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A contribution to the knowledge of the Dynastinae, Rutelinae and Melolonthinae fauna of Turkey (Coleoptera: Scarabaeidae)

Alper POLAT, Erol YILDIRIM & Marco ULIANA

Abstract

Records of Scarabaeidae belonging to Dynastinae, Rutelinae and Melolonthinae are presented, based on specimens collected from different localities of Turkey between 1965 and 2014, mostly in the range 2009-2014. The paper gives original records for eight species and subspecies from four genera of Dynastinae, 18 species and subspecies from six genera of Rutelinae and 29 species and subspecies from 12 genera of Melolonthinae, for a total of 55 species and subspecies belonging to 22 genera. Among them, *Oryctes (Oryctes) nasicornis kuntzeni* MINCK, 1914 and *Pentodon bidens sulcifrons* KUSTER, 1848 from Dynastinae; *Anisoplia (Anisoplia) enucleator* BARAUD, 1991, *Anisoplia (Anisoplia) group signata* FALDERMANN, 1835, *Anisoplia (Autanisoplia) austriaca* (HERBST, 1783), *Chaetopteropia segetum velutina* (ERICHSON, 1847) and *Blitopertha nigripennis* (REITTER, 1888) from Rutelinae and *Polyphylla (Polyphylla) olivieri* (LAPORTE, 1840) and *Amphimallon solstitiale* (LINNAEUS, 1758) from Melolonthinae have been found the most abundant and widespread species. Separately, *Oryctes (Oryctes) nasicornis latipennis* MOTSCHULKY, 1845 and *Adoretus (Adoretus) discolor* (FALDERMANN, 1835) are newly recorded from Turkey. In addition, new localities have been found for some species and subspecies which have already been reported from Turkey.

Zusammenfassung

Faunistische Daten der Scarabaeiden-Unterfamilien Dynastinae, Rutelinae und Melolonthinae werden hier präsentiert, basierend auf Individuen, die in der Türkei in den Jahren 1965-2014 gesammelt wurden, i.w. aus den Jahren 2009-2014. Es handelt sich um Originalaufzeichnungen bezüglich 8 Arten und Unterarten aus 4 Gattungen der Dynastinae, 18 Arten und Unterarten aus 6 Gattungen der Rutelinae und 29 Arten und Unterarten aus 12 Gattungen der Melolonthinae, insgesamt 55 Arten und Unterarten aus 22 Gattungen. Am häufigsten und weit verbreitetsten sind *Oryctes (Oryctes) nasicornis kuntzeni* MINCK, 1914 und *Pentodon bidens sulcifrons* KUSTER, 1848 aus der Unterfamilie Dynastinae; *Anisoplia (Anisoplia) enucleator* BARAUD, 1991, *Anisoplia (Anisoplia)-Gruppe-signata* FALDERMANN, 1835, *Anisoplia (Autanisoplia) austriaca* (HERBST, 1783), *Chaetopteropia segetum velutina* (ERICHSON, 1847) und *Blitopertha nigripennis*

(REITTER, 1888) aus der offline Unterfamilie Rutelinae sowie *Polyphylla (Polyphylla) olivieri* (LAPORTE, 1840) und *Amphimallon solstitiale* (LINNAEUS, 1758) aus der Unterfamilie Melolonthinae. Neu für die Türkei werden *Oryctes (Oryctes) nasicornis latipennis* MOTSCHULKY, 1845 und *Adoretus (Adoretus) discolor* (FALDERMANN, 1835) gemeldet. Außerdem werden für einige Arten und Unterarten neu Aufzeichnungen von bereits für die Türkei bekannten Arten vermerkt.

Introduction

Scarabaeidae is a very large family of beetles, of which are known roughly 1600 genera and 27.000 species (SCHOLTZ & GREBENNIKOV 2005). This family includes several groups with significant impact on human activities such as those commonly referred to as scarabs, chafers, flower beetles, leaf chafers, dung beetles when adults or white grubs when larva. They are extremely variable in shape, presence and type of coverage of integuments (hairs, spines, scales), and size, which is comprised between about 1 and 170 mm.

Dynastinae is a moderate-sized subfamily counting about 1.500 species, mostly uniformly black or brown. The abdominal spiracles are in pleurostict condition. The labrum is not visible, the sides of the mandibles are visible from above and frequently bearing teeth along their upper outer margin. Claws are usually subequal, except on male protarsi of Cyclocephalini and some Pentodontini. Sexual dimorphism often extreme, with head and/or pronotum of males bearing horns, tubercles and/or deep excavations which are absent or less conspicuous in females. Most dynastines feed as larvae on decaying wood or organic matter, or on living plant material, in some cases acting as serious pests. Adults may feed on flowers or on other living plant tissues.

Rutelinae is a large subfamily counting over 4000 species. Colour and patterning is extremely variable, strongly metallic unpatterned condition is common. The abdominal spiracles are in pleurostict condition. The labrum is at least slightly produced after the clypeus. Claws asymmetrical, independently movable, often capable of being folded back into a notch on the underside of the last tarsal segment; claws of protarsi are commonly sexually dimorphic. Most rutelines feed on roots or on decaying wood or vegetal matter as larvae (white grubs), and on leaves and flowers as adults. Some species, either as larvae or as adults, can be serious pests of crops, particularly of sugarcane, and also of lawns.

Melolonthinae is a large group counting over 11.000 species of small to large scarabaeids. The abdominal spiracles are in pleurostict condition. The labrum is usually visible from in front and sometimes quite large. The tarsal claws are usually equal on all legs, often toothed or cleft. Melolonthines feed on roots as larvae and on leaves as adults (chafers). The larvae of several genera are often economically important pests (BOOTH et al. 1990).

Within Palaearctic region, Turkey represent one of the hotspot for biodiversity of Scarabaeoidea, hosting over 625 species with 37.4% endemic to the country (CARPANETO et al., 2000). However, its fauna is still inadequately known: no monograph is existing to address the study of its Scarabaeoidea fauna and a considerable number of new species and taxonomic acts followed the checklist produced by CARPANETO et al. (2000). The knowledge of Scarabaeoidea of Turkey therefore is mostly based on the perusal of taxonomic works dealing with subordinate taxa (often at the level of genus, or below) and encompassing a broader geographic range, and of distributional information fragmented

in several faunistic papers, most of them not recent and affected by poor precision of mentioned localities. Some relevant papers are BALTHASAR (1953), BARAUD (1988, 1989, 1990a, b, 1991a, b), DE WAILLY (1997), LODOS et al. (1999), MONTREUIL (2013), PETROVITZ (1963, 1967, 1971) RÖSSNER & AHRENS (2004, 2015), ROZNER & ROZNER (2009), SÜRGÜT et al (2014) and ULIANA (2010, 2014).

The aim of this paper is to present new records on Dynastinae, Rutelinae and Melolonthinae of Turkey.

Material and Methods

Specimens of Dynastinae, Rutelinae and Melolonthinae (Coleoptera: Scarabaeidae) were collected from different localities of Turkey between 2009 and 2014. In addition, material collected in previous years from different localities of Turkey and preserved in the collection of Atatürk University, Faculty of Agriculture, Department of Plant Protection, the Entomology Museum, Erzurum, Turkey (EMET) is also evaluated as well as few specimens are preserved in coll. Uliana.

Material was collected by a variety of methods, mostly by sweeping grasses on meadows and pastures lands containing a variety of flowering plants. Provinces of the collected specimens are given in alphabetical order in the following list. The material is deposited in the Entomology Museum, Erzurum, Turkey (EMET).

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Result and Discussion

In this study, eight species and subspecies from four genera of Dynastinae, 18 species and subspecies from six genera of Rutelinae and 29 species and subspecies from 12 genera of Melolonthinae are recorded from Turkey.

Subfamily Dynastinae MACLEAY, 1819

Tribe Oryctini MULSANT, 1842

Oryctes (Oryctes) nasicornis kuntzeni MINCK, 1914

Material examined: Adana: Havuzlu, Bahçe, 23 m, 21.VIII.2012, ♀; Ağrı: 18.VIII.2014, ♂, 21.VIII.2014, ♂; Artvin: 15.VII.1997, ♂; Bilecik: 600 m, 15.VI.1995, ♂, Gölpazarı, 520 m, 26.VII.2010, ♂; Denizli: Buldan, 20.VII.2014, ♂; Erzincan: 1.VIII.2011, ♂; Erzurum: Aşkale, Çayköy, 1580 m, 5.V.2011, ♂, İspir, Ardıçlı, 1610 m, 21.VI.2010, ♂; Hatay: Dörtöy, 12.VIII.2014, ♂; İskenderun, Demeç, 14.VII.1990, 2♂♂; Isparta: Eğirdir, 7.VII.1996, ♀; İzmir: Seferihisar, 2 m, 14.VIII.1998, ♂; Kahramanmaraş: Elbistan, 1050 m, 5.VIII.1998, ♂; Kars: Susuz, 25.VII.2011, 1680 m, 2♂♂; Konya: Güneysınır, Gürağaç, 1017 m, 6.VI.1999, ♀, 1017 m, 4.VII.1999, ♂; Manisa: Kırkağaç, Boztoprak, 150 m, 10.VII.2011, ♂; Mersin: Tarsus, Çamlıyayla, 28.VII.1992, ♂; Ordu: Fatsa, 8.VI.1991, ♂; Samsun: Gelemen, 23 m, 9.VI.2013, ♂; Sakarya: Korucuk, 25.VII.2011, ♀; Trabzon: Yeşilova, 150 m, 17.VII.1999, ♂.

