SOME ADDITIONAL NOTES ABOUT HETEROPTERA FAUNA OF QARADAG FORESTS-IRAN

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ABSTRACT: A survey was conducted on Heteroptera fauna of Qaradag forests, in east Azarbaijan province during 2008-2009. As many as 1560 specimens were collected from trees, weeds, overwintering places, soil and water. In this study 47 species belonging to 17 families were collected and identified. Among them, the species *Anthocoris nemorum* (Linnaeus, 1761), *Nabis pseudoferus* (Romane, 1949), *Notonecta viridis* (Delcourt, 1909), *Velia affinis* (Kolenati, 1857), *Gerris maculates* (Tamanini, 1946) and *Hydrometra stagnorum* (Linnaeus, 1758) are predators. Species belonging to Pentatomidae had the most frequency. Out of verified materials, 32 species are as new records for studied area. The species, *Stinctopleurus crassicornis* and *Stinctopleurus punctatonervosus*, are newly introduced for Iran insect fauna which are described at present study.

KEY WORDS: Fauna, Qaradag forests, Heteroptera.

Qaradag is a registered biosphere in East Azarbaijan province, Iran. This biosphere reserve situated in the northern Iran with a common border to Armenia and Azerbaijan belongs to the Caucasus Iranian Highlands. In between the Caspian, Caucasus and Mediterranean region located in 38°40' to 39°08'N; 46°39' to 47°02'E. This area has Semi-arid steppes, rangelands and forests, rivers and springs with a varying altitude from 256 m in the vicinity of Araz river to 2896 m and covers an area of 78560 hectares. It is registered in world heritages by UNESCO since 1976. The Heteroptera are very important insects from agricultural point of view. In this suborder there are aquatic, semi-aquatic and terrestrial species some of which are serious agricultural and sylvicultural pests. On the other hand, predacious bugs reduce the number of agricultural pests and may be used in biological control. Because of these reasons, identification of Heteroptera is important (Linnavuori and Hosseini, 2000). The Heteroptera insects feed on plant juices or live as predators and parasites. Many of such insects that feed on the plant are known as serious plant pests (Safavi, 1973). 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 quality of wheat. On the other hand, many predators, catch other insects and Acarina, and very beneficial from agricultural point of view (Linnavuori & Hosseini, 2000). Unfortunately, the fauna of this important insects has poorly been studied in this area so the additional studies are necessary in this purpose.

MATERIAL AND METHODS

This study was performed during 2008 and 2009. Samples collected from 35 localities in Qaradag forests (Fig. 1). Heteroptera insects of Qaradag forests

collected from different plant hosts by different methods. The visible specimens that weren't very swift trapped by hand but small species collected by aspirator, some of the bugs are collected by sweep net from weeds and some of them by light trap. The specimens used for identification fixed by 00, 0, 1 and 2 mounted pins and the others were put into tubes filled with 70% alcohol.

RESULTS

In this study 47 species belonging to 17 families were collected and identified. New species for Qaradag forests and Iran are marked by one and two asterisks respectively and listed as follows:

Family Miridae

***Adelphocoris lineolatus* (Geoze, 1778)**
Material examined: 46 specimens (26♂♂, 20♀♀), June 2008, on grasses.
Note: The species is commonly distributed in Iran on sugar-beet, cotton, tamarisk, sainfoin (Modarres Awal , 2002).

****Deraeocoris pallens* Reuter, 1904**
Material examined: 34 specimens (14♂♂, 20♀♀), June 2008, on peppermint and alfalfa.

****Stenodema turanica* Reuter, 1904**
Material examined: 36 specimens (20♂♂, 16♀♀), June 2008, on peppermint and alfalfa.

****Polymerus brevirostris* (Knight, 1925)**
Material examined: 14 specimens (9♂♂, 5♀♀), June 2008, on rape.

****Lygus rugulipennis* Poppius, 1911**
Material examined: 120 specimens (65♂♂, 55♀♀), June 2008, on alfalfa.

****Lygus pratensis* (Linnaeus, 1758)**
Material examined: 130 specimens (64♂♂, 66♀♀), June 2008, on alfalfa.

Family Anthocoridae

****Anthocoris nemorum* (Linnaeus, 1761)**
Material examined: 27 specimens (15♂♂, 12♀♀), July 2008, on rape.
Note: Predator of *Psylla pyricola, Anthonomus pomorum, Euzophera bigella, Hyponomeuta malinellus* and aphids (Modarres Awal, 2002).

