

Contributions to the Chrysomelidae (Coleoptera) Family from Different Habitats in the South and East of Turkey

Murat GUVEN *¹  | Celalettin GOZUACIK ¹  | Neslihan BAL² 

¹ Iğdır University, Faculty of Agriculture, Department of Plant Protection, 76000, Iğdır, Turkey

² Gazi University, Science Faculty, Department of Biology, 06500, Ankara, Turkey

Correspondence

* Iğdır University, Faculty of Agriculture, Department of Plant Protection, 76000, Iğdır, Turkey
Email:
murat.guven746@gmail.com

Abstract

This study was conducted on different plants in different habitats of Artvin, Bingöl, Diyarbakır, Elazığ, Erzurum, Kahramanmaraş, Muş, and Van provinces in southern and eastern Turkey between 2015 and 2023. Samples were collected by hand, mouth aspirator, and sweep nets during different periods. Seven subfamilies, 20 genera and 36 species were identified in this study. Among these species, 36 species, including 4 species in Artvin, 10 species in Bingöl, 2 species in Elâzığ, 2 species in Kahramanmaraş, 9 species in Muş and 8 species in Van, are new records for the fauna of their provinces. Among these species, *Cryptocephalus lederi* Weise, 1889 is the 3rd, *Chrysolina grata grata* (Faldermann, 1837) is the 2nd, *Derocrepis serbica* Kutschera, 1860 is the 4th, *Longitarsus cerinthes* (Schrank, 1798) and *Exosoma thoracicum* (Redtenbacher, 1843) is the 5th record for the fauna of Turkey. In addition, *Cassida palaestina* Reiche, 1858 are new records of Eastern Anatolia. In the present study, the location of the species, the plants on which they were collected, their distribution in Turkey and new records for some species were evaluated.

Keywords: Coleoptera, Chrysomelidae, Fauna, Turkey

INTRODUCTION

The family Chrysomelidae is one of the main families in the order Coleoptera, which is important in terms of the number of species it harbors, and is rich in species diversity (Kısmalı, 1973; Lopatin, 1977). Chrysomelidae, one of the largest families of beetles, harbors more than 35.000 species described to 19 subfamilies and more than 2000 genera worldwide. The total number of species was considered to be greater than 50,000. While the Palaearctic region is represented by approximately 3,500 species (Gruev, 1992; Konstantinov *et al.*, 2009; Aslan and Ayvaz, 2009; Aslan *et al.*, 2012; Ghahari and Jedryczkowski, 2012; Ekiz *et al.*, 2013; Konstantinov *et al.*, 2013), according to the most recent studies, it is reported to be represented by approximately 9,293 species in the region (Bezděk and Sekerka (in press)). In Turkey, about 968 Chrysomelidae species in 11 subfamilies and 113 genera have been identified (Bezděk and Sekerka (in press)).

Chrysomelidae and leaf beetles are phytophagous insects adapted to feed on a wide variety of plant groups. Both adults and larvae feed on cultivated plants as well as some useful wild plants or shrubs (Jolivet *et al.*, 1988). The close relationship between the group and plants is important both ecologically and economically, because of their impact on agriculture. Although many species are known to be serious pests of cultivated plants, many others are accepted as useful biological control agents for weeds (Booth *et al.*, 1990; Jolivet and Verma, 2002).

Some important studies on Chrysomelidae species that are harmful to some economically important crops and trees Glover (1871), Riley (1883), Dörtbudak *et al.*, (1973), Jolivet, (1988), Aslan (1997, 2001), Bayram *et al.*, (2004), Doğanlar *et al.*, (2004), Coşkuncu and Gençer (2006), Tosun *et al.*, (2008), Kennedy (2009), Özger *et al.*, (2011), Aslan and Başar (2016), Özgen *et al.*, (2018), Dağ (2019), Saygılı (2019), Soycan *et al.*, (2019), Alaserhat *et al.*, (2020).

In this study, it was aimed to reveal new records of Chrysomelidae species obtained in Artvin, Bingöl, Diyarbakır, Elâzığ, Erzurum, Kahramanmaraş, Muş and Van provinces to the fauna of the provinces locally and the country in general.

MATERIAL and METHOD

This research was conducted in 93 different locations in the Artvin, Bingöl, Diyarbakır, Elazığ, Erzurum, Kahramanmaraş, Muş and Van provinces between 2015-2023. During the study period, samples were collected using a sweep net, mouth aspirator and hand at various vegetation stages. The location information of the collected samples was noted on labelling papers and the samples were preserved and brought to the laboratory. During preparation, large insects were pinned and small insects were glued to gluing cartons in the walking position and kept in insect storage boxes in the Entomology Museum (EMIT) of the Department of Plant Protection, Faculty of Agriculture, Iğdır University. Insects were identified using the identification keys given by Warchałowski (2003, 2010), Özdikmen *et al.* (2016), Özdikmen and Silkin (2016), and Özdikmen *et al.* (2022).

RESULTS and DISCUSSION

In this study, 36 species/subspecies belonging to seven subfamilies and 20 genera were identified in 93 localities in the Artvin, Bingöl, Diyarbakır, Elazığ, Erzurum, Kahramanmaraş, Muş and Van provinces. Information on the material examined and the distribution of these species are presented below.

Subfamily **Criocerinae** Latreille, 1804

Oulema melanopus (Linnaeus, 1758)

Material examined: TR-Bingöl: Central, Sarıçiçek, 38°52'29"N 40°35'18"E, 1024 m, 12.06.2021, C. Gözüaçık, 1 specimen; TR-Elâzığ: Kovancılar, Çakırtaş, 38°45'33"N 39°37'16"E, 1024 m, 11.06.2021, C. Gözüaçık, 2 specimens; TR-Erzurum: Horasan, Aşağıaktaşlı, 39°52'41"N 42°23'1"E, 2139 m, 04.08.2023, M. Güven, 1 specimen; TR-Muş: Central, Aydıngün neighbourhood, 38°56'37"N 41°30'19"E, 2042 m, 11.06.2021, C. Gözüaçık, 1 specimen; Bulanık, Arakonak, 39°6'33"N 47°9'56"E, 1460 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: **Asia:** Adana, Afyonkarahisar, Aksaray, Ankara, Antalya, Ardahan, Aydın, Çanakkale, Çankırı, Çorum, Diyarbakır, Eskişehir, Erzincan, Erzurum, Gaziantep, Hatay, Iğdır, İzmir, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Konya, Karabük, Kars, Kütahya, Manisa, Muğla, Osmaniye, Samsun, Siirt, Tokat; **Europe:** Edirne, Kırklareli, Tekirdağ (Medvedev, 1970; Gül-Zümreoğlu, 1972; Tomov and Gruev, 1975; Gruev and Tomov, 1984; Campobasso *et al.*, 1999; Aslan, 2000; Turanlı *et al.*, 2002; Gök and Çilbiroğlu, 2003; Gök and Gürbüz, 2004; Gruev, 2005; Özdikmen and Turgut 2008; Aslan *et al.*, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Özbek, 2014; Medvedev, 2015; Bal *et al.*, 2018a; Özdikmen *et al.*, 2020; Bal and Şahin, 2021).

Remarks: It is new record for Bingöl, Elâzığ and Muş provinces. It was collected using a sweep net in a wheat field.

Subfamily **Clytrinae** Kirby, 1837

Clytra valeriana valeriana (Ménétriés, 1832)

Material examined: TR-Van: Başkale, Aşalan, 38°3'45"N 44°6'1"E, 2129 m, 21.06.2015, M. Açıkgöz, 1 specimen.

Distribution in Turkey: Asia: Aksaray, Ankara, Antalya, Aydın, Çankırı, Eskişehir, Erzincan, Erzurum, Gümüşhane, İzmir, Kayseri, Kırıkkale, Konya, Kars, Manisa, Mersin, Nevşehir, Niğde, Osmaniye, Sivas, Uşak, Yozgat; **Europe:** Çanakkale, Edirne, İstanbul, Kırklareli, Tekirdağ (Tomov and Gruev, 1975; Kasap, 1987b; Aydın and Kısmalı, 1990; Aslan and Özbek, 1998; Warchałowski, 2003; Özdikmen *et al.*, 2010; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Mercan, 2014; Bal *et al.*, 2018a; Bal, 2021).

Remarks: This is a new record for Van province. Specimens were collected manually from *Rumex crispus* L.

Labidostomis brevipennis Faldermann, 1837

Material examined: TR-Bingöl: Karlıova, Sudağı, 39°6'5"N 40°39'37"E, 1657 m, 12.06.2021, C. Gözüaçık, 1 specimen; TR-Van: Saray, Yamanyurt, 38°31'46"N 44°15'30"E, 2184 m, 04.06.2021, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Bingöl, Çankırı, Hakkâri, Elâzığ, Erzincan, Konya, Malatya, Şırnak (Warchałowski, 1985, 2003; Regalin, 2002; Ekiz *et al.*, 2013; Özdikmen and Mercan, 2014; Özdikmen *et al.*, 2016; Aslan *et al.*, 2020).

Remarks: This is a new record for Van province. The samples were collected using a sweep net on *Rheum ribes* L. and *Onobrychis* sp.

Labidostomis longimana (Linnaeus, 1761)

Material examined: TR-Bingöl: Central, Aşağıpazar, 39°36'9"N 43°34'4"E, 1881 m, 08.06.2021, C. Gözüaçık, 1 specimen; Yeniköy, 39°12'0"N 40°56'35"E, 1791 m, 12.06.2021, C. Gözüaçık, 1 specimen; Saray neighbourhood, 38°53'24"N 40°31'50"E, 1098 m, 12.06.2021, C. Gözüaçık, 1 specimen; TR-Erzurum: Horasan, Aşağıaktaşlı, 39°51'58"N 42°23'13"E, 2141 m, 19.07.2022, M. Güven, 1 specimen; Aşağıaktaşlı, 39°54'41"N 42°23'2"E, 2128 m, 13.07.2023, M. Güven, 2 specimens; Azap, 40°2'2"N 42°5'10"E, 1583 m, 15.06.2015, M. Açıkgöz, 1 specimen; Şenkaya, Değirmenlidere, 40°45'0"N 42°32'24"E, 1915 m, 24.07.2022, M. Güven, 5 specimens; TR-Muş: Korkut, Kırıkya, 39°52'18"N 41°57'7"E, 1669 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Ağrı, Ankara, Ardahan, Balıkesir, Bayburt, Bilecik, Bolu, Düzce, Eskişehir, Erzurum, Gümüşhane, Isparta, Kahramanmaraş, Kastamonu, Kayseri, Kırıkkale, Konya, Kars, Nevşehir, Niğde, Osmaniye, Samsun, Siirt, Sivas, Yozgat, Zonguldak; **Europe:** Edirne, Kırklareli, Tekirdağ (Tomov and Gruev, 1975; Gruev and Tomov, 1979, 1984; Kasap, 1987a; Aydın and Kısmalı, 1990; Aslan and Özbek 1998; Gök, 2003; Özgen and Tok, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Mercan, 2014; Özdikmen *et al.*, 2016; Bal, 2021; Özdikmen and Şahin, 2021).

