

Data to the Lamellicornia fauna of the Republic of Macedonia (Coleoptera: Lamellicornia)

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ROZNER, I. & ROZNER, GY.: *Data to the Lamellicornia fauna of the Republic of Macedonia (Coleoptera: Lamellicornia)*.

Abstract: Between 1976 and 1998 researchers of the Hungarian Entomological Society conducted 9 collecting trips to Macedonia. In this paper the authors provide a list of Lamellicornia with collecting data, collected on these trips. 10 Lamellicornia families, 42 genera, 99 species are listed. The records of 15 species are new as previous published records of these do not exist. The newly recorded species are: *Platycerus caraboides* (L.), *Lethrus apterus* (Laxm.), *Lethrus elephas* Reitter, *Ochodaeus chrysoloides* (Schrank), *Aphodius pusillus* (Herbst), *A. quadriguttatus* (Herbst), *A. coenosus* (Panz.), *A. sphacelatus* (Panz.), *A. biguttatus* Germ., *Onthophagus ovatus* (L.), *O. panici* Petr., *O. sericatus* Reitt., *O. similis* (Scriba), *Amphimallon assimile* (Herbst), *A. ochraceum* (Knoch).

Keywords: faunistics, biodiversity, beetle, Macedonia

Introduction

Between 1976 and 1998 researchers of the Hungarian Entomological Society conducted 9 collecting trips to the Republic of Macedonia (formerly Yugoslav Macedonia). In this paper the authors provide a list of Lamellicornia with collecting data, collected on these trips.

The years of the collecting trips and their participants:

1976: Yugoslav Macedonia - Imre Balogh, Attila Podlussány, Lajos Podlussány, György Rozner, István Rozner, Augusztá Rozner

1978: Yugoslav Macedonia - István Rozner, Augusztá Rozner

1981: Yugoslav Macedonia - Attila Podlussány, György Rozner, István Rozner, Augusztá Rozner

1982: Yugoslav Macedonia - Lajos Podlussány, István Rozner, Augusztá Rozner, dr. Sándor Tóth

1996: Republic of Macedonia - Attila Podlussány, István Rozner, Dezső Szalóki

1997: Republic of Macedonia (3 collecting trip) - Attila Podlussány, Antal Rozner, György Rozner, Ibolya Rozner, István Rozner, Augusztá Rozner.

1998: Republic of Macedonia - András Orosz, Attila Podlussány, István Rozner

This article contains the data of scarabaeoid material obtained in 9 collecting expedition with 10 participants.

Material and method

The collected material was processed by István Rozner and György Rozner. The list of species is composed after BARAUD (1992). Distribution and level of occurrence of the species in Macedonia are based on the works of René Mikšić and our own experiences.

The list of taxa contains 10 families, 42 genera and 99 species.

Data and abbreviations of the species list

The data is shown in the list of species in the following manner: family and genus names in the **bold** and **bold italics**, species in the *italics* synonyms as shown in Hungarian literature in the *italics* with brackets, names of food plants also with italics and districts with regular letters, collecting localities and related data such as altitude, time of collecting and the names collectors abbreviated. Notes regarding the species are marked with the - sign.

Abbreviations:

Mt, **Mts**= hegy, hegység, mount, mountain; **Mon**= Kolostor, monastir; **prov**= tartomány, megye, province, county; **Pl**= hegység, Planina, mountain; **Sv**= szent, sveti, saint; **V**= völgy, valley

Abbreviation of the collectors' names (surnames first):

PA = Podlussány, Attila; **RA** = Rozner, Augusztá; **RAN** = Rozner, Antal; **RI** = Rozner, István; **RIB** = Rozner, Ibolya

Results

List of species and collecting data

Lucanidae

Dorcus MacLeay, 1819

Dorcus parallelepipedus (Linnaeus, 1758) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Skopje: Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. VI. 8, RI; prov. Gostivar: Lazaropolje, 1100 m, 1978. VI. 10., RI et RA - General distribution: European-Siberian species. Occurrence: wide-spread and frequent in Macedonia.

Platycerus Geoffroy, 1762

Platycerus caraboides (Linnaeus, 1758) - prov. Bitola: Mts. Baba, 1000 m, Govato, 1997. V. 2., RI - General distribution: European species. This is a new record for the scarabaeoid-fauna of the Macedonia.