***Oryctes (Oryctes) nasicornis* cfr. *latipennis* MOTSCHULKY, 1845**

Material examined: Iğdır: 25.VI.1971, ♀.

This subspecies is newly recorded from Turkey.

Remarks: A single damaged specimen that does not allow a clear subspecific assignment. The subspecies *latipennis* MOTSCHULKY, 1845 is not yet recorded for Turkey, but is present in all countries bordering NE Turkey (Georgia, Armenia, Azerbaijan, Iran) (LÖBL & LÖBL 2016). Its presence in Iğdır Area therefore would not be surprising, but requires confirmation.

Tribe Pentodontini MULSANT, 1842

***Pentodon algerinus dispar* BAUDI DI SELVE, 1870**

Material examined: Adana: 28.VII.1995, ♂, Çukurova University Field: 30.VII.2011, ♂, Karataş, İshacı, 13.VII.1990, ♂, Kozan, Savruk, 22.VII.1996, ♂, Yumurtalık, 21.VII.1993, ♂; Antalya: Aksu, Yukarı Kocayatak, 20 m, 11.VII.2011, 2♀♀, ♂, Kepez, Odabaşı, 305 m, 9.IX.2012, 2♀♀; Mersin: Erdemli, Üçtepe, 120 m, 25.IX.2012, ♀; Manavgat, Side, 2.IX.1974, ♂, Nebiler, 30 m, 4.X.2012, ♂, Serik, 37 m, 1.IX.2013, ♀; Burdur: 1025 m, 21.VI.2009, ♂; Erzurum: Hınıs, Akören, 1905 m, 16.VII.2011, ♂, Pasinler, Ovaköy, 1785 m, 17.VII.2013, ♀, Yakutiye, 10.IX.1997, ♀, Atatürk University Field, 1850 m, 4.VII.1996, ♀, 2.X.2012, ♀; Mersin: Anamur, 25.VIII.1994, ♂, Erdemli, Üçtepe, 120 m, 12.IX.2012, ♂, ♀; Osmaniye: Çiftmazı, 24.VI.1990, ♂; Rize: Fındıklı, 22.VIII.1992, ♀.

***Pentodon bidens sulcifrons* KÜSTER, 1848**

Material examined: Adana: 9.VII.1999, ♀, 28.VII.1992, ♂, 23 m, 8.VIII.1995, ♀, Balcalı, 12.VI.1993, 2♂♂; Ankara: 2.VIII.1992, ♀; Antalya: Aksu, Yukarı Kocayatak, 20 m, 11.VII.2011, ♂, Demre, Köşkerler, 15.VI.2012, 1♀, Gazipaşa, 100 m, 11.VII.2010, ♀, 1.VIII.2010, ♂, Yukarı Beymelek, 170 m, 20.VI.2013, ♂; Canakkale: Karabiga, Meralık, 27.V.2010, ♀; Diyarbakır: Silvan, 825 m, 17.IV.1995, ♀; Elazığ: Harput, Miyadin, Şimal Mezra, 18.VIII.1973, ♂; Erzurum: Aziziye, N 39°56', E 41°13', 1794 m, 22.VI.2010, ♂, Yakutiye, N 39°55', E 41°16', 1844 m, 10.V.2014, ♂, 3.VII.1980, ♀, 5.VIII.1966, ♂, 10.VIII.1969, ♀, Atatürk University Field, 1850 m, 29.V.1996, ♀, ♂, 13.VI.1990, ♀, 15.VI.1996, 3♀♀, 6♂♂, 20.VI.1996, ♀, 2♂♂, 23.VI.1996, ♂, 4.VII.1996, ♀+, 15.VII.1996, ♀, 2♂♂, 28.VII.1996, ♀, 29.VII.2011, ♀, ♂, 15.VIII.1997, ♂, 18.VIII.1998, 2♀♀, ♂, 02.X.2012, ♀, İspir, Kaçkar, 1954 m, 22.VI.2011, ♀; Hatay: İskenderun, Arsuz, 25.VII.1990, ♀, Demeç, 7.VII.1990, ♂; İstanbul: Şile, 126 m, 16.VII.2010, ♀; Konya: 9.VII.1991, ♀, Ereğli, 1100 m, 20.VI.2010, 5♀♀, 3♂♂, 1100 m, 27.VI.2010, ♂, Güneysınır, Güragaç, 1017 m, 6.VI.1999, ♀, 10.VII.1998, ♂; Mersin: Gülnar, Demiröz, 1300 m, 25.VI.2011, ♀; Samsun: Bafra, 20 m, 28.VIII.2013, ♂.

***Pentodon idiota idiota* (HERBST, 1789)**

Material examined: Antalya: 4.VIII.1997, ♀; Serik, 1.IX.2013, ♀; Kocaeli: Çayırova, 4.VII.1993, ♂; Samsun: Gelemen, 23 m, 9.VII.2013, 2♂♂.

***Pentodon quadridens distantidens* REITTER, 1899**

Material examined: Adana: 7.VI.1983, ♀, Kozan, Savruk, 2.VII.1996, ♂ 3♀♀; Ağrı: Doğubeyazıt, Mezarlık, 1630 m, 15.VIII.2013, ♂; Diyarbakır: Silvan, 825 m, 17.IV.1995, ♂; Mersin: Erdemli, 16.VII.1992, ♀, Dağlı, 18.VIII.1996, ♀.

***Phyllognathus excavatus* (FORSTER, 1771)**

M a t e r i a l e x a m i n e d : Adana: ♂, Balcalı, 31.VII.2011, ♀, 15.VIII.1993, ♀; Ağrı: Doğubeyazıt, Bahçe, 1600 m, 20.VIII.2013, ♂, Mezarlık, 1630 m, 15.VIII.2013, ♂; Antalya: Serik, Nebiler, 30 m, 28.IX.2012, 3♀♀, 29.IX.2012, ♀, Yukarı Beymelek, 170 m, 20.VI.2013, ♂, 170 m, 2.VIII.2013, ♀♀, ♂; Elazığ: Harput, Miyadin, Şimal Mezra, 15.VIII.1973, ♀; Erzurum: Yakutiye, Atatürk University Field, 1850 m, 20.VI.1996, ♀; İzmir: 1.VIII.1992, ♀; Manisa: Salihli, 74 m, 4.VII.2012, ♂; Mersin: Anamur, 25.VIII.1994, ♀, ♂, Erdemli, 10.VII.1992, ♀, Gülnar, 20.VII.1990, ♀, ♂, Silifke, Sömek, 900 m, 4.IX.2011, ♀; Muğla: Kızılan, 3.VII.1997, ♀; Osmaniye: 8.VIII.1993, ♀, 17.VIII.1993, ♀, 11.IX.1993, ♀, Köyyeri, 26.VII.1992, ♂.

***Temnorynchus baal* REICHE & SAULCY, 1856**

M a t e r i a l e x a m i n e d : Erzurum, Yakutiye, Atatürk University Field, 1850 m, 29.VII.2011, ♀.

R e m a r k s : This is the second record known for Erzurum and for non-coastal Turkey as well. The occurrence of this species in the area of Erzurum is of difficult interpretation and was already discussed by ULIANA & YILDIRIM (2012).

Subfamily Rutelinae MACLEAY, 1819

Tribe Adoretini BURMEISTER, 1844

Subtribe Adoretina BURMEISTER, 1844

***Adoretus (Adoretus) discolor* (FALDERMANN, 1835)**

M a t e r i a l e x a m i n e d : Osmaniye: Kadirli, 15.VII.2014, ♂; Tunceli: 7.VII.2009, ♀.

This species is newly recorded from Turkey.

R e m a r k s : First record for Turkey. The species is recorded for Southern Russia, Azerbaijan, Armenia, Georgia and Iran (LÖBL & LÖBL 2016). Specimens from Turkey were directly compared against specimens from Kizlyar district, Krajnovka, and Azerbaijan-e Sharqi, SW Ahar, Goljabel pass, as well as pictures in SABATINELLI & RITTNER (2015) giving a good match. Some minor differences were observed, which may be referred to intraspecific variation and are anyway not better evaluable on the scanty Turkish material available (the male, in particular is severely damaged and is missing both anterior tarsi).

***Adoretus (Adoretus) sterbae* REITTER, 1909**

M a t e r i a l e x a m i n e d : Adana: 28.VII.1992, ♀♀; Balıkesir: Meşen, Çataldağ, Aygırbayırı, 20.VII.1995, 4♀♀; Hatay: Erzin, 8.VII.1995, ♀, ♂; Kırşehir: 20.VI.1992, 2♂♂, 2♀♀; Osmaniye: Kabayar, II.VII.1987, ♂.

