

Orijinal araştırma (Original article)

Contribution to the knowledge of Odonata fauna of Southern Marmara Region of Turkey

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Summary

Records of 17 species and subspecies, collected in 1996, 2002 and 2003 from the Çanakkale and Yalova provinces situated in the Southern Marmara Region of Turkey were listed. Of these, *Libellula fulva* Müller (Odonata: Libellulidae) is the first record for the region. New species for the Çanakkale and Yalova provinces recorded in the present study were added to the species lists of these provinces. In addition, the distributions of some species, which are unclear in the region, were discussed.

Key words: Odonata, Çanakkale, Yalova, Marmara Region, Turkey

Anahtar sözcükler: Odonata, Çanakkale, Yalova, Marmara Bölgesi, Türkiye

Introduction

The Marmara Region is one of the seven geographical regions of Turkey and is the northwest corner of the country. The region forms a passage between the Balkan Peninsula and Anatolia, and includes the Turkish Thrace part of Europe and the Southern Marmara part of Anatolia in the south of Marmara Sea. The eight provinces in the southern Marmara Region are Balıkesir, Bilecik, Bursa, Çanakkale, İstanbul, (Anatolian side of Bosphorus) Kocaeli, Sakarya and Yalova (Figure 1). Although there are comprehensive studies on Odonata fauna in Turkish Thrace part of the region (Hacet & Aktaş, 1994; 1997; 2004; 2008), the knowledge of the Odonata of the southern Marmara Region is based on a few works with records from the region. Of these works, those by Selys (1887), Kempny (1908), Schmidt (1954), Morton (1915; 1922), Dumont (1977) and Demirsoy (1982) contain only a few records of Odonates from the provinces of Balıkesir, Bursa and İstanbul (Anatolian side). Recently, Van Pelt (2004), Kalkman et al. (2004) and Kalkman & Van Pelt

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Alınış (Received): 29.04.2009 Kabul edildi (Accepted): 09.06.2009

(2006a) have provided records from Çanakkale, Bursa, Bilecik and Sakarya. However, there are still gaps, especially in the southwestern Marmara Region (the Çanakkale province and the western part of the Bursa province) and also the Yalova province (Kalkman & Van Pelt, 2006b).

So far, only three species from Yalova have been listed in the early work of Morton (1922). Records of Odonata belonging to the Çanakkale province are reported from three localities (Avanos, Ayancık and Gülpınar) in the west of the province near the Aegean Sea (Kalkman et al., 2004).

The aim of the present study is to contribute to the knowledge of the Odonata fauna of the Southern Marmara Region by evaluating the materials collected from the Çanakkale and Yalova provinces. As even the distribution of more common species is not well documented for the region, we believe that the additional records in this paper will illuminate the distribution of the species in the region.

Material and Methods

The material was collected in 1996, 2002 and 2003 from the Çanakkale and Yalova provinces of the southern Marmara Region (Figure 1). The collecting dates and sites for the specimens are listed in each province.

The material is kept in the Collections of the Biological Department of the Trakya University, Edirne, Turkey (TU).

Localities

Çanakkale: (1)- Çan-Terzialan (39°57'N 27°01'E): 24.VII.2003; (2)- Ezine-The Geyikli Harbour (39°49'N 26°09'E): 23.IX.1996; (3)- Ezine-Tigem (39°47'N 26°20'E): 06.VI.1996; (4)- Kirazlı (40°02'N 26°42'E): 23.VII.2003; (5)- Özbek (40°10'N 26°28'E): 22.VII.2003; (6)- Serçiler (40°03'N 26°36'E): 23.VII.2003.

Yalova: (7)- Central province (40°65'N 29°28'E): 25.VI.2002; (8)- Altınova-Havuzdere (40°40'N 29°27'E): 18.V.2003; (9)- Çiftlikköy (40°39'N 29°19'E): 01.VII.2002, 24.VIII.2002; (10)- Çınarcık (40°38'N 29°06'E): 15.VIII.2002; (11)- Çınarcık-Şenköy (40°37'N 29°00'E): 20.V.2003; (12)- Hacı Mehmet Plain (40°37'N 29°14'E): 03.IX.2002; (13)- Kadıköy (40°37'N 29°13'E): 01.IX.2002; (14)- Termal (40°36'N 29°10'E): 23.VI.2002; (15)- Termal-Gökçedere (40°35'N 29°09'E): 19.IX.2002; (16)- Tigem (40°39'N 29°13'E): 21.VIII.2002.



