

Additional data to the Aphodiinae fauna (Coleoptera: Scarabaeidae) of the Sündiken Mountains, Turkey

Doğan Erhan Ersoy^{1*} , Abdullah Hasbenli¹ 

Abstract: Aphodiinae subfamily is represented with 6762 species and subspecies belonging to 521 genera in the Palearctic region. This family is presented by taxa of 61 genera and 161 species and subspecies in Turkey. Nineteen species are endemic to Turkey. Scarabaeidae family members can be fed on different types of food. Aphodiinae members are usually recorded from cow dung. So, they are called coprophagous insects. They play an important role in the nitrogen cycle. This study was conducted in Sündiken Mountains in Eskişehir province of Turkey, from 2011 to 2013 years. The Sündiken Mountains are rich in plant diversity and variable micro climate. Study area visited 13 different time 40 days. The samples were caught with pitfall traps, light traps and directly by hand or forceps. The aim of this study is to reveal the Aphodiinae fauna on Sündiken mountains, which is one of the important biodiversity areas in Turkey. Due to Aphodiinae's ecological roles and their largest number in Scarabaeidae family, study focused on them. The paper presented original records of 29 species where recorded from Eskişehir province. Nineteen new city records given from this province. The species distribution maps for Turkey, aedeagus and habitus photographs were presented in the study.

Keywords: Coprophagy, Dung beetles, Eskişehir, Faunistic list.

¹**Address:** Isparta Uygulamalı Bilimler Üniversitesi, Orman Fakültesi, Orman Endüstri Mühendisliği Bölümü, 32260, Isparta.

***Corresponding author:** entomol.erhanersoy@gmail.com

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1. INTRODUCTION

The family Scarabaeidae, represented by 30.000 species of beetles worldwide, is one of the most crowded insect families (Hanski Cambefort, 1991). This family is represented in the Palearctic region with 6762 species and subspecies belonging to 521 genera (Löbl & Löbl, 2016). Aphodiinae subfamily in Turkey is represented by taxa of 61 genera and 161 species and subspecies. Nineteen species are endemic to Turkey (Löbl & Löbl, 2016). Aphodiinae is the family with the most species in Scarabaeidae (Löbl & Löbl, 2016). Many different options and new opinions have been suggested in the classification of the family Scarabaeidae. It is difficult to recognize the sub taxa of the family due to these different views, because it can differ according to the sub-family, genus and sub-genus rankings (G. Dellacasa, Bordat, et al., 2001; Ghahari et al., 2011; Löbl & Löbl, 2016; Löbl & Smetana, 2006). Because the Aphodiinae subfamily contains too many genus group taxon, it is very difficult to find the correct species (G. Dellacasa, Bordat, et al., 2001).

Scarabaeidae family members can be fed on different types of food. Aphodiinae members are usually recorded from cow dung. So, they are called coprophagous insects. They play an important role in the nitrogen cycle (Anlaş et al., 2011b; Giovani da Silva et al., 2012). Aphodius are dweller dung beetles and they increase bacterial density and decrease hyphal density through substrate mixing (Lussenhop et al., 1980).

The first studies on Scarabaeidae in Turkey started with the name of Turkestan fauna, which includes Turkey, by Edmund Reitter in 1908. Other researchers working in Turkey are Viladimir Balthasar, Axel Bellman, Giovanni Dellacasa, Giuseppe Maria Carpaneto, Marco Dellacasa, István Rozner, György Rozner, Riccardo Pittinodurn (Bellmann, 2007; Carpaneto, 1973, 1976; Carpaneto et al., 2000; Carpaneto Piattella, 1989; G. Dellacasa, Bordat, et al., 2001; G. Dellacasa, Dellacasa, et al., 2001; G. Dellacasa Dellacasa, 2006; M. Dellacasa Kırgız, 2002; Pittino, 1982a, 1982b, 1995, 1996; Rozner Rozner, 2009). Early studies by local researchers in Turkey are agricultural catalog records made by Süheyla Gül-Zümreoğlu in 1972. Especially with the studies of Yakup Şenyüz and his team, domestic studies

have accelerated in Turkey. After this work, several researchers have started to work on Turkish Scarabaeidae fauna. Thus there has been significant progress up to date (Anlaş, 2011; Anlaş et al., 2011b, 2011a; Küçükaykay et al., 2013; Lodos et al., 1989, 1999, 2003; Özgen et al., 2014, 2014; Pehlivan, 1988, 1989; Senyuz et al., 2019; Şenyüz, 2015, 2017; Şenyüz, Dindar, Altunsoy, 2013; Şenyüz, Dindar, Gülmez, et al., 2013; Şenyüz et al., 2016, 2017; Şenyüz Şahin, 2009a, 2009b, 2013).

The Sündiken Mountains are rich in plant diversity and micro climate. Except for the western part of the mountain range, it is surrounded by steppes, while the west is associated with Bilecik forests along the Sakarya valley. Except for the western part of the mountain range, it is surrounded by steppes. The west of this mountain is associated with Bilecik forests along the Sakarya valley. East-West direction, it has its own vegetation layers, deciduous and evergreen forests on its North and South slopes (Ekim & Akman, 1990). The aim of this study is to reveal the Aphodiinae fauna on Sündiken mountains, which is one of the important biodiversity areas in Turkey (Eken et al., 2006). Due to Aphodiinae's ecological roles and their largest number in Scarabaeidae family, study focused on them.

2. MATERIAL and METHOD

The samples were collected for all seasons between the years of 2011 to 2013 at Sündiken Mountains. In this study, totally 327 localities were visited, at 13 different times and 40 days. Bilecik is located in the west, Ankara is located in the north and the east, Eskişehir is located in the south of Sündiken mountains (Figure 1). Maps were prepared with Arc GIS 10.02. Aphodiinae samples were collected with pitfall traps, light traps and directly by hands or by tweezers in cow dung. All of the specimens were preserved at Zoological Museum of Gazi University (ZMGU). The photographs of samples were taken with Nikon AF-S DX 18-105mm F3.5-5.6 VR, Nikon AF 105mm f/2.8D, Nikon D7000 body. Diagnosis was completed with Baraud, 1992; G. Dellacasa, Bordat, et al., 2001; Ballerio, et al. 2019.



Figure 1. Location of the Sündiken Mountains in Turkey. Sündiken Mountains is shown.

3. RESULTS

The faunistic list of this study contains 29 species. 19 species were recorded first time for Eskişehir province in Sündiken Mountains.

Family: Scarabaeidae Latreille, 1802

Subfamily: Aphodiinae Leach, 1815

***Acrossus luridus* Fabricius, 1775 Figure 2.**

Distribution in Turkey: Adana, Adıyaman, Afyon, Ağrı, Ankara, Antalya, Artvin, Bartın, Bitlis, Bolu, Burdur, Bursa, Çorum, Denizli, Diyarbakır, Edirne, Elazığ, Erzurum, Eskişehir, Gaziantep, Gümüşhane, İzmir, İçel, İzmir, Kahramanmaraş, Kars, Kırklareli, Kütahya, Manisa, Mersin, Niğde, Ordu, Osmaniye, Rize, Siirt, Sivas, Tekirdağ (M. Dellacasa Kirgiz, 2002; Lodos et al., 1999; Rozner Rozner, 2009; Şenyüz, 2009; Şenyüz, Dindar, Altunsoy, 2013; Şenyüz Şahin, 2009a)

Material examined: Totally 28 ♂♂, 31 ♀♀. Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'40.64"N/31°16'9.04"E, 1250 m, 28.04.2012, 3 ♀♀; Bilecik, İnhisar, Akkum, 40° 5'16.59"N/ 30°24'8.59"E, 325 m, 29.04.2012, 1 ♀; Bilecik, Söğüt, Akçasu, 40° 5'15.97"N/ 30°18'30.34"E, 185 m, 29.04.2012, Eskişehir, Tepebaşı, Avlamiş-Kocaçobanpınarı 1. Km, 39° 55'59.50"N/ 30°26'18.84 "E, 1174 m, 29.04.2012 13 ♂♂, 11 ♀♀; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 30.04.2012, 9 ♂♂, 7 ♀♀; Eskişehir, Tepebaşı, Tandır-Danışment, 39°53'30.03"N/ 30°42'22.15"E, 1200 m, 30.04.2012, 1 ♀; Eskişehir, Tepebaşı, Kozlubel, 39°54'43.14"N/ 30°53'49.42"E, 900 m, 30.04.2012, 2 ♀♀; Eskişehir, Beylikova, Doğanoglu-Bozan, 39°49'43.76"N/ 31°10'35.40"E, 862 m, 30.04.2012, 2 ♂♂, 2 ♀♀; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220 m, 14.06.2012, 4 ♂♂, 4 ♀♀.

