

**AN EVALUTION ON COLEOPTERA (INSECTA) SPECIES  
COLLECTED BY PITFALL TRAPS IN KARABIĞA  
(ÇANAKKALE PROVINCE) OF TURKEY**

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**ABSTRACT:** This study was carried out by pitfall traps to determine Coleoptera species on 10 sampling zones at different biotopes occupied by plantation, oak and meadow from May to December of 2009 and from March to October of 2010 in Karabiga (Çanakkale province). During field studies, the samples were collected by using 7 pieces of pitfall traps by random parcellation in each sampling zone and then determined in laboratory. As a result of this study, 29 species and 1 subspecies belonging to five families of Coleoptera were determined. These were *Harpalus smaragdinus* Duftschmid, 1812; *H. distinguendus* Duftschmid, 1812; *Dixus obscurus* Dejean, 1825; *Ditomus calydonius* Rossi, 1790; *Brachinus explodens* Duftschmid, 1812; *B. crepitans* Linnaeus, 1758; *Nebria brevicollis* Fabricius, 1792; *Poecilus cupreus* Linnaeus, 1758; *Carabus coriaceus* Linnaeus, 1758; *C. graecus* Dejean, 1826; *Chlaenius festivus* Panzer, 1796; *Calathus libanensis* Putzeys, 1873; *C. longicollis* Motschulsky, 1864; *C. erythroderus* Gemminger & Harold, 1868; *Olisthopus fuscatus* Dejean, 1828; *Pristonychus conspicuus* Walth, 1838; *Brosicus nobilis* Dejean, 1828 (Carabidae); *Dailognatha quadricollis* Eschscholtz, 1829; *Cossyphus tauricus* Steven, 1829; *Pedinus strabonis* Seidlitz, 1893; *Gonocephalum costatum* Brullé, 1832; *Blaps tibialis* Reiche, 1857; *Probaticus tenebricosus* Brullé, 1832 (Tenebrionidae); *Pittonotus theseus* Germar, 1817; *Drasterius bimaculatus* Rossi, 1790; *Melanotus fusciceps* Gyllenhal, 1817 (Elateridae); *Silpha obscura orientalis* Brullé, 1832 (Silphidae); *Ocyopus curtippennis* Motschulsky, 1864; *Quedius levicollis* Brullé, 1832; *Tasgius morsitans* Rossi, 1790 (Staphylinidae).

**KEY WORDS:** Coleoptera, pitfall trap, Karabiga, Çanakkale, Turkey.

Turkey has a very diverse faunistic structure in terms of geological, ecological and climate with a connection between Europae and Asia. Karabiga (40°40'12" N/27°30'13" E) is a peninsula with an altitude ranging from 0 m to 224 m. Pitfall trapping is a method used effectively in the sampling of insects living on soil surface or in soil and under stone. With this method, it is likely to catch species of useful, harmful and neutral insects in soil layers. So our understanding of insect biodiversity is increasing by being informed about the seasonal fluctuations of this species in ecosystems.

With this study, the specimens belonging to Carabidae, Tenebrionidae, Elateridae, Silphidae and Staphylinidae of Coleoptera were collected by pitfall traps for the first time in Karabiga, and were aimed to contribute to the basis for ecological and the faunistic studies in the future. Some of the studies made on this families by pitfall trap method before are reported by Tezcan et al. (2000), Mercan et al. (2004), Anlaş et al. (2004), Gülperçin (2006), Gülperçin & Tezcan (2006), Avgın (2006), Anlaş (2007), Tezcan et al. (2007), Aslan et al. (2008), Canpolat (2008), Uzüm et al. (2009), Tezcan et al. (2010), Tanyeri et al. (2010), Varlı et al. (2010).

## MATERIALS AND METHODS

The studies were performed at 10 sampling zones in biotopes occupied by plantation, oak and meadow from May to December of 2009 and from March to October of 2010 in Karabiga (Çanakkale, 40°40'12" N - 27°30'13" E) province (Fig. 1). Information on these areas are given in Table 1.

Seven pieces of pitfall traps were placed that the mouth part of 100 ml traps at the top of the soil and not closer than 25 meters to each other in each of the selected fields by random parcellation and after adding a mixture of ethylen glycol-water (1:1) the mouth part of the traps was camouflaged. The materials were collected from the traps every fifteen days and were brought to the laboratory in 70% ethanol. After collecting the materials, the places of the traps were changed in the same area taking into account the number of specimen and ecological conditions.