Figure 1. Provinces situated in the southern Marmara region, Turkey. (Asterisks indicate the sampled provinces in the present study).

Results

Calopterygidae

Calopteryx splendens amasina Bartenef, 1912

Material examined: Yalova: Central province, 40°65'N 29°28'E, 25.VI.2002, 2 ♂♂, 2 ♀♀; Kadıköy, 40°37'N 29°13'E, 01.IX.2002, 1 ♂, 1 ♀.

Calopteryx virgo festiva (Brullé, 1832)

Material examined: Çanakkale: Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 1 ♀; Yalova: Termal, 40°36'N 29°10'E, 23.VI.2002, 4 ♂♂, 4 ♀♀.

Lestidae

Lestes parvidens Artobolevsky, 1929

Material examined: Çanakkale: Özbek, 40°10'N 26°28'E, 22.VII.2003, 1 ♂.

Coenagrionidae

Erythromma viridulum (Charpentier, 1840)

Material examined: Çanakkale: Ezine-Tigem, 39°47'N 26°20'E, 06.VI.1996, 1 ♀; Özbek, 40°10'N 26°28'E, 22.VII.2003, 4 ♂♂, 1 ♀.

Ischnura elegans (Vander Linden, 1820)

Material examined: Çanakkale: Çan-Terzialan, 39°57'N 27°01'E, 24.VII.2003, 1 ♂; Özbek, 40°10'N 26°28'E, 22.VII.2003, 3 ♂♂, 4 ♀♀.

Platycnemididae

Platycnemis pennipes pennipes (Pallas, 1771)

Material examined: Çanakkale: Çan-Terzialan, 39°57'N 27°01'E, 24.VII.2003, 1 ♂; Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 1 ♂; Özbek, 40°10'N 26°28'E, 22.VII.2003, 1 ♂, 1 ♀; Serçiler, 40°03'N 26°36'E, 23.VII.2003, 1 ♂; Yalova: Central province, 40°65'N 29°28'E, 25.VI.2002, 2 ♂♂, 2 ♀♀; Altınova-Havuzdere, 40°40'N 29°27'E, 18.V.2003, 1 ♂, 4 ♀♀; Çınarcık-Şenköy, 40°37'N 29°00'E, 20.V.2003, 7 ♂♂, 10 ♀♀; Çiftlikköy, 40°39'N 29°19'E, 01.VII.2002, 1 ♀; Kadıköy, 40°37'N 29°13'E, 01.IX.2002, 2 ♂♂, 1 ♀; Termal-Gökçedere, 40°35'N 29°09'E, 19.IX.2002, 1 ♂, 1 ♀.

Aeshnidae

Aeshna affinis Vander Linden, 1820

Material examined: Çanakkale: Özbek, 40°10'N 26°28'E, 22.VII.2003, 2 ♂♂.

Anax ephippiger (Burmeister, 1839)

Material examined: Yalova: Tigem, 40°39'N 29°13'E, 21.VIII.2002, 1 ♂, 2 ♀♀.

Anax imperator Leach, 1815

Material examined: Yalova: Çiftlikköy, 40°39'N 29°19'E, 24.VIII.2002, 1 ♀.

Anax parthenope (Selys, 1839)

Material examined: Yalova: Central province, 40°65'N 29°28'E, 25.VI.2002, 1 ♀; Termal-Gökçedere, 40°35'N 29°09'E, 19.IX.2002, 1 ♀.

Gomphidae

Onychogomphus forcipatus albotibialis Schmidt, 1954

Material examined: Çanakkale: Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 4 ♂♂; Serçiler, 40°03'N 26°36'E, 23.VII.2003, 2 ♂♂.

