TÜBİTAK

Research Article

Turk J Zool
33 (2009) 421-431
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doi:10.3906/zoo-0804-3

Notes on the true bug (Heteroptera) fauna of Azerbaijan province, Iran

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Received: 07.04.2008

Abstract: The Heteroptera fauna in east Azerbaijan and west Azerbaijan provinces in northwestern Iran was surveyed during 2005-2006. In all, 73 species from 18 families were collected and identified, of which 1 species, *Mozena lunata* (Burmeister, 1835) (Coreidae), is a new record for the Palearctic ecozone and 6 species are newly recorded from Iran.

Key words: Fauna, Heteroptera, Iran, Palearctic ecozone

Introduction

The Heteroptera are very important in agriculture (Linnavuori and Hosseini, 2000). In this suborder there are aquatic, semi-aquatic, and terrestrial species, some of which are important agricultural and silvicultural pests (Kerzhner and Yachevski, 1964). On the other hand, predacious bugs reduce the number of agricultural pests and may be used for biological control (Linnavuori and Hosseini, 2000); therefore, identification of Heteroptera is important (Linnavuori and Hosseini, 2000).

The Iranian Heteroptera fauna is rather well known (e.g. Linnavuori and Modarres Awal, 1998; Linnavuori and Hossini, 2000; Linnavuori, 2007), but not all regions have been sampled carefully and, therefore, other new records and probably even new species are expected in future. The objectives of the present study were to provide detailed information on the distribution of Heteroptera in east Azerbaijan and west Azerbaijan provinces, and to contribute to the knowledge of the Iranian Heteroptera fauna.

Materials and methods

The study was conducted during 2005-2006, and nymph and adult specimens in the regions were collected from different locations using different methods (Figure, and Tables 1 and 2). Most of the specimens were collected by sweep net, light trap, or rectangular frame tray net. A few bugs were collected by towing a plankton net. After being killed in jars filled in 70% alcohol, the samples were prepared and labeled according to the standards for museum material. The specimens were deposited in the insect collection of Urmia University, College of Agriculture,

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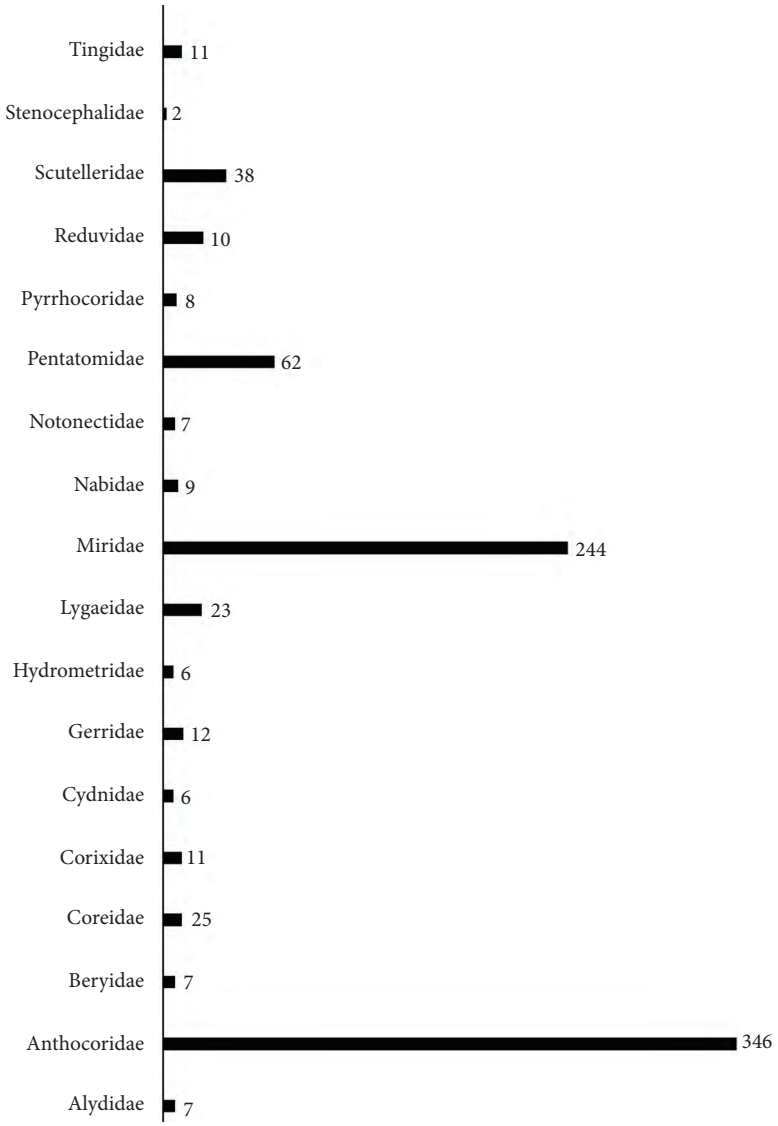

