

Contribution to the Knowledge of Curculionidae (Coleoptera) Species Feed on Wild Plants in the North East Anatolia Region

Murat GUVEN^{1*} Celalettin GOZUACIK¹ Levent GULTEKIN² 

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

² Biodiversity Application and Research Center, Atatürk University, 25240 Erzurum, Turkey

Correspondence

¹ Iğdır University, Faculty of Agriculture, Department of Plant Protection, 76000, Iğdır, Turkey
Email: murat.guven746@gmail.com

* This study is partly based on Murat GUVEN's Master's thesis.

Abstract

This study was carried out in Ağrı, Ardahan, Erzurum, Iğdır, Kars and Van provinces in Eastern Anatolia Region to determine the species of weevil (Coleoptera: Curculionidae) on weeds in agricultural and non-agricultural areas in 2016, as well as in 2021, 2022 and 2023. Surveys have been made 2-weeks apart intervals between march and november to determine the weevils. During the studies, the whole plants (root, stem, leaf and generative organs) have been examined. As a result of the research, 23 species belonging to 8 genera of the family Curculionidae feeding on weeds have been identified. Information about the locality of the species, their host plants, their distribution in The World and Turkey was given. Among these species, *Lixus cardui* Olivier, 1807 and *Larinus latus* (Herbst, 1783) had been to be more encounter than other species. Also, *Chlorophanus vittatus* Schoenherr, 1832 was determined to be a new record for Turkey.

Keywords: Curculionidae species, Wilds plants, Fauna, North East Anatolia, Turkey

INTRODUCTION

The rich geographical characteristics of our country are due to the fact that it is located at the junction of three important biogeographical areas, namely Mediterranean, Euro-Siberian and Irano-Turanian regions. As such, it is a very rich place in terms of biodiversity. The Serhat cities in the easternmost part of the province are also locations on important migration and transit routes, having the same characteristics. The favourable climate was reflected on the flora and contributed to the enrichment of the fauna. The rich vegetation has provided habitat for many living things. This has enabled many researchers to work on different orders and families.

The superfamily Curculionoidea is the order Coleoptera and at the same time the richest group of the animal kingdom, represented by approximately 62,000 described species worldwide (Oberprieler et al., 2007).

The Curculionidae (Coleoptera) fauna of Turkey is very rich and (Fairmaire, 1866; Gadeau de Kerville, 1939; Lodos, 1960; Voss, 1962; Hoffman, 1964; Osella and Lodos, 1979 a, b; Bajtenov and Lodos, 1980; Korotyaev et al., 2002; Gültekin, 2004) are of great importance.

When the researches related to the superfamily Curculionoidea in our country are evaluated, approximately 400 species have been identified in Western Anatolia by Lodos et al., (1978; 1983; 1989). Recently, these data have been contributed significantly. Domestic and foreign scientists who have identified and named a large number of new data in our country (Korotyaev et. al., 2002; Korotyaev and Gültekin, 1999; Gültekin, 2005a; 2006a; 2006b; Dorofeyev et al., 2004; Gültekin and Colonnelli, 2006; Gültekin, 2008a; Gültekin and Davidian, 2006; 2007; Gültekin et al., 2008), some species communities and their ecological descriptions (Gültekin et al., 2003; 2004; Korotyaev and Gültekin, 2003; Gültekin and Korotyaev, 2005; Gültekin, 2004a; 2005b; 2005c; 2006b; 2006c; 2007), informing about their geographical distribution (Korotyaev and Gültekin, 2002; Gültekin, 2008b; Sert and Çağatay, 1994; Özbek et al., 2007; Korotyaev et al., 2004), some rare plant species and the insect

groups that feed on them (Dorofeyev et al., 2005) and publications on groups to be used in some biological control of weeds (Gültekin, 2006a) are quite remarkable.

This study was conducted the first time for Ağrı, Ardahan, Erzurum, Iğdır, Kars and Van of Northeast Anatolia. In this study, the distribution and host plants of Curculionidae family species in the region were tried to be revealed.

MATERIALS and METHODS

The study was carried out 2-weeks apart intervals in 69 localities in agricultural and non-agricultural areas in 6 different locations (Ağrı, Ardahan, Erzurum, Iğdır, Kars and Van) in Eastern Anatolia. During the studies, sweep net, mouth aspirator, polythene bags and ethyl acetate have been used. The whole plants (root, stem, leaf and generative organs) were examined in the sampling. The phenological period of each plant where the species were detected, the part of the plant where the insect fed and the location of the plant were recorded with GPS. The locations of the provinces where the investigate was conducted were shown using ArcMap 10.5 map programme.

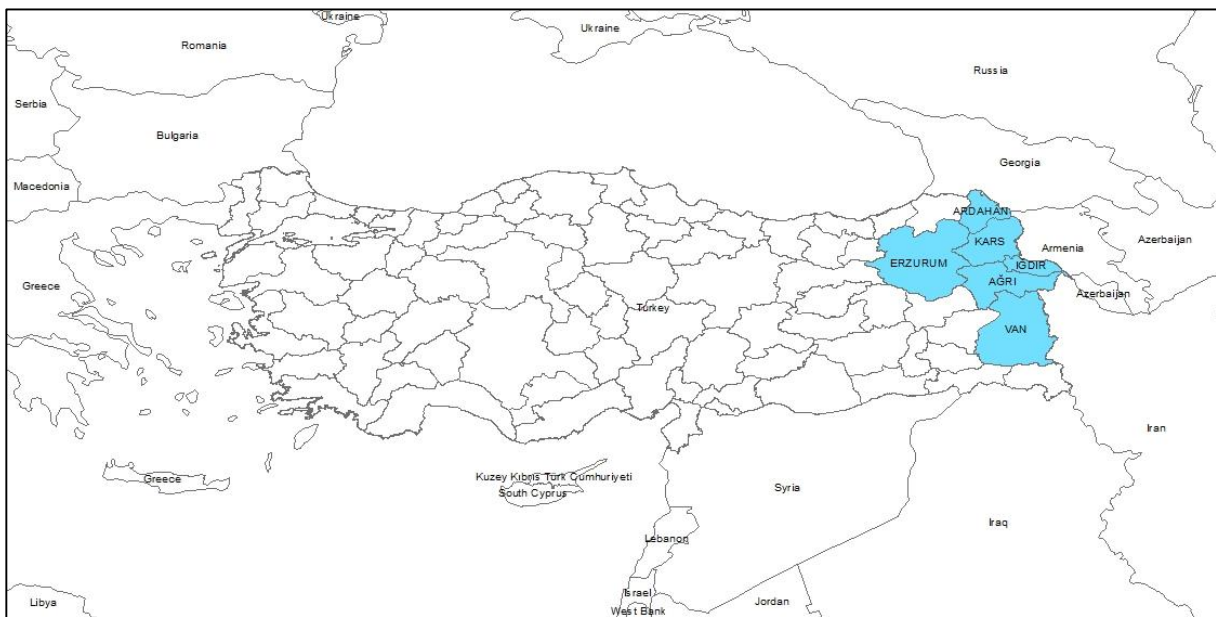


Figure 1: Places where the study was carried out on the map of Turkey

After preparation and pinning, the labelled adult beetles were identified to species level and the localities, host plants, distribution in Turkey and The World of each species were given in alphabetical order. Identification of the species was made by the third author.

RESULTS and DISCUSSION

In Eastern Anatolia, 23 species belonging to 8 genera were identified in 69 localities in agricultural and non-agricultural areas in 6 different provinces (Ağrı, Ardahan, Erzurum, Iğdır, Kars and Van). The locality and distribution of these species are explained below in order.

Genus *Chlorophanus* C. R. Sahlberg, 1823

Chlorophanus vittatus Schoenherr, 1832

Material examined: TR-Iğdır: Aralık, Gödekli, Aras, 39° 50' 09" N / 44° 35' 03" E, 806 m, 26.05.2016, 2 specimens. TR-Kars: Kağızman, Çayırarası, 40° 3' 49" N / 42° 47' 13" E, 1351 m, 13.06.2016, 1 specimen.

Distribution in Turkey: It is new record for Turkey.

Distribution in world: Europe: Russia: South European Territory **Asia:** Azerbaijan, Armenia, Georgia, Iran (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Tamarix* sp. between may and june. *Tamarix* sp. is the first host plant record. The host was identified *Populus* (Bolov and Bolov 1997).

