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A contribution to the Gryllidae (Orthoptera) and Dermaptera from some regions of Iran

H. SAKENIN, N. SAMIN, S. IMANI & J. RASTEGARI

Abstract: The fauna of Iranian crickets (Orthoptera: Gryllidae) and ear wigs (Dermaptera) was studied in some regions and the results are given in this paper. Totally 13 species from 8 genera of Gryllidae and 13 species from 6 genera of Dermaptera were collected. Of these four species of crickets including, *Gryllus chaldeus* (UVAROV), *Gryllus urfaensis* GÜMÜŞSUYU, *Modicogryllus bordigalensis* (LATREILLE) and *Modicogryllus bucharicus* (BEY-BIENKO) and 3 species of ear wigs including, *Euborellia moesta* (GÉNÉ), *Guanchia hincksi* (BURR) and *Isolaboidea kosswigi* (BURR) are new records for Iran.

Key words: Orthoptera, Gryllidae, Dermaptera, Fauna, Iran.

Introduction

Members of Gryllidae are collectively known as crickets and are often only seen at night, usually remaining concealed during the day on the ground in leaf litter, among vegetation or under logs and stones. They may be light or dark but are usually drab coloured (ALEXANDER 1962; MASAKI & WALKER 1987; WALKER & MASAKI 1989).

Taxonomists are agreed that crickets are a monophyletic group, that is, they constitute all the surviving descendants of a single ancestral species. However, taxonomists disagree as to where in the taxonomic hierarchy this group belongs and how it should be subdivided. For example, VICKERY & KEVAN (1985) put crickets in the suborder Grylloidea of the order Grylloptera, whereas we along with many others put them in the superfamily Grylloidea of the suborder Ensifera, order Orthoptera. In our scheme, the initial subdivisions are families, and we recognize only two: Gryllotalpidae, the mole crickets, and Gryllidae, all other crickets. We treat as subfamilies some cricket groups that others treat as families—namely, tree crickets, scaly crickets, ant crickets, and sword-tailed crickets. We do this because the evolutionary relations of the major groups crickets are poorly understood making it impossible to know what family classification will best reveal phylogeny. It is worth noting that Mogoplistinae (scaly crickets) and Myrmecophilinae (ant crickets) are generally considered to be sister groups as are Trigonidiinae (sword-tailed crickets) and Nemobiinae (ground crickets) (SHAROV 1971; SAKALUK et al. 1992; GWYNNE 1995). The fauna of Iranian Gryllidae was poorly studied and a few species were recorded in little publications (UVAROV 1922; MOSSADEGH 1995; MODARRES AWAL 1997; GHAHARI et al. 2009).

The earwigs (Dermaptera) usually earwigs are found outdoors hiding under leaves, boards or in cracks during the day. Earwigs can be destructive in greenhouses and rarely in field crops. Earwigs may do some damage in gardens by eating vegetation (they have been known to damage ornamental plants and fruit and vegetable crops) but may also eat other insects. They are most likely harmless but can become a nuisance in the household if there is a lack of suitable crevices outdoors (BUXTON 1974; SAKAI 1996, 2000). The fauna of Iranian Dermaptera was studied rather well (SEMENOV 1902; BURR 1911, 1912; BUXTON 1921; BEY-BIENKO 1936; CEJCHAN & MARAN 1974; STEINMANN 1988; MOSSADEGH 1995; KOCAREK et al. 2007). The aim of this research is determining of Iranian Gryllidae and Dermaptera especially in some regions especially Northwestern and Northeastern Iran.

Materials and Methods

The materials were collected in the fields, pastures and forests of different regions of Iran by different sampling methods including, pitfall traps, fermenting bait traps and sweeping net on the plants (YANG et al. 1994; TEZCAN & KOCAREK 2009). Also some specimens of different insect collections of some universities were checked and the results were applied in this paper.

Results

In a total 13 species from 8 genera of Gryllidae and 13 species of 6 genera of Dermaptera were collected from different regions of Iran. The list of species is given below.

Order Orthoptera

Family Gryllidae

Dianemobius fascipes (WALKER 1869)

M a t e r i a l : Khorasan province: Kashmar, Torbat-Heydarieh, 3 ♀, 1 ♂, August 2006.

Discoptila brevis BEI-BIENKO 1964

M a t e r i a l : West Azarbayjan province: Ourmieh, 2 ♀, July 2007.