Figure. Number of Heteroptera specimens sampled (2005-2006).

Plant Protection Department. All species were sent to Finland, and were identified and confirmed by Dr. Rauno E. Linnavuori. The nomenclature follows the *Catalogue of Palearctic Heteroptera* (Aukema and Rieger, 1995, 1996, 1999, 2001, 2006).

Results

In the course of the 2-year study 834 specimens were captured and divided into 73 species belonging to 18 families of the suborder Heteroptera (Table 3).

Discussion

In the present study 73 species in 18 families of Heteroptera from east Azerbaijan and west Azerbaijan provinces were collected. Families and the number of species are as follows: Anthocoridae 8, Berytidae 1, Coreidae 4, Cydnidae 2, Miridae 20, Nabidae 2 Reduviidae 3, Tingidae 1, Corixidae 3, Notonectidae 1, Gerridae 2, Hydrometridae 1, Alydidae 1, Lygaeidae 7, Pentatomidae 12, Pyrrhocoridae 2, Scutelleridae 2, and Stenocephalidae 1. Of these, *Mozena lunata*

Table 1. Sampling information in east Azerbaijan.

Locality	Sampling location	Habitat	Altitude (m)
1	Bonab	*Medicago sativa* L.	1310
2	Bonab	Ground	1310
3	Bonab	Weed	1310
4	Bonab	*Triticum* sp.	1310
5	Harzanadat	Weeds	1300
6	Koshksaray	*Medicago sativa* L.	1320
7	Koshksaray	Apple orchards	1320
8	Koshksaray	Weeds	1320
9	Payam	Weeds	1295
10	Marand	*Pronus* sp.	1315
11	Marand	Weeds	1315
12	Marand	Water (small stream)	1315
13	Yamchi	*Medicago sativa* L.	1310
14	Yamchi	Ground	1310
15	Yamchi	Weeds	1310
16	Yekanat	Ground	1315
17	Yekanat	Weeds	1315
18	Zonouz	Ground	1300
19	Zonouz	Light trap	1300

Table 2. Sampling information in west Azerbaijan.

Locality	Sampling location	Habitat	Altitude (m)
20	Khoy	*Salix* sp.	1100
21	Khoy	Water	1100
22	Khoy	Weeds	1100
23	Mahabad	Apple orchards	1340
24	Mahabad	*Bromus* sp.	1340
25	Mahabad	Light trap	1340
26	Mahabad	*Medicago sativa* L.	1340
27	Miandoab	*Fraxinus rotundifolia* L.	1314
28	Miandoab	*Populus alba* L.	1314
29	Miandoab	*Triticum* sp.	1314
30	Naghadeh	Apple orchards	1350
31	Naghadeh	*Pisticiae atlantica* Desf.	1350
32	Naghadeh	Water (small stream)	1350
33	Naghadeh	Weeds	1350
34	Salmas	Apple orchards	1350

Table 2. (Continued).