Genus *Epiphanops* Reitter, 1895

Epiphanops persicus (Chevrolat, 1880)

Material examined: TR-Van: Dereüstü, 38° 34' 24" N / 43° 28' 48" E, 1860 m, 15.06.2016, 2 specimens; Özalp, Aşağı Mollahasan, 38° 39' 33" N / 43° 54' 25" E, 1980 m, 15.06.2016, 4 specimens.

Distribution in Turkey: Erzurum (Gültekin et al., 2008). It is new record for Van province.

Distribution in world: Asia: Armenia, Georgia, Iran, Turkey (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the flowers of *Centaurea solstitialis* L. in June. The host was identified *Centaurea solstitialis* L. (Gültekin et al., 2008).

Genus *Hypera* Germar 1817

Hypera postica (Gyllenhal, 1813)

Material examined: TR-Iğdır: Melekli, 39° 58' 08" N / 44° 08' 37" E, 848 m, 25.05.2016, 1 specimen; Aralık, Gödekli, Aras, 806 m, 26.05.2016, 1 specimen; Karahacılı, 39° 54' 33" N / 44° 22' 48" E, 826 m, 13.05.2022, 3 specimens; Karakuyu, 39° 51' 21" N / 44° 03' 22" E, 861 m, 18.06.2022, 5 specimens; Sariçoban, 40° 00' 50" N / 44° 00' 23" E, 867 m, 23.04.2022, 5 specimens; Hakmehmet, 39° 59' 42" N / 43° 58' 23" E, 872 m, 23.04.2022, 3 specimens. TR-Ağrı: Taşlıçay, 39° 37' 56" N / 43° 24' 11" E, 1798 m, 02.07.2022, 4 specimens. TR-Kars: Kağızman, 40° 09' 46" N / 43° 05' 59" E, 1188 m, 29.06.2022, 3 specimens.

Distribution in Turkey: Adana, Antalya, Gaziantep, Hatay, Iğdır, Kahramanmaraş, Mersin, Osmaniye (Lodos et al., 2003; İreç, 2017). It is new record for Ağrı and Kars provinces.

Distribution in world: Europe: Albania, Austria, Azores, Belgium, Bosnia-Herzegovina, Bulgaria, Belarus, Croatia, Russia: Central European Territory, Czech Republic, Denmark, Estonia, Finland, France (incl. Corse, Monaco), France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Kazakhstan (west of Ural River), Latvia, Liechstentein, Lithuania, Luxembourg, Malta, Macedonia (North), Moldavia, Montenegro, The Netherlands, Norway, Russia: Nort European Territory, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain (incl. Gibraltar), Russia: South European Territory, Sweden, Switzerland, Turkey, Ukraine. **North Africa:** Algeria, Canary Islands, Egypt, Libya, Morocco (incl. Western Sahara), Madeira Archipelago, Tunisia. **Asia:** Azerbaijan, Afghanistan, Armenia, Cyprus, Georgia, Iran, Iraq, Israel, Jiangsu (Kiangsu), Kyrgyzstan, Kazakhstan (east of Ural River), Mongolia, South Korea, Saudi Arabia, Syria, Tajikistan, Turkmenistan, Turkey, Uzbekistan, Xinjiang (Sinkiang), Australian Region, **Nearctic Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Cirsium* sp. between april and july. *Cirsium* sp. is the first host plant record. The host was identified alfalfa (Fabaceae) (Rheinheimer and Hassler, 2010; İreç, 2017).

Genus *Larinus* Dejean, 1821

Larinus carlinae Olivier, 1807

Material examined: TR-Ardahan: Damal, 41° 21' 20" N / 42° 49' 19" E, 2023 m, 17.07.2016, 4 specimens; Damal, 41° 21' 41" N / 42° 49' 14" E, 2043 m, 24.08.2022, 1 specimen.

Distribution in Turkey: Artvin, Düzce, Eskişehir, Kastamonu, Samsun (Sert, 1995; Lodos et al., 2003; Pehlivan et al., 2005). It is new record for Ardahan province.

Distribution in world: Europe: Albania, Belgium, Bulgaria, Croatia, Russia: Central European Territory, Czech Republic, Denmark, Estonia, Finland, France (incl. Corse, Monaco), Great Britain (incl. Channel Is.), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Latvia, Lithuania, Luxembourg, Moldavia, Montenegro, The Netherlands, Norway, Russia: North European Territory, Poland, Portugal, Serbia, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Sweden, Switzerland, Ukraine. **North Africa:** Algeria, Morocco (incl. Western Sahara), Tunisia. **Asia:** Azerbaijan, Armenia, Cyprus, Georgia, Kyrgyzstan, Kazakhstan (east of Ural River), Turkey, Russia: Western Siberia, Xinjiang (Sinkiang), **Nearctic Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Onopordum* sp., between July and August. *Onopordum* sp. is the first host plant record. The host was identified *Euphorbia* sp. (Pehlivan et al., 2005).

Larinus curtus Hochhuth, 1851

Material examined: TR-Iğdır: Tuzluca, 40° 4' 9" N / 43° 39' 46" E, 1040 m, 17.8.2016, 3 specimens; Eğrekdere, 39° 59' 0" N / 43° 38' 58" E, 1477 m, 27.5.2016, 2 specimens; Eğrekdere, 39° 58' 57" N / 43° 38' 58" E, 1481 m, 07.09.2022, 2 specimens.

Distribution in Turkey: Adana, Ankara, Antalya, Aydın, Bingöl, Çorum, Gaziantep, İzmir, Kahramanmaraş, Kayseri, Kilis, Mersin, Niğde, Osmaniye, Sivas (Lodos et al., 2003; Pehlivan et al., 2005). It is new record for Iğdır province.

Distribution in world: Europe: Bulgaria, Croatia, Greece (incl. Kríti), Italy (incl. Sardegna, Sicilia, San Marino), Montenegro, Serbia, Russia: South European Territory, Ukraine. **Asia:** Azerbaijan, Armenia, Georgia, Iran, Israel, Syria, Turkey, **Nearctic Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaves of *Centaurea solstitialis* L. between May and September. *Centaurea solstitialis* L. is the first host record. The host was identified *Cirsium* sp. and *Oryza sativa* L. (Pehlivan et al., 2005).

Larinus iaceae (Fabricius, 1775)

Material examined: TR-Iğdır: Tuzluca, 40° 4' 9" N / 43° 39' 46" E, 1040 m, 17.8.2016, 1 specimen.

Distribution in Turkey: Adana, Afyonkarahisar, Ankara, Antalya, Bilecik, Burdur, Erzurum, Gaziantep, Gümüşhane, Hatay, Isparta, Mersin, Osmaniye (Lodos et al., 1978; 1989; Pehlivan et al., 2005). It is new record for Iğdır province.

Distribution in world: Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Russia: Central European Territory, Czech Republic, Estonia, France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Latvia, Liechtenstein, Luxembourg, Macedonia (North), Moldavia, Montenegro, The Netherlands, Russia: North European Territory, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain (incl. Gibraltar), Russia: South European Territory, Switzerland, Ukraine. **North Africa:** Algeria. **Asia:** Azerbaijan, Armenia, Russia: East

Siberia, Georgia, Iran, Israel Kyrgyzstan, Kazakhstan (east of Ural River), Sichuan (Szechwan), China: Southwestern Territory, Tajikistan, Turkmenistan, Turkey, Uzbekistan, Russia: Western Siberia (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Carduus nigrecens* Vill. in august. *C. nigrecens* Vill. is the first host record. The host was identified *Carduus nigrecens* Vill., collected on *Centaurea scabiosa*, *Carduus nutans*, *Cirsium palustre*, *C. oleraceum*, *C. canum*, *C. arvense* ve *C. lanceolatum* (Scherf, 1964).

Larinus inaequalicollis Capiomont, 1874

Material examined: TR-Iğdır: Güngörmez, 39° 48' 21" N / 43° 45' 28" E, 2096 m, 24.5.2016, 6 specimens; Güngörmez, 39° 48' 23" N / 43° 45' 28" E, 2074 m, 21.06.2022, 2 specimens.

Distribution in Turkey: Ankara, Bitlis, Hakkâri, Kars (Gültekin and Podlussany, 2012). It is new record for Iğdır province.

Distribution in world: Europe: Moldavia, Russia: South European Territory, Ukraine. **Asia:** Azerbaijan, Armenia, Georgia, Iran, Israel, Kazakhstan (east of Ural River), Syria, Tajikistan, Turkey, Uzbekistan (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem, leaf and flower of *Echinops orientalis* Trauv. between may and june. The host was identified *E. orientalis* Trauv. (Korotyayev et al., 2016).

