

## THE SUBFAMILY CRIOCERINAE OF TURKEY (COLEOPTERA: CHRYSOMELIDAE) WITH TWO NEW RECORDS AND ZOOGEOGRAPHICAL REMARKS

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**ABSTRACT:** Eleven species of 4 genera of the subfamily Criocerinae, *Liliocercis faldermanni* (Guerin, 1829); *Liliocercis lillii* (Scopoli, 1763); *Liliocercis merdigera* (Linnaeus, 1758); *Criocercis asparagi* (Linnaeus, 1758), *Criocercis bicrucata* (Sahlberg, 1823), *Criocercis duodecimpunctata* (Linnaeus, 1758), *Criocercis paracanthesis* (Linnaeus, 1767); *Criocercis quatuordecimpunctata* (Scopoli, 1763); *Lema cyanella* (Linnaeus, 1758); *Oulema gallaeciana* (Heyden, 1870) and *Oulema melanopus* (Linnaeus, 1758), have been recorded for Turkey. *Criocercis sokolowi* Jacobson, 1894 and *Oulema duftschmidi* (Redtenbacher, 1874) are recorded for the first time to Turkey. For each taxon, the paper also includes zoogeographical remarks and chorotype information.

**KEY WORDS:** Criocerinae, new record, Chrysomelidae, Coleoptera, Turkey, Zoogeography.

The leaf beetles (Chrysomelidae) are placed in the superfamily Chrysomeloidea, which also covers Cerambycidae (longicorn or capricorn beetles) and Bruchidae (seed or pulse beetles). The Criocerinae are a subfamily of the leaf beetles or Chrysomelidae.

The subfamily Criocerinae are coleopterous of average size to big (about 3 to 12 mm). The body is elongated and dorsally glabrous. The sides of the elytra are almost parallel and both the pronotum and the head are much narrower than the elytra. Head is erect and large. The head can be seen clearly from above. Frons is broad. Clypeus is large, triangular and distinctly separated from frons. Eyes are bulge, with deep emargination along inner rim, rarely entire. Mandibles are thick, flexed, with terminal denticles. Antennae are filiform, often with broadened apical segments, but not serrate. They are not longer than half body length. The pronotum is cylindrical or almost squarish, without lateral margins. Scutellum is small. The elytra almost always possess clear rows of punctuations. Elytra are elongated and elytral apices are rounded and fully cover abdomen. Anterior coxal depressions are closed. First abdominal sternite is longer than any other sternite. Legs are thick. Tibiae have one or two spurs or have not spurs. Claws are simple, more rarely with denticle. Generally the body is showy coloration (yellow, red or orange) and frequently the elytra have black points, stripes, bands or other marks, but some species are enough or completely dark and with blue or green reflexes.

Both the larvae and the adults feed leaves and flowers of several herbaceous plants (generally on Graminae, Liliaceae, Compositae), and

some of them can cause damage to important plants. The larvae have the habit of accumulating their feces on their body, which serves them as protection way. The body of larvae can also be enclosed in mucus. Pupae are in cocoon.

The subfamily Criocerinae are distributed worldwide. They are more abundant in tropical regions. In the subfamily Criocerinae there are 5 genera of 2 tribe in the Palaearctic Region, of which 4 are distributed in Turkey according to references. These are *Lilioceris* Reitter, 1912, *Crioceris* Müller, 1764, *Lema* Fabricius, 1798 and *Oulema* Gozis, 1886 (Medvedev, 1970; Tomov & Gruev, 1975; Warchalowski, 1976; Gruev & Tomov, 1979, 1984; Kismalı et al., 1995; Aslan, 2000).

The Turkish fauna has not been investigated completely until now. According to Medvedev, 1970; Gül-Zümreoğlu, 1972; Tomov & Gruev, 1975; Warchalowski, 1976; Gruev & Tomov, 1979, 1984; Kismalı et al., 1995, Turkish Criocerinae fauna had been included 9 species as *Lilioceris faldermanni* (Guerin, 1829), *Lilioceris lili* (Scopoli, 1763), *Lilioceris merdigera* (Linnaeus, 1758), *Crioceris asparagi* (Linnaeus, 1758), *Crioceris bicrucata* (Sahlberg, 1823), *Crioceris duodecimpunctata* (Linnaeus, 1758), *Crioceris paracanthesis* (Linnaeus, 1767), *Oulema gallaeciana* (Heyden, 1870) and *Oulema melanopus* (Linnaeus, 1758).

Aslan (2000) studied the Eastern Anatolian Criocerinae fauna. He recorded most of these species for Turkish fauna and gave *Crioceris asparagi maculipes* (Gebler, 1834), *Crioceris quatuordecimpunctata* (Scopoli 1763) and *Lema cyanella* (Linnaeus, 1758) as the first record for Turkey in his work. Nevertheless, *Crioceris asparagi maculipes* (Gebler, 1834) was not a new record for Turkey in real as seen below in the present text.

Thus, Turkish Criocerinae fauna had been raised 11 species with Aslan (2000). However, it is impossible to say that the fauna of Turkey investigated.

