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## A faunistic study on the Odonata (Insecta) from Kurdistan province and vicinity, western Iran

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**A b s t r a c t :** The fauna of Odonata (Anisoptera and Zygoptera) from Kurdistan province, western Iran is studied in this paper. In total 25 species from 18 genera and 9 families (including, Aeshnidae, Calopterygidae, Coenagrionidae, Cordulegastridae, Euphaeidae, Gomphidae, Lestidae, Libellulidae, Platycnemididae) were collected and identified.

**K e y w o r d s :** Odonata, Fauna, Kurdistan, Iran.

### Introduction

Odonata is one of the oldest groups of winged insects found today. With 5680 extant species, dragonflies are a relatively small order of insects (KALKMAN et al. 2008). Adult odonates are medium to large in size, often conspicuous and/or brightly colored insects and are aerial predators hunting by sight. They generally are found at or near freshwater, although some species roam widely and may be found far from their breeding sites. The larvae are predatory, aquatic and occur in all manner of inland waters (BRINCK 1955; GLOYD & WRIGHT 1959; CORBET 1962; CARLE 1982; DUNKLE 1990). The fauna of Iranian Odonata was studied rather well (SCHMIDT 1954; BLOM 1982; LOHMANN 1990, 1992; HEIDARI & DUMONT 2002; KALKMAN et al. 2004; MAJIDI-SHILASAR et al. 1998; SAKENIN et al. 2008, 2011; EBRAHIMI et al. 2009; GHAHARI et al. 2009, AHMADI et al. 2011, 2012). The aim of this research is studying the fauna of Odonata in Kurdistan province where the odonate fauna has not been studied so far. Kurdistan province, 28,817 km<sup>2</sup> in area, is located in the west of Iran and bounded by Iraq on the west. Kurdistan is one of the most mountainous regions in Iran and has a generally mild and quite pleasant climate throughout the spring and summer. As a result of its elevation and mountains, Kurdistan province has many rivers, lakes, glaciers and caves, which render it rather picturesque.

### Materials and Methods

The specimens for this research were collected from different habitats (especially close to freshwater bodies, mainly along canals, pools, streams, ponds and small seasonal rivers) of Kurdistan province and vicinity (western Iran). The adults of Odonata were

collected with long-handed aerial net with a net opening of at least 17 inches. The collected specimens were put in 75% alcohol or pinned and determined. Classification, nomenclature and identification as suggested by DUMONT (1991), DIJKSTRA & LEWINGTON (2006), KALKMAN (2006), and some other available articles have been followed.

## Results

In total 25 species from 18 genera and 9 families of Odonata were collected from Kurdistan province and vicinity. The list of species is given below alphabetically.

### **Family Aeshnidae RAMBUR 1842**

#### **Genus *Aeshna* FABRICIUS 1775**

##### ***Aeshna mixta* LATREILLE 1805**

M a t e r i a l   e x a m i n e d : Kurdistan province: Ghorveh, 2♂♂, 2♀♀, unknown date.  
Kurdistan province: Hassan-Abad, 1♂, 1♀, September 2007.

#### **Genus *Anacaeischna* SELYS 1878**

##### ***Anaciaeschna isoceles* (MÜLLER 1767)**

M a t e r i a l   e x a m i n e d : Kurdistan province: Baneh, 3♀♀, August 2007.

#### **Genus *Anax* LEACH 1815**

##### ***Anax ephippiger* (BURMEISTER 1839)**

M a t e r i a l   e x a m i n e d : Kurdistan province: Sanandaj, 1♀, July 2007. Kermanshah province: Paveh, 1♀, September 2007.

##### ***Anax imperator* LEACH 1815**

M a t e r i a l   e x a m i n e d : Kurdistan province: Dehkalan, 1♂, April 2007. Kurdistan province: Baneh, 2♂♂, August 2007. West Azarbaijan province: Piranshahr, 1♂, spring 2010.

##### ***Anax parthenope* (SELYS 1839)**

M a t e r i a l   e x a m i n e d : Kurdistan province: Kamyaran, 1♀, July 2007.

#### **Genus *Brachytron* EVANS 1845**

##### ***Brachytron pratense* (MÜLLER 1764)**

M a t e r i a l   e x a m i n e d : Kurdistan province: Saghez, 1♂, June 2007.

**Genus *Caliaeschna* eschenbachiana SELYS 1883**

***Caliaeschna microstigma* (SCHNEIDER 1845)**

Material examined: Kurdistan province: Baneh, 1♀, August 2007.

**Family Calopterygidae SELYS 1850**

**Genus *Calopteryx* Leach 1815**

***Calopteryx intermedia* SELYS 1887**

Material examined: Kurdistan province: Marivan, 1♂, August 2007. Kermanshah province: Songhor, 1♂, summer 2007. West Azarbaijan province: Piranshahr, 2♂♂, spring 2010.

**Family Coenagrionidae KIRBY 1890**

**Genus *Enallagma* Charpentier 1840**

***Enallagma cyathigerum* CHARPENTIER 1840**

Material examined: Kurdistan province: Kamyaran, 1♂, July 2007.

**Genus *Ischnura* Charpentier 1840**

***Ischnura elegans ebneri* SCHMIDT 1838**

Material examined: Kurdistan province: Saghez, 3♂♂, June 2007. Kurdistan province: Kamyaran, 2♂♂, July 2007. Kurdistan province: Ghorveh, 1♂, July 2007. Kermanshah province: Songhor, 3♂♂, August 2007. West Azarbaijan province: Piranshahr, 1♂, spring 2010. Kurdistan province: Divandarreh, 2♂♂, 2♀♀, unknown date.