Remarks: This is a new record for the Bingöl and Muş provinces. Specimens were collected using a sweep net on *Melilotus officinalis* (L.) Desr.

Smaragdina limbata (Steven, 1806)

Material examined: TR-Muş: Bulanık, Arakonak, 39°6'33"N 47°9'56"E, 1460 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: **Asia:** Adana, Afyonkarahisar, Amasya, Ankara, Antalya, Aydın, Balıkesir, Bilecik, Bursa, Bolu, Burdur, Çanakkale, Çankırı, Çorum, Denizli, Diyarbakır, Düzce, Erzincan, Eskişehir, Erzurum, Gaziantep, Hakkari, Hatay, Isparta, İstanbul, İzmir, Kahramanmaraş, Kastamonu, Kayseri, Konya, Karabük, Kütahya, Manisa, Mersin, Muğla, Niğde, Osmaniye, Sakarya, Samsun, Sinop, Şanlıurfa, Uşak, Yozgat, Zonguldak; **Europe:** İstanbul, Kırklareli, Tekirdağ (Sahlberg, 1913; Medvedev, 1970; Tomov and Gruev, 1975; Gruev and Tomov, 1979, 1984; Kasap, 1987b; Aydın and Kısımlı, 1990; Aslan and Özbek, 1998; Gök, 2003; Warchałowski, 2003; Gök and Gürbüz, 2004; Gruev, 2004, 2005; Gök and Çilbiroğlu 2005; Aslan *et al.*, 2009; Şen and Gök, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Mercan, 2014; Coral Şahin, 2020; Bal, 2021; Özdikmen *et al.*, 2021a; Özdikmen and Şahin, 2021).

Remarks: This is a new record for the Muş province. However, the host plant has not yet been determined.

Smaragdina xanthaspis (Germar, 1824)

Material examined: TR-Artvin: Şavşat, Yavuzköy, 41°14'4"N 42°24'29"E, 1604 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: **Asia:** Afyonkarahisar, Amasya, Ankara, Antalya, Artvin, Balıkesir, Bartın, Bursa, Bilecik, Bolu, Çankırı, Çorum, Düzce, Erzurum, Isparta, Kahramanmaraş, Kastamonu, Kayseri, Konya, Karabük, Kütahya, Niğde, Ordu, Sakarya, Samsun, Sinop, Sivas, Trabzon, Yozgat, Zonguldak; **Europe:** Edirne (Medvedev, 1970; Tomov and Gruev, 1975; Gruev and Tomov, 1979, 1984; Kasap, 1987b; Aydın and Kısımlı, 1990; Aslan and Özbek, 1998; Gök, 2003; Warchałowski, 2003; Gruev, 2004, 2005; Aslan *et al.*, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Mercan, 2014; Bal, 2021; Özdikmen and Şahin, 2021; Ünal, 2021).

Remarks: The host plant has not been determined.

Subfamily **Cryptocephalinae** Gyllenhal, 1813

Cryptocephalus connexus Olivier, 1807

Material examined: TR-Bingöl: Kaleönü neighborhood., 38°53'9"N 40°36'26"E, 1118 m, 12.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: **Asia:** Amasya, Ankara, Antalya, Artvin, Balıkesir, Bolu, Bursa, Çanakkale, Çankırı, Çorum, Erzincan, Erzurum, Giresun, Isparta, İzmir, Kahramanmaraş, Kastamonu, Kayseri, Konya, Karabük, Kars, Kütahya, Manisa, Mersin, Niğde, Sinop, Sivas, Tokat, Yozgat, Zonguldak; **Europe:** Edirne, Kırklareli (Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014; Şen and Gök, 2014; Bal *et al.*, 2016; Özdikmen *et al.*, 2020; Özdikmen and Şahin, 2021).

Remarks: Samples were collected using a sweep net from *Lotus corniculatus* L. and *Medicago* sp.

Cryptocephalus duplicatus Suffrian, 1847

Material examined: TR-Artvin: Şavşat, Yavuzköy, 41°14'4"N 42°24'29"E, 1604 m, 24.07.2022, M. Güven, 2 specimens; TR-Erzurum: Şenkaya, Değirmenli, 40°45'0"N 42°32'24"E, 1915 m, 24.07.2022, M. Güven, 1 specimen; Horasan, Saç Dağı, 39°51'58"N 42°23'13"E, 2141 m, 19.07.2022, M. Güven, 3 specimens; Aşağıaktaşlı, 39°52'42"N 42°23'0"E, 2130 m, 01.07.2023, M. Güven, 5 specimens.

Distribution in Turkey: Asia: Adana, Afyonkarahisar, Amasya, Ankara, Antalya, Artvin, Bartın, Bilecik, Bitlis, Bolu, Bursa, Çankırı, Çorum, Denizli, Erzincan, Eskişehir, Erzurum, Giresun, Gümüşhane, Hakkâri, Isparta, İstanbul, İzmir, Kahramanmaraş, Kastamonu, Karabük, Kars, Kayseri, Kocaeli, Konya, Kütahya, Manisa, Mersin, Nevşehir, Ordu, Sakarya, Samsun, Sinop, Siirt, Sivas, Tokat, Tunceli, Trabzon, Van, Yozgat, Zonguldak; **Europe:** Kırklareli, Tekirdağ (Aslan and Özbek 1997; Sassi and Kısmalı, 2000; Turanlı *et al.*, 2002; Warchałowski, 2003; Atay and Çam, 2006; Şen and Gök, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014; Bal *et al.*, 2016; Gök and Bostan, 2020; Özdikmen *et al.*, 2020; Özdikmen and Şahin, 2021; Bal *et al.*, 2022).

Remarks: Samples were collected by hand from *Tragopogon* sp., *Achillea millefolium* L., *Scorzonera tomentosa* L. and *Crepis setosa* Hall. Fil.

Cryptocephalus exiguus variceps Weise 1884

Material examined: TR-Artvin: Şavşat, Yavuzköy, 41°14'4"N 42°24'29"E, 1604 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Adana, Erzurum, İstanbul, İzmir, Sakarya, Tokat; **Europe:** Çanakkale, Edirne, İstanbul, Kırklareli, Tekirdağ (Weise, 1884; Medvedev, 1970; Gruev and Tomov, 1984; Tomov, 1984; Aslan and Özbek, 1997; Sassi and Kısmalı, 2000; Warchałowski, 2003; Gruev, 2004, 2005; Atay and Çam, 2006; Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014).

Remarks: This is a new record for Artvin province. However, the host plant has not yet been determined.

Cryptocephalus lederi Weise, 1889

Material examined: TR-Artvin: Şavşav, Karaköy, 41°13'35"N 42°28'13"E, 2199 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Ankara and Malatya (Sassi and Kısmalı, 2000; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014).

Remarks: This is new for Artvin province and the 3rd record for Turkey. Specimens were collected manually from *Picris hieracioides* L.

Cryptocephalus octacosmus Bedel, 1891

Material examined: TR-Erzurum: Horasan, Aşağıaktaşlı, 39°52'41"N 42°26'1"E, 2139 m, 04.08.2023, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Adana, Aksaray, Ankara, Antalya, Bayburt, Bilecik, Bolu, Bursa, Çanakkale, Çankırı, Denizli, Diyarbakır, Eskişehir, Erzurum, Hakkâri, Isparta, İzmir, Kayseri, Kocaeli, Konya, Karabük, Kütahya, Manisa, Mardin, Mersin, Muş, Nevşehir, Niğde, Sakarya, Samsun, Sinop, Sivas, Tokat, Tunceli, Zonguldak; **Europe:** Kırklareli, Tekirdağ (Medvedev, 1975; Tomov and Gruev,

1975; Gruev and Tomov, 1984; Tomov, 1984; Aslan and Özbek, 1997; Sassi and Kısmalı, 2000; Gök, 2002; Turanlı *et al.*, 2002; Warchałowski, 2003; Gök and Gürbüz, 2004; Gruev, 2005; Atay and Çam, 2006; Aslan *et al.*, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Ünal, 2021).

Remarks: The host plant has not been determined.

Cryptocephalus sericeus (Linnaeus, 1758)

Material examined: TR-Artvin: Şavşat, Yavuzköy, 41°14'4"N 42°24'29"E, 1604 m, 24.07.2022, M. Güven, 2 specimens; TR-Erzurum: Şenkaya, Değirmenlidere, 40°45'0"N 42°32'24"E, 1915 m, 24.07.2022, M. Güven, 2 specimens; TR-Muş: Varto, Merkez, 39°07'04"N 41°17'40"E, 1977 m, 25.07.2018, C. Gözüaçık, 2 specimens.

Distribution in Turkey: Asia: Ankara, Ardahan, Artvin, Balıkesir, Bursa, Çankırı, Çorum, Erzincan, Erzurum, Gümüşhane, Isparta, İzmir, Kastamonu, Konya, Kars, Nevşehir, Samsun, Sivas; **Europe:** Kırklareli (Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014; Bal *et al.*, 2022).

Remarks: This is a new record for the Muş province. Specimens were collected by hand on *Centaurea solstitialis* L., *Achillea millefolium* L. subsp. *millefolium* L., and *Inula oculus-christi* L.

Pachybrachis tessellatus tauricus (Olivier, 1791)

Material examined: TR-Bingöl: Central, Sarıçiçek, 38°53'09"N 40°36'26"E, 1148 m, 12.06.2021, M. Güven, 1 specimen; Aşağıakpınar, 39°36'09"N 43°34'21"E, 1881 m, 08.06.2021, M. Güven, 1 specimen; TR-Erzurum: Horasan, Aşağıaktaşlı, 39°52'42"N 42°23'0"E, 2130 m, 01.07.2023, M. Güven, 10 specimens; TR-Muş: Merkez, Şenoba, 38°53'43"N 41°30'34"E, 1291 m, 11.06.2021, C. Gözüaçık, 1 specimen; Bulanık, Tepecik, 38°56'2"N 41°59'24"E, 1705 m, 10.06.2021, C. Gözüaçık, 1 specimen; Varto, Central, 39°10'44"N 41°26'3"E, 1509 m, 11.06.2021, C. Gözüaçık, 5 specimens.