Family Lygaeidae

****Aphanus rolandri* (Linnaeus, 1758)**
Material examined: 9 specimens (5♂♂, 4♀♀), June 2008, on weeds.

****Nysius senecionis* (Shilling, 1829)**
Material examined: 24 specimens (13♂♂, 11♀♀), June 2008, on weeds.

****Lygaeus equestris* (Linnaeus, 1758)**
Material examined: 13 specimens (7♂♂, 6♀♀), June 2008, on weeds.

***Rhyparochromus phoeniceus* (Rossi, 1794)**
Material examined: 4 specimens (2♂♂, 2♀♀), June 2008, on weeds.

Family Nabidae

***Nabis pseudoferrus* Remane, 1949**
Material examined: 123 specimens (78♂♂, 45♀♀), April 2008, on borage, alfalfa and licorice.
Note: The species is predator and collected on sainfoin and Lucerne (Modarres Awal, 2002).

Family Coreidae

***Coreus marginatus* (Linnaeus, 1758)**
Material examined: 66 specimens (32♂♂, 34♀♀), May 2008, 20 specimens, June 2009, on *Cirsium* and poison hemlock.

***Ceraleptus gracilicornis* (Herrich-Schäffer, 1835)**
Material examined: 54 specimens (31♂♂, 23♀♀), May 2008, 29 specimens, June 2009, on *Cirsium*.

Family Pyrrhocoridae

***Pyrrhocoris apterus* (Linnaeus, 1758)**
Material examined: 33 specimens (18♂♂, 15♀♀), June 2008, on weeds.
Note: The species has been collected from East Azarbaijan, Khorasan, Tehran, Khozestan, Fars, Gilan and Gorgan provinces in Iran (Modarres Awal, 2002).

Family Rhopalidae

***Rhopalus parumpunctatus* Schilling 1829**
Material examined: 7 specimens (3♂♂, 4♀♀), May 2008; 12 specimens, June 2009, on weeds.

***Stictopleurus* sp.**
Description: Antennal tubercles projecting outward, usually in form of a pointed denticle. Fourth antennal segment usually longer than 3ed antennal segment. Corium and clavus more or less hyaline and transparent. Eyes markedly projecting and widely separated from anterior margin of pronotum by a well developed inflation of the posterior part of the head behind the eyes. Metaplleura uniformly punctuate, with rounded outer posterior corners which are not visible in dorsal view. Proboscis usually reaching hind coxae (Fig. 2).

****Stictopleurus crassicornis* (Linnaeus, 1758)**
Material examined: 4 specimens (2♂♂, 2♀♀), May 2008; 12 specimens, June 2009, on weeds.
Description: Transverse groove of pronotum anteriorly limited by a smooth, not punctuate, ridge or fold, forming a closed loop on each side. Hairs on head and pronotum longer than thickness of 2nd antennal segment. Posterior corners of anterior genital plate of female situated at level of middle of 2nd pair of valves of ovipositor. Paramers with conical apex, tapering not flattened (Fig. 3).

****Stictopleurus punctatonervosus* (Goeze, 1778)**
Material examined: 2 specimens (1♂, 1♀), May 2008; 2 ecimens, June 2009, on weeds.
Description: A transverse groove in anterior part of pronotum, not anteriorly limited by a smooth ridge or fold, forming an open loop on each side. Paramers almost straight, slender, uniformly tapering apically, conical (Fig. 4).

***Corizus hyoscyami* (Linnaeus, 1758)**
Material examined: 39 specimens (24♂♂, 15♀♀), May 2008; 12 specimens, June 2009, on weeds.

