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Harvestmen fauna of Gümüşhane and Bayburt in Turkey

(Arachnida, Opiliones)

Kemal Kurt & Ömer Köksal Erman

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In this study, all samples were collected from Turkey (Gümüşhane and Bayburt provinces) between June 2010 and October 2012. They were evaluated systematically. As a result of these evaluations, 20 species in 14 genera belonging to 4 families were determined. One of them, *Rilaena triangularis* (Herbst, 1799), is recorded for the first time from Turkey. GPS data of each collecting site, and distribution in Turkey and all over the world of these species are presented in the text.

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Introduction

Harvestmen is the third largest order of the Arachnida classis after mites and spiders. Up to now, in total 310 species in Europe, 801 in the palaearctic region and 6456 species in the world have been determined (Mitov 2007, Kury 2012). Only 100 species and one subspecies of harvestmen have been recorded from Turkey (Mitov 2012).

The research area, Gümüşhane province and Bayburt province (Fig. 1), is located in the north-east of Turkey. Gümüşhane is situated in the east of Bayburt, west of Giresun, north of Trabzon and south of Erzincan, 38°45'–40°12' east longitude and 39°45'–40°50' north latitude. The district covers 6575 km² and lies at an elevation of 1210 m above sea level. Climate of Gümüşhane is represented as a transition between Eastern Anatolia and the Black Sea. While Zigana Mountain prevents dominance of Black Sea climate, Kop Mountain prevents dominance of continental climate. Bayburt is situated in the east of Erzurum, west of Gümüşhane, north of Trabzon and Rize, south of Erzincan, 40°37' north latitude and 40°45' east longitude, 39°52' south latitude and 39°37' west longitude. It covers 3739 km² and lies at an average elevation of 1550 m above sea level. Bayburt climate,

defined as a transition between the Eastern Black Sea and Eastern Anatolia, has predominant features of continental climate. For this reason, the summers are hot and dry, while winters are cold and rainy.

In this study, totally 20 species belonging to 14 genera of the families Dicranolasmatidae, Nemasomatidae, Phalangiidae and Troglulidae have been recorded from Gümüşhane and Bayburt provinces of Turkey. The aim of this study is to make a contribution to the Turkish harvestmen fauna.

Materials and methods

This study was carried out between 2010 and 2012 in the provinces of Gümüşhane and Bayburt in Turkey. Samples were collected by hand (with tweezers and aspirator) and pitfall traps on soil, under stone, and under bark. The specimens were examined under a Leica EZ4 stereomicroscope and the keys of Martens (1978, 2006), Chevrizov (1979), Gruber (1998), Hillyard & Sankey (1990) and Chemeris & Kovblyuk (2005) were used for their identification. Examined specimens were preserved in 70 % ethanol and deposited in the collection of the Arachnological Laboratory of Şiran Vocational School, Gümüşhane University (GUSAL).

Abbreviations used in the text: GME (Gümüşhane,



Fig. 1. Research area. 1: Gümüşhane province; 2: Bayburt province.

center), GŞİ (Gümüşhane, Şiran district), GKE (Gümüşhane, Kelkit district), GTO (Gümüşhane, Torul district), GKÜ (Gümüşhane, Kürtün district), GKÖ (Gümüşhane, Köse district), BME (Bayburt, center), BAY (Bayburt, Aydıntepe district), BDE (Bayburt, Demirözü district).

The coding system is shown in “Material examined”. In this coding system, first capital letter represents the provinces, other capital letters represent the locality and for the collection date numbers are used.

Results and discussion

In this study, we determined and listed the harvestmen fauna of Gümüşhane and Bayburt in Turkey. A total of 1689 individuals were collected from the research area. 379 adult males, 935 adult females and 375 nymphs were examined. As a result 1117 specimens in Phalangidae, 186 specimens in Nemastomatidae, 7 specimens in Dicranolasmatidae and 4 specimens in Troglulidae were found. Totally, 20 species belonging to 14 genera in the families Dicranolasmatidae, Nemastomatidae, Phalangidae and Troglulidae are recorded in the research area. One of them, *Rilaena triangularis* (Herbst, 1799), is recorded for the first time in Turkey. Recording of these species from Gümüşhane and Bayburt province widens their distribution to Turkey. We suggest that advanced search will increase numbers of the Turkish harvestmen in the future.

Species list

Dicranolasmatidae Simon, 1879

Dicranolasma giljarovi Šilhavý, 1966

Material examined. 1♂, GKÜ-09a; 1♀, 1♂, GKÜ-13a; 1♀, 1♂, GKÜ-13b; 1♀, 1♂, GKÜ-13c.

Distribution in the world. Abkhazia, Bulgaria, Russia, Turkey, Ukraine (Snegovaya & Marusik 2012).

Distribution in Turkey. Ankara, Van (Kurt et al. 2010), Kastamonu (Snegovaya & Marusik 2012), Gümüşhane (present data).

Troglulidae Sundevall, 1833

Trogulus tricarinatus (Linnaeus, 1758)

Material examined. 1♀, GKÜ-09b; 1♀, GKÜ-09c; 1♀, 1♂, GKÜ-10b.

Distribution in the world. Widely distributed throughout Europe, USA (Mitov 2000, Schönhofer 2013).

Distribution in Turkey. İstanbul (Kurt et al. 2010), Gümüşhane (present data).

Nemastomatidae Simon, 1872

Giljarovia tenebricosa (Redikorzev, 1936)

Material examined. 1♀, GKÜ-09a; 3♀, 1♂, GKÜ-10a; 1♀, 1♂, GKÜ-11a; 1♀, 2♂, GKÜ-11c; 1♀, 2♂, GKÜ-11d;

1♀, 1♂, GKÜ-12c; 1♀, 1♂, GKÜ-13b; 1♀, GTO-07a; 2♀, GTO-07b.

Distribution in the world. Abkhazia, Azerbaijan, Georgia, Russia, Turkey (Martens 2006).

