ODONATA FAUNA OF TOKAT PROVINCE (TURKEY)

Ali Salur* Ali Miroğlu ** and Birol Okçu*

*Hitit Üniversitesi, Faculty of Arts & Sciences, Department of Biology, 19030 Çorum / TURKEY. E-mail: alisalur@gmail.com
** Ordu University, Fatsa Faculty of Marine Sciences, Fatsa / Ordu / TURKEY. E-mail: alimiroglu@gmail.com


ABSTRACT: In this study, odonatan specimens collected from the Tokat province in central part of Black Sea Region of Anatolia in 2005 and 2010 have been established faunistically. 30 species belonging to 8 families are found to be distributed in Tokat province. Among these, 2 species belong to Calopterygidae, 1 species to Euphaeidae, 3 species to Lestidae, 1 species to Platycnemididae, 7 species to Coenagrionidae, 3 species to Aeshnidae, 2 species to Gomphidae, 11 species to Libellulidae. All species were stated as the first records for Tokat province.

KEY WORDS: Odonata, Fauna, Tokat, Turkey.

Tokat is located in the Black Sea Region of Turkey. It borders Samsun province to the north, Ordu province to the northeast, Sivas province to the east and south. It also borders Yozgat province to the southwest and Amasya province to the west. Tokat province has the features of a gateway between climates of Central Anatolia, Central-Eastern Anatolia, the Black Sea and Central Black Sea.

There have been many studies reported about the Odonata fauna of Turkey until now. But when literature is scanned, it is noticed that there is not any study about odonatan fauna of Tokat province (Demirsoy, 1995; Kalkman et al., 2006). Field trips were made in 2005 and 2010 to Tokat province to supply this information deficiency. Furthermore, the records of samples which were collected from Tokat province in 2005 is ordered and this article is created.

Field study was carried out in different periods between June 2005 and June to September 2010 in Tokat province. Odonata species were collected with aerial net. specimens were put into killing jars and then softened and pinned. All the specimens were deposited in Hitit University Zoology Museum.

Family Calopterygidae

Calopteryx splendens amasina Bartenef, 1911

Calopteryx virgo festiva (Brullé, 1832)

Family Euphaecidae
Epallage fatime (Charpentier, 1840)
Materials: Erbaa: 2♂♂, 1♀, 27/06/2005, Aşcaalan, 227 m, 40°39'N 36°42'E; Nıksar: 1♂, 28/06/2005, Muhtar düzlüğü, 352 m, 40°27"N 37°02"E; Reşadiye: 1♂, 1♀, 29.06.2005, Kişlağlı, 566 m, 40°21"N 37°27"E. Phenology and Habitat: June. Coast of stream.

Family Lestidae
Lestes barbarus (Fabricius, 1798)
Materials: Reşadiye: 1♂, 29/06/2010, Altıparmak, 507 m, 40°22"N 37°22"E; Erbaa: 1♀, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39'914" N 36°31'551" E; 1♂♂, 1♀, 14.07, 26/07/2010, Gölönü - Gölönü Lake, 1066 m, 40°34'230" N 36°29'277" E; 1♂♂, 26/07/2010, Kozlu - Gavur tarlası, 850 m, 40°36'956" N 36°29'570" E; 3♂♂, 26/07/2010, Meylandüzü - Küçük Yuvak, 840 m, 40°35'974" N 36°30'603" E. Phenology and Habitat: June and July. Coast of lake, coast of marsh, near the small stream.

Lestes dryas Kirby, 1890
Materials: Erbaa: 2♂♂, 23/06/2010, Gölönü - Gölönü Lake, 1066 m, 40°34'230" N 36°29'277" E; 7♂♂, 26/07/2010, Gölönü - Gölönü Lake 1066 m, 40°34'230" N 36°29'277" E. Phenology and Habitat: June and July. Coast of lake.