Larinus latus (Herbst, 1783)

Material examined: TR-Iğdır: Çili, 39° 45' 46" N / 44° 2' 43" E, 1790 m, 22.6.2016, 1 specimen; Elmagöl, 39° 45' 36" N / 44° 8' 34" E, 1563 m, 18.6.2016, 1 specimen; Tuzluca, 40° 4' 12" N / 43° 39' 47" E, 1046 m, 12.6.2016, 1 specimen; Küçükova, 40° 1' 25" N / 43° 44' 55" E, 1163 m, 24.5.2016, 1 specimen; Küçükova, 39° 58' 09" N / 43° 41' 36" E, 1491 m, 15.05.2022, 1 specimen; Küçükova, 39° 58' 09" N / 43° 41' 36" E, 1491 m, 02.09.2022, 2 specimens. TR-Kars: Kümbetli, 40° 32' 31" N / 43° 0' 48" E, 1759 m, 17.07.2016, 3 specimens; Arpaçay, Yalınçayır, 40° 48' 12" N / 43° 18' 58" E, 1707 m, 17.06.2016, 1 specimen.

Distribution in Turkey: Ankara, Aydın, Çankırı, Denizli, Eskişehir, Iğdır, İzmir, Karaman, Kayseri, Kırşehir, Konya, Sivas, Yozgat (Lodos et al., 1978; Sert, 1995; Gültekin, 2008b). It is new record for Kars province.

Distribution in world: Europe: Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Moldavia, Montenegro, Romania, Serbia, Slovakia, Slovenia, Russia: South European Territory, Turkey, Ukraine. **Asia:** Azerbaijan, Armenia, Cyprus, Russia: East Siberia, Georgia, Iran, Israel, Syria, Turkey, Russia: Western Siberia, **Australian Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem, leaf and flower of *Onopordum acanthium* L. between may and june. *O. acanthium* L. is the first host record. The host was identified *Onopordum bracteatum* Boiss. (Gültekin et al., 2000).

Larinus minutus Gyllenhal, 1835

Material examined: TR-Iğdır: Tuzluca, 40° 4' 12" N / 43° 39' 47" E, 1046 m, 12.6.2016, 2 specimens.

Distribution in Turkey: Adana, Adıyaman, Ağrı, Ankara, Antalya, Balıkesir, Bitlis, Burdur, Çanakkale, Çorum, Diyarbakır, Edirne, Eskişehir, Gaziantep, Hakkâri, Hatay, Isparta, İzmir, Kahramanmaraş, Karaman, Kayseri, Kırklareli, Kırşehir, Kilis, Malatya, Mardin, Mersin, Muğla, Niğde, Osmaniye, Siirt, Sivas, Şanlıurfa, Van, Yozgat (Lodos et al., 1978; Sert, 1995; Lodos et al., 2003; Pehlivan et al., 2005). It is new record for Iğdır province.

Distribution in world: Europe: Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Greece (incl. Kríti), Hungary, Macedonia (North), Moldavia, Montenegro, Romania, Serbia, Slovakia, Slovenia, Russia: South European Territory, Sweden, Turkey, Ukraine. **Asia:** Azerbaijan, Armenia, Georgia, Iran, Israel, Jordan, Lebanon, Kazakhstan (east of Ural River), Syria, Turkey, **Nearctic Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Carduus nutans* L. in june. *C. nutans* L. is the first host record. The host was identified *Prunus domestica*, *Cirsium* sp., *Medicago sativa*, *Quercus* sp., *Onobrychis sativa* Lam. and *Carthamus tinctorius* (Pehlivan et al., 2005).

Larinus onopordi (Fabricius, 1787)

Material examined: TR-Iğdır: Tuzluca, Küçükova, 39° 58' 21" N / 43° 41' 46" E, 1481 m, 12.6.2016, 3 specimens; 39° 58' 22" N / 43° 41' 47" E, 1469 m, 24.5.2016, 3 specimens; Küçükova, 39° 58' 29" N / 43° 41' 54" E, 1457 m, 20.05.2022, 2 specimens. TR-Ağrı: Tutak, Dereköy, 39° 35' 7" N / 42° 54' 50" E, 1596 m, 14.06.2016, 6 specimens; Tutak, Dereköy, 39° 34' 57" N / 42° 54' 47" E, 1591 m, 02.07.2022, 2 specimens. TR-Van: Çakırbey, 38° 54' 11" N / 43° 33' 56" E, 1667 m, 14.06.2016, 4 specimens.

Distribution in Turkey: Adana, Adıyaman, Afyonkarahisar, Artvin, Aydın, Balıkesir, Bingöl, Bitlis, Burdur, Bursa, Çanakkale, Diyarbakır, Edirne, Elâzığ, Erzincan, Erzurum, Gaziantep, Hatay, Iğdır, Isparta, İzmir, Kars, Kırıkkale, Kırklareli, Kilis, Malatya, Manisa, Nevşehir, Osmaniye, Sivas, Şanlıurfa (Gültekin, 2006c; Lodos et al., 1978). It is new record for Ağrı and Van provinces.

Distribution in world: Europe: Bosnia-Herzegovina, Bulgaria, France (incl. Corse, Monaco), Greece (incl. Kríti), Italy (incl. Sardegna, Sicilia, San Marino), Montenegro, Portugal, Serbia, Russia: South European Territory, Ukraine. **North Africa:** Algeria, Egypt, Libya, Morocco (incl. Western Sahara), Tunisia. **Asia:** Azerbaijan, Armenia, Cyprus, Georgia, Iran, Israel, Jordan, Kazakhstan (east of Ural River), Lebanon, Saudi Arabia, Syria, Tajikistan, Turkmenistan, Turkey, Uzbekistan, **Afrotropical Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem, leaf and flower of *Echinops pungens* between may and june. *E. pungens* is the first host plant record. The host was identified *Echinops sphaerocephalus* L. (Gültekin, 2006).

Larinus sturnus (Schaller, 1783)

Material examined: TR-Ardahan: Tepeler, 41° 2' 3" N / 42° 34' 24" E, 2058 m, 17.07.2016, 2 specimens.

Distribution in Turkey: Artvin, Çankırı, Isparta, İzmir, Kars, Konya (Lodos et al., 1978; Sert, 1995; Pehlivan et al., 2005). It is new record for Ardahan province.

Distribution in world: Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Russia: Central European Territory, Czech Republic, Estonia, Finland, France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Latvia, Liechstentein, Lithuania, Luxembourg, Macedonia (North), Moldavia, Montenegro, The Netherlands,

Russia: Nort European Territory, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain (incl. Gibraltar), Russia: South European Territory, Sweden, Switzerland, Ukraine. **North Africa:** Algeria, Egypt, Morocco (incl. Western Sahara), Tunisia. **Asia:** Azerbaijan, Armenia, Georgia, Iran, Lebanon, Turkey, Russia: Western Siberia (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Onopordum* sp. in july. *Onopordum* sp. is the first host record. The host was identified *Medicago Sativa* and *Centaurea* sp. (Pehlivan et al., 2005).

Larinus syriacus Gyllenhal, 1835

Material examined: TR-Iğdır: Karakoyunlu, Gökçeli, 39° 59' 13" N / 44° 10' 22" E, 851 m, 19.6.2016, 3 specimens; Gökçeli, 39° 59' 15" N / 44° 10' 24" E, 850 m, 23.04.2022, 2 specimens; Gökçeli, 39° 59' 55" N / 44° 11' 00" E, 845 m, 26.04.2023, 4 specimens; Tuzluca, Pirli, 40° 1' 31" N / 43° 44' 56" E, 1160 m, 24.05.2016, 6 specimens; Pirli, 40° 00' 09" N / 43° 43' 52" E, 1269 m, 15.05.2022, 5 specimens; Pirli, 40° 1' 10" N / 43° 44' 42" E, 1133 m, 26.04.2023, 5 specimens; Karabulak, 39° 58' 57" N / 43° 42' 43" E, 1378 m, 20.06.2021, 4 specimens.

Distribution in Turkey: Antalya, Denizli, Hatay, İzmir, Manisa, Osmaniye (Pehlivan et al., 2005; Lodos et al., 2003). It is new record for Iğdır province.

Distribution in world: Europe: Albania, Bulgaria, Croatia, Greece (incl. Kríti), Hungary, Macedonia (North), Montenegro, Romania, Serbia, Russia: South European Territory, Ukraine. **Asia:** Azerbaijan, Armenia, Cyprus, Georgia, Iran, Israel, Jordan, Kazakhstan (east of Ural River), Lebanon, Pakistan, Syria, Tajikistan, Turkey, Uzbekistan (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf and flower of *Carthamus persicus* Willd. between april and june. *C. persicus* Willd. is the first host record. The host was identified *Carthamus lanatus* L. and *Carthamus dentatus* (Forsk.) Val. (Campobasso et al., 1999).