Locality	Sampling location	Habitat	Altitude (m)
35	Salams	*Medicago sativa* L.	1350
36	Salmas	*Pronus* sp.	1350
37	Salmas	*Salix* sp.	1350
38	Salmas	*Sisymbrium irio* L.	1350
39	Salmas	Water (small stream)	1350
40	Urmia	*Achillea millefolium* L.	1332
41	Urmia	*Althaea officinalis* L.	1332
42	Urmia	*Amygdalus scoparia* (Spach)	1332
43	Urmia	*Amygdalus communis* L.	1332
44	Urmia	*Brassica* sp.	1332
45	Urmia	*Bromus* sp.	1332
46	Urmia	*Convolvulus arvensis* L.	1332
47	Urmia	*Fraxinus rotundifolia* L.	1332
48	Urmia	Ground	1332
49	Urmia	Light trap	1332
50	Urmia	*Medicago sativa* L.	1332
51	Urmia	*Mentha piperita* L.	1332
52	Urmia	*Mentha pulegium* L.	1332
53	Urmia	Nazloochai river	1332
54	Urmia	*Pisticiae atlantica* Desf	1332
55	Urmia	*Populus alba* L.	1332
56	Urmia	*Rosa* sp.	1332
57	Urmia	*Salix* sp.	1332
58	Urmia	*Slavum* sp.	1332
59	Urmia	*Sisymbrium irio* L.	1332
60	Urmia	*Solanum* sp.	1332
61	Urmia	*Tagetes* sp.	1332
62	Urmia	Water (small stream)	1332
63	Urmia	Weed	1332

(Burmeister, 1835) (Coreidae) is a new species record for the Palearctic ecozone and 6 species are new records for Iran.

The genus *Mozena* Amyot and Serville (1843) is a large, complex group that is distributed in the southern United States, throughout Mexico, Cuba, and Central America to northeastern South America, including Colombia and Venezuela, with the greatest number of species being known from Mexico (Brailovsky and Barrera, 2001). The biology of most species is poorly known. Brailovsky et al. (1995) studied the immature stages, life history, and biological aspects of *Mozena lunata* (Burmeister, 1835) (Coreidae).

In the present study 834 specimens belonging to 18 families of the infraorders Cimicomorpha, Nepomorpha, Gerromorpha, and Pentatomorpha were collected. The most abundant families were Anthocoridae (41.48% of the catches), Miridae (29.25%), and Pentatomidae (7.43%). Samples of these species accounted for 78.16% of the catches (Figure).

Table 3. Species of the order Heteroptera from Azerbaijan provinces.
*First species record from Iran. **First Species recorded from the Palearctic ecozone. L: localities; Ny: nymph; Sd: sampling date.

L	♂	♀	Ny	Sd
INFRAORDER: CIMICOMORPHA				
ANTHOCORIDAE				
Anthocoris nemorum (Linnaeus, 1761)				
10	2	5	-	10.06.2006
Anthocoris nemoralis (Fabricius, 1794)				
15	4	7	2	28.07.2005
42	1	3	-	12.06.2006
Anthocoris minki pistacia Wagner, 1957				
27	2	7	5	16.06.2005
28	3	5	9	06.06.2005
47	1	4	7	15.06.2005
55	-	3	5	15.06.2005
57	3	7	6	15.06.2005
58	3	9	7	05.06.2005
Anthocoris pilosus (Jakovlev, 1877)				
43	2	5	-	12.07.2006
Temnostethus (*Ectemnus*) *reduvinus parilis* (Horvath, 1891)				
31	-	1	-	10.06.2006
36	-	3	-	09.06.2006
Orius (*Dimorphella*) *albidipennis* (Reuter, 1884)				
1	2	4	2	16.07.2006
26	1	3	-	12.06.2005
33	2	5	3	11.07.2005
35	4	8	-	09.06.2006
37	7	18	5	09.06.2006
44	2	6	3	14.06.2005
57	4	6	-	15.06.2005
61	3	8	5	22.06.2005
Orius (Orius) niger Wolff, 1811				
6	2	7	-	08.07.2005
10	1	4	-	10.06.2006
34	3	7	2	09.06.2006
35	3	5	3	09.06.2006
41	5	9	2	24.06.2006
50	2	5	-	26.07.2005
51	2	6	2	27.07.2005
52	1	6	1	27.07.2005
56	1	2	-	15.05.2005
Orius (*Heterorius*) *vicinus* (Ribaut, 1923)				
15	2	5	-	28.07.2005
22	2	6	1	19.06.2006
41	5	11	-	24.06.2006
46	4	7	-	20.06.2006
49	1	3	-	11.07.2005
61	2	5	2	22.06.2005

Table 3. (Continued).