R e m a r k s : The absence of males did not allow to identify these specimens. We suppose that the presence of the genus *Adoretus* in NE Turkey is likely to derive from passive introduction. Examination of new material, including males, is required to identify the taxon.

Tribe Anisopliini BURMEISTER, 1844

Anisoplia (Anisoplia) abdita BARAUD, 1991

Material examined: Erzurum: Aziziye, 1794 m, 25.V.2010, ♂, Narman, Mahmutçavuş, N 40°34', E 41°93', 1641 m, 28.VI.2013, ♂, Pasinler, 1684 m, 11.VII.2011, 2♂♂, Yakutiye, Atatürk University Field, 1850 m, 29.VII.2011, 3♀♀.

Anisoplia (Anisoplia) angorensis PETROVITZ, 1971

Material examined: Ankara: Kızılcihamam, Sipahiler, 975 m, 16.VII.2011, ♂, ♀.

Anisoplia (Anisoplia) enucleator BARAUD, 1991

Material examined: Erzurum: Aziziye, Ilica, 22.VI.2008, ♂, Horasan, 6.IX.1972, ♂, Narman, Koçkaya, N 40°39', E 41°96', 1678 m, 27.VI.2013, ♂, Palandöken, N 39°54', E 41°15', 1872 m, 21.VII.2012, ♀, Dutçu, 2000 m, 24.VII.2010, ♂, Tepeköy, N 39°52', E 41°12', 1848 m, 25.VIII.2013, 4♀♀, 2♂♂, Pasinler, 12.VII.2008, ♂, N 39°59', E 41°38', 1684 m, 4.VII.2011, ♂, N 39°59', E 41°38', 11.VII.2011, ♀, Pusudere, 37 S 070°97', 44°26', 1832 m, 10.VII.2013, ♀, ♂, Şenkaya, Turnalı, 2000 m, 6.VIII.1988, ♂, Yakutiye, 1.V.1967, ♂, 10.VI.1995, ♀, 15.VII.1997, ♂, 1.VIII.1967, 6♀♀, 1.VIII.1969, 2♀♀, 1.VIII.1996, ♀, 10.VIII.1965, 2♀♀, Atatürk University Field, 1850 m, 06.VI.2013, ♀, 14.VI.2008, ♀, N 39°54', E 41°15', 15.VI.2011, 5♂♂, 1.VII.2014, ♀, 2♂♂, 6.VII.2008, ♀, 9.VII.2013, 2♂♂, 12.VII.2013, 2♀♀, 2♂♂, 14.VII.1977, ♂, N 39°54', E 41°14', 15.VII.2009, 7♀♀, 11♂♂, N 39°55', E 41°14', 15.VII.2010, 3♀♀, 7♂♂, N 39°54', E 41°15', 15.VII.2011, 7♀♀, ♂, 16.VII.2007, 2♀♀, 19.VII.1996, ♀, N 39°55', E 41°14', 19.VII.2010, ♀, 21.VII.2008, 2♂♂, 21.VII.2014, 2♂♂, N 39°54', E 41°15', 23.VII.2007, 5♀♀, 4♂♂, N 39°54', E 41°15', 23.VII.2012, 2♂♂, 29.VII.2011, 2♀♀, 31.VII.2014, ♀, ♂, 10.VIII.1993, ♀, N 39°55', E 41°14', 15.VIII.2010, ♀, 11.VII.1998, ♀; Konya: Gözlü, 28.V.1960, 2♀♀.

Remarks: According to BARAUD (1991a) this species is present in western and central Turkey. Present records testify its presence in north-Eastern Anatolia also.

Anisoplia (Anisoplia) farraria ERICHSON, 1847

Material examined: Erzurum: Horasan, 6.VII.1972, 2♀♀, 2♂♂, 6.VII.2008, ♂, Tavşancık, 17.VII.2011, ♂.

Anisoplia (Anisoplia) noahi PETROVITZ, 1973

Material examined: Erzurum: Horasan, 6.VII.1972, 3♀♀, 3♂♂, Aras, N 40°01', E 42°19', 1620 m, 19.VII.2012, ♂, Şenkaya, Kılıçboğazı, N 40°46', E 42°34', 2137 m, 7.VII.2013, 2♂♂; Kars: Sarıkamış, Akkurt, 1525 m, 22.VI.2010, ♀, ♂, Karakurt, 1500 m, 22.VI.2010, ♂, TCK Çeşmesi, 1500 m, 22.VI.2010, ♂.

Anisoplia (Anisoplia) persiaca BICZÓK, 1940

Material examined: Erzincan: Karadağ, 1450 m, N 39°38' E 39°06', 11.VI.2013, ♂, 2♀♀, 1100 m, N 39°37' E 39°12', 11.VI.2013, ♂, ♀; Erzurum: 28.V.1960, ♂, Horasan, 6.VIII.1972, ♀.

Anisoplia (Anisoplia) group signata FALDERMANN, 1835

Material examined: Ardahan: Çimenkaya Plateau, 2650 m, 28.VIII.2012, ♀; Artvin: 15.VII.1997, ♂, 15.IX.1997, ♀; Bingöl: 16.VI.1974, ♂; Erzurum: Aziziye, Bingöze, 2185 m, 28.VIII.2011, ♂, Ilica, 8.VII.1997, ♀, Tebrizcik, 16.VII.2009, ♂, Çat, 2250 m, 12.VII.2010,

♂, Başköy, N 39°43', E 41°08', 2146 m, 18.VII.2012, ♀, Çukurçayırı, 2183 m, 18.VII.2012, ♀, ♂, Horasan, 06.VII.1972, 2♂♂, Aras, 1620 m, 19.VII.2012, ♂, Karaçoban, Akkavak, 1658 m, 16.VII.2011, ♀, Karayazı, Kayalar, 20.VII.1995, ♂, Narman, N 40°32', E 41°90', 1603 m, 28.VI.2013, ♀, 8♂♂, Çimenli, 2326 m, 30.VI.2010, ♀, ♂, N 40°10', E 41°54', 2238 m, 30.VI.2012, ♂, Kamışözü, 1835 m, 23.VI.2011, ♀, Koçkaya, N 40°39', E 41°96', 1678 m, 27.VI.2013, 2♀♀, 18♂♂, Koyunören, N 40°28', E 41°93', 1936 m, 27.VI.2013, ♂, Mahmutçavuş, N 40°34', E 41°93', 1641 m, 28.VI.2013, ♀, Oltu, Çamlıbel, 1700 m, 14.VII.1996, 2♀♀, ♂, Gökçedere, 2100 m, 16.VII.2013, ♂, Sütkans, 1650 m, 17.VI.1996, ♂, Tutmaç, 1719 m, 16.VII.2011, ♂, Olur, Süngübayır, 1850 m, 24.VII.1996, ♀, ♂, Palandöken, 2400 m, 1.VII.2010, ♂, 2.VII.1996, ♀, ♂, 8.VII.1988, ♀, 14.VIII.1995, ♀, Abdurrahman Gazi, N 39°53', E 41°19', 2188 m, 22.VII.2012, ♀, Dutçu, 2000 m, 24.VII.2010, 3♂♂, Pasinler, 13.VI.1996, ♂, 18.VI.1996, ♀, 11.VII.1996, ♀, 13.VII.1996, ♂, 15.VII.1997, ♀, Çalıyazı, 2400 m, 10.VII.1997, ♀, Çöğender, 1743 m, 3.VIII.2009, ♀, 22.VI.2008, ♀, ♂, Gülcığez, 1801 m, 3.VIII.2009, 2♀♀, Ovaköy, 1785 m, 17.VII.2013, ♀, Rabat, 2400 m, 11.VII.1996, ♂, Sansar Deresi, N 40°05', E 41°44', 1877 m, 17.VII.2011, 4♀♀, 3♂♂, Yiğitpınar, N 40°03', E 41°36', 1831 m, 22.VI.2012, ♂, Şenkaya, Akşar, N 40°50', E 42°32', 2155 m, 8.VII.2009, 2♂♂, Allahuekber Mountains, 14.VII.1997, 4♀♀, 2♂♂, Gözebaşı, N 40°22', E 42°19', 2131 m, 14.VII.2012, ♂, Hoş, N 40°40', E 42°20', 1240 m, 14.VII.2012, ♂, İğdeli, N 40°41', E 42°23', 1459 m, 8.VI.2013, ♂, Kılıçboğazi, N 40°46', E 42°34', 2137 m, 7.VII.2013, 5♀♀, 6♂♂, Penek, 1179 m, 19.VI.2011, ♂, 20.VII.1970, ♂, Turnalı, 2000 m, 6.VII.1988, 2♂♂, 1750 m, 23.VII.1996, ♂, 25.VII.1996, 2♀♀, 3♂♂, 2000 m, 6.VIII.1988, 6♀♀, ♂, 5.IX.1990, ♀, Uzundere, 13.VII.1974, ♂, Yakutiye, 20.VII.1994, ♀, 29.VII.1994, 2♂♂, Atatürk University Field, 1850 m, 4.VII.2014, ♀, ♂, 14.VII.1997, ♀, 26.VII.2009, ♀, 2♂♂, Dumlu, N 40°05', E 41°22', 1792 m, 19.V.2013, ♂, Güngören, 2500 m, 28.VII.1998, ♀, Güzelyayla, 2100 m, 16.VII.2011, ♀, ♂, İğdir: 25.V.1971, ♂, Mersin: Erdemli, Üçtepe, 120 m, 10.VIII.2012, 2♀♀; Rize: Ballıköy Plateau, 2300 m, 5.VII.1995, 2♂♂; Trabzon: Tonya, Çayırçı, 11.VIII.1994, ♂.