Distribution in Turkey. Artvin, Rize (Martens 2006), Gümüşhane (present data).

***Histicostoma caucasicum* (Redikorzev, 1936)**

Material examined. 5♀, 2♂, GKÜ-01a; 3♀, 3♂, GKÜ-03a; 3♀, 3♂, GKÜ-03b; 2♂, GKÜ-08a; 2♂, GKÜ-08b; 2♀, GKÜ-08c; 3♀, 3♂, GKÜ-10a; 2♂, GKÜ-10b; 2♂, GKÜ-11a; 2♀, 2♂, GKÜ-11b; 2♀, 2♂, GKÜ-11c; 2♂, GKÜ-11d; 3♂, GKÜ-12a; 2♂, GKÜ-12b; 2♂, GTO-07a; 2♂, GTO-07b.

Distribution in the world. Abkhazia, Azerbaijan, Armenia, Georgia, Russia, Turkey (Martens 2006).

Distribution in Turkey. Artvin, Ordu, Rize (Martens 2006), Gümüşhane (present data).

***Mitostoma gracile* (Redikorzev, 1936)**

Material examined. 1♀, 1♂, GKÜ-05b; 2♀, GKÜ-07b; 1♀, 1♂, GKÜ-07c; 2♀, 3♂, GKÜ-08c; 1♀, 1♂, GKÜ-09a; 3♀, 1♂, GKÜ-09b; 1♀, 1♂, GKÜ-10a; 1♀, 1♂, GKÜ-11a; 1♀, 1♂, GKÜ-11c; 1♀, 1♂, GKÜ-15a.

Distribution in the world. Azerbaijan, Bulgaria, Georgia, Greece, Russia, Turkey (Martens 2006).

Distribution in Turkey. Kastamonu, Ordu, Rize (Martens 2006), Gümüşhane (present data).

***Paranemastoma kalischevskyi* (Roewer, 1951)**

Material examined. 2♀, GKÜ-04a; 2♀, GKÜ-05a; 1♂, GKÜ-10b; 3♂, GKÜ-10c; 2♀, 3♂, GKÜ-10d; 1♀, 1♂, GKÜ-11d; 1♀, 1♂, GKÜ-12b; 3♀, 1♂, GKÜ-12c; 1♀, 1♂, GKÜ-13b; 1♀, 2♂, GKÜ-14a; 3♀, 3♂, GKÜ-14b; 3♀, GKÜ-15a; 3♀, GKÜ-15b; 1♀, 3♂, GKÜ-17a; 3♀, 1♂, GTO-08a; 3♀, 3♂, GTO-08b; 5♀, BME-03c; 4♀, BME-13a; 2♀, 2♂, BME-14a.

Distribution in the world. Abkhazia, Azerbaijan, Georgia (Martens 2006), Turkey (Kurt et al. 2013).

Distribution in Turkey. Bayburt, Gümüşhane (Kurt et al. 2013).

***Paranemastoma cf. sillii sillii* (Hermann, 1871)**

Material examined. 2♂, GKÜ-05a; 2♂, GKÜ-10c; 1♀, GKÜ-13b; 1♀, 1♂, GKÜ-14a; 1♀, 1♂, GTO-03a; 1♀, 1♂, GTO-03b; 2♂, GTO-07a; 1♀, 1♂, GTO-08a; 1♀, 1♂, GTO-08b; 2♂, BME-06b; 1♂, BME-07a; 1♀, 1♂, BME-07b.

Distribution in the world. Central and Southeast Europe (Schönhöfer 2013).

Distribution in Turkey. Western Black Sea Region (Yigit et al. 2009), Bayburt, Gümüşhane (present data).

Phalangiidae Latreille, 1802

***Lacinius erinaceus* Starega, 1966**

Material examined. 1♀, GKE-01a; 1♀, GKÖ-03b; 1♀, 1♂, GKÖ-03c; 2♀, GKÖ-05a; 2♀, GKÖ-05b; 2♀, GKÖ-06c; 2♀, GKÖ-07c; 2♀, GKÖ-08a; 2♀, GKÖ-11a, 2♀, GKÖ-12a; 1♀, GKÜ-03a; 1♂, GME-02a; 3♀, GME-03a; 2♀, GME-05a; 2♀, GME-07a; 2♀, GŞİ-01a; 1♀, GŞİ-03b; 1♀, GŞİ-05a; 2♀, GŞİ-10a; 2♀, GTO-03d; 2♀, BDE-04a; 2♀, BDE-08a; 2♀, BDE-09a; 3♀, BME-01a.

Distribution in the world. Abkhazia (Starega 1966), Turkey (Kurt & Erman 2012).

Distribution in Turkey. Bayburt, Gümüşhane (Kurt & Erman 2012).

***Mitopus morio* (Fabricius, 1779)**

Material examined. 1♀, 1♂, BME-03a; 2♀, BME-03b; 1♀, BME-03c; 1♀, 1♂, BME-03d; 2♀, 1♂; BME-06a; 2♀, 1♂, BME-06a; 2♀, 1♂, BME-07a; 1♀, BME-07b; 1♂, BME-09a.

Distribution in the world. China, Europe (Iceland and Spitsbergen included), Japan, Iran, North Africa, North America, Siberia (Spoek 1963).

Distribution in Turkey. Mardin (Roewer 1959), Niğde (Kurt et al. 2008a), Bayburt (present data).