Distribution in Turkey: Asia: Adana, Adıyaman, Afyonkarahisar, Ağrı, Aksaray, Amasya, Ankara, Antalya, Bartın, Bayburt, Bilecik, Bolu, Bursa, Çankırı, Çanakkale, Çorum, Elâzığ, Erzincan, Erzurum, Eskişehir, Gaziantep, Gümüşhane, Giresun, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Konya, Kars, Kütahya, Malatya, Mardin, Mersin, Muğla, Muş, Nevşehir, Niğde, Ordu, Samsun, Sivas, Tokat, Uşak, Van, Yozgat (Medvedev, 1970; Tomov and Gruev, 1975; Gruev and Tomov, 1984; Tomov, 1984; Aslan and Özbek, 1997; Sassi and Kısmalı, 2000; Gök, 2002; Gök and Çilbiroğlu 2005; Şen and Gök, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014; Şen and Gök, 2014; Bal *et al.*, 2016; Aslan *et al.*, 2020; Özdikmen and Şahin, 2021).

Remarks: This is a new record for the Bingöl and Muş provinces. Specimens were collected from different habitats on different plants such as *Lappula barbata* (Bieb.) Gürke, *Papaver rhoeas*, *Onobrychis* sp.

Subfamily **Chrysomelinae** Latreille, 1802

Chrysolina grata grata (Faldermann, 1837)

Material examined: TR-Kahramanmaraş: Central, Yeşilgöz, 37°54'56"N 36°37'49"E, 1389 m, 13.08.2023, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Şanlıurfa (Bienkowski, 2001).

Remarks: This is new for the Kahramanmaraş province and the 2nd record for Turkey. Specimens were collected from *Astragalus* spp.

***Chrysolina herbacea alacris* Bechyné, 1950**

Material examined: TR-Bingöl: Heserek, 38°53'16"N 40°17'43"E, 1940 m, 10.07.2021, C. Gözüaçık, 2 specimens.

Distribution in Turkey: Asia: Antalya, Diyarbakır, Isparta, Kahramanmaraş, Karaman, Mersin, Osmaniye (Ekiz *et al.*, 2013; Özdikmen, 2014; Özdikmen *et al.*, 2021c).

Remarks: This is a new record for Bingöl province. Specimens were collected by hand from *Mentha longifolia* (L.) Hudson subsp. *longifolia* (L.) Hudson.

***Entomoscelis adonidis* (Pallas, 1771)**

Material examined: TR-Van: Başkale, Aşalan, 38°03'45"N 44°05'40"E, 2129 m, 21.06.2015, M. Açıkgöz, 3 specimens.

Distribution in Turkey: Asia: Afyonkarahisar, Aksaray, Amasya, Ankara, Antalya, Ardahan, Burdur, Çankırı, Çorum, Denizli, Diyarbakır, Düzce, Elâzığ, Eskişehir, Erzurum, Gaziantep, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Kırıkkale, Karabük, Konya, Kırşehir, Nevşehir, Niğde, Sivas, Tokat, Yozgat, Zonguldak; **Europe:** Çanakkale, Edirne, İstanbul, Kırklareli, Tekirdağ (Ekiz *et al.*, 2013; Özdikmen, 2014; Medvedev, 2015; Bal *et al.*, 2018a; Aslan *et al.*, 2020; Özdikmen *et al.*, 2020, 2021c; Özdikmen and Şahin, 2021).

Remarks: This is a new record for Van province. Specimens were collected from plants such as *Calamagrostis epigejos* (L.) Roth and *Delphinium laxiusculum* (Boiss.) Rouy, *Sisymbrium loeselii* L., *S. altissimum* L., *Lepidium draba* L., *Bunias orientalis* L., *Hordeum vulgare* L.

***Gastrophysa polygoni* (Linnaeus, 1758)**

Material examined: TR-Bingöl: Çeltiksuyu, 38°50'13"N 40°32'25"E, 1071 m, 12.06.2021, C. Gözüaçık, 8 specimens; Gümüşlü, 38°44'48"N 40°30'40"E, 1010 m, 11.06.2021, C. Gözüaçık, 1 specimen; Heserek, 38°53'16"N 40°17'43"E, 1904 m, 10.07.2021, C. Gözüaçık, 1 specimen; TR-Muş: Central, Şenoba, 38°53'43"N 41°30'34"E, 1291 m, 11.06.2021, C. Gözüaçık, 1 specimen; Aydıngün neighborhood, 38°56'37"N 41°30'19"E, 2042 m, 11.06.2021, C. Gözüaçık, 1 specimen; TR-Van: Erciş, Kırkpınar neighborhood, 39°7'37"N 43°8'43"E, 1962 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Afyonkarahisar, Adana, Aksaray, Amasya, Ankara, Ardahan, Artvin, Bartın, Bolu, Çankırı, Denizli, Diyarbakır, Düzce, Erzincan, Eskişehir, Erzurum, Isparta, İstanbul, İzmir, Kahramanmaraş, Karabük, Karaman, Kastamonu, Kayseri, Konya, Kars, Kütahya, Mardin, Mersin, Nevşehir, Niğde, Ordu, Samsun, Sinop, Trabzon, Tokat, Yozgat; **Europe:** Edirne, İstanbul (Ekiz *et al.*, 2013; Sert and Kabalak, 2013; Özdikmen, 2014; Şen and Gök, 2014; Gök and Bostan, 2020; Özdikmen *et al.*, 2020, 2021c; Özdikmen and Şahin, 2021; Ünal, 2021).

Remarks: This is a new record for the Bingöl, Muş, and Van provinces. Specimens were collected from *Rumex tuberosus* L. subsp. *horizontalis* (Koch) Rech., *Picris hieracioides* L., *Phlomis tuberosa* L., *Polygonum aviculare* L., *P. bellardii* and *Salvia verticillata* L. subsp. *verticillata* L.

Gonioctena fornicata (Brüggemann, 1873)

Material examined: TR-Bingöl: Central, Saray neighbourhood, 38°53'24"N 40°31'50"E, 1098 m, 12.06.2021, C. Gözüaçık, 1 specimen; Kaleönü neighbourhood, 38°53'9"N 40°36'26"E, 1118 m, 12.06.2021, C. Gözüaçık, 6 specimens; Sarıçiçek, 38°52'44"N 40°36'25"E, 1097 m, 12.06.2021, C. Gözüaçık, 6 specimens; Sarıçiçek, 38°53'9"N 40°36'26"E, 1097 m, 12.06.2021, C. Gözüaçık, 1 specimen; Garip, 38°44'51"N 40°30'23"E, 1030 m, 11.06.2021, C. Gözüaçık, 3 specimens; Çeltiksuyu, 38°50'13"N 40°32'25"E, 1071 m, 12.06.2021, C. Gözüaçık, 2 specimens; Heserek, 38°53'16"N 40°17'43"E, 1904 m, 10.06.2021, C. Gözüaçık, 1 specimen; Yeniköy, 38°52'18"N 40°36'30"E, 1112 m, 12.06.2021, C. Gözüaçık, 1 specimen; Karlıova, Sudağı, 39°6'5"N 40°50'37"E, 1657 m, 12.06.2021, C. Gözüaçık, 5 specimens; Çilliköy, 39°9'30"N 40°53'23"E, 1794 m, 12.06.2021, C. Gözüaçık, 1 specimen; Genç, Gümüslü, 38°44'48"N 40°30'40"E, 1010 m, 11.06.2021, C. Gözüaçık, 6 specimens; TR-Diyarbakır: Çermik, Aynalı, 38°7'46"N 39°27'37"E, 856 m, 15.04.2021, C. Gözüaçık, 5 specimens; TR-Muş: Central, Aydıngün neighbourhood, 38°56'37"N 41°30'19"E, 2042 m, 11.06.2021, C. Gözüaçık, 7 specimens; Şenoba, 38°53'43"N 41°30'34"E, 1291 m, 11.06.2021, C. Gözüaçık, 2 specimens; Bulanık, Tepecik, 38°56'2"N 41°59'24"E, 1705 m, 10.06.2021, C. Gözüaçık, 1 specimen; Bulanık, Arakonak, 39°6'33"N 47°9'56"E, 1460 m, 10.06.2021, C. Gözüaçık, 1 specimen; Varto, Central, 39°10'44"N 41°26'3"E, 1509 m, 11.06.2021, C. Gözüaçık, 1 specimen; Korkut, Kırıkaya, 39°52'18"N 41°57'7"E, 1669 m, 10.06.2021, C. Gözüaçık, 2 specimens.

Distribution in Turkey: Asia: Adana, Afyonkarahisar, Aksaray, Ankara, Antalya, Artvin, Bolu, Bilecik, Bursa, Çankırı, Çorum, Denizli, Diyarbakır, Düzce, Erzincan, Eskişehir, Erzurum, Gaziantep, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Konya, Karabük, Kütahya, Mardin, Mersin, Muş, Nevşehir, Niğde, Osmaniye, Sinop, Tokat, Tunceli, Yozgat, Zonguldak; **Europe:** Çanakkale, Edirne, İstanbul, Kırklareli, Tekirdağ (Sahlberg, 1913; Medvedev, 1970; Gruev and Tomov, 1979; Aslan and Özbek, 1999; Aslan *et al.*, 2003; Gök and Çilbiroğlu, 2003; Warchałowski, 2003, 2010; Gök and Gürbüz, 2004; Gruev, 2004, 2005; Atay and Çam, 2006; Aslan *et al.*, 2009; Şen and Gök, 2009; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Cihan, 2014; Özdikmen *et al.*, 2021b; Ünal, 2021).

Remarks: This is a new record for Bingöl province. Specimens were collected using a sweep net from *Medicago* sp.

Subfamily **Galerucinae** Latreille, 1802

Calomicrus lividus (Joannis, 1866)

Material examined: TR-Bingöl: Central, Saray neighbourhood, 38°53'24"N 40°31'50"E, 1098 m, 12.06.2021, C. Gözüaçık, 3 specimens; Yeniköy, 39°12'0"N 40°56'35"E, 1791 m, 12.06.2021, C. Gözüaçık, 2 specimens; TR-Muş: Varto, Central, 39°10'44"N 41°26'3"E, 1509 m, 11.06.2021, M. Güven, 1 birey.

Distribution in Turkey: Asia: Adana, Ağrı, Antalya, Diyarbakır, Erzincan, Eskişehir, Erzurum, Hatay, Isparta, İzmir, Konya, Kars, Mersin, Osmaniye (Fairmaire, 1884; Weise, 1898, 1900; Sahlberg, 1913; Tomov, 1984; Aslan, 1998; Aslan *et al.*, 2000, 2009; Warchałowski, 2003; Gök and Duran, 2004; Bezdek, 2007; Özdikmen and Arslan, 2009; Şen and Gök, 2009; Ekiz *et al.*, 2013; Özdikmen and Topçu, 2014).