Larinus turbinatus Gyllenhal, 1835

Material examined: TR-Iğdır: Tuzluca, İnce, 39° 56' 27" N / 43° 40' 0" E, 1706 m, 15.7.2016, 2 specimens; Üçkaya, 39° 58' 14" N / 43° 39' 21" E, 1474 m, 17.8.2016, 34 specimens. TR-Ardahan: Tepeler, 41° 2' 3" N / 42° 34' 24" E, 2058 m, 17.06.2016, 2 specimens; Damal, 41° 21' 20" N / 42° 49' 19" E, 2023 m, 17.06.2016, 10 specimens; Damal, Seyitören, 41° 23' 22" N / 42° 47' 57" E, 2068 m, 24.08.2022, 2 specimens.

Distribution in Turkey: Afyon, Artvin, Balıkesir, Bayburt, Bingöl, Bitlis, Burdur, Diyarbakır, Hakkâri, Iğdır, Mardin, Van (Lodos et al., 1978; Pehlivan et al., 2005). It is new record for Ardahan province.

Distribution in world: Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Belarus, Croatia, Russia: Central European Territory, Czech Republic, Estonia, France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Lithuania, Luxembourg, Macedonia (North), Moldavia, Montenegro, The Netherlands, Russia: Nort European Territory, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain (incl. Gibraltar), Russia: South European Territory, Switzerland, Ukraine. **North Africa:** Madeira Archipelago. **Asia:** Azerbaijan, Armenia, Russia: East Siberia, Georgia, Iran, Israel, Jordan, Kyrgyzstan, Kazakhstan (east of Ural River), China: Northwest Territory, Turkey, Russia: Western Siberia, Nearctic Region (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf and flower of *Cirsium arvense* (L.) Scop. and *Carduus nutans* L. subsp. *nutans* from june to august. *Carduus nutans* L. subsp. *nutans* is the first host record. The host was identified *Cirsium arvense* (L.) Scop. (Bolu, 2016).

Genus *Lixus* Fabricius, 1801

Lixus cardui Olivier, 1807

Material examined: TR-Iğdır: Çili, 39° 45' 46" N / 44° 2' 43" E, 1790 m, 22.6.2016, 2 specimens; Elmagöl, 39° 45' 36" N / 44° 8' 34" E, 1563 m, 18.6.2016, 2 specimens; Kuzugüden, 39° 58' 36" N / 43° 58' 51" E, 884 m, 25.5.2016, 10 specimens; Melekli, 39° 58' 8" N / 44° 8' 37" E, 848 m, 25.5.2016, 3 specimens; Sarıçoban, 40° 0' 49" N / 44° 0' 23" E, 854 m, 25.5.2016, 8 specimens; Sarıçoban, 40° 0' 49" N / 44° 0' 23" E, 854 m, 02.09.2022, 3 specimens; Taşlıca, 39° 45' 46" N / 44° 2' 43" E, 1633 m, 24.6.2016, 3 specimens; Aralık, Aşağı Çiftlik, 39° 51' 19" N / 44° 34' 27" E, 813 m, 26.04.2023, 13 specimens; Aralık, Karahacılı, 39° 54' 35" N / 44° 24' 1" E, 835 m, 26.5.2016, 9 specimens; Karasu, 39° 52' 1" N / 44° 32' 14" E, 828 m, 26.5.2016, 2 specimens; Karasu, 39° 52' 1" N / 44° 32' 14" E, 828 m, 02.09.2022, 4 specimens; Karakoyunlu, Gökçeli, 39° 59' 38" N / 44° 10' 53" E, 850 m, 25.5.2016, 6 specimens; Taşburun, 39° 59' 4" N / 44° 13' 18" E, 840 m, 26.5.2016, 13 specimens; Tuzluca, 40° 4' 12" N / 43° 39' 47" E, 1046 m, 12.6.2016, 8 specimens; Eğrekdere, 39° 59' 0" N / 43° 38' 58" E, 1477 m, 27.5.2016, 6 specimens; Eğrekdere, 39° 59' 0" N / 43° 38' 58" E, 1477 m, 02.09.2022, 4 specimens; Küçükova, 39° 58' 22" N / 43° 41' 47" E, 1469 m, 24.5.2016, 8 specimens; Halfeli, Urban Forest, 39° 53' 31" N / 43° 58' 24" E, 893 m, 21.05.2021, 1 specimen. TR-Kars: Arpaçay, Yalınçayır, 40° 48' 12" N / 43° 18' 58" E, 1707 m, 17.07.2016, 6 specimens; Yalınçayır, 40° 49' 37" N / 43° 19' 13" E, 1696 m, 24.08.2022, 2 specimens. TR-Ağrı: Merkez, 39° 44' 20" N / 42° 57' 39" E, 1651 m, 14.06.2016, 4 specimens; Yolugüzel, 39° 43' 56" N / 42° 58' 25" E, 1633 m, 23.08.2022, 4 specimens. TR-Erzurum: Horasan, 40° 5' 1" N / 42° 17' 32" E, 1530 m, 13.06.2016, 1 specimen.

Distribution in Turkey: Ankara, Aydın, Balıkesir, Bilecik, Burdur, Bursa, Çanakkale, Çankırı, Denizli, Edirne, Erzurum, Eskişehir, Iğdır, Isparta, İzmir, Karaman, Kayseri, Kırklareli, Kırşehir, Konya, Kütahya, Manisa, Muğla, Sakarya, Uşak, Yozgat (Lodos et al., 1978; Sert, 1995; Pehlivan et al., 2005). It is new record for Ağrı and Kars provinces.

Distribution in world: Europe: Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, France (incl. Corse, Monaco), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Moldavia, Poland, Portugal, Romania, Serbia, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Turkey, Ukraine. **North Africa:** Algeria, Morocco (incl. Western Sahara), Tunisia. **Asia:** Azerbaijan, Armenia, Cyprus, Georgia, Iran, Israel, Jordan, Kyrgyzstan, Kazakhstan (east of Ural River), Lebanon, Syria, Turkey, Uzbekistan, Russia: Western Siberia, Australian Region (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem and leaf of *Onopordum acanthium* L. from april to september. *O. acanthium* L. is the first host record. The host was identified *Onopordum bracteatum* Boiss. (Gültekin, 2007).

Lixus fasciculatus Boheman, 1836

Material examined: TR-Erzurum: Pasinler, 39° 58' 40" N / 41° 37' 50" E, 1668 m, 13.06.2016, 5 specimens.

Distribution in Turkey: Erzurum, Kars (Gültekin, 2007).

Distribution in world: Europe: Austria, Russia: Central European Territory, Czech Republic, France (incl. Corse, Monaco), Germany, Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Moldavia, Poland, Slovakia, Russia: South European Territory, Switzerland, Ukraine. **Asia:** Afghanistan, China: (cf. list of territorial subdivisions), Russia: East Siberia, Russia: Far East, Iran, Japan, Mongolia, North Korea, South Korea, Turkey, Russia: Western Siberia (Batı Sibirya) (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem and leaf of *Artemisia vulgaris* L. in June. The host was identified *Artemisia vulgaris* L. (Korotyayev and Gültekin, 2003).

Lixus filiformis (Fabricius, 1781)

Material examined: TR-Ağrı: Merkez, 39° 44' 20" N / 42° 57' 39" E, 1651 m, 14.06.2016, 7 specimens; Aşağı Yoldüzü, 39° 48' 40" N / 43° 05' 03" E, 1682 m, 23.08.2022, 1 specimen.

Distribution in Turkey: Ankara, Aydın, Bilecik, Bursa, Denizli, Kayseri, Kırklareli, Kırşehir, Konya, Manisa, Mersin, Uşak (Lodos et al., 1978; Sert, 1995; Erbey, 2010; Gürler, 2014). It is new record for Ağrı province.

Distribution in world: Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Greece (incl. Kriti), Hungary, France (incl. Corse, Monaco), Italy (incl. Sardegna, Sicilia, San Marino), Luxembourg, Macedonia (North), Moldavia, Montenegro, The Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Switzerland, Turkey, Ukraine. **North Africa:** Algeria, Canary Islands, Morocco (incl. Western Sahara), Madeira Archipelago (Madeira), Tunisia. **Asia:** Azerbaijan, Afghanistan, Armenia, Cyprus, Georgia, Iran, Israel, Jordan, Kazakhstan (east of Ural River), Lebanon, Syria, Turkmenistan, Turkey, Russia: Western Siberia (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Carduus nutans* L. between June and August. The host was identified *Carduus nutans* L. and *C. crispus* L. (Gültekin, 2004).

