

STUDIES ON TRUE BUGS (HETEROPTERA: REDUVIIDAE) ON THE USTYURT PLATEAU IN NORTH WESTERN UZBEKISTAN

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Abstract

The Ustyurt Plateau in north western Uzbekistan fauna of the family Reduviidae is summarized in this paper. In total, 7 genus and subgenus, and 15 species are listed from Uzbekistan (Karakalpakistan). two species, *Reduvius ciliatus* (Jakovlev, 1879) and *Reduvius personatus* (Linnaeus, 1758), is newly species from Uzbekistan.

Key words: Fauna, Heteroptera, True bugs, Cimicomorpha, Reduviidae, new species, new records, Uzbekistan, Karakalpakistan, Palearctic Region.

Introduction

With more than 40,000 described species, Heteroptera or true bugs, are part of the most successful radiation of nonholometabolous insects (Weirauch & Schuh 2011). Heteroptera include 9365 species belonging to 1632 genera in the Palearctic Region (Aukema et al. 2013). Species are usually trophically specialized, phytophagous, zoophagous, or mycophagous (Schuh & Slater 1995). As a consequence of their often specialised feeding habits, many species are economically important as crop pests, biological control agents of phytophagous insect pests (Schaefer & Panizzi 2000), or vectors of diseases (Schofield & Dolling 1993; Schaefer 2000; Garcia et al. 2000). Some bugs constitute an important protein source in human diet (Fritsche & Gitsaga 2000).

The Ustyurt Plateau is an elevated area in the central part of the Turan Lowland. It is bordered by cliffs on almost all sides. The cliff from the east is formed by the former western shore of the Aral Sea. The plateau falls to the Kunya Dar'insk ancient alluvial plain and the Uzboi River Valley in the south, to the Karynyaryk Depression and the Northern Caspian Karakumy Sands in the west, and to the Caspian Sea Lowland in the North. According to the geographical zoning of Kazakhstan and Middle Asia (in the desert region), the Ustyurt Plateau was assigned to the western– northern Turan subprovince of the northern Turan province by E.I. Rachkovskaya (2003) and others. The total solar radiation in the northern Turan desert is 130–140 kcal/cm² per year, and the radiation balance is 45–50 kcal/cm² per year. The total of

temperatures above 100°C is 3600°C. The mean temperature is 10°C for January and 26–29°C for July. The growing period lasts 200–210 days (240–270 days in the southern Turan desert). The precipitation regime is similar to the Mediterranean type. The total precipitation is 100–150 mm per year. The snow cover in the northern part of the plateau is more stable (Rachkovskaya, 2003). The water and temperature regimes are characterized by the dryness index (2.5–6.0).

Material and Methods

Studies on the fauna of true bugs have been carried out in AskhaMazar, Sarykamysh, Asakeaudan, Karabaur, Kartbaikum, Lysaya, Zharynkuduk, Churuk, Beleuli, Baiterek, Almambet, Aktumsuk, Kasarma, and Kyrkkyz natural areas of Ustyurt plateau (Fig. 1). Samplings were done by using a 45-cm diameter sweep-net, taking 25 (back-forth) sweep samples per site, in 2019-2020 years. Most of the material was collected using light traps. Sampling took place between 10 AM to 4 PM to allow warming so that insects may move onto the surface of plants. All samples were done by the same person, usually a straight line transect across the sample site. Samples were immediately placed into (0.5 L) plastic cups containing 96% ethyl alcohol and returned to the lab for evaluation. Adults and nymphs of Heteroptera species were sorted out from plants materials.

The collected materials were also processed in the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan and compared with the existing collection of bugs in the institute.

Results

A total of 15 species of Heteroptera classified in 7 genus are known from Uzbekistan. The list of species with distribution and host data are given below.

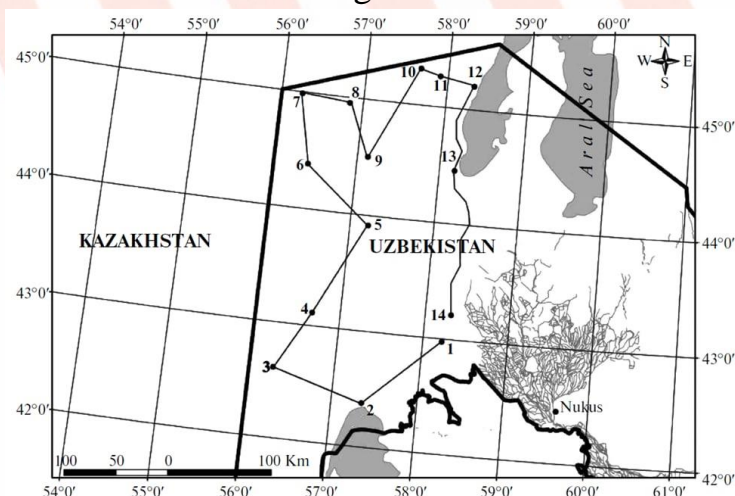


Figure 1. Map of the Karakalpak part of the Ustyurt Plateau: 1—Askha Mazar, 2—Sarykamysh, 3—Asakeaudan, 4—Karabaur, 5—Kartbaikum, 6—Lysaya, 7—Zharynkuduk, 8—Churuk, 9—Beleuli, 10—Baiterek, 11—Almambet, 12—Aktumsuk, 13—Kasarma, and 14—Kyrkkyz (H. F. Shomurodov et al. 2015).