L	♂	♀	Ny	Sd
BERYTIDAE				
Neides tipularius (Linnaeus, 1758)				
8	2	3	-	11.06.2006
63	-	2	-	15.06.2005
COREIDAE				
Coreus marginatus Linnaeus, 1758				
3	1	-	-	01.08.2006
11	1	3	-	19.08.2006
48	1	1	-	11.07.2006
Coriomeris affinis (Herrich-Schaeffer, 1839)				
7	3	4	-	20.06.2005
63	2	5	-	15.06.2005
Coriomeris scabricornis (Panzer, 1809)				
17	-	2	-	13.08.2005
****** *Mozena lunata* (Burmeister, 1835)				
9	2	-	-	11.06.2006
CYDNIDAE				
Cydnus aterrimus Foster, 1771				
18	1	3	-	20.08.2006
Tritomegas sexmaculatus (Rambur, 1839)				
11	1	1	-	19.08.2006
MIRIDAE				
Adelphocoris lineolatus Geoze, 1778				
6	3	5	-	08.07.2005
8	1	3	-	11.06.2006
Campylomma verbasci (Meyer-Dür, 1843)				
7	3	4	-	20.06.2005
25	4	9	3	22.07.2005
34	3	9	1	09.06.2006
49	1	5	1	11.07.2005
54	1	3	-	15.06.2005
55	4	7	-	15.06.2005
***** *Capsus cinctus* (Kolenati, 1845)				
24	3	5	-	12.06.2005
45	1	2	-	15.06.2005
Creontiades pallidus (Rambur, 1839)				
63	2	7	-	15.06.2005
Cyrtopeltis tenuis (Reuter, 1895)				
60	3	5	-	11.07.2005

Table 3. (Continued).

L	♂	♀	Ny	Sd
Deraeocoris (*Camptobrochis*) *pilipes* (Reuter, 1879)				
43	2	7	1	12.07.2006
47	4	6	2	15.06.2005
Deraeocoris (*Camptobrochis*) *punctulatus* (Fallen, 1807)				
10	2	3	-	10.06.2006
20	2	5	-	19.06.2006
Deraeocoris (*Camptobrochis*) *serenus* (Douglas & Scott, 1868)				
10	1	2	-	10.06.2006
54	-	2	-	15.06.2005
**Deraeocoris* (*Deraeocoris*) *rutilus* (Herrich-Schaeffer, 1838)				
22	2	3	1	07.06.2006
63	1	4	-	15.06.2005
Dicyphus (*Dicyphus*) *eckerleini* Wagner, 1965				
63	2	4	-	15.06.2005
Liocoris tripustulatus (Fabricius, 1781)				
38	3	5	2	24.07.2005
59	1	2	-	11.07.2005
Lygus pratensis (Linnaeus, 1758)				
6	2	5	2	08.07.2005
13	3	9	1	25.06.2005
50	2	7	-	21.06.2005
Lygus rugulipennis Poppius, 1911				
50	2	5	-	21.06.2005
Notostira elongata (Geoffroy, 1785)				
11	-	2	-	19.08.2006
Polymerus brevicornis (Reuter, 1879)				
3	1	2	-	01.08.2006
22	-	3	-	07.06.2006
Polymerus vulneratus (Panzer, 1805)				
22	1	4	-	07.06.2006
Trigonotylus coelestialium (Kirkaldy, 1902)				
5	-	2	-	28.05.2005
63	2	3	-	15.06.2005
Megalocoleus mellae (Reuter, 1876)				
40	3	5	-	15.06.2005
**Pilophorus perplexus* Douglas & Scott, 1875				
36	2	2	-	09.06.2006

Table 3. (Continued).