Sympecma fusca (Vander Linden, 1820)
Materials: Erbaa: 1♂, 26/07/2010, Gölönü - Gölönü Lake, 1066 m, 40°34'230" N 36°29'277" E. Phenology and Habitat: July. Coast of lake.

Family Platycnemididae
Platycnemis pennipes (Pallas, 1771)
Materials: Nıksar: 1♂, 2♀♀, 27/06/2005, Kımberı, 258 m, 40°37"N 36°48"E; 2♂♂, 2♀♀, 27/06/2005; Erbaa: Tepekerıa, 220 m, 40°40"N 36°40"E; 8♂♂, 4♀♀, 23/06/2010, Kozlu - Gavur tarlası, 850 m, 40°36'965" N 36°29'570" E; 4♂♂, 2♀♀, 23/06/2010, Gölönü - Gölönü Lake, 1066 m, 40°34'230" N 36°29'277" E; 6♂♂, 3♀♀, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38'383" N 36°31'944" E; 17♂♂, 26/07/2010, Gölönü - Gölönü Lake, 1066 m, 40°34'230" N 36°29'277" E; 6♂♂, 26/07/2010, Kozlu - Gavur tarlası, 850 m, 40°36'956" N 36°29'570" E; 8♂♂, 14♀♀, 26/07/2010, Kececi - Özün dere, 1019 m, 40°30'103" N 36°28'648" E. Phenology and Habitat: June and July. Coast of lake, coast of marsh, near the stream.

Family Coenagrionidae
Coenagrion ornatum (Selys, 1850)
Material: Nıksar: 1♂, 28/06/2005, Ormançık, 342 m, 40°30'N 36°54'E. Phenology and Habitat: June. Pool of near the spring.
Bostanlık, 330 m, 40° 38’ 383” N 36° 31’ 944”E; 1♂, 26/07/2010 Meyandüzü - Küçük Yuvak, 840 m, 40° 35’ 974” N 36° 30’ 603” E; 3♂♂, 26/07/2010, Gölönü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E; 6♀♀, 2♀♂, 26/07/2010, Kozlu - Gavur tarlası, 850 m, 40° 36’ 956” N 36° 29’ 570”E. 

**Phenology and Habitat:** June and July. Coast of marsh, lake, near the small stream.

**Coenagrion scitulum** (Rambur, 1842)

**Materials:** Erbaa: 1♂♂, 23/06/2010, Meyandüzü - Küçük Yuvak, 911m, 40° 35’ 974” N 36° 30’ 603” E; 1♂, 23/06/2010, Göllü - Göllü Lake, 1066m, 40° 34’ 230” N 36° 29’ 277” E; 2♀♀, 04/09/2010, Kale village - Kale bridge, 195m, 40°45’271”N 36°30’600”E. 

**Phenology and Habitat:** June and September. Pool of near the spring, coast of lake.

**Enallagma cyathigerum** (Charpentier, 1840)

**Materials:** Erbaa: 2♂♂, 25/07/2010, Koçak village - Çičilin pınar, 416 m, 40° 39’ 455” N 36° 32’231”E; 1♂, 25/07/2010, near Alacabat - Bostanlık, 330 m, 40° 38’ 383” N 36° 31’ 944”E; 1♂, 1♀, 26/07/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E. 

**Phenology and Habitat:** July. Pool of near the spring, coast of lake.

**Ischnura elegans ebneri** Schmidt, 1938

**Materials:** Resadiye: 1♂♂, 342 m, 29/06/2005, Altıparmak, 507 m, 40°22’N 37°22’E; Niksar: 2♂♂, 28/06/2005, Ormancek, 342 m, 40°30’N 36°54”E; Erbaa: 67♀♀, 2♀♂, 23/06/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E; 1♂, 01/10, Kozlu - Gavur tarlası, 850 m, 40° 36’ 956” N 36° 29’ 570”E; 1♂, 29’ 277” E. 

**Phenology and Habitat:** June, July and September. Coast of lake, coast of marsh, pool of near the spring, near the small stream.

