

**A NEW SPECIES OF *CHEILOTOMA* CHEVROLAT
FROM TURKEY WITH AN UPDATED LIST
(COLEOPTERA: CHRYSOMELIDAE: CLYTRINAE)**

Hüseyin Özdikmen* and Neslihan Bal*

* Gazi University, Science Faculty, Department of Biology, 06500 Ankara, TURKEY. E-mails: ozdikmen@gazi.edu.tr; neslihansilkin@gmail.com;

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ABSTRACT: All members of Turkish *Cheilotoma* Chevrolat is introduced on the base of 95 specimens of 4 species from 7 different provinces in Turkey. Correspondingly *Cheilotoma* (s. str.) *cankiriensis* sp. nov. from Çankırı province in North part of Central Anatolian Region of Turkey is described. Holotype (female) and its spermatheca are photographed. The newly described species is distinct with spermathecal structures (especially thickening of ductus spermatheca) whereby are easily distinguished from other known species of the genus. *Cheilotoma* (s. str.) *beldei* Kasap, 1984 is recorded for the first time from Çankırı province of Turkey. Accordingly an updated list of *Cheilotoma* species with their provincial distributions of all existing taxa in Turkey is given. A key to species in Palaearctic region of the genus is also provided.

KEY WORDS: Chrysomelidae, Clytrinae, *Cheilotoma*, *Cheilotoma cankiriensis*, new species, taxonomy, Turkey

The palaearctic genus *Cheilotoma* Chevrolat, 1836 was intensively studied in the last time (Kasap, 1984, 1987; Vela & Bastazo, 1994; Medvedev & Kantner, 2003; Medvedev, 2004; Özdikmen et al., 2007). According to Regalin & Medvedev in Löbl & Smetana (2010), the genus includes eleven taxa (seven species and four subspecies) of two subgenera as the nominate subgenus and *Exaesiognatha* Jakobson, 1923. They are distributed only in Palaearctic region (mostly Mediterranean area, and also Central Asia and Siberia). In Europe, the genus is represented by four subspecies of two species of the subgenus *Cheilotoma* (s. str.) (Regalin & Medvedev in Löbl & Smetana, 2010; Audisio & Regalin, 2016).

Özdikmen et al. (2007) stated that Turkish fauna of *Cheilotoma* Chevrolat consist of four species. The same species for Turkish fauna were given by Ekiz et al. (2013) and Özdikmen & Mercan (2014) repeatedly. They are *Ch.* (s. str.) *beldei* Kasap [types from Ankara, Eskişehir, Nevşehir and Sivas provinces], *Ch.* (s. str.) *erythrostoma* Faldermann [recorded to Turkey by Regalin (2002), Medvedev (2004), Özdikmen et al. (2007) and Özdikmen (2011) from Ankara, Bolu, Erzurum, Kastamonu, Konya and Samsun provinces], *Ch.* (s. str.) *musciformis* (Goeze) [recorded to Turkey by Gruev & Tomov (1979, 1984), Aslan & Özbek (2000) and Özdikmen (2011) from Ankara, Erzurum, Isparta and Konya provinces], and *Ch.* (s. str.) *voriseki* Medvedev & Kantner, 2003 [type from Adıyaman province].

We had the opportunity to study material of the genus *Cheilotoma* Chevrolat collected during the expedition of Çankırı province in 2015 and a new species of the genus *Cheilotoma* was detected. In addition many deposited specimens at Gazi University and Nazife Tuatay Plant Protection Museum (Turkey, Ankara) collected from Ankara, Bolu, Eskişehir, Kastamonu, Konya and Samsun provinces

in previous years were also evaluated. The description of the new species is presented below.

MATERIALS AND METHODS

The available specimens for the present study are into two categories. a) New material: 22 specimens were collected by the present authors from Çankırı province in Northern part of Central Anatolia of Turkey in 2015. b) Old material: 73 specimens were collected mostly by the first author from Ankara, Bolu, Eskişehir, Kastamonu, Konya and Samsun provinces in Northern part of Central Anatolia, and North-Western and Central parts of Northern Anatolia of Turkey in 1973, 1994, 1997, 2003, 2004, 2007. As a result of identification, known species and a new species of *Cheilotoma* were determined. The holotype of *Cheilotoma çankiriensis* sp. nov. is described, discussed and illustrated in the present text. The available specimens for the present study are deposited at Gazi University and Nazife Tuatay Plant Protection Museum (Turkey: Ankara).

