



Studies on the Fauna of Crabronidae Family (Insecta: Hymenoptera) in Tokat Province

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ABSTRACT

In this study, 587 adult insect specimens belonging to the Crabronidae family (Insecta: Hymenoptera) were collected from Tokat Province between 2009 and 2012. Totally 89 taxa were identified, of which 68 are new records for the fauna of the province. As a result, the total number of species in the family is reached to 114 together with the previously known 46. All specimens were prepared as standard museum materials and deposited in Gaziosmanpaşa University, Faculty of Sciences and Arts, Department of Biology, Entomological Research Laboratory Tokat/Turkey.

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Tokat İlinde Crabronidae Familyası (Insecta: Hymenoptera) Üzerinde Araştırmalar

ÖZET

Bu çalışmada Tokat ilinden 2009-2012 yılları arasında Crabronidae familyasına (Insecta: Hymenoptera) ait 587 ergin böcek örneği toplanmıştır. Toplam 89 takson tanımlanmış olup bunların 68'i il faunası için yeni kayıttır. Sonuç olarak familyaya ait toplam tür sayısı daha önce bilinen 46'dan 116'ya yükselmiştir. Tüm örnekler standart müze materyali şeklinde hazırlanmış ve Gaziosmanpaşa Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, Entomoloji Araştırma Laboratuvarı'nda (Tokat/Türkiye) depolanmıştır.

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INTRODUCTION

Crabronidae family includes solitary wasps which are known as 'digger wasps', 'sand wasps', and 'mud dauber wasps' referring to their biologies and habitats. As implied by these names some of them make their nests by digging the soil while others daubing the mud gathered from all around. Although adult crabronids feed on nectar of flowering plants, their larvae feed on various insects such as mole-crickets, grasshoppers, aphids, honeybees, as well as spiders paralyzed and carried to the nest by the female wasps (Bohart and Menke, 1976). The family is currently represented by 9881 species in the World (Pulawski, 2018) and 485 species in Turkey (de Beaumont, 1967; de Beaumont, 1969; Pulawski, 1967; Pulawski, 1971; Hensen and van Ooijen, 1987; Tüzün et al., 1999; Gülmez and Tüzün, 2005; Straka, 2005; Ljubomirov and Yıldırım, 2008; Yıldırım, 2012; Çubuk and Gülmez, 2013).

Tokat province is located in the interior part of the Middle Black Sea region of Turkey which has suitable natural habitats for dwelling of insects. The altitude ranges from 250 m to 1900 m through the province, the northern parts are under the effect of wet Black Sea region climate, whereas southern parts are under the effect of dry Central Anatolian region climate. The vegetation of Tokat province is also distinct and unique in many aspects. Such as Euro-Siberian elements are on the North, while typical mountain steppe elements of Central Anatolian region on the South are dominant through the area. There are also Mediterranean vegetation remnants around Erbaa and Niksar (Kurt, 2006). This habitat diversity around the province brings about a rich fauna, so its biological diversity is worth investigating.

Recently, human impact on ecosystems such as rapid industrialization, pollution and urbanization has

caused the destruction of natural habitats, for this reason many insect species have faced the danger of extinction. Consequently, faunistic studies gained great importance not only for the detection of our biological richness but also for the monitoring of species under threat of extinction. There is no direct faunistic study about Crabronidae family in Tokat province prior to this one. Mostly foreign scientists have collected materials from Tokat province during their visits to our country (Guichard & Harvey, 1967; de Beaumont, 1967, de Beaumont, 1969; Pulawski, 1967; Pulawski, 1971; Gayubo et al., 2003; Gayubo & Özbek, 2005; Ljubomirov & Yıldırım, 2005). The aim of this study was to determine the current fauna of the family Crabronidae of Tokat province.

MATERIALS and METHODS

The number of specimens examined in this study is 587 which are belonging to the family Crabronidae (Hymenoptera). Adult wasps were collected by insect net from their natural habitats around Tokat province between 2009-2012. After they were killed and prepared as standard museum materials, specimens were identified by one of the authors (Gülmez) according to their original descriptions and/or keys in the following literature: de Beaumont (1961), Bitsch et.al. (1997, 2001), Nemkov (1996) and Pulawski (1971). Leica S6E stereomicroscope was used to examine the body parts of the specimens in detail. Within the text, all species are given in the subfamilies they belong and in systematic order. Turkey distribution of the species are given according to Ljubomirov and Yıldırım (2008) and Çubuk and Gülmez (2013). The material is deposited in the Entomological Research Laboratory, in Gaziosmanpaşa University, Tokat/Turkey.

RESULTS

Subfamily Astatinae Lepeletier de Saint-Fargeau, 1845

Astata affinis radoszkowskii Pulawski, 1957

Distributions in Turkey: Adana, Erzurum (Gayubo, Özbek and Yıldırım, 2003), Erzurum, Hatay, Konya, Kars, Osmaniye.

Material examined: Tokat, Zile, Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♀.

Astata boops (Schrank, 1781)

Distributions: Adana, Afyonkarahisar, Ankara, Artvin, Aydın, Bilecik, Burdur, Çanakkale, Erzurum, Eskişehir, İçel, İzmir, Kahramanmaraş, Kayseri, Kars, Kocaeli, Konya, Rize, Tokat, Trabzon.

