

A contribution to the Heteroptera fauna of Zunuz region, northwest of Iran

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Abstract. A faunistic study was carried out on the Heteroptera of the Zunuz region, East Azarbaijan province, Iran during 2008–2009. In total, 873 specimens were collected using entomological hand nets and malaise and light traps. In this study 33 species belonging to 11 families were collected and identified. Among them, the species *Anthocoris nemorum* (Linnaeus, 1761) and *Nabis pseudoferus* Remane, 1949 are predaceous. The species belonging to Pentatomidae were the most numerous and the members of Stenocephalidae had the minimum frequency. All species are new records for the study area and one species, *Leptopterna ferrugata* (Fällen, 1807), is reported for first time in Iran.

Key words: fauna, Zunuz region, new records, Heteroptera.

Introduction

Zunuz makes up the northeastern region of East Azarbaijan province, Iran, (38°07' to 38°56'N; 45°15' to 45°50'E) with an altitude varying from 1650m to 2300m. This mountainous area, located on the western mountainside of Sultan Senjer mountain (maximum altitude 3168m), has expansive and rich grasslands as well as orchards growing native varieties of apples. Zunuz is one of the most important centers for apple growing and animal husbandry in the province.

The Heteroptera can often be identified by the structure of the forewing. The basal portion of the wing is hardened and opaque while the distal part is membranous. Heteroptera have sucking mouthparts encased in a labium or rostrum that is used to guide the mouthparts into the food source or prey (Lodos & Onder 1986). Most Heteroptera feed on plants or plant material such as seeds, fruits or pollen with some being serious plant pests (Dolling 1991). The damage caused by the insect as a result of sucking sap from food plants is often increased by the salivary enzymes, which may considerably alter the quality of plant products, such as the baking properties of wheat (Schuh 1995, Van Dyk 2001). On the other hand, predacious bugs catch other insects and Acarina, reducing the number of agricultural pests and may be used as biological control agents (Meyer 2005). Because of these reasons, the accurate identification of heteropteran species is important. So far the fauna of this group of insects has only been

studied by specialists in limited areas of Iran (Safavi 1973, Modarres Awal 1996, Linnavuori & Modarrese Awal 1998, Linnavuori & Hosseini 2000, Linnavuori 2008, Ghahari et al. 2009).

Material and methods

This study was conducted during 2008–2009. Samples were collected from 20 localities in Zunuz region (Fig. 1). Sampling was performed using various methods such as sweep netting, malaise and light trapping and tweezer for soft bodied specimens. Collected specimens were placed in ordinary paper envelopes for transport to the laboratory after being killed in the field in a cyanide bottle. The collection thus brought was placed in a desiccator (with water in the base) for about 24 h in order to relax the specimens. The specimens used for identification were pinned with 00, 0, 1 and 2 mounting pins while the remainder were stored in tubes filled with 70% alcohol. Specimens were identified using valid keys to species level (Carvahlo 1960, Kerzhner & Yachevski 1964, Triplehorn & Johnson 2005).

Results

In this study 33 species belonging to 11 families were collected and identified. All are new records for the region and *Leptopterna ferrugata* (marked by an asterisk) is newly reported to Iran.

Family Anthocoridae Fieber, 1836

Anthocoris nemorum (Linnaeus, 1761)

Material examined: 24 specimens (12♂, 12♀), April 2008. On rape.

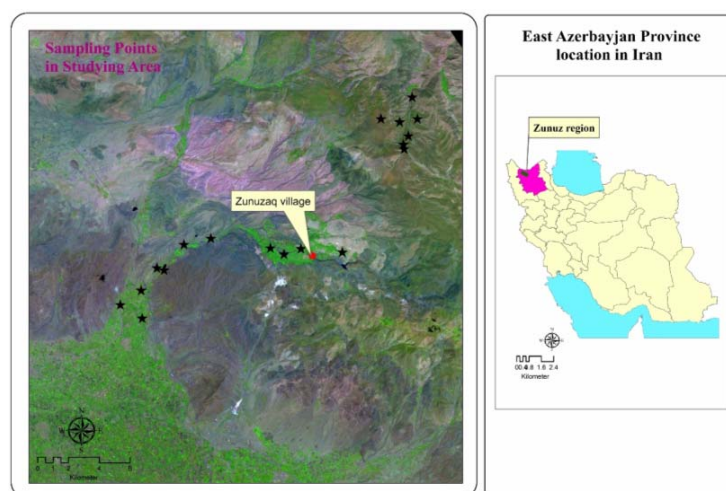


Figure 1. Location of sampling points on satellite image (SPOT) of Zunuz region.