L	♂	♀	Ny	Sd
Yotvata pulcherrima Linnavuori, 1984				
49	2	5	-	11.07.2005
NABIDAE				
Nabis ferus (Linnaeus, 1758)				
20	1	2	-	27.05.2006
30	-	3	-	01.07.2006
Nabis pseudoferrus Remane, 1949				
17	1	2	-	13.08.2005
REDUVIIDAE				
Ectomocoris ululans (Rossi, 1790)				
23	1	1	-	02.07.2005
Ploiaria matilei Dispons & Villiers, 1967				
5	1	3	-	28.05.2005
Reduvius pallipes Klug , 1830				
4	2	-	-	01.08.2005
34	1	1	-	09.06.2006
TINGIDAE				
Stephanitis pyri (Fabricius, 1775)				
20	2	4	-	19.06.2006
37	1	1	-	09.06.2005
57	-	3	-	15.06.2005
INFRAORDER: NEPOMORPHA				
CORIXIDAE				
Corixa affinis Leach, 1817				
21	1	-	-	03.08.2005
32	1	1	-	01.08.2005
Corixa punctata (Illiger, 1807)				
12	2	1	1	10.06.2006
Sigara lateralis (Leach, 1817)				
39	1	1	-	04.08.2005
53	-	2	-	02.08.2005
NOTONECTIDAE				
Notonecta glauca Linnaeus, 1858				
12	-	2	-	10.06.2006
21	1	1	-	03.08.2005
39	1	2	-	06.08.2006
INFRAORDE: GERROMORPHA				
GERRIDAE				
Gerris maculatus Tamanini, 1946				
21	2	3	2	03.08.2005
62	1	-	-	02.08.2005

Table 3. (Continued).

L	♂	♀	Ny	Sd
Gerris thoracicus Schummel, 1832				
62	2	2	-	02.08.2005
HYDROMETRIDAE				
Hydrometra stagnorum (Linnaeus, 1758)				
53	1	3	-	02.08.2005
32	-	2	-	01.08.2005
33	1	1	-	25.07.2005
INFRAORDER: PENTATOMORPHA				
ALYDIDAE				
Camptopus lateralis Germar, 1817				
17	1	1	-	13.08.2005
33	-	2	-	11.07.2005
63	1	2	-	15.06.2005
LYGAEIDAE				
**Auchenodes utu* Linnavuori, 1984				
48	2	3	-	11.07.2006
**Barberocoris astragali* Linnavuori, 1984				
48	2	1	-	11.07.2006
Beosus quadripuctulatus (Müller, 1766)				
58	1	-	-	15.06.2005
Emblethis ciliatus Horváth, 1875				
14	1	3	-	10.05.2006
Lamprodema maurum (Fabricius, 1803)				
8	2	1	-	11.06.2006
Lethaeus picipes (Herrich-Schaeffer, 1850)				
11	1	-	-	19.08.2006
22	1	1	-	07.06.2006
Peritrechus rhomboidalis Puton, 1877				
16	-	2	-	04.06.2005
PENTATOMIDAE				
Aelia rostrata Bohemann, 1852				
4	2	5	1	01.08.2006
63	2	3	-	15.06.2005
Antheminia lunulata (Goeze, 1778)				
11	1	-	-	19.08.2006

Table 3. (Continued).

L	♂	♀	Ny	Sd
Apodiphus amygdali Germar, 1817				
10	2	4	-	10.06.2006
42	1	-	-	12.06.2006
Brachynema germari (Kolenati ¸1846)				
14	1	1	-	10.05.2006
16	-	2	-	16.05.2006
Carpocoris fuscispinus (Bohemann, 1849)				
33	2	5	-	25.07.2005
Carpocoris purpureipennis (De Geer, 1773)				
17	2	1	-	13.08.2005
Carpocoris coreanus Distant, 1899				
9	3	2	-	11.06.2006
Eurydema ornatum (Linnaeus, 1758)				
8	-	2	-	11.06.2006
Graphosoma lineatum (Linnaeus, 1758)				
5	1	2	-	28.05.2005
33	1	-	-	25.07.2005
Neottiglossa leporina (Herrich-Schaeffer, 1830)				
9	2	3	-	11.06.2006
Palomena prasina (Linnaeus, 1761)				
17	2	-	-	13.08.2005
Sciocoris sulcatus Fieber, 1851				
3	-	2	-	01.08.2006
22	2	2	-	07.06.2006
PYRRHOCORIDAE				
Pyrrhocoris apterus Linnaeus, 1768				
16	1	3	-	16.05.2005
48	1	-	-	11.07.2006
Pyrrhocoris marginatus (Kolenati, 1845)				
16	1	2	-	16.05.2005
SCUTELLERIDAE				
Eurygaster integriceps Puton, 1886				
4	2	5	7	01.08.2005
29	3	7	11	16.06.2005
Eurygaster maura (Linnaeus, 1758)				
4	1	2	-	01.08.2005
STENOCEPHALIDAE				
Dicranocephalus setulosus (Ferrari, 1874)				
17	-	2	-	13.08.2005

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