Sinodendron Hellw.

Sinodendron cylindricum (Linnaeus, 1758) - prov. Berovo: Mts. Maleševski Pl., Palažlija-pass, 1140 m, 1998. VI. 5., RI - General distribution: European mountain species. Occurrence: frequent in the beech forests of Macedonia.

Trogidae

Trox Fabricius, 1775

Trox hispidus niger Rossi, 1792 - prov. Veles: 5 km SW of Viničani, 1997. V. 1-5., RG et RIB - General distribution: Euroasiatic subspecies. Occurrence: sporadic and frequent.

Geotrupidae***Geotrupes*** Latreille, 1796

Geotrupes spiniger Marsham, 1802 - prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. VII. 9., RG et RIB - General distribution: European-Anatolian species. Occurrence: wide-spread and frequent.

Anoplotrupes Jekel, 1865

Anoplotrupes stercorosus (Scriba, 1791) - prov. Gostivar: Mt. Bistra, 1700 m, 1998. V. 30., RI; prov. Berovo: Maleševski Pl., 800-1000 m, 1998. VI. 6., RI - General distribution: Northern- and Central-European species. Occurrence: wide-spread and common.

Thorectes Mulsant, 1842

Thorectes punctulatus Jekel, 1865 (= *Jekelius (Reitterius) punctulatus* (Jekel, 1865)) - prov. Skopje: Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. VI. 27., RI; Skopska Crna Gora, 1400-1600 m, 1998. V. 28., RI - General distribution: Balkan mountain and endemic species. Occurrence: sporadic and rare.

Trypocopris Motschulsky, 1858

Trypocopris vernalis vernalis (Linnaeus, 1758) - prov. Gostivar: Lazaropolje, 1100 m, 1978. VI. 10., RI et RA; prov. Skopje: Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. V. 27., 1998. VI. 8., RI; Skopska Crna Gora, 1400-1500 m, 1998. V. 28., RI - General distribution: European species. Occurrence: very wide-spread and common.

Trypocopris vernalis fulgidus Motschulsky, 1845 (*Trypocopris vernalis* (L.) nat. *bistrensis* Mikšić, 1954))- prov. Gostivar: Mt. Bistra, 1700 m, 1998. V. 30, RI - General distribution: endemic subspecies of Macedonia. It is found in the subalpine parts of the Bistra Mountains.

Lethrus Scopoli, 1777

Lethrus (Autolethrus) elephas Reitter, 1890 - prov. Prilep: Prilepska Pl., 600 m, Volkovo, 1997. V. 6., RI; Kruševo, 1998. V. 31., RI - General distribution: Balkan-Asianic species. Occurrence: sporadic and rare.

Lethrus (s.str.) apterus (Laxmann, 1770) - prov. Prilep: Prilepska Pl., 600 m, Volkovo, 1997. V. 6., RI; Kutleševo, 1998. V. 9., RI - General distribution: European species. This is a new record of Macedonia.

Ochodaecidae***Ochodaeus*** Serville, 1825

Ochodaeus chrysomeloides (Schränk, 1781) - vil. Tetovo: Suva Gora, 1000 m, Izvor, 1978. VI. 9., RI et RA - General distribution: European species. This is a new record of Macedonia.

Aphodiidae***Aphodius*** Illiger, 1798

Aphodius (Acanthobodilus) immundus Creutzer, 1799 - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI - General distribution: Holomediterranean species. Occurrence: wide-spread and frequent.

Aphodius (Acrossus) depressus (Kugelann, 1792) - prov. Prilep: Prilepska Pl., 600 m, Volkovo, 1997. V. 6., RI; prov. Tetovo: Šar Planina, Popova Šapka, 1600-1800 m, 1998. V. 29., RI - General distribution: Euroasiatic species. Occurrence: the mountainous district of Macedonia wide-spread and common.

Aphodius (Acrossus) luridus (Fabricius, 1775) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Gostivar: Mts. Bukovik, 800-1200 m, 1997. V. 2-3., RI; prov. Skopje: Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; Skopska Crna Gora, 800-1200 m, Creševo, 1997. V. 4., RI; prov. Prilep: Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI - General distribution: West-Palaearctic species. Occurrence: wide-spread and frequent.