R e m a r k s : The treatment proposed by BARAUD (1991b) for the species of the "group *signata*" appears unsatisfactory since it did not allowed us to reach an unambiguous identification of the several specimens examined. This applies in particular to the abundant material from the Erzurum region, which was compared against allied specimens from Armenia, where additional taxa of this group are recorded. Doubts arise from the choice of diagnostic characters that, when observed on long series, reveal to be not constant or anyway not clear cut as the key suggests. Examples are the punctures of pronotum, the shape of the clypeus, the elongation of the claws, minor differences on shape of parameres. It is also to be noted that BARAUD, in the mentioned work, described four new taxa pertaining to this group (*seleucidis*, *akbesiana*, *ungulata* and *venusta*) based on non-optimal material, including scanty series (in particular *ungulata*, described on two specimens) and type series composed of specimens coming from distant localities (*akbesiana*). A thorough taxonomic revision of this complex is therefore needed.

***Anisoplia (Anisoplia) tunneri* PETROVITZ, 1971**

M a t e r i a l e x a m i n e d : Bingöl: 16.VI.1974, 2♀♀, 2♂♂.

***Anisoplia (Autanisoplia) austriaca* (HERBST, 1783)**

M a t e r i a l e x a m i n e d : Adana: ♂; Adıyaman: Besni, Tavaş, 25.IX.2013, ♂, Nemrut, 28.VIII.2013, 3♀♀; Ankara: 2.VI.1998, ♂, 2.VIII.1992, 4♀♀, ♂, Şereflikoçhisar, 10.VIII.1983, 2♂♂, 10.VIII.1989, ♀, 10.IX.1983, ♂; Antalya: Korkuteli, 700 m, 22.VI.2013, ♀; Bayburt: Aydıntepe, İncilik, 16.VII.1994, ♂; Bilecik: Gölpazarı, 520 m, 26.VII.2010, ♀; Bitlis: 30.VI.1996, ♀; Diyarbakır: 3.VI.1958, ♂; Denizli: Çivril, Çakallar, 960 m, 20.VII.2013, ♀, 960 m, 27.VII.2013, ♀; Erzurum: Aşkale, Ortabağçe, 18.VII.2009, 46♀♀,

29♂♂, Aziziye, Dadaşkent, 2.VII.2009, 2♀♀, 8♂♂, 10.VII.2008, 3♀♀, 27.VII.2008, 4♀♀, 9♂♂, 27.VII.2009, ♂, 10.VIII.2008, 6♀♀, 7♂♂, N 39°56', E 41°13', 1294 m, 19.VII.2009, 6♂♂, N 39°56', E 41°13', 1794 m, 19.VII.2009, ♀, ♂, N 39°56', E 41°13', 3.VIII.2011, 2♂♂, Emrecik, 30.VII.2009, 9♀♀, 13♂♂, Ilıca, 20.VI.2008, ♀, 22.VI.2008, 2♀♀, 6♂♂, 1853 m, 7.VIII.2010, 2♂♂, Harmanlar, 25.VII.2007, ♂, 15.VIII.2007, ♂, 25.VIII.2007, 4♀♀, 4♂♂, Tebrizcik, 16.VII.2009, 15♀♀, 54♂♂, Horasan, Karacüha, 37 T 075 50, 44 35, 1550 m, 19.VII.2013, 4♂♂, Narman, N 40°32', E 41°90', 1603 m, 28.VI.2013, 6♀♀, 5♂♂, Koçkaya, N 40°39', E 41°96', 1678 m, 27.VI.2013, ♀, 2♂♂, Palandöken, 20.VI.1970, 3♂♂, 17.VII.1979, ♀, 18.VII.1979, ♀, 3♂♂, 18.VII.1989, ♀, Börekli, 1822 m, 22.VII.2011, ♂, Tepeköy, N 39°52', E 41°12', 1858 m, 25.VII.2013, 3♀♀, ♂, Pasinler, 12.VII.2008, 2♀♀, 13♂♂, Büyükdere, 11.VII.1996, 3♀♀, 4♂♂, 11.VII.1991, ♂, 12.VII.1996, ♂, 15.VII.1996, ♂, Çöğender, 1743 m, 3.VII.2009, 3♂♂, 1743 m, 3.VIII.2009, 4♀♀, 8♂♂, Gülcigez, 1801 m, 3.VIII.2009, 5♀♀, 7♂♂, Pusudere, 37 S 070°97', 44°26', 1832 m, 10.VII.2013, 9♀♀, 6♂♂, 37 S 070°97', 44°26', 17.VII.2013, ♀, Pazaryolu, 2.IX.1994, ♀, Yakutiye, 20.VI.1970, ♂, 20.VI.1990, ♀, 24.VI.1970, ♀, 1.VII.1969, ♂, 9.VII.1997, ♂, 12.VII.1974, ♀, 12.VII.1979, ♀, 13.VII.1979, 8♀♀, 6♂♂, 13.VII.1989, ♂, 14.VII.1970, 2♀♀, 3♂♂, 15.VII.1967, ♀, ♂, 15.VII.1969, ♀, 14♂♂, 15.VII.1979, 6♀♀, ♂, 16.VII.1979, ♀, 17.VII.1970, ♀, 18.VII.1967, 2♀♀, 2♂♂, 18.VII.1969, 6♀♀, 6♂♂, 30.VII.1973, ♂, 1.VIII.1996, ♀, 7.VIII.1971, ♀, 7.VIII.1975, ♂, 14.VIII.1970, ♀, 18.VIII.1969, ♀, Atatürk University Field, 1850 m, 6.VII.2008, 5♀♀, 7♂♂, 14.VII.1997, 2♀♀, 14.VII.2008, ♀, N 39°54', E 41°14', 15.VII.2009, 2♀♀, 2♂♂, N 39°55', E 41°14', 15.VII.2010, ♂, N 39°54', E 41°15', 15.VII.2011, 2♀♀, 16.VII.2007, 2♀♀, 2♂♂, N 39°55', E 41°14', 16.VII.2009, 2♂♂, 21.VII.1997, ♂, 21.VII.2008, 5♀♀, 6♂♂, N 39°54', E 41°17', 23.VII.2007, 2♀♀, ♂, 23.VII.2008, ♂, N 39°54', E 41°15', 23.VII.2012, 3♀♀, 28.VII.1994, ♂, 1.VIII.1969, ♀, Dadaşkøy, N 39°58', E 41°15', 1765 m, 28.VII.2009, ♂, Dumlu, N 40°05', E 41°22', 1792 m, 19.V.2013, ♀, 1853 m, 27.VII.2011, ♀, ♂; Isparta: Eğirdir, Ağıl, 27.VIII.1991, ♂, Senirkent, 21.VII.1996, ♂; Kavseri: Çay, 950 m, 18.VII.2013, ♂, Kocasinan, Emmiler, 1160 m, 23.VIII.2013, ♂; Konya: Beyşehir, Gökçimen, 12.VII.1997, ♂, Çumra, 1020 m, 18.VI.2013, 2♀♀, 9♂♂, Güneysınır, Güragaç, 1017 m, 21.VI.1999, ♀, ♂; Kütahya: Tavşanlı, 10.IX.1994, ♀, 3♂♂; Manisa: Salihli, 108 m, 12.VIII.2013, 2♂♂; Osmaniye: Kadırlı, 15.VII.2013, ♀; Sanlıurfa: Bozova, 440m 16.VI.2013, ♂, 440 m, 27.VI.2013, ♂; Yozgat: Boğazlıyan, 15.VII.1994, ♀, 18.VII.1994, ♀, 24.VII.1994, ♀, 29.VII.1994, ♀.

Remarks: Three different subspecies are currently recorded from Turkey: *austriaca* (HERBST, 1783), *kurdistana* REITTER, 1889 and *major* REITTER, 1889 (LÖBL & LÖBL 2016, MONTREUIL 2016). The abundant material examined did not allowed us to identify unambiguously subspecies, due to incostancy of some diagnostic characters proposed by authors. For example, specimens with dark periscutellar spot were observed among populations from Erzurum and neighbouring areas while according to BARAUD (1991a) north-eastern Turkey should host the subspecies *kurdistana*, characterised by the absence of the spot.