Lixus incanescens Boheman, 1835

Material examined: TR-Erzurum: Horasan, Çamurlu, 40° 5' 1" N / 42° 17' 32" E, 1530 m, 13.06.2016, 3 specimens.

Distribution in Turkey: Ağrı, Bolu, Iğdır, Kayseri, Kırşehir, Mardin, Nevşehir, Sinop, (Lodos et al., 2003; Pehlivan et al., 2005). It is new record for Erzurum province.

Distribution in world: Europe: Russia: Central European Territory, France (incl. Corse, Monaco), Moldavia, Romania, Russia: South European Territory, Ukraine. **Asia:** Azerbaijan, Afghanistan, Armenia, China (cf. list of territorial subdivisions), Cyprus, Georgia, Iran, Iraq, Kyrgyzstan, Kazakhstan (east of Ural River), Mongolia, Russia (cf. ES, FE, WS), Tajikistan, Turkmenistan, Turkey, Uzbekistan (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Cirsium* sp. in June. *Cirsium* sp. is the first host record. The host was identified *Salsola kali* L., *Chenopodium foliosum* Asch., *C. vulvaria* and *Beta vulgaris* L. (Gültekin, 2006b).

Lixus pulverulentus (Scopoli, 1763)

Material examined: TR-Kars: Aras vadisi, 40° 8' 19" N / 42° 42' 23" E, 1384 m, 13.06.2016, 5 specimens.

Distribution in Turkey: Amasya, Aydın, Balıkesir, Bingöl, Bursa, Çanakkale, Diyarbakır, Edirne, Hakkâri, İzmir, Kayseri, Muğla, Osmaniye, Samsun, Siirt, Şırnak (Pehlivan et al., 2005). It is new record for Kars province.

Distribution in world: Europe: Austria, Azores (Terceira), Belgium, Bulgaria, Croatia, Russia: Central European Territory, Czech Republic, France (incl. Corse, Monaco), Great Britain (incl.

Channel Is.), Germany, Greece (incl. Kriti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Luxembourg, Malta, Moldavia, Montenegro, The Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Switzerland, Turkey, Ukraine. **North Africa:** Algeria, Canary Islands, Morocco (incl. Western Sahara), Madeira Archipelago (Madeira), Tunisia. **Asia:** Azerbaijan, Afghanistan, Armenia, Cyprus, Georgia, Iran, Israel, Syria, Tajikistan, Turkmenistan, Turkey, Uzbekistan, Russia: Western Siberia (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Onopordum* sp. in June. The host was identified Polyphagous (Legalov et al., 2010).

Lixus rubicundus Zoubkoff, 1833

Material examined: TR-Kars: Kağızman, 40° 8' 49" N / 43° 4' 38" E, 1192 m, 13.06.2016, 1 specimen.

Distribution in Turkey: Antalya, Artvin, Aydın, Bilecik, Erzurum, İzmir (Pehlivan et al., 2005). It is new record for Kars province.

Distribution in world: Europe: Austria, Bulgaria, Czech Republic, France (incl. Corse, Monaco), Germany, Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Moldavia, Poland, Romania, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Ukraine. **North Africa:** Morocco (incl. Western Sahara). **Asia:** Azerbaijan, Armenia, Georgia, Iran, Israel, Kazakhstan (east of Ural River), Mongolia, Tajikistan, Turkmenistan, Turkey, Russia: Western Siberia (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Onopordum* sp. in June. *Onopordum* sp. is the first host record. The host was identified Chenopodiaceae (Legalov et al., 2010).

Lixus vilis (Rossi, 1790)

Material examined: TR-Ağrı: Tutak, Dereköy, 39° 35' 7" N / 42° 54' 50" E, 1596 m, 14.06.2016, 1 specimen; Dereköy, 39° 34' 57" N / 42° 54' 47" E, 1591 m, 02.07.2022, 1 specimen.

Distribution in Turkey: Afyon, Aksaray, Ankara, Aydın, Balıkesir, Bursa, Çanakkale, Edirne, İzmir, Kırklareli, Kütahya, Manisa, Mardin, Muğla (Lodos et al., 1978; Pehlivan et al., 2005). It is new record for Ağrı province.

Distribution in world: Europe: Austria, Belgium, Bulgaria, Croatia, Czech Republic, France (incl. Corse, Monaco), Great Britain (incl. Channel Is.), Germany, Greece (incl. Kriti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Malta, Moldavia, Portugal, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Turkey, Ukraine. **North Africa:** Algeria, Morocco (incl. Western Sahara). **Asia:** Afghanistan, Armenia, Cyprus, Georgia, Iran, Iraq, Israel, Lebanon, Syria, Turkmenistan, Turkey (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf of *Onopordum* sp. between June and July. *Onopordum* sp. is the first host record. The host was identified *Centaurea* sp., *Malus sylvestris mitis* and *Salix* sp. (Pehlivan et al., 2005).

Genus *Mononychus* Germar, 1824

Mononychus punctumalbum (Herbst, 1784)

Material examined: TR-Iğdır: Aralık, Gödekli, 39° 50' 09" N / 44° 35' 03" E, 806 m, 26.05.2016, 14 specimens; Aralık, Aşağı Çiftlik, 39° 51' 19" N / 44° 34' 30" E, 812 m, 26.05.2016, 23 specimens;

Aşağı Çiftlik, 39° 51' 19" N / 44° 34' 30" E, 812 m, 02.09.2022, 2 specimens. TR-Ağrı: Tutak, Doğangün, 39° 22' 40" N / 42° 45' 10" E, 1671 m, 14.06.2016, 15 specimens. TR-Van: Tabanlı, 38° 45' 27" N / 43° 21' 16" E, 1757 m, 15.06.2016, 15 specimens.

Distribution in Turkey: Erzincan, Erzurum, Hakkâri, Iğdır, Kars, Muş, Niğde, Van, (Mathew 1984; 1988; Güvenç et al., 2005; Gültekin and Korotyaev, 2012). It is new record for Ağrı province.

Distribution in world: Europe: Austria, Belgium, Bulgaria, Belarus, Croatia, Russia: Central European Territory, Czech Republic, Denmark, France (incl. Corse, Monaco), Great Britain (incl. Channel Is.), Germany, Greece (incl. Kríti), Hungary, Italy (incl. Sardegna, Sicilia, San Marino), Latvia, Luxembourg, Moldavia, The Netherlands, Poland, Portugal, Romania, Slovenia, Spain (incl. Gibraltar), Slovakia, Russia: South European Territory, Sweden, Switzerland, Turkey, Ukraine. **Asia:** Azerbaijan, Armenia, Georgia, Iran, Kazakhstan (east of Ural River), Lebanon, Syria, Turkmenistan, Turkey, Uzbekistan (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf and flower of *Iris spuria* L. subsp. *musulmanica* (Fomin) from may to september. *Iris spuria* L. subsp. *musulmanica* (Fomin) is the first host record. The host was identified *Iris dichotoma* Pall., *Iris forrestii* Dykes, *Iris aphylla* L., *Iris longipetala* Herb., *Iris milesii* Baker ex Foster, *Iris pallida* Lam., *Iris sibirica* L. and *Iris sikkimensis* Dykes (Perju et al., 1997).

Genus *Rhinocyllus* Germar, 1817

Rhinocyllus conicus (Froelich, 1792)

Material examined: TR-Iğdır: Tuzluca, Merkez, 40° 4' 9" N / 43° 39' 46" E, 1040 m, 21.07.2016, 1 specimen; İnce, 39° 56' 27" N / 43° 40' 0" E, 1706 m, 15.7.2016, 9 specimens; İnce, 39° 56' 27" N / 43° 39' 57" E, 1695 m, 15.5.2022, 1 specimen; Aliköse, 39° 53' 10" N / 43° 37' 14" E, 1835 m, 15.5.2022, 2 specimens; Üçkaya, 39° 58' 14" N / 43° 39' 21" E, 1474 m, 20.6.2016, 5 specimens.

Distribution in Turkey: Adıyaman, Aydın, Balıkesir, Bursa, Çanakkale, Denizli, Diyarbakır, Düzce, Elâzığ, Gaziantep, Hatay, Isparta, İzmir, Kastamonu, Kırklareli, Manisa, Mardin, Mersin, Muğla, Niğde, Uşak (Lodos et al., 1978; 2003; Pehlivan et al., 2005; Erbey, 2010). It is new record for Iğdır province.