After pinning the collected materials, being written biotopes, collection date and the area of the research by their names for any specimens, for diagnosis was conducted to Prof. Dr. Serdar Tezcan (Aegean University, Faculty of Agriculture, Department of Plant Protection, Entomology Department, İzmir), Assistant. Prof. Dr. Bekir Keskin (Aegean University, Faculty of Science, Department of Biology, İzmir), Assistant Prof. Dr. Nilay Gülperçin (Aegean University, Faculty of Science, Department of Biology, İzmir) and Instructor Tuba Öncül Abacıgil (Balıkesir University, Edremit Vocational Schools).

The examined materials are protected in Biology Department Entomology laboratory of Balıkesir University, Faculty of Science And Literature.

## RESULTS

As a result of this study, 29 species and 1 subspecies belonging to five families of Coleoptera were determined. The species, subspecies and their families based on the diagnosis of the specimens examined are given below along with their distribution in Turkey.

### Family: Carabidae

#### Subfamily: Harpalinae

##### *Harpalus smaragdinus* Duftschmid, 1812

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (1) specimen. 26.04.2010, (1) specimen. Plantation-7, 50 m, 27.03.2010, (3) specimens. Plantation-9, 135 m, 27.03.2010, (5) specimens. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Antalya (Finike, Olympos, Söğüt lake, Yarpuz), Ardahan, Artvin (Kaçkar Mt., Meretet, Şavşat, Yalnızçam Mt.), Bitlis (Süphan Mt.), Bolu (Akyarma pass, Gerede), Çankırı (İlgaz), Erzurum (Central, Ispir road, Oltu, Tortum), Giresun (Kümbet, Yağlıdere), Gümüşhane (Vaudağı pass), Kars (Sarıkaş), Manisa, İzmir-Kemalpaşa (Armutlu-Oren) (Csiki, 1932; Casale & Taglianti 1999; Kesdek & Yıldırım, 2003; Tezcan et al., 2007; Tezcan et al., 2010).

##### *Harpalus distinguendus* Duftschmid, 1812

**Material:** Karabiga, Meadow-2, 2 m, 15.05.2010, (9) specimens. Meadow-10, 58 m, (3) specimens. Plantation-9, 27.03.2010, 135 m, (2) specimens. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Anatolia, İçel (Erdeмли), Konya (Ivriz), Ankara, Antalya (Alanya, Beşkonak, Kızıllot, Manavgat, Perge, Sağırn, Sinekçibeli pass, Söğüt Gölü, Termessos, Yarpuz), Artvin (Borçka), Aydın (Kuşadası), Bayburt (Bayburt), Burdur (Kızılkaya), Erzincan, Erzurum (Çat, Ispir road, Kop pass, Tortum), Giresun (Şebinkarahisar), Gümüşhane (Vaudağı pass), Isparta (Egirdir, Keçili), İstanbul (Büyükdere), İzmir (Kemalpaşa (Armutlu-Oren), Bergama, Bozdağ, Efes), Kahramanmaraş (Gözecik), Tokat (Niksar), Trabzon (Bodemeyer, 1900; Csiki, 1932; Gadeau de Kerville, 1939; Casale & Taglianti, 1999; Kesdek & Yıldırım, 2003; Tezcan et al., 2007; Tezcan et al., 2010).

***Dixus obscurus* Dejean, 1825**

**Material:** Karabiga, Meadow-3, 1 m, 08.08.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Izmir, Karşıyaka (Yamanlar Mt.), Menderes (Casale & Taglianti, 1999; Tezcan et al., 2010).

***Ditomus calydonius* Rossi, 1790**

**Material:** Karabiga, Plantation-5, 40 m, 22.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia (Casale & Taglianti, 1999).

**Subfamily: Brachininae*****Brachinus explodens* Duftschmid, 1812**

**Material:** Karabiga, Meadow-2, 2 m, 01.07.2009, (1) specimen. Meadow-3, 1 m, 27.05.2010, (1) specimen. Plantation-7, 50 m, 27.03.2010, (1) specimen. Plantation-8, 53 m, 27.03.2010, (1) specimen. **Distribution:** Anatolia, Izmir (Kemalpaşa (Armutlu-Oren), Çiçekli), Eskişehir, Denizli, Ankara, Amasya, Antalya (Akseki, Bakacakbeli pass, Demirtaş, Elmalı, Korkutelı, Murtiçi, Söğütçük, Topraktepe, Yarpuz), Aydın (Kuşadası), Bolu (Abant, Akyarın geçidi, Boludağı pass, Köroğlu pass), Çanakkale (Ortaca), Çankırı (Çubucuk pass, Ilgaz), Giresun (Şebinkarahisar), İçel (Erdemli, Gülnar, Ulaş), İstanbul, Konya (Bakaran, Ivriz, Yeşildağ), Kahramanmaraş (Göksun), Tokat, Trabzon (Maçka) (Sahlberg, 1912-1913; Gadeau de Kerville, 1939; Bytinski-Salz, 1956; Casale & Taglianti, 1999; Tezcan et al., 2007; Tezcan et al., 2010).