The genus *Lilioceris* Reitter, 1912 is distributed throughout the Palaearctic, Oriental and Ethiopian regions. According to Lopatin (1977), 40 species are known in the Palaearctic Region (mainly eastern Asia). In Turkey, the genus is represented by three species as *Lilioceris faldermanni* (Guerin, 1829), *Lilioceris lili* (Scopoli, 1763) and *Lilioceris merdigera* (Linnaeus, 1758).

The genus *Crioceris* Müller, 1764 is extensively distributed in tropical regions of both hemispheres, but much less so in temperate zones. In Turkey, the genus is represented by five species as *Crioceris asparagi* (Linnaeus, 1758), *Crioceris bicrucata* (Sahlberg, 1823), *Crioceris duodecimpunctata* (Linnaeus, 1758), *Crioceris paracanthesis* (Linnaeus, 1767) and *Crioceris quatuordecimpunctata* (Scopoli 1763).

The genus *Lema* Fabricius, 1798 is distributed worldwide. In Turkey, the genus is represented only by one species as *Lema cyanella* (Linnaeus, 1758).

According to Lopatin (1977), 10 species of the genus *Oulema* Gozis, 1886 is distributed in the Palaearctic and Ethiopian regions. In Turkey,

the genus is represented by two species as *Oulema gallaeciana* (Heyden, 1870) and *Oulema melanopus* (Linnaeus, 1758).

In the present text, two species which are new records to Turkish fauna are presented. These are *Crioceris sokolowi* Jacobson, 1894 and *Oulema duftschmidi* (Redtenbacher, 1874). So Turkish Criocerinae fauna are included 13 species of 4 genera for the present.

Probably Turkish Criocerinae fauna includes more species. Following species can also be present in Turkey with less probability.

*Crioceris macilenta* Weise, 1880

*Oulema tristis* (Herbst, 1786).

Information in the present text is given in following order:

The data, Names, Material examined, Previous records in Turkey, Range and Zoogeographical remarks under the title for each species is given.

**Names.** In these parts, as possible as the whole other names including all infraspecific names are provided.

**Material examined.** Material examined covers the original records for Turkey. The material is deposited in Gazi University and Nazife Tuatay Plant Protection Museum of Ministry of Agriculture (Ankara).

**Previous records in Turkey.** These parts include previous records that have been given by various authors in different literatures. The whole records are evaluated as only concerning province in the related reference. Each record is accompanied by the author's name and publication date of the related reference.

**Range.** In these parts, the whole distribution area in the world is provided for each taxon.

**Zoogeographical remarks.** In these parts, general distribution range is given in Turkey chiefly. The present zoogeographical characterization is based on the chorotype classification of Anatolian fauna, recently proposed by Vigna Taglianti et al. (1999). In the text, one chorotype description identified for each taxon as soon as possible.

**Maps.** The maps are given in plate I. For each taxon, a map showing distribution patterns in Turkey is used.

## Subfamily CRIOCERINAE

### Tribe CRIOCERINI

#### *Lilioceris* Reitter, 1912

Type sp.: *Attelabus lilii* Scopoli, 1763

#### *Lilioceris faldermanni* (Guérin, 1829)

**Names:** *cornuta* Faldermann, 1837; *semirufa* Marseul, 1868; *notaticollis* Pic, 1934.

**Material examined:** Ankara prov.: Çubuk, Karagöl, 03.08.1983, leg. Y. Özdemir, 1 specimen; Kahramanmaraş prov.: Göksun, 1498 m, 24.06.2003, leg. A. Y. Okutaner, 2 specimens; Göksun, Mehmetbey, 1490 m, 17.07.2003, leg. A. Y. Okutaner, 1 specimen; Geben-Göksun road, Meryem Çil plateau, 1300 m, 12.08.2003, leg. A. Y. Okutaner, 1 specimen;

**Previous records in Turkey:** Ankara (Escherich, 1897); Anatolia (Warchalowski, 1976); Erzurum, Bayburt (Aslan, 2000).

**Range:** Caucasus (Winkler, 1924-1932); Caucasus, Anatolia, Azerbaijan, Armenia (Aslan, 2000); Distributed in Balkan Peninsula, Asia Minor, Syria, Caucasian Countries and Central Asia (Warchalowski, 2003); Cyprus, European Turkey (Incl. Imroz I. - Gökçeada, but not those in the Sea of Marmara), North Aegean

Is., Near East (Audisio, 2005); S Balkans, Turkey, Caucasus, Syria, C Asia (Borowiec, 2006).

**Zoogeographical remarks:** New to Kahramanmaraş province. Known species for Turkish fauna. Probably it rather widely distributed in Turkey. This species has the Turano-Mediterranean (Turano-Balkan) chorotype.

### ***Lilioceris lili* (Scopoli, 1763)**

**Names:** ssp. *lili* Scopoli, 1763; ssp. *stercoraria* Linnaeus, 1767; ssp. *laeviuscula* Weise, 1882; *merdigera* Fabricius, 1775; *liliorum* Thomson, 1866; *regeli* Ballion, 1878; *amurensis* Pic, 1916; *scheppmanni* Everts, 1920; *scheppmanni* Pic, 1934.