**Ischnura pumilio** (Charpentier, 1825)

**Materials:** Resadiye: 1♂♀, 23/06/2010, Altıparmak, 507 m, 40°22’N 37°22’E; Erbaa: 1♂♂, 23/06/2010, Meyandüzü - Küçük Yuvak, 840 m, 40° 35’ 974” N 36° 30’ 603” E; 1♂, 23/06/2010, Kozlu - Gavur tarlası, 850 m, 40° 36’ 956” N 36° 29’ 570”E; 1♂♂, 1♀♀, 23/06/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E; 15♀♀, 10♂♂, 25/07/2010, near Alacabat - Bostanlık, 330 m, 40° 38’ 383” N 36° 31’ 944”E; 4♀♀, 4♂♂, 25/07/2010, Koçak village - Körgova, 445 m, 40° 39’ 090”N 36° 31’760”E; 1♂, 26/07/2010, Meyandüzü - Küçük Yuvak, 840 m, 40° 35’ 974” N 36° 30’ 603” E; 3♀♀, 26/07/2010, Göllü - Göllü Lake (lake), 1066 m, 40° 34’ 230” N 36° 29’ 277” E. 

**Phenology and Habitat:** June, July. Coast of lake, coast of marsh, pool of near the spring, near the small stream.

**Pyrrhosoma nympha (Sulzer, 1776)**

**Materials:** Erbaa: 1♂♂, 23/06/2010, Kozlu - Gavur tarlası, 850 m, 40° 36’ 956” N 36° 29’ 570”E. 

**Phenology and Habitat:** June. Coast of marsh.

**Family Aeshnidae**

**Aeshna affinis** Vander Linden, 1820

**Materials:** Erbaa: 8♀♀, 26/07/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E. 

**Phenology and Habitat:** July. Lake.

**Aeshna isosceles antehumeralis** (Schmidt, 1954)

**Materials:** Erbaa: 7♀♀, 23/06/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E; 1♂, 26/07/2010, Göllü - Göllü Lake, 1066 m, 40° 34’ 230” N 36° 29’ 277” E. 

**Phenology and Habitat:** June and July. Lake.

**Caliaeshna microstigma** (Schneider, 1845)

**Materials:** Erbaa: 4♀♀, 27/06/2005, Ağçaalan, 227 m, 40°39’N 36°42”E; 1♂♂, 23/06/2010, Kozlu - Gavur tarlası, 850 m, 40° 36’ 956” N 36° 29’ 570”E; Resadiye: 1♂♂, 29.06.2005, Karaağaç, 615 m, 40°20’N 37°32”E. 

**Phenology and Habitat:** June. Coast of marsh.
Family Gomphidae

*Gomphus schneideri* Sélys, 1850

**Materials:** Erbaa: 1♀, 27/06/2005, Tepekuşla, 220 m, 40°40'N 36°40'E. **Phenology and Habitat:** June. Near the small stream.

*Onychogomphus forcipatus albotibialis* Schmidt, 1954

**Materials:** Erbaa: 1♂, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38' 383'' N 36°31' 944'' E; 1♂, 26/07/2010, Keçeci - Özün dere, 1019 m, 40°30' 103'' N 36°28'648'' E. **Phenology and Habitat:** July. Coast of small stream.

Family Libellulidae

*Libellula depressa* Linnaeus, 1758

**Materials:** Erbaa: 1♂, 23/06/2010, Meyandüzü - Büyük yuvak, 911 m, 40°35' 939'' N 36°29' 632'' E; 2♂♂, 23/06/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E; 2♀♂, 23/06/2010, Kożlu - Gavur tarlası, 850 m, 40°36' 956'' N 36°29' 570'' E; 1♀, 23/06/2010, Gölönü - Gölnü Lake, 1066 m, 40°34' 230'' N 36°29' 277'' E; 1♀, 23/06/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E; 2♂♂, 26/07/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E; 1♀, 1♂, 26/07/2010, Gölönü - Gölnü Lake, 1066 m, 40°34' 230'' N 36°29' 277'' E. **Phenology and Habitat:** June and July. Lake, coast of marsh.