***Brachinus crepitans* Linnaeus, 1758**

**Material:** Karabiga, Meadow-2, 2 m, 15.05.2010, (3) specimens. Meadow-10, 58 m, 27.05.2010, (2) specimens. Plantation-9, 135 m, 27.03.2010, (2) specimens. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Izmir- Kemalpaşa (Oren), Antalya (Avlan lake, Seklik), Artvin (Şavşat), Bitlis (Süphan Mt.), Bolu (Abant, Bolu Mt. pass), Burdur (Kızılkaya, Söğüt lake), Çankırı (Çubucuk pass, Ilgaz), Erzurum (Yumaklı), Kastamonu (Ilgaz Mt.), Konya (Yelibel pass), Sinop (Csiki, 1933; Bytinski-Salz, 1956; Casale & Taglianti, 1999; Tezcan et al., 2007; Tezcan et al., 2010).

**Subfamily: Nebriinae*****Nebria brevicollis* Fabricius, 1792**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Anatolia, Izmir (Bornova, Bozdağ, Kemalpaşa (Armutlu-Oren), Somak, Torbalı), Bolu (Abant), Antalya (Alanya, Manavgat, Yarpuz), Artvin (Yalnızçam Mt.), Aydın (Germencik), Denizli (Bozkurt), İstanbul (Büyükdere), Kastamonu (Ilgaz Mt. pass), Ordu (Akkuş) (Csiki, 1933; Bytinski-Salz, 1956; Gül-Zümreoğlu, 1972; Casale & Taglianti, 1999; Tezcan et al., 2007; Tezcan et al., 2010).

**Subfamily: Pterostichinae*****Poecilus cupreus* Linnaeus, 1758**

**Material:** Karabiga, Meadow-2, 2 m, 07.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Anatolia, Ankara, Izmir-Kemalpaşa (Armutlu-Oren), Antalya (Avlan lake), Ardahan, Artvin (Yalnızçam pass), Aydın (Güdüşlü), Balıkesir (Bandırma), Bolu (Mengen), Çankırı, Erzurum (Köprübaşı, Tortum, Uzundere), Kars (Arpaçay, Dağpınar, Ilgar pass, Susuz), Kastamonu, Konya (Yelibel pass), Ordu (Akkuş), Sinop (Dranoz Mt.) (Csiki, 1932; Gadeau de Kerville, 1939; Casale & Taglianti, 1999; Tezcan et al., 2007; Tezcan et al., 2010).

**Subfamily: Carabinae*****Carabus coriaceus* Linnaeus, 1758**

**Material:** Karabiga, Meadow-2, 2 m, 07.06.2009, (2) specimens. Meadow-3, 1 m, 21.06.2009, (1) specimen. Oak-6, 101 m, 12.03.2010, (1) specimen. 26.04.2010, (1) specimen. 15.05.2010, (2) specimens. 27.05.2010, (3) specimens. 01.08.2010, (1) specimen. Plantation-7, 50 m, 15.05.2010, (5) specimens. Plantation-8, 53 m, 27.05.2010, (6) specimens. Plantation-9, 135 m, 01.08.2010, (4) specimens. **Remarks:** New record for the

local fauna of the province of Çanakkale. **Distribution:** Western Mediterranean, Aegean and Marmara, Izmir (Bornova) (Casale et al., 2003; Tezcan et al., 2010).

***Carabus graecus* Dejean, 1826**

**Material:** Karabiga, Oak-6, 101 m, 12.03.2010, (1) specimen. Plantation-7, 50 m, 15.05.2010, (2) specimens. Plantation-9, 135 m, 15.05.2010, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Western Mediterranean, Aegean, Marmara, Ankara (Casale et al., 2003; Kocatepe & Mergen, 2004).

**Subfamily: Chlaeniinae**

***Chlaenius festivus* Panzer, 1796**

**Material:** Karabiga, Meadow-3, 1 m, 01.07.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Mediterranean, Northeast Anatolia, Southeast Anatolia, Izmir (Bornova, Urla) (Casale & Taglianti, 1999; Tezcan et al., 2010).

**Subfamily: Platyniinae**

***Calathus libanensis* Putzeys, 1873**

**Material:** Karabiga, Meadow-2, 2 m, 07.06.2009, (1) specimen. 21.06.2009, (1) specimen. 22.08.2009, (1) specimen. 07.11.2009, (2) specimens. Plantation-8, 53 m, 12.09.2010, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Anatolia, Denizli (Güney, Kazıkbeli pass), Eskişehir (Inönü), Gaziantep (Nurdağı), Isparta (Eğirdir, Sultan Mt., Yukarıgökdere), İstanbul (Alemdağ), Izmir (Çiçekli, Muradiye), Kahramanmaraş (Göksun), Kayseri (Pınarbaşı), Konya (Engilli), Nevşehir (Topuz Mt.), Osmaniye (Zorkun, Gökbeli), Sivas (Bulucan) (Casale & Taglianti, 1999; Tezcan et al., 2007).