Libellulidae

***Crocothemis erythraea* (Brullé, 1832)**

Material examined: Çanakkale: Çan-Terzialan, 39°57'N 27°01'E, 24.VII.2003, 3 ♂♂; Özbek, 40°10'N 26°28'E, 22.VII.2003, 2 ♂♂, 2 ♀♀; Yalova: Tigem, 40°39'N 29°13'E, 21.VIII.2002, 1 ♂.

***Libellula fulva* Müller, 1764**

Material examined: Çanakkale: Ezine-Tigem, 39°47'N 26°20'E, 06.VI.1996, 1 ♀; Özbek, 40°10'N 26°28'E, 22.VII.2003, 2 ♂♂; Yalova: Central province, 40°65'N 29°28'E, 25.VI.2002, 1 ♂.

***Orthetrum brunneum* (Fonscolombe, 1837)**

Material examined: Çanakkale: Çan-Terzialan, 39°57'N 27°01'E, 24.VII.2003, 1 ♂; Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 5 ♂♂; Özbek, 40°10'N 26°28'E, 22.VII.2003, 2 ♂♂; Serçiler, 40°03'N 26°36'E, 23.VII.2003, 1 ♀; Yalova: Central province, 40°65'N 29°28'E, 25.VI.2002, 1 ♀; Çiftlikköy, 40°39'N 29°19'E, 01.VII.2002, 1 ♀; Termal-Gökçedere, 40°35'N 29°09'E, 19.IX.2002, 1 ♂.

***Orthetrum coerulescens anceps* (Schneider, 1845)**

Material examined: Çanakkale: Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 1 ♂; Özbek, 40°10'N 26°28'E, 22.VII.2003, 1 ♂, 2 ♀♀.

***Sympetrum fonscolombii* (Selys, 1840)**

Material examined: Çanakkale: Çan-Terzialan, 39°57'N 27°01'E, 24.VII.2003, 1 ♂; Ezine-The Geyikli harbour, 39°49'N 26°09'E, 23.IX.1996, 1 ♀; Özbek, 40°10'N 26°28'E, 22.VII.2003, 1 ♀; Serçiler, 40°03'N 26°36'E, 23.VII.2003, 1 ♂, 2 ♀♀; Yalova: Çiftlikköy, 40°39'N 29°19'E, 24.VIII.2002, 3 ♂♂, 2 ♀♀; Hacı Mehmet plain, 40°37'N 29°14'E, 03.IX.2002, 1 ♂, 3 ♀♀; Tigem, 40°39'N 29°13'E, 21.VIII.2002, 2 ♂♂, 4 ♀♀.

***Sympetrum striolatum* (Charpentier, 1840)**

Material examined: Çanakkale: Kirazlı, 40°02'N 26°42'E, 23.VII.2003, 1 ♂; Yalova: Çınarcık, 40°38'N 29°06'E, 15.VIII.2002, 1 ♂.

Discussion

Checking the relevant literature, it appears that 46 species have been listed so far from provinces located to the south of the Marmara Sea (Selys, 1887; Kempny, 1908; Schmidt, 1954; Morton, 1915, 1922; Dumont, 1977; Demirsoy, 1982; Van Pelt, 2004; Kalkman et al., 2004; Kalkman & Van Pelt, 2006a). *Libellula fulva* Müller (Odonata: Libellulidae) is included in the species list of region in this study.

The known records of *L. fulva* in Turkey are from the Turkish Thrace region located to the north of the Marmara Sea and from the Mediterranean and Central Black Sea regions of Anatolia (Schneider, 1845; Hacet & Aktaç, 1994, 2004; Kazancı, 1995; Seidenbusch, 1995; Van Pelt, 2004; Kalkman et al., 2004; Salur & Kıyak, 2007). So far, there is no data on the presence of this species from the southern Marmara Region. When the distribution of the species in Anatolia is taken into consideration, it appears that there is a big gap in the distributional range in north of the Western Anatolia (Kalkman & Van Pelt 2006b). *L. fulva* reported in this study is the first record of the species for the Southern Marmara Region. *Libellula pontica* Selys (Odonata: Libellulidae) known from the Sakarya province in the study region is very similar to *L. fulva* at emergence (Dijkstra & Lewington, 2006). The distributions of both species in the western Anatolia are not clear. Only one record of *L. pontica* is known from the Sakarya province in the South of the Marmara Region (Van Pelt, 2004). The distributional range of *L. pontica* includes Armenia, Iran, Iraq, Israel, Kyrgyzstan, Syria and a few localities from southeast Turkey (Kalkman, 2006). Recently, this species was reported from the Denizli, Muğla and Antalya provinces, which are located in south of the Western Anatolia (Salur & Kıyak, 2007). Specimens collected from Çanakkale and Yalova provinces and identified as *L. fulva* in this study have black marks on forewing bases, black membranulas and abdomens with blue pruinosity in males, which are features given for *L. fulva* by Kalkman (2006). Both species are represented with few records given in Salur & Kıyak (2007) and in this present study for western Anatolia. Considering these records of *L. fulva* in western Anatolia, this species is most likely to be recorded from more localities in the region in the future.