**Previous records in Turkey:** İzmir (Gül-Zümreoğlu, 1972).

**Range:** Europe (Winkler, 1924-1932); European Russia, Caucasus, Altai, Siberia, Kazakhstan (Lopatin, 1977); Widely distributed from Morocco and England to East Asia (Warchalowski, 2003); Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Canary Is., Corsica, Croatia, Czech Republic, Danish mainland, Estonia, Finland, French mainland, Germany, Hungary, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Poland, Portuguese mainland, Romania, Russia Central, Russia East, Russia Northwest, Russia South, Sardinia, Sicily, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), East Palaearctic, North Africa (Audisio, 2005); Palaearctic region east to Eastern Siberia (Borowiec, 2006).

**Zoogeographical remarks:** Known species for Turkish fauna. It is represented only by nominative subspecies in Turkey. Probably it distributed in West and North Turkey. This species has the Palaearctic chorotype.

### ***Lilioceris merdigera* (Linnaeus, 1758)**

**Names:** *rufipes* Herbst, 1783; *brunnea* Fabricius, 1792; *suffriani* Schmidt, 1842; *collaris* Lacordaire, 1845; *mediciana* Lacordaire, 1845; *orientalis* Jacobson, 1885.

**Previous records in Turkey:** İzmir (Gül-Zümreoğlu, 1972).

**Range:** Europe, Asia (Winkler, 1924-1932); Transpalaearctic species. Distributed from Iberian Peninsula, France and South Norway to Japan (Warchalowski, 2003); Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Danish mainland, Estonia, Finland, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Norway, Poland, Romania, Russia Central, Russia East, Russia North, Russia Northwest, Russia South, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), East Palaearctic, North Africa (Audisio, 2005); Palaearctic region (Borowiec, 2006).

**Zoogeographical remarks:** Known species for Turkish fauna. Probably it distributed in at least West and North Turkey. This species has the Sibero-European chorotype.

### ***Crioceris* Müller, 1764**

Type sp.: *Chrysomela asparagi* Linnaeus, 1758

### ***Crioceris asparagi* (Linnaeus, 1758)**

***Crioceris asparagi maculipes* (Gebler, 1834)**

**Names:** ssp. *asparagi* Linnaeus, 1758; ssp. *maculipes* Gebler, 1834; ssp. *turkestanica* Medvedev, 1955; *campestris* Linnaeus, 1767; *pupillata* Ahrens, 1812; *linnaei* Pic, 1895; *anticeconjuncta* Pic, 1900; *impupillata* Pic, 1900; *apiceconjuncta* Pic, 1900; *incrucifer* Pic, 1900; *cruciata* Schuster, 1905; *quadripunctata* Schuster, 1905; *trifasciata* Schuster, 1905; *normalis* Schuster, 1905; *moguntiaci* Schuster, 1906; *pici* Heyden, 1906; ab. *schusteri* Heyden, 1906; *pupillata* Heyden, 1906; *impupillata* Heyden, 1906; *heydeni* Pic, 1906; *obliterata* Pic, 1906; *fauconneti* Pic, 1912; *multiplicata* Pic, 1912; *brancsiki* Laczo, 1912.

**Material examined:** Aksaray prov.: Aşağı Dikmen village, Hasan Mountain, 1100 m, 01.06.1997, leg. H. Özdikmen, 13 specimens; Aşağı Dikmen village, 1100 m, 22.06.1997, leg. H. Özdikmen, 2 specimens; Kayseri prov.: Yeşilhisar, Güzelöz, 1260 m, 02.06.1997 and 25.06.1997, leg. H. Özdikmen, 2 specimens; Karabük prov.: Safranbolu, Hızır Yanı place, 740 m, 14.05.2003, 1 specimen.

**Previous records in Turkey:** İzmir (Gül-Zümreoğlu, 1972); Amasya (Tomov & Gruev (1975); Kars (Aslan, 2000).

**Range:** Europe, Siberia (Winkler, 1924-1932); Holarctic region (Lopatin, 1977); Bulgaria, Greece, Albania (Aslan, 2000); Distributed from Iberian Peninsula to Central Asia, introduced also to North America, Argentina and Tanzania (Warchalowski, 2003); Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Croatia, Cyclades Is., Cyprus, Czech Republic, Danish mainland, Dodecanese Is., European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Luxembourg, Macedonia, ?Madeira, Moldova, Monaco, North Aegean Is., Poland, Portuguese mainland, Romania, Russia Central, Russia East, Russia Northwest, Russia South, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), East Palaearctic, Near East (incl. Turkey), Nearctic region, North Africa (Audisio, 2005); From Spain to Central Asia (Borowiec, 2006).