***Odiellus lendli* (Sørensen, 1894)**

Material examined. 4♀, GKE-06a; 3♀, GKE-07a; 1♀, 1♂, GKE-07b; 1♀, 1♂, GKE-07c; 3♀, 2♂, GKÖ-01a; 3♀, 2♂, GKÖ-01b; 1♀, 1♂, GKÖ-02a; 1♀, 1♂, GKÖ-02b; 3♂, GKÖ-02c; 2♀, 1♂, GKÖ-03a; 2♀, 1♂, GKÖ-03b; 3♀, 1♂, GKÖ-03c; 3♀, 1♂, GKÖ-03d; 5♀, 5♂, GKÖ-04a; 3♀, 3♂, GKÖ-05a; 4♀, 3♂, GKÖ-05b; 3♀, 4♂, GKÖ-05c; 2♀, GKÖ-06c; 8♀, 5♂, GKÖ-09a; 3♀, GŞİ-01a; 2♀, GŞİ-03a; 3♀, GŞİ-04a; 3♂, GKÖ-05a; 2♀, GŞİ-06a; 1♀, GŞİ-09a; 2♀, 3♂, GTO-01a; 1♀, 2♂, BAY-02a; 1♀, 1♂, BAY-03a; 1♀, BDE-02b; 5♀, BDE-04a; 5♂, BDE-04a; 2♀, BDE-06a; 2♀, BME-01a; 2♀, 1♂, BME-01b; 3♀, 2♂, BME-01e; 2♀, BME-02e; 4♀, 4♂ BME-08a; 5♀, 2♂, BME-09a; 4♀, BME-10a.

Distribution in the world. All over Europe and east to Caucasus (Snegovaya & Marusik 2012).

Distribution in Turkey. Antalya (Çorak et al. 2014), Bayburt, Gümüşhane (Kurt & Erman 2011), Gümüşova (Düzce)-Hendek (Sakarya) (Snegovaya & Marusik 2012).

***Oligolophus tridens* (C. L. Koch, 1836)**

Material examined. 1♀, GKÜ-07b; 2♀, GKÜ-13b; 2♀, GKÜ-13c; 3♂, GME-05a; 2♂, GŞİ-06a; 1♀, 3♂, GŞİ-10a; 2♀, GTO-01a; 2♀, GTO-01b; 2♂, GTO-03a; 2♂, GTO-03b; 3♂, GTO-03c; 2♂, GTO-03d; 2♀, GTO-04b; 2♀, GTO-04c; 3♀, 2♂, GTO-07a; 2♀, 1♂, GTO-07b; 1♀, 1♂, GTO-08a; 2♀, GTO-08b; 1♂, BME-03d; 3♀, 2♂, BME-07a; 2♀, 1♂, BME-07b.

Table 1. List of localities.

Abbreviations	Locality	Coordinates	Altitude (m)
GME-01	Gümüşhane, Center, Kale town	N 40°23.137' E 39°41.011'	1370
GME-02	Gümüşhane, Center, Karamustafa village	N 40°20.570' E 39°18.592'	1457
GME-03	Gümüşhane, Center, Vauk mountain pass	N 40°22.199' E 39°50.430'	1922
GME-04	Gümüşhane, Center, Gözeler village	N 40°27.116' E 39°24.921'	1708
GME-05	Gümüşhane, Center, Yaydemir village	N 40°25.933' E 39°22.826'	1805
GME-06	Gümüşhane, Center, Akgedik village	N 40°23.385' E 39°39.976'	1308
GME-07	Gümüşhane, Center, Pirahmet village	N 40°23.545' E 39°35.123'	1270
GME-08	Gümüşhane, Center, Hasköy village	N 40°26.312' E 39°20.600'	1155
GŞİ-01	Gümüşhane, Şiran, Yukarıkulaca village	N 40°10.331' E 39°03.356'	1951
GŞİ-02	Gümüşhane, Şiran, Mertekli village	N 40°10.562' E 39°08.057'	1360
GŞİ-03	Gümüşhane, Şiran, Telme village	N 40°12.868' E 39°12.985'	1527
GŞİ-04	Gümüşhane, Şiran, Alacahan village	N 40°12.377' E 39°07.844'	1471
GŞİ-05	Gümüşhane, Şiran, Çilhoroz pass	N 40°10.111' E 39°16.527'	1618
GŞİ-06	Gümüşhane, Şiran, Seydibaba village	N 40°06.647' E 39°02.917'	1569
GŞİ-07	Gümüşhane, Şiran, Şiran-Çamoluk turn out	N 40°16.386' E 38°50.040'	1604
GŞİ-08	Gümüşhane, Şiran, Şiran-Alucra turn out	N 40°08.963' E 38°59.808'	1305
GŞİ-09	Gümüşhane, Şiran, Elmaçukuru village	N 40°15.544' E 39°17.820'	1730
GŞİ-10	Gümüşhane, Şiran, Fındıkbeli pass	N 40°15.924' E 38°56.447'	1688
GKE-01	Gümüşhane, Kelkit, Toraman pass	N 40°15.694' E 39°28.500'	1975
GKE-02	Gümüşhane, Kelkit, Özen village	N 40°10.536' E 39°26.044'	1395
GKE-03	Gümüşhane, Kelkit, Karaçayır village	N 40°08.360' E 39°28.526'	1417
GKE-04	Gümüşhane, Kelkit, Yeniyl village	N 39°54.413' E 39°24.112'	1824
GKE-05	Gümüşhane, Kelkit, Balkaya village	N 40°58.508' E 39°30.217'	1609
GKE-06	Gümüşhane, Kelkit, Sadak village	N 40°01.470' E 39°36.367'	1608
GKE-07	Gümüşhane, Kelkit, Pöske mountain	N 39°53.924' E 39°02.133'	2084
GKE-08	Gümüşhane, Kelkit, Ünlüpınar town	N 40°12.488' E 39°25.811'	1648
GKE-09	Gümüşhane, Kelkit, Öbektaş town	N 40°07.371' E 39°36.952'	1687
GTO-01	Gümüşhane, Torul, Yalınkavak village	N 40°26.729' E 39°14.985'	1605
GTO-02	Gümüşhane, Torul, Gülaçar village	N 40°23.290' E 39°13.456'	1419
GTO-03	Gümüşhane, Torul, Tersun mountain	N 40°17.914' E 39°18.016'	2050
GTO-04	Gümüşhane, Torul, Kocadal village	N 40°17.809' E 39°12.910'	1785
GTO-05	Gümüşhane, Torul, Arılı village	N 40°26.395' E 39°19.665'	1408
GTO-06	Gümüşhane, Torul, Bahçelik village	N 40°27.765' E 39°21.277'	1795
GTO-07	Gümüşhane, Torul, Limni lake	N 40°39.355' E 39°24.124'	1826
GTO-08	Gümüşhane, Torul, Zigana mountain	N 40°39.355' E 39°24.124'	2005
GKÜ-01	Gümüşhane, Kürtün, Demirciler village	N 40°38.913' E 39°07.002'	920
GKÜ-02	Gümüşhane, Kürtün, 15 th km of Kazıkbeli plateau road	N 40°37.107' E 39°04.215'	887
GKÜ-03	Gümüşhane, Kürtün, Kalederesi village	N 40°34.240' E 39°01.824'	1483
GKÜ-04	Gümüşhane, Kürtün, Kazıkbeli plateau	N 40°32.781' E 38°56.330'	2333
GKÜ-05	Gümüşhane, Kürtün, Sarıbaba village	N 40°32.542' E 39°01.352'	1469
GKÜ-06	Gümüşhane, Kürtün, Kazık beli-Alucra turn out	N 40°32.098' E 39°00.002'	1490
GKÜ-07	Gümüşhane, Kürtün, Güvende plateau	N 40°38.671' E 38°59.697'	2246
GKÜ-08	Gümüşhane, Kürtün, Yeşilköy village	N 40°41.584' E 39°03.343'	746
GKÜ-09	Gümüşhane, Kürtün, Yeşilköy forest	N 40°40.564' E 39°02.571'	981
GKÜ-10	Gümüşhane, Kürtün, Örumcek forest – station I	N 40°39.716' E 39°01.674'	1376
GKÜ-11	Gümüşhane, Kürtün, Örumcek Ormanı – district of Tarihi Ağaçarlar	N 40°39.809' E 39°01.955'	1301
GKÜ-12	Gümüşhane, Kürtün, Örumcek forest – station II	N 40°39.608' E 39°00.643'	1583
GKÜ-13	Gümüşhane, Kürtün Örumcek forest, Çıkrıküzü Zone	N 40°40.294' E 39°00.716'	1875
GKÜ-14	Gümüşhane, Kürtün, Alistra plateau	N 40°32.509' E 38°56.994'	2058
GKÜ-15	Gümüşhane, Kürtün, Arpacık village turn out	N 40°31.466' E 39°01.142'	1715