Remarks: This is a new record for the Bingöl and Muş provinces. Specimens were collected from *Falcaria vulgaris* Bernh.

Exosoma thoracicum (Redtenbacher, 1843)

Material examined: TR-Bingöl: Karlıova, Sudağı, 39°6'5"N 40°50'37"E, 1657 m, 12.06.2021, C. Gözüaçık, 1 specimen; TR-Muş: Bulanık, Arakonak, 39°6'33"N 47°9'56"E, 1460 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Adana, Diyarbakır, Malatya, Mardin, Şanlıurfa (Ekiz *et al.*, 2013; Özdikmen and Topçu, 2014; Özgen *et al.*, 2018).

Remarks: Specimens were collected from *Rorippa austriaca* (Crantz) Besser, *Onobrychis* sp., *Papaver rhoeas* L. and *Hordeum vulgare* L. Özgen *et al.*, (2018) reported that this species caused significant damage in onion (*Allium cepa*) cultivation areas in Malatya province.

Galeruca armeniaca Weise, 1886

Material examined: TR-Erzurum: Horasan, Tavşancık, 40°6'20"N 42°22'39"E, 1504 m, 15.06.2015, M. Açıkgöz, 1 specimen.

Distribution in Turkey: Asia: Afyonkarahisar, Çankırı, Erzincan, Erzurum, Iğdır, Isparta, Kars (Ekiz *et al.*, 2013; Özdikmen and Topçu, 2014; Bal *et al.*, 2018a).

Remarks: Samples were collected with hands and sweep nets from *Cephalaria sparsipilosa* Matthews, *Papaver rhoeas* L., and *Glycyrrhiza glabra* L.

Galeruca pomonae pomonae (Scopoli, 1763)

Material examined: TR-Erzurum: Horasan, Aşağıaktaşlı, 39°51'58"N 42°23'13"E, 2141 m, 19.07.2022, M. Güven, 2 specimens; Aşağıaktaşlı, 39°54'41"N 42°23'2"E, 2128 m, 13.07.2023, M. Güven, 1 specimen; Aşağıaktaşlı, 39°52'41"N 42°23'1"E, 2139 m, 04.08.2023, M. Güven, 1 specimen; Şenkaya, Değirmenlidere, 40°45'0"N 42°32'24"E, 1915 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Afyonkarahisar, Aksaray, Ankara, Antalya, Artvin, Bolu, Çanakkale, Çankırı, Çorum, Erzurum, Giresun, Isparta, İzmir, Kahramanmaraş, Kastamonu, Kayseri, Konya, Nevşehir, Niğde, Osmaniye, Rize, Zonguldak (Ekiz *et al.*, 2013; Özdikmen and Topçu, 2014).

Remarks: Specimens were collected with hand from *Cephalaria sparsipilosa* Matthews.

Galeruca spectabilis orientalis (Osculati, 1844)

Material examined: TR-Kahramanmaraş: Ilıca, 37°50'17"N 36°52'15"E, 904 m, 17.08.2020, C. Gözüaçık, 2 specimens; TR-Van: Tuşba, Çakırbey, 38°55'13"N 43°36'14"E, 1724 m, 30.06.2021, C. Gözüaçık, 2 specimens.

Distribution in Turkey: Asia: Aksaray, Ankara, Antalya, Ardahan, Artvin, Bayburt, Çankırı, Erzurum, Kastamonu, Kayseri, Kırıkkale, Konya, Kars, Mersin, Nevşehir, Niğde, Sinop, Trabzon (Tomov and Gruev, 1975; Gruev and Tomov, 1979; Tomov, 1984; Aslan, 1998; Aslan *et al.*, 2000; Warchalowski, 2003; Özdikmen, 2011; Özdikmen and Topçu, 2014; Bal *et al.*, 2018a).

Remarks: This is a new record for the Kahramanmaraş and Van provinces. Specimens were collected by hand from *Papaver rhoeas* L.

Galeruca tanacetii tanacetii (Linnaeus, 1758)

Material examined: TR-Artvin: Şavşat, Karaköy, 41°13'35"N 42°28'13"E, 2199 m, 24.07.2022, M. Güven, 9 specimens; TR-Erzurum: Horasan, Aşağıaktaşlı, 39°52'42"N 42°23'0"E, 2130 m, 01.07.2023, M. Güven, 2 specimens.

Distribution in Turkey: Asia: Ankara, Çankırı, Çorum, Eskişehir, Erzurum, Isparta, Kastamonu, Kars, Ordu, Sinop (Ekiz *et al.*, 2013; Özdikmen and Topçu, 2014; Bal *et al.*, 2018a).

Remarks: This is a new record for the Artvin province. Specimens were collected by hand from *Cephalaria sparsipilosa* Matthews.

Subfamily **Alticinae** Newman, 1834

Altica ampelophaga Guérin, 1858

Material examined: TR-Van: Çaldıran, Soğuksu, 39°17'17"N 44°2'22"E, 2244 m, 04.06.2021, M. Güven, 1 specimen; TR-Muş: Central, Aydıngün neighbourhood, 38°56'37"N 41°30'19"E, 1263 m, 11.06.2021, C. Gözüaçık, 6 specimens.

Distribution in Turkey: Asia: Ankara, Iğdır, Isparta, İzmir, Konya (Sahlberg, 1913; Kerville, 1939; Aslan and Warchalowski, 2001; Gruev and Döberl, 2005; Aslan, 2007; Aslan and Ayvaz, 2009; Ekiz *et al.*, 2013).

Remarks: This is a new record for Van and Muş provinces. Specimens were collected using a sweep net from *Medicago* sp..

Altica oleracea oleracea (Linnaeus, 1758)

Material examined: TR-Bingöl: Karlıova, Sudağı, 39°6'5"N 40°50'37"E, 1657 m, 12.06.2021, C. Gözüaçık, 3 specimens; TR-Erzurum: Horasan, Saç Dağı, 39°51'58"N 42°23'13"E, 2141 m, 19.07.2022, M. Güven, 1 specimen; Aşağıaktaşlı, 39°54'41"N 42°23'2"E, 2128 m, 13.07.2023, M. Güven, 1 specimen; Aşağıaktaşlı, 39°52'41"N 42°23'1"E, 2139 m, 04.08.2023, M. Güven, 59 specimens.

Distribution in Turkey: Asia: Ankara, Antalya, Artvin, Bayburt, Bolu, Burdur, Düzce, Erzurum, Erzincan, Eskişehir, Isparta, Kayseri, Konya, Kars, Kütahya, Nevşehir, Rize, Samsun, Sivas, Zonguldak; **Europe:** Edirne (Ekiz *et al.*, 2013; Özdikmen, 2014; Bayram and Aslan, 2015; Turantepe, 2017; Gök and Turantepe, 2019; Aslan *et al.*, 2020; Gök and Bostan, 2020; Özdikmen *et al.*, 2020; Ünal, 2021; Özdikmen and Şahin, 2022).

Remarks: The specimens were collected using a mouth aspirator and sweep net on *Cephalaria sparsipilosa* Matthews, *Arctium minus* (Hill) Bernh. subsp. *minus* (Hill) Bernh., *Falcaria vulgaris* Bernh. and *Crambe orientalis* L.

Chaetocnema arenacea (Allard, 1860)

Material examined: TR-Elâzığ: Kovancılar, Çakırtaş, 38°45'33"N 39°37'16"E, 1024 m, 11.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Adana, Aksaray, Ankara, Çankırı, Denizli, Eskişehir, Erzurum, Gümüşhane, Hakkâri, Kayseri, Konya, Kütahya, Mersin, Nevşehir, Niğde, Sivas, Yozgat; **Europe:** Edirne (Sahlberg, 1913; Král, 1967; Gruev and Kasap, 1985; Gruev and Döberl, 1997; Aslan *et al.*,

1999; Gruev, 2001, 2004; Warchałowski, 2003; Konstantinov *et al.*, 2011; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen, 2014; Şen and Gök, 2014; Aslan *et al.*, 2015; Özdikmen *et al.*, 2020; Ünal, 2021; Özdikmen and Şahin, 2022).

Remarks: This is a new record for Elâzığ province. However, the host plant has not yet been determined.

Chaetocnema aridula (Gyllenhal, 1827)

Material examined: TR-Bingöl: Central, Yeniköy, 38°52'18"N 40°36'30"E, 1112 m, 12.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Ankara, Erzurum, İstanbul, Kayseri, Kütahya, Manisa, Sivas, Yozgat; **Europe:** Edirne, Kırklareli (Kral, 1967; Gruev and Kasap, 1985; Gruev and Döberl, 1997; Aslan *et al.*, 1999; Warchałowski, 2003; Gruev, 2004; Konstantinov *et al.*, 2011; Ekiz *et al.*, 2013; Özdikmen, 2014; Coral Şahin, 2020; Ünal, 2021).

Remarks: This is a new record for Bingöl province. Samples were collected from *Triticum* spp., *Medicago* spp., and *Rorippa austriaca* (Crantz) Besser.

Derocrepis serbica Kutschera, 1860

Material examined: TR-Artvin: Şavşat, Yavuzköy, 41°14'4"N 42°24'29"E, 1604 m, 24.07.2022, M. Güven, 2 specimens.

Distribution in Turkey: Asia: Bursa, İstanbul, Tokat (Ekiz *et al.*, 2013; Özdikmen, 2014).

Remarks: New for Artvin province, 4th for Turkey record. Specimens were collected using a sweep net from *Triticum aestivum* L.

Longitarsus cerinthes (Schränk, 1798)

Material examined: TR-Muş: Bulanık, Central, 39°7'47"N 42°18'24"E, 1486 m, 10.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Aydın, Iğdır, Kayseri, Mersin (Gruev, 2003; Aslan, 2004; Gruev and Döberl, 2005; Döberl, 2010; Ekiz *et al.*, 2013; Özdikmen, 2014; Bayram and Aslan, 2015; Coral Şahin, 2020; Özdikmen and Şahin, 2022).

Remarks: This is a new record for the Muş province and the 5th record for Turkey. However, the host plant has not yet been determined.

Longitarsus luridus luridus (Scopoli, 1763)

Material examined: TR-Artvin: Şavşat, Karaköy, 41°13'35"N 42°28'13"E, 2199 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Ankara, Antalya, Artvin, Aydın, Bayburt, Burdur, Bursa, Çankırı, Eskişehir, Erzurum, Isparta, İstanbul, Kayseri, Kırşehir, Kütahya, Sivas, Tunceli, Yozgat; **Europe:** İstanbul (Ekiz *et al.*, 2013; Özdikmen, 2014; Aslan *et al.*, 2015; Bayram and Aslan, 2015; Bal *et al.*, 2018c; Gök and Turantepe, 2019; Aslan *et al.*, 2020; Coral Şahin, 2020; Ünal, 2021; Özdikmen and Şahin, 2022).