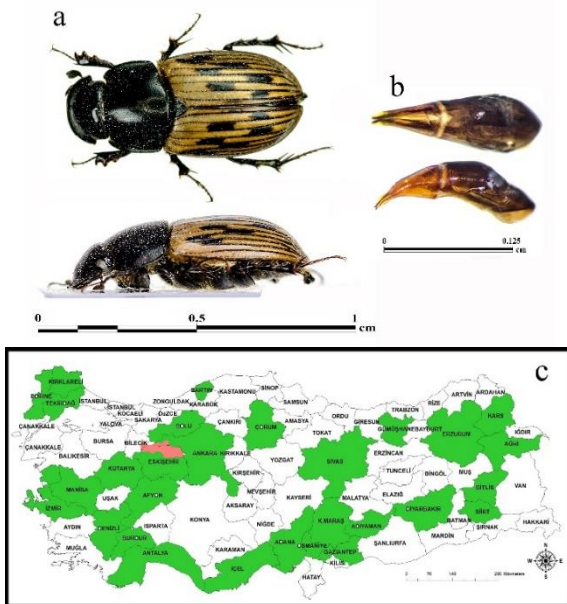


Figure 2. *Acrossus luridus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Amidorus cribrarius* Brullé, 1832 Figure 3.**

Distribution in Turkey: Artvin, Erzincan, Erzurum, Giresun, Mersin, Rize, Samsun, Sivas, Trabzon (Lodos et al., 1999; Şenyüz, Dindar, Altunsoy, 2013).

Material examined: Totally 3 ♂♂, 3 ♀♀. Eskişehir, Mihaliçcik, Ahurözü, 39°47'10.36"N/ 31°42'55.21"E, 1035m, 21.09.2011, 2 ♂♂, 2 ♀♀; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 1 ♂; Eskişehir, Beylikova, Doğanoglu-Bozan, 39°49'43.76"N/ 31°10'35.40"E, 862 m, 30.04.2012, 1 ♀.

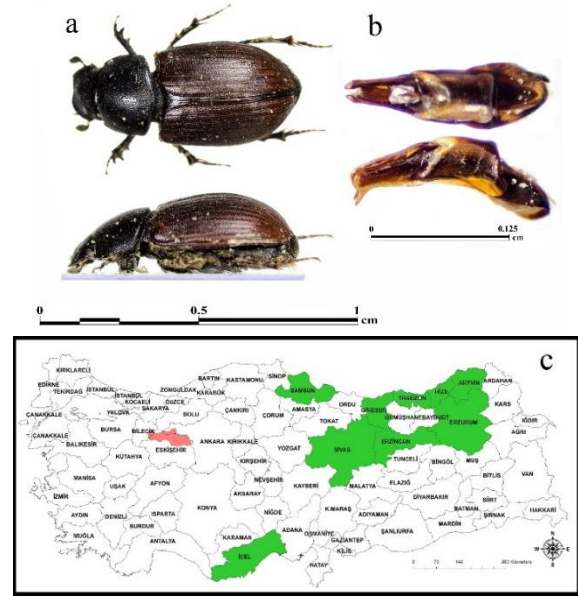


Figure 3. *Amidorus cribrarius* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Ammoecius muchei* Petrovitz, 1962 Figure 4.**

Distribution in Turkey: Bolu, Kastamonu, Ordu, Sinop, Tokat (Carpaneto, 1976).

Material examined: Totally 12 ♀♀. Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035m, 21.08.2011, 3 ♀♀; Eskişehir, Beylikova, Yeniuyurt, 39° 43.354"N / 31° 18.785"E, 751 m, 02.04.2012, 1 ♀; Eskişehir, Tepebaşı, Kavacık- Emirceoglu, 39° 52.421"N / 30° 27.923"E, 906 m, 02.04.2012, 1 ♀; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 30.04.2012, 1 ♀; Eskişehir, Tepebaşı, Tandır-Danışment, 39°53'30.03"N/ 30°42'22.15"E, 1200 m, 30.04.2012, 1 ♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 12.08.2012, 1 ♀; Eskişehir, Beylikova, Yeniuyurt, 39° 43.354"N / 31° 18.785"E, 751 m, 02.04.2012, 1 ♀; Eskişehir, Sarıcakaya, Beyköy-Kapıkaya, 40° 3'41.92"N / 30°43'40.36"E, 230 m, 29.04.2012, 1 ♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822" E, 1035 m, 28.06.2012, 1 ♀.

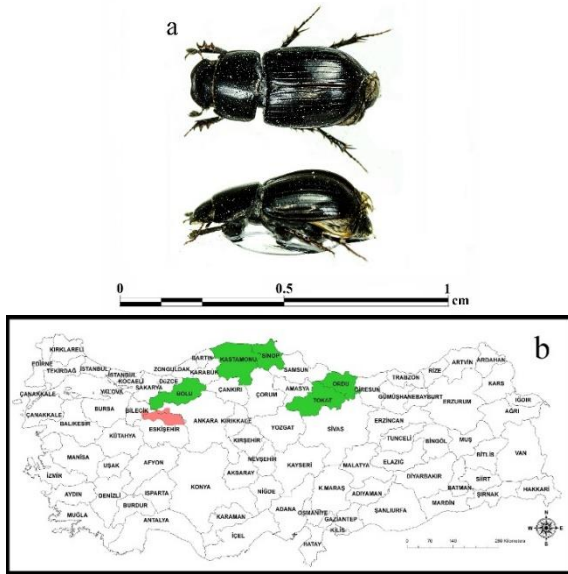


Figure 4. *Ammoecius muchei* a: ♀ habitus dorsal and lateral view b: distribution map for Turkey

***Aphodius fimetarius* (Linnaeus, 1758)** Figure 5.

Distribution in Turkey: Adana, Adıyaman, Afyon, Ankara, Antalya, Artvin, Bartın, Balıkesir, Bingöl, Bolu, Bursa, Burdur, Çankırı, Tekirdağ, Çorum, Denizli, Erzurum, Edirne, Gaziantep, Giresun, Gümüşhane, Samsun, Sivas, Rize, Hatay, Isparta, İçel, İzmir, Kahramanmaraş, Kastamonu, Kayseri, Kırşehir, Kırklareli, Kütahya, Manisa, Niğde, Osmaniye, Zonguldak (Balthasar, 1952; M. Dellacasa Kırğız, 2002; Lodos et al., 1999; Özgen et al., 2014; Rozner Rozner, 2009; Şenyüz, 2009).

Material examined: Totally 69 ♂♂, 88 ♀♀. Eskişehir, Tebebaşı, Kozlublub, 39°54'43.14"N/ 30°53'49.42"E, 900m, 23.08.2011, 1 ♂; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 2 ♂♂; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220m, 22.09.2011, 4 ♂♂, 1 ♀; Eskişehir, Alpu, Arıkaya-Belkese, 39°59'15.48"N, 31° 3'50.04"E, 1355m, 22.09.2011, 33 ♂♂, 50 ♀♀; Eskişehir, Tebebaşı, Hekimdağ-Sakarılıca, 39° 54' 886"N / 30° 34' 150" E, 1240m, 23.09.2011, 7 ♂♂, 7 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822" E, 1035m, 02.12.2011, 1 ♂, 5 ♀♀; Eskişehir, Merkez, Atalantekke, 39°57'47.22"N, 30°32'18.18"E, 1165m, 02.12.2011, 4 ♂♂; Eskişehir, Mihaliçcik, Çalkaya- Süleler, 40° 3.125"N / 31° 13.348"E, 573 m, 01.04.2012, 2 ♂♂; Eskişehir, Mihaliçcik, Çalkaya, 40° 3.067"N / 31° 15.441"E, 675 m, 01.04.2012, 1 ♂, 5 ♀♀; Eskişehir, Alpu, Sarıkaracaören, 40° 2.154"N / 30° 55.080"E, 288 m, 01.04.2012, 2 ♀♀; Eskişehir, Tebebaşı, Çavlum- Kızılcaören, 39° 49.795"N / 30° 43.619"E, 813 m, 02.04.2012, 1 ♂; Eskişehir, Mihaliçcik, Gürleyik-Subaşı Şelalesi, 39°59'44.34"N/ 31°19'58.53"E, 750 m, 28.04.2012, 1 ♀; Eskişehir, Tebebaşı, Yarımca-Tandır, 39°55'15.19"N/ 30°40'17.76"E, 1312 m, 30.04.2012, 1 ♂, 2 ♀♀; Eskişehir, Tebebaşı, Tandır-Danışment, 39°53'30.03"N/ 30°42'22.15"E, 1200 m, 30.04.2012, 1 ♂, 1 ♀; Eskişehir, Beylikova, Doğanoglu-Bozan, 39°49'43.76"N/ 31°10'35.40"E, 862 m, 30.04.2012, 1 ♀; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220 m, 14.06.2012, 2 ♂♂; Eskişehir, Mihaliçcik, Yeşilyurt-Çalkaya,

40° 1'36.16"N/ 31°12'52.19"E, 1350 m, 14.06.2012, 3 ♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822"E, 1035 m, 28.06.2012, 3 ♂♂, 5 ♀♀; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135 m, 12.07.2012, 3 ♂♂.