Collection date

- a) 27.05.2012, b) 10.09.2012
a) 25.07.2011, b) 11.06.2012
a) 27.05.2012, b) 10.09.2012
a) 22.09.2012
a) 22.09.2012
a) 02.07.2010, b) 10.09.2012
a) 02.07.2010, b) 10.09.2012
a) 02.07.2010, b) 11.08.2010, c) 10.09.2012
a) 01.07.2010, b) 10.08.2010, c) 23.07.2011
a) 01.07.2010, b) 10.08.2010, c) 11.06.2012
a) 01.07.2010, b) 10.08.2010
a) 01.07.2010, b) 10.08.2010
a) 01.07.2010, b) 10.08.2010, c) 22.07.2011
a) 01.07.2010, b) 10.08.2010
a) 27.05.2012
a) 27.05.2012
a) 19.08.2011, b) 28.06.2012
a) 26.06.2011
a) 01.07.2010, b) 10.08.2010, c) 21.07.2011
a) 03.07.2010, b) 12.08.2010
a) 03.07.2010, b) 12.08.2010
a) 03.07.2010, b) 12.08.2010
a) 04.07.2010, b) 13.08.2010
a) 04.07.2010, b) 13.10.2012
a) 03.07.2010, b) 12.08.2010, c) 20.09.2011
a) 03.07.2010, b) 13.10.2012
a) 04.07.2010, b) 13.10.2010
a) 02.07.2010, b) 11.08.2010, c) 24.07.2011
a) 02.07.2010, b) 11.08.2010, c) 25.06.2011, d) 11.06.2012
a) 02.07.2010, b) 11.08.2010, c) 25.07.2011, d) 11.06.2012
a) 02.07.2010, b) 11.08.2010, c) 18.08.2011, d) 28.05.2012
a) 02.07.2010, b) 11.08.2010
a) 02.07.2010, b) 11.08.2010
a) 24.06.2011, b) 18.09.2011
a) 24.06.2011, b) 15.09.2012
a) 12.06.2012
a) 12.06.2012
a) 12.06.2012, b) 28.07.2012
a) 12.06.2012, b) 28.07.2012
a) 13.06.2012, b) 28.07.2012
a) 13.06.2012, b) 27.07.2012
a) 23.06.2011, b) 13.09.2011, c) 27.07.2012, d) 16.09.2012
a) 21.06.2011, b) 12.09.2011, c) 26.07.2012
a) 21.06.2011, b) 12.09.2011, c) 26.07.2012
a) 21.06.2011, b) 12.09.2011, c) 26.07.2012, d) 16.09.2012
a) 21.06.2011, b) 12.09.2011, c) 26.07.2012, d) 16.09.2012
a) 21.06.2011, b) 12.09.2011, c) 26.07.2012, d) 16.09.2012
a) 21.06.2011, b) 12.09.2011, c) 27.07.2012
a) 13.06.2012, b) 27.07.2012, c) 16.09.2012
a) 27.07.2012, b) 16.09.2012
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Distribution in the world. Widely distributed throughout Europe (Wijnhoven 2009).

Distribution in Turkey. Niğde (Kurt et al. 2008b), Bayburt, Gümüşhane (present data).

Opilio coxipunctus (Sørensen, 1912)

Material examined. 1♂, BME-01e.

Distribution in the world. Iraq, Israel, Lebanon, Libya, Syria, Turkey (Kurt et al. 2011).

Distribution in Turkey. Adana, Kahramanmaraş, Osmaniye (Kurt et al. 2011), Bayburt (present data).