Aphodius (Amidorus) obscurus obscurus (Fabricius, 1792) - prov. Tetovo: Mts. Šar Planina, Popova Šapka, 1600-1800 m, 1998. V. 29., RI - General distribution: European-Anatolian mountainous species. Occurrence: wide-spread and frequent.

Aphodius (s.str.) fimetarius (Linnaeus, 1758) - prov. Resen: shore of lake Prespa, Otěsevo, 1978. VI. 7., RI; prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, Mon. Sv. Ilia, 1997. IV. 29., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI - General distribution: Palearctic species. Occurrence: wide-spread and common.

Aphodius (s.str.) foetidus (Herbst, 1783) (= *scybalarius* Fabricius, 1792) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI et RA - General distribution: Circummediterranean species. The literature mentions (Mikšić, 1955) only from Northern-Macedonia. Occurrence: very rare.

Aphodius (Bodilus) ictericus (Laicharting, 1781) (= *nitidulus* Fabricius, 1792) - prov. Resen: Bogile, 1978. VI. 7., RI et RA; shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA - General distribution: European species. Occurrence: sporadic and not frequent.

Aphodius (Calamosternus) granarius (Linnaeus, 1767) - prov. Resen: Bogile, 1978. VI. 7., RI et RA; prov. Skopje: Skopje, 1981. V. 2., RI - General distribution: Cosmopolitan species. Occurrence: very wide-spread and common.

Aphodius (Chilothorax) distinctus (Müller, 1776) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: European-Anatolian species. Occurrence: wide-spread and common.

Aphodius (Chilothorax) sticticus (Panzer, 1798) (= *equestris* Panzer, 1798) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: European-Anatolian species. Occurrence: wide-spread and common.

Aphodius (Colobopterus) erraticus (Linnaeus, 1758) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Resen: shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA - General distribution: Palearctic species. Occurrence: very wide spread and common.

Aphodius (Copriformus) scrutator (Herbst, 1789) - prov. Resen: shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Tetovo: Mts. Šar Planina, Mt. Popova Šapka, 1600-1800 m, 1997. VII. 11., RG et RIB - General distribution: Central- and South-European species, which occurs in the Asia Minor. Occurrence: sporadic and not frequent.

Aphodius (Esymus) merdarius (Fabricius, 1775) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA - General distribution: European-Turanian species. Occurrence: wide-spread and frequent.

Aphodius (Esymus) pusillus (Herbst, 1789) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Tetovo: Mts. Šar Planina, Popova Šapka, 1600-1800 m, 1998. V. 29., RI - General distribution: Palearctic species. This is a new record of Macedonia.

Aphodius (Eudolus) quadriguttatus (Herbst, 1783) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA - General distribution: West-Palearctic species. This is a new record of Macedonia.

Aphodius (Eurodalus) coenosus (Panzer, 1798) (= *tristis* Zenker, 1801) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Tetovo: Mts. Suva Gora, 1000 m, Izvor, 1968. VI. 9., RI - General distribution: European species. This is a new record of Macedonia.

Aphodius (Melinopterus) prodromus (Brahm, 1790) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: Palearctic species. Occurrence: very wide-spread and common.

Aphodius (Melinopterus) sphacelatus (Panzer, 1798) - prov. Tetovo: Mts. Šar Planina, Popova Šapka, 1600-1800 m, 1998. V. 29., RI - General distribution: Palearctic species. This is a new record of Macedonia.

Aphodius (Nialus) varians Duftschmid, 1805 - prov. Radoviš: Radoviš, 1976. VI. 28-29, RI - General distribution: Palearctic species. Occurrence: very wide-spread and frequent.

Aphodius (Otophorus) haemorrhoidalis (Linnaeus, 1758) - prov. Resen: shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA - General distribution: European species. Occurrence: sporadic and not frequent.

Aphodius (Phalacronotus) biguttatus Germar, 1824 - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: European-Turanian species. This is a new record of Macedonia.