***Calathus longicollis* Motschulsky, 1864**

**Material:** Karabiga, Oak-6, 101 m, 27.05.2010, (1) specimen. Plantation-8, 53 m, 27.05.2010, (1) specimen. Plantation-9, 135 m, 27.05.2010, (1) specimen. **Distribution:** Anatolia, Izmir-Kemalpaşa (Armutlu-Oren), Balıkesir, Bingöl, Erzincan, Erzurum, Konya, Ardahan, Iğdır, Kars, Adana, Adapazarı, Amasya, Antalya, Aydın, Bolu, Burdur, Bursa, Çanakkale, Çorum, Edirne, Eskişehir, Giresun, Gümüşhane, Isparta, Içel, İstanbul, Kahramanmaraş, Kastamonu, Kayseri, Kütahya, Manisa, Muğla, Nevşehir, Niğde, Ordu, Rize, Samsun, Sinop, Tokat, Trabzon, Yozgat (Battoni and Vereschagina, 1984; Oncüler, 1991; Casale and Taglianti, 1999; Kesdek & Yıldırım, 2004; Kesdek & Yıldırım, 2007; Tezcan et al., 2007; Tezcan et al., 2010).

***Calathus erythroderus* Gemminger & Harold, 1868**

**Material:** Karabiga, Plantation-7, 50 m, 26.04.2010, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Bingöl, Elazığ, Erzincan, Erzurum, Kars, Konya, Ardahan (Kesdek & Yıldırım, 2004; Kesdek, 2007).

***Olisthopus fuscatus* Dejean, 1828**

**Material:** Karabiga, Meadow-2, 2 m, 07.11.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Antalya (Demirtaş, Geris, Murtıçı, Perge, Sağırın, Taşkesiği, Termessos, Yarpuz), Izmir, Kemalpaşa (Armutlu), Muradiye (Casale & Taglianti, 1999; Tezcan et al., 2007; Tezcan et al., 2010).

***Pristonychus conspicuus* Waltl, 1838**

**Material:** Karabiga, Plantation-8, 53 m, 12.03.2010, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Afyon (Sultan Mt.), Ankara (Elmadag), Antalya (Akyay, Korkuteli), Denizli (Güney), Içel (Sertavul pass), Kırşehir (Çiçekdağı), Konya (Engilli), Izmir-Kemalpaşa (Armutlu, Oren), Muradiye, Manisa (Casale, 1988; Tezcan et al., 2007; Tezcan et al., 2010).

**Subfamily: Broscinae**

***Broscus nobilis* Dejean, 1828**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Izmir, Menemen (The coast of the Gediz river) (Casale & Taglianti, 1999; Tezcan et al., 2010).

**Family: Tenebrionidae****Subfamily: Pimeliinae*****Dailognatha quadricollis* Eschscholtz, 1829**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (1) specimen. 27.05.2010, (1) specimen. Oak-6, 101 m, 01.08.2010, (3) specimens. 12.09.2010, (2) specimens. Plantation-8, 53 m, 12.09.2010, (2) specimens. Plantation-9, 135 m, 01.08.2010, (3) specimens. 15.05.2010, (1) specimen. **Distribution:** Izmir-Balçova (Central, Çatalkaya), Bornova, Çeşme, Kemalpaşa (Central, Armutlu-Oren), Gaziemir, Menderes, Odemiş (Central, Bozdağ), Karşıyaka (Şemikler,Yamanlar), Karaburun-Mordoğan, Menderes (Cumaovası, Gümüşsu), Narlıdere, Seferihisar, Urla, Osmaniye, Kayseri, Denizli, Antalya, Eskişehir, Manisa, Adana, Adiyaman, Ağrı, Aydın, Bitlis, Çanakkale, Gaziantep, Gümüşhane, Hakkari, Hatay, Kahramanmaraş, Karaman, Kırıkkale, Konya, Mersin, Muğla, Nevşehir, Niğde, Tunceli (Ferrer & Soldati, 1999; Tezcan et al., 2004a; Tezcan et al., 2010).

**Subfamily: Lagriinae*****Cossyphus tauricus* Steven, 1829**

**Material:** Karabiga, Meadow-2, 2 m, 21.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Istanbul, Izmir, Bornova, Menemen (Hatundere), Manisa (Tezcan et al., 2004a; Háva, 2007; Tezcan et al., 2010).