Opilio parietinus (De Geer, 1778)

Material examined. 3♀, GKE-01a; 2♂, GKE-08c; 2♀, GKÖ-03a; 2♀, GKÖ-03b; 1♀, 1♂, GKÖ-08a; 4♀, 2♂, GKÖ-08b; 2♀, GKÜ-01a; 3♀, GKÜ-02a; 4♀, 2♂, GKÜ-03a; 5♀, GKÜ-03b; 7♀, GKÜ-05a; 5♀, GKÜ-05b; 6♀, GKÜ-14a; 3♀, GKÜ-14b; 2♀, GKÜ-15a; 3♀, GKÜ-15b; 2♀, 1♂, GME-03a; 2♀, 2♂, GME-05a; 3♀, GME-07a; 3♀, GŞİ-02a; 3♀, GŞİ-02b; 3♀, 4♂, GŞİ-03a; 2♀, 2♂, GŞİ-04a; 4♀, 2♂, GŞİ-04b; 3♀, GŞİ-06a; 3♀, GŞİ-06b; 5♀, GŞİ-09a; 2♀, GŞİ-10a; 2♀, 2♂, GTO-01b; 2♀, 2♂, GTO-04a; 2♀, 4♂, GTO-04b; 4♀, 4♂, GTO-04d; 2♀, 1♂, GTO-08b; 1♂, BDE-02a; 6♀, 6♂, BME-01a; 2♀, 2♂, BME-01b; 5♀, 2♂, BME-01c; 3♀, BME-01d; 2♂, BME-02b; 9♀, 1♂, BME-02c; 4♀, BME-02f; 2♀, 3♂, BME-03d; 2♀, BME-05a; 3♀, BME-05b; 2♀, BME-09a; 3♀, BME-10a; 4♀, 5♂, BME-11a; 2♀, 2♂, BME-14a; 4♀, BME-15a.

Distribution in the world. All of Europe, Canada, Canary Islands, Caucasus, Central Asia, Near East, North Africa, Tasmania, USA, Western Siberia (Mitov 2000).

Distribution in Turkey. Adana, Ankara, Kastamonu, Kayseri, Kırıkkale, Kırşehir, Konya, Niğde, Osmaniye (Kurt et al. 2011), Antalya (Çorak 2010), Bayburt, Gümüşhane (present data).

Phalangium opilio Linnaeus, 1761

Material examined. 3♀, GME-01a; 1♂, GME-01b; 1♀, 1♂, GME-02a; 4♀, 1♂, GME-02b; 1♂, GME-03a; 2♀, GME-03b; 1♂, GME-04a; 2♀, GME-05a; 1♂, GME-06a; 2♀, 1♂, GME-06b; 1♂, GME-07a; 1♀, 1♂, GME-07b; 3♀, GME-08a; 2♂, GME-08b; 2♀, 1♂, GŞİ-01a; 1♀, 1♂, GŞİ-01b; 4♀, 1♂, GŞİ-01c; 2♀, GŞİ-02a; 2♀, GŞİ-02b; 5♀, GŞİ-02c; 3♀, 1♂, GŞİ-03a; 2♀, 1♂, GŞİ-03b; 2♀, GŞİ-04a; 1♂, GŞİ-04b; 1♀, 1♂, GŞİ-05a; 2♀, GŞİ-05b; 2♂, GŞİ-05c; 4♀, GŞİ-06a; 2♀, GŞİ-06b; 1♀, 2♂, GTO-02a; 2♀, 1♂, GTO-02b; 2♀, 1♂, GTO-02c; 5♀, GTO-02d; 3♀, 1♂, GTO-03a; 5♀, 1♂, GTO-03b; 1♂, GTO-03c; 2♀, GTO-03d; 2♀, 1♂, GTO-04a; 2♀, GTO-04c; 3♀, GTO-04d; 4♀, 1♂, GTO-05a; 3♀, GTO-05b; 5♀, 2♂, GTO-06a; 2♀, GTO-06b; 4♀, 2♂, GTO-07a; 3♀, 1♂, GTO-07b; 2♀, GTO-08a; 3♀, 1♂, GTO-08b; 3♀, 1♂, GKÜ-01a; 3♀, GKÜ-05a; 2♀, 1♂, GKÜ-05b; 1♀, 1♂, GKÜ-07a; 2♀, 1♂, GKÜ-07b; 1♀, 1♂, GKÜ-07c; 4♀, 1♂,