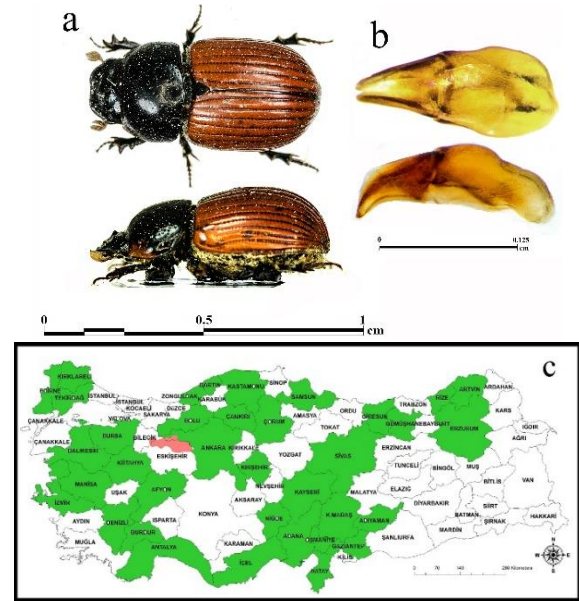


Figure 5. *Aphodius fimetarius* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Bodiloides ictericus ictericus* Laicharting, 1781** Figure 6.

Distribution in Turkey: Edirne, Kırklareli, İzmir (M. Dellacasa Kırğız, 2002; Rozner Rozner, 2009).

Material examined: Totally 27 ♂♂, 74 ♀♀. Eskişehir, Alpu, Alapınar-Taycılar, 40°0'55.92"N/ 30°50'42.90"E, 1110m, 21.08.2011, 2 ♂♂; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035m, 21.08.2011, 6 ♂♂, 5 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın 4. km, 40° 02' 499"N / 30° 49' 822"E, 1035m, 22.09.2011, 1 ♂; Eskişehir, Mihaliçcik, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 1 ♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 28.06.2012, 1 ♂, 7 ♀♀; Eskişehir, Mihaliçcik, Otluk-Karacaören, 40° 0'25.91"N/ 31° 7'25.08"E, 1115 m, 11.08.2012, 1 ♂; Ankara, Nallıhan, Aşağıkavacık-Nallıhan, 40°10'14.55"N/ 31°15'6.90"E, 955 m, 12.08.2012, 1 ♂; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822"E, 1035 m, 12.08.2012, 4 ♂♂, 23 ♀♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 04.09.2012, 11 ♂♂, 30 ♀♀; Eskişehir, Mihaliçcik, Yeşilyurt-Çalkaya, 40° 1'3.61"N/ 31°11'55.96"E, 1307 m, 04.09.2012, 1 ♀; Eskişehir, Tebebaşı, Avlamlı-Alpagut, 39°59'7.69"N/ 30°28'39.28"E, 810 m, 13.07.2012, 1 ♀; Eskişehir, Mihaliçcik, Yalınkaya-Yeşilyurt, Yalınkaya, 1144 m, 39°58'50.79"N/ 31°13'41.12"E, 04.09.2012, 1 ♀.

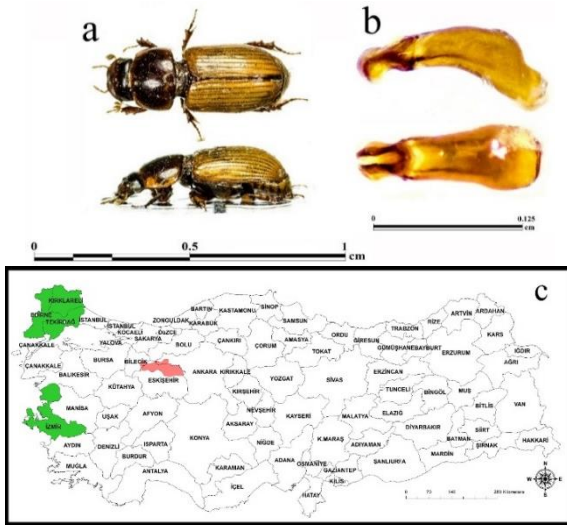


Figure 6. *Bodiloides ictericus ictericus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Bodilopsis rufa* Moll, 1782** Figure 7.

Distribution in Turkey: It is known in Turkey but no city record is included in Palaearctic catalog (Löbl & Löbl, 2016)

Material examined: Totally 1 ♀. Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 12.08.2012, 1 ♀.

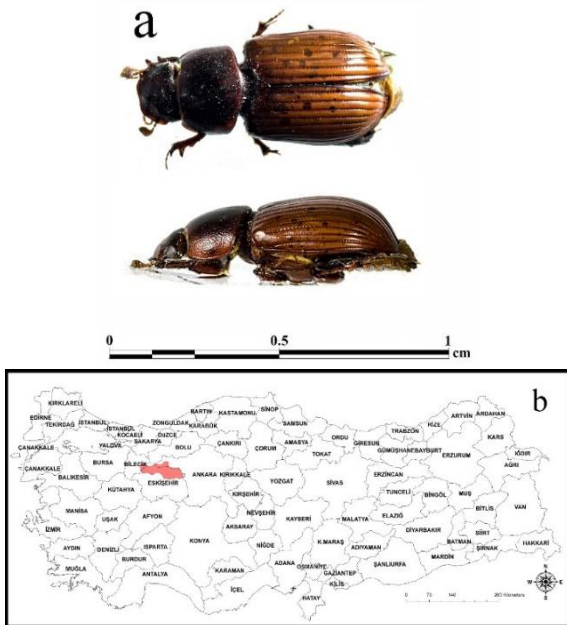


Figure 7. *Bodilopsis rufa* a: ♀ habitus dorsal and lateral view b: distribution map for Turkey

***Bodilus lugens* Creutzer, 1799** Figure 8.

Distribution in Turkey: Adana, Adıyaman, Ankara, Antalya, Bolu, Burdur, Çorum, Edirne Uşak, Samsun, Erzincan, Erzincan, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Kırklareli, Kırşehir, Konya, İçel, Niğde, İzmir (M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009; Şenyüz, 2009)

Material examined: Totally 1 ♂, 1 ♀. Eskişehir, Mihallıçcık, Ahurüzü, 39°47'10.36"N/ 31°42'55.21"E, 1035m, 20.08.2011, Eskişehir, Tebebaşı, Kozlubel, 39°54'43.14"N/ 30°53'49.42"E, 900m, 23.08.2011 1 ♂.

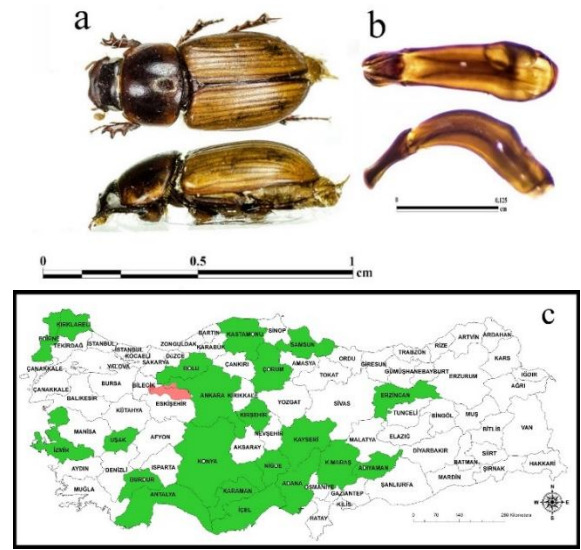


Figure 8. *Bodilus lugens* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Calamosternus granarius* Linnaeus, 1767** Figure 9.

Distribution in Turkey: Adana, Afyon, Ankara, Antalya, Bartın, Bitlis, Bolu, Burdur, Çanakkale, Çankırı, Çorum, Denizli, Edirne, Erzurum, Eskişehir, Gaziantep, Giresun, İçel, Isparta, İzmir, Kahramanmaraş, Kırşehir, Karaman, Kayseri, Konya, Kırıkkale, Kırklareli, Gümüşhane, Niğde, Osmaniye, Sakarya, Sivas, Uşak, Zonguldak (Balthasar, 1952; M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009; Şenyüz Şahin, 2009a)

Material examined: Totally 5 ♂♂, 5 ♀♀. Eskişehir, Tebebaşı, Yarımca-Tandır, 39°55'15.19"N/ 30°40'17.76"E, 1312 m, 30.04.2012.

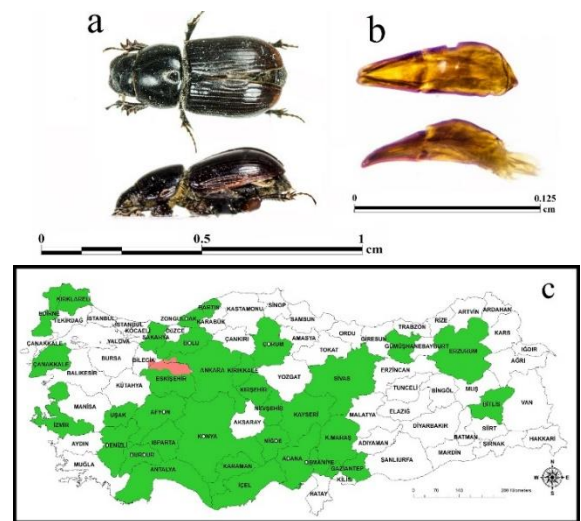


Figure 9. *Calamosternus granarius* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

Chilothorax distinctus distinctus O. F. Müller, 1776 Figure 10.