Material examined: Tokat, Erbaa, Kaleköy, 280 m, 25.IV.2010, 1 ♂; Tokat, Pazar, Akdağ, 1900 m, 04.VIII.2009 1 ♂; Tokat, Kampüs içi, 650 m, 07.VI.2010 1 ♂; Tokat, Toki ırmak kenarı, 620 m, 03.VII.2010 3 ♀♀.

Astata miegii scapularis Kohl, 1889

Distributions: Amasya, Ankara, Aksaray, Bilecik, Çankırı, Erzincan, Erzurum Gümüşhane, İzmir, Kars, Kütahya, Manisa, Tokat.

Material examined: Almus: Tufantepe, 850 m, 01.VII.2010 1 ♀.

Astata minor Kohl, 1885

Distributions: Ankara, Bilecik, Erzurum, Gümüşhane, Hatay, Kars.

Material examined: Tokat, Pazar, Akdağ, 1900 m, 04.VIII.2009 1 ♂; Tokat, Sulusaray, Ilıcak Köyü, 1030m, 03.VII.2010 1 ♂; Tokat, Toki ırmak kenarı, 620 m, 03.VII.2010 1 ♂.

Astata rufipes Mocsâry, 1883

Distributions: Bitlis, Kars, Kütahya.

Material examined: Tokat Merkez: Toki ırmak kenarı, 620 m, 03.VII.2010 1 ♀.

Dryudella tricolor anatolica (Pulawski, 1967)

Distributions: Ankara, Artvin, Eskişehir, Kars.

Material examined: Tokat Merkez: Havaalanı, 650 m, 12.VII.2010, 1 ♀.

Subfamily Bembicinae Latreille, 1802

Alysson ratzeburgi Dahlbom, 1843

Distributions:

Material examined: Almus: Ormandibi Kasabası yolu 10. km, 900 m, 06.VII.2010 1 ♀.

Brachystegus scalaris (Illiger, 1807)

Distributions: Çankırı, Erzurum, Iğdır, Kayseri, Konya, Sivas.

Material examined: Almus: Çevreli Kasabası, 900 m, 28.VII.2010, 1 ♂.

Nysson maculosus (Gmelin, 1790)

Distributions: Amasya, Ankara, Artvin, Erzurum.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 07.VI.2010 4 ♀♀.

Gorytes foveolatus foveolatus Handlirsch, 1888

Distributions: Antalya, Bilecik, Bursa, Erzurum, Gaziantep, Hatay, Isparta, İstanbul, İzmir, Kahramanmaraş, Konya, Manisa, Muğla, Şanlıurfa, Şırnak.

Material examined: Tokat Merkez: Gılgıj, 950 m, 18.VI.2010 1 ♀.

Gorytes quinquefasciatus quinquefasciatus (Panzer, 1798)

Distributions: Ankara, Artvin, Batman, Bursa, Erzurum, Giresun, İçel, Kastamonu, Konya, Muğla, Tokat.

Material examined: Almus: Merkez, 950 m, 05.VII.2010 1 ♂ 1 ♀; Almus: Tufantepe, 950 m, 30.VI.2010, 1 ♂; Almus: Tufantepe, 950 m, 01.VII.2010 1 ♂; Artova: Tokat – Artova yolu 10. km, 1000 m, 03.VII.2010 1 ♀; Artova: Merkez, 1000 m, 03.VII.2010, 1 ♀; Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010 1 ♀.

Harpactus affinis (Spinola, 1808)

Distributions: Amasya, Bursa, Erzincan, Erzurum, İçel, İstanbul, Kırşehir.

Material examined: Erbaa: Kaleköy, 280 m, 25.IV.2010, 2 ♂♂; Tokat: Kampüs içi, 650 m, 29.V.2010, 1 ♀.

***Harpactus elegans elegans* Lepeletier de Saint-Fargeau, 1832**

Distributions: Ankara, Artvin, Erzincan, Erzurum, Sinop, İçel, Kars, Konya.

Material examined: Almus: Tufantepe, 950 m, 30.VI.2010, 1 ♀; 01.VII.2010, 2 ♀♀; Sulusaray: Ilıcak Köyü, 1000 m 03.VII.2010 1 ♀.

***Harpactus tauricus* Radoszkowski, 1884**

Distributions: ??????????

Material examined: Tokat Merkez: Çördük, 900 m, 04.VIII.2009, 1 ♀.

***Oryttus concinnus paradisiacus* (de Beaumont, 1967)**

Distributions: Kars, İzmir.

Material examined: Turhal: Çaylı Kasabası, 650 m, 01.VIII.2010, 1 ♀;

***Psammaecius punctulatus* (Vander Linden, 1829)**

Distributions: Turkey: Balıkesir, Erzincan, Erzurum, Iğdır, Kars, Konya, Muş.

Material examined: Almus: Merkez, 950 m, 05.VII.2010, 1 ♀.

***Ammatomus coarctatus* (Spinola, 1808)**

Distributions: Adana, Amasya, Ankara, Antalya, Artvin, Bursa, Çankırı, Denizli, Erzincan, Eskişehir, Hatay, Iğdır, İçel, Kahramanmaraş, Kars, Konya, Kütahya, Manisa, Şanlıurfa, Tekirdağ, Tokat.

Material examined: Almus: Tufantepe, 950 m, 30.VI.2010, 1 ♂.