**Zoogeographical remarks:** New to Aksaray, Kayseri and Karabük provinces. This subspecies seems to be the second record for Turkish fauna after recent new record of Aslan (2000). However, this species was recorded firstly by Gül-Zümreoğlu (1972) and Tomov & Gruev (1975) as *Crioceris asparagi* (Linnaeus, 1758) from İzmir and Amasya provinces. Although these records are seen to belong nominative subspecies they should be belong *Crioceris asparagi maculipes* (Gebler, 1834). Since *C. asparagi* is represented only by the subspecies, *Crioceris asparagi maculipes* (Gebler, 1834) in Turkey. Known taxon for Turkish fauna. Probably it rather widely distributed in Turkey. This species has the Holarctic or Subcosmopolitan chorotype.

### ***Crioceris bicrucata* (Sahlberg, 1823)**

**Names:** *merkli* Pic, 1909.

**Material examined:** Aydın prov.: 15.05.1964, leg. A. Demirtola, 1 specimen; İzmir prov.: Bornova, 09.07.1968, leg. N. Aysor, 1 specimen.

**Previous records in Turkey:** Iğdır (Tomov & Gruev, 1975); Anatolia (Lopatin, 1977); Kars (Aslan, 2000).

**Range:** European Russia, Greece, Asia Minor, European Turkey (Winkler, 1924-1932); Southeastern European part of Russia, Transcaucasia, Southeastern Uzbekistan: Guzar, Tadzhikistan, Turkestan, Kuraminsk ranges, Lakes Iskanderkul, Greece, Asia Minor, Jordan (Lopatin, 1977); European Russia, Transcaucasia, Uzbekistan, Tadzhikistan, Turkestan, Turkey, Greece, Jordan,

Bulgaria (Aslan, 2000); Distributed in Greece, Bulgaria, Asia Minor, Caucasian countries, and Middle Asia (Warchalowski, 2003); Bulgaria, Crete, Cyclades Is., Dodecanese Is., European Turkey, Greek mainland, North Aegean Is. (Audisio, 2005); Greece, Bulgaria, Asia Minor, Caucasus, Central Asia (Borowiec, 2006).

**Zoogeographical remarks:** New to Aydın and İzmir provinces. Known species for Turkish fauna. Probably it rather widely distributed in West and North Turkey. This species has the Turano-Mediterranean (Turano-Balkan) chorotype.

***Crioceris duodecimpunctata* (Linnaeus, 1758)**

**Names:** ssp. *duodecimpunctata* Linnaeus, 1758; ssp. *hypopsila* Jacobson, 1907; *dodecastigma* Suffrian, 1841; *abeillei* Pic, 1894; *goetria* Jacobson, 1907; *paracruusa* Jacobson, 1907; *demokidov* Semenov, 1908; *bisbiconnexa* Pic, 1919; *delagrangei* Pic, 1919; *gallica* Pic, 1919; *subannulipes* Pic, 1919; *faucconneti* Pic, 1919; *peyroni* Pic, 1919; *baguenai* Fuente, 1927; *revyi* Kaszab, 1962; *gisellae* Kaszab, 1962; *ruffi* Kaszab, 1962; *guranyii* Kaszab, 1962; *bisquadripunctata* Kaszab, 1962; *steinmanni* Bodor, 1965.

**Material examined:** Aksaray prov.: Aşağı Dikmen village, Hasan Mountain, 1020 m, 17.05.1997, leg. H. Özdikmen, 1 specimen; Ankara prov.: Şereflikoçhisar, 1000 m, 20.05.1997 and 03.06.1997, leg. H. Özdikmen, 48 specimens; Niğde prov.: Bor, 24.05.1997, leg. T. Türkeş, 14 specimens; Konya prov.: Kulu, Tavşançalı, 1000 m, 31.05.1997, leg. H. Özdikmen, 11 specimens; Niğde prov.: Niğde-Bor road, 17.06.1997, leg. T. Türkeş, 1 specimen; Konya Makası-Şereflikoçhisar, 950 m, 21.06.1997, leg. H. Özdikmen, 6 specimens; Kayseri prov.: Yeşilhisar, Güzelöz, 1260 m, 25.06.1997, leg. H. Özdikmen, 1 specimen; Niğde prov.: Bor, Bor-Ankara road, 1100 m, 13.07.1997, leg. T. Türkeş, 4 specimens.

**Previous records in Turkey:** Samsun (Medvedev, 1970); İzmir (Gül-Zümreoğlu, 1972); Amasya (Tomov & Gruev, 1975); Erzurum, Kars (Aslan, 2000).

**Range:** Europe, Syria, Terrae Ussuriensis (Winkler, 1924-1932); European Russia, Crimea, southern Siberia, Kazakhstan, Kirgizia, Turkmenia, Tadjikistan, Europe, Iran (Lopatin, 1977); European Russia, Crimea, Siberia, Kazakhstan, Kirgizia, Tadjikistan, Iran, Europe, Bulgaria (Aslan, 2000); A transpalearctic species. Distributed very widely from Portugal and England to Korea (Warchalowski, 2003); Andorra, Austria, Belarus, Belgium, Britain I., Bulgaria, Corsica, Croatia, Czech Republic, Danish mainland, Dodecanese Is., Estonia, European Turkey, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, North Aegean Is., Poland, Portuguese mainland, Romania, Russia Central, Russia East, Russia Northwest, Russia South, Sardinia, Sicily, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro) Africa (Audisio, 2005); Whole Palaearctic Region east to Korea (Borowiec, 2006).