Note: Predator of *Psylla pyricola* (Hemiptera: Psyllidae), *Anthonomus pomorum* (Coleoptera: Curculionidae), *Euzophera bigella* (Lepidoptera: Pyralidae), *Hyponomeuta malinellus* (Lepidoptera: Hyponomeutidae) and aphids (Modarres Awal 2002).

Family Lygaeidae Schilling, 1829

Aphanus rolandri (Linnaeus, 1758)

Material examined: 25 specimens (15♂, 10♀), April 2008. On debris.

Nysius senecionis (Shilling, 1829)

Material examined: 18 specimens (9♂, 9♀), May 2008. On weeds.

Lygaeus equestris (Linnaeus, 1758)

Material examined: 13 specimens (9♂, 4♀), May 2008. On weeds.

Family Miridae Hahn, 1833

Adelphocoris lineolatus (Goeze, 1778)

Material examined: 22 specimens (18♂, 4♀), April 2008. On grasses.

Note: The species is commonly distributed in Iran on sugar-beet, cotton, tamarisk and sainfoin (Modarres Awal, 2002).

Deraeocoris pallens (Reuter, 1904)

Material examined: 23 specimens (13♀, 10♂), May 2009 on alfalfa.

**Leptopterna ferrugata* (Fållen, 1807)

Material examined: 13 specimens (4♂, 9♀), June 2008 on peppermint and alfalfa.

Diagnosis: Length 7.70–9.80 mm; width 1.80–2.50 mm.

Male: vertex 1.3–1.5 times as broad as eye.

Female: Vertex twice as broad as eye. First antennal segment much longer than width of head (Fig. 2a). Second antennal segment as thick as tibia at the base, tapering apically (Fig. 2b,c), abdomen light or with black stripes along lateral connexivum. Brachypterous females: membrane without cells (Fig. 2d).

Habitat: collected on grasses.

Distribution: Albania, Austria, Byelorussia, Belgium, Bosnia and Herzegovina, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Norway, Poland, Romania, Sicily, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands, Russia (Central and North European Territories), Turkey (European and Asian parts), Ukraine and Yugoslavia (Kerzhner & Josifov 1999; Chaplin 2009). Alaska, northern United States, Quebec, Alberta (Kelton 1980).

Stenodema turanica Reuter, 1904

Material examined: 12 specimens (7♂, 5♀), May 2008. On peppermint and alfalfa.

Lygus rugulipennis Poppius, 1911

Material examined: 46 specimens (26♂, 20♀), April 2008. On alfalfa.

Lygus pratensis (Linnaeus, 1758)

Material examined: 65 specimens (39♂, 16♀), June 2008. On alfalfa.

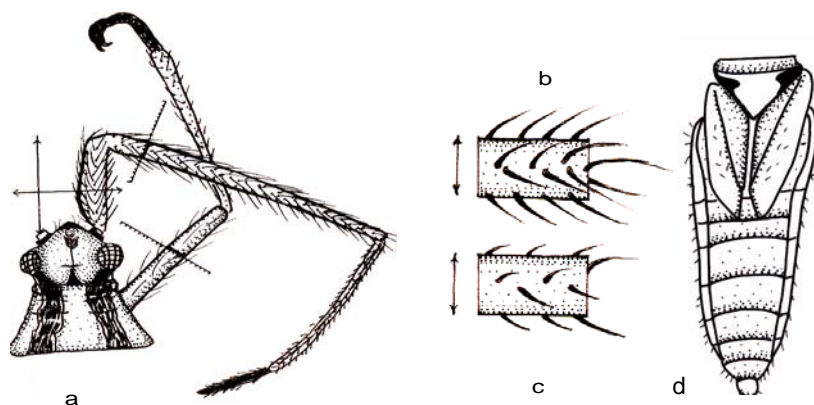


Figure 2. *Leptoterna ferugata* (Fall): a, Anterior of head, dorsal view; b, Vertical section of second antennal segment; c, Vertical section of tibia at base; d, Abdomen, dorsal view.

Family Nabidae A. Costa, 1853

Nabis pseudoferrus Remane, 1949

Material examined: 55 specimens (35♂, 20♀), April 2008. On borage, alfalfa and licorice.

Note: This species is a predator and has been previously collected on sainfoin and lucerne (Modarres Awal, 2002).