***Ammatomus rogenhoferi* (Handlirsch, 1888)**

Distributions: Adana, Amasya, Ankara, Artvin, Bilecik, Bursa, Denizli, Erzurum, Hatay, İçel, İzmir, Kahramanmaraş, Konya, Kütahya, Manisa, Niğde, Şanlıurfa.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 2 ♂♂ 6 ♀♀; Tokat Merkez: Kampüs içi, 650 m, 17.VI.2010, 2 ♂♂.

***Sphecius nigricornis* (Dufour, 1838)**

Distributions: Amasya, Erzurum, İçel, Konya, Sivas, Kars.

Material examined: Almus: Tokat yolu 5. km Serince civarı, 1000 m, 17.VI.2010, 1 ♀.

***Bembecinus innocens* de Beaumont, 1967**

Distributions: Ankara, İçel, Malatya, Siirt, Erzincan, Erzurum.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 1 ♂.

***Bembecinus meridionalis* A. Costa, 1859**

Distributions: Antalya, Batman, Denizli, Gaziantep, Hatay, Isparta, İçel, İzmir, Kayseri, Konya, Mardin, Siirt, Şanlıurfa.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 07.VI.2010, 1 ♂.

***Bembecinus tridens tridens* (Fabricius, 1781)**

Distributions: Adana, Adıyaman, Afyonkarahisar, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bursa, Denizli, Erzurum, Erzincan, Eskişehir, Gaziantep, Hakkâri, Hatay, Iğdır, İçel, İstanbul, İzmir, Kahramanmaraş, Kars, Kayseri, Konya, Kütahya, Malatya, Manisa, Niğde, Samsun, Sinop,

Şanlıurfa, Şırnak, Tekirdağ, Tokat, Trabzon, Tunceli, Yozgat, Van.

Material examined: Almus: Almus – Akarçay yolu 15. km, 950 m, 09.VII.2009, 1 ♀.

***Stizus pubescens pubescens* (Klug, 1835)**

Distribution: Antalya, Artvin, Erzincan, Erzurum, İçel, İstanbul, İzmir, Kars, Konya, Manisa.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 3 ♀♀.

***Bembix oculata oculata* Panzer, 1801**

Distributions: Adana, Afyonkarahisar, Antalya, Artvin, Aydın, Balıkesir, Burdur, Çanakkale, Erzincan, Hatay, Iğdır İçel, İstanbul, İzmir, Kars, Kilis, Mardin, Muğla.

Material examined: Erbaa: Kelkit kumocağı, 280 m, 04.X.2009, 2 ♀♀; Tokat: Kampüs içi, 650 m, 17.VI.2010, 2 ♀♀; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 1 ♀; Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♀.

***Bembix olivacea olivacea* Fabricius, 1787**

Distributions: Adana, Ankara, Antalya, Burdur, Denizli, Hatay, Iğdır, İçel, İzmir, Kars, Kayseri, Manisa, Mardin, Samsun, Tokat, Trabzon.

Material examined: Erbaa: Kelkit kumocağı, 280 m, 03.X.2009, 7 ♀♀; Erbaa: Kelkit kumocağı, 280 m, 04.X.2009, 4 ♀♀.

***Bembix rostrata rostrata* (Linnaeus, 1758)**

Distributions: Balıkesir, Erzurum, İstanbul, İzmir, Kars, Kayseri, Muğla, Sinop.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♂.

***Bembix sinuata sinuata* Panzer, 1804**

Distributions: Balıkesir, Erzurum, İzmir, Kars, Manisa, Muğla.

Material examined: Erbaa: Kelkit kumocağı, 280 m, 03.X.2009, 1 ♀.

Subfamily Crabroninae Latreille, 1802***Larra (Larra) anathema anathema* (Rossi, 1790)**

Distributions: Adana, Ankara, Amasya, Antalya, Aydın, Artvin, Balıkesir, Bilecik, Burdur, Bursa, Erzincan, Erzurum, Hatay, Iğdır, Isparta, İçel, İstanbul, İzmir, Kahramanmaraş, Kars, Kırşehir, Konya, Malatya, Manisa, Niğde, Ordu, Rize, Samsun, Trabzon, Yalova.

Material examined: Tokat Merkez: Toki ırmak kenarı, 620 m, 03.VII.2010, 1 ♂.

***Liris atratus* (Spinola, 1805)**

Distributions: Ankara (Ljubomirov and Yıldırım, 2008) Ankara.

Material examined: Almus: Bakımlı, 1000m, 29.VII.2009, 1 ♀; Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♀.

***Liris inopinatus* de Beaumont, 1961**

Distributions: ??????????

Material examined: Erbaa: Samsun – Lâdik yolu, 280 m, 25.IV.2010, 1 ♀; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 1 ♂.

***Liris niger niger* (Fabricius, 1775)**

Distributions: Adana, Ankara, Antalya, Artvin, Aydın, Burdur, Bursa, Çorum, Denizli, Erzincan, Erzurum, Hatay, İçel, Kars, Konya, Malatya, Manisa, Şanlıurfa, Tokat.

Material examined: 1 ♀; Erbaa: Kaleköy, 280 m, 25.IV.2010, 2 ♀♀; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 2 ♀♀; Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 3 ♀♀; Tokat Merkez: Kampüs içi, 650 m, 17.VI.2010, 1 ♀; Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♀.

***Liris nigricans nigricans* (Walker, 1871)**

Distributions: Antalya, Kars.