*Orthetrum albytstylum* (Sélys, 1848)

**Materials:** Erbaa: 3♂♂, 04/09/2010, Tosunlar village - canal, 135 m, 40°42'837''N 36°32'749''E. **Phenology and Habitat:** Sepember. Cast of marsh.

*Orthetrum brunneum* (Fonscolombe, 1837)

**Materials:** Niksar: 2♀♂, 27/06/2005, Kümbetli, 258 m, 40°37'N 36°48'E; Erbaa: 3♂♂, 1♀, 23/06/2010, Kożlu - Gavur tarlası, 850 m, 40°36' 956'' N 36°29' 570'' E; 5♂♂, 23/06/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E; 2♂♂, 2♀♂, 25/07/2010, Koçak village - Çiğilnin pınar, 416 m, 40°39' 455'' N 36°32'231'' E; 11♀♂, 2♀♂, 25/07/2010, Koçak village - Körgova, 445 m, 40°39' 090'' N 36°31'760'' E; 6♀♂, 25/07/2010, near Alacabal - Yürik içi, 331 m, 40°38' 706'' N 36°31'778'' E; 2♂♂, 5♀♂, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38' 383'' N 36°31'944'' E; 2♂♂, 26/07/2010, Kożlu - Gavur tarlası, 850 m, 40°36' 956'' N 36°29' 570'' E; 1♂, 26/07/2010, Gölönü - Gölnü Lake, 1066 m, 40°34' 230'' N 36°29' 277'' E; 3♂♂, 26/07/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E; 3♂♂, 2♀♂, 04/09/2010, Kale village - Kale bridge, 195 m, 40°45' 271'' N 36°30' 600'' E; 3♂♂, 04/09/2010, Tosunlar village - canal, 135 m, 40°42'837''N 36°32'749''E. **Phenology and Habitat:** June, July and September. Pool of near the spring, coast of lake.

*Orthetrum cancellatum* (Linnaeus, 1758)

**Materials:** Erbaa: 1♂, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38' 383'' N 36°31' 944'' E; 1♂, 25/07/2010, near Alacabal - Yürik içi, 331 m, 40°38' 706'' N 36°31'778'' E; 2♂♂, 1♀, 25/07/2010, Koçak village - Körgova, 445 m, 40°39' 090'' N 36°31'760'' E; 1♂, 25/07/2010, Koçak village - Çiğilnin pınar, 416 m, 40°39' 455'' N 36°32'231'' E; 1♂, 5♀♂, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39' 914'' N 36°31'551'' E; 1♂, 26/07/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E. **Phenology and Habitat:** June and July. Coast of small stream, pool of near the spring.

*Orthetrum coerulescens anceps* (Schneider, 1845)

**Materials:** Niksar: 3♂♂♀, 28/06/2005, Ormançık, 342 m, 40°30'N 36°54'E; Erbaa: 1♂, 27/06/2005, Ağcaalan, 227 m, 40°39'N 36°42'E; 1♂, 1♀, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38' 383'' N 36°31' 944'' E; 6♂♂, 25/07/2010, near Alacabal - Yürik içi, 331 m, 40°38' 706'' N 36°31'778'' E; 2♂♂, 1♀, 25/07/2010, Koçak village - Körgova, 445 m, 40°39' 090'' N 36°31'760'' E; 4♂♂, 25/07/2010, Koçak village - Çiğilnin pınar, 416 m, 40°39' 455'' N 36°32'231'' E; 1♂, 5♀♂, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39' 914'' N 36°31'551'' E; 1♂, 26/07/2010, Meyandüzü - Küçük Yuvak, 840 m, 40°35' 974'' N 36°30' 603'' E. **Phenology and Habitat:** June and July. Coast of small stream, pool of near the spring.
**Crocothemis erythraea** (Brullé, 1832)