***Brancoptilia leucaspis* (LAPORTE, 1840)**

Material examined: Adıyaman: Nemrut Mountain, 14.VI.2003, 3♂♂; Bingöl: 16.VI.1974, ♂, Ilıcalar, İçpınar, Derik Mezrası, Paşacesmesi, 1100 m, 28.V.2006, ♀, ♂; Diyarbakır: Silvan, 825 m, 17.IV.1995, ♂♂?; Erzurum: Oltu, Tutmaç, 1719 m, 16.VII.2011, ♀, 1719 m, 16.VII.2012, ♀, Olur, Sungübayır, 1850 m, 26.VI.1996, ♂, 1850 m, 24.VII.1996, 3♀♀, Pasinler, 11.VI.1996, ♀, 13.VII.1996, ♀, Şenkaya, Turnalı, 1750 m, 20.VII.1996, ♀, 25.VII.1996, ♀, Yakutiye, Hilalkent, 1796 m, 9.VI.2012, ♀, 28.VII.1994, ♀; Kars: Kağızman, 1750 m, 22.VI.2010, ♀.

***Chaetopteroptilia segetum velutina* (ERICHSON, 1847)**

Material examined: Adana: 25.VII.2001, ♂; Afyonkarahisar: Bolvadin, 6.VII.1986,

♂, 20.VIII.1986, ♂; Ankara: Bala, 18.VII.1984, ♀, Polatlı, 850 m, 25.VI.2011, ♂; Antalya: Aksu, 19.VII.2014, ♂; Artvin: 14.VI.1973, ♂; Bitlis: 27.V.1989, ♀; Erzincan: 19.VI.1980, ♂, Derebük, 1273 m, 9.VI.2013, N 39°36', E 39°56'♂, Üzümlü, 8.VII.2011, ♀; Erzurum: Aşkale, Çayköy, 1580 m, 2.VII.2012, Aziziye, Ilıca, 12.VII.2014, ♂, Horasan, 6.VII.1972, 8♀♀, 22♂♂, 8.VII.1972, ♀, Tavşancık, 1518 m, 17.VII.2011, ♀, Karaçoban, Dumanlı, N 35°19', E 41°56', 1762 m, 26.VI.2011, ♂, Narman, N 40°32', E 41°90', 1603 m, 28.VI.2013, 4♀♀, 3♂♂, Kamişözü, 1835 m, 23.VI.2011, 2♀♀, Mahmutçavuş, N 40°34', E 41°93', 1641 m, 28.VI.2013, 10♀♀, 10♂♂, Oltu, Ballica, 37° 07' 42', E 44° 90', 1474 m, 12.VI.2013, ♂, Çamlıbel, 1700 m, 14.VII.1996, ♀, Sütkans, 1650 m, 25.VI.1996, ♂, Olur, Boğazgören, 1155 m, 23.VI.2011, 2♀♀, Olgun, N 40°52', E 42°07', 1781 m, 15.VII.2012, 3♂♂, Süngübayır, 1850 m, 21.VII.1996, ♂, Palandöken, 28.VII.1994, ♂, 1.VIII.1969, 5♂♂, Dutçu, 2000 m, 24.VII.2010, 2♂♂, Pasinler, 1684 m, 5.VII.2011, 3♀♀, 3♂♂, 8.VII.2011, 3♀♀, 10♂♂, 11.VII.2011, 3♀♀, 18♂♂, 13.VII.1996, ♂, 19.VII.1996, ♂, Sansar Deresi, N 40°05', E 41°44', 1877 m, 17.VII.2011, 6♂♂, Tortum, 22.VI.1971, ♂, Çamlıca, 6.VII.2014, ♂, N 40°20', E 41°36', 1681 m, 16.VII.2012, ♀, Pehlivanlı, 29.VI.1990, ♂, Yayla, 1990 m, 17.VII.2011, ♂, Şenkaya, İğdeli, N 40°41', E 42°23', 1459 m, 8.VI.2013, ♂, Tunalı, 1750 m, 15.VII.1996, ♂, 25.VII.1996, ♀, Uzundere, Şelale, 1000 m, 9.VI.1996, ♂, Yayla, N 40°28', E 41°38', 2191 m, 23.VI.2012, ♂, Yakutiye, Atatürk University Field, 1850 m, 14.VI.2007, 6♀♀, 12♂♂, 4.VII.2014, ♀, 8.VII.2013, ♂, 10.VII.2014, ♂, 14.VII.1997, ♀, 22.VII.2014, ♂, N 39°54', E 41°15', 23.VII.2007, 2♂♂, 20.VII.1995, ♀, 28.VIII.2014, ♂; Hatay: Burnaz, 11.V.1969, ♀, ♂; İğdir: 25.VI.1971, 2♀♀; Kars: Sarıkamış, Akkurt, 1525 m, 22.VI.2010, 2♀♀, 2♂♂, Karakurt, TCK Çeşmesi, 1500 m, 22.VI.2010, 2♀♀, 3♂♂; Konya: Çumra, 1020 m, 18.VI.2012, 7♂♂, Beyşehir, Gökçimen, 3.VII.1997, ♂; Mersin: Gülnar, Demiröz, 1300 m, 28.VI.2011, 2♂♂; Rize: Ballıköy Plateau, 2300 m, 5.VIII.1995, ♂; Trabzon: Dorukkiriş, 899 m, 23.VII.2011, ♂, Şalpazarı, 761 m, 3.VII.2011, ♂.

Subtribe *Anomalina* MULSANT, 1842

Anomala affinis Ganglbauer, 1882

Material examined: Balıkesir: Fidanlık, 9.V.2008, ♂; Mersin: Mut, 6.VI.2011, ♂, ♀.

Anomala dubia (Scopoli, 1763)

Material examined: Erzurum: Olur, Boğazgören, 1155 m, 23.VI.2011, 5♂♂, Olurdere, 1050 m, 23.VI.2011, 3♂♂, Pasinler, Yayla, 1990 m, 17.VII.2011, ♂; Rize: Çamlıhemşin, Halil Şişman, N 41°02', E 041°01', 360 m, 20.VI.2014, ♂.

Anomala osmanlis BLANCHARD, 1850

Material examined: Adana: Aladağ, Büyüksöfözü, 17.VII.1992, ♂, 17.VII.1993, 2♂♂, Balcalı, 25.IX.2013, ♀, ♂, Adıyaman: Erkenek, 20.VI.1978, 14♂♂; Antalya: Manavgat, 15.VI.1996, ♂; İzmir: 1.VIII.1992, ♂; Manisa: Salihli, 74 m, 4.VII.2012, ♂; Muğla: 8.VII.1983, ♂, 8.VIII.1983, 3♂♂, 10.VIII.1983, 4♂♂, 1.IX.1993, ♂; Osmaniye: Kadirli, Kabayar, 16.VII.1997, ♂.

Blitopertha nigripennis (REITTER, 1888)

Material examined: Adana: Çukurova University Field, 30.VII.2011, ♂; Bingöl: 6.VI.1974, ♀, 14.VI.1974, ♂, 16.VI.1974, 11♂♂, 11♀♀, 16.VI.1984, ♂, 16.VI.2007, ♀; Bursa: İnegöl, 1500 m, 13.VI.2012, ♂; Erzurum: Aşkale, Gümüşseren, N 39°54', E 40°42', 1781 m, 12.VI.2013, 5♀♀, ♂, Güneççam, N 39°57', E 40°33', 1703 m, 8.VI.2012, ♀, N 39°56', E 40°35', 1630 m, 9.VI.2013, 2♂♂, Gürkaynak, N 39°57', E 40°34', 1673 m, 9.VI.2013, ♂, Küçükova, N 39°48', E 40°44', 1914 m, 12.VI.2013, 2♀♀, 2♂♂, Serik, N 39°56', E 40°39', 1631 m, 8.VI.2012, ♀, Topalçavuş, N 39°57', E 40°35', 1627 m, 8.VI.2012,