Remarks: Samples were collected from *Salvia verticillata* L. subsp. *verticillata* L. and *Hordeum vulgare* L.

Longitarsus niger (Koch, 1803)

Material examined: TR-Erzurum: Şenkaya, Değirmenlidere, 40°45'0"N 42°32'24"E, 1915 m, 24.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Eskişehir, Erzurum, Kayseri, İstanbul (Ekiz *et al.*, 2013; Özdikmen, 2014; Özdikmen and Şahin, 2022).

Remarks: The specimens were collected using with sweep net from *Sisymbrium loeselii* L.

Phyllotreta diademata Foudras, 1860

Material examined: TR-Van: Çaldıran, Soğuksu, 39°10'44"N 41°26'3"E, 1509 m, 11.06.2021, C. Gözüaçık, 1 specimen; Alikelle, 39°2'39"N 44°1'2"E, 2051 m, 04.06.2021, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Adana, Aksaray, Ankara, Antalya, Bartın, Erzincan, Erzurum, Eskişehir, Isparta, Kayseri, Kocaeli, Konya; **Europe:** Edirne (Ekiz *et al.*, 2013; Özdikmen, 2014; Özdikmen *et al.*, 2017; Özdikmen and Şahin, 2022).

Remarks: This is a new record for Van province. The specimens were collected using sweep net from *Lepidium draba* L. and *Melilotus officinalis* (L.) Desr.

Phyllotreta nigripes nigripes (Fabricius, 1775)

Material examined: TR-Van: Çaldıran, Soğuksu, 39°10'44"N 41°26'3"E, 1509 m, 11.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: Asia: Adana, Ankara, Antalya, Bayburt, Bilecik, Çankırı, Erzincan, Eskişehir, Erzurum, Hatay, Iğdır, Isparta, Kayseri, Konya, Kars, Kütahya, Manisa, Mersin, Sivas, Yozgat; **Europe:** Edirne (Ekiz *et al.*, 2013; Özdikmen, 2014; Aslan *et al.*, 2015; Bayram and Aslan, 2015; Özdikmen *et al.*, 2017,2020; Bal, 2018; Tolga and Yoldaş, 2020; Ünal, 2021; Özdikmen and Şahin, 2022).

Remarks: This is a new record for Van province. However, the host plant has not yet been determined.

Subfamily **Cassidinae** Gyllenhal, 1813

Cassida palaestina Reiche, 1858

Material examined: TR-Erzurum: Horasan, Aşağıaktaşlı, 39°51'58"N 42°23'13"E, 2141 m, 19.07.2022, M. Güven, 1 specimen.

Distribution in Turkey: Asia: Adana, Bursa, Diyarbakır, Hatay, İzmir, Kilis, Mersin (Gül-Zümreoğlu, 1972; Kısmalı and Sassi, 1994; Warchałowski, 2003, 2010; Borowiec, 2007; Borowiec and Sekerka, 2010; Özdikmen, 2011; Ekiz *et al.*, 2013; Özdikmen and Kaya, 2014; Borowiec, 2021; Borowiec and Świętojańska, 2021; Özdikmen and Şahin, 2021).

Remarks: This is a new record for the Eastern Anatolia Region. However, the host plant has not yet been determined.

Hypocassida subferruginea (Schrank, 1776)

Material examined: TR-Bingöl: Karlıova, Sudağı, 39°6'5"N 40°50'37"E, 1657 m, 12.06.2021, C. Gözüaçık, 1 specimen.

Distribution in Turkey: **Asia:** Adana, Ağrı, Aksaray, Amasya, Ankara, Antalya, Aydın, Balıkesir, Bitlis, Bolu, Burdur, Bursa, Çanakkale, Çankırı, Çorum, Denizli, Düzce, Elâzığ, Erzincan, Erzurum, Eskişehir, Hatay, Isparta, İstanbul, İzmir, Kahramanmaraş, Karabük, Karaman, Kastamonu, Kayseri, Kocaeli, Konya, Kütahya, Manisa, Mersin, Muş, Niğde, Osmaniye, Rize, Sakarya, Samsun, Siirt, Sinop, Sivas, Şanlıurfa, Yozgat, Zonguldak; **Europe:** Edirne, İstanbul, Tekirdağ (Sahlberg, 1913; Günther, 1954; Kısmalı and Sassi, 1994; Aslan and Özbek, 1999; Gök and Çilbıroğlu, 2003; Gök and Gürbüz, 2004; Borowiec, 2007; Aslan *et al.*, 2009; Borowiec and Sekerka, 2010; Özdikmen, 2011; Ersin Doğan, 2012; Özdikmen *et al.*, 2012, 2020; Ekiz *et al.*, 2013; Özdikmen and Kaya, 2014; Bal *et al.*, 2018b; Aslan *et al.*, 2020; Özdikmen and Şahin, 2021).

Remarks: This is a new record for Bingöl province. Specimens were collected from *Convolvulus arvensis* L.

CONCLUSION

Field studies were conducted in 93 locations in the Artvin, Bingöl, Diyarbakır, Elazığ, Erzurum, Kahramanmaraş, Muş and Van provinces. The Coleoptera order, Chrysomelidae family, seven subfamilies, 20 genera and 36 species were identified. *Cassida palaestina* Reiche, 1858 were identified in the Eastern Anatolia Region for the first time in this study.

In addition, plants such as *Rumex tuberosus* L. subsp. *horizontalis* (Koch) Rech., *R. crispus* L., *Onobrychis* sp., *Melilotus officinalis* (L.) Desr., *Lotus corniculatus* L., *Medicago* sp., *Tragopogon* sp., *Achillea millefolium* L., *Achillea millefolium* L. subsp. *millefolium* L., *Scorzonera tomentosa* L., *Crepis setosa* Hall. Fil., *Centaurea solstitialis* L., *Inula oculus-christi* L., *Lappula barbata* (Bieb.) Gürke, *Papaver rhoeas* L., *Astragalus* spp., *Calamagrostis epigejos* (L.) Roth, *Delphinium laxiusculum* (Boiss.) Rouy, *Sisymbrium loeselii* L., *S. altissimum* L., *Lepidium draba* L., *Bunias orientalis* L., *Hordeum vulgare* L., *Picris hieracioides* L., *Phlomis tuberosa* L., *Polygonum bellardii* All., *Salvia verticillata* L. subsp. *verticillata* L., *Falcaria vulgaris* Bernh., *Rorippa austriaca* (Crantz) Besser, *Cephalaria sparsipilosa* Matthews, *Glycyrrhiza glabra* L., *Arctium minus* (Hill) Bernh. subsp. *minus* (Hill) Bernh., *Crambe orientalis* L. and *Triticum aestivum* L. which are preferred by Chrysomelidae species were determined for the first time.

In conclusion, many studies on the family Chrysomelidae have been conducted by local and foreign researchers. These are faunistic, systematic and biological control studies based on plant-insect relationships. With the researches carried out in this way, new species are identified and added to the fauna of the country daily. In this study, 28 species were identified as new records for Chrysomelidae fauna in different provinces.

ACKNOWLEDGEMENTS

Host plants were identified by Prof. Dr. Ahmet Zafer TEL (Iğdır University, Faculty of Agriculture, Department of Agricultural Biotechnology).

AUTHOR CONTRIBUTIONS

The authors have contributed equally to this study.

CONFLICT of INTEREST

The authors declare there is no conflict of interest.

REFERENCES

- Alaserhat, İ., Canbay, A., Alici, H., (2020). Determination of pests and natural enemies on leafy vegetables in Eastern Anatolia Region. *Plant Protection Bulletin*, 60 (2): 15-22.
- Aslan, E.G., (2007). Species Distribution and Diversity of Alticinae (Coleoptera: Chrysomelidae) Collected from the Nature Reserves Çıglıkara, Dibek and Kasnak Meşesi. Süleyman Demirel University Graduate School of Applied and Natural Sciences Department of, Ph. D. Thesis, Isparta. (In Turkish).
- Aslan, E.G., Ayvaz, Y., (2009). Diversity of Alticinae (Coleoptera, Chrysomelidae) in Kasnak Oak Forest Nature Reserve, Isparta, Turkey. *Turkish Journal of Zoology*, 33;3:251–262.
- Aslan, E.G., Başar, M., (2016). Flea beetles collected from olive trees of Antalya province including the first record of the monotypic genus *Lythraria* Bedel, 1897 (Coleoptera: Chrysomelidae) for Turkey. *Turkish Journal of Entomology*, 40(3), 243-248.
- Aslan, E. G., Vergili Bilkay, K., (2021). Determination of Chrysomelidae (Coleoptera) Species and Host Plants in Vegetable Areas of Burdur Province. *The Journal of Graduate School of Natural and Applied Sciences of Mehmet Akif Ersoy University*, 12(0), 452-460. Doi: 10.29048/makufebed.995155, (2021).
- Aslan, E.G., Japoshvili, G., Aslan, B., Karaca, İ. (2012). Flea beetles (Coleoptera: Chrysomelidae: Alticinae) collected by Malaise trap method in Gölcük Natural Park (Isparta, Turkey), with a new record for Turkish fauna. *Archives of Biological Sciences*, 64;1:365–370.
- Aslan, E. G., Gök, A., Gürbüz, M.F., Ayvaz, Y., (2009). Species Composition of Chrysomelidae (Coleoptera) in Saklıkent Vicinity (Antalya, Turkey) with Observations on Potential Host Plants. *Journal of the Entomological Research Society*, 11(3): 7-18.
- Aslan, E.G., Kaya, Ö.D., Ünal, E., (2020). Contributions to the Knowledge of Leaf Beetle (Coleoptera: Chrysomelidae) Fauna in Elazığ, Erzincan & Tunceli Provinces, Turkey. *The Journal of Graduate School of Natural and Applied Sciences of Mehmet Akif Ersoy University* 11(Ek Sayı 1): 273-280.
- Aslan, B., Yılmaz, A., Bayram, F., Aslan, E. G., (2015). Contributions to the insect fauna of Burdur Province Turkey in terms of Hydrophilidae Helophoridae and Chrysomelidae Coleoptera with Chorotype Analyses. *Fresenius Environmental Bulletin*, 1932-1939.
- Aslan, İ., (1997). Erzurum İlinde Söğüt (*Salix* spp.) ve Kavak (*Populus* spp.) Zararlısı Yaprak Böcekleri (Coleoptera, Chrysomelidae). *İstanbul Üniv. Orman Fak. Derg.* 81-88.
- Aslan, İ., (1998). Faunistic and systematic studies on the subfamily Galerucinae (Coleoptera: Chrysomelidae) in Erzurum provinces. *Turkish Journal of Entomology*, 22;4:285–298.
- Aslan, İ., (2000). Faunistic and systematic study on the subfamily Criocerinae (Coleoptera, Chrysomelidae) in Eastern Anatolia of Turkey. *The Fourth Turkish National Congress of Entomology*, Adana, Türkiye.
- Aslan, İ., (2001). The Biology and Damage of *Plagioderia versicolora* (Laicharling) (Coleoptera, Chrysomelidae, Chrysomelinae) of Important Willow Pest in Erzurum Conditions. *Journal of Atatürk University Faculty of Agriculture*, 32 (1): 5-7.
- Aslan, İ., (2004). Eight new records for the Turkish flea beetles fauna, *Longitarsus* sp. (Coleoptera: Chrysomelidae: Alticinae). *Entomologische Zeitschrift*, 114;3:127–130.
- Aslan, İ., Özbek, H., (1997). The Check-List of the Subfamily Cryptocephalinae (Coleoptera, Chrysomelidae) in Turkey. *Ataturk University, Journal of Faculty of Agriculture*, 28(2), 135-255.
- Aslan, İ., Özbek, H., (1998). Faunistic and Systematic Studies on the Subfamily Clytrinae (Coleoptera, Chrysomelidae) in Artvin, Erzincan and Erzurum Provinces. *Ataturk University, Journal of Faculty of Agriculture*, 29;1:58–78.