Family Cydnidae

***Cydnus aterrimus* (Forster, 1771)**
Material examined: 4 specimens (2♂♂, 2♀♀), May 2008, on yarrow and other weeds.

Family Scutelleridae

***Eurygaster integriceps* Puton, 1881**
Material examined: 34 specimens (24♂♂, 10♀♀), June 2008, on wheat.
Note: This species has generally distribution in Iran (Modarrese Awal, 2002).

***Eurygaster maura* (Linnaeus, 1758)**
Material examined: 25 specimens (15♂♂, 10♀♀), May 2008, on wheat.

***Odontotarsus robustus* Jakovlev, 1883**
Material examined: 6 specimens (5♂♂, 1♀), May 2008, on weeds.

Family Pentatomidae

***Aelia rostrata* Boheman, 1852**
Material examined: 34 specimens (23♂♂, 11♀♀), June 2009, on wild graminae

***Apodiphus amygdali* (Germar, 1817)**
Material examined: 14 specimens (8♂♂, 6♀♀), July 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, tung (Modarres Awal,2002).

***Apodiphus integriceps* Horvath, 1888**

Material examined: 27 specimens (17♂♂, 10♀♀), June 2009, on poplar.

***Carpocoris fuscispinus* (Boheman, 1851)**

Material examined: 42 specimens (18♂♂, 24♀♀), July 2009, on dill and licorice.

Note: The species has distribution in East Azarbaijan, Mazandaran, Zanjan, Tehran ,

***Carpocoris coreanus* Distant, 1899**

Material examined: 15 specimensm (10♂♂, 5♀♀), June 2008, on weeds.

***Carpocoris lunulatus* (Goeze, 1778)**

Material examined: 22 specimens (12♂♂, 10♀♀), May 2009, on cereals.

***Carpocoris purpureipennis* (DeGeer, 1773)**

Material examined: 14 specimens (7♂♂, 7♀♀), August 2009, on weeds.

***Dolycoris baccarum* (Linnaeus, 1758)**

Material examined: 15 specimens (8♂♂, 7♀♀), June 2009, on Lucerne

***Dolycoris penicillatus* Horvath, 1904**

Material examined: 21 specimens (12♂♂, 9♀♀), August 2009, on weeds.

***Eurydema ornata* (Linnaeus, 1758)**

Material examined: 35 specimens (20♂♂, 15♀♀), 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 crucifereae family plants (Modarres Awal, 2002).

***Eurydema fieberi* Schummel, 1837**

Material examined: 14 specimens (13♂♂, 1♀), June 2008, on weeds.

***Eurydema ventralis* Kolenati, 1846**

Material examined: 4 specimens (3♂♂, 1♀), June 2008, on weeds.

***Graphosoma lineatum* (Linnaeus, 1758)**

Material examined: 88 specimens (48♂♂, 40♀♀), June 2009, on wild crucifereae.

***Neottiglossa irana* Wagner, 1963**

Material examined: 65 specimens (26♂♂, 39♀♀), April 2009, on weeds.

***Ancyrosoma leucogrammes* (Gmelin, 1790)**

Material examined: 29 specimens (18♂♂, 11♀♀), April 2009, on weeds.

Family Hydrometridae

***Hydrometra stagnorum* (Linnaeus, 1758)**

Material examined: 6 specimens (4♂♂, 2♀♀), April 2009, in water surface.

Family Gerridae

***Gerris maculatus* Tamanini, 1946**

Material examined: 66 specimens (30♂♂, 36♀♀), April 2009, in water surface.

Family Veliidae

***Velia affinis* Kolenati, 1857**

Material examined: 123 specimens (101♂♂, 22♀♀), April 2009, in water surface.

Family Notonectidae

***Notonecta viridis* Delcourt, 1909**

Material examined: 26 specimens (16♂♂, 10♀♀), May 2009, from springs.