Family Pyrrhocoridae Amyot & Serville, 1843

Pyrrhocoris apterus (Linnaeus, 1758)

Material examined: 88 specimens (41♂, 47♀), April 2008. On debris.

Note: The species has been collected from East Azarbaijan, Khorasan, Tehran, Khozestan, Fars, Gilan and Gorgan provinces in Iran (Modarres Awal, 2002).

Family Rhopalidae Amyot & Serville, 1843

Rhopalus parumpunctatus Schilling, 1829

Material examined: 15 specimens (9♂, 6♀), May 2008; 12 specimens, June 2009. On weeds.

Corizus hyoscyami (Linnaeus, 1758)

Material examined: 42 specimens (18♂, 24♀), May 2008; 12 specimens, June 2009. On weeds.

Family Stenocephalidae Dallas, 1852

Dicranocephalus agilis (Scopoli, 1763)

Material examined 4 specimen, (2♂, 2♀), April 2008. On weeds.

Family Coreidae Leach, 1815

Coreus marginatus (Linnaeus, 1758)

Material examined: 44 specimens (16♂, 28♀), June 2008, 20 specimens, June 2009. On *Cirsium* spp. and poison hemlock.

Ceraleptus gracilicornis (Herrich-Schäffer, 1835)

Material examined: 21 specimens (12♂, 9♀), May 2008, 29 specimens, June 2009. On *Cirsium* spp.

Family Alydidae Amyot & Serville, 1843

Camptopus lateralis (Germar, 1817)

Material examined: 3 specimens (2♂, 1♀), April 2008. On weeds.

Family Scutelleridae Leach, 1815

Eurygaster integriceps Puton, 1881

Material examined: 78 specimens (42♂, 36♀), May 2008. On wheat.

Note: This species has wide distribution throughout Iran (Modarrese Awal, 2002).

Eurygaster maura (Linnaeus, 1758)

Material examined: 16 specimens (5♂, 11♀), May 2008. On wheat.

Odontotarsus robustus Jakovlev, 1884

Material examined: 16 specimens (7♂, 9♀), June 2008. On weeds.

Family Pentatomidae Leach, 1815

Aelia rostrata Bohemann, 1852

Material examined: 23 specimens (13♂, 10♀), May 2009. On wild gramineae.

Aelia virgata (Herrich-Schaeffer, 1841)

Material examined: 34 specimens (16♂, 18♀), October 2009. Under *Astragalus* sp.

Ventocoris fischeri (Herrich-Schaeffer, 1851)

Material examined: 38 specimens (18♂, 20♀), April 2009, on weeds. October 2009, under *Astragalus* sp. at Koh Kamar mountains.

Distribution: Portugal and France (Rider, 2004).

Apodiphus amygdali (Germar, 1817)

Material examined: 29 specimens (18♂, 11♀), May 2009. On apricot.

Note: This species has been collected from Tehran, Fars, Markazi, Kerman, Hormozgan, Semnan, Balouchestan, Esfahan provinces in Iran on poplar, almond, apricot, oriental plane, pistachio, tamarisk, oak and tung (Modarres Awal, 2002).

Anthemina lunulata (Goeze, 1778)

Material examined: 31 specimens (16♂, 15♀), May 2009. On cereals.

Carpocoris fuscispinus (Boheman, 1851)

Material examined: 18 specimens (8♂, 10♀), May 2009. On weeds.

Carpocoris purpureipennis (De Geer, 1773)

Material examined: 22 specimens (14♂, 8♀), May 2009. On weeds.

Dolycoris baccarum (Linnaeus, 1758)

Material examined: 25 specimens (18♂, 7♀), May 2009. On lucerne.

Dolycoris penicillatus Horváth, 1904

Material examined: 12 specimens (4♂, 8♀), June 2009. On weeds.

Eurydema ornata (Linnaeus, 1758)

Material examined: 32 specimens (15♂, 17♀), April 2009. On rape.

Note: the species has been collected from different regions of Iran on turnip, cabbage, colza, mustard, wheat, radish and cultivated and wild cruciferous plants (Modarres Awal, 2002).

Graphosoma lineatum (Linnaeus, 1758)

Material examined: 44 specimens (23♂, 11♀), June 2009. On wild Cruciferae.

Ancyrosoma leucogrammes (Gmelin, 1790)

Material examined: 13 specimens (6♂, 7♀), April 2009. On weeds.

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