Distribution in Turkey: Ankara, Antalya, Ağrı, Bartın, Bolu, Burdur, Denizli, Edirne, İçel, Muğla, Nevşehir, Karaman, Kastamonu, Kırşehir, Kütahya, Konya, Niğde (Bellmann, 2007; M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009; Şenyüz, 2009)

Material examined: Totally: Totally 8 ♂♂, 7 ♀♀. Eskişehir, Mihalıçcık, Gürleyik-Yalınkaya arası 7. km, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 1 ♂; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822" E, 1035m, 02.12.2011, 1 ♂; Eskişehir, Merkez, Atalantekke, 39°57'47.22"N, 30°32'18.18"E, 1165m, 02.12.2011, 2 ♀♀; Ankara, Polatlı, Gençali, 39°46'6.34"N / 31°48'53.68"E, 996 m, 31.03.2012, 4 ♂♂, 5 ♀♀; Eskişehir, Tepebaşı, Çavluk-Kızılcaören, 39° 49.795'N / 30° 43.619'E, 813 m, 02.04.2012, 2 ♀♀.

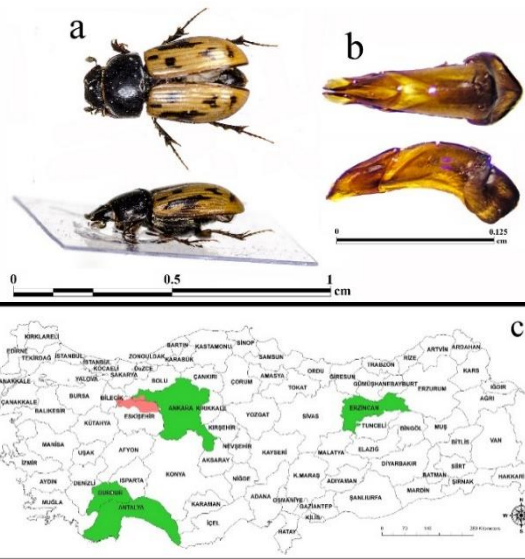


Figure 11. *Chilothorax melanostictus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

Colobopterus erraticus Linnaeus, 1758 Figure 12.

Distribution in Turkey: Adana, Adıyaman, Afyon, Amasya, Ankara, Antalya, Aydın, Balıkesir, Bartın, Bolu, Burdur, Diyarbakır, Çorum, Edirne, Erzincan, Erzurum, Eskişehir, Gaziantep, Giresun, Gümüşhane, Hatay, Isparta, İçel, İstanbul, İzmir, Kahramanmaraş, Karaman, Kars, Kastamonu, Kayseri, Keşan, Kırklareli, Kırşehir, Konya, Kütahya, Manisa, İçel, Muğla, Nevşehir, Niğde, Osmaniye, Rize, Sakarya, Samsun, Siirt, Sinop, Sivas, Tekirdağ, Tokat, Zonguldak (Balthasar, 1952; Carpaneto, 1973; M. Dellacasa Kırgız, 2002; Lodos et al., 1999; Özgen et al., 2014; Rozner Rozner, 2009; Şenyüz, 2009; Şenyüz, Dindar, Altunsoy, 2013).

Material examined: Totally 14 ♂♂, 11 ♀♀. Bilecik, Söğüt, Akçasu, 40° 5'15.97"N/ 30°18'30.34"E, 185 m, 29.04.2012; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 30.04.2012; Eskişehir, Mihalıçcık, Gürleyik-Yalınkaya, 39°59'40.64"N/ 31°16'9.04"E, 1250 m, 28.04.2012; Eskişehir, Beylikova, Doğanoglu-Bozan, 39°49'43.76"N / 31°10'35.40"E, 862 m, 30.04.2012; Eskişehir, Mihalıçcık, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220 m, 14.06.2012; Eskişehir, Mihalıçcık, Yeşilyurt-Çalkaya, 40°1'36.16"N/ 31°12'52.19"E, 1350 m, 14.06.2012; Eskişehir, Alpu, Başören, 39°58'19.89"N/ 30°58'5.57"E, 1126 m, 15.06.2012; Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 2'31.85"N/ 30°46'56.57"E, 355 m, 15.06.2012; Eskişehir, Tepebaşı, Hekimdağ Sakarı Ilıca, 39° 54' 886"N /30° 34' 150"E, 1240 m, 16.06.2012; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 16.06.2012; Eskişehir, Tepebaşı, Avlamış-Alpagut, 39°58'15.30"N/ 30°27'43.59"E, 1005 m, 28.06.2012; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 28.06.2012; Eskişehir, Tepebaşı, Kocaçobanpınarı-Avlamış, 39°55'58.97"N/ 30°26'18.93"E, 1180 m, 13.07.2012.

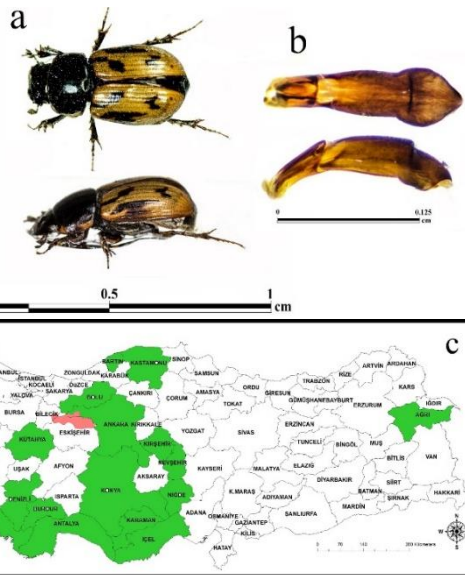


Figure 10. *Chilothorax distinctus distinctus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

Chilothorax melanostictus W. L. E. Schmidt, 1840 Figure 11.

Distribution in Turkey: Ankara, Antalya, Burdur, Erzincan (Bellmann, 2007; Rozner Rozner, 2009; Şenyüz, 2009; Şenyüz, Dindar, Gülmez, et al., 2013).

Material examined: Totally 4 ♀♀. Eskişehir, Beylikova, Yeniuyurt, 39° 43.354'N / 31° 18.785'E, 751 m, 02.04.2012, 1 ♀; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 30.04.2012, 1 ♀.

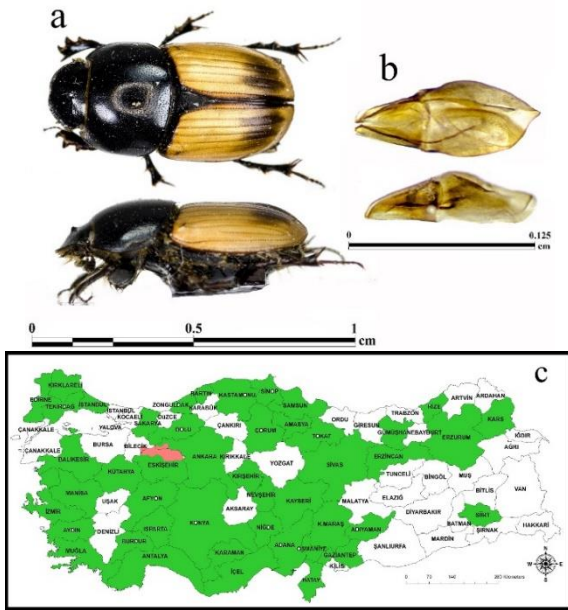


Figure 12. *Coloboapterus erraticus* a: ♂ habitus b: aedeagus c: distribution map for Turkey

***Coprimorphus scrutator* Herbst, 1789** Figure 13.

Distribution in Turkey: Edirne, Eskişehir, Giresun, Rize, Kırklareli, Kütahya (M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009; Şenyüz, 2015; Şenyüz Şahin, 2009a)

Material examined: Totally 7 ♂♂, 14 ♀♀. Eskişehir, Mihaliççık, Gürleyik-Yalınkaya arası 7. km, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035m, 21.08.2011, Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 04.09.2012.

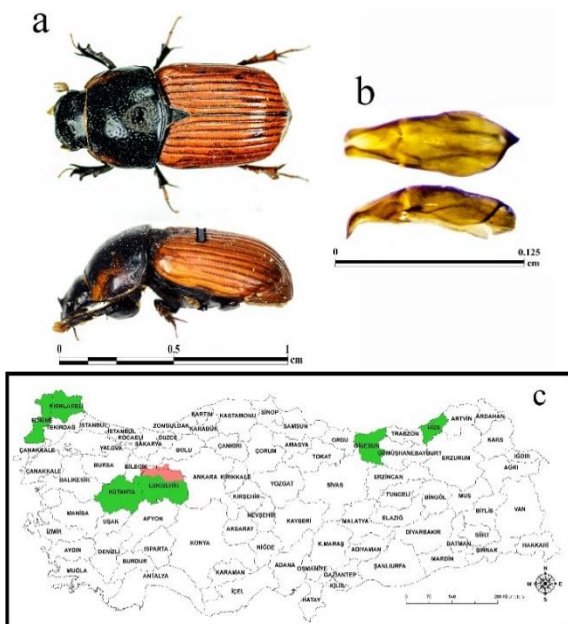


Figure 13. *Coprimorphus scrutator* a: ♂ habitus b: aedeagus c: distribution map for Turkey

***Eupleurus subterraneus subterraneus* Linnaeus, 1758** Figure 14.

Distribution in Turkey: Afyon, Amasya, Ankara, Antalya, Artvin, Bolu, Burdur, Çorum, Edirne, Erzincan, Eskişehir, İçel, Kahramanmaraş, Karaman, Kırşehir, Kütahya, Nevşehir, Niğde, Mardin, Ordu, Sakarya, Sivas, Uşak (Bellmann, 2007; M. Dellacasa Kırgız, 2002; Küçükaykçı et al., 2013; Rozner Rozner, 2009; Şenyüz, 2009).