**Subfamily: Tenebrioninae*****Pedinus strabonis* Seidlitz, 1893**

**Material:** Karabiga, Meadow-4, 2 m, 03.10.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Eskişehir, Karaman, Adana, Ağrı, Ankara, Bursa, Çorum, Diyarbakır, Gümüşhane, Isparta, Istanbul, Kastamonu, Kayseri, Konya, Mersin, Kırıkkale, Muğla, Nevşehir, Niğde (Ferrer & Soldati, 1999; Tezcan et al., 2004a).

***Gonocephalum costatum* Brullé, 1832**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (2) specimens. Meadow-2, 2 m, 21.06.2009, (8) specimens. 15.05.2010, (2) specimens. 27.05.2010, (2) specimens. **Distribution:** Izmir (Central, Bornova, Çeşme, Gaziemir, Kemalpaşa, Kınık), Adana, Ağrı, Aksaray, Ankara, Balıkesir, Çanakkale, Diyarbakır, Hakkari, Isparta, Istanbul, Kahramanmaraş, Kayseri, Konya, Nevşehir, Muğla (Tezcan et al., 2004a; Tezcan et al., 2010).

***Blaps tibialis* Reiche, 1857**

**Material:** Karabiga, Oak-6, 101 m, 01.08.2010, (1) specimen. Plantation-7, 50 m, 26.04.2010, (1) specimen. 15.05.2010, (2) specimens. 27.05.2010, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** Izmir, Balçova, Bornova (Central, Pınarbaşı), Karşıyaka (Yamanlardağı), Kemalpaşa, Kınık, Konak (Gültepe, Kadifekale), Odemiş (Bozdağ), Selçuk, Tire, Antalya, Kayseri, Isparta, Konya, Niğde, Sivas, Adana, Nevşehir, Aydın, Ağrı, Ankara, Burdur, Diyarbakır, Edirne, Eskişehir, Kahramanmaraş, Kırıkkale, Manisa, Osmaniye, Van (Soldati, 1999; Tezcan et al., 2004b; Ferrer & Canpolat, 2008; Tezcan et al., 2010).

***Probaticus tenebricosus* Brullé, 1832**

**Material:** Karabiga, Plantation-8, 53 m, 15.05.2010, (1) specimen. **Distribution:** Ağrı, Bursa, Çanakkale, Kocaeli, Kütahya, Mersin, Burdur, Izmir, Balçova (Central, Konak), Bornova (Central, Doğanlar), Kemalpaşa (Armutlu-Oren), Menderes (Gümüldür, Cumaovası), Odemiş (Bozdağ), Urla (Central, Çeşmealtı) (Tezcan et al., 2004b; Tezcan et al., 2010).

**Family: Elateridae****Subfamily: Elaterinae*****Pittonotus theseus* Germar, 1817**

**Material:** Karabiga, Plantation-8, 53 m, 22.08.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia, Izmir (Bornova, Çeşme, Güümüldür, Kemalpaşa, Armutlu, Konak, Tire), Mersin (Çamliyayla), Samsun (Akpınar), Adana (Pozanti), Denizli (Menderes Vadisi), Mersin (Derbent, Kızilen) (Winkler, 1924-1932; Schmitscheks, 1953; Tarnawski, 1984; Guglielmi & Platia, 1985; Preisse & Platia, 2003; Dusanek & Mertlik, 2004; Jansonn & Coşkun, 2008; Tezcan et al., 2010).

**Subfamily: Pyrophorinae*****Drasterius bimaculatus* Rossi, 1790**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (3) specimens. Meadow-2, 2 m, 08.08.2009, (6) specimens. 26.04.2010, (2) specimens. 15.05.2010, (7) specimens. Meadow-3, 1 m, 01.07.2009, (2) specimens. Oak-6, 101 m, 12.03.2010, (3) specimens. 15.05.2010, (13) specimens. Plantation-7, 50 m, 26.04.2010, (3) specimens. Plantation-8, 53 m, 26.04.2010, (2) specimens. 27.05.2010, (1) specimen. Meadow-10, 58 m, 15.05.2010, (8) specimens. **Distribution:** Anatolia, Adana (Bolkar Mt., Pozantı), Mersin (Tarsus, Çamlıyayla), Western Anatolia, Karaman, Çanakkale-Balıkesir (Kaz Dağları), Adapazarı, İstanbul, İzmir (Central, Bornova, Kemalpaşa-Armutlu, Kınık, Kiraz, Menderes, Gümlüdüz, Odemiş, Seferihisar, Sığacık, Urla), Amasya, Artvin (Borçka), Aydın (Selçuk-Efes), Bitlis, Bolu, Bursa (Inegöl), Düzcce (Akçakoca, Konuralp), Isparta, Erzurum (Kopdağı pass), Eskişehir (Sivrihisar), Gaziantep (İslahiye), Kastamonu, Muğla (Yatağan), Samsun (Bafra), Trabzon (Maçka) (Sahlberg, 1912-1913; Schenkling, 1925-1927; Winkler, 1924-1932; Gül-Zümreoğlu, 1972; Guglielmi & Platia, 1985; Laibner, 2000; Cate et al., 2002; Dusanek & Mertlik, 2004; Kovancı et al., 2004; Tezcan et al., 2010; Varlı et al., 2010).