**Zoogeographical remarks:** New to Aksaray, Ankara, Kayseri, Konya and Niğde provinces. Known species for Turkish fauna. It is represented by the nominative subspecies in Turkey. Probably it rather widely distributed in Turkey. This species has the Sibero-European chorotype.

***Crioceris paracenthesis* (Linnaeus, 1767)**

**Names:** *suturalis* Gravenhorst, 1807; *cruciata* Bon., 1809; *dahli* Lacordaire, 1845; *interrupta* Pic, 1907; *pallidicolor* Pic.

**Previous records in Turkey:** Anatolia (Warchalowski, 1976); Kars (Aslan, 2000).

**Range:** Europe (Winkler, 1924-1932); Albania, Yugoslavia, Greece, Turkey (Aslan, 2000); Distributed in a great part of Mediterranean area from Morocco, Portugal and Spain to Greece (Warchalowski, 2003); Albania, Andorra, Balearic Is., Bosnia & Herzegovina, Bulgaria, Canary Is., Corsica, Croatia, French mainland, Gibraltar, Greek mainland, Italian mainland, Malta, Monaco, Portuguese mainland, Sardinia, Sicily, Slovenia, Spanish mainland, North Africa (Audisio, 2005); West Mediterranean subregion east to Greece (Borowiec, 2006).

**Zoogeographical remarks:** Known species for Turkish fauna. Probably it rather widely distributed in Turkey. This species has the Mediterranean chorotype.

### ***Crioceris quatuordecimpunctata* (Scopoli, 1763)**

**Names:** *sibirica* Weise, 1887.

**Previous records in Turkey:** Kars (Aslan, 2000).

**Range:** Europe, Siberia, China (Winkler, 1924-1932); European Russia, Siberia, Kazakhstan, Central and Eastern Europe, Mongolia, Northern China, Korea (Lopatin, 1977); European Russia, Siberia, Northern China, Korea, Central and East Europe, Crimea, Poland, Bulgaria (Aslan, 2000); Distributed in South and Central Europe and in Central Asia (Warchalowski, 2003); Albania, Austria, Belarus, Belgium, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, French mainland, Germany, Hungary, Kaliningrad Region, Moldova, Poland, Romania, Russia Central, Russia East, Russia South, Slovakia, Slovenia, Ukraine, East Palaearctic (Audisio, 2005); Southeastern Europe, southern part of South Europe, Central Asia (Borowiec, 2006).

**Zoogeographical remarks:** Known species for Turkish fauna. Probably it rather widely distributed in especially North Turkey. This species has the Sibero-European.

### ***Crioceris sokolowi* Jacobson, 1894 (New to Turkey)**

**Names:** Absent.

**Material examined:** Ankara prov.: Şereflikoçhisar, 1000 m, 20.05.1997 and 03.06.1997, leg. H. Özdikmen, 29 specimens; Konya Makası-Şereflikoçhisar, 950 m, 21.06.1997, leg. H. Özdikmen, 125 specimens; Konya prov.: Kulu, Tavşançalı, 1000 m, 31.05.1997, leg. H. Özdikmen, 8 specimens; Niğde prov.: Bor, Bor-Ankara road, 1100 m, 13.07.1997, leg. T. Türkeş, 6 specimens.

**Range:** Caucasus (Winkler, 1924-1932); Distributed in Caucasian countries (Warchalowski, 2003); Caucasus (Borowiec, 2006).

**Zoogeographical remarks:** New to Turkey. Probably it distributed only in Central and Northern Anatolia. This species has the SW-Asiatic (Anatolo-Caucasian) chorotype. This record is very interesting for the distribution area of the species. The range of this species reaches from Caucasian countries in East to Central Anatolia in West.

## **Tribe LEMIINI**

### ***Lema* Fabricius, 1798**

Type sp.: *Chrysomela cyanella* Linnaeus, 1758

### ***Lema cyanella* (Linnaeus, 1758)**

**Names:** *puncticollis* Curtis, 1830; *rugicollis* Suffrian, 1841; *obscurior* Pic, 1897.

**Previous records in Turkey:** Erzurum (Aslan, 2000).

**Range:** Europe, Siberia, Japan (Winkler, 1924-1932); European Russia, Western Siberia, Southern Kazakhstan, Europe, Mongolia, Northern China, Korea, Japan (Lopatin, 1977); European Russia, West Siberia, Kazakhstan, Europe, Mongolia, N China, Korea, Japan (Aslan, 2000); A transpalaeartic species. Distributed from Spain and British Isles to Korea (Warchalowski, 2003); Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Corsica, Croatia, Czech Republic, Danish mainland, Estonia, Finland, French mainland, Germany, Hungary, Ireland, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Monaco, Norwegian mainland, Poland, Romania, Russia Central, Russia East, Russia, North, Russia Northwest, Russia South, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), East Palaeartic (Audisio, 2005); Palaeartic Region from Spain to Korea (Borowiec, 2006).