Material examined: Totaly 1 ♂, 1 ♀. Eskişehir, Mihaliççık, Gürleyik-Yeşilyurt, Yalınkaya, 39°59'30.88"N/ 31°15'29.49"E, 1210 m, 12.07.2012; Eskişehir, Mihaliççık, Otluk-Karacaören, Karacaören, 40° 0'17.41"N/ 31° 7'37.39"E, 1150 m, 04.09.2012.

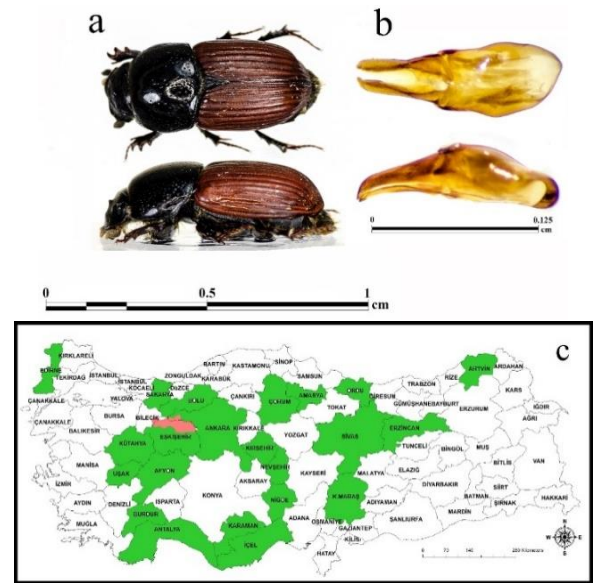


Figure 14. *Eupleurus subterraneus subterraneus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Euheptaulacus sus* Herbst, 1783** Figure 15.

Distribution in Turkey: Adana, Ankara, Çankırı, Çorum, Erzincan, Eskişehir, Giresun, Kastamonu, Kayseri, Kırşehir, Niğde, Tokat, Trabzon, Rize (Balthasar, 1952; Lodos et al., 1999; Rozner Rozner, 2009; Şahiner, 2013; Şenyüz, Dindar, Gülmez, et al., 2013).

Material examined: Totally 5 ♂♂, 6 ♀♀. Eskişehir, Tepebaşı, Hekimdağ-Sakarılıca, 39° 54' 886"N / 30° 34' 150" E, 1240m, 22.08.2011; Eskişehir, Alpu, Ağaçhisar, 39°54'939"N, 31°08'941"E, 1196m, 23.08.2011.

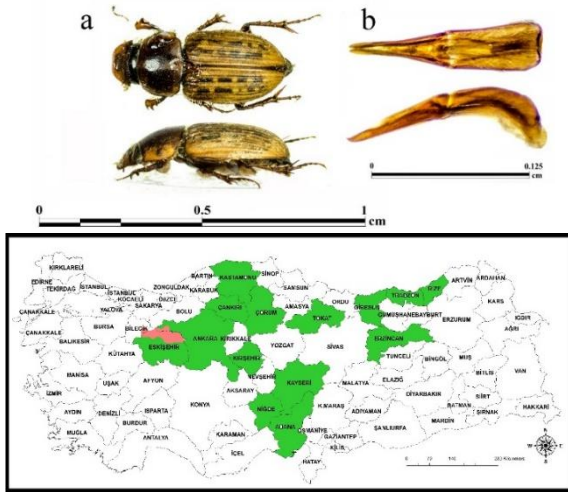


Figure 15. *Euheptaulacus sus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Lorophodius suarius* Faldermann, 1835** Figure 16.

Distribution in Turkey: Adana, Edirne, Gaziantep, Hatay, İçel, Kahramanmaraş (Dellacasa, Kirgiz, 2002; Rozner, et al., 2009; Şenyüz 2009).

Material examined: Totally 1 ♂, 7 ♀♀. Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30°49'822"E, 1035 m, 12.08.2012; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 04.09.2012; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 1'25.16"N/ 30°49'9.79"E, 880 m, 12.08.2012; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40°02'499"N/30°49'822"E 1035m, 16.11.2012; Eskişehir, Mihallıçık, Ahurözü, 39°47'10.36"N/ 31°42'55.21"E, 1035m; Eskişehir, Tepebaşı, Hekimdağ-Sakarılıca, 39° 54' 886"N/ 30° 34' 150"E, 1240m, 23.09.2011.

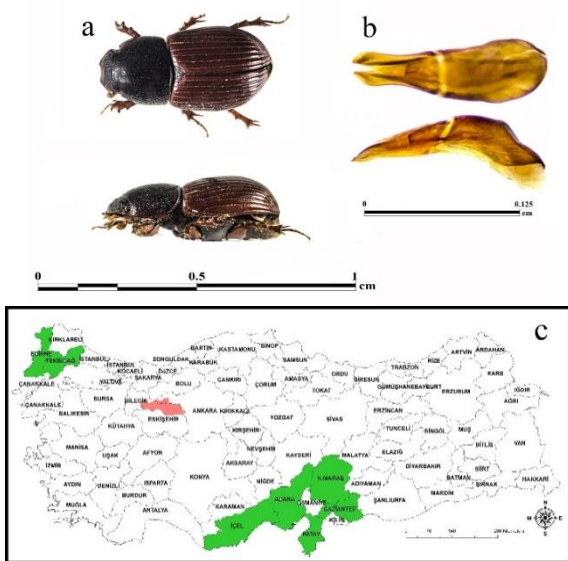


Figure 16. *Lorophodius suarius* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Melinopterus consputus* Creutzer, 1799** Figure 17.

Distribution in Turkey: Eskişehir, Edirne, Gaziantep (M. Dellacasa Kirgiz, 2002; Şenyüz, 2009).

Material examined: Totally 6 ♂♂, 11 ♀♀. Eskişehir, Mihallıçık, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220m, 01.12.2011, 1 ♀; Eskişehir, Merkez, Atalantekke, 39°57'47.22"N, 30°32'18.18"E, 1165m, 02.12.2011, 6 ♂♂, 10 ♀♀; Eskişehir, Mihallıçık, Yeşilyurt-Çalkaya arası, 40° 1'42.18"N/ 31°12'53.59"E, 1360 m, 28.04.2012, 1 ♀.

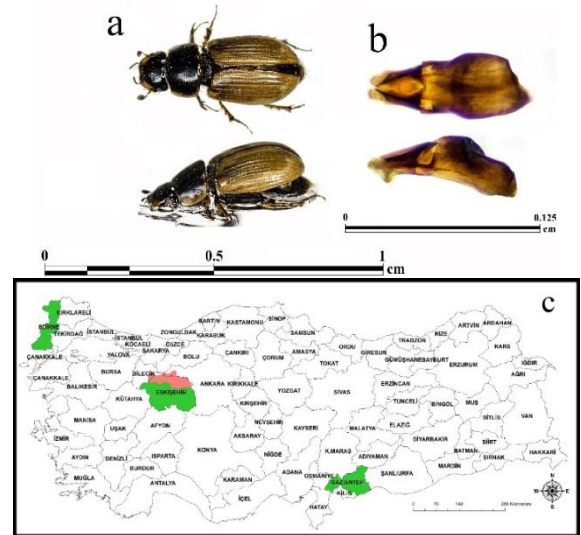


Figure 17. *Melinopterus consputus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Melinopterus prodromus* Brahm, 1790** Figure 18.

Distribution in Turkey: Adana, Ankara, Antalya, Burdur, Bursa, Çorum, Erzurum, Edirne, Gaziantep, Giresun, Hatay Kırşehir, Kırklareli, Kütahya, İçel, Van (Bellmann, 2007; M. Dellacasa Kirgiz, 2002; Lodos et al., 1999; Rozner Rozner, 2009; Şenyüz, 2009; Şenyüz, Dindar, Gülmez, et al., 2013).

Material examined: Totally 45 ♂♂, 27 ♀♀. Eskişehir, Mihallıçık, Yalınkaya-Yeşilyurt, Yalınkaya, 39°59'2.31"N/ 31°13'45.30"E, 1080m, 22.09.2011, 1 ♂, 1 ♀; Eskişehir, Tepebaşı, Hekimdağ-Sakarılıca, 39° 54' 886"N / 30° 34' 150"E, 1240m, 23.09.2011, 2 ♂♂, 9 ♀♀; Eskişehir, Tepebaşı, Çavlum- Kızılcaören, 39° 49.795'N / 30° 43.619'E, 813 m, 02.04.2012, 6 ♂♂, 5 ♀♀; Eskişehir, Alpu, Özden- Büğdüz, Özdenk brook side, 39° 52.865'N / 31° 2.958'E, 899 m, 02.04.2012, 13 ♀♀; Eskişehir, Beylikova, Yeniurt, 39° 43.354'N / 31° 18.785'E, 751 m, 02.04.2012, 12 ♂♂, 2 ♀♀; Eskişehir, Tepebaşı, Bozdağ, 39°55'1.82"N/ 30°35'44.01"E, 1308 m, 30.04.2012, 3 ♂♂, 5 ♀♀; Eskişehir, Beylikova, Doğanoglu-Bozan, 39°49'43.76"N/ 31°10'35.40"E, 862 m, 30.04.2012, 2 ♀♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822" E, 1035 m, 28.06.2012, 4 ♂♂, 2 ♀♀; Eskişehir, Mihallıçık, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 3 ♂♂, 1 ♀, Bilecik,

Inhisar, Akköy-Akkum, 40° 5'16.59"N/ 30°24'8.59"E, 325 m, 29.04.2012, 1 ♂.

