanshah (Kahrarian et al., 2013)	Soil & Leaf litter (Oak jungle)
<i>Hypogastrura persica</i> ** Kahrarian et al., 2013	Kermanshah (Kahrarian et al., 2013)	Soil & Leaf litter (Oak jungle)
<i>Hypogastrura socialis</i> * (Uzel, 1891)	Kermanshah (Kahrarian et al., 2013)	Soil & Leaf litter (Oak jungle)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Genus: <i>Willemia</i> Börner, 1901		
<i>Willemia budenbrocki</i> * Hüther, 1959	Kermanshah (Kahrarian, 2014)	Soil & Leaf litter (Oak jungle)
<i>Willemia scandinavica</i> * Stach, 1949	Kermanshah (Kahrarian, 2014)	Soil & Leaf litter (Oak jungle)
Family: Neanuridae Börner, 1901		
Genus: <i>Endonura</i> Cassagnau, 1979		
<i>Endonura dictaeta</i> ** Smolis et al., 2016	Kermanshah (Smolis et al., 2016a)	Leaf litter (Oak jungle)
<i>Endonura ceratolabralis</i> ** Smolis et al., 2016	Kermanshah (Smolis et al., 2016a)	
<i>Endonura persica</i> ** Smolis et al., 2016	Kermanshah (Smolis et al., 2016a)	litter in willow shrubs
Genus: <i>Protanura</i> Börner, 1906		
<i>Protanura papillata</i> * Cassagnau & Delamare Deboutteville, 1955	Kermanshah (Smolis et al., 2016b)	Leaf litter (Oak jungle)
Family: Odontellidae Massoud, 1967		
Genus: <i>Axenyllodes</i> Stach, 1949		
<i>Axenyllodes bayeri</i> (Kseneman, 1935)	Hamedan (Kahrarian, 2014)	Soil & leaf litter (Elm trees)
<i>Axenyllodes monoculatus</i> * Jordana & Ardanaz, 1981	Kermanshah (Kahrarian, 2014)	Soil & Leaf litter (Oak jungle)
Family: Onychiuridae Lubbock, 1867		
Genus: <i>Heteraphorura</i> Bagnall, 1948		
<i>Heteraphorura iranica</i> ** Kaprus, Shayanmehr & Kahrarian, 2017	Kermanshah (Kaprus et al., 2017)	Soil & Leaf litter (Oak jungle)
Genus: <i>Micraphorura</i> Bagnall, 1949		
<i>Micraphorura absoloni</i> * (Bagnall, 1935)	Kermanshah (Arbea & Kahrarian, 2017)	Soil & Leaf litter (Oak jungle)
Genus: <i>Orthonychiurus</i> Stach, 1954		
<i>Orthonychiurus folsomi</i> (Schäffer, 1900)	Kermanshah (Kahrarian et al., 2016b)	Soil & Leaf litter (Pine and Oak tree)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
<i>Orthonychiurus stachianus</i> * (Bagnall, 1939)	Kermanshah (Arbea & Kahrarian, 2017)	Soil & Leaf litter (Oak jungle)
Genus: <i>Protaphorura</i> Absolon, 1901		
<i>Protaphorura cancellata</i> * (Gisin, 1956)	Kermanshah (Arbea & Kahrarian, 2017)	Leaf litter (Oak jungle)
<i>Protaphorura fimata</i> (Gisin, 1952)	Kermanshah (Arbea & Kahrarian, 2017)	Leaf litter (Oak jungle)
<i>Protaphorura levantina</i> * (Christiansen, 1956)	Kermanshah (Kahrarian et al., 2016b)	Soil (Wheat farm), Leaf litter (Oak jungle)
<i>Protaphorura persica</i> ** Arbea & Kahrarian, 2017	Kermanshah (Arbea & Kahrarian, 2017)	Soil (Cave)
<i>Protaphorura sakatoi</i> (Yosii, 1966)	Kermanshah (Arbea & Kahrarian, 2017; Kahrarian et al., 2016b)	Soil & leaf litter (Elm tree)
Genus: <i>Spinonychiurus</i> Weiner, 1996		
<i>Spinonychiurus persicus</i> ** Kaprus', Shayanmehr & Kahrarian, 2017	Kermanshah (Kaprus et al., 2017)	Soil & Leaf litter (Pine & Oak tree)
<i>Spinonychiurus tianshanicus</i> * (Martynova, 1971)	Kermanshah (Kahrarian, 2017)	Soil & Leaf litter (Oak jungle)
Genus: <i>Thalassaphorura</i> Bagnall, 1949		
<i>Thalassaphorura zschokkei</i> * (Handschin, 1919)	Kermanshah (Kahrarian, 2017)	Soil & Leaf litter (Oak jungle)
Genus: <i>Vibronychiurus</i> Pomorski, 1998		
<i>Vibronychiurus archiovari</i> * (Christiansen, 1956)	Kermanshah (Kahrarian et al., 2016b; Arbea & Kahrarian, 2017)	Soil & Leaf litter (Oak jungle)
Family: Tullbergiidae Bagnall, 1935		
Genus: <i>Metaphorura</i> Stach, 1954		
<i>Metaphorura affinis</i> (Börner, 1902)	Kermanshah (Kahrarian et al., 2014a; Shayanmehr et al., 2013)	Soil & Leaf litter (Oak jungle)
<i>Metaphorura denisi</i> * Simón Benito, 1985	Kermanshah (Kahrarian et al., 2014a)	Soil & Leaf litter (Oak jungle)
<i>Metaphorura riozoi</i> * Castaño-Meneses, Palacios-Vargas & Traser, 2000	Ilam (Shayanmehr et al., 2017)	Soil & leaf litter (Cypress trees)

