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A study on aquatic and semiaquatic bugs (Hemiptera: Heteroptera) from northern Iran

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A b s t r a c t : Totally 19 species of aquatic and semiaquatic Heteroptera from the families Corixidae, Gerridae, Hydrometridae, Notonectidae, Saldidae were collected and identified from some regions of northern Iran, southern areas of Caspian Sea.

K e y w o r d s : Hemiptera, Heteroptera, Aquatic and semiaquatic bugs, Fauna, Iran.

Introduction

Insects represent the most diversified biological group within the arthropods, having occupied heterogeneous functional and environmental habitats. They are the most numerous animal and essential elements in most trophic and energetic chains (SANDWAYS 1994; FERNÁNDEZ & LÓPEZ RUF 2006). Heteroptera is a worldwide distributed group of insects inhabiting both terrestrial and aquatic habitats and has an important ecological role (SCHUH & SLATER 1995; NARANJO et al. 2010). Heteropteran species are a significant component of the aquatic fauna and play an important part in littoral food webs (NIESER 1975; SKERN et al. 2010). These insects are able to colonize all aquatic habitats, from small temporary ponds to lakes and rivers, from swamps to brackish waters, even if only temporarily during their migratory flights (NIESER 1978; BERCHI et al. 2011). Most species of the aquatic and semiaquatic Heteroptera belong to the infraorders Leptopodomorpha, Gerromorpha and Nepomorpha, with the last two encompassing approximately 92 % of the aquatic bugs diversity (ANDERSEN 1982; SCHUH & SLATER 1995; POLHEMUS & POLHEMUS 2008). The data on the aquatic and semiaquatic bugs of Iran was catalogued by GHAHARI et al. (2013) with 107 species. The goal of this paper is faunistic study on aquatic and semiaquatic Heteroptera from some regions of northern Iran (south of Caspian Sea).

Materials and Methods

A faunistic survey of aquatic and semiaquatic Heteroptera from northern Iran (Golestan, Guilan, and Mazandaran provinces) is provided based on the collected materials through 2011-2012. Classification, nomenclature, and distribution data as suggested by AUKEMA & RIEGER (1995) and GHAHARI et al. (2013) have been followed.

1992

Results

In total 19 heteropteran species from 9 genera (*Micronecta*, *Corixa*, *Sigara*, *Aquarius*, *Gerris*, *Hydrometra*, *Anisops*, *Chartoscirta*, *Saldula*) are recorded in this paper as the aquatic and semiaquatic Heteroptera from northern regions of Iran.

Family C o r i x i d a e (LEACH 1815)

Subfamily M i c r o n e c t i n a e (JACZEWSKI 1924)

Genus *Micronecta* (KIRKALDY 1897)

Subgenus *Micronecta* (KIRKALDY 1897)

Micronecta anatolica anatolica (LINDBERG 1922)

M a t e r i a l e x a m i n e d : Mazandaran province: Savadkooh, 2♂♂, 1♀, 16 August 2011.

G e n e r a l d i s t r i b u t i o n : Near East, Central Asia, Yemen, Southern Asia as far as Vietnam.

Micronecta wui alkani (HOBERLANDT 1952)

M a t e r i a l e x a m i n e d : Guilan province: Lahijan, 4♀♀, 8 June 2011.

G e n e r a l d i s t r i b u t i o n : Asian Turkey, Israel, Iran.

Subfamily C o r i x i n a e (LEACH 1815)

Tribe C o r i x i n i (LEACH 1815)

Genus *Corixa* (GEOFFROY 1762)

Corixa affinis (LEACH 1817)

M a t e r i a l e x a m i n e d : Golestan province: Gorgan, 4♂♂, 7♀♀, 21 April 2012.
Mazandaran province: Savadkooh, 2♂♂, 5♀♀, 16 August 2011.

G e n e r a l d i s t r i b u t i o n : Holo-Mediterranean with a wide range from Central Europe and Euro-Asian (from British Isles) to Mediterranean basin, Middle East, Central Asia, and Indian subcontinent.

Corixa panzeri (FIEBER 1848)

M a t e r i a l e x a m i n e d : Mazandaran province: Ramsar, 2♀♀, 12 October 2011.

G e n e r a l d i s t r i b u t i o n : Europe, Caucasus, Central Asia.

Corixa punctata (ILLIGER 1807)

M a t e r i a l e x a m i n e d : Guilan province: Lahijan, 2♂♂, 2♀♀, 9 June 2011.

G e n e r a l d i s t r i b u t i o n : Euro-Asiatic, Indian subcontinent.

Genus *Sigara* (FABRICIUS 1775)

Subgenus *Pseudovermicorixa* (JACZEWSKI 1962)

***Sigara nigrolineata nigrolineata* (FIEBER 1848)**

Material examined: Guilan province: Bandar-Anzali, 1 ♀, 11 June 2011.

General distribution: Euro-Siberian, and European extending to the Middle East.

Subgenus *Sigara* (FABRICIUS 1775)

***Sigara albiventris* (HORVATH 1911)**

Material examined: Golestan province: Gorgan, 2 ♂ ♂, 21 April 2012.

General distribution: Anatolia, Iraq, Syria, Israel, Palestine, Turkey.