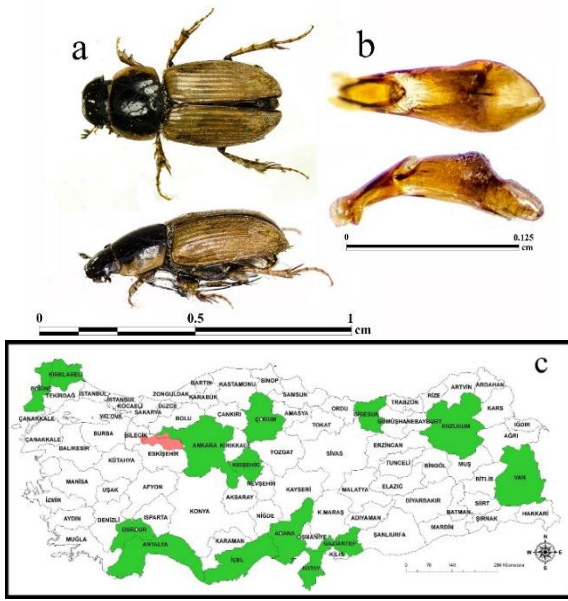


Figure 18. *Melinopterus prodromus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Melinopterus pubescens* Sturm, 1800 Figure 19.**

Distribution in Turkey: Ankara, Adana, Antalya, Bartın, Bilecik, Bolu, Çorum, Erzurum, Gaziantep, Giresun, Kahramanmaraş, Kastamonu, Konya, Kütahya, Kırşehir, Van, Yalova (Bellmann, 2007; Rozner Rozner, 2009; Şenyüz, 2009).

Material examined: Totally 15 ♂♂, 8 ♀♀. Eskişehir, Tebebaşı, Yarımca-Tandır, 39°55'15.19"N/ 30°40'17.76"E, 1312 m, 30.04.2012, 15 ♂♂, 8 ♀♀.

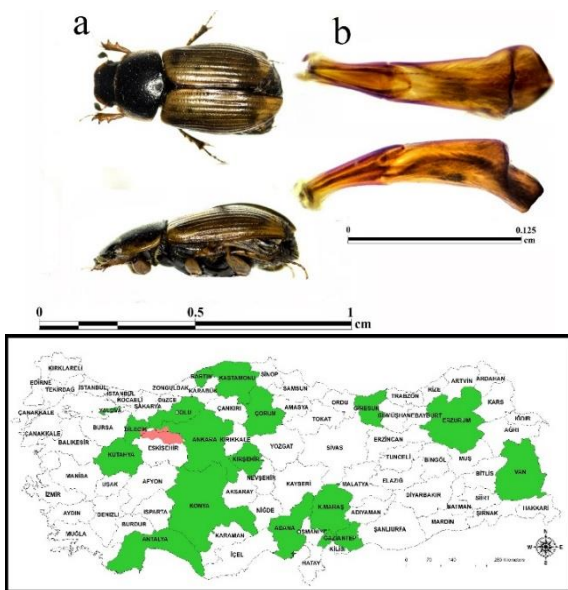


Figure 19. *Melinopterus pubescens* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Melinopterus punctatosulcatus hirtipes* Fischer von Waldheim, 1844 Figure 20.**

Distribution in Turkey: Antalya, Burdur, Kırklareli, Kütahya (Bellmann, 2007; M. Dellacasa Kırgız, 2002; Şenyüz, 2009).

Material examined: Totally 30 ♂♂, 24 ♀♀. Eskişehir, Alpu, Arıkaya-Belkese yol ayrımı, 39°59'15.48"N, 31° 3'50.04"E, 1355m, 22.09.2011, 1 ♂; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N/30° 49' 822"E, 1035m, 02.12.2011, 1 ♀; Eskişehir, Tebebaşı, Avlamiş, 39° 55'59.50"N/30°26'18.84"E, 1174 m, 29.04.2012, 26 ♂♂, 19 ♀♀; Eskişehir, Beylikova, Doğanoglu-Bozan 3,5.km, 39°49'43.76"N/31°10'35.40"E, 862 m, 30.04.2012, 3 ♂♂, 4 ♀♀.

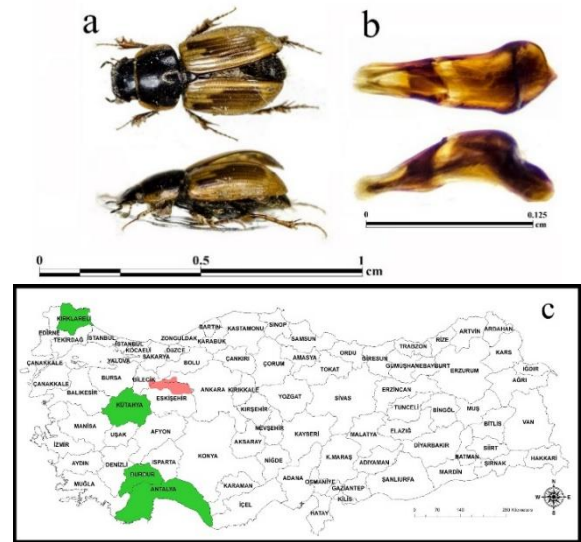


Figure 20. *Melinopterus punctatosulcatus hirtipes* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Melinopterus stolzi* Reitter, 1906 Figure 21.**

Distribution in Turkey: Edirne (M. Dellacasa Kırgız, 2002).

Material examined: Totally 16 ♂♂, 13 ♀♀. Eskişehir, Sarıcakaya, Alapınar-Laçın yolu 4. km, 40° 02' 499"N / 30° 49' 822" E, 1035m, 22.09.2011, 2 ♂♂, 8 ♀♀; Eskişehir, Mihaliççık, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220 m, 14.06.2012; 13 ♂♂, 5 ♀♀; Eskişehir, Tebebaşı, Tekeciler-Atalantekke 39°57'42.19"N/ 30°30'32.30"E, 970 m, 16.11.2012, 1 ♂.

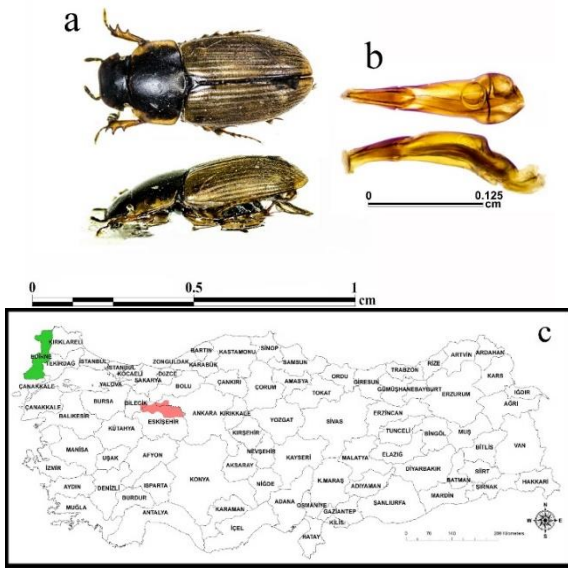


Figure 21. *Melinopterus stolzi* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Nimbus contaminatus* Herbst, 1783** Figure 22.

Distribution in Turkey: Edirne, Kırklareli (M. Dellacasa & Kırgız, 2002).

Material examined: Totally 61 ♂♂, 23 ♀♀. Eskişehir, Mihallıçık, Ahurözü, 39°47'10.36"N / 31°42'55.21"E, 1035m, 21.09.2011, 1 ♂, 5 ♀♀; Eskişehir, Mihallıçık, Kavak, 39° 54' 367"N/ 31° 37' 554"E, 930m, 21.09.2011, 2 ♀♀; Eskişehir, Mihallıçık, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135m, 21.09.2011, 1 ♂, 21 ♀♀; Eskişehir, Mihallıçık, Gürleyik-Yalınkaya, 39°59'40.51"N/ 31°16'9.25"E, 1220m, 22.09.2011, 1 ♀; Eskişehir, Mihallıçık, Yalınkaya-Yeşilyurt, Yalınkaya, 39°59'2.31"N/ 31°13'45.30"E, 1080m, 22.09.2011, 1 ♂; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035m, 22.09.2011, 47 ♂♂, 154 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N/ 30° 49' 822"E, 1035m, 02.12.2011, 9 ♂♂, 48 ♀♀; Eskişehir, Merkez, Atalantekke, 39°57'47.22"N, 30°32'18.18"E, 1165m, 02.12.2011, 1 ♂, 2 ♀♀.