Information in the present text is given in following order:

For the generic names, the type species and synonyms are provided under the taxon name. For each species group taxa, reported from Turkey, are given alphabetically. The Turkish distribution patterns for each species group taxon are given only concerning provinces. A distribution map for each species group taxon in Turkey is also provided. Turkish endemic taxa are marked with the sign (*).

For distribution data of the taxa, Özdikmen (2011), Ekiz et al. (2013), Özdikmen & Mercan (2014) for Turkey and Regalin & Medvedev in Löbl & Smetana (2010) for World are used in the text chiefly. The data is given in addition to the distribution data in Turkey, marked underlined. Key to species of genus is proposed on the base of the keys of Medvedev (2004) and Warchalowski (2010).

RESULTS AND DISCUSSIONS

The genus *Cheilotoma* includes 5 species in Turkey with a newly described species. Turkish *Cheilotoma* is reviewed on the base of 95 specimens of 5 species from 7 different provinces in Turkey with the present work. All members of Turkish *Cheilotoma* are presented as follows:

Genus *Cheilotoma* Chevrolat, 1836

Cheilotoma Chevrolat in Dejean, 1836: 420 (type species *Chrysomela bucephala* Schaller, 1783 = *Chrysomela musciformis* Goeze, 1777)
Chilotoma Agassiz, 1846: 78 (unjustified emendation)

The genus includes two subgenera as the nominate subgenus and *Exaesiognatha* Jakobson, 1923. It is represented only by the nominate subgenus in Turkey.

Subgenus *Cheilotoma* Chevrolat, 1836

Cheilotoma Chevrolat in Dejean, 1836: 420 (type species *Chrysomela bucephala* Schaller, 1783 = *Chrysomela musciformis* Goeze, 1777)
Chilotoma Agassiz, 1846: 78 (unjustified emendation)

***Cheilotoma beldei* Kasap, 1984**

Cheilotoma beldei Kasap, 1984: Col. Bull., 38: 216
Cheilotoma ammanica Lopatin, 1995: Ent. Obozr., 74: 100

This species is known from Ankara, Bolu, Çankırı, Eskişehir, Isparta, Nevşehir, Samsun and Sivas provinces in Turkey (Fig. 4a). It is recorded for the first time from Çankırı province. It is distributed only in Asia (Israel, Jordan and Turkey). Thus it has an E-Mediterranean (Palaestino-Taurian) chorotype.

New material: **Çankırı prov.:** Yapraklı, entry of Topuzsaray, 40°38'28" N, 33°53'11" E, 1169 m, 26.V.2015, 1 specimen; Ilgaz, Yaylaören, 40°53'7" N, 33°30'28" E, 999 m, 29.V.2015, 1 specimen; Çerkeş, İnceğiz village, 40°55'00" N, 32°58'54" E, 1133 m, 20.VI.2015, 1 specimen; Bayramören, Koçlu-Feriz return, 41°1'9" N, 33°17'58" E, 758 m, 21.VI.2015, 2 specimens; Bayramören, between Feriz-Dereköy, 41°2'5" N, 33°14'32" E, 954 m, 21.VI.2015, 6 specimens.

Old material: **Ankara prov.:** Kızılcahamam, Güvem, 1100 m, 28.V.1997 and 14.VI.1997, 3 specimens; Kızılcahamam, Aköz village, 1150 m, 28.V.1997, 5 specimens; Kızılcahamam, Soğuksu National Park, 1350 m, 07.VI.1997, 18 specimens; Kızılcahamam, Yukarı Çanlı, 1540 m, 14.VI.1997, 3 specimens; Kızılcahamam, Yenimahalle, 1100 m, 05.VII.1997, 1 specimen; Kızılcahamam, Karagöl, 1650 m, 11.VII.1997, 2 specimens; **Bolu prov.:** Gerede, 14.VI.1994, 1 specimen; between Gerede-Kızılcahamam, 1200 m, 17.V.2003, 1 specimen; **Eskişehir prov.:** Seyitgazi, 14.VI.1973, 1 specimen; **Samsun prov.:** Alaçam, Kapaklı village, 620 m, 16.VI.2004, 5 specimens.