Order Hemiptera**Suborder Heteroptera****Infraorder Cimicomorpha Leston, Pendergrast & Southwood, 1954****Cimicoidea****Superfamily Reduvidae Latreille, 1807****Family Reduviidae Latreille, 1807****Subfamily Harpactorinae Amyot & Serville, 1843****Tribe Harpactorini Amyot & Serville, 1843****Genus *Coranus* Curtis, 1833*****Coranus (Coranus) aegyptius* Fabricius, 1775**

Material - Karabaur; 2♀, 1♂, 42°54'59.81" N, 56°27'14.39" E, Kasarma, 1♂, 44°35'48.66" N, 58°02'33.62" E.

Distribution in Uzbekistan. Kyzylkum desert (Давлетшина, 1960), Kharezm region (Khamraev, 2003).

General distribution and hosts. Madeira and The Canary Archipelago, North Africa, Near East, Arabian Peninsula, Central Asia (Putshkov & Putshkov 1996; Kment & Jindra 2005; Putshkov & Moulet 2010; Aukema et al. 2013). In rice fields and on *Sorghum halepense* (Poaceae) (Ghahari et al. 2008a); *C. aegyptius* often inhabits dry biotopes (desert conditions) (Lindberg 1958; Linnavuori 1964); it has been mentioned under *Salicornia* sp. (Amaranthaceae) on a salted soil (Putshkov & Moulet 2010).

***Coranus (Coranus) cf. subapterus* De Geer, 1773**

Material - Karabaur; 2♀, 1♂, 42°54'59.81" N, 56°27'14.39" E, Kasarma, 1♂, 44°35'48.66" N, 58°02'33.62" E.

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003).

General distribution and hosts. North Africa, Near East, Arabian Peninsula, Central Asia (Putshkov & Putshkov 1996; Kment & Jindra 2005; Putshkov & Moulet 2010; Aukema et al. 2013). On alfalfa and ground (Rahimi et al. 2010a).

Genus *Rhynocoris* Hahn, 1833***Rhynocoris abramovii* Oshanin, 1871**

Material - Baiterek; 1♂, 45°16'15.87" N, 57°42'05.11" E.

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003).

General distribution and hosts. Central Asia, Kazakhstan, Kirgizia, Tajikistan, Turkmenistan, Uzbekistan. It has been mentioned under *Salicornia* sp. (Amaranthaceae) on a salted soil (Putshkov & Moulet 2010).

Rhynocoris monticola monticola Oshanin, 1890

Material – Kyrkkyz, 1♀, 3♂, 43°28'21.86" N, 58°08'07.02" E Almambet, 1♀, 2♂, 45°07'14.20" N, 57°48'27.31" E Baiterek; 1♂, 45°16'15.87" N, 57°42'05.11" E, 45°13'33.30" N, 57°50'04.65" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003, Ganjaeva, 2020.).

General distribution and hosts. Central Asia, northwest China. Living on *Asphodelus microcarpus* (Chérot, 1997) and *Eremurus stenophyllus* (Linnavuori & Modarres Awal 1999).

Genus Vachiria Stål, 1859**Vachiria deserta Becker, 1867**

Material – Kyrkkyz, 1♀, 43°28'21.86" N, 58°08'07.02" E Almambet, 1♀, 1♂, 45°07'14.20" N, 57°48'27.31" E Baiterek; 1♂, 45°16'15.87" N, 57°42'05.11" E.

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Ganjaeva, 2020.).

General distribution and hosts. North Africa (Mauritania), Central Asia, Near East, Saudi Arabia (Putshkov & Putshkov 1996; Aukema et al. 2013). Living on *Acacia* sp. (Linnavuori 2004b).

Subfamily Peiratinae Amyot & Serville, 1843**Genus Ectomocoris Mayr, 1865****Ectomocoris ululans Rossi, 1790**

Material – Almambet, 2♀, 3♂, 45°07'14.20" N, 57°48'27.31" E, 45°13'33.30" N, 57°50'04.65" E Askha - Mazar, 2♂, 42°43'21.16" N, 57°54'18.11" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003, Ganjaeva, 2020.).