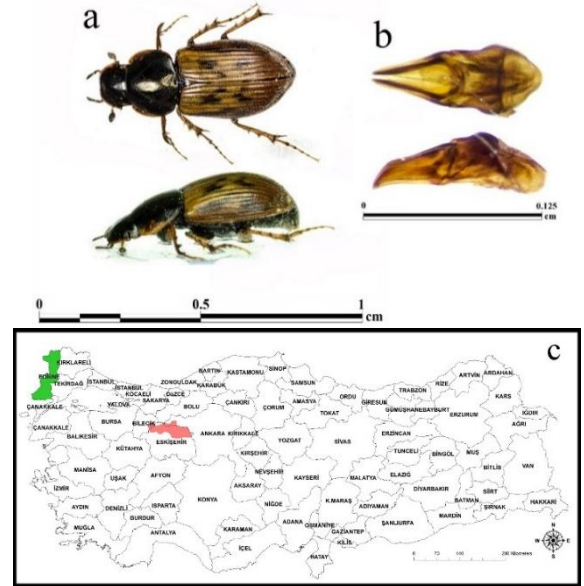


Figure 22. *Nimbus contaminatus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Nimbus obliteratus* Panzer, 1823** Figure 23.

Distribution in Turkey: It is known in Turkey but no city record is included in Palaearctic catalog (Löbl & Löbl, 2016).

Material examined: Totally 1 ♂♂, 64 ♀♀. Eskişehir, Mihallıçık, Ahurözü, 39°47'10.36"N/ 31°42'55.21"E, 1035m, 21.09.2011, 1 ♀; Eskişehir, Alpu, Arıkaya-Belkese, 39°59'15.48"N, 31° 3'50.04"E, 1355m, 22.09.2011; 8 ♂♂, 42 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N/ 30° 49' 822"E, 1035m, 22.09.2011, 6 ♀♀; Eskişehir, Tepebaşı, Hekimdağ-Sakarılıca, 39° 54' 886"N / 30° 34' 150"E, 1240m, 23.09.2011, 5 ♂♂, 5 ♀♀; Eskişehir, Mihallıçık, Yeşilyurt, 39° 59.939"N/ 31° 10.322"E, 1395 m, 01.04.2012, 1 ♀; Eskişehir, Tepebaşı, Yarımca-Tandır, 39°55'15.19"N/ 30°40'17.76" ", 1312 m, 30.04.2012, 1 ♀; Eskişehir, Tepebaşı, Avlamış-Alpagut, 39°59'7.69"N/ 30°28'39.28"E, 810 m, 13.07.2012, 5 ♂♂, 8 ♀♀.

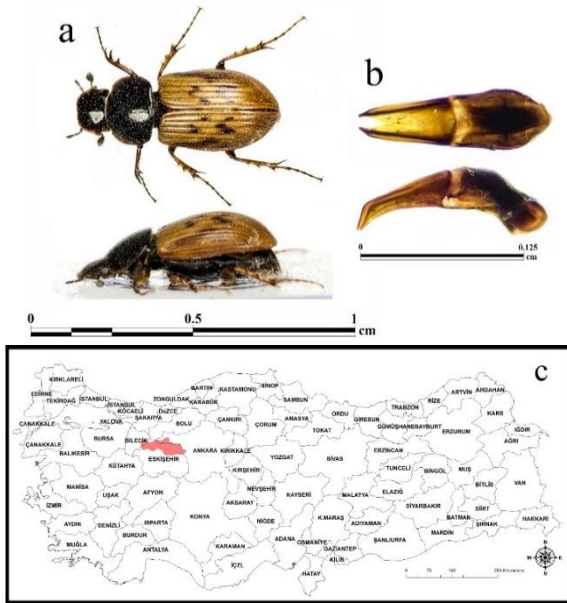


Figure 23. *Nimbus obliteratedus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Otophorus haemorrhoidalis* Linnaeus, 1758** Figure 24.

Distribution in Turkey: Ankara, Amasya, Artvin, Balıkesir, Bartın, Bolu, Bursa, Çorum, Edirne, Eskişehir, Hatay. Kahramanmaraş, Kastamonu, Kayseri, Kırklarelil, Kütahya, Mersin, Ordu, Osmaniye, Samsun, Rize, Sakarya, Samsun, Sinop, Tekirdağ, Zonguldak (Dellacasa and Kirgiz, 2002; Lodos et al., 1999; Rozner and Rozner, 2009; Şenyüz, 2009; Şenyüz et al., 2016, 2013b, 2013a)

Material examined: Totaly 18 ♂♂, 27 ♀♀. Eskişehir, Alpu, Ağaçhisar, 39°54'939"N, 31°08'941"E, 1196m, 23.08.2011, 1 ♀; Eskişehir, Tebebaşı, Avlamlış-Kocaçobanpınarı 1. Km, 39° 55'59.50"N/ 30°26'18.84 "E, 1174 m, 29.04.2012, 1 ♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035m, 21.08.2011, 1 ♂, 9 ♀♀; Eskişehir, Alpu, Alapınar-Taycılar, 40° 0'55.92"N/ 30°50'42.90"E, 1110m, 21.08.2011, 1 ♂, Eskişehir, Tebebaşı, Hekimdağ-Sakarılıca çıkışı, 39° 54' 886"N / 30° 34' 150"E, 1240m, 22.08.2011, 1 ♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 4 ♂♂, 2 ♀♀; Eskişehir, Mihalıçcık, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135 m, 12.07.2012, 1 ♂; Eskişehir, Tebebaşı, Avlamlış-Alpagut, 39°58'15.30"N/ 30°27'43.59"E, 1005 m, 13.07.2012, 1 ♀; Eskişehir, Mihalıçcık, Otluk-Karacaören, Karacaören, 40° 0'25.91"N/ 31° 7'25.08"E, 1115 m, 11.08.2012, 1 ♀; Ankara, Nallıhan, Aşağıkavacık-Nallıhan, 40°10'14.55"N/ 31°15'6.90"E, 955 m, 12.08.2012, 2 ♂♂; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 12.08.2012, 3 ♂♂, 8 ♀♀; Eskişehir, Tebebaşı, Avlamlış-Alpagut, 39°57'38.66"N/ 30°27'34.78"E, 1065 m, 12.08.2012, 1 ♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499"N / 30° 49' 822"E, 1035 m, 04.09.2012, 5 ♂♂, 3 ♀♀.

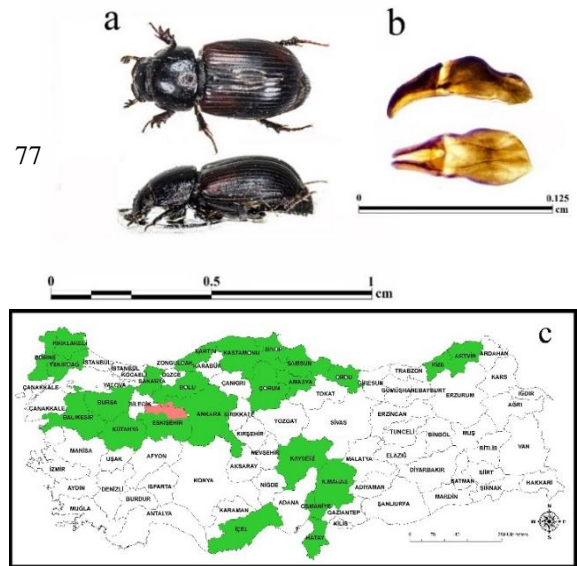


Figure 24. *Otophorus haemorrhoidalis* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Phalacrothous quadrimaculatus* Linnaeus, 1760** Figure 25.

Distribution in Turkey: Burdur, Bursa, Çanakkale, Edirne, İçel, İzmir (M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009).

Material examined: Totally 2 ♂♂, 6 ♀♀. Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 1'48.47"N/ 30°48'8.64"E, 580 m, 16.06.2012, 2 ♂♂, 5 ♀♀; Eskişehir, Sarıcakaya, Alapınar, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822"E, 1035 m, 28.06.2012, 1 ♀.

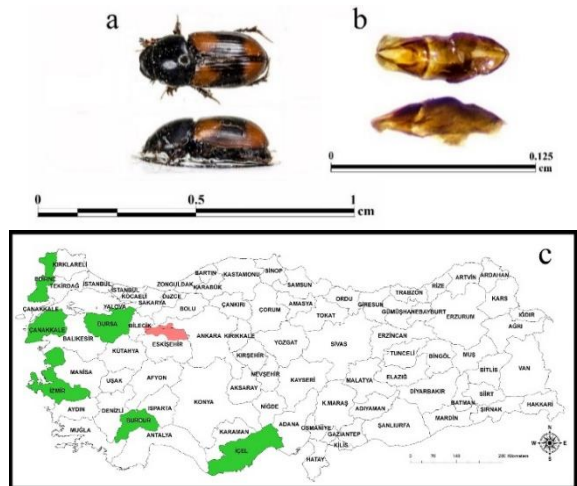


Figure 25. *Phalacrothous quadrimaculatus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Planolinellus vittatus* Say, 1825** Figure 26.

Distribution in Turkey: Kırşehir, İçel, Ankara, Antalya, Edirne Erzincan (Bellmann, 2007; M. Dellacasa Kırgız, 2002; Rozner Rozner, 2009).

Material examined: Totally 1 ♀. Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 1'48.47"N/ 30°48'8.64"E, 580 m, 16.06.2012, 1 ♀.