**Subfamily: Melanotinae*****Melanotus fusciceps* Gyllenhal, 1817**

**Material:** Karabiga, Oak-6, 101 m, 26.04.2010, (1) specimen. Plantation-8, 53 m, 01.08.2010, (2) specimens. **Distribution:** İzmir (Bornova, Karaburun-Mordoğan, Kemalpaşa, Menemen, Seferihisar), Western, Central, Eastern and South Anatolia, Çanakkale (Güzelyol, Intepe, Truva), Diyarbakır (Central), Şanlıurfa (Karacadağ), Mersin (Derbent, Kızılan), Bursa (Guglielmi & Platia, 1985; Lodos, 1998; Kaya & Kovancı, 2004; Jansson & Coşkun, 2008; Tezcan et al., 2010).

**Family: Silphidae****Subfamily: Silphinae*****Silpha obscura orientalis* Brullé, 1832**

**Material:** Karabiga, Meadow-1, 2 m, 07.06.2009, (10) specimens. Meadow-2, 2 m, 21.06.2009, (56) specimens. 26.04.2010, (11) specimen. 15.05.2010, (29) specimens. Meadow-3, 1 m, 01.07.2009, (10) specimens. Meadow-10, 58 m, 15.05.2010, (9) specimens. 27.05.2010, (65) specimens. Oak-6, 101 m, 01.08.2010, (140) specimens. 27.05.2010, (55) specimens. Plantation-7, 50 m, 01.08.2010, (44) specimens. Plantation-8, 53 m, 27.03.2010, (10) specimen. 27.05.2010, (10) specimens. 01.08.2010, (38) specimens. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** İzmir, Kemalpaşa (Armutlu-Oren), Dikili, Kocaeli (Gebze), Ankara (Kazan, Şereflikoçhisar), Antalya, Anatolia (Schawaller, 1980; Açar, 2008; Tezcan et al., 2010).

**Family: Staphylinidae****Subfamily: Staphylininae*****Ocyopus curtipennis* Motschulsky, 1864**

**Material:** Karabiga, Meadow-1, 2 m, 21.06.2009, (1) specimen. 07.11.2009, (5) specimens. Meadow-2, 2 m, 07.11.2009, (5) specimens. 24.10.2009, (3) specimens. Meadow-3, 1 m, 07.11.2009, (2) specimens. **Remarks:** New record for the local fauna of the province of Çanakkale. **Distribution:** İzmir (Bornova), Bursa, İstanbul, Hatay, Antalya (Kesdek et al., 2009; Anlaş, 2009; Anlaş & Rose, 2009; Tezcan et al., 2010).

***Quedius levicollis* Brullé, 1832**

**Material:** Karabiga, Meadow-1, 2 m, 21.06.2009, (1) specimen. Meadow-2, 2 m, 24.10.2009, (2) specimens. 07.11.2009, (2) specimens. Meadow-3, 1 m, 21.06.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Erzurum, Adana, Ankara, Manisa, İzmir (Kesdek et al., 2009; Anlaş, 2009; Anlaş & Rose, 2009).

***Tasgius morsitans* Rossi, 1790**

**Material:** Karabiga, Meadow-1, 2 m, 24.10.2009, (1) specimen. Meadow-2, 2 m, 07.11.2009, (4) specimens. Meadow-3, 1 m, 07.11.2009, (1) specimen. **Remarks:** New record for the local fauna of the province of Çanakkale and the fauna of the Marmara region. **Distribution:** Anatolia (Casale & Taglianti, 1999).

## DISCUSSIONS

As a result of this study, 687 specimens belonging to 29 species and 1 subspecies of five families of Coleoptera were determined (Table 2). Of These families, Carabidae with 17 species took the first place and Tenebrionidae followed it with 6 species (Table 3). In terms of the number of captured specimens, Silphidae with a total of 487 (70.89%) specimens took the first place and then Carabidae followed it with a total of 83 (12.08%) specimens. Silphidae was represented with a single subspecies with numerous specimens.