Family Pleidae

***Plea minutissima* Leach, 1817**

Material examined: 5 specimens (3♂♂, 2♀♀), June 2004, from water

Family Stenocephalidae

***Dicranocephalus setulosus* (Ferrari, 1874)**
Material examined 1 specimen, (1♂), May 2006, on weeds.

***Coriomeris scabricornis* (Panzer, 1809)**
Material examined: 4 specimens (2♂♂, 2♀♀), June 2008, on weeds.

***Maccevethus caucasicus* (Kolenati, 1845)**
Material examined: 1 specimen (1♂), March 2007, on ground.

Family Alydidae

***Camptopus lateralis* (Germar, 1817)**
Material examined: 3 specimens (2♂♂, 1♀), June 2008, on weeds.

Among the species found in this study, Species belonging to Pentatomidae had the most frequency and convertibly family of *Cydnidae* had the minimum one.

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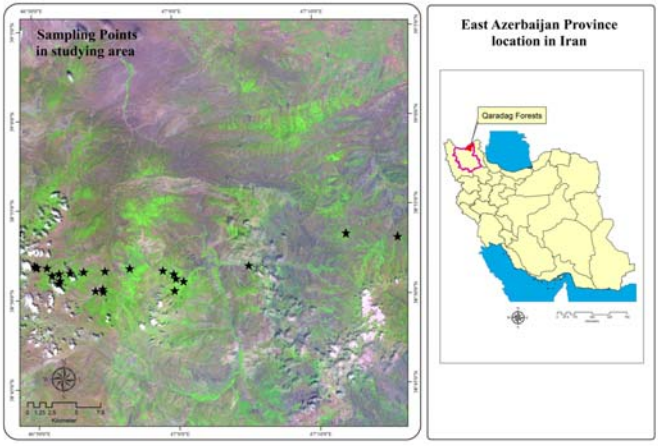

Figure 1. Location of sampling points on satellite image (SPOT) of Qaradag forests.

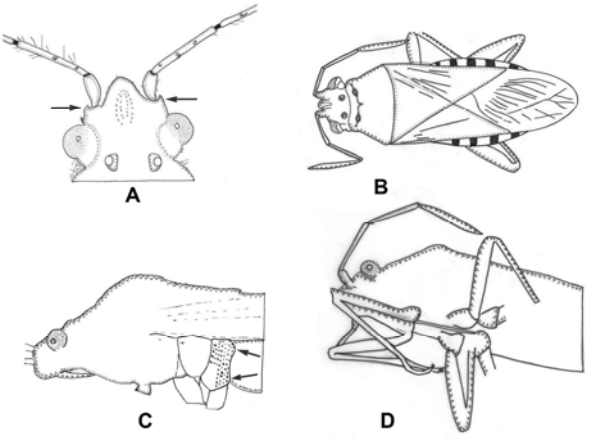

Figure 2. *Stinctopleurus* sp.: A. head, dorsal view; B. body, dorsal view; C. thorax, lateral view; D. anterior part of body, latero-ventral view.

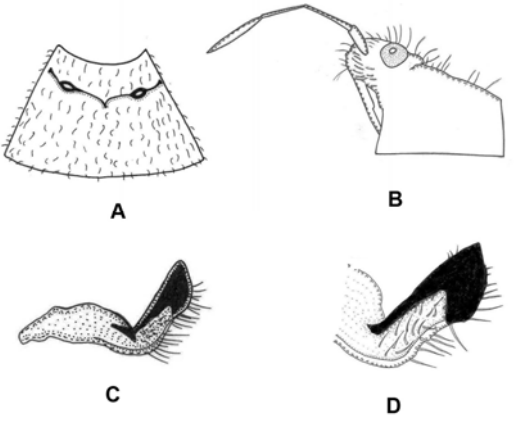

Figure 3. *Stinctopleurus crassicornis*: A. pronotum, dorsal view; B. head, lateral view; C. and D. Paramer, lateral view.

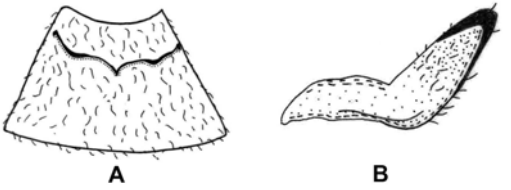

Figure 4. *Stinctopleurus punctatonervosus*: A. pronotum, dorsal view; B. paramer, lateral view.