Abbreviations	Locality	Coordinates	Altitude (m)
GKÜ-16	Gümüşhane, Kürtün, Ekinciler village	N 40°30.363' E 39°00.351'	1823
GKÜ-17	Gümüşhane, Kürtün, Yaylalı village	N 40°30.450' E 38°58.824'	1905
GKÜ-18	Gümüşhane, Kürtün, Beşirköy turn out	N 40°35.739' E 39°02.556'	954
GKÜ-19	Gümüşhane, Kürtün, Akçal village	N 40°34.700' E 39°02.053'	1287
GKÖ-01	Gümüşhane, Köse, Bizgili village	N 40°11.792' E 39°40.568'	1635
GKÖ-02	Gümüşhane, Köse, Yuvacık village	N 40°09.957' E 39°43.170'	1735
GKÖ-03	Gümüşhane, Köse, Köse mountain	N 40°15.139' E 39°38.297'	1965
GKÖ-04	Gümüşhane, Köse, Plateau of Pirahmet village	N 40°17.089' E 39°37.628'	1905
GKÖ-05	Gümüşhane, Köse, 15 th km of Köse-Gümüşhane road	N 40°16.673' E 39°35.947'	1770
GKÖ-06	Gümüşhane, Köse, 25 th km of Köse-Gümüşhane road	N 40°17.887' E 39°34.216'	1920
GKÖ-07	Gümüşhane, Köse, Köse, Subaşı village	N 40°15.892' E 39°34.830'	1875
GKÖ-08	Gümüşhane, Köse, Salyazı town	N 40°14.348' E 39°48.636'	1378
GKÖ-09	Gümüşhane, Köse, Kırkpınar village	N 40°17.212' E 39°57.528'	1610
GKÖ-10	Gümüşhane, Köse, Sunguroğlu village	N 40°18.178' E 39°33.375'	1725
GKÖ-11	Gümüşhane, Köse, Gökçe village	N 40°13.400' E 39°43.618'	1675
GKÖ-12	Gümüşhane, Köse, Özbeyli village	N 40°11.960' E 39°42.142'	1639
BME-01	Bayburt, Center, Kop mountain	N 40°02.365' E 40°31.152'	2436
BME-02	Bayburt, Center, Aşağı Kop village	N 40°03.211' E 40°27.467'	1946
BME-03	Bayburt, Center, Soğanlı mountain pass	N 40°33.060' E 40°14.238'	2034
BME-04	Bayburt, Center, Akşar village	N 40°20.673' E 39°57.903'	1632
BME-05	Bayburt, Center, Çalidere village	N 40°06.343' E 40°25.435'	1761
BME-06	30 th km of Bayburt-Çaykara road	N 40°31.970' E 40°13.679'	2270
BME-07	Bayburt, Center, plateau of Dumlu village	N 40°32.710' E 40°13.306'	2030
BME-08	Bayburt, Center, Kopuz village	N 40°08.348' E 40°13.488'	1746
BME-09	Bayburt, Center, Yaylalar village	N 40°03.387' E 40°13.376'	2093
BME-10	Bayburt, Center, Yeniköy village	N 40°02.654' E 40°10.994'	2150
BME-11	Bayburt, Center, Kop Mountain	N 40°01.273' E 40°29.892'	2470
BME-12	Bayburt, Center, plateau of Kılıçkaya village	N 40°30.064' E 40°15.056'	2020
BME-13	Bayburt, Center, Büyük plateau	N 40°32.721' E 40°16.841'	2295
BME-14	Bayburt, Center, Şekerpınar plateau	N 40°31.690' E 40°16.132'	2367
BME-15	Bayburt, Sancaktepe village	N 40°10.873' E 40°05.351'	1710
BAY-01	Bayburt, Aydıntepe, Alaca village	N 40°26.436' E 40°00.437'	1800
BAY-02	Bayburt, Aydıntepe, Başpınar village	N 40°26.685' E 40°82.307'	1705
BAY-03	Bayburt, Aydıntepe, Sumarova plateau	N 40°28.453' E 39°58.097'	2033
BAY-04	Bayburt, Aydıntepe, Pınargözü village	N 40°24.860' E 40°01.490'	1680
BAY-05	Bayburt, Aydıntepe, Çatıksu village	N 40°24.147' E 40°04.263'	1560
BAY-06	Bayburt, Aydıntepe, Arpalı town	N 40°19.713' E 40°07.506'	1587
BDE-01	Bayburt, Demirözü, Kalecik village	N 39°59.603' E 39°48.490'	1798
BDE-02	Bayburt, Demirözü, Bayburt-Demirözü turn out	N 40°12.724' E 40°02.356'	1658
BDE-03	Bayburt, Demirözü, Otlukbeli village	N 40°00.048' E 39°53.132'	1941
BDE-04	Bayburt, Demirözü, Yakupabdal village	N 40°04.024' E 39°43.612'	1828
BDE-05	Bayburt, Demirözü, Eymür village	N 40°07.764' E 39°49.274'	1740
BDE-06	Bayburt, Demirözü, Işıkovalı village	N 40°05.278' E 39°50.711'	1845
BDE-07	Bayburt, Demirözü, Serenli village	N 40°01.329' E 39°45.630'	1870
BDE-08	Bayburt, Demirözü, Beşpınar town	N 40°02.414' E 39°51.411'	1760
BDE-09	Bayburt, Demirözü, Söğütlü village	N 40°12.370' E 40°04.250'	1670

Collection date

- a) 27.07.2012, b) 16.09.2012
a) 27.07.2012, b) 16.09.2012
a) 27.07.2012, b) 16.09.2012
a) 27.07.2012, b) 16.09.2012
a) 04.07.2010, b) 13.08.2010
a) 04.07.2010, b) 13.08.2010, c) 23.07.2012
a) 02.07.2010, b) 11.08.2010, c) 19.09.2011, d) 25.07.2012
a) 25.07.2012
a) 02.07.2010, b) 11.08.2010, c) 25.07.2012
a) 02.07.2010, b) 11.08.2010, c) 25.07.2012
a) 02.07.2010, b) 11.08.2010, c) 25.07.2012
a) 25.07.2012, b) 08.09.2012
a) 08.09.2012
a) 13.10.2012
a) 13.10.2012
a) 13.10.2012
a) 05.07.2010, b) 14.08.2010, c) 15.09.2011, d) 26.05.2012, e) 24.07.2012, f) 08.09.2012
a) 05.07.2010, b) 14.08.2010, c) 15.09.2011, d) 26.05.2012, e) 24.07.2012, f) 08.09.2012
a) 17.09.2011, b) 26.05.2012, c) 24.07.2012, d) 09.09.2012
a) 24.07.2012
a) 24.07.2012, b) 08.09.2012
a) 24.07.2012, b) 09.09.2012
a) 24.07.2012, b) 09.09.2012
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a) 26.05.2012
a) 05.07.2010, b) 14.08.2010
a) 05.07.2010, b) 14.08.2010
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a) 10.09.2012
a) 10.09.2012
a) 05.07.2010, b) 14.08.2010
a) 26.05.2012, b) 23.07.2012
a) 26.05.2012
a) 26.05.2012, b) 23.07.2012
a) 23.07.2012
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a) 13.10.2012
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a) 13.10.2012