Distribution in world: Europe: Albania, Austria, Belgium, Bulgaria, Croatia, Russia: Central European Territory, Czech Republic, Estonia, Finland, France (incl. Corse, Monaco), Great Britain (incl. Channel Is.), Germany, Greece (incl. Kríti), Hungary, Ireland, Italy (incl. Sardegna, Sicilia, San Marino), Latvia, Lithuania, Luxembourg, The Netherlands, Malta, Macedonia (North), Moldavia, Montenegro, Poland, Portugal, Serbia, Slovakia, Spain (incl. Gibraltar), Russia: South European Territory, Sweden, Switzerland, Turkey, Ukraine. **North Africa:** Algeria, Canary Islands (Tenerife), Egypt, Libya, Morocco (incl. Western Sahara). **Asia:** Azerbaijan, Armenia, Russia: Far East, Georgia, Iran, Israel, Kyrgyzstan, Kazakhstan (east of Ural River), Lebanon, China: Northwest Territory, Tajikistan, Turkey, Russia: Western Siberia, **Afrotropical Region, Nearctic Region** (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the leaf and flower of plant *Carduus nutans* L. subsp. *nutans* and *Cirsium congestum* Fisch. & C. A. Ex DC. between may and july. *Carduus nutans* L. subsp. *nutans* is the first host record. The host was identified *Rosa* sp., *Populus* sp., *Sinapis* sp., *Prunus armeniaca* and *Cirsium* sp. (Pehlivan et al., 2005).

Genus *Thamnurgus* Eichhoff, 1864

Thamnurgus pegani Eggers, 1933

Material examined: TR-Iğdır: Küllük, 40° 1' 46" N / 43° 51' 53" E, 1060 m, 27.5.2016, 29 specimens; The University, Suveren Campus Land, 39° 48' 6" N / 44° 4' 27" E, 1240 m, 23.5.2016, 45 specimens; The University, Suveren Campus Land, 39° 48' 34" N / 44° 04' 43" E, 1144 m, 25.5.2022, 2 specimens; Tuzluca, Pirlı, 40° 1' 29" N / 43° 44' 53" E, 1164 m, 24.5.2016, 78 specimens; Pirlı, 40° 1' 29" N / 43° 44' 53" E, 1164 m, 15.05.2022, 5 specimens; Pirlı, 40° 00' 55" N / 43° 44' 30" E, 1198 m, 26.04.2023, 7 specimens; Iğdır, Urban Forest, 40° 02' 05" N / 43° 50' 12" E, 946 m, 05.06.2021, 4 specimens.

Distribution in Turkey: Iğdır (Güçlü and Özbek, 2007; Mandelshtam et al., 2011; Korotyaev et al., 2016).

Distribution in world: Asia: Azerbaijan, Armenia, Turkmenistan, Turkey (Alonso-Zarazaga et al., 2023).

Remarks: Adults feed on the stem and flower of *Peganum harmala* L. from april to may. The host was identified *Peganum harmala* L. (Güçlü and Özbek, 2007; Mandelshtam et al., 2011; Korotyaev et al., 2016).

CONCLUSION

This study was carried out in agricultural and non-agricultural areas in Ağrı, Ardahan, Erzurum, Iğdır, Kars and Van provinces of Eastern Anatolia. As a result of the surveys, a total of 457 individuals belonging to Curculionidae family were collected. The distribution of species according to provinces in the Eastern Anatolia region is discussed and given in the table 1 below.

Table 1: Distribution of species according to provinces in Eastern Anatolia

Province name	Species name
Ağrı	<i>Hypera postica</i> (Gyllenhal, 1813) <i>Larinus onopordi</i> (Fabricius, 1787) <i>Lixus cardui</i> Olivier, 1807 <i>Lixus filiformis</i> (Fabricius, 1781) <i>Lixus vilis</i> (Rossi, 1790) <i>Mononychus punctumalbum</i> (Herbst, 1784)
Ardahan	<i>Larinus carlinae</i> Olivier, 1807 <i>Larinus sturnus</i> (Schaller, 1783) <i>Larinus turbinatus</i> Gyllenhal, 1835
Erzurum	<i>Lixus cardui</i> Olivier, 1807 <i>Lixus fasciculatus</i> Boheman, 1836 <i>Lixus incanescens</i> Boheman, 1835
Iğdır	<i>Chlorophanus vittatus</i> Schoenherr, 1832 <i>Hypera postica</i> (Gyllenhal, 1813) <i>Larinus curtus</i> Hochhuth, 1851 <i>Larinus iaceae</i> (Fabricius, 1775) <i>Larinus inaequalicollis</i> Capiomont, 1874 <i>Larinus latus</i> (Herbst, 1783) <i>Larinus minutus</i> Gyllenhal, 1835 <i>Larinus onopordi</i> (Fabricius, 1787) <i>Larinus syriacus</i> Gyllenhal, 1835 <i>Larinus turbinatus</i> Gyllenhal, 1835 <i>Lixus cardui</i> Olivier, 1807 <i>Mononychus punctumalbum</i> (Herbst, 1784) <i>Rhinocyllus conicus</i> (Froelich, 1792) <i>Thamnurgus pegani</i> Eggers, 1933
Kars	<i>Chlorophanus vittatus</i> Schoenherr, 1832 <i>Hypera postica</i> (Gyllenhal, 1813) <i>Larinus latus</i> (Herbst, 1783) <i>Lixus cardui</i> Olivier, 1807 <i>Lixus pulverulentus</i> (Scopoli, 1763) <i>Lixus rubicundus</i> Zoubkoff, 1833
Van	<i>Epiphanops persicus</i> (Chevrolat, 1880) <i>Larinus onopordi</i> (Fabricius, 1787) <i>Mononychus punctumalbum</i> (Herbst, 1784)

Based on the evaluation of the literature, it was determined that *Chlorophanus vittatus* Schoenherr, 1832 is new record for Turkey. Also, it was determined that *Lixus* and *Larinus* genera were more common both in number and species. With this study, the distribution of the weevil of the region has been given and it will contribute to further researches. When the species obtained were evaluated at the genus level, it was observed that *Larinus* was more dominant in Iğdır, which is at low altitude, and *Lixus* was more dominant in locations such as Ağrı, Erzurum and Kars, which are at high altitude. Also, the host plant *Mononychus punctumalbum* is distributed in similar ecosystems in all three provinces of Ağrı, Iğdır and Van.

ACKNOWLEDGEMENTS

This study partly benefited from a part of the master's study titled "Determination of Curculionidea (Coleoptera) species of potential importance in the biological control of weeds in Iğdır province" which was accepted by Iğdır University and Atatürk University, Institutes of Science.

AUTHOR CONTRIBUTIONS

The authors have contributed equally to this study.

CONFLICT of INTEREST

The authors declare there is no conflict of interest.

REFERENCES

- Alonso-Zarazaga, M.A., Barrios, H., Borovec, R., Bouchard, P., Caldara, R., Colonnelli, E., Gültekin, L., Hlavac, P., Korotyaev, B., Lyal, C.H.C., Machado, A., Meregalli, M., Pierotti, H., Ren, L., Sánchez-Ruiz, M., Sforzi, A., Silfverberg, H., Skuhrovec, J., Trýzna, M., Velázquez de Castro, A. J., Yunakov, N.N. 2023. Cooperative Catalogue of Palaearctic Coleoptera Curculionoidea. 2nd Edition. Coordinator: M.A. Alonso-Zarazaga, Monografías electrónicas Sociedad Entomologica Aragonesa, 729.
- Bajtenov, M. S. & Lodos, N. 1980. Notizen über Apionen (Coleoptera: Curculionidae) in der Türkei. Türk. Bit. Kor. Derg., 4 (4): 229-230.
- Bolov, A. P. & A. A. Bolov. 1997. K faune zhukov-dolgonosikov (Coleoptera, Curculionidae) Kabardino-Balkarii. Entomologicheskoe Obozrenie, 76(4): 777-779.
- Bolu, H., 2016. Southeastern Anatolia Reion Insect Fauna I (Coleoptera II: Curculionoidea, Tenebrionoidea) of Turkey. Agriculture & Forestry, Podgorica, 62(3), 73-91.
- Campobasso, G., Colonnelli, E., Knutson, L., Terragitti, G., Cristofaro, M., 1999. Wild Plants and Their Associated Insects in the Palearctic Region, Primarily Europe and the Middle East. United States Department of Agriculture. Agricultural Research Service, Washington, ARS-147, 249.
- Dorofeyev, V.I., Korotyaev, B.A., Gültekin, L. 2004. A New Species of the Genus *Stroganowia* Kar. et Kir. (Cruciferae) from Northeast Turkey and *Rhynchophorus* Beetles (Coleoptera, Curculionoidea) Associated with it. Bulletin of the Naturalist Society of Moscow, 109(2), 72-76.
- Dorofeyev, V.I., Korotyaev, B.A., Konstantinov, A.S., Gültekin, L. 2005. A Relict Crucifer, *Sisymbrium elatum* C. Koch (Cruciferae), and Associated Phytophagous Beetles in Northeastern Türkiye, with Redescription of *Psylliodes pallidicornis* Heikertinger (Pp. 81-89). In: Contributions to Systematics and Biology of Beetles. Papers Celebrating the 80th Birthday of Igor Konstantinovich Lopatin. Pensoft Series Faunistica 43, 450.
- Erbey, M. 2010. Taxonomic and Morphologic Studies on the Family Curculionidae (Coleoptera) of Bolkar Mountains (Ph.D. Thesis). Gazi University, Institute of Science and Tecnology, Ankara. (In Turkish).
- Fairmaire, L. 1866. Notice sur les Coléoptères récoltés Par P. J. Lédérer de l'Asie Mineure. Ann. Soc. Ent. France, 249-280.
- Gadeau de Kerville, H. 1939. Voyage zoologique d'Henri Gadeau de Kerville en Asie Mineure (Avril-Mai 1912). Paul Le Chevalier, Paris, 148 pp.