****Cheilotoma cankiriensis* spec. nov.**

(Figs. 1, 2, 4b)

Type material. Holotype ♀: Turkey: Çankırı prov.: Ilgaz, Yaylaören, 40°53'7" N, 33°30'28" E, 999 m, 29.V.2015, Paratypes: 7 ♀♀: Same locality and data with holotype; 1 ♀: Turkey: Çankırı prov.: Orta, entry of Kısaç village, 40°37'57" N, 33°3'11" E, 1283 m, 10.V.2015; 1 ♀: Turkey: Çankırı prov.: Ilgaz, Kuyupınar village, 40°51'24" N, 33°36'8" E, 1411 m, 18.VI.2015; 1 ♀: Turkey: Çankırı prov.: Çerkeş, between Gelikova-Çorapoğlu return, 40°51'47" N, 32°56'47" E, 1361 m, 20.VI.2015. The specimens are deposited at Gazi University (Turkey: Ankara).

Etymology. The name is dedicated to the type locality Çankırı province (Turkey).

Description of holotype.

Body length 5.9 mm. Body width 3.25 mm.

Black with metallic reflection.

Head dorsoventrally flattened, black with metallic green reflection. Labrum entirely fulvous. Mandibles fulvous at most part, darkened only in apical part. Palpi of mouth parts darkened. Clypeus entirely black with metallic green reflection, distinctly punctate with gently arcuate apical margin. Frons entirely black with metallic green reflection, indistinctly grooved, indistinctly punctate and pubescent near eyes. Vertex glossy, sparsely punctate. Antennae distinctly serrate from 5th antennomere, antennomeres 1 and 2 thick and robust, 3 small and thin, 4 distinctly longer than 3 and widened to apex, 5-10 triangular, as wide as long, 11 feebly elongate. First four antennomeres entirely fulvous, the remaining parts of antennae black.

Pronotum bicolorous, fulvous with a large black spot with metallic green reflection on disc, with moderately strong, rather dense punctures, but interspaces between punctures distinctly more than diameter of punctures. Pronotum 2 times as wide as long, broadest beyond centre, with rear angles broadly rounded.

Scutellum black, trapeziform with broadly truncate apex, distinctly elevated above level of elytra, surface glossy, finely and sparsely punctate, mostly on sides.

Elytra approximately 1.3 times as long as wide, entirely metallic green, densely punctate, interspaces mainly as large as the punctures themselves, with dense microsculpture.

Pygidium black, covered with rather long, semierect or erect light pubescence.

Underside black with metallic reflection excluding fulvous prothorax, covered with rather long, semierect or erect light pubescence. Last abdominal sternite with a distinct hollow in the middle.

Legs covered with densely light pubescent, all coxae, trochanters and tarsi black, all tibiae fulvous, all femora bicolorous (anterior femora black in basal 1/3 and fulvous in apical 2/3, mid femora black in basal 2/3 and fulvous in apical 1/3, hind femora black in basal 3/4 and fulvous in apical 1/4).

Spermatheca in figure 2.

Male. Unknown.

Variability. Body length changes 4.75-6.25 mm. The size of central dark spot on pronotal disc is more or less same in all paratypes, but its shape displays three different forms as the same of holotype (5 paratypes), diamond shaped (5 paratypes) and entirely rounded (1 paratype).

Distribution. Known only from the type locality situated in Çankırı province in Northern part of Central Anatolian region of Turkey.

Diagnosis. The genus *Cheilotoma* is represented by 4 species in Turkey until now as *Cheilotoma beldei* Kasap, *Cheilotoma erythrostroma* Faldermann, *Cheilotoma musciformis* (Goeze) and *Cheilotoma voriseki* L. N. Medvedev & Kantner. Spermathecal structures of 3 species were given by Medvedev (2004) and Warchalowski (2010) with figures. Since female of *Cheilotoma voriseki* L. N. Medvedev & Kantner from Southern Anatolia is unknown. Thus the new species is unique due to spermathecal structures in known species from Turkey. It is easily distinguished from the other Turkish species by thickening of ductus spermatheca chiefly. Similar thickening is known only in *C. fulvicollis* from Syria. Anyway the spermathecal structures of new species also much differs from that of *C. fulvicollis*.