Material examined: Erbaa: Kelkit ırmak içi, 280 m, 27.III.2010, 2 ♀♀; Erbaa: Kelkit kumocağı, 280 m, 04.X.2009, 1 ♀; Tokat Centrum: Kömeç Köyü, 650 m, 16.X.2008, 3 ♀♀.

***Prosopigastra bulgarica* Pulawski, 1958**

Distributions: Ankara, Kırıkkale, Hakkâri.

Material examined: Niksar: Dönekse, 350 m, 05.VII.2009, 1 ♀.

***Tachysphex brullii brullii* (F. Smith, 1856)**

Distributions: Amasya, Ankara, Çorum, Erzurum, Konya, Muğla, Niğde, Sivas.

Material examined: Almus: Ormanevleri, 950 m, 13.V.2010, 1 ♂.

***Tachysphex fulvitaris* (A. Costa, 1867)**

Distributions: Ankara, Antalya, Artvin, Bilecik, Erzurum, Hatay, İçel, İstanbul, Kayseri, Konya, Samsun, Sinop, Şanlıurfa.

Material examined: Almus: Almus – Tokat yolu 3. km, 1000 m, 19.VII.2009, 1 ♀; Tokat Centrum: Kampüs içi, 650 m, 17.VI.2010, 1 ♀.

***Tachysphex incertus* (Radoszkovsky, 1877)**

Distributions: Adana, Amasya, Antalya, Hatay, İçel, İstanbul, Kahramanmaraş, Konya, Muğla.

Material examined: Almus: Merkez, 900 m, 03.VIII.2010, 1 ♀; Almus: Tufantepe, 950 m, 05.VI.2010, 1 ♀; Almus: Tufantepe, 950 m, 20.VII.2010, 1 ♀; Başçiftlik: Merkez, 1400 m, 26.IX.2009, 1 ♀; Niksar: Dönekse, 350 m, 10.VII.2009, 1 ♀; Niksar: Dönekse, 350 m, 05.VII.2009, 1 ♀; Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 3 ♀♀.

***Tachysphex latifrons* Kohl, 1884**

Distributions: Turkey: Ankara, Bursa, Çorum, Eskişehir, Erzurum, Giresun, Hatay, Kars, Samsun.

Material examined: Almus: Dumanlı, 1600 m, 30.V.2009, 1 ♀; Niksar: Dönekse, 350 m, 03.X.2009, 1 ♀.

***Tachysphex mocsaryi* Kohl, 1884**

Distributions: Balıkesir, Kayseri.

Material examined: Almus: Almus – Görümlü yolu 10. km, 950 m, 25.VII.2009, 1 ♀.

***Tachysphex nitidior* de Beaumont, 1940**

Distributions: Çankırı, Hakkâri, Hatay, Erzurum, Kars, Tokat.

Material examined: Almus: Toki civarı, 950 m, 21.VII.2010 1 ♀; Reşadiye: Zinav Gölü, 1200 m,

26.IX.2009, 1 ♀; Tokat Merkez: Havaalanı, 650 m, 12.VII.2010, 1 ♀.

***Tachysphex panzeri* (Vander Linden, 1829)**

Distributions: Adana, Amasya, Ankara, Antalya, Bursa, Erzincan, Erzurum, Hatay, İçel, Kars, Tekirdağ, Tokat.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 1 ♀; Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 2 ♂♂ 1 ♀.

***Tachysphex pompiliformis* (Panzer, 1805)**

Distributions: Ankara, Ağrı, Artvin, Bitlis, Bolu, Bursa, Erzincan, Erzurum, Hatay, Kars, Kastamonu, Kayseri, Kırşehir, Konya, Kütahya, Niğde, Sinop, Trabzon.

Material examined: Erbaa: Kelkit kumocağı, 280 m, 25.IV.2010, 1 ♀; Tokat Merkez: Kampüs içi, 650 m, 07.VI.2010 1 ♀; Yeşilyurt: Su deposu civarı, 900 m, 03.VII.2010, 1 ♀.

***Tachysphex psammobius* (Kohl, 1880)**

Distributions: Amasya, Ankara, Antalya, Bilecik, Bingöl, Çorum, Hatay, İçel, Kars, Konya, Muğla, Şanlıurfa, Trabzon.

Material examined: Erbaa: Kelkit kumocağı, 280 m, 25.IV.2010, 1 ♀; Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010 1 ♀; Tokat Merkez: Kömeç Köyü, 650 m, 24.IV.2010, 1 ♀.

***Tachytes etruscus etruscus* (Rossi, 1790)**

Distributions: Bursa, Erzurum, Hatay, Samsun.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 3 ♂♂ 5 ♀♀.

***Miscophus bicolor bicolor* Jurine, 1807**

Distributions: Denizli, Hatay, Konya.

Material examined: Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 2 ♀.

***Nitela truncata* Gayubo and Felton, 2000**

Distributions: ????????????

Material examined: Almus: Teknecik, 1250 m, 28.VII.2010, 1 ♀.

***Solierella compedita compedita* (Piccioli, 1869)**

Distributions: Denizli, Hatay, Konya, İçel, Kırşehir, Şanlıurfa.

Material examined: Almus: Teknecik, 1250 m, 28.VII.2010, 1 ♀.

***Pison (Pison) sericeum* Kohl, 1888**

Distributions: Amasya, Ankara, Bursa, Denizli, Edirne, İçel.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009 1 ♂.