**Zoogeographical remarks:** Known species for Turkish fauna. Probably it distributed in especially North Turkey. This species has the Sibero-European chorotype.

### ***Oulema Gozis, 1886***

Type sp.: *Chrysomela melanopus* Linnaeus, 1758

#### ***Oulema duftschmidi* (Redtenbacher, 1874) (New to Turkey)**

**Names:** Absent.

**Material examined:** Ankara prov.: Ayaş, İlyakut, 31.07.1980, leg. Y. Özdemir, 1 specimen; Çubuk, Sarayköy, 15.05.1984, leg. T. Davarcı, 1 specimen; Ayaş, 09.05.1990, leg. M. Aydemir, 1 specimen; Beypazarı, İnönü plateau, 11.05.1999, leg. Y. Özdemir, 2 specimens; Çubuk, Sirkeli, 13.06.1999, leg. Y. Özdemir, 1 specimen; Şereflikoçhisar-Evren road, 1000 m, 21.06.1997, leg. H. Özdikmen, 2 specimens; Bolu-Düzce prov.: 02.09.1982, leg. Y. Özdemir, 1 specimen; Kırşehir: Dinekbağı, 20.07.1992, leg. M. Özdemir, 1 specimen; Afyon prov.: 04.08.1993, leg. A. Kalkandelen, 4 specimens; Kayseri prov.: 17.06.1994, leg. A. Kalkandelen, 1 specimen; Eskişehir prov.: İnönü, 29.05.1995, leg. M. Aydemir, 3 specimens; İnönü, 29.05.1995, leg. Y. Özdemir, 1 specimen; Çankırı prov.: Eldivan, 04.06.1997, leg. Y. Özdemir, 1 specimen; Kızılırmak, 02.07.1997, leg. Y. Özdemir, 2 specimens; Aksaray prov.: Ağaören, Yenişabanlı, Velipınarı, 1340 m, 21.06.1997, leg. H. Özdikmen, 1 specimen; Aksaray-Ulukışla road, 1135 m, 29.05.2001, leg. H. Özdikmen, 1 specimen; İçel prov.: between Mut-Karaman, 1200 m, 30.06.2000, leg. H. Özdikmen, 1 specimen; entry of Fındıkpınarı, 1035 m, 31.05.2001, leg. H. Özdikmen, 2 specimens; Karaman prov.: between Karaman-Ereğli 1000 m, 01.07.2000, leg. H. Özdikmen, 13 specimens; Karaman-Ereğli road, 990 m, 26.06.2001, leg. H. Özdikmen, 6 specimens; Adana prov.: Pozantı-İçel road, 1025 m, 29.05.2001, leg. H. Özdikmen, 2 specimens; Konya prov.: entry of Ereğli, 1010 m, 02.06.2001, leg. H. Özdikmen, 2 specimens; Samsun prov.: Alaçam, Kapaklı village, 620m, 16.06.2004, leg. H. Özdikmen, 1 specimen.

**Range:** West Palaeartic species. The species usually confused with *O. melanopus* (Linnaeus, 1758), its geographical distribution requires revision (Warchalowski, 2003); Albania, Andorra, Austria, ?Balearic Is., ?Belarus, ?Belgium, ?Bosnia and Herzegovina, ?Britain I., ?Bulgaria, Canary Is., Corsica, ?Czech Republic, Danish mainland, European Turkey, ?Finland, French mainland, Germany, Hungary, Italian mainland, ?Kaliningrad Region, Madeira, North Aegean Is., ?Norwegian mainland, Romania, Russia Central, ?Russia



Northwest, ?Russia South, ?Selvagens Is., Sicily, ?Slovakia, ?Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, ?Ukraine, ?Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro) (Audisio, 2005); W Palaearctic Region (Borowiec, 2006).

**Zoogeographical remarks:** New to Turkey. Probably it rather widely distributed in Turkey (especially in west half of Turkey). The species usually confused with *O. melanopus* (Linnaeus, 1758). This species has the W-Palaearctic chorotype.

### ***Oulema gallaeciana* (Heyden, 1870)**

**Names:** *cyanella* Paykull, 1798; *lichenis* Voet, 1806; *obscura* Stephens, 1829.

**Material examined:** Karabük prov.: Eflani, Yağlıca village, 975m, 15.05.2003, leg. H. Özdikmen, 1 specimen; Bolu prov.: Yeniçağa lake–Deliler village, 970m, 17.05.2003, leg. H. Özdikmen, 1 specimen.

**Previous records in Turkey:** Kars (Gruev & Tomov, 1979); Erzurum, Bayburt (Aslan, 2000).

**Range:** Europe, Siberia (Winkler, 1924-1932); Distributed in West, North and Central part of Europe, in the whole basin of Danube, in European Russia, West Siberia and North part of Central Asia (Warchalowski, 2003); Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Channel Is., Croatia, Czech Republic, Danish mainland, Estonia, Finland, French mainland, Germany, Greek mainland, Hungary, Ireland, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Monaco, Norwegian mainland, Poland, Romania, Russia Central, Russia East, Russia North, Russia Northwest, Russia South, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro) (Audisio, 2005); West Palaearctic region from Spain to West Siberia (Borowiec, 2006).