Scarabaeidae

Gymnopleurus Illiger, 1803

Gymnopleurus geoffroyi (Fuessly, 1775) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; Mts. Dren, Dunje, 1997. V. 7., RI et RG; Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI; prov. Skopje: Katlanovo, Vardar-valley, 1981. V. 2., 1982. V. 16., RI; D. Količan, Torbešija, 1997. IV. 20., RG et RIB; prov. Štip: Lakavica, 1982. V. 16., RI; prov. Strumica: Mts. Obesenik, Podazlija-pass, Hamzali, 1997. V. 8., RI; prov. Kavadarci: Faris, 1997. V. 1., RI - General distribution: European-Anatolian species. Occurrence: very wide-spread and frequent.

Gymnopleurus mopsus (Pallas, 1781) - prov. Skopje: Katlanovo, 1981. V. 2., RI; Torbešija, G. Količan, 1997. IV. 30., RI - General distribution: Palearctic species. Occurrence: wide-spread and common.

Scarabaeus Linnaeus, 1758

Scarabaeus (s.str.) pius (Illiger, 1803) - prov. Prilep: Mts. Dren, Dunje, 1997. V. 7., RI; prov. Veles: 5 km SW of Viničani, 1997. V. 1-5., RG et RIB - General distribution: Circummediterranean species. Occurrence: wide-spread and not frequent.

Scarabaeus (Ateuchetus) puncticollis (Latreille, 1819) - prov. Prilep: Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI et RG; Mts. Dren, Dunje, 1997. V. 7., RG et RIB - General distribution: Circummediterranean species. Occurrence: This species is found mainly on the southern part of Macedonia, frequent.

***Sisyphus* Latreille, 1807**

Sisyphus schaefferi (Linnaeus, 1758) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Skopje: Katlanovo, Vardar-valley, 1981. V. 2., 1982. V. 16., RI; Torbešija, G. Količan, 1997. IV. 30., RI; Torbešija, D. Količan, 1997. IV. 30., RI; Skopska Crna Gora, Raštak, 1997. V. 4., RI - General distribution: Palearctic species. Occurrence: wide-spread and common.

***Copris* Müller, 1764**

Copris lunaris (Linnaeus, 1758) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI; prov. Kumanovo: Tabanovce, 1995. V. 27., RI; prov. Strumica: Mts. Obešenik, Podazlija-pass, Hamzali, 1997. V. 8., RI; prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, Skopje, 1997. VII. 9., GR et RIB; Skopska Crna Gora, 500-800 m, Mon. Sv. Jovan, 1998. V. 27., RI - General distribution: European-Siberian species. Occurrence: sporadic and frequent.

***Euoniticellus* Janssens, 1953**

Euoniticellus fulvus (Goeze, 1777) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Resen: shore of lake Prespa, 1978. VI. 7., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: West-Palearctic species. Occurrence: wide-spread and common.

***Caccobius* Thomson, 1859**

Caccobius heteroides (Ménétriés, 1832) - prov. Strumica: Mts. Obešenik, Podazlija-pass, Hamzali, 1997. V. 8., RI - General distribution: East-Mediterranean species. Occurrence: sporadic and not frequent.

Caccobius schreberi (Linnaeus, 1767) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI; Ropcovno, 1998. V. 31., RI; prov. Skopje: Katlanovo, 1981. V. 2., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; Torbešija, G. Količan, 1997. IV. 30., RI - General distribution: West-Palearctic species. Occurrence: very wide-spread and common.

***Euonthophagus* Balthasar, 1959**

Euonthophagus amyntas alces Fabricius, 1792 - prov. Skopje: Katlanovo, 1981. V. 2., RI; Skopska Crna Gora, Raštak, 1997. V. 4., RI; Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. V. 9., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 5-9., RI et RA; prov. Prilep: Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI - General distribution: Central- and East-European subspecies. Occurrence: wide-spread and frequent.

***Onthophagus* Latreille, 1802**

Onthophagus (Furonthophagus) furcatus (Fabricius, 1781) - prov. Prilep: Bogile, 1978. VI. 7., RI et RA; Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., prov. Resen: shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA; prov. Vinica: He Kalimanci, 1982. VI. 3., RI; prov. Skopje: Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; Skopska Crna Gora, Mt. Dušanovac, 800m, 1997. V. 9., RI; Skopska Crna Gora, 800-1200 m, Creševo, 1997. V. 4., RI; Skopska Crna Gora, Raštak, 1997. V. 4., RI; prov. Strumica: Mt. Obešenik, Podazlija-pass, Hamzali, 1997. V. 8., RI; prov. Veles: 5 km NW of Viničani, 1997. V. 5., RI - General distribution: West-Palearctic species. Occurrence: very wide-spread and common.