***Trypoxylon attenuatum attenuation* F. Smith, 1851**

Distributions: Amasya, Artvin, Aydın, Bilecik, Bursa, Erzurum, Konya, Manisa, Muğla, Samsun.

Material examined: Almus: Ormanevleri, 950 m, 13.V.2010, 1 ♀.

***Trypoxylon minus* de Beaumont, 1945**

Distributions: Artvin, İstanbul, Samsun.

Material examined: Pazar: Ocaklı, 1200 m, 04.VIII.2009, 1 ♂.

***Oxybelus subspinosus* Klug, 1835**

Distributions: Adana, Amasya, Ağrı, Ankara, Antalya, Bingöl, Bursa, Erzurum, Eskişehir, Denizli, Hatay, İçel, Kayseri, Kırşehir, Konya, Kütahya, Samsun, Şanlıurfa, Tekirdağ, Tokat.

Material examined: Almus: Merkez, 950 m, 03.VIII.2010, 1 ♂; Tokat: Kampüs içi, 650 m, 29.V.2010, 1 ♀

***Entomognathus brevis* (Vander Linden, 1829)**

Distributions: Amasya, Ankara, Antalya, Kocaeli, Bursa, Erzurum, İçel, İstanbul, Kastamonu, Konya.

Material examined: Almus: Almus – Görümlü yolu 10. km, 950 m, 25.VII.2009, 1 ♂.

***Crossocerus assimilis assimilis* (F. Smith, 1856)**

Distributions: Ankara, Erzurum, Giresun, Trabzon.

Material examined: Almus: Ormandibi Kasabası yolu 10. km, 900 m, 06.VII.2010 1 ♀.

***Crossocerus podagricus podagricus* (Vander Linden, 1829)**

Distributions: Amasya Antalya, Bitlis, Hakkâri, Erzurum, Konya, Sivas.

Material examined: Tokat Merkez: Kızılöz köyü, 750 m, 08.VII.2010 1 ♀. Almus: Tekneçik, 1250 m, 28.VII.2010, 1 ♂.

***Crossocerus vagabundus vagabundus* (Panzer, 1798)**

Distributions: Ankara, Artvin, Bursa, Bitlis, Erzurum, Samsun, Trabzon.

Material examined: Almus: Tekneçik, 1250 m, 28.VII.2010, 1 ♀.

***Crossocerus elongatulus elongatulus* (Vander Linden, 1829)**

Distributions: Amasya, Ankara, Denizli, Erzurum, Hatay, İstanbul, Konya, Kütahya, Muğla, Trabzon.

Material examined: Almus: Tekneçik, 1250 m, 28.VII.2010, 1 ♀.

***Crossocerus quadrimaculatus* (Fabricius, 1793)**

Distributions: Amasya, Bayburt, Bursa, Erzincan, Erzurum, Hakkâri, İstanbul, İzmir, Van.

Material examined: Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 3 ♀.

***Crossocerus acanthophorus* (Kohl, 1892)**

Distributions: Amasya, Ankara, Konya, Kahramanmaraş, Hakkâri, Nevşehir.

Material examined: Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 1 ♀.

***Ectemnius continuus continuus* (Fabricius, 1804)**

Distributions: Adana, Amasya, Ankara, Antalya, Artvin, Bitlis, Bolu, Bursa, Erzincan, Erzurum, Eskişehir, Giresun, Gümüşhane, Iğdır, İçel, İstanbul, Kars, Konya, Kütahya, Malatya, Muğla, Rize, Samsun, Tokat, Trabzon, Van.

Material examined: Almus: Çatak, 1100 m, 28.VII.2010, 1 ♀; Almus: Merkez, 950 m, 05.VII.2010 1 ♂; Almus: Merkez, 950 m, 30.VI.2010, 1 ♀; Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 1 ♀; Tokat Merkez: Kızılöz köyü, 750 m, 08.VII.2010, 3 ♂♂; Tokat Merkez: Kızılöz köyü, 750 m, 13.VII.2010, 5 ♂♂ 2 ♀♀; Turhal: Çaylı Kasabası, 650 m, 19.VII.2010, 1 ♂ 1 ♀; Sulusaray: Ilıcak Köyü, 1030m, 03.VII.2010 1 ♀.

***Ectemnius meridionalis* (A. Costa, 1871)**

Distributions: Adana, Adıyaman, Amasya, Antalya, Ankara, Artvin Bitlis, Bolu, Bursa, Çanakkale, Denizli, Edirne, Erzincan, Erzurum, Eskişehir, Hakkâri, Hatay, Iğdır, İçel, İzmir, Kahramanmaraş, Konya, Kütahya, Malatya, Mardin, Muğla, Samsun, Sinop, Şanlıurfa, Van.

Material examined: Almus: Ormandibi Kasabası yolu 10. km, 900 m, 13.VII.2010 1 ♂; Almus: Tufantepe, 850 m, 01.VII.2010 1 ♂; Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 1 ♂; Turhal: Çaylı Kasabası, 650 m, 12.VII.2010, 1 ♂.

***Ectemnius rubicola rubicola* (Dufour and Perris, 1840)**

Distributions: Artvin, Bayburt, Bitlis, Bursa, Erzurum, Hakkâri, Kars, İstanbul.

Material examined: Almus: Ormandibi Kasabası yolu 10. km, 900 m, 13.VII.2010 1 ♀.

***Ectemnius fossorius fossorius* (Linnaeus, 1758)**

Distributions: Antalya, Artvin, Erzurum, Gümüşhane, İstanbul.