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Genus: <i>Mesaphorura</i> Börner, 1901		
<i>Mesaphorura italic</i> * (Rusek, 1971)	Kermanshah (Kahrarian et al., 2014a)	Soil & Leaf litter (Oak jungle)
<i>Mesaphorura macrochaeta</i> * Rusek, 1976	Kermanshah (Kahrarian et al., 2014a)	Soil & Leaf litter (Elm and Oak tree)
<i>Mesaphorura hylophila</i> * Rusek, 1982	Kermanshah (Kahrarian et al., 2014a)	Leaf litter under Elm trees (<i>Ulmus</i> spp.)
Genus: <i>Fissuraphorura</i> Rusek, 1991		
<i>Fissuraphorura duplex</i> * (da Gama, 1962)	Kermanshah (Kahrarian et al., 2014a)	Soil & Leaf litter (Oak jungle)
Order: Neelipleona Massoud, 1971		
Family: Neelidae Folsom, 1896		
Genus: <i>Megalothorax</i> Willem, 1900		
<i>Megalothorax incertus</i> Börner, 1903	Kermanshah (present work)	Soil & Leaf litter (Elm & Oak tree)
<i>Megalothorax perspicillum</i> Schneider & D'Haese, 2013	Kermanshah (present work)	Soil & Leaf litter (Oak jungle)
<i>Megalothorax willemi</i> Schneider & D'Haese, 2013	Kermanshah (present work)	Soil & Leaf litter (Elm & Oak tree)
Order: Symphypleona Börner, 1901		
Family: Arrhopalitidae Stach, 1956		
Genus: <i>Arrhopalites</i> Börner, 1906		
<i>Arrhopalites caecus</i> (Tullberg, 1871)	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter
Family: Dicyrtomidae Börner, 1906		
Genus: <i>Dicyrtoma</i> Börner, 1903		
<i>Dicyrtoma ghilarovi</i> Bretfeld, 1996	Kermanshah (present work)	Soil & Leaf litter (Oak jungle)
Family: Katiannidae Börner, 1913		
Genus: <i>Sminthurinus</i> Börner, 1901		
<i>Sminthurinus elegans</i> Fitch, 1863	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter

Table 1. Continued.