- Aslan, İ., Özbek, H., (1999). Erzurum İlinde bazı yabancı otlarda beslenerek önemli derecede zarar veren yaprak böcekleri (Coleoptera, Chrysomelidae). Türkiye 4. Biyolojik Mücadele Kongresi Bildirileri, 26–29 Ocak 1999, Adana, 75–86.
- Aslan, İ., Warchałowski, A., (2001). New records of the subfamily Alticinae (Coleoptera, Chrysomelidae) for the Turkish fauna. Journal of the Entomological Research Society, 3:1–4.
- Aslan, İ., Gruev, B., Özbek, H., (1999). A preliminary review of the subfamily Alticinae (Coleoptera, Chrysomelidae) in Turkey. Turkish Journal of Zoology, 23(4), 373-414.
- Aslan, İ., Warchałowski, A., Özbek, H., (2000). A preliminary review of the subfamily Galerucinae (Coleoptera, Chrysomelidae) in Turkey. Journal of the Entomological Research Society, 2;2:27–42.
- Aslan, İ., Özbek, H., Konstantinov, A., (2003). Flea beetles (Coleoptera, Chrysomelidae) occurring on *Amaranthus retroflexus* L. in Erzurum province, Turkey, and their potential as biological control agents. Proceedings of the Entomological Society of Washington, 105;2:441–446.
- Atay, T., Çam, H., (2006). The faunistical studies on the subfamilies Chrysomelinae and Cryptocephalinae (Coleoptera: Chrysomelidae) species in Tokat province. Turkish Journal of Entomology, 30(4), 285-302.
- Aydın, E., Kısımalı, Ş., (1990). Faunistical studies on the Clytrinae (Coleoptera: Chrysomelidae) in the Aegean Region. Turkish Journal of Entomology, Türkiye Entomoloji Dergisi, 14(1): 23- 35.
- Bal, N., (2018). Chrysomelidae (Coleoptera) Fauna Çankırı Province. Gazi University Graduate School of Natural and Applied Sciences, Ph. D. Thesis, Ankara. (In Turkish).
- Bal, N., (2021). Checklist of Clytrinae From Turkey (Chrysomelidae). Recent Biological Studies (pp.171-202), Ankara: Iksad Publications.
- Bal, N., Şahin, D. C., (2021). Checklist of Turkish Criocerinae (Chrysomelidae). Recent Advances in Biological Science (pp.153-163), Ankara: Iksad Publications.
- Bal, N., Özdikmen, H., Kıyak, S., (2016). Case-bearing leaf beetles of Çankırı province in Turkey (Chrysomelidae: Cryptocephalinae). Munis Entomology & Zoology, 11 (2): 457-468.
- Bal, N., Özdikmen, H., Kıyak, S. (2018a). Thirty new leaf beetles for the fauna of Çankırı province in Turkey (Chrysomelidae). Munis Entomology & Zoology, 13(2), 507-518.
- Bal, N., Coral Şahin, D., Özdikmen, H. (2018b). Leaf-mining & tortoise beetles of Çankırı & Kayseri provinces in Turkey with new records (Chrysomelidae: Hispinae & Cassidinae). Munis Entomology & Zoology, 13(2), 409-420.
- Bal, N., Özdikmen, H., Coral Şahin, D., (2018c). Twenty-six new flea beetles for the fauna of Çankırı province in Turkey (Chrysomelidae: Galerucinae: Alticini). Munis Entomology & Zoology, 13 (2): 527-537.
- Bal, N., Özdikmen, H., Amutkan Mutlu, D., Suludere, Z., Coral, D., (2022). Examination of aedeagus and spermatheca ultrastructure of *Cryptocephalus duplicatus* Suffrian, 1845 (Coleoptera: Chrysomelidae: Cryptocephalinae) in Sem from Turkey. 2. International Hasankeyf Scientific Studies and Innovation Congress (pp.174-184). Batman, Turkey.
- Bayram, A., Doğanlar, O., Can, F., Kornoşor, S., (2004). The distribution and host plants of the Cereal Leaf Beetle [(*Oulema melanopus* (L.) (Coleoptera: Chrysomelidae)] in East Mediterranean Region of Turkey. Mustafa Kemal University Journal of Agricultural Sciences, 9(1-2):43-49.
- Bayram, F., Aslan, E.G., (2015). Comparison of alticini (Coleoptera: Chrysomelidae: Galerucinae) species diversity in different habitats selected from Bafa Lake Natural Park (Aydın) basin whit aa new record for Turkish fauna. Turkish Journal Entomology, 39(2), 147-157.
- Bezděk, J., (2007). Taxonomical changes in Palaearctic Luperini (Coleoptera: Chrysomelidae: Galerucinae). Annales Zoologici, 57;2:257–266.
- Bezděk, J., Sekerka, L. (eds.) (in press). Catalogue of Palaearctic Coleoptera. Volume 6/2. Revised and Updated Second Edition. Chrysomeloidea II (Megalopodidae, Orsodacnidae, Chrysomelidae). –Leiden: Brill.

- Bieńkowski, A.O., (2001). A study on the genus *Chrysolina* Motschulsky, 1860, with a checklist of all the described subgenera, species, subspecies, & synonyms (Coleoptera: Chrysomelidae: Chrysomelinae). Genus. 12;2:105–235.
- Booth, R. G., Cox, M. L., Madge, R. B., (1990). IIEGuides to Insects of Importance to Man, 3. Coleoptera. Cambridge: Printed in the UK at the University Press, 384.
- Borowiec, L., (2007). Cassidinae (Coleoptera: Chrysomelidae) collected in Turkey during expeditions of the Upper Silesian Museum, Bytom, Poland. Ann Upper Silesian Mus Bytom (Entomology), 14–15:7–12.
- Borowiec, L., (2021). Chrysomelidae, The Leaf Beetles of Europe and the Mediterranean Subregion (Checklist and Iconography). Available from: <http://www.cassidae.uni.wroc.pl/European%20Chrysomelidae/>.
- Borowiec, L., Sekerka, L., (2010). Subfamily Cassidinae. In: Löbl I, Smetana A, editors. Catalogue of Palaearctic Coleoptera. Volume 6. Stenstrup: Apollo Books; p. 368–390.
- Borowiec, L., Świętojańska, J., (2021). Cassidinae of the World – an Interactive Manual (Coleoptera: Chrysomelidae). Available from: <http://www.cassidae.uni.wroc.pl/katalog%20internetowy/index.htm>.
- Campobasso, G. Colonnelli, E. Knutson, L. Terragitti, G. Cristofaro, M., (1999). Wild plants and their associated insects in the palaearctic region, primarily Europe and the Middle East. Rome (Italy): United States, Department of Agriculture, Agricultural Research Service; 249 p.
- Coral Şahin, D., (2020). Determination and Taxonomically Evaluation of Species of Chrysomelidae (Coleoptera) Family From Kayseri Province. Gazi University Graduate School of Natural and Applied Sciences, Ph. D. Thesis, Ankara. (In Turkish).
- Coşkuncu, K.S., Gençer, N.S., (2006). Biology, Distribution and Population Fluctuation of *Gonioctena fornicata* (Brüggeman) (Coleoptera: Chrysomelidae) in Alfalfa Fields in Bursa Province. Uludağ University Journal of Faculty of Agriculture, 2(21): 15-19.
- Dağ, Y., (2019). Investigation of Population Fluctuations and Damage of Lucerne Beetle, *Gonioctena Fornicata* (Bruggeman) (Coleoptera: Chrysomelidae) in Lucerne Field. Çukurova University Institute of Natural and Applied Sciences, MSc. Thesis, p.45.
- Doğanlar. O., Bayram, A., Can, F. ve Kornoşor, S., (2004). Population fluctuation and some biological characteristics of the cereal leaf beetle, *Oulema melanopus* (L.) (Coleoptera: Chrysomelidae) in Adana, Turkey. Mustafa Kemal University Journal of Agricultural Sciences, 9(1-2):51-59.
- Döberl, M., (2010). Subfamily Alticinae. In: Löbl I, Smetana A, editors. Catalogue of Palaearctic Coleoptera (Vol. 6). Stenstrup: Apollo Books; p. 491–563.
- Dörtbudak, Y., Serel, İ., Çınar, M., (1973). The survey study on the cereal pest in the east and south part of Turkey. Plant Protection Research Annual, Ankara, number:7,1.
- Ersin Doğan, F., (2012). Identification, Distribution, Host Plants and Importance of the Species Belongs to Subfamilies of Criocerinae, Galerucinae and Cassidinae (Coleoptera: Chrysomelidae) in the Province of İzmir. Ege University, Institute of Science and Technology, Ph. D. Thesis, İzmir. (In Turkish).
- Ekiz, A.N., Şen, İ., Aslan, E.G., Gök, A., (2013). Checklist of leaf beetles (Coleoptera: Chrysomelidae) of Turkey, Excluding Bruchinae. Journal of Natural History, 47(33-34), 2213-2287.
- Fairmaire, M. L., (1884). Liste des Coléoptères recueillis par M. l'abbé David à Akbès (Asie-Mineure) et descriptions des espèces nouvelles. Annales de la Société entomologique de France, 6;4:165–180.
- Ghahari, H., Jędrzykowski, W.B., (2012). A Contribution to the Knowledge of Leaf Beetles (Coleoptera: Chrysomelidae) from Arasbaran Biosphere Reserve & its Neighboring Areas (Northwestern Iran). Acta zoologica bulgarica, 64(4), 347-352.
- Glover, T., (1871). Report of the Commissioner of Agriculture for the Year 1870. Washington, DC, USA: Government Printing Office, 65-91.