GKÜ-07d; 2♀, 1♂, GKÜ-13a; 5♀, 1♂, GKÜ-13b; 5♀, GKÜ-13c; 3♀, GKE-01a; 5♀, 1♂, GKE-01b; 1♀, 1♂, GKE-01c; 5♀, GKE-02a; 4♀, GKE-02b; 1♂, GKE-03a; 1♀, 1♂, GKE-03b; 5♀, 1♂, GKE-04a; 4♀, 1♂, GKE-04b; 1♀, GKE-05a; 2♀, 1♂, GKE-05b; 1♀, 1♂, GKE-06a; 1♀, 1♂, GKE-06b; 1♀, GKE-07a; 1♀, 2♂, GKE-07b; 1♂, GKE-07c; 2♀, 1♂, GKE-08a; 1♀, 1♂, GKE-08b; 1♀, GKE-09a; 1♂, GKE-09b; 2♀, 1♂, GKÖ-01a; 1♀, 1♂, GKÖ-01b; 2♀, GKÖ-02a; 1♂, GKÖ-02b; 2♀, GKÖ-02c; 3♀, GKÖ-03a; 3♀, 1♂, GKÖ-03c; 3♀, GKÖ-04a; 4♀, 1♂, GKÖ-05a; 1♂, GKÖ-05b; 2♀, GKÖ-05c; 3♀, 1♂, GKÖ-06a; 2♀, GKÖ-06b; 3♀, GKÖ-06c; 2♀, 1♂, GKÖ-07a; 2♂, GKÖ-07b; 2♀, 1♂, GKÖ-07c; 2♀, 1♂, GKÖ-08a; 1♀, 2♂, GKÖ-08b; 2♀, 1♂, GKÖ-09a; 3♀, GKÖ-10a; 2♂, GKÖ-11a; 3♀, 1♂, GKÖ-12a; 3♀, BME-01a; 5♀, BME-01b; 4♀, BME-01c; 1♀, 1♂, BME-01d; 2♀, 1♂, BME-01e; 2♀, 2♂, BME-01f; 1♀, BME-02a; 3♀, BME-02b; 2♀, BME-02c; 2♀, 1♂, BME-02d; 1♀, 1♂, BME-02e; 4♀, 2♂, BME-02f; 3♀, BME-03a; 3♀, BME-03b; 2♂, BME-03d; 1♀, 1♂, BME-04a; 2♀, 2♂, BME-05a; 5♀, BME-05 b; 4♀, 1♂, BME-06a; 1♀, BME-06b; 5♀, BME-07a; 2♀, BME-08a; 2♂, BME-09a; 4♀, 1♂, BME-10a; 5♀, 1♂, BME-11a; 3♀, BME-12a; 3♀, 1♂, BME-13a; 1♀, 1♂, BME-14a; 3♀, BME-15a; 2♀, 1♂, BAY-0 a; 5♀, 1♂, BAY-01b; 8♀, BAY-02a; 1♀, 1♂, BAY-02b; 3♀, 1♂, BAY-03a; 5♀, BAY-04a; 3♀, 1♂, BAY-05a; 1♀, 1♂, BAY-06a; 1♀, BDE-01a; 3♀, 1♂, BDE-01b; 1♀, BDE-02a; 1♂, BDE-02b; 5♀, 1♂, BDE-03a; 4♂, BDE-04a; 1♀, 1♂, BDE-04b; 2♀, 1♂, BDE-05a; 1♀, 2♂, BDE-06a; 4♀, BDE-07a; 3♀, 1♂, BDE-08a; 2♀, BDE-09a.

Distribution in the world. All parts of Europe, North and Central Asia, Asia Minor, North Africa, North America (Spöck 1963).

Distribution in Turkey. Ankara, Hatay, Kırıkkale, Niğde (Kurt et al. 2010), Bayburt, Gümüşhane (present data).

Phalangium punctipes (C. L. Koch, 1878)

Material examined. 2♀, GKE-01a; 1♀, GKE-07a; 2♀, GKÖ-03a; 2♀, GKÖ-08a; 1♀, GME-03a; 1♀, GŞİ-05a; 1♀, GŞİ-07a; 1♀, 1♂, GŞİ-10a; 2♀, GTO-03a; 2♀, GTO-03b; 1♂, BDE-02a; 2♀, BDE-03a; 1♀, BME-01a; 1♂, BME-01b; 1♂, BME-01c; 2♀, BME-01d; 2♀, BME-02a; 1♂, BME-02b.

Distribution in the world. Azerbaijan, Armenia, Cyprus, Georgia, Israel, Russia, Syria, Turkey, Ukraine (Chemeris & Kovblyuk 2005).

Distribution in Turkey. Adana, Amasya, Niğde, Samsun (Kurt et al. 2011), Antalya (Çorak 2010), Bayburt, Gümüşhane (present data).

Phalangium savignyi Audouin, 1826

Material examined. 2♀ GŞİ-09a; 1♀, 1♂, BDE-05a; 2♀, BDE-06a; 2♀, BDE-08a; 1♀, 1♂, BME-01c; 2♀, BME-01d; 2♀, BME-01f; 1♀, 1♂, BME-02c; 2♀, BME-07a; 2♀, BME-07b.

Distribution in the world. Azerbaijan, Egypt, Israel, Jordan, Lebanon, Turkey (Snegovaya 2008).