Onthophagus (s.str.) illyricus (Scopoli, 1763) - prov. Skopje: Katlanovo, Vardar-valley, 1982. V. 16., RI - General distribution: Mediterranean species. Occurrence: wide-spread and frequent.

Onthophagus (s.str.) taurus (Schreber, 1799) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Resen: shore of lake Prespa, Oteševo, 1978. VI. 7., RI et RA; prov. Skopje: Katlanovo, 1981. V. 2., RI - General distribution: Palearctic species. Occurrence: wide-spread and frequent.

Onthophagus (Palaeonthophagus) grossepunctatus Reitter, 1905 - Suva Gora, 1000 m, Izvor, 1978. VI. 9., RI; prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Prilep: Mts. Babuna, 1978. VI. 5-7., RI et RA., Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI;

prov. Skopje: Katlanovo, Vardar-valley, 1981. V. 2., 1982. V. 16., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; Skopska Crna Gora, Raštak, 1997. V. 4., RI - General distribution: European-Anatolian species. Occurrence: wide-spread and very frequent.

Onthophagus (Palaeonthophagus) ovatus (Linnaeus, 1767) - prov. Tetovo: Mts. Šar Planina, Mt. Popova Šapka, 1600-1800 m, 1998. V. 29., RI; prov. Gostivar: Mt. Bistra, 1700 m, 1998. V. 30., RI - General distribution: European-Anatolian species. Occurrence: sporadic and not frequent. This is a new record of Macedonia.

Onthophagus (Palaeonthophagus) panici Petrovitz, 1964 - prov. Tetovo: Mts. Šar Planina, Mt. Popova Šapka, 1600-1800 m, 1998. V. 29., RI; prov. Gostivar: Mt. Bistra, 1700 m, 1998. V. 30., RI - General distribution: Balkan endemic species. Occurrence: sporadic and rare. This is a new record of Macedonia.

Onthophagus (Palaeonthophagus) ruficapillus Brullé, 1832 - prov. Skopje: Katlanovo, 1981. V. 2., RI; Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. V. 9., RI; Mt. Vodno, 800 m, Sonje, 1997. IV. 29., RI; prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Resen: Leva Reka, 1997. V. 2., RI; prov. Gostivar: Mts. Bukovik, 800-1200 m, 1997. V. 2-3., RI - General distribution: European-Anatolian species. Occurrence: wide-spread and common.

Onthophagus (Palaeonthophagus) fracticornis (Preysslner, 1790) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI; prov. Skopje: Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI; Skopska Crna Gora, 1400-1500 m, 1998. V. 28., RI; Osoji near Matka, RAN; Prov. Tetovo: Mts. Šar Planina, Mt. Popova Šapka, 1600-1800 m, 1998. V. 29., RI; prov. Gostivar: Mt. Bistra, 1700 m, 1998. V. 30., RI - General distribution: European-Anatolian species. Occurrence: very wide-spread and common.

Onthophagus (Palaeonthophagus) lemur (Fabricius, 1781) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Skopje: Katlanovo, Vardar-valley, 1982. V. 16., RI; Skopska Crna Gora, 800-1200 m, Creševo, 1997. V. 4., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI - General distribution: European species. Occurrence: wide-spread and frequent.

Onthophagus (Palaeonthophagus) marginalis Gebler, 1817 - prov. Prilep: Prilepsko Pl., 600 m, Volkovo, 1997. V. 6., RI; prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. V. 9., RI - General distribution: European-Siberian species. Occurrence: sporadic and not frequent.

Onthophagus (Palaeonthophagus) sericatus Reitter, 1893 - prov. Skopje: Katlanovo, 1981. V. 2., RI; Mt. Vodno, 600 m, Sonje, 1997. IV. 29., RI - General distribution: European-Anatolian species. This is a new record of Macedonia.

Onthophagus (Palaeonthophagus) similis (Scriba, 1790) - prov. Skopje: Skopska Crna Gora, 800-1200 m, Creševo, 1997. V. 4., RI - General distribution: Circummediterranean species. This is a new record of Macedonia.