- Gruev, B., (1992). Geographical distribution of Lamprosomatinae, Eumolpinae, Chrysomelinae, Alticinae, Hispinae ve Cassidinae (Coleoptera, Chrysomelidae) on the Balkan Peninsula. Plovdiv University Press. 512p. Plovdiv.
- Gruev, B., (2001). Actualized checklist of Alticinae (Coleoptera: Chrysomelidae) in the Balkan Peninsula. Travaux Scientifiques Universite de Plovdiv Animalia, 37:9–28.
- Gruev, B., (2003). A comparative study on the fauna of Alticinae (Coleoptera, Chrysomelidae) in the Asian part of Turkey & the adjacent countries Georgia, Armenia, Iran, Iraq & Syria. Travaux Scientifiques Universite de Plovdiv Animalia, 39:6:19–40.
- Gruev, B., (2004). The leaf beetles (Insecta: Coleoptera: Chrysomelidae) of the Rila Mountain (Bulgaria). Fauna & Zoogeography. Travaux Scientifiques Universite de Plovdiv Animalia, 40 (6), 97-114.
- Gruev B., (2005). A comparative list of the leaf beetles of the balkan countries (Coleoptera: Chrysomelidae). Travaux Scientifiques Universite de Plovdiv Animalia, 41:23–46.
- Gruev, B. Tomov, V., (1979). Zur Kenntnis einiger in der Türkei, Jugoslawien und Griechenland vorkommender Arten der Familie Chrysomelidae (Coleoptera) aus der Zoologischen Staatssammlung München. Spixiana. 2;3:259–267.
- Gruev, B., Tomov, V., (1984). Fauna Bulgarica 13, Coleoptera, Chrysomelidae, Part I, Orsodacninae, Zeugophorinae, Donaciinae, Criocerinae, Clytrinae, Cryptocephalinae, Lamprosomatinae, Eumolpinae. In Aedibus Academie Scientiarum Bulgaricae, Sofia, 220.
- Gruev, B., Kasap, H., (1985). A list of some Alticinae from Turkey with Descriptions of two New Species (Coleoptera, Chrysomelidae). Entomologische Zeitschrift, 32:59–73.
- Gruev, B., Döberl, M., (1997). General distribution of the flea beetles in the Palaearctic subregion (Coleoptera, Chrysomelidae: Alticinae). Scopolia. 37:1–496.
- Gruev, B., Döberl, M., (2005). General distribution of the flea beetles in the Palaearctic subregion (Coleoptera, Chrysomelidae: Alticinae). Supplement. Sofia-Moscow: Pensoft; 240 p.
- Gök, A., (2002). Faunistic studies on the species *Pachybrachis* Chevrolat and *Cryptocephalus* Geoffroy (Coleoptera, Chrysomelidae, Cryptocephalinae) of Dedegöl Mountains (Isparta). Turkish Journal of Zoology, 26:31–42.
- Gök, A., (2003). Faunistic studies on the species of the subfamily Clytrinae (Coleoptera, Chrysomelidae) of Dedegöl Mountains (Isparta). Turkish Journal of Zoology, 27:187–194.
- Gök, A., Çilbıroğlu, E.G., (2003). The Chrysomelidae (Coleoptera) Fauna of Kovada Stream Arboretum (Eğirdir-Isparta, Turkey). Nouvelle Revue d' Entomologie, 20, 61-73.
- Gök, A., Çilbıroğlu, E.G., (2005). Studies on the abundance, biology & harmfulness of leaf beetles (Coleoptera: Chrysomelidae) in natural bush vegetation in Isparta, Turkey. Journal of Pest Science, 78, 13–15.
- Gök, A., Duran, E., (2004). A survey of the subfamily Galerucinae (Coleoptera: Chrysomelidae) of Isparta province (Turkey), with two new records. Journal of Entomological Research Society, 6(2), 15-24.
- Gök, A. Gürbüz, M.F., (2004). The Chrysomelidae fauna of the Islands of Beyşehir Lake in Turkey. Nouvelle Revue d'Entomologie (N.S), 21:43–48.
- Gök A., Turantepe, E., (2019). Additions to the fauna of Chrysomelidae (Coleoptera) from Hatila Valley National Park (Artvin, Turkey), with notes on host plant preferences and zoogeographic evaluations. Caucasian Entomological Bulletin, 15(1), 135-146. Doi: 10.23885/181433262019151-135146.
- Gök, A., Bostan, K., (2020). The First Faunistic Data on the Leaf Beetles (Coleoptera: Chrysomelidae) of 26 Ağustos Nature Park, Afyonkarahisar, Turkey. Journal of the Entomological Research Society, 22(1), 83-99.
- Gül-Zümreoğlu S., (1972). İzmir Bölge Zirai Mücadele Araştırma Enstitüsü Böcek ve Genel Zararlılar Kataloğu, 1928–1969, 1.Kısım. İzmir: T.C. Tarım Bakanlığı Zirai Mücadele ve Zirai Karantina Genel Müdürlüğü Yayınları; p. 48–52.

- Günther, V., (1954). Ergebnisse der Zoologischen expedition des National museums in Prag nach der Türkei. Acta Entomologica Musei Nationalis Pragae, 29:159–162.
- Jäch, M. A., (1998). Annotated check list of aquatic & riparian/littoral beetle families of the world (Coleoptera), pp. 25-42. - In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China, Vol. 2. -Wien: Zoologisch-Botanische Gesellschaft in Österreich & Wiener Coleopterologenverein, 371 pp. (Internet:<http://www.nhmwien.ac.at/nhm/2Zoo/coleoptera/publications/chinaindex.html>).
- Jolivet, P., (1988). Selection trophique chez les Cassidinae. Bulletin Mensuel de la Société Linnéenne de Lyon, 57, 301-320.
- Jolivet, P., Verma, K.K., (2002). Biology of leaf beetles. United States: Intercept Ltd., 335.
- Jolivet, P., Petitpierre, E., Hasiao, T. H., (1988). Biology of chrysomelidae. Dordrecht: Kluwer Academic Publishers, 606.
- Kasap, H., (1987a). A list of some Clytrinae (Coleoptera: Chrysomelidae) from Turkey. Labidostomis, Lahnaea, Antipa, Coptocephala (Part I). Turkish Journal of Entomology, 11;1:41–52.
- Kasap, H., (1987b). A list of some Clytrinae (Col.: Chrysomelidae) from Turkey (Part II). Clytra, Smaragdina, Cheilotoma. Turkish Journal of Entomology, 11;2:85–95.
- Kennedy, G.G., (2009). Colorado Potato Beetle, 212-213, In: V.H. Resh & R.T. Cardé (eds). Encyclopedia of Insects 2nd Edition, Academic Press, Amsterdam, 1132 p.
- Kerville, H. G., (1939). Voyage zoologique d'Henri Gadaeau de Kerville Asie Mineure (Avril-Mai 1912). Tome 1. Paris, Paul Lechevalier, 106-108.
- Kısmalı, Ş., (1973). İzmir ili ve çevresinde kültür bitkilerinde zarar yapan Chrysomelinae ve Halticinae (Coleoptera, Chrysomelidae) altfamilyalarına ait türler, tanınmaları, konukçuları, yayılışlar ve kısa biyolojileri üzerinde araştırmalar. Ege Üniversitesi Ziraat Fakültesi Dergisi, 10(2): 341-378.
- Kısmalı, Ş., Sassi, D., (1994). Preliminary list of Chrysomelidae with notes on distribution & importance of species in Turkey. II. Subfamily Cassidinae Spaeth. Turkish Journal of Entomology, 18(3), 141-156.
- Konstantinov, A.S., (2003). Chrysomelidae: Aquatic leaf beetles of China In: Water Beetles of China, Vol. II. (Jäch, M.A. & Ji, L., -eds.). Zoologisch-Botanische Gesellschaft in Österreich & Wiener Coleopterologenverein, pp.563-572, Wien.
- Konstantinov, A.S., Korotyaev, B.A., Volkovitsh, M.G., (2009). Insect biodiversity in the palaeartic region. In: Footitt RG, Adler PH, editors. Insect biodiversity: science & society. Chapter 7. Oxford: Wiley-Blackwell; p. 107–162.
- Konstantinov, A. S., Baselga, A., Grabennikov. V. V., Prena, J., Lingafelter, S. W., (2011). Revision of the Palaeartic *Chaetocnema* species (Coleoptera: Chrysomelidae: Galerucinae: Alticini). Bulgaria: Pensoft Publishers; 363 p.
- Konstantinov, A., Chamorro, M. L., Prathapan, K., Ge, S. Q., Yang, X. K., (2013). Moss-inhabiting flea beetles (Coleoptera: Chrysomelidae: Galerucinae: Alticini) with description of a new genus from Cangshan, China. Journal of Natural History, 47(37-38), 2459–2477.
- Král, J., (1967). Wissenschaftliches Ergebnis der zoologischen Expedition des Nationalmuseum in Prag nach der Türkei, Coleoptera, Alticidae. Acta Entomologica Musei Nationalis Pragae, 37: 261-268.
- Lopatin, I., (1977). Leaf-beetles (Chrysomelidae) of Middle Asia & Kazakhstan. Nauka, Leningrad, 268p.
- Medvedev, L.N., (1970). A list of Chrysomelidae collected by Dr. W. Wittmer in Turkey (Coleoptera). Revue suisse de Zoologie 11, 309-319.
- Medvedev, L.N., (1975). Chrysomelidae Collected by Dr. W. Wittmer in Turkey and Iran. Mitteilungen der Entomologischen Gesellschaft Basel 25;1:12–19.
- Medvedev, L.N., (2015). To the knowledge of leaf beetles (Coleoptera: Chrysomelidae) from Turkey. Caucasian Entomological Bull, 11(2), 391–394.