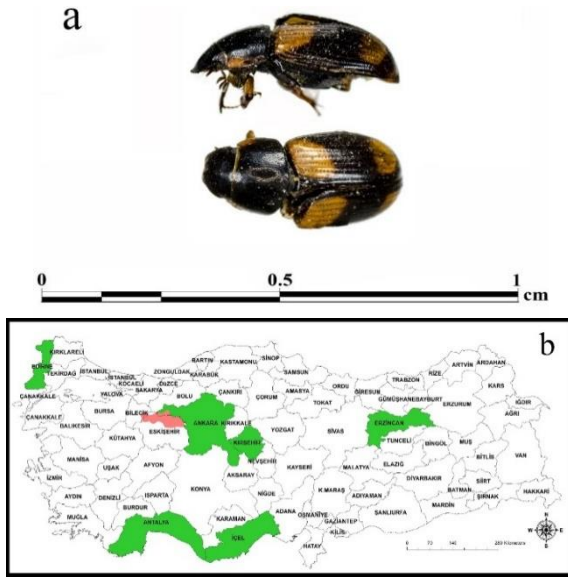


Figure 26. *Planolinellus vittatus* a: ♀ habitus dorsal and lateral view b: distribution map for Turkey

***Pleurophorus anatolicus* Petrovitz, 1961 Figure 27.**

Distribution in Turkey: Antalya, İçel: Mersin, Eskişehir, Denizli, Erzincan, Erzurum, Çorum (Bellmann, 2007; Rozner Rozner, 2009).

Material examined: Totally 1 ♀. Caught with light trap. Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 1'48.47"N/ 30°48'8.64"E, 580m, 16.06.2012, 1 ♀.

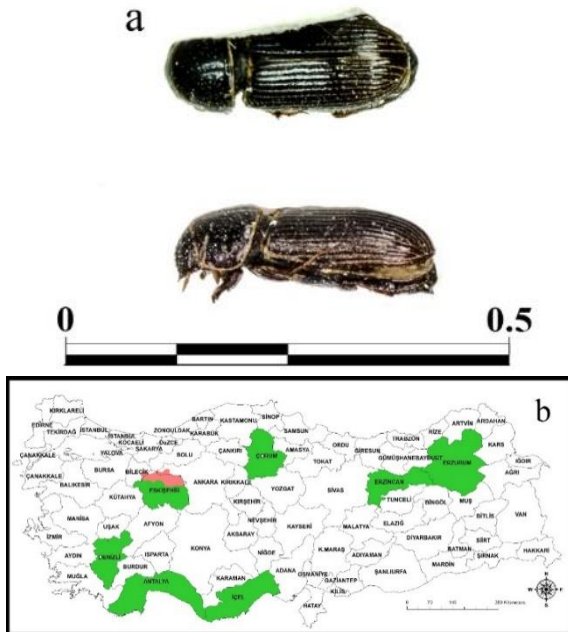


Figure 27. *Pleurophorus anatolicus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Pleurophorus caesus* Creutzer, 1796 Figure 28.**

Distribution in Turkey: Adana, İçel, İstanbul, Erzincan, Yalova (Balthasar, 1952; Bellmann, 2007; Rozner Rozner, 2009).

Material examined: Totally 2 ♂♂, 8 ♀♀. Eskişehir, Tepebaşı, Uludere-Behçetiye, 39° 55'58.49"N/ 30°21'18.23"E, 1240 m, 29.04.2012, 1 ♀; Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 1'48.47"N/ 30°48'8.64"E, 580 m, 16.06.2012, 2 ♂♂, 7 ♀♀.

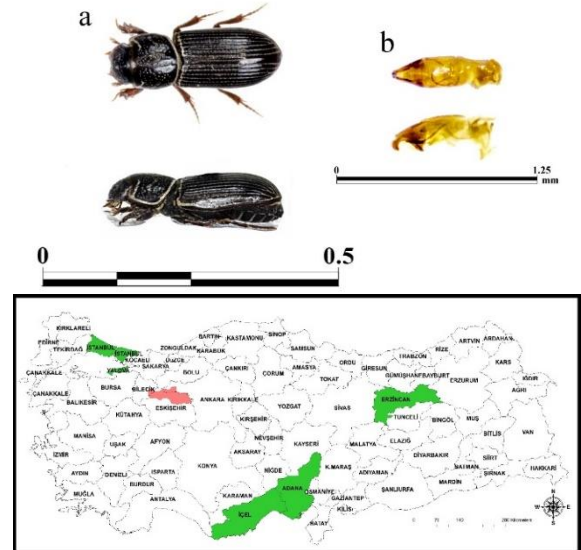


Figure 28. *Pleurophorus caesus* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

***Subrinus sturmi* Harold, 1870 Figure 29.**

Distribution in Turkey: Samsun (Rozner Rozner, 2009).

Material examined: Totally 19 ♂♂, 20 ♀♀. Eskişehir, Alpu, Alapınar-Taycılar, 40° 055.92"N/ 30°50'42.90"E, 1110m, 21.08.2011, 1 ♂ 2 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822" E, 1035m, 21.08.2011 3 ♂♂, 3 ♀♀; Eskişehir, Merkez, Atalantekke, 39°57'47.22"N, 30°32'18.18"E, 1165m, 02.12.2011 1 ♀; Eskişehir, Mihalıççık, Çalkaya, 40° 3.067"N / 31° 15.441"E, 675 m, 01.04.2012 1 ♂; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822" E, 1035 m, 28.06.2012 11 ♂♂, 10 ♀♀; Eskişehir, Sarıcakaya, Alapınar-Laçın, 40° 02' 499" N / 30° 49' 822" E, 1035 m, 12.08.2012 1 ♀; Eskişehir, Mihalıççık, Gürleyik-Yalınkaya, 39°59'29.64"N/ 31°18'48.88"E, 1135 m, 12.07.2012 1 ♀; Eskişehir, Mihalıççık, Yalınkaya-Yeşilyurt, Yeşilyurt, 39°58'44.52"N/ 31°11'1.53"E, 1425 m, 12.07.2012 1 ♂; Eskişehir, Mihalıççık, Yeşilyurt-Çalkaya, 40° 1'3.61"N/ 31°11'55.96"E, 1307 m, 04.09.2012 1 ♀; Eskişehir, Sarıcakaya, Laçın-Alapınar, 40° 1'48.47"N/ 30°48'8.64"E, 580 m, 16.06.2012, 1 ♂.

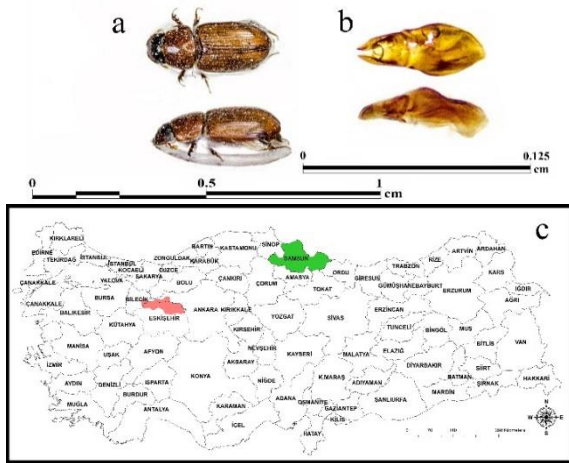


Figure 29. *Subrinus sturmi* a: ♂ habitus dorsal and lateral view b: aedeagus dorsal and lateral view c: distribution map for Turkey

4. DISCUSSION and CONCLUSIONS

As a result of this research, totally 1109 specimens were diagnosed, and 16 genus and 29 species were collected. Nineteen species were new records for the fauna of Eskişehir province. Also, *Bodilopsis rufa* Moll, 1782 and *Nimbus obliteratus* Panzer, 1823 are recorded in Palaearctic catalog; however, no city record (Löbl & Löbl, 2016).

Amidorus cribrarius Brullé, 1832, *Ammoecius muchei* Petrovitz, 1962, *Aphodius fimetarius* (Linnaeus, 1758), *Bodiloides ictericus ictericus* Laicharting, 1781, *Bodilus lugens* Creutzer, 1799, *Chilothorax distinctus distinctus* O. F. Müller, 1776, *Chilothorax melanostictus* W. L. E. Schmidt, 1840, *Loraphodius suarius* Faldermann, 1835, *Melinopterus consputus* Creutzer, 1799 *Melinopterus prodromus* Brahm, 1790, *Melinopterus pubescens* Sturm, 1800, *Melinopterus punctatosulcatus hirtipes* Fischer von Waldheim, 1844, *Melinopterus stolzi* Reitter, 1906, *Nimbus contaminatus* Herbst, 1783, *Phalacrothous quadrimaculatus* Linnaeus, 1760, *Planolinellus vittatus* Say, 1825, *Pleurophorus caesus* Creutzer, 1796 were new records from Eskişehir province.

Sündiken mountains are rich in Aphodiinae diversity. The mountains cover %0.5 percent of Turkey. When Aphodiinae diversity of this study was compared with entire Turkey, it was revealed that the research area has %18 of Aphodiinae (Table 1). This percentage shows that the mountains are rich in Aphodiinae diversity.

Table 1. Comparing to Sündiken mountains and Turkey for Aphodiinae taxa counts.

	Acreage	Aphodiinae count
Turkey	769632km ²	161 species
Sündiken Mountains	4042 km ²	29 species
Percentage (Sündiken/Turkey)	%0.5	%18

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