***Sigara assimilis* (FIEBER 1848)**

Material examined: Mazandaran province: Tonekabon, 1 ♀, 13 October 2011.

General distribution: From the Balkan (except Greece) to China and Mongolia (JANSSON 1995).

Subgenus *Subsigara* (STICHEL 1935)

***Sigara daghestanica* (JANSSON 1983)**

Material examined: Guilan province: Astara, 2 ♂ ♂, 3 ♀ ♀, 12 July 2011.

General distribution: Turkey, Caucasus, and Southern Russia.

***Sigara kervillei* (POISSON 1927)**

Material examined: Mazandaran province: Ramsar, 2 ♀ ♀, 12 October 2011.

General distribution: Anatolia.

Subgenus *Vermicorixa* (WALTON 1940)

***Sigara lateralis* (LEACH 1817)**

Material examined: Mazandaran province: Qaemshahr, 2 ♀ ♀, 25 March 2012.

General distribution: Holo-Mediterranean, extending from Central Europe to Africa and Central and South Asia.

Family *Gerridae* (LEACH 1815)

Subfamily *Gerrinae* (LEACH 1815)

Tribe *Gerrini* (LEACH 1815)

1994

Genus *Aquarius* (SCHELLENBERG 1800)

***Aquarius ventralis* (FIEBER 1860)**

Material examined: Guilan province: Lahijan, 1♀, 8 June 2011.

General distribution: Ponto-Mediterranean (Bulgaria, Greece, Turkey, Near East).

Genus *Gerris* (FABRICIUS 1794)

Subgenus *Gerris* (FABRICIUS 1794)

***Gerris (Gerris) costae fieberi* STICHEL 1938**

Material examined: Golestan province: Kordkoy, 3♂♂, 6♀♀, 19 April 2012.

General distribution: Ponto-north-Mediterranean extending to Central Asia.

***Gerris lacustris* (LINNAEUS 1758)**

Material examined: Mazandaran province: Babol, 2♂♂, 5♀♀, 28 March 2012.

General distribution: Palearctic.

Family *Hydrometridae* (BILLBERG 1820)

Subfamily *Hydrometrinae* (BILLBERG 1820)

Genus *Hydrometra* (LATREILLE 1796)

***Hydrometra stagnorum* (LINNAEUS 1758)**

Material examined: Mazandaran province: Qaemshahr, 2♀♀, 25 March 2012.

General distribution: Euro-Siberian, Mediterranean basin, Middle Asia, Middle East, North Africa.

Family *Notonectidae* (LATREILLE 1802)

Subfamily *Anisopinae* (HUTCHINSON 1929)

Genus *Anisops* (SPINOLA 1837)

***Anisops sardeus sardeus* (HERRICH-SCHÄFFER 1849)**

Material examined: Mazandaran province: Savadkooh, 2♀♀, 16 August 2011.

General distribution: Mediterranean basin, Near East, Central Asia, Indian subcontinent, Tropical Africa.

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Family Saldidae (AMYOT & SERVILLE 1843)

Tribe Saldoidini (REUTER 1912)

Genus *Chartoscirta* (STÅL 1868)

***Chartoscirta cincta cincta* (HERRICH-SCHÄFFER 1841)**

Material examined: Guilan province: Bandar-Anzali, 1♂, 4♀, 9 June 2011.

General distribution: Euro-Siberian extends to Ethiopian Region.

Genus *Saldula* (VAN DUZEE 1914)

***Saldula pallipes* (FABRICIUS 1794)**

Material examined: Mazandaran province: Savadkooh, 2♂♂, 3♀, 16 August 2011.

General distribution: Holarctic (incl. Indian subcontinent); in America from Alaska to Panama; probably settled in South America; Oriental and Neotropical Regions.

***Saldula pilosella pilosella* (THOMSON 1871)**

Material examined: Golestan province: Gorgan, 1♂, 2♀, 21 April 2012.

General distribution: Euro-Siberian extending to Central Asia and, eastern, to Korea.

Discussion

This research and also other works on Iranian aquatic and semiaquatic Heteroptera (e.g. SAMIN et al. 2012; GHAHARI et al. 2013) indicate that the fauna of these insects is diverse in Iran. Generally, the aquatic and semiaquatic Heteroptera are predators with an intermediate stage in the food chains of their respective communities; some species may have economic importance as predators of mosquito larvae and adults, or as food for fish (JENKINS 1964; MENKE 1979; SCHUH & SLATER 1995). Conservation of biological biodiversity is, at present, a worldwide concern. One of the first steps to be considered by biologists in this regard is to carry out an inventory of the species inhabiting each ecosystem, and to know their main attributes (FERNÁNDEZ & LÓPEZ RUF 2006; FOOTITT & ADLER 2009).

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Zusammenfassung

Eine faunistische Erhebung aquatischer und semiaquatischer Wanzen (Heteroptera) in den Jahren 2011-2012 in Nordiran am südlichen Kaspischen Meer (Provinzen Golestan, Guilan und

1996

Mazandaran) ergab 19 Arten aus den Familien Corixidae, Gerridae, Hydrometridae, Notonectidae und Saldidae.

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