- Özdikmen, H., (2011). A comprehensive contribution for leaf beetles of Turkey with a zoogeographical evaluation for all Turkish fauna (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 6 (2): 540-638.
- Özdikmen, H., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part VII – Chrysomelidae: Chrysomelinae & Timarchinae. *Munis Entomology & Zoology*, 9 (1): 266-286.
- Özdikmen, H., Turgut, S., (2008). The subfamily Criocerinae of Turkey (Coleoptera: Chrysomelidae) with two new records & zoogeographical remarks. *Munis Entomology & Zoology*, 3(1), 239-250.
- Özdikmen H, Arslan K., (2009). First records of some leaf beetles for Mediterranean region in Turkey & south Turkey (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 4 (1): 276-279.
- Özdikmen, H., Cihan, N., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part III – Chrysomelidae: Cryptocephalinae. *Munis Entomology & Zoology*, 9(1), 125-142.
- Özdikmen, H., Kaya, G., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part I Chrysomelidae: Hispinae & Cassidinae. *Munis Entomology & Zoology*, 9(1), 58-70.
- Özdikmen, H., Mercan, N., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part II – Chrysomelidae: Clytrinae. *Munis Entomology & Zoology*, 9 (1): 89-102.
- Özdikmen, H., Özbek, H., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part IV – Chrysomelidae: Donaciinae & Criocerinae. *Munis Entomology & Zoology*, 9(1), 161-169.
- Özdikmen, H., Topçu, N.N., (2014). Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part VI – Chrysomelidae: Galerucinae. *Munis Entomology & Zoology*, 9(1), 214-226.
- Özdikmen, H., Silkin, N., (2016). A review of the genera *Diorhabda* Weise & *Radymna* Reitter in Turkey & the colour variations of *Radymna fischeri* (Faldermann) from Turkey (Chrysomelidae: Galerucinae). *Munis Entomology & Zoology*, 11 (1): 96-104.
- Özdikmen, H., Coral Şahin, D., (2021). Leaf beetles of Kayseri province with new and interesting data for Turkey: Part I - Subfamilies Donaciinae to Galerucinae (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 16 (Supplement): 1557-1620.
- Özdikmen, H., Coral Şahin, D., (2022). Leaf beetles of Kayseri province with new and interesting data for Turkey: Part II – Subfamily Alticinae (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 17 (1): 6-73
- Özdikmen, H. Turgut, S. Özbek, H. Çalamak, S., (2010). A synopsis on Turkish *Clytra* Laicharting, 1781 (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 5;1:73–84.
- Özdikmen, H., Özbek, H., Kaya, G., Topcu, N. N., (2012). A contribution for knowledge of Turkish leaf beetles (Chrysomeloidea: Chrysomelidae). *Munis Entomology & Zoology*, 7 (2): 1065-1072.
- Özdikmen, H., Bal, N., Kıyak, S., (2016). The genus *Labidostomis* Germar of Turkey with a new species & a new record (Coleoptera: Chrysomelidae: Clytrinae). *Munis Entomology & Zoology*, 11 (2): 515-538.
- Özdikmen, H., Coral Şahin, D., Bal, N., (2017). A new species of *Phyllotreta* Chevrolat from Turkey (Chrysomelidae: Galerucinae: Alticini). *Munis Entomology & Zoology*, 12 (1): 147-150.
- Özdikmen, H., Bal, N., Coral Şahin, D., (2020). A contribution to the knowledge of leaf-beetles (Coleoptera: Chrysomelidae) in Turkey using data of specimens in Nazife Tuatay Plant Protection Museum (Turkey, Ankara). *Munis Entomology & Zoology*, 15 (1): 269-297.
- Özdikmen, H., Pehlivan, E., Bal, N., Karsavuran, Y., Tezcan, S., (2021a). A contribution to the fauna of Turkish Chrysomelidae (Coleoptera: Chrysomeloidea). *Munis Entomology & Zoology*, 16 (2): 924-946.
- Özdikmen, H., Tezcan, S., Bal, N., Karsavuran, Y., Pehlivan, E., (2021b). New leaf beetle records for European Turkey (Coleoptera: Chrysomelidae). *Munis Entomology & Zoology*, 16 (2): 886-895.
- Özdikmen, H., Bolu, H., Bal, N., (2021c). A contribution to the knowledge of Cerambycidae and Chrysomelidae in Turkey (Coleoptera: Cerambycoidea and Chrysomeloidea). *Munis Entomology & Zoology*, 16 (1): 201-208.

- Özdikmen, H., Bal, N., Amutkan Mutlu, D., Suludere, Z., (2022). Comparative Ultrastructural Analysis to Seven Subgenera of *Cassida* Linnaeus, 1758 (Coleoptera: Chrysomelidae: Cassidinae) Based on Aedeagus of the Type Species & Its Taxonomic Significance. Transactions of the American Entomological Society , vol.148, no.1, 65-112.
- Özgen, İ., Tok, S., (2009). A new pistachio pest: *Labidostomis longimana* (Linnaeus, 1758) (Coleoptera: Chrysomelidae). Harran University, Journal of Faculty of Agriculture, 13, 1:13–16.
- Özgen, İ., Gültekin, N., Yücekaya, R. and A. Topdemir, 2018. Observations on important onion (*Allium cepa* L.) pest : *Exosoma thoracicum* (Coleoptera: Chrysomelidae) Redtenbacher, 1843). International Journal of Innovative Engineering Applications 2, 1 (2018), 27-28.
- Özger, Ş., Bayındır, A., Karaca, İ., (2011). Önemli Bir Karaağaç Zararlısı: *Xanthogaleruca luteola* (Müller, 1766) (Coleoptera: Chrysomelidae). Süleyman Demirel Üniversitesi Orman Fakültesi, Türkiye 1. Orman Entomolojisi ve Patolojisi Sempozyumu, Denizli, 283.
- Regalin, R., (2002). New distributional data on some Clytrinae from near and middle east (Coleoptera). Bollettino di Zoologia Agraria e di Bachicoltura 34;2:219–225.
- Riley, C.V., (1883). Report of the entomologist. In: Report of the Commissioner of Agriculture for the Year 1883. Washington, DC, USA: Government Printing Office, 159-170.
- Sahlberg, J., (1913). Coleoptera Mediterranea Orientalia, Quae in Aegypto, Palaestina, Syria, Caramania atque in Anatolia Occidentali anno 1904. Öfversigt af Finska Vätenskaps–Societetens Förhandlingar. 55 A;19:1–281.
- Sassi D, Kısmalı Ş., (2000). The Cryptocephalinae of Turkey, with informations on their distribution & ecology (Coleoptera; Chrysomelidae). Memorie della Societa Entomologica Italiana 78;1:71–129.
- Saygılı, E., (2019). Investigations on the Infestation Rate and Population Fluctuation of *Aulacophora foveicollis* (Lucas) (Coleoptera: Chrysomelidae) in Melon Plant Areas in Çeşme (İzmir) District. Ege University, Institute of Science and Technology, Master Thesis, İzmir, p.44.
- Sert, O., Kabalak, M., (2013). A Preliminary Study on Determination of Insect Fauna of İnkümu and Its Surrounding Area Bartın Turkey. Hacettepe Journal of Biology and Chemistry, vol.41, 59-65.
- Soycan, P., Gözüaçık, C., Gültekin, L., (2017). Some Bio-Ecological Properties of Elm Leaf Beetle, *Xanthogaleruca luteola* (Müller 1766) (Coleoptera: Chrysomelidae), on Elm (*Ulmus minor* Gled.) in Iğdır Province. Journal of Agriculture, 2(2), 69-79, 2019.
- Şen, İ., Gök, A., (2009). Leaf beetle communities (Coleoptera: Chrysomelidae) of two mixed forest ecosystems dominated by pine-oak-hawthorn in Isparta province, Turkey. Annales Zoologici Fennici, 46, 217-232.
- Şen, İ., Gök, A., (2014). Leaf beetle Coleoptera Chrysomelidae communities of Kovada Lake and Kızıldağ national parks Isparta Turkey assessing the effects of habitat types. Entomological Research, 44(3), 176-190. Doi: 10.1111/1748-5967.12064.
- Tolga, M. F., Yoldaş, Z., (2020). Coleoptera Species Determined in Almond Orchards in Muğla and Manisa Provinces of Turkey and Species Feed on Almond. COMU J. Agric. Fac., 8 (2): 443–453. doi: 10.33202/comuagri.739603
- Tomov, V., (1984). Cryptocephalinae and Galerucinae from Turkey (Coleoptera, Chrysomelidae). Fragmenta Entomologica 17;2:373–378.
- Tomov, V., Gruev, B., (1975). Chrysomelidae (Coleoptera) collected by K. M. Guichard in Turkey, Greece & Yugoslavia. Travaux Scientifiques Universite de Plovdiv Biologie 13 (4): 133-151.
- Tosun, O., Yaman, M., Aydın, Ç., (2008). Parasites of *Phyllotreta atra* (Fabricius, 1775) (Coleoptera: Chrysomelidae) in Trabzon. Turkish Journal of Parasitology, 32(2), 153 – 157.
- Turanlı, F., Kaya F., Kısmalı, Ş., (2002). The faunistical studies on the subfamilies Criocerinae ena Cryptocephalinae (Coleoptera: Chrysomelidae) species in Aegean Region. Turkish Journal of Entomology, 26(4), 301-316.

- Turantepe, E., (2017). Leaf Beetle (Coleoptera: Chrysomelidae) Fauna of Hatila Valley National Park (Artvin). Süleyman Demirel University Graduate School of Natural and Applied Sciences Department of Biology, M.Sc. Thesis, Isparta. (In Turkish).
- Ünal, E., (2021). Chrysomelidae (Coleoptera) Fauna of Gediz Extensions of Murat Mountain (Kütahya-Uşak). Süleyman Demirel University Graduate School of Natural and Applied Sciences Department of Biology, M.Sc. Thesis, Isparta. (In Turkish).
- Warchałowski, A., (1985). Revision der Gattung *Labidostomis* Germar, 1824 (Coleoptera, Chrysomelidae, Clytrinae). *Polskie Pismo Entomologiczne*, 55:621–765.
- Warchałowski, A., (2003). Chrysomelidae: the leaf beetles of Europe & the mediterranean Area. Warszawa: Natura optima dux Foundation; 600 p.
- Warchałowski, A., (2010). The Palaearctic Chrysomelidae. Warszawa: Natura optima dux Foundation, 2, 629 - 1212.
- Weise, J., (1884). Einige neue Chrysomeliden und Coccinelliden. *Deutsche Entomologische Zeitschrift*, 28:161–166.
- Weise, J., (1898). Ueber neue und bekannte Chrysomeliden. *Archiv für Naturgeschichte* 64:177–224.
- Weise, J., (1900). Beschreibungen von Chrysomeliden und synonymische Bemerkungen. *Archiv für Naturgeschichte* 66;1:267–296.