**Zoogeographical remarks:** New to Bolu and Karabük provinces.. Probably it rather widely distributed in North Turkey. This species has the Sibero-European chorotype.

### ***Oulema melanopus* (Linnaeus, 1758)**

**Names:** *melanopa* Linnaeus, 1761.

**Material examined:** Diyarbakır prov.: Ergani, Gedicik, 17.04.1972, leg. Y. Dörtbudak, 1 specimen; Hazro, Dersil, 27.04.1972, leg. Y. Dörtbudak, 1 specimen; Siirt prov.: Tillo, 11.05.1972, leg. Y. Dörtbudak, 1 specimen; Kırklareli prov.: Pınarhisar, 10.07.1974, 4 specimens; Demirköy, 09.07.1994, leg. A. Kalkandelen, 1 specimen; Ankara prov.: Beypazarı, Dibecik village, 09.05.1990, leg. M. Aydemir, 1 specimen; Eskişehir prov.: Kaymaz, 23.06.1992, leg. Y. Özdemir, 1 specimen; Kaymaz, 20.06.1997, leg. Y. Özdemir, 1 specimen; Kaymaz, 23.06.1997, leg. Y. Özdemir, 3 specimens; Karabük prov.: Safranbolu, Hızır Yanı place, 740m, 14.05.2003, leg. H. Özdikmen, 2 specimens; Çorum prov.: Kargı– Boyabat road, Karagöl village, 700 m, 16.06.2003, 1 specimen; Kahramanmaraş prov.: Narlı-Türkoğlu road, 490 m, 23.06.2003, leg. A. Y. Okutaner, 2 specimens; Ekinözü, 1015 m, 27.06.2003, leg. A. Y. Okutaner, 2 specimens; Kastamonu prov.: between Devrekani–Yaralığöz, 15.08.2003, leg. H. Özdikmen, 1 specimen.

**Previous records in Turkey:** Ankara (Escherich, 1897); Adana (Medvedev, 1970); İzmir, Afyon (Gül-Zümreoğlu, 1972); Ankara, Samsun (Tomov & Gruev, 1975); Anatolia (Warchalowski, 1976); Diyarbakır, Siirt (Kısmalı et al., 1995); Erzurum, Erzincan, Kars, Iğdır, Ardahan (Aslan, 2000); Adana (Doğanlar et al., 2004); Adana, Osmaniye, Kahramanmaraş, Hatay (Bayram et al., 2004).

**Range:** Europe, Siberia, North Africa, Madeira (Winkler, 1924-1932); European part of Russia, Caucasus, Western Siberia, Altai, Southern Yakutia, Kazakhstan, Central Asia, Europe, Northern Africa, Iran, Afghanistan, Mongolia (Lopatin, 1977); European Russia, West Siberia, Kazakhstan, Central Asia, Europe, North Africa, Iran, Afghanistan, Turkey (Aslan, 2000); West Palaearctic species, distributed from Morocco, Ireland and S Norway to Near East, Central Siberia and Mongolia (Warchalowski, 2003); Albania, Andora, Austria, ?Azores, Balearic Is., Belarus, Belgium, Bosnia and Herzegovina, Britain I., Bulgaria, Canary Is., Channel Is., Crete, Croatia, Iceland, Cyclades Is., Cyprus, Czech Republic, Danish mainland, Dodecanese Is., Estonia, European Turkey (Incl. Imroz I. - Gökçeada, but not those in the Sea of Marmara), Finland, French mainland, Germany, Gibraltar, Greek mainland, Hungary, Ireland, Italian mainland, Kaliningrad Region, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Republic of, Monaco, North Aegean Is., Northern Ireland, Norwegian mainland, Poland, Portuguese mainland, Romania, Russia Central, Russia East, Russia North, Russia Northwest, Russia South, San Marino, Sardinia, Selvagens Is., Sicily, Slovakia, Slovenia, Spanish mainland, Sweden, Switzerland, The Netherlands, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), East Palaearctic, Near East, Nearctic region (USA, Canada), North Africa (Algeria, Morocco, Tunisia) (Audisio, 2005); Asia (Afghanistan, Azerbaijan, China, Georgia Republic, Iran, Israel, Kazakhstan, Mongolia, Syria, Turkey, Turkmenistan, Uzbekistan); Europe (Albania, Austria, Belarus, Belgium, Bulgaria, Cyprus, Czech Republic, Former Czechoslovakia, Germany, Gibraltar, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands (Restricted Distribution), Norway, Poland, Portugal, Romania, Russian Federation, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, Yugoslavia); Africa (Algeria, Morocco, Tunisia); North America (Canada, USA) (Graham, 2005); W Palaearctic Region east to Mongolia (Borowiec, 2006).