Material examined: Tokat Merkez: Kızılöz köyü, 750 m, 13.VII.2010, 1 ♀.

***Ectemnius kriechebaumeri* (Kohl, 1879)**

Distributions: Antalya, Batman, Erzurum, Hakkâri, İçel.

Material examined: Tokat Merkez: Toki ırmak kenarı, 620 m, 03.VII.2010 1 ♀.

***Ectemnius crassicornis* (Spinola, 1808)**

Distributions: Adana, Adıyaman, Ağrı, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Batman, Bilecik, Bitlis, Bursa, Çanakkale, Denizli, Edirne, Elazığ, Erzincan, Erzurum, Gaziantep, Hakkâri, Hatay, Iğdır, İçel, İzmir Kahramanmaraş, Kars, Kırıkkale, Konya, Kütahya, Malatya, Muğla, Nevşehir, Niğde, Sivas, Şanlıurfa, Van.

Material examined: Tokat Merkez: Toki ırmak kenarı, 620 m, 03.VII.2010 1 ♀.

***Lestica clypeata clypeata* (Schreber, 1759)**

Distributions: Adana, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bilecik, Bolu, Bursa, Çanakkale, Elazığ, Erzincan, Erzurum, Giresun, Hatay, Iğdır, İçel, İstanbul, Kahramanmaraş, Kars, Kastamonu, Konya, Kütahya, Malatya, Samsun, Şanlıurfa, Tekirdağ, Van.

Material examined: Almus: Tokat yolu 3. km, 1000 m, 19.VII.2009, 1 ♀; Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 1 ♀; Turhal: Çaylı Kasabası, 650 m, 19.VII.2010, 1 ♀.

***Lindenius albilabris albilabris* (Fabricius, 1793)**

Distributions: Adana, Amasya, Ardahan, Artvin, Bilecik, Bolu, Erzincan, Erzurum, Eskişehir, Kars, Kastamonu, Kayseri, Konya, Malatya, Nevşehir, Sakarya, Sivas, Tokat, Trabzon, Van.

Material examined: Tokat Merkez: Havaalanı, 650 m, 12.VII.2010, 1 ♀.

***Lindenius panzeri* (Vander Linden, 1829)**

Distributions: Ağrı, Ankara, Hatay, Isparta, İstanbul, Van.

Material examined: Tokat Merkez: Havaalanı, 650 m, 12.VII.2010, 1 ♂.

Subfamily Pemphredoninae Dahlbom, 1835

***Entomosericus concinnus* Dahlbom, 1845**

Distributions: Ağrı, Amasya, Ankara, Antalya, Batman, Bilecik, Bolu, Elazığ, Erzurum, İçel, Isparta, Konya, Kütahya, Manisa, Mardin, Muğla, Nevşehir, Şanlıurfa, Sivas, Van.

Material examined: Almus: Tufantepe, 950 m, 30.VI.2010, 1 ♀.

***Mimesa grandii grandii* Moidl, 1933**

Distributions: İçel, Erzurum, Konya, Nevşehir.

Material examined: Tokat: Kampüs içi, 650 m, 21.VII.2010, 1 ♀.

***Psenulus fuscipennis fuscipennis* (Dahlbom, 1843)**

Distributions: Amasya, Ankara, Artvin, Kocaeli, Çankırı.

Material examined: Almus: Tufantepe, 950 m, 05.VI.2010, 1 ♀; Tokat Merkez: Taşocağı, 650 m, 03.VII.2010 1 ♀; Tokat: Tahtoba Köyü, 700 m, 27.V.2010, 1 ♀.

***Psenulus meridionalis* de Beaumont, 1937**

Distributions: Bitlis, Bursa, Erzurum, Gümüşhane, Hatay, Kars, Şanlıurfa, Tekirdağ, Van.

Tokat Merkez: Havaalanı, 650 m, 12.VII.2010, 1 ♀.

Material examined: Almus: Merkez, 950 m, 21.VI.2009, 1 ♀.

***Psenulus pallipes pallipes* (Panzer, 1798)**

Distributions: Amasya, Ankara, Denizli Erzurum Hatay İstanbul, Konya, Nevşehir Sakarya Samsun Şanlıurfa Van.

Material examined: Erbaa: Akça Köyü, 300 m, 19.VI.2010, 1 ♀; Tokat: Toki ırmak kenarı, 03.VII.2010 1 ♀; Tokat: Kampüs içi, 650 m, 03.VII.2010, 1 ♀; Tokat: Kampüs içi, 650 m, 19.VII.2010, 3 ♀♀.

***Diodontus (Diodontus) minutus minutus* (Fabricius, 1793)**

Distributions: Adana, Amasya, Ankara, Bursa, Çorum, Denizli, Erzincan, Erzurum, Eskişehir, Hatay, İçel, İstanbul, Kayseri, Konya, Samsun, Tekirdağ, Trabzon, Şanlıurfa.

Material examined: Almus: Merkez, 950 m, 20.VII.2010, 1 ♀; Erbaa: Kaleköy, 280 m, 25.IV.2010, 1 ♀; Tekneçik, 1250 m, 28.VII.2010, 1 ♂; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008 5 ♀♀.

***Passaloecus corniger corniger* Shuckard, 1837**

Distributions: Amasya, Ankara, Bursa.

Material examined: Almus: Merkez, 950 m, 21.VI.2009, 1 ♂.