♀, N 39°56', E 40°35', 1736 m, 9.VI.2013, 2♀♀, Yeniköy, 1905 m, 18.VI.2012, ♀, Aziziye, Çatalören, N 39°49', E 42°04' 2166 m, 14.VI.2013, 5♀♀, 3♂♂, Çiğdemli, N 39°59', E 40°57', 1869 m, 8.VI.2012, ♂, Dadaşkent, 1782 m, 9.VI.2010, 2♀♀, 14.VI.2010, 2♀♀, 3♂♂, N 39°56', E 41°13', 1794 m, 22.VI.2010, ♀, Eğerti, 1906 m, 22.VI.2011, ♂; Hınıs, 1955 m, 26.VI.2011, ♀, Ünlüce, 1700 m, 9.VI.2011, 2♂♂, Yelpez, N 39°19', E 41°49', 1613 m, 11.VI.2012, ♂, İspir, Arılı, N 40°32', E 40°60', 2026 m, 14.VI.2012, ♀, ♂, İspir Pass, 6.VI.1980, ♀, Kaçkar, 1954 m, 22.VI.2011, ♂, Kirazlı, 6.VI.1980, 2♀♀, 5♂♂, N 40°30', E 41°01' 1236 m, 22.VI.2011, ♀, Köprüköy, Ağcaşar, 22.VI.2010, ♂, Eğirmez, N 39°59', E 41°50', 1674 m, 26.VI.2011, 2♀♀, 2♂♂, Yağan, N 39°58', E 41°54', 1624 m, 11.VI.2012, 2♀♀, 3♂♂, N 39°56', E 41°57', 1692 m, 11.VI.2012, 2♀♀, 2♂♂, Oltu, 25.VI.1971, 2♀♀, ♂, Ölur, Kaledibi, N 40°44', E 42°11', 1052 m, 23.VI.2011, ♂, Palandöken, 2200 m, 20.VI.1982, ♀, 14.VII.1990, 2♂♂, 18.VII.1979, ♂, Taşlıgüney, N 39°49', E 41°08', 1877 m, 12.VI.2012, 2♀♀, ♂, Tekederesi, N 39°50', E 41°09', 1916 m, 12.VI.2012, ♀, Pasinler, Büyükdere, N 40°03', E 41°38', 1759 m, 7.VI.2012, ♂, Kotandüzü, N 40°04', E 41°38', 1957 m, 7.VI.2012, 6♀♀, 7♂♂, N 40°04', E 41°38', 1957 m, 7.VII.2012, ♂, Rabat, 2400 m, 11.VII.1996, ♀, Serçeboğazı, N 40°02', E 41°39', 1746 m, 7.VI.2012, 24♀♀, 19♂♂, Pazaryolu, Denктаş, N 40°26', E 40°48', 1530 m, 3.VI.2012, ♂, Kumaşkaya, 1800 m, 23.VI.2011, ♀, Şenkaya, Akşar, 1275 m, 10.VI.2011, ♂, N 40°47', E 42°32', 2080 m, 8.VII.2007, ♀, Değirmenlidere, N 40°46', E 42°34', 2139 m, 16.VI.2013, 3♀♀, ♂, Turnalı, 5.IX.1990, 2♀♀, Tekman, Hacıömer, 1825 m, 26.VI.2011, ♂, Körsu, N 39°33', E 41°44', 1938 m, 11.VI.2012, ♀, ♂, Küllü, N 39°39', E 41°47', 1812 m, 11.VI.2012, ♂, Tortum, 850 m, 27.V.2010, ♂, Kireçli Mountain, 2400 m, 25.VI.1996, ♂, Nebioğlu, N 40°19', E 41°32', 1570 m, 12.VI.2011, 3♀♀, Yukarı Sivri, 1865 m, 23.VI.2011, ♀, ♂, Uzundere, Çağlayan, 27.V.2011, 970 m, ♀, ♂, Şelale, N 40°40', E 41°40', 927 m, 14.V.2013, ♂, N 40°40', E 41°40', 927 m, 24.V.2013, ♂, ♀, 1000 m, 9.VI.1996, 2♂♂, Yakutiye, 3.VI.1978, ♀, 11.VI.1970, ♂, 12.VI.1968, ♀, 13.VI.1968, 7♀♀, 2♂♂, 13.VI.1969, 9♂♂, 13.VI.1977, ♂, 13.VI.1978, ♂, 14.VI.1970, ♀, 3♂♂, 20.VI.1966, 6♀♀, 8♂♂, 5.VII.1978, ♂, 12.VII.1979, ♀, 13.VII.1969, ♀, 13.VII.1979, ♀, 14.VII.1970, 3♀♀, ♂, 14.VII.1990, 2♀♀, 19.VII.1969, ♂, Atatürk University Field, 1850 m, 12.VI.2010, 5♂♂, 17.VI.1996, ♀, N 39°55', E 41°14', 15.VII.2011, 2♂♂, Gölet, 20.VI.1996, ♀; Gümüşhane: Köse, Akbaba, 1710 m, 3.IX.2011, ♀; Mersin: Erdemli, Üçtepe, 120 m, 10.VIII.2012, ♂; Tunceli: Mazgirt, Kalaycı, 25.III.2010, 950 m, ♀, ♂.

***Blitopertha lineolata vanensis* SHOKHIN, 2010**

Material examined: Erzurum: Aşkale, Güneyçam, N 39°56', E 40°35', 1630 m, 9.VI.2013, ♂, Gümüşseren, N 39°56', E 40°42', 1781 m, 12.VI.2013, ♂, Hatuncuk, N 39°50', E 40°41', 1880 m, 12.VI.2013, ♂, Aziziye, Çatalören, N 39°49', E 42°04', 2166 m, 14.VI.2013, 2♂♂, Köprüköy, Eğirmez, N 39°59', E 41°50', 1674 m, 26.VI.2011, ♀, Palandöken, 2200 m, 12.VI.1979, ♂, 13.VI.1979, ♂, 13.VI.1989, ♀, 13.VI.1996, ♀, 20.VI.1966, ♀, ♂, Gölet, 20.VI.1996, ♀, Pasinler, Serçeboğazı, N 40°02', E 41°39', 1746 m, 7.VI.2012, 2♂♂, Yakutiye, Atatürk University Field, N 39°55', E 41°14', 15.VII.2011, 1842 m, ♂.

Subfamily Melolonthinae MACLEAY, 1819

Tribe Euchirini HOPE, 1840

***Propomacrus bimucronatus* (PALLAS, 1781)**

Material examined: Adana: Kozan, Bağtepe, 16.VII.1983, ♀; Adıyaman: Kâhta, Elbeyi, 650 m, 20.VIII.2011, ♂; Ağrı: Doğubeyazıt, Mezarlık, 1630 m, 21.6.2013, 2♂♂; Elazığ: 25.IX.1994, ♂; Erzurum: Yakutiye, Atatürk University Field, 1850 m, 15.VII.1997, ♀; İzmir: 1.VIII.1992, ♀, Kemalpaşa, 15.VI.1994, ♀, ♂; Konya: Bozkır, 18.VIII.1985, ♂; Manisa: Sultan Yayla, 16.VII.1994, ♀, ♂.

Tribe Sericini KIRBY, 1837

Maladera (Cephaloserica) castanea (ARROW, 1913)

Material examined: Artvin: Hopa, 19.VI.1992, 3♂♂, 20.VI.1992, ♂, 20.VI.1996, ♂, 22.VI.1992, ♂; Rize: 12.VII.1990, ♂, 18.VIII.1992, ♂, Kalkandere, 125 m, 25.VIII.2011, ♂; Erzurum: Tortum, Yukarı Sivri, 1734 m, 23.VI.2011, ♂.

Remarks: An alien species, introduced to Georgia and Turkey from the eastern palaearctic region (LÖBL & LÖBL 2016). Firstly observed in Turkey in 1963 (Trabzon, Solakli-Ufer) but originally not recognised and described as a distinct species (PETROVITZ 1967). Correct identification is due to AHRENS (2000).

Omaloelia (Acarina) spireae spireae (PALLAS, 1773)

Material examined: Artvin: Yusufeli, 6.VI.1994, ♀, 6.VII.1994, 3♀♀, 2♂♂; Erzurum: Aziziye, Ilca, 8.VII.1997, ♂, Rizekent, 2200 m, 30.VII.1996, ♀, 2200 m, 30.VII.1998, 4♀♀, ♂, Çat, 2250 m, 12.7.2010, 3♀♀, Yavi, 1844 m, 22.VIII.2011, ♀, ♂, Narman, Kamsıözü, 1835 m, 23.VI.2011, ♂, Olü, 20.VII.1970, 4♀♀, 20.VII.1973, ♀, 20.VII.1980, ♀, 20.VII.1990, 2♀♀, 4♂♂, 20.VII.1993, ♂, Aksuyayla, 2250 m, 14.VII.1996, ♀, ♂, Çamlıbel, 1700 m, 14.VII.1996, ♀, ♂, Penek, 1179 m, 19.VI.2011, 2♀♀, Sütkans, 18.VI.1996, 4♂♂, 25.VI.1996, 3♀♀, ♂, 1600 m, 25.VII.1996, ♀, ♂, Palandöken, 2400 m, 22.VII.1990, ♀, Pasinler, 17.VII.1980, ♀, Rabat, 2400 m, 11.VII.1996, 5♂♂, 2400 m, 15.VII.1996, ♂, Sansar Deresi, N 40°05", E 41°44", 1877 m, 17.VII.2011, ♂, Yayla, 1990 m, 17.VII.2011, ♀, Tortum, Arılı, 1550 m, 7.VIII.1995, ♂, 1600 m, 7.VIII.1996, 4♀♀, 4♂♂, Uzundere, Yayla, N 40°28', E 41°38', 2191 m, 23.VI.2012, ♀, Yakutiye, Atatürk University Field, 1850 m, 9.VII.1996, ♂, 1850 m, 9.VII.1997, ♀, 5♂♂, 29.VII.2011, ♀, ♂, Güzelyayla, 2100 m, 16.VII.2011, ♀; Malatya: 08.V.1996, ♂; Trabzon: Şalpaزاری, Karakaya, 10.VIII.1994, ♀.

Omaloelia (Acarina) ottomana BARAUD, 1965

Material examined: Erzurum: Aşkale, Gürkaynak, N 39°56', E 40°31', 1827 m, 9.VI.2013, 3♂♂, 2♀♀; Isparta: Egirdir, Bademli, 1000 m, 3.VI.2013, ♂.