General distribution and hosts. Arabian Peninsula, Mediterranean shores of Spain, Corsica, Italy, Balkan Peninsula, Jordan, Ethiopia (Putshkov & Putshkov 1996; Aukema et al. 2013). Comments. *E. ululans* lives in wet and the more often salty biotopes on *Tamarix* (Tamaricaceae), *Suaeda*, and *Arthrocnemum* (both Amaranthaceae) (Putshkov & Moulet 2010).

Subfamily Reduviinae Amyot & Serville, 1843**Genus Holotrichius Burmeister, 1835****Holotrichius mesoleucus Kiritshenko, 1914**

Material – Asakeaudan, 1♀, 1♂, 42°15'57.48" N, 56°18'33.30" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957).

General distribution and hosts. Asian Kazakhstan, Uzbekistan (Putshkov & Putshkov 1996; Aukema et al. 2013). On *Avena fatua* (Poaceae) (Rahimi et al. 2010d). In Algeria it has been collected in excrement of a barnowl (*Tyto alba*) (Putshkov & Moulet 2010).

Genus Reduvius Fabricius, 1775**Reduvius ciliatus Jakovlev, 1879**

Material – Kasarma, 2♀, 1♂, 44°35'48.66" N, 58°02'33.62" E, Askha - Mazar, 1♂, 42°43'21.16" N, 57°54'18.11" E.

Distribution in Uzbekistan. New record for Uzbekistan.

General distribution. Ponto-Mediterranean (though not found in Europe), south European part of Russia, and Near East (Iraq, Israel, Syria) (Putshkov & Putshkov 1996; Aukema et al. 2013).

Reduvius disciger Horváth, 1896

Material – Sarykamysh, 2♀, 3♂, 42°14'58.65" N, 57°03'11.30" E
45°24'15.87" N, 58°24'16.62" E, Lysaya, 2♂, 44°21'29.69" N, 56°26'39.20" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003, Ganjaeva, 2020.).

General distribution. Central Asia: Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan (Putshkov & Putshkov 1996).

Reduvius fedtschenkianus Oshanin, 1871

Material – Kasarma, 1♀, 42°44°35'48.66" N, 58°02'33.62" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003, Ganjaeva, 2020.), Karakalpakistan (Rulumbetova, 1999).

General distribution. Central Asia: Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan (Putshkov & Putshkov 1996).

Reduvius personatus Linnaeus, 1758

Material – Kasarma, 3♀, 4♂, 42°44°35'48.66" N, 58°02'33.62" E

Distribution in Uzbekistan. New record for Uzbekistan.

General distribution. Holarctic (except China, Far East, Japan), cited in USA (Ontario, New Jersey, Florida) and Canada, mentioned in Australia; not quoted in Africa except The Maghreb (Putshkov & Putshkov 1996; Aukema et al. 2013).

Comments. Very often *R. personatus* is collected in human houses or in cowsheds or stables where nymphs hide with sand or dust. *R. personatus* feeds upon various arthropods found in its biotopes and thus has a very diversified supply (Putshkov & Moulet 2010).

Reduvius testaceus Herrich-Schaeffer, 1845

Material – Kasarma, 3♀, 42°44°35'48.66" N, 58°02'33.62" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezm region (Khamraev, 2003, Ganjaeva, 2020.).

General distribution. Central Asia: Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan (Putshkov & Putshkov 1996).

General distribution and hosts. Mainly an Asian species, westward to Croatia; North Africa (Putshkov & Putshkov 1996; Aukema et al. 2013). On alfalfa and grasses (Rahimi et al. 2010a), and on *Malva neglecta* (Malvaceae) (Ghahari et al. 2011b).

Subfamily Stenopodainae Amyot & Serville, 1843

Genus Oncocephalus Klug, 1830

***Oncocephalus brachymerus* Reuter, 1882**

Material – Kasarma, 1♀, 42°44'35.48.66" N, 58°02'33.62" E

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Kharezmi region (Khamraev, 2003, Ganjaeva, 2020.), Karakalpakstan (Rulumbetova, 1999).

General distribution. Central Asia: Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan (Putshkov & Putshkov 1996).

General distribution. Asian Turkey, Cyprus, Russia (South European Territory), Near East, European USSR, Central Asia, Afghanistan (Putshkov & Putshkov 1996; Aukema et al. 2013).

***Oncocephalus termezanus* Kiritschenko, 1914**

Material – Sarykamysh, 2♂, 42°14'58.65" N, 57°03'11.30" E 45°24'15.87" N, 58°24'16.62" E, Lysaya, 1♂, 44°21'29.69" N, 56°26'39.20" E.

Distribution in Uzbekistan. Kyzylkum desert (Davletshina, 1960), Western Tien-Shan (Papov, 1957), Karakalpakstan (Rulumbetova, 1999), Kharezmi region (Ganjaeva, 2020).

General distribution. Azerbaijan, Central Asia: Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan (Putshkov & Putshkov 1996)

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