Early records of *Anax ephippiger* (Burmeister) (Odonata: Aeshnidae), a migratory species, are mostly known from the Mediterranean Region in Turkey (Seidenbusch, 1995; Ardiç & Uygun, 1996; Dijkstra & Kalkman, 2001; Kalkman et al., 2004; Salur & Kıyak, 2006; 2007). Data of the last decade have shown that this species also occurs in the northern parts of the country (Hacet & Aktaç, 2004; Van Pelt, 2004; Kalkman et al., 2004). Although *A. ephippiger* is known from the Turkish Thrace part of the Marmara Region (Hacet & Aktaç, 2004), there is only one record from the Southern Marmara, which is indeed quite a large region (Kalkman & Van Pelt, 2006b). This species was reported only from the Bursa province on the Anatolian side near Turkish Thrace (G.J. Van Pelt. Pers. Comm.). The presence of *A. ephippiger* in Yalova is the second record for the southern Marmara Region. Recently, Hope (2008) has indicated that this species breeds in the Muğla province in southwestern Turkey. *A. ephippiger* is also known to breed in Bulgaria (Hope, 2008). At present, we have only mature specimens of the species from the Yalova province. It will probably be possible in the future to find other breeding areas of the species in Western Anatolia.

Records of *Lestes parvidens* Artobolevsky (Odonata: Lestidae) known from Anatolia are rather rare. Until now, this species has been represented with one record from Çanakkale in the study region (Kalkman et al., 2004). A second record is given from a different locality of the same province within this present study.

The study of Kalkman et al. (2004) reports 10 species from the Çanakkale province. *Calopteryx virgo festiva* (Brullé), *Aeshna affinis* Vander Linden, *Libellula fulva*, *Orthetrum coerulescens anceps* (Schneider) and *Sympetrum striolatum* (Charpentier) are added in the Odonate list of the province in this study. Our knowledge of the Yalova province is based on three species: *Lestes virens* (Charpentier), *Onychogomphus forcipatus* (Linnaeus) and *Sympetrum meridionale* (Selys), reported by Morton (1922). *Calopteryx splendens amasina* Barteneff, *Calopteryx virgo festiva*, *Platycnemis pennipes* (Pallas), *Anax ephippiger*, *Anax imperator* Leach, *Anax parthenope* (Selys), *Crocothemis erythraea* (Brullé), *Libellula fulva*, *Orthetrum brunneum* (Fonscolombe), *Sympetrum fonscolombii* (Selys) and *Sympetrum striolatum* recorded in the present study are the first records for the province.

Özet

Güney Marmara Bölgesi (Türkiye)'nin Odonata faunasına katkılar

Türkiye'nin Güney Marmara Bölgesi'nde yer alan Çanakkale ve Yalova illerinden 1996, 2002 ve 2003 yıllarında toplanan materyalin değerlendirilmesi sonucunda Odonata takımına ait 17 tür ve alttür tespit edilmiştir. Tespit edilen türlerden *Libellula fulva* Müller (Odonata: Libellulidae) Güney Marmara Bölgesi için yeni kayıttır. Ayrıca, Çanakkale ve Yalova illerinin bilinen Odonata faunalarına yeni kayıtlar ilave edilmiş ve mevcut bilgilere dayanılarak bölgede kayıtları az bilinen bazı türlerin yayılışları tartışılmıştır.

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