***Passaloecus eremita* Kohl, 1893**

Distributions: Ankara.

Material examined: Almus: Merkez, 950 m, 21.VI.2009, 2 ♀♀; Tokat: Kampüs içi, 650 m, 29.V.2010, 1 ♀.

***Passaloecus pictus* Ribaut, 1952**

Distributions: Amasya, Ankara, Antalya, Bolu, Hatay, İçel, Şanlıurfa.

Material examined: Almus: Merkez, 950 m, 30.VI.2010, 2 ♀♀; Almus: Merkez, 950 m, 05.VII.2010, 1 ♀.

***Pemphredon lethifer* (Shuckard, 1837)**

Distributions: Amasya, Ankara, Antalya, Bolu, Hatay, İçel, Şanlıurfa.

Material examined: Almus: Merkez, 950 m, 21.VII.2010, 1 ♂; Erbaa: Kaleköy, 280 m, 25.IV.2010, 1 ♂; Tokat Merkez: Havaalanı, 650 m, 22.VII.2010, 2 ♂♂.

***Pemphredon rugifer* (Dahlbom, 1844)**

Distributions: Amasya, Ankara, Antalya, Bitlis, Bursa, Erzurum, Eskişehir Gümüşhane, Hakkâri, Hatay, Iğdır, İçel, İstanbul, İzmir, Kars, Konya, Malatya, Niğde, Samsun, Tokat.

Material examined: Almus: Merkez, 950 m, 21.VII.2010, 1 ♀; Almus: Ormanevleri, 950 m, 13.V.2010, 1 ♀.

Subfamily Philanthinae Latreille, 1802

***Philanthus triangulum triangulum* (Fabricius, 1775)**

Distributions: Adana, Afyonkarahisar, Amasya, Ankara, Antalya, Aydın, Artvin, Balıkesir, Bingöl, Bitlis, Bursa Erzincan, Erzurum, Gümüşhane, Iğdır, İstanbul, İzmir, İçel, Kars, Kayseri, Konya, Kütahya, Malatya, Manisa, Niğde, Rize, Samsun, Sinop, Sivas, Şanlıurfa, Tokat, Trabzon.

Material examined: Almus: Tufantepe, 950 m, 07.VII.2009, 2 ♂♂; Almus: Tufantepe, 950 m, 26.VII.2009, 1 ♂; Erbaa: Kelkit kumocağı, 280 m, 03.X.2009, 1 ♀; Erbaa: Kelkit ırmak içi, 280 m, 04.X.2009, 1 ♀; Erbaa: Kelkit kumocağı, 280 m, 04.X.2009, 2 ♀♀; Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 1 ♂.

***Philanthus venustus* (Rossi, 1790)**

Distributions: Adana, Amasya, Ankara, Antalya, Artvin, Bursa, Erzurum, İçel, Kars, Kayseri, Konya, Kütahya, Manisa, Samsun, Sinop, Tokat, Trabzon.

Material examined: Almus: Tufantepe, 950 m, 01.VII.2010, 1 ♂.

***Cerceris arenaria arenaria* (Linnaeus, 1758)**

Distributions: Adana, Amasya, Ankara, Artvin, Aydın, Balıkesir, Bayburt, Bilecik, Bursa, Denizli, Edime, Erzincan, Erzurum, Hatay, Iğdır, İçel, İstanbul, İzmir, Kahramanmaraş, Kars, Kastamonu, Kayseri, Konya, Kütahya, Malatya, Manisa, Niğde, Sakarya, Samsun, Sinop, Sivas, Tekirdağ.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 2 ♂♂; Pazar: Akdağ, 1900 m, 04.VIII.2009, 1 ♂ 1 ♀.

***Cerceris circularis dacica* Schletterer, 1887**

Distributions: Adana, Antalya, Aydın, Hatay, Iğdır, İçel, Kars Kayseri.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♂.

***Cerceris eryngii eryngii* Marquet, 1875**

Distributions: Adana, Ankara, Artvin, Bayburt, Denizli, Erzurum, Eskişehir, Giresun, İçel, Kars, Kayseri, Konya, Kütahya, Şanlıurfa, Tekirdağ, Tokat, Yozgat.

Material examined: Artova: Tokat – Artova yolu 10. km, 1000 m, 03.VII.2010 1 ♀; Reşadiye: Başçiftlik yolu 2. km, 500 m, 24.VII.2010, 1 ♂.

***Cerceris flavicornis* Brullé, 1833**

Distributions: Ankara, Artvin Denizli, Erzincan Erzurum Gümüşhane, İçel, İzmir Konya Manisa Şanlıurfa Tekirdağ, Zonguldak.

Material examined: Artova: Tokat – Artova yolu 10. km, 1000 m, 03.VII.2010, 1 ♂.

***Cerceris flavilabris flavilabris* (Fabricius, 1793)**

Distributions: Amasya, Bilecik Erzincan Erzurum Hatay Iğdır, İçel, Kars, Kastamonu, Niğde Rize.

Material examined: Reşadiye: Başçiftlik yolu 2. km, 500 m, 24.VII.2010, 1 ♀.

***Cerceris lunata lunata* A. Costa, 1867**

Distributions: Adana, Amasya, Ankara, Balıkesir Bilecik Bursa, Eskişehir Erzurum Hatay, İçel, Konya Kütahya, Samsun, Şanlıurfa Tekirdağ.