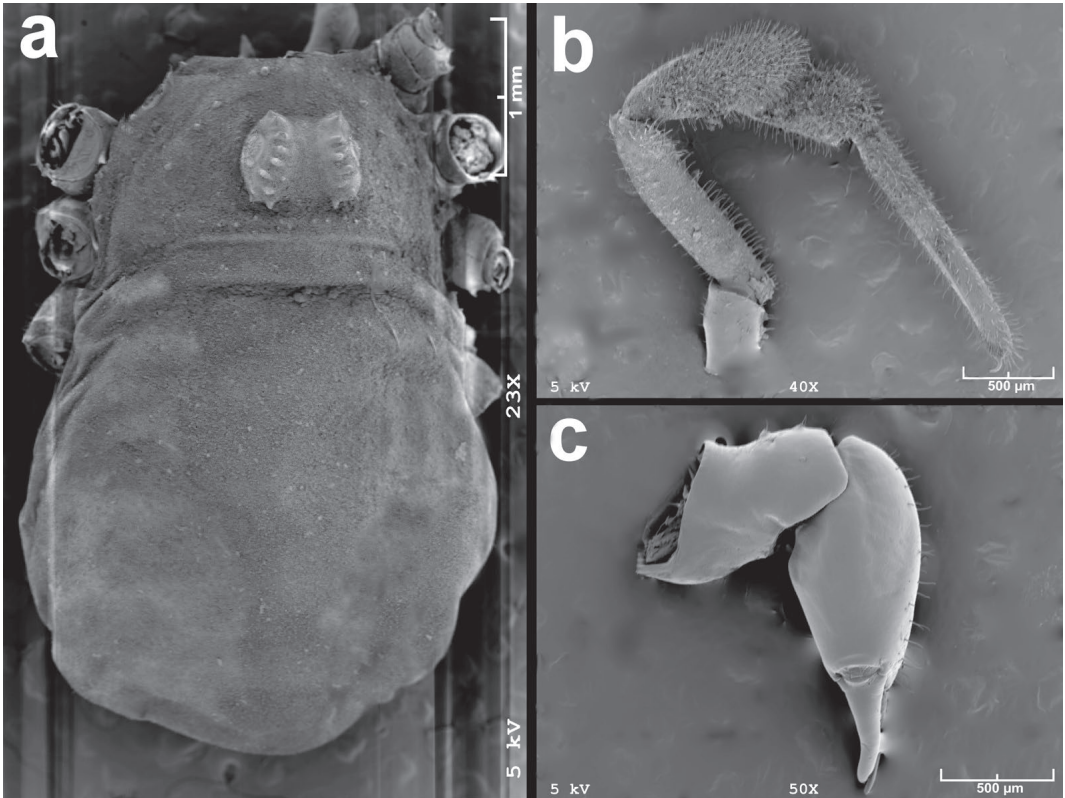


Fig. 2. *Rilaena triangularis*, female. SEM: a. Body, dorsal view. b. Pedipalp, lateral view. c. Chelicera, lateral view.

Distribution in Turkey. Adana (Kurt et al. 2011), Bayburt, Gümüşhane (present data).

***Rilaena triangularis* (Herbst, 1799)** (Fig. 2)

Material examined. 1♀, BME-03a; 1♀, BME-07a; 1♀, BME-07b.

Distribution in the world. Europe, North America (Martens 1978).

Distribution in Turkey. Bayburt (new record).

***Zachaeus anatolicus* (Kulczyński, 1903)**

Material examined. 1♂, GKE-01a; 1♂, GŞİ-04b; 1♂, GŞİ-05b; 1♂, GŞİ-09b; 1♂, BME-02a; 1♂, BME-02d.

Distribution in the world. Bulgaria, Caucasia, Greece, Turkey, Yugoslavia (Snegovaya & Marusik 2012).

Distribution in Turkey. Adana, Kayseri, Manisa (Kurt et al. 2011), Ankara (Snegovaya & Marusik 2012), Bayburt, Gümüşhane (present data).

***Zachaeus crista* (Brullé, 1832)**

Material examined. 2♀, GKE-01c; 1♂, 2♀, GKE-08a; 3♀, GKÖ-03d; 3♀, GKÖ-05a; 3♀, GKÖ-05c; 2♀, GKÖ-07c; 2♀, GKÜ-01a; 1♀, GKÜ-03a; 3♀, GKÜ-05a; 2♀, GKÜ-10b; 2♀, GME-02a; 2♀, GME-02b; 2♀, 1♂, GME-04a; 2♀, GME-08a; 3♀, GME-08b; 2♀, GŞİ-01b; 2♀, GŞİ-05a; 4♀, GŞİ-05b; 1♂, GŞİ-06a; 1♂, GŞİ-06b; 3♀, GŞİ-07a; 1♀, GŞİ-09a; 2♀, GTO-01a; 4♀, GTO-01b; 2♀, GTO-01c; 3♀, GTO-03c; 3♀, GTO-03d; 1♀, BAY-05a; 1♀, BDE-04b; 1♀, 1♂, BME-01e; 1♀, BME-02e; 2♀, BME-03a; 2♀, BME-03b; 1♀, BME-07a; 2♀, BME-11a.

Distribution in the world. Widely distributed throughout Europe, Caucasia (Snegovaya & Marusik 2012).

Distribution in Turkey. Ankara, Bolu, Kırıkkale, Niğde, Osmaniye (Kurt et al. 2011), Antalya (Çorak 2010), Bilecik, Denizli (Martens 1978), Bursa, İzmir (Snegovaya & Marusik 2012), Bayburt, Gümüşhane (present data).

Zachaeus redikorzevi (Starega & Chevrizov, 1978)

Material examined. 2♀, GKE-01a; 2♀, GKE-01b; 2♀, GKE-01c; 2♀, GKE-07a; 3♀, GKE-07b; 1♀, GKE-07c; 3♀, GKÖ-03b; 2♀, GKÖ-06a; 4♀, GKÖ-06b; 3♀, GKÖ-07b; 2♀, GKÖ-10a; 4♀, GKÖ-11a; 3♀, GME-03a; 3♀, GME-03b; 2♀, GŞİ-01b; 1♀, GŞİ-05b; 1♀, GŞİ-09b; 3♀, GTO-05b; 1♀, BME-02a; 1♂, 2♀, BME-02d; 2♀, BME-11a; 1♀, BME-12a; 3♀, BME-13a; 2♀, BME-14a.

Distribution in the world. Russia, Turkey (Kurt et al. 2011).

Distribution in Turkey. Osmaniye (Kurt et al. 2011), Bayburt, Gümüşhane (present data).

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