As the captured specimens were evaluated according to species; *S. obscura orientalis* was found the most common with a total of 487 specimens (70.89%). *D. bimaculatus* followed it with a total of 50 (7.28%) specimens. 26 (3.78%) specimens of *C. coriaceus*, 16 (2.33%) specimens of *O. curtipennis*, 14 (4.08%) specimens of *H. distinguendus* and *G. costatum*, 13 (1.89%) specimens of *D. quadricollis*, 10 (1.46%) specimens of *H. smaragdinus*, 7 (1.02%) specimens of *B. crepitans*, 6 (2.62%) specimens of *C. libanensis*, *Q. levicollis* and *T. morsitans*, 5 (0.73%) specimens of *B. tibialis*, 4 (1.16%) specimens of *B. explodens* and *C. graecus*, 3 (0.87%) specimens of *C. longicollis* and *M. fusciceps*, 1 (1.89%) specimen of *D. obscurus*, *D. calydonius*, *N. brevicollis*, *P. cupreus*, *C. festivus*, *O. fuscatus*, *C. erythroderus*, *P. conspicuus*, *B. nobilis*, *P. theseus*, *C. tauricus*, *P. strabonis*, *P. tenebricosus* were caught.

As the field studies were evaluated according to biotopes; by 228 (33.19%) specimens of 7 species and 1 subspecies in biotop of oak samples, by 160 (23.29%) specimens of 16 species and 1 subspecies in biotop of plantation, by 299 specimens of 20 species and 1 subspecies in biotop of meadow were represented (Table 2). *S. obscura orientalis*, *D. bimaculatus* and *D. quadricollis* were found in 3 separate biotopes. *H. distinguendus*, *H. smaragdinus*, *B. explodens*, *C. libanensis* were found in plantation and meadow biotopes. *C. graecus*, *C. longicollis*, *M. fusciceps* and *B. tibialis* were found in oak and plantation biotopes. *P. conspicuus*, *P. tenebricosus*, *C. erythroderus*, *P. theseus* and *D. calydonius* were found in plantation biotope. *O. curtipennis*, *Q. levicollis*, *T. morsitans*, *G. costatum*, *B. nobilis*, *O. fuscatus*, *P. strabonis*, *C. tauricus*, *C. festivus*, *P. cupreus*, *N. brevicollis*, *D. obscurus* were found in meadow biotope.

The distribution and the number of specimens belonging to the biotopes were given in Table 3.

As the number of species was evaluated according to families and subfamilies in the study area; the number of the maximum abundant species was Carabidae with 17 species (56.66%). The number of the maximum abundant species in Carabidae was Platyninae with 5 species (29.41%). Tenebrionidae was represented with 6 species (20%) and its richest subfamily was Tenebrioninae with 4 species (66.67%). Elateridae was represented with 3 species (10%) and also these species belonged to Elaterinae, Pyrophorinae and Melanotinae, respectively. *S. obscura orientalis* was the only species collected in Silphidae (3.34%). Staphylinidae was represented with 3 species (10%) and all species of this family belonged to Staphylininae (Table 4).

As we looked at the number of the species of biotopes; it is understood that the maximum diversity of species was in meadow biotope. It is thought that the cause of the diversity of species was originated from close to both sea and fresh water resources and a moist soil structure. *S. obscura orientalis* was represented with the maximum number of specimens. It is thought that the reason for this was because of the interest in animal husbandary. As a result of the faeces and debris

brought by this activity, these species found in living areas and were caught more numerically in each biotopes.

In June of 2009, both the number of species (14) and samples reached the highest level. The number of species in following months, realized as July (7), August (4), October (3) and November (5). *O. curtipennis*, *Q. levicollis* and *T. morsitans* were only caught in November and was month experienced of the greatest increase in the number of species (5) and samples (22) after June (Table 3).

In 2010, when we looked at the number of the species and the samples; in May, the number of species (12) and the number of samples (247) reached the highest level. In August, the number of the samples was 236, while the number of the species was 5. In March, the number of the samples was 30, while the number of the species was 9. The majority of samples captured in May and August were *S. obscura orientalis*. Despite the decrease in the number of the samples caught in March, the increase in the number of the species was noteworthy (Table 3).

In addition, except a few species, changed from 1–10 of species numbers caught in zones, it could consider that was under pressure of biodiversity of these species and as a indicator of their relations with the soil.

The species of Staphylinidae were generally caught in Autumn. The species of this family live at moist soils and near sources of fresh water. Especially, the increase in the species of Staphylinidae with the autumn rains was noteworthy. As a result of this study, all of these species were caught in meadow biotope which was close to sources of fresh water.

The species of Elateridae are found in agricultural and forest areas, and in mountains. In this study, in parallel with these life areas were found in plantation biotope of *P. theseus* (50 m), in oak biotope of *M. Fusciceps* (101 m) and also *D. bimaculatus* was found both in oak biotope and in plantation biotope.