**Materials:** Niksar: 1♂, 27/06/2005, Kümbeți, 258 m, 40°37'N 36°48'E; Erbaa: 2♀♀, 23/06/2010, Gölonü - Gölonü Lake, 1066 m, 40°34'30'' N 36°29'277'' E; 3♀♀, 25.07.2010, near Alacabal - Bostanlık, 330 m, 40°38'383'' N 36°31'944''E; 1♂, 26/07/2010, Gölonü - Gölonü Lake, 1066 m, 40°34'230'' N 36°29'277'' E; 4♀♀, 9♀♀, 04/09/2010, Tosunlar village, 135 m, 40°42'837''N 36°32'749''E; 2♀♀, 04/09/2010, Kale village - Kale bridge, 195 m, 40°45'271''N 36°30'600''E. **Phenology and Habitat:** June, July and September. Canal, coast of small stream pool of near the spring.

**Sympectrum fonscolombii** (Sélys, 1840)

**Materials:** Erbaa: 3♀♀, 7♀♀, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39'914'' N 36°31'551''E; 1♂, 25/07/2010, Koçak village - Çiçilpinar, 416 m, 40°39'455'' N 36°32'231''E; 5♀♀, 2♀♀, 26/07/2010, Meydandüzü - Küçük Yuvak, 840 m, 40°35'974'' N 36°30'603'' E; 3♀♀, 5♀♀, , 26/07/2010, Gölonü - Gölonü Lake (lake), 1066 m, 40°34'230'' N 36°29'277'' E; 1♂, 5♀♀, 04/09/2010, Tosunlar village - canal, 135 m, 40°42'837''N 36°32'749''E; 1♂, 04/09/2010, Kale village - Kale bridge, 195 m, 40°45'271'' N 36°30'600''E. **Phenology and Habitat:** July and September. Coast of small stream, coast of lake, coast of canal.

**Sympectrum meridionale** (Sélys, 1841)

**Materials:** Erbaa: 1♂, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39'914'' N 36°31'551''E. **Phenology and Habitat:** July. Pool.

**Sympectrum sanguineum** (O.F. Müller, 1764)

**Materials:** Reşadiye: 2♂♂, 29/06/2005, Altiparmak, 507 m, 40°22'N 37°22'E; Erbaa: 1♂, 23/06/2010, Gölonü - Gölonü Lake, 1066 m, 40°34'230'' N 36°29'277'' E; 1♂, 25/07/2010, near Alacabal - Bostanlık, 330 m, 40°38'383'' N 36°31'944''E; 2♂♂, 25/07/2010, Koçak village - Entry of industry, 443 m, 40°39'914'' N 36°31'551''E; 13♀♀, 8♀♀, 26/07/2010, Gölonü - Gölonü Lake, 1066 m, 40°34'230'' N 36°29'277'' E. **Phenology and Habitat:** June and July. Coast of lake, pool.

**Sympectrum striolatum** (Charpentier, 1840)

**Materials:** Niksar: 1♂, 27/06/2005, Dalkaya, 272 m, 40°33'N 36°52'E. **Phenology and Habitat:** June. Edge of the way.

**Pantala flavescens** (Fabricius, 1798)

**Materials:** Erbaa:1♂, 1♀, 26/07/2010, Meydandüzü - Küçük Yuvak, 840 m, 40°35'974'' N 36°30'603'' E; 6♀♀, 6♀♀, 25/07/2010, Koçak village - Çiçilpinar, 416 m, 40°39'455'' N 36°32'231''E. **Phenology and Habitat:** July. Pool of near the spring.

**LITERATURE CITED**


Kalkman, V. J. 2006. Key to the dragonflies of Turkey, including species known from Greece, Bulgaria, Lebanon, Syria, the Trans-Caucasus and Iran. Brachytron, 10 (1): 3-82.