Remarks: A species endemic to Turkey (LÖBL & LÖBL 2016), with only few known records from two well disjointed areas: south-western Turkey, where it was recorded from four localities between Isparta, the Ak Dağları and Antalya (BARAUD 1965, ADAM 1994, ROSSNER & AHRENS 2004, 2015) and north-eastern Turkey (Ulubağ, Erzurum), based to date on the single record by ROSSNER & AHRENS (2004). Presently recorded specimens, collected on grasses and flowers of Asteraceae, confirm its presence in this region of Anatolia.

Omaloelia (Acarina) labrata BURMEISTER, 1855

Material examined: Adana: Ceyhan, 22.V.1992, ♀.

Tribe Melolonthini MACLEAY, 1819

Anoxia (Anoxia) asiatica DESBROCHERS DES LOGES, 1872

Material examined: Balıkesir: Fidanlık, 9.V.2008, ♂; Erzurum: Olur, Boğazgören, 1155 m, 23.VI.2011, ♂.

***Anoxia (Anoxia) nigricolor* PIC, 1905**

Material examined: Antalya: Serik, Yemişlihtahta, 112 m, 13.VIII.2013, ♀, Tekirova, 28.VII.2004, ♀; Mersin: Çamliyayla, 6.VI.1984, ♂.

Remarks: Previously known from the Adana region (BARAUD 1990), here firstly recorded for the region of Antalya. Unfortunately, we could not verify the identification these of populations on male specimens. However the two females examined are well matching the characters of the species and allow to confidently exclude all other species of *Anoxia* from Turkey. Females of *A. lodosi* (again, a species to date only known from Adana) are unknown, but the scaly pronotum of our specimens is not expected in females of this species, given the males are bearing only hairs.

***Anoxia (Protanoxia) orientalis* (KRYNICKY, 1832)**

Material examined: Adana: İsa hacılık, 13.VII.1990, ♀; Adiyaman: Atatürk Barajı, 450 m, 15.VII.2013, ♀; Antalya: 15.VIII.1997, ♀, Kepez, 16.VI.2009, 112 m, ♂, Serik, 15.VII.1993, ♂, 22.VII.1993, ♂; Corum: Osmancık, 10.VII.1984, ♀, ♂; Erzincan: Akyazı, 27.VII.2011, ♂; Kahramanmaraş: 6.VII.1991, ♀; Kocaeli: 76 m, 15.VI.2012, ♀; Mersin: Erdemli, 14.VII.1992, ♀, Gülnar, Demirözü, 1300 m, 23.VI.2011, ♂; Sakarya: Kirazca, 21.VII.2011, ♀, ♂.

***Melolontha albida* FRIVALDSZKY, 1835**

Material examined: Balıkesir: Fidanlık, 5.V.2008, ♀, İvrindi, Korucu, 396 m, 29.VI.2010, ♀; Mersin: Gülnar, Demirözü, 1200 m, 28.III.2014, 6♂♂, 1200 m, 2.IV.2014, 4♂♂, 1200 m, 7.IV.2014, 2♂♂, 1200 m, 15.IV.2014, 5♂♂.

***Melolontha pectoralis* MEGERLE VON MÜHLFELD, 1812**

Material examined: Artvin: 15.VII.1997, ♂, Hopa, Kemalpaşa, 19.VI.1992, ♂; İzmir: Bayındır, 96 m, 12.VII.20, ♂; Mersin: Erdemli, 7.VII.1992, ♂; Trabzon: 12.VII.1996, ♂, Şalpazarı, 16.VII.1993, ♂.

***Polyphylla (Polyphylla) fullo* (LINNAEUS, 1758)**

Material examined: Yalova: 14.VII.1993, ♂.

***Polyphylla (Polyphylla) olivieri* (LAPORTE, 1840)**

Material examined: Adana: 17.VII.1993, ♂, 6.VIII.1995, ♂, Çukurova University Field, 09.VII.2011, ♂; Adiyaman: Atatürk Barajı, 450 m, 25.VII.2013, ♂, Besni, 29.VIII.1993, ♂; Ağrı: Doğubeyazıt, İshak Paşa Sarayı, 1936 m, 10.VIII.2013, ♂, 27.VIII.2013, ♂; Antalya: Beymelek, 170 m, 19.VII.2013, ♀, Elmalı, Gömbe, 1250 m, 28.VII.2013, ♂, İbradı, 15.VII.1997, ♀, Korkuteli, Yazır, 950 m, 25.VIII.2011, ♀, Muratpaşa, Çallı, 66 m, 14.VI.2012, ♂♂; Artvin: Hopa, 07.VI.1992, ♂, 15.X.1992, ♂; Bursa: Yeşilyayla, 06.07.1996, ♀; Erzincan: Akyazı, 27.VII.2011, ♂, Işıkpınar, 850 m, 12.VIII.2012, ♀, ♂, Kavakolu, 25.VII.2011, 2♂♂, Yayla başı, 09.VII.2011, ♂; Erzurum: Oltu, 10.VII.1989, ♂, Ayvalı, 27.VII.1990, ♀, Pasinler, N 39°59', E 41°38', 1684 m, 30.VII.2012, ♂, Şenkaya, Akşar, 09.VII.2000, ♂, Turnalı, 1750 m, 5.IX.1990, ♀, Tortum, Serdarlı, 1450 m, 25.VII.2010, ♂; Giresun: 29.VII.1984, ♂, 30.VII.1984, ♂, Görele, 27.VII.1991, ♀; Hatay: Demen, 07.VII.1990, ♀; İğdir: 25.VI.1971, ♀, 2♂♂; İsparta: Ayazmana, 1100 m, 30.VII.2011, ♀, Eğirdir, 02.VII.1994, ♂, 2.VIII.1991, ♂, Ağıl, 20.VIII.1991, ♂; İstanbul: Tayakadın, 93 m, 11.VIII.2010, ♂; Karaman: 1033 m, 25.VI.2010, ♂, Sudurağı, 13.VIII.1994, ♂; Kars: Sarıkamış, Karakurt, 23.VII.1996, ♂; Kayseri: Melikgazi, 1054 m, 20.VII.2011, ♂, Yahyalı, 14.VII.1991, ♂; Kocaeli: 76 m, 15.VI.2012, 3♂♂; Konya: Ereğli,

1100 m, 20.VI.2010, 5♂♂; Malatya: 12.VII.1994, ♂, Karakavak, 9.VI.1995, 2♂♂, 14.VI.1995, ♂; Manisa: 74 m, 25.VII.2013, ♂; Mersin: 7.VII.1993, ♀, 21.VII.1993, ♀, Ayvagediği, 1200 m, 7.VII.2013, ♂, Erdemli, 7.VII.1992, ♂, 11.VII.1992, ♀, ♂, 12.VII.1992, ♀, ♂, Gülnar, Demirözü, 1200 m, 10.VII.2014, ♀, ♂; Mus: 21.VII.1971, 3♂♂; Neveshir: 26.VII.2011, 1135 m, ♂; Sakarya: 25.VII.1984, ♂, 19.VIII.2009, ♀; Samsun: 8.VIII.1991, ♀, Bafra, 15.VI.1966, ♂; Gelemen, 23 m, 9.VII.2013, ♂; Sivas: Gürün, 1200 m, 17.VIII.2010, ♂; Van: 1661 m, 15.VII.2012, ♂; Trabzon: 25.VIII.1998, ♂; Yalova, 11.VII.1991, 2♂♂.

Remarks: This species is similar to *P. fullo* and its status has been variously interpreted: PETROVITZ (1963) considered it as a synonym of the latter, while it has been treated again as a valid species by BARAUD (1980), an opinion then accepted in the major revision by DE WAILLY (1997) and in current taxonomy (LÖBL & LÖBL 2016). *P. olivieri* is the most widespread *Polyphylla* in Turkey and in other countries of the Middle East, where it can be a pest (DE WAILLY 1997). It is regarded as "the most injurious Scarabaeidae in Iran", where it attacks a lot of different plants including fruit trees and ornamental plants in gardens (ABIVARDI, 2001).

***Polyphylla (Polyphylla) turkmenoglui* PETROVITZ, 1965**

Material examined: Muğla: 25.VII.2012, ♀.

***Polyphylla (Xerasiobia) adpersa* MOTSCHULSKY, 1854**

Material examined: Ağrı: Doğubeyazıt, İshak Paşa Sarayı, 1936 m, 10.VIII.2013, ♀; Balikesir: Fidanlık, 9.V.2008, ♂; Erzurum: Yakutiye, Ortadüzü, 1760 m, 22.VII.2013, ♂.

Remarks: A central asiatic species, in Turkey normally occurring only along the north-eastern border. The record for Balikesir is notably eccentric in respect to the known range and should be considered as a result of passive introduction. Further observations are required to understand if there is an established population in the area. This species is considered a pest in Turkestan (DE WAILLY 1997) and Iran (ABIVARDI 2001).

Tribe *Rhizotrogini* LATREILLE, 1825

***Holochelus (Holochelus) fallax* (MARSEUL, 1879)**

Material examined: Erzurum: Şenkaya, Akşar, 1275 m, 10.VI.2011, ♀, 2♂♂.

***Holochelus (Miltotrogus) escherichi* (BRENSKE, 1897)**

Material examined: Erzurum: Yakutiye, Atatürk University Field, 1850 m, 29.V.1996, ♂, ♀.