Gryllus (Gryllus) bimaculatus (DE GEER 1773)

M a t e r i a l : East Azarbayjan province: Tabriz, 2 ♀, June 2007. West Azarbayjan province: Ourmieh, 1 ♂, August 2008.

Gryllus chaldeus (UVAROV 1922)

M a t e r i a l : East Azarbayjan province: Kaleibar, 1 ♀, August 2007. **New record for Iran.**

***Gryllus urfaensis* GÜMÜŞSUYU 1978**

M a t e r i a l : West Azarbayjan province: Oshnavieh, 1 ♂, June 2008. **New record for Iran.**

***Melanogryllus desertus* (PALLAS 1771)**

M a t e r i a l : East Azarbayjan province: Arasbaran, 1 ♀, September 2009.

***Modicogryllus frontalis frontalis* (FIEBER 1845)**

M a t e r i a l : Golestan province: Bandar-Torkman, 2 ♀ ♀, 2 ♂ ♂, April 2007.

***Modicogryllus bordigalensis* (LATREILLE 1804)**

M a t e r i a l : East Azarbayjan province: Maragheh, 2 ♀ ♀, June 2007. **New record for Iran.**

***Modicogryllus bucharicus* (BEY-BIENKO 1933)**

M a t e r i a l : Khorasan province: Serakhs, 1 ♀, 1 ♂, July 2006. **New record for Iran.**

***Modicogryllus pallipalpis* (SERG. TARBINSKY 1940)**

M a t e r i a l : Golestan province: Gonbad, 3 ♀ ♀, 1 ♂, April 2007.

***Oecanthus turanicus* UVAROV 1912**

M a t e r i a l : Mazandaran province: Galogah, 2 ♀ ♀, March 2008.

***Pteronemobius heydeni* (FISCHER 1853)**

M a t e r i a l : Kerman province: Kerman, 2 ♀ ♀, August 2005.

***Tartarogryllus tartarus* (SAUSSURE 1874)**

M a t e r i a l : East Azarbayjan province: Tabriz, 4 ♀ ♀, June 2007.

***Turanogryllus lateralis* (FIEBER 1853)**

M a t e r i a l : Khorasan province: Mashhad, 1 ♀, June 2006.

Order D e r m a p t e r a

***Anisolabis maritima* (BONELLI 1832)**

M a t e r i a l : West Azarbayjan province: Ourmieh, 1 ♀, July 2008.

***Anechura zubovskii* SEMENOV 1901**

M a t e r i a l : Ardabil province: Rasht, 2 ♀ ♀, July 2007.

***Euborellia moesta* (GÉNÉ 1839)**

M a t e r i a l : East Azarbayjan province: Tabriz, 2 ♀ ♀, June 2007. **New record for Iran.**

***Forficula aetolica* BRUNNER 1882**

M a t e r i a l : Kordestan province: Sanandaj, 1 ♀, 1 ♂, September 2006.

***Forficula auricularia* LINNAEUS 1758**

M a t e r i a l : East Azarbayjan province: Tabriz, 6 ♀ ♀, 3 ♂ ♂, October 2005. West Azarbayjan province: Oshnavieh, 3 ♀ ♀, 2 ♂ ♂, August 2007. West Azarbayjan province: Ourmieh, 4 ♀ ♀, July 2008.

***Forficula lurida* FISHER 1853**

M a t e r i a l : East Azarbayjan province: Tabriz, 3 ♀ ♀, 4 ♂ ♂, October 2005. West Azarbayjan province: Ourmieh, 1 ♀, July 2008. Ardabil province: Ardabil, 4 ♀ ♀, 5 ♂ ♂, September 2008.

***Forficula senegalensis* AUDINET-SERVILLE 1839**

M a t e r i a l : East Azarbayjan province: Arasbaran, 2 ♀ ♀, 1 ♂, June 2006.

***Forficula smyrnensis* AUDINET-SERVILLE 1839**

M a t e r i a l : West Azarbayjan province: Ourmieh, 2 ♀ ♀, July 2008.

***Forficula tomis* (KOLENATI 1846)**

M a t e r i a l : East Azarbayjan province: Tabriz, 2 ♀ ♀, 2 ♂ ♂, October 2005.

***Guanchia hincksi* (BURR 1947)**

M a t e r i a l : Kordestan province: Bijar, 2 ♀ ♀, 1 ♂, September 2006. **New record for Iran.**

***Guanchia pubescens* (GÉNÉ 1837)**

M a t e r i a l : East Azarbayjan province: Maragheh, 1 ♀, 1 ♂, July 2008.