Material examined: Tokat Merkez: Kampüs içi, 650 m, 16.VI.2010, 1 ♀.

***Cerceris quadricinctus quadricinctus* (Panzer, 1799)**

Distributions: Adana, Amasya, Ankara, Antalya, Artvin, Bilecik, Bingöl, Çankırı, Erzincan, Erzurum, Hatay, Iğdır, İçel, İstanbul, Kahramanmaraş, Kars, Konya, Kütahya, Manisa, Muğla, Rize, Sinop, Tekirdağ, Tokat, Trabzon.

Material examined: Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 1 ♂; Tokat Merkez: Kızılöz köyü, 750 m, 13.VII.2010 1 ♂; Tokat Merkez: Taşocağı, 650 m, 03.VII.2010, 1 ♂.

***Cerceris quadrifasciatus* (Panzer, 1799)**

Distributions: Ankara, Balıkesir, Erzurum, İçel, İzmir, Konya, Manisa, Tokat.

Material examined: Artova: Tokat – Artova yolu 10. km, 1000 m, 03.VII.2010 1 ♂; Başçiftlik: Bereketli Köyü, 1450 m, 24.VII.2010, 1 ♀.

***Cerceris quinquefasciatus quinquefasciatus* (Rossi, 1792)**

Distributions: Erzurum, Kars, Konya.

Material examined: Artova: Tokat – Artova yolu 10. km, 1000 m, 03.VII.2010 1 ♂.

***Cerceris rubida rubida* (Jurine, 1807)**

Distributions: Amasya Ankara Antalya Artvin, Aydın Balıkesir, Bilecik, Çanakkale Çankırı Edirne Erzincan, Erzurum Eskişehir, Hakkâri Iğdır İstanbul, İzmir Kars Kayseri, Konya Muğla Sivas Tekirdağ, Tokat.

Material examined: Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 1 ♂ 1 ♀; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 1 ♀.

***Cerceris rybyensis rybyensis* (Linnaeus, 1771)**

Distributions: Ankara, Çankırı, Erzurum İçel, İstanbul, Kırşehir, Konya, Manisa.

Material examined: Başçiftlik: Merkez, 1400 m, 26.IX.2009, 1 ♀.

***Cerceris sabulosa sabulosa* (Panzer, 1799)**

Distributions: Adana, Afyonkarahisar, Amasya, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bayburt,

Bilecik, Bingöl, Bursa, Denizli, Erzincan, Erzurum, Eskişehir, Hatay, Iğdır, İçel, İstanbul, İzmir, Kahramanmaraş, Kars, Kocaeli, Konya, Kütahya, Malatya, Manisa, Niğde, Sinop, Şanlıurfa, Tekirdağ, Tokat, Trabzon.

Material examined: Almus: Merkez, 950 m, 30.VI.2010, 1 ♂; Almus: Merkez, 950 m, 20.VII.2010 1 ♂; Almus: Teknecik, 1250 m, 28.VII.2010, 2 ♂♂; Almus: Tufantepe, 950 m, 01.VII.2010, 1 ♂; Tokat Merkez: Kat Kasabası, 560 m, 31.VII.2010, 5 ♂♂ 11 ♀♀; Tokat Merkez: Kömeç Köyü, 650 m, 16.X.2008, 1 ♂; Tokat Merkez: Taşocağı, 650 m, 03.VII.2010, 1 ♂; Sulusaray: Ilıcak Köyü, 1030 m, 03.VII.2010, 1 ♂.

***Cerceris stratiotes* Schletterer, 1887**

Distributions: Ankara, Antalya, Artvin, Erzincan, Erzurum, Iğdır İçel, Konya, Şanlıurfa.

Material examined: Turhal: Çaylı Kasabası, 650 m, 01.VIII.2010, 1 ♂.

***Cerceris tuberculata tuberculata* (de Villers, 1789)**

Distributions: Adana, Ankara, Bursa, Hatay, İstanbul, Manisa.

Material examined: Zile: Edeköy Kızılüzüm Yaylası, 660 m, 01.VIII.2009, 1 ♀.

Discussion And Conclusion

89 taxa were identified belonging to Crabronidae family in this study, of which 68 are new records for the fauna of Tokat province. Therefore, the number of species belonging to Crabronidae family is reached to 114 from 46 for the province. The species identified in our study are shown below together with those in the literature (Table 1).

Some of the species recorded for the first time by this study for Tokat fauna had been known from only a few cities in Turkey (Ljubomirov and Yıldırım, 2008) namely: *Astata rufipes*, *Nysson maculosus*, *Oryttus concinnus paradisiacus*, *Liris atratus*, *Liris nigricans nigricans*, *Prosopigastra bulgarica*, *Tachysphex mocsaryi*, *Miscophus bicolor bicolor*, *Passaloecus corniger corniger* and *Trypoxylon minus*. The identification of these narrow-spread species in Tokat is an important record which contributes precious knowledge to the Crabronidae fauna of Tokat.

Crabronid wasps are flying very fast, they are solitary insects and some of them are very small, so some species can be overlooked easily during field studies. Similarly specimens with short flight periods or due to absence of road network to all habitats in the region, some species may have been missed. On the other hand lots of natural habitats have been destroyed recently due to the constructions of highways and dams or opening of sand mine enterprises in Tokat. This kind of adverse environmental impacts directly affects Crabronidae species which dig nest burrows in the soil, which may have caused some specimens to be overlooked.

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