- Güçlü, C. and Özbek, H. 2007. Biology and Damage of *Thamnurgus pegani* Eggers (Coleoptera: Scolytidae) Feeding on *Peganum harmala* L. in Eastern Turkey, Proc. Entomol. Soc. Wash. 109 (2), 350–358.
- Gültekin, L., Güçlü, Ş., Özbek, H., 2000. The biology of *Larinus latus* (Herbst) and *Lixus cardui* (Oliver) (Coleoptera: Curculionidae) on *Onopordum bracteatum* Boiss. et Heldr. (Asteraceae). Türkiye 4. Entomoloji Kongresi, 12-15 Eylül 2000, Aydın, 197-206 (In Turkish).
- Gültekin, L., Güçlü, Ş., Nikulina, O. 2003. The Life History of the Capitulum Weevil, *Larinus latus* (Herbst) (Coleoptera, Curculionidae). New Zealand Journal of Agriculture, 46(3), 271-274.
- Gültekin, L., Zengin, H., Hayat, R. 2004. Life History of *Lixus bardanae* on Curly Dock (*Rumex crispus*) in Turkey. Phytoparasitica, 32(1), 97-99.
- Gültekin, L. 2004. Weevils associated with Musk thistle (*Carduus nutans* L.) and biology of *Lixus filiformis* (Fabricius) (Coleoptera: Curculionidae) in Northeastern Turkey. J. Ent. Res. Soc., 6 (3): 1-8.
- Gültekin, L. 2004a. Bionomics and Host Plant of *Herpes porcellus* Lacordaire, 1863 (Coleoptera: Curculionidae). Journal of the Entomological Research Society, 6(1), 33-38.
- Gültekin, L., Korotyaev, B.A. 2005. Biology and Distribution of *Larinus sibiricus* Gyllenhal (Coleoptera: Curculionidae, Lixinae). Journal of the Entomological Research Society, 7(3), 47-53.
- Gültekin, L. 2005a. Biological and Distributional Notes on *Lachnaeus horridus* Reitter, 1890 (Coleoptera: Curculionidae, Lixinae). Weevil News: <http://www.curci.de/Inhalt.html>, No: 23,1-3.
- Gültekin, L. 2005b. New Ecological Niche for Weevils of the Genus *Lixus* Fabricius and Biology of *Lixus obesus* Petri (Coleoptera: Curculionidae, Lixinae). Weevil News: <http://www.curci.de/Inhalt.html>, No: 24, 1-3.
- Gültekin, L. 2005c. A New Species of the Weevil Genus *Ceutorhynchus* Germar from Eastern Mediterranean Turkey (Coleoptera: Curculionidae). Zootaxa 883, 1-5.
- Gültekin, L., Davidian, G.E. 2006. Contribution to the Knowledge of the Weevil Genus *Otiiorhynchus* (Coleoptera: Curculionidae) from Northeastern Türkiye and Transcaucasia. Zoologicheskii Zhurnal, 85(4), 479-492.
- Gültekin, L., Colonnelli, E. 2006. A New Species of Mogulones from Northeastern Turkey, with Revision of the Abchasicus Group (Insecta, Coleoptera: Curculionidae). Aldrovandia, 15-22.
- Gültekin, L., 2006. A New Weevil Species *Larinus araxicola* sp. n. (Coleoptera: Curculionidae: Lixinae) from Northeastern Turkey with Biological Notes. Proceedings of the Russian Entomological Society 77, 44-47.
- Gültekin, L. 2006a. A New Species of the Weevil Genus *Larinus* Dejean from Türkiye and Suriye (Coleoptera: Curculionidae: Lixinae). Zootaxa 1248, 21-26.
- Gültekin, L. 2006b. Host Plants Range and Biology of *Lixus nordmanni* Hochhuth (Coleoptera, Curculionidae) on Hogweed *Heracleum* L. in Eastern Türkiye. Journal of Pest Sciences 79, 23-25.
- Gültekin, L. 2006c. Seasonal Occurrence and Biology of Globe Thistle Capitulum Weevil *Larinus onopordi* (F.) (Coleoptera: Curculionidae) in Northeastern Türkiye. Munis Entomology and Zoology, 1(2), 191-198.
- Gültekin, L., Davidian, G.E. 2007. A New Species of the Weevil Genus *Otiiorhynchus* Germar, 1822, Subgenera *Proremus* Reitter, 1912 (Coleoptera, Curculionidae) from NE Türkiye. Caucasian Entomological Bulletin, 3(2), 197-199.
- Gültekin, L. 2007. Oviposition Niches and Behavior of the Genus *Lixus* Fabricius (Coleoptera: Curculionidae, Lixinae). Entomologica Fennica 18, 74-81.
- Gültekin, L., Bovec, R., Cristofaro, M., Smith, L. 2008. Broad-Nosed Weevils Feeding on *Centaurea solstitialis* L. in Türkiye, with a Description of the New Species *Araxia cristofaroi* sp. n. (Coleoptera: Curculionidae: Entiminae). Annals of the Entomological Society of America, 101(1), 7-12.
- Gültekin, L. 2008. Hibernation Places and Behavior of the Some Weevil Species (Coleoptera: Curculionidae). Caucasian Entomological Bulletin., 4 (2), 209-213
- Gültekin, L. 2008a. Taxonomic Review of the Stem-Inhabiting Trehala-Constructing *Larinus* Dejean, 1821 (Coleoptera: Curculionidae): New Species, Systematics and Ecology. Zootaxa 1714, 1-18.
- Gültekin, L. 2008b. Host Plants of *Larinus latus* (Herbst 1783) in Eastern Türkiye. Weevil News: <http://www.curci.de/Inhalt.html>, No: 40, 1-7.