A comparison with spermathecal structures of the new species and known species can present as follows:

In the new species, vasculum C shaped. Apex of vasculum pointed. Bulbus more or less like a small wineglass. Ductus relatively thickened, its proximal part smooth, the remaining part spirally coiled (Fig. 2).

In *C. fulvicollis*, vasculum like a somewhat narrowed question mark. Apex of vasculum relatively thickened, extreme apex of vasculum somewhat curved inwards. Bulbus swollen. Ductus relatively thickened, all parts not spirally coiled (Fig. 3a).

In *C. erythrostroma*, vasculum like a somewhat widened question mark. Apex of vasculum pointed, extreme apex of vasculum slightly directed upward. Bulbus like a cushion. Ductus relatively thinned, its proximal part smooth, the remaining part spirally coiled (Fig. 3b).

In *C. musciformis*, vasculum a somewhat widened question mark. Apex of vasculum pointed. Bulbus elongated. Ductus relatively thinned, almost all parts spirally coiled (Fig. 3c).

In *C. beldei*, vasculum a somewhat widened question mark. Apex of vasculum pointed, extreme apex curved inward clearly. Bulbus elongated. Ductus relatively thinned, almost all parts spirally coiled (Fig. 3d).

***Cheilotoma erythrostroma* Faldermann, 1837**

Cheilotoma erythrostroma Faldermann, 1837: Faun. Ent. Transc., 376

Cheilotoma erythrostroma Faldermann, 1837: Faun. Ent. Transc., 376 (unused original spelling)

This species has two subspecies as the nominate subspecies and *Cheilotoma erythrostroma italica* Leoni, 1906 that is known only from Italy and Spain. Thus it is represented only by the nominate subspecies *Cheilotoma erythrostroma erythrostroma* Faldermann, 1837 in Turkey.

It is known from Ankara, Bolu, Erzurum, Kastamonu, Konya and Samsun provinces in Turkey (Fig. 4c). It is distributed in Europe (Bulgaria, Czech Republic, Slovakia, South part of European Russia and Ukraine) and Asia (Armenia, Azerbaijan, Georgia, Iran, Kazakhstan and Turkey). Thus it has a Turano-European chorotype.

Old material: **Ankara prov.:** Kızılcahamam, Yukarı Çanlı, 1250 m, 28.V.1997, 2 specimens; Kızılcahamam, Salin village, 1300 m, 14.VI.1997, 2 specimens; **Bolu prov.:** Bolu–Gerede road, Susuz Kınık village, 720 m, 1 specimen; between Gerede–Kızılcahamam, 1200 m, 17.V.2003, 2 specimens; Yeniçağa–Mengen, Çamlık village, 20.V.2004, 4 specimens; Yeniçağa–Mengen, 20.V.2004, 2 specimens; **Kastamonu prov.:** Kastamonu–İnebolu, 17.V.2004, 2 specimens; **Konya prov.:** Beyşehir, 1137 m, 16.V.2007, 16 specimens; **Samsun prov.:** Alaçam, Kapaklı village, 620 m, 16.VI.2004, 1 specimen.

***Cheilotoma musciformis* (Goeze, 1777)**

Chrysomela musciformis Goeze, 1777: Ent. Beyt., 319

Chrysomela bucephala Schaller, 1783: Abh. Hall. Nat. Ges., 1: 276

Melolontha muscoides Geoffroy, 1785: Ent. Par., 72

This species has three subspecies as the nominate subspecies, *Cheilotoma musciformis apennina* L. N. Medvedev, 2004 that is known only from Italy, Spain and *Cheilotoma musciformis iranica* L. N. Medvedev, 2004 that is known only from Iran. *Cheilotoma musciformis hispanica* L. N. Medvedev, 2004 is a synonym of *Cheilotoma musciformis apennina* L. N. Medvedev, 2004. Thus it is represented only by the nominate subspecies *Cheilotoma musciformis musciformis* (Goeze, 1777) in Turkey.