***Holochelus (Miltotrogus) vernus* (GERMAR, 1823)**

Material examined: Erzurum: İspir, Değirmenli, 1421 m, 30.V.2011, ♂.

***Holochelus (Miltotrogus) tataricus* (FALDERMANN, 1835)**

Material examined: Erzincan: Kemah, Alpköy, N 39°38', E 39°13', 1079 m, 11.VI.2013, 2♂♂; Erzurum: 20.V.1966, 3♀♀, 15.VI.1993, ♀, Aziziye, N 39°56', E 41°13', 1793 m, 23.V.2012, ♀, Horasan, Karaçuha, 37 T 075°50', 44°35', 19.VII.2013, ♀, İspir, Köprübaşı, 06.VI.1980, ♀, Narman, Araköy, 1472 m, 23.VI.2011, 2♀♀, Oltu, 1225 m,

18.VI.2011, 2♂♂, Olur, Kaledibi, 1040 m, 23.VI.2011, ♀, Pasinler, N 39°59', E 41°38', 1684 m, 9.V.2012, 2♂♂, Yayla, 1990 m, 17.VII.2011, ♀, Yukarı Danişment, N 39°60', E 41°45', 1670 m, 13.VI.2013, ♀, Yakutiye, Atatürk University Field, 1850 m, N 39°54', E 41°15', 16.V.2014, 5♀♀, 10♂♂, N 39°55', E 41°14', 19.V.2014, 2♂♂, 7.VI.1996, ♀, N 39°55', E 42°14', 15.VII.2011, ♀, N 39°55', E 42°14', 29.VII.2011, 2♀♀; Kars: Kağızman, 1.V.1969, ♀.

Amphimallon cfr. leuthneri REITTER, 1902

Material examined: Ankara: Keçiören, 2.VII.1996, ♀.

Remarks: The single female available does not allow a certain identification.

Amphimallon ochraceum (KNOCH, 1801)

Material examined: Mersin: Ayvagediği, 1200 m, 7.VII.2013, ♀.

Amphimallon vernale vernale (BRULLÉ, 1832)

Material examined: Adana: Tufanbeyli, Polatpınarı, 26.VI.2011, ♀; Erzincan: Kemah, Alpköy, N 39°38', E 39°13', 1079 m, 11.VI.2013, 32♂♂, Karadağ, N 39°38', E 39°38', 1216 m, 11.VI.2013, 4♂♂; Erzurum: İspir, Maden Köprübaşı, 3.VII.1997, ♂, 7.VII.1996, 2♂♂, Karaçoban, Akkavak, 1658 m, 16.VII.2011, ♂, Narman, N 40°32', E 41°90', 1603 m, 28.VI.2013, ♂, Pazaryolu, Kumaşkaya, 1800 m, 15.VIII.2011, ♂, Şenkaya, Değirmenlidere, N 40°46', E 42°34', 2137 m, 07.VII.2013, ♀, Turnalı, 1750 m, 25.VII.1996, 6♂♂, Tortum, Pehlivanlı, 10.VII.2013, 2♂♂; Kars: Sarıkamış, 2300 m, 23.VI.2013, ♂, Konya: Güneysınır, Güragaç, 1017 m, 6.VI.1999, ♂, 18.VI.1999, ♂; Manisa: Kırkağaç, Boztoprak, 150 m, 10.VII.2013, ♂; Mersin: Gülpınar, Demirözü, 1300 m, 26.VI.2011, ♀, ♂; Muş: 24.VII.1996, ♂; Trabzon: Şal Pazarı, 761 m, 30.VII.2011, ♂; Tunceli: Pülümür, Akdik, 12.VI.2011, 1608 m, ♂♂; Yozgat: Boğazlıyan, 1050 m, 2.VIII.2010, ♀.

Amphimallon solstitialle (LINNAEUS, 1758)

Material examined: Ankara: Çamlıdere, 25.VII.1994, ♂, 15.IX.1994, ♀, 2♂♂; Ardahan: Çimenkaya Plateau, 2650 m, 20.VIII.2012, ♂; Balıkesir: Çeşmeli, 200 m, 17.VI.2011, ♂; Burdur: 1025 m, 25.VII.2011, ♂; Bursa: Uludağ, Kadiyayla, 7.VIII.1991, ♂; Erzurum: Aziziye, Dadaşkent, 1770 m, 14.VII.2010, 2♂♂, Karakale, N 40°13', E 40°58', 2127 m, 14.VI.2013, ♂, Rizekent, 2100 m, 25.VIII.2011, ♂, Hınıs, 25.VII.1997, ♂, Palandöken, 2400 m, 1.VII.1966, ♂, 1.VII.1997, ♂, 18.VII.1979, ♂, Çat Road, 2250 m, 12.VII.2010, ♀, Pasinler, 1.VIII.1983, ♂, Kargapazarı Mountain, 14.VIII.1997, Şenkaya, Turnalı, 2000 m, 6.VIII.1980, ♂, 6.VIII.1988, 3♂♂, Tortum, Yukarı Sivri, 1865 m, 16.VII.2012, 3♂♂, Uzundere, 13.VII.1974, 2♂♂, Yakutiye, Atatürk University Field, 1850 m, 3.VII.1996, ♂, 5.VII.1996, ♂, N 39°54', E 41°15', 8.VII.2011, ♀, 15.VII.1996, ♂, N 39°55', E 41°14', 16.VII.2009, 2♂♂, 18.VII.1996, ♂, 18.VII.1998, 2♂♂, N 39°54', E 41°14', 18.VII.2010, 3♀♀, 8♂♂, 20.VII.1980, 2♂♂, 20.VII.1990, 2♂♂, 20.VII.1997, ♂, N 39°54', E 41°15', 21.VII.2012, ♀, 22.VII.1997, ♂, N 39°54', E 41°14', 23.VII.2013, 2♂♂, 28.VII.1996, ♂, 29.VII.2011, 6♂♂, 15.VIII.1997, 2♂♂, 18.VIII.1997, ♂, 18.VIII.1998, 3♂♂.

Aplidia pamphyliensis BARAUD, 1988

Material examined: Burdur: 1025 m, 25.VII.2011, 2♂♂; Antalya: Yukarı Beymelek, 170 m, 02.VIII.2013, ♂.

Aplidia tarsensis KRAATZ, 1882

Material examined: Adana: Polatpınarı, 21.VI.2011, ♂; Mersin: Erdemli, 1.IX.1983, ♂.

***Aplidia turcica* KRAATZ, 1882**

Material examined: Balıkesir: Fidanlık, 9.V.2008, ♂; Bursa: Uludağ, 1996, ♀; Konya: Güneysınır, Gurağaç, 1017 m, 22.VI.1999, ♂.

Remarks: This taxon is very close to the widespread *A. transversa* (FABRICIUS, 1801), of which it seems to represent the Anatolian vicariant. *A. turcica* is only differentiated from *A. transversa* by the margins of pronotum not or only very scarcely crenulated, a condition which is verified in specimens examined by us. Intermediate conditions are however known, and a doubt about the validity of *A. turcica* is also expressed by BARAUD (1988).

***Aplidia lodosi* BARAUD, 1988**

Material examined: Antalya: Kepez, 112 m, 20.VI.2012, ♀, Odabaşı, 305 m, 15.VII.2012, 2♂♂.

***Amadotrogus truncatus anatolicus* KEITH, 2006**

Material examined: Denizli: Servergazi, 6.VIII.2008, ♀, 11.IX.2007, ♂.

***Pseudotrematodes frivaldszkyi* (MÉNÉTRIÉS, 1836)**

Material examined: Antalya: Turunçova 19.VIII.1995, ♀; Denizli: Çal, Gömce, 30.IV.1997, ♂; Erzincan: Karadağ, N 39°38', E 39°08', 1216 m, 11.VI.2013, 2♂♂; İsparta: Davraz, Çobanıza, 25.VII.2013, ♂, ♀.

Tribe Hopliini LATREILLE, 1829

***Hoplia (Hoplia) pollinosa* KRYNICKI, 1832**

Material examined: Erzurum, Yakutiye, Atatürk University Field, 1874 m, 12.VII.2013, ♀; Rize: Çamlıhemşin, Ayder, 1200 m, 30.VII.2000, ♀, 2♂♂, 1550 m, 30.VII.2000, ♀, ♂, Çamlık, 1600 m, 29.VII.2000, 4♀♀, 2♂♂, Çamlık, Övit Mountain, 20 km, N 40°41', E 40°43', 1868 m, 12.VII.2010, 8♀♀, 19♂♂, Çat, N 40°56', E 040°56', 1554 m, 20.VI.2014, 14♂♂, İkizdere, Ballıköy Plateau, 2300 m, 5.VIII.1995, ♂, Tulumpınar, N 40°43', E 040°38', 1170 m, 19.VI.2014, ♂; Trabzon: Araklı, Küçükdere, N 40°56', E 040°05', 5 m, 21.VI.2014, ♂, Doruk, Kiriş, 899 m, 23.VII.2011, ♂, Şalpazarı, Karakaya, 18.VIII.1994, ♀.

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