***Isolabella graeca* VERHOEFF 1901**

M a t e r i a l : East Azarbayjan province: Arasbaran, 2 ♀ ♀, September 2008.

C o m m e n t : Although almost ear wigs are plant feeders, but some of them are the predators of immature insects as eggs of Pyralidae and etc. (POLASZEK 1998; GHAHARI et al. 2008).

***Isolaboides kosswigi* (BURR 1947)**

M a t e r i a l : West Azarbayjan province: Oshnavieh, 1 ♀, August 2007. **New record for Iran.**

Discussion

The result of this research indicates that the fauna of Iranian Gryllidae and Dermaptera is very diverse but on the other hand unknown. Since Iran is a large country with various geographical climates, surely several other unknown species of these two taxa reminder to be discovered. Continuing of these faunistic surveys are necessary for determining and completing the fauna of Iranian Gryllidae and Dermaptera. About the different ear wigs

of this research, *F. auricularia* is one of the common and widely distributed species in Iran, eurytopic with a strong tendency to synanthropy. The biology of this species is well known for a long time (e.g. BEHURA 1956). It has varied hosts consisting of plant and animal material. It is noted as both pest on cultural plants and also beneficial due to its carnivorous feeding habits. It is mentioned as predator on the larvae and eggs of some insect pests e.g. *Chilo suppressalis* WALKER 1863 (Lepidoptera: Crambidae) (MODERRAES AWAL 1997), *Cydia pomonella* (L. 1758) (Lepidoptera: Tortricidae) (GLEN 1975), *Eriosoma lanigerum* (HAUSMANN 1802) (Homoptera: Aphididae) (HELSEN et al. 1998) or scale insects (Homoptera: Diaspididae) (MAHER & LOGAN 2007). The biology of *F. smyrnensis*, the most abundant species in this study, is less well known (Albouy and CAUSSANEL 1990; KINAL 2006). HAAS & HENDERICKX (2002) suggested that there are herbivorous feeding habits of the species, but their assumption is based on alimentary tract dissection of the only one specimen. *F. lurida* was observed as pest on many cultural plants (MODERRAES AWAL 1997), but this finding contrasts with the results of HAAS & HENDERICKX (2002) who suggested the carnivorous feeding habit is based on cuticle fragments of arthropods found in the gut contents of dissected of two specimens. Earwigs from the family Forficulidae are known to damage some cultural plants, but also have beneficial potential, because they are predators on some insect pests. The ecological function of earwigs in especially managed orchards is unknown, when according to current knowledge we can not determine the rate of their significance as predators of pests versus their own harmfulness. It is necessary to perform further study and experiment to uncover their importance in farming practice (TEZCAN & KOCAREK 2009).

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Zusammenfassung

Vorliegende Studie behandelt das Vorkommen von Gryllidae (Grillen) und Ohrwürmern (Dermaptera) ausgewählter Gebiete des Irans. Insgesamt gelang der Nachweis von 13 Arten aus 8 Gattungen an Gryllidae sowie von 13 Arten aus 6 Gattungen Dermaptera. Vier Gryllidae-Arten [*Gryllus chaldeus* (UVAROV), *Gryllus urfaensis* GÜMÜŞSUYU, *Modicogryllus bordigalensis* (LATREILLE) und *Modicogryllus bucharicus* (BEY-BIENKO)], sowie 3 Dermaptera-Arten [*Euborellia moesta* (GÉNÉ), *Guanchia hincksi* (BURR) und *Isolaboides kosswigi* (BURR)] stellen Neunachweise für den Iran dar.

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Author's addresses:

Hamid SAKENIN
Department of Plant Protection
Islamic Azad University, Ghaemshahr Branch
Mazandaran, Iran
E-mail: hchelave@yahoo.com

Najmeh SAMIN
Department of Entomology
Islamic Azad University, Science & Research Branch
Tehran, Iran
E-mail: n_samin63@yahoo.com

Sohrab IMANI
Department of Entomology
Islamic Azad University, Science & Research Branch
Tehran, Iran
E-mail: imanisohrab@yahoo.com

Jinoos RASTEGARI
Department of Entomology
Islamic Azad University, Garmsar Branch
Semnan, Iran
E-mail: Jinoosrastegar@yahoo.com

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Autor(en)/Author(s): Sakenin Hamid, Samin Najmeh, Imani Sohrab, Rastegar Jinoos

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