***Ischnura intermedia* DUMONT 1974**

Material examined: Kurdistan province: Bijar, 2♀♀, June 2007. Kurdistan province: Baneh, 3♀♀, spring 2007.

**Family Cordulegastridae CALVERT 1893**

**Genus *Sonagaster* LOHMANN 1992**

***Sonagaster insignis* (SCHNEIDER 1845)**

Material examined: Kurdistan province: Dehkalan, 2♂♂, April 2007. Kurdistan province: Divandarreh, 1♂, August 2007.

**Family E u p h a e i d a e SELYS 1853**

**Genus *E p a l l a g e* CHARPENTIER 1840**

***Epallage fatime* (CHARPENTIER 1840)**

M a t e r i a l e x a m i n e d : Kurdistan province: Sanandaj, 1♀, July 2007.

**Family G o m p h i d a e RAMBUR 1842**

**Genus *O n y c h o g o m p h u s* SELYS 1854**

***Onychogomphus assimilis* SCHNEIDER 1845**

M a t e r i a l e x a m i n e d : Kurdistan province: Divandarreh, 1♂, August 2007.

***Onychogomphus lefebvrii* (RAMBUR 1842)**

M a t e r i a l e x a m i n e d : Kermanshah province: Javanrood, 1♂, 2♀ ♀, April 2007.

**Family L e s t i d a e CALVERT 1901**

**Genus *S y m p e c m a* BURMEISTER 1839**

***Sympecma fusca* (VANDER LINDEN 1820)**

M a t e r i a l e x a m i n e d : Kurdistan province: Marivan, 1♀, unknown date.

**Family L i b e l l u l i d a e LEACH 1815**

**Genus *C r o c o t h e m i s* BRAUER 1868**

***Crocothemis erythraea* (BRULLÉ 1832)**

M a t e r i a l e x a m i n e d : Kurdistan province: Hassan-Abad, 3♂♂, 1♀, September 2007.

***Crocothemis servilia* (DRURY 1773)**

M a t e r i a l e x a m i n e d : Kermanshah province: Paveh, 1♀, June 2007.

**Genus *L i b e l l u l a* LINNAEUS 1758**

***Libellula depressa* LINNAEUS 1758**

M a t e r i a l e x a m i n e d : Kurdistan province: Kamyaran, 4♂♂, July 2007. Kurdistan province: Sanandaj, 3♂♂, July 2007. Kurdistan province: Saghez, 2♂♂, summer 2009.

***Libellula pontica* SELYS 1887**

M a t e r i a l e x a m i n e d : Kurdistan province: Marivan, 2♂♂, 1♀, August 2007.

**Genus *O r t h e t r u m* NEWMAN 1833**

***Orthetrum brunneum* (FONSCOLOMBE 1837)**

M a t e r i a l e x a m i n e d : Kurdistan province: Saghez, 2♂♂, 2♀♀, June 2007. Kermanshah province: Javanrood, 3♀♀, July 2007. Kurdistan province: Bijar, 2♀♀, autumn 2008.

***Orthetrum sabina* (DRURY 1770)**

M a t e r i a l e x a m i n e d : Kurdistan province: Bijar, 2♀♀, June 2007. Kurdistan province: Sanandaj, 3♂♂, July 2007. Kurdistan province: Divandarreh, 3♀♀, August 2007. West Azarbaijan province: Piranshahr, 1♀, spring 2010.

**Genus *S y m e p t r u m* NEWMAN 1833**

***Sympetrum fonscolombii* (SELYS 1840)**

M a t e r i a l e x a m i n e d : Kurdistan province: Ghorveh, 2♂♂, summer 2007.

**Genus *T r i t h e m i s* BRAUER 1868**

***Trithemis festiva* (RAMBUR 1842)**

M a t e r i a l e x a m i n e d : Kurdistan province: Dehkalan, 1♂, April 2007.

**Family *P l a t y c n e m i d i d a e* JACOBSON & BIANCHI 1905**

**Genus *P l a t y c n e m i s* BURMEISTER 1839**

***Platycnemis dealbata* SELYS & HAGEN 1850**

M a t e r i a l e x a m i n e d : Kermanshah province: Songhor, 2♂♂, August 2007. Kurdistan province: Divandarreh, 2♀♀, August 2007. Kurdistan province: Baneh, 2♂♂, 3♀♀, spring 2009.

**Discussion**

The results of this research conducted in some areas of Kurdistan province indicate that the fauna of Odonata is rather diverse in this region of Iran, and it is necessary to continue these local faunistic works for determining the fauna of Iran step by step. HEIDARI & DUMONT (2002) presented an annotated checklist of the Odonata of Iran in which 95 species were reported, but with additional publications (see references), preparing a new checklist is necessary for Iranian Odonata. Since Odonata are beneficial insects, especially in agroecosystems such as paddy fields (GHAHARI et al. 2009), conservation of them is necessary to support natural biological control of agricultural and forest pests. Decreasing the application of pesticides and preserving aquatic ecosystems are the main strategies to ensure persistence of odonates.

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### Zusammenfassung

Vorliegende Arbeit behandelt die Auswertung der Odonaten-Fauna (Anisoptera and Zygoptera) der westiranischen Provinz Kurdistan. Insgesamt konnten 25 Arten aus 18 Gattungen und 9 Familien nachgewiesen werden.

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