Taxonomy/Order/Family/Genera/Species	References	Habitat
Family: Sminthurididae Börner, 1906		
Genus: <i>Sphaeridia</i> Linnaniemi, 1912		
<i>Sphaeridia pumilis</i> (Krausbauer, 1898)	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter
Family: Sminthuridae Lubbock, 1862		
Genus: <i>Caprainea</i> Dallai, 1970		
<i>Caprainea marginata</i> (Schott, 1893)*	Kermanshah (Shayanmehr et al., 2013)	Soil & Leaf litter
Genus: <i>Sminthurus</i> Latreille, 1802		
<i>Sminthurus viridis</i> (Linnaeus, 1758)	Kermanshah (present work)	Soil Grassland

Discussion

This review revealed 88 Collembola species recorded so far from west of Iran. While the last checklist reported from Iran, only 17 species have been identified as collembolan fauna in west of Iran (Shayanmehr et al., 2013). However, the most western provinces, except for Kermanshah province, were not included in the Shayanmehr et al. 2013 study, whereas in addition to Kermanshah some small samples were collected from the provinces of Hamedan, Kurdistan and Ilam in this study.

Heteraphorura cf. *japonica* (Yosii, 1967) has been reported from Kermanshah province (Kahrarian et al., 2016b), but after the re-description of the species, it changed to *Heteraphorura iranica* Kaprus, Shayanmehr & Kahrarian 2017 as new species (Kaprus et al., 2017). Also the scientific names of *Sminthurus marginatus* Schött, 1893 (Kahrarian et al., 2012) was changed to *Caprainea marginata* (Schött, 1893) for the new checklist.

Despite most species added to this checklist are common from Iran, 12 species

new were recently described from west of Iran: *Hypogastrura persica* sp. nov. (Kahrarian et al., 2013); *Isotoma iranica* sp. nov. and *Isotomodes korkorensis* sp. nov. (Arbea & Kahrarian, 2015a); *Folsomides halshinicus* sp. nov. and *Folsomides subvinosus* sp. nov. (Arbea & Kahrarian, 2015b); *Ephemerotoma skarzynskii* sp. nov. (Potapov et al., 2015); *Endonura dichchaeta* sp. nov. *Endonura ceratolabralis* sp. nov. and *Endonura Persica* sp. nov. (Smolis et al., 2016a); *Protaphorura persica* sp. nov. (Arbea & Kahrarian, 2017); *Heteraphorura iranica* sp. nov. and *Spinonychiurus persicus* sp. nov. (Kaprus et al., 2017).

Along with all the research done in recent years, the Collembola fauna is still underestimated for most regions of west of Iran. This review may be a starting point for future studies on the Collembola fauna of western Iran.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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چک لیست پادمان (شش پایان: بندپایان) موجود در غرب ایران

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چکیده: در این تحقیق لیستی از پادمان موجود در زیستگاه‌های مختلف غرب ایران همراه با اطلاعاتی مانند مکان جمع‌آوری، زیستگاه فعالیت نظیر خاک، چمنزارها، بقایای گیاهی، سبزیجات، مناطق برفی، در بین سال‌های ۱۳۹۲ تا ۱۳۹۷ تهیه گردید. علاوه بر آن برخی از نمونه‌ها توسط نگارنده بین سال‌های ۱۳۹۶-۱۳۹۷ جمع‌آوری و شناسایی شد. در حالت اخیر، نمونه‌های پادمان به کمک اسپیراتور و یا کیف برلیز جدا شده و در صورت نیاز به شفاف شدن از محلول نسبت (۴۰ گرم کلرال هیدرات، ۲۰ میلی‌لیتر آب مقطر و ۲/۵ میلی‌لیتر اسید استیک غلیظ) استفاده شد. در نخستین چک لیست پادمان که در سال ۲۰۱۳ منتشر شد، ۱۷ گونه، ۱۵ جنس و هفت خانواده از پادمان گزارش شد که پس از بررسی و تجزیه و تحلیل مطالعات صورت گرفته و نیز مطالعه نمونه‌هایی که توسط نگارنده از غرب ایران جمع‌آوری شد، تعداد پادمان گزارش شده از غرب ایران به ۸۸ گونه، ۴۲ جنس، ۱۶ خانواده و چهار راسته افزایش یافت. دو جنس *Entomobrya* و *Folsomia* هر کدام با داشتن ۶ گونه بیشترین فراوانی را دارند. در نهایت جدیدترین چک لیست پادمان غرب ایران تهیه گردید.

واژگان کلیدی: دم فنریان، لیست گونه‌ها، غرب ایران