The samples of Carabidae, Tenebrionidae, Elateridae, Silphidae and Staphylinidae were first collected by pitfall trap method which used as an effective and widespread method for detection of insect fauna in the soil. With such a research made in this area, the additional records were given to the fauna of the province of Çanakkale and the fauna of the Marmara region. For the local fauna of the province of Çanakkale 22 species and 1 subspecies, to the fauna of the Marmara region 12 species were added as the first record (Table 3).

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Table 1. The altitude and the coordinates of the sampling zone.

SAMPLING ZONE NUMBER	BIOTOPE	ALTITUDE (m)	COORDINATES
1	MEADOW	2	40°22'33"15 N 27°18'10"98 E
2	MEADOW	2	40°22'38"58 N 27°18'14"99 E
3	MEADOW	1	40°22'41"65 N 27°18'17"73 E
4	MEADOW	2	40°22'32"52 N 27°18'11"69 E
5	PLANTATION	40	40°22'37"22 N 27°17'48"92 E
6	OAK	101	40°24'56"91 N 27°16'14"05 E
7	PLANTATION	50	40°25'24"24 N 27°15'09"12 E
8	PLANTATION	53	40°25'19"42 N 27°15'09"56 E
9	PLANTATION	135	40°25'11"86 N 27°15'59"57 E
10	MEADOW	58	40°25'06"58 N 27°17'41"32 E

Table 2. The distribution and the rates of species belonging to biotopes.

BIOTOPES	SPECIES/SUBSPECIES	THE NUMBER OF SPECIES	RATE (%)
OAK	8	228	33.19
PLANTATION	17	160	23.29
MEADOW	21	299	43.52

Table 3. The distribution and the number of specimens belonging to biotopes.

FAMILY	SUBFAMILY	SPECIES	1	2	3	4	5	6	7	8	9	10	THE NUMBER OF TOTAL SPECIMENS	
CARABIDAE	Harpalinae	<i>Harpalus smaragdinus</i> ***	2						3		5		10	
		<i>Dixus obscurus</i> ***			1									1
		<i>Ditomis calydonius</i> ***					1							1
		<i>Harpalus distinguendus</i> *		9								2	3	14
	Brachiniinae	<i>Brachinus exsplorens</i>		1	1					1	1			4
		<i>Brachinus crepitans</i> ***		3								2	2	7
	Nebrinae	<i>Nebria brevicollis</i> *	1											1
	Pterostichinae	<i>Poecilus cupreus</i> *			1									1
	Carabinae	<i>Carabus coriaceus</i> *		1	2				8	5	4	6		26
		<i>Carabus graecus</i> *							1	1		2		4
	Chlaeniinae	<i>Chlaenius festinus</i> ***			1									1
	Platyniinae	<i>Calathus libanensis</i> *		5							1			6
		<i>Olisthopus fuscus</i> ***		1										1
		<i>Calathus longicollis</i>						1		1	1			3
		<i>Calathus erythroderus</i> ***								1				1
		<i>Pristonychus conspicuus</i> ***									1			1
Broscinae	<i>Broscus nobilis</i> ***	1											1	
ELATERIDAE	Elaterinae	<i>Pittonotus theceus</i> ***					1						1	
	Pyrophorinae	<i>Drasterius bimaculatus</i>	3	15	2			16	3	3		8	50	
	Melanotinae	<i>Melanotus fusciceps</i>						1		2			3	
TENEBRIONIDAE	Pimeliinae	<i>Dalognatha quadricollis</i>	2					5		2	4		13	
	Lagriinae	<i>Coscyphus tauricus</i> *		1									1	
	Tenebrioninae	<i>Pedinus strabonis</i> *				1								1
		<i>Gonocephalum costatum</i>	2	12										14
		<i>Blaps tibialis</i> *							1	4				5
	<i>Probaticus tenebricosus</i>								1				1	
SILPHIDAE	Silphinae	<i>Silpha obscura orientalis</i> *	10	96	10			195	44	58		74	487	
STAPHYLINIDAE	Staphylininae	<i>Ocypus curtipennis</i> *	6	8	2								16	
		<i>Quedius levicollis</i> ***	1	4	1									6
		<i>Tasgius morsitans</i> ***	1	4	1									6
The number of species in zones			10	13	10	1	2	8	8	10	7	4	73	
The number of total specimens belonging to zones			29	160	22	1	2	228	62	74	22	87	687	

Table 4. The distribution and the rates of species belonging to families.

FAMILY	SPECIES/SUBSPECIES	RATE (%)
CARABIDAE	17	56.66
TENEBRIONIDAE	6	20.00
ELATERIDAE	3	10.00
SILPHIDAE	1	3.34
STAPHYLINIDAE	3	10.00
TOTAL	30	100.00



Figure 1. The general view of the sampling zones.