It is known from Ankara, Erzurum, Isparta and Konya provinces in Turkey (Fig. 4d). It was recorded by Aslan & Özbek (2000) from Erzurum and Isparta provinces. Unfortunately Ekiz et al. (2013) and Özdikmen & Mercan (2014) did not include these records. It is distributed in Europe (Austria, Bosnia & Herzegovina, Bulgaria, Central and South parts of European Russia, Croatia, France, Greece, Hungary, Italy, Moldova, Montenegro, Romania, Slovenia and Ukraine) and Asia (East Siberia, Kazakhstan, Mongolia and Turkey). Thus it has a Sibero-European chorotype.

Old material: **Konya prov.:** Hadim, Küçükklü village, Şeker Piknik, 1300 m, 18.V.2007, 1 specimen.

****Cheilotoma voriseki* L. N. Medvedev & Kantner, 2003**

Cheilotoma voriseki L. N. Medvedev & Kantner, 2003: Ent. Zeit., 113: 268

This endemic species is known only from Adıyaman province in Turkey (Fig. 4e). It is distributed only in Asia (Turkey). Thus it has an Anatolian chorotype.

KEY TO SPECIES

1. Mandibles much shorter than head. Elytra unicolorous. West Palaearctic species.....Subgenus *Cheilotoma*.....2
 -. Mandibles strongly elongate, almost as long as head. Elytra with fulvous apical spot. Central Asiatic species.....Subgenus *Exaesiognatha*.....*C. ivanovi*
2. Pronotum entirely fulvous. Ductus of spermatheca not spirally coiled (Fig. 3a).....3
 -. Pronotum bicolorous (fulvous with central metallic spot). Ductus of spermatheca spirally coiled (Figs. 2, 3b,c,d).....4
3. Emargination of clypeus in male strictly quadrangular, its teeth curved outside. Head sparsely pubescent and weakly punctate. Vasculum of spermatheca like a somewhat narrowed question mark. Apex of vasculum relatively thickened, extreme apex of vasculum somewhat curved inwards. Bulbus spermatheca swollen. Ductus spermatheca relatively thickened, all parts not spirally coiled (Fig. 3a). Syrian species.....*C. fulvicollis*
 -. Emargination of clypeus in male feebly trapeziform, widened to apex, its teeth straight. Head pubescent and strongly punctate. Female unknown. Anatolian species.....*C. voriseki*
4. Pronotum with fulvous lateral margins and large spot in the middle. Elytra with fulvous apex. North African species.....*C. rotroui*
 -. Pronotum fulvous with central metallic dark spot. Elytra without fulvous apex. Species from other parts of West Palaearctic region.....5
5. Vasculum of spermatheca like a somewhat widened question mark. Apex of vasculum pointed, extreme apex of vasculum slightly directed upward. Bulbus spermatheca like a cushion. Ductus spermatheca relatively thinned, at least its proximal part smooth, the remaining part spirally coiled (Fig. 3b). Clypeus U-like emarginated in male. Apex of aedeagus widened and transversely truncate.....*C. erythrostroma*
 -. Vasculum of spermatheca C shaped or like a somewhat widened question mark (Figs. 2, 3c,d). Ductus spermatheca relatively thickened or thinned. If male known, emargination of clypeus quadrangular or deltoidal. Apex of aedeagus more or less pointed.....6
6. Vasculum of spermatheca C shaped. Ductus spermatheca relatively thickened as in *C. fulvicollis*, its proximal part smooth, the remaining part spirally coiled (Fig. 2). Male unknown.....*C. cankiriensis* sp. nov.
 -. Vasculum of spermatheca like a somewhat widened question mark. Ductus spermatheca relatively thinned, almost all parts spirally coiled (Figs. 3c,d). Emargination of clypeus in male quadrangular or deltoidal. Apex of aedeagus more or less pointed.....7
7. Clypeus with quadrangular emargination in male. Apex of aedeagus pointed. Spermatheca with extreme apex not curved inward (Fig. 3c).....*C. musciformis*

-. Clypeus with deltooidal emargination in male. Apex of aedeagus more or less pointed. Spermatheca with extreme apex strongly curved inward (Fig. 3d).....
*C. beldei*

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Figure 1. *Cheilotoma cankiriensis* sp. nov. (holotype ♀), dorsal view (left), ventral view (right).