**Zoogeographical remarks:** New to Çorum, Eskişehir, Kahramanmaraş, Karabük, Kastamonu and Kırklareli provinces. Known species for Turkish fauna. It widely distributed in Turkey. This species has the Holarctic chorotype.

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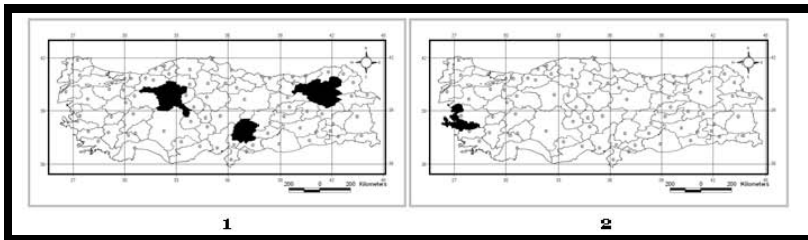


Plate I. Distribution area in Turkey of 1. *Lilioceris faldermanni* (Guerin, 1829) 2. *L. lili* (Scopoli, 1763).

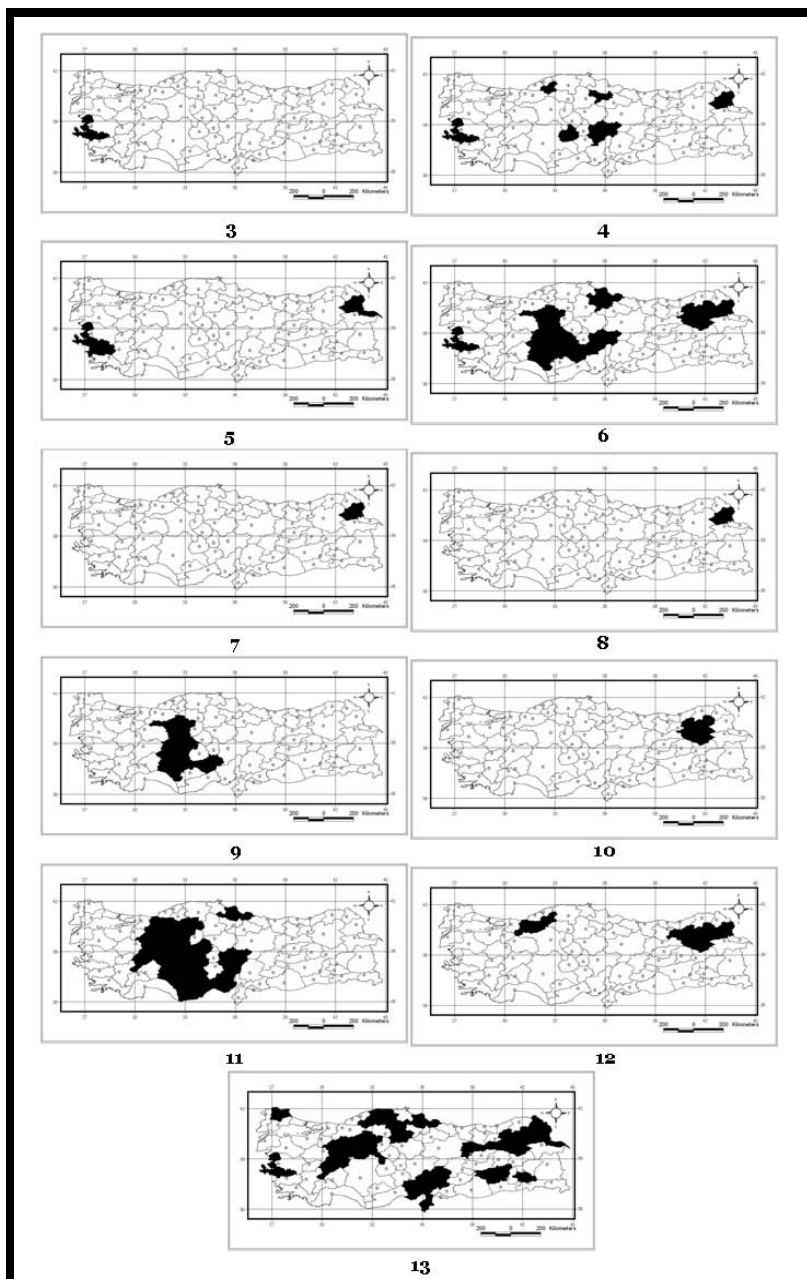


Plate II. Distribution area in Turkey of 3. *L. meridigera* (Linnaeus, 1758) 4. *C. asparagi* (Linnaeus, 1758) 5. *C. bicrucata* (Sahlberg, 1823) 6. *C. duodecimpunctata* (Linnaeus, 1758) 7. *C. paracanthesis* (Linnaeus, 1767) 8. *C. quatuordecimpunctata* (Scopoli 1763) 9. *C. sokolowi* Jacobson, 1894 10. *L. cyanella* (Linnaeus, 1758) 11. *O. duftschmidi* (Redtenbacher, 1874) 12. *O. gallaeciana* (Heyden, 1870) 13. *O. melanopus* (Linnaeus, 1758).