- Gültekin, L., Podlussany, A. 2012. New Faunistic Data on Selected Palaearctic Species of the Genus *Larinus* Dejean, 1821 (Coleoptera: Curculionidae, Lixinae). Journal of the Entomological Research Society, 14(2), 71-85.
- Gültekin, L., and Korotyaev, B. A. 2012. Ecological description of two seed-feeding weevils of the genus *Mononychus* Germar (Coleoptera: Curculionidae) on *Iris iberica* Hoffmann and *Iris spuria* L. in Northeastern Turkey. Coleopterists Bulletin, 66(2), 155-161.
- Gürler, Y. 2014. Curculionids (Coleoptera: Curculionidae) of Beypazarı (Ankara). (M. Sc. Thesis). Gazi University, Institute of Science and Tecnology, Ankara.(In Turkish).
- Güvenç, A., Kurucu, S., Koyuncu, M., Arihan, O., Erdurak, C. S. 2005. Investigation on the seeds of *Iris spuria* L. subsp. *musulmanica* (Fomin) Takht. (Iridaceae). Turkish Journal of Pharmaceutical Sciences 2(3): 125–136.
- Hoffman, A. 1964. Türkiye’de Mahsule Zarar Veren Curculionid’ler. Türkiye Ziraatına Zararlı Olan Böcekler ve Mücadelesi. Fasikül 10, 129-143 pp.
- Curculionids damaging crops in Turkey. Insects harmful to Turkish agriculture and their control. Fascicle 10, 129-143 pp.
- İreç, A. 2017. The Determination of Biological Criteria the Basis to Struggle Alfalfa Weevil, *Hypera Postica* (Gyllenhal, 1813) (Coleoptera: Curculionidae) On Alfalfa in Iğdır Province. Master Thesis, Iğdır University, Institute of Science and Tecnology, Iğdır. (In Turkish).
- Legalov, A. A., Ghahari, H., and Arzanov, Yu. G. 2010. Annotated Catalogue of Curculionid-Beetles (Coleoptera: Anthribidae, Rhynchitidae, Attelabidae, Brentidae, Brachyceridae, Dryophthoridae and Curculionidae) of İnan. Amurian zoological journal II (3).191-244.
- Löbl, I., Smetana, A. 2013. Catalogue of Palaearctic Coleoptera. Volume 8. Curculionoidea II. – Leiden: Brill, 700 pp.
- Lodos, N., 1960. Orta Anadolu Meyve Ağaçlarında Zarar Yapan Curculionidae (Hortumlu Böcekler) Türleri Üzerinde Sistematik Araştırmalar. Ege Üniversitesi, Ziraat Fakültesi Yayınları, No: 29, 76 pp.
- Lodos, N., Önder, F., Pehlivan, E., Atalay, R. 1978. Ege ve Marmara Bölgesinin Zararlı Böcek Faunasının Tesbiti Üzerinde Çalışmalar (Curculionidae, Scarabaeidae (Coleoptera); Pentatomidae, Lygaeidae, Miridae (Heteroptera)). T.C. Gıda-Tarım ve Hayvancılık Bakanlığı Zirai Mücadele ve Zirai Karantina Genel Müdürlüğü. Ankara, 301.
- Lodos, N., Önder, F., Pehlivan, E., Erkin, E., Karsavuran, Y., Aksoy, S. 1983. Orta Anadolu ve Batı Karadeniz Bölgeleri’nin Böcek Faunasının Tespiti Üzerinde Çalışmalar Curculionidae, Scarabaeidae (Coleoptera), Pentatomidae, Scutelleridae, Lygaeidae, Miridae (Heteroptera). Doğa Bilimleri Dergisi 7, 207-212.
- Lodos, N., Önder, F., Pehlivan, E., Erkin, E., Karsavuran, Y., Tezcan, S. 1989. Akdeniz Bölgesi’nin Ziraatta Zararlı ve Faydalı Böcek Faunasının Tespiti Üzerinde Araştırmalar. Curculionidae, Scarabaeidae (Coleoptera), Plataspidae, Cydnidae, Acanthosomatidae, Scutelleridae, Pentatomidae, Lygaeidae, Miridae (Heteroptera). Doğa Tarım ve Ormancılık Dergisi, 13(1), 81-88.
- Lodos, N., Önder, F., Pehlivan, E., Atalay, R., Erkin, E., Karsavuran, Y., Tezcan, S., Aksoy, S. 2003. Faunistic Studies on Curculionidae (Coleoptera) of Western Black Sea, Central Anatolia and Mediterranean Regions of Turkey. *Meta Press*. İzmir, 1-83.
- Korotyaev, B.A., Gültekin, L. 1999. A New Species of Weevil Genus *Baris* from NE Türkiye (Coleoptera: Curculionidae). *Zoosystematica Rossica*, 8(1), 141-142.
- Korotyaev, B.A., Gültekin, L. 2002. New Records Weevils for the Fauna of Northeastern Türkiye (Coleoptera, Curculionidae). *Zoosystematica Rossica*, 11(1), 174.
- Korotyaev, B.A., Gültekin, L., Colonnelli, E.A. 2002. New Species of Weevil Genus *Coeliastes* Weise (Coleoptera, Curculionidae). *Zoologicheski Zhurnal*, 81(10), 1273-1277.
- Korotyaev, B.A., Davidian, G.E., Yunakov, N.N., Gültekin, L. 2004. On the Weevil (Coleoptera, Curculionidae) Faunal Links Between the Crimea, the Caucasus, and Northeastern Anatolia In: Proceedings of the Conference on Invertebrate Zoology Dedicated to the 100th Anniversary of S.M. Iablokoff-Khnzorian, September.Yerevan. 81-82.

- Korotyaev, B. A., Gultekin, L. & Colonnelli, E. 2002. A new species of the Weevil genus *Coeliastes* (Coleoptera, Curculionidae) from Turkey. *Entomological Review*, 82 (4): 500-504.
- Korotyaev, B.A., Gültekin, L. 2003. Biology of Two Weevil, *Lixus ochraceus* Boheman and *Melanobaris gloriæ* sp. n. (Insecta: Coleoptera, Curculionidae), Associated with *Tchihatchewia isatidea* Boissier, a Cruciferous Plant Endemic of Turkey. *Entomologische Abhandlungen*, 61(1), 93-99.
- Korotyaev, B. A., Gültekin, L., Volkovitsh, M. G., Dorofeyev V. I., Konstantinov, A. S. 2016. Bioindicator beetles and plants in desertified and eroded lands in Turkey. *Journal of Insect Biodiversity* 4(1): 1–47.
- Mandelstam M. Yu., Petrov A. V. & Korotyaev. B. A. 2011. To the knowledge of the herbivorous scolytid genus *Thamnurgus* Eichhoff (Coleoptera, Scolytidae). *Entomologicheskoe Obozrenie* 80(3): 595–621.
- Mathew, B. 1984. Iris L. In: Flora of Turkey and the East Aegean Islands. Volume 8 (P. H. Davis, editor). Edinburgh at the University Press, Edinburgh, UK, pp. 382–411.
- Mathew, B. 1988. Iris L. In: Flora of Turkey and the East Aegean Islands. Volume 10 (P. H. Davis, editor). Edinburgh at the University Press, Edinburgh, UK, 227–228.
- Oberprieler, R.G., Marvaldi, A.E. and Anderson, R.S. 2007. Weevils, weevils, weevils everywhere. *Zootaxa*, 1668, 491–520.
- Osella, G., Lodos, N. 1979 a. Un Nuovo Genere (*Parhaptometus* Osella e Lodos) per *Haptomerus schneideri* (Kirsh.) (Coleoptera: Curculionidae). *Türk. Bit. Kor. Derg.*, 3 (2): 75-82.
- Osella, G., Lodos, N. 1979 b. *Haptomerus lutosus* (Fivaldsky): Brevi note Sistematiche (Coleoptera: Curculionidae-Hylobiinae). *Türk. Bit. Kor. Derg.*, 3 (3): 161-170.
- Özbek, H., Gültekin, L., Davidian, G. 2007. *Otiorhynchus lederi* Stierlin (Coleoptera: Curculionidae): A New Record and a New Pest in Turkey. *Turkish Journal of Zoology* 31, 213-217.
- Pehlivan, E., Karsavuran, Y., Tezcan, S., 2005. Contributions to the Knowledge of the Lixinae (Coleoptera: Curculionidae) from Turkey. *Türkiye Entomoloji Dergisi*, 29(4), 259-272.
- Perju, T., Moldovan, I., Bunesco, H., 1997. Gărgărita Semintelor de Stânjenei – *Mononychus punctum-album* Hbst. (Curculionidae, Coleoptera) sin *Mononychus pseudacori* Fb. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca* 27(1): 79–83.
- Rheinheimer, J. and Hassler, M. 2010. Die Rüsselkäfer Baden-Württembergs. Verlag Regionalkultur, Heidelberg, 944 pp.
- Scherf, H., 1964. Die Entwicklungsstadien der Mitteleuropäischen Curculioniden (Morphologie, Bionomie, Ökologie). *Abhandlungen des Senckenbergischen Naturforschenden Gesellschaft* 506, Verlag Waldemar Kramer, Frankfurt, 1-335.
- Sert, O., Çağatay, N. 1994. *Sitona*, *Bangasternus* ve *Larinus* (Coleoptera: Curculionidae) Cinslerinden Bazı Türler Üzerinde Sistemik Çalışmalar. *Türkiye Entomoloji Dergisi*, 18(4), 223-236.
- Sert, O., 1995. İç Anadolu Bölgesi Curculionidae (Coleoptera) familyası üzerinde taksonomik çalışmalar, Doktora Tezi, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Ankara, 1-184.
- Voss, E. 1962. Curculioniden aus Anatolien nebst einigen Bemerkungen (172. Beitrag zur Kenntnis der Curculioniden). *Reichenbachia*, 1 (2): 5-15.