Figure 2. Spermathecal structures of *C. cankiriensis* sp. nov.

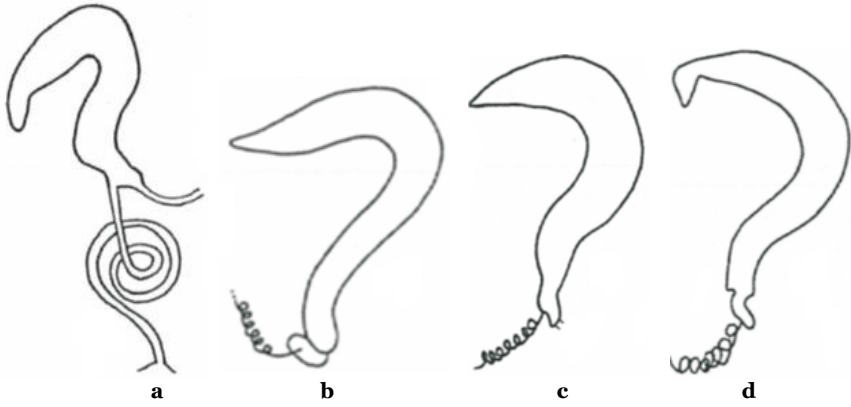


Figure 3. Spermathecal structures of a) *C. fulvicollis*, b) *C. erythrostoma*, c) *C. musciformis*, d) *C. beldei* (after Warchalowski, 2010).

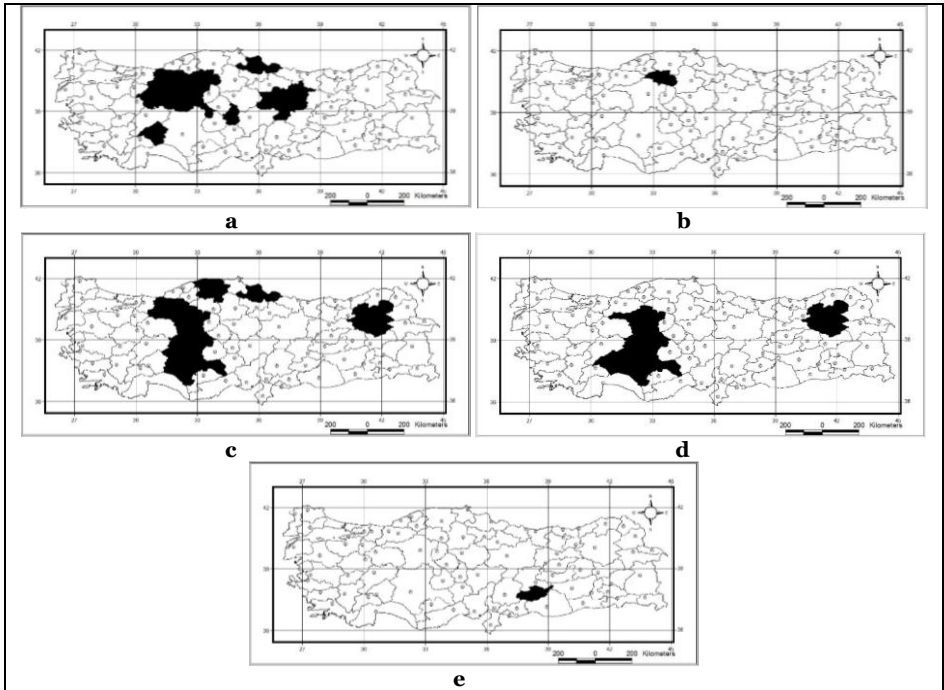


Figure 4. Known provincial distribution patterns in Turkey of a) *C. beldei*, b) *C. cankiriensis* sp. nov., c) *C. erythrostoma*, d) *C. musciformis*, e) *C. voriseki*.