Onthophagus (Palaeonthophagus) vacca (Linnaeus, 1767) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Resen: Oteševo, shore of lake Prespa, 1978. VI. 7., RI et RA; prov. Kruševo: Mt. Crn Vrv, 1400 m, Kruševo, 1998. V. 31., RI - General distribution: Circummediterranean species. Occurrence: wide-spread and not frequent.

Onthophagus (Palaeonthophagus) verticicornis (Lasicharting, 1781) - Mts. Suva Gora, 1000 m, Izvor, 1978. VI. 9., RI et RA; prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Skopje: Katlanovo, 1981. V. 2., RI et RG; Skopska Crna Gora, 800-1200 m, Creševo, 1997. V. 4., RI; Skopska Crna Gora, 1400-1500 m, 1998. V. 28., RI - General distribution: European-Turanian species. Occurrence: very wide-spread and common.

Glaphyridae

Eulasia Truqui, 1848

Eulasia (s.str.) arctos martens (Frivaldszky, 1845) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Kavadarci: Debrište, 1998. V. 31., RI; prov. Kratovo: Žguri-pass, 880 m, 1998. VI. 6., RI - General distribution: Balkan endemic subspecies. Occurrence: wide-spread and frequent.

Eulasia (s.str.) bicolor bicolor (Waltl, 1838) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., 1982. VI. 4., RI et RA; prov. Skopje: Katlanovo, Vardar-valley, 1981. V. 2., 1982. V. 16., RI; prov. Radoviš: Radoviš, 1982. V. 17., RI - General distribution: Balkan-Anatolian subspecies. Occurrence: wide-spread and frequent.

Eulasia (s.str.) bicolor dichroa (Reitter, 1890) - prov. Skopje: Katlanovo, 1981. V. 2., RG et RIB; Katlanovo, Vardar-valley, 1982. V. 16., RI - General distribution: Balkan subspecies. Occurrence: wide-spread and frequent.

Eulasia (s.str.) bombylifformis athenae (Petrovitz, 1980) - prov. Skopje: Katlanovo, 1981. V. 2., RI - General distribution: Balkan subspecies. Occurrence: sporadic and very rare.

Eulasia (Vittateulasia) pareyssei (Brullé, 1832) (= *lasserrei* Germar, 1834) - Mts. Suva Gora, Izvor, 1978. VI. 9., RI et RA; prov. Kruševo: Kruševo, 1998. V. 31., RI; prov. Bitola: Kažani, 1998. VI. 5., RI - General distribution: European-Anatolian species. Occurrence: sporadic and frequent.

***Pygopleurus* Motschulsky, 1859**

Pygopleurus apicalis (Brullé, 1832) - prov. Radoviš: Radoviš, 1982. V. 17., RI; prov. Skopje: Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. V. 27., RI; prov. Mak. Brod: Treska-valley, 4 km N of Devič, 1998. VI. 3., RI - General distribution: Balkan species. Baraud (1992) mention of existence from Macedonia, where the species is sporadic and not frequent.

Pygopleurus diffusus (Petrovitz, 1957) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., 1982. VI. 4., RI; prov. Radoviš: Radoviš, 1982. V. 17., RI; prov. Skopje: Katlanovo, Vardar-valley, 1982. V. 16., RI; Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. V. 27., RI - General distribution: Balkan-Anatolian species. Occurrence: wide-spread and frequent.

Pygopleurus humeralis (Brullé, 1832) - prov. Skopje: Mts. Ivanje, 900 m, Matka, 1998. VI. 1., RI; prov. Veles: 5 km NW of Viničani, 1997. V. 5., RI et RG; prov. Kruševo: Mt. Crn Vrv, 1400 m, Kruševo, 1998. V. 31., RI; prov. Ohrid: Pesočani, 1998. VI. 3-4., RI - General distribution: Balkan-Anatolian species. Occurrence: wide-spread and frequent.

Pygopleurus vulpes (Fabricius, 1781) - prov. Veles: 5 km NW of Viničani, 1987. V. 5., RI et RG - General distribution: European-Anatolian species. Occurrence: very wide-spread and common.

Melolonthidae

***Anoxia* Castelnau, 1832**

Anoxia (Protanoxia) orientalis (Krynicky, 1832) - prov. Prilep: Prilep, 1972. VII. 4-10., PA - General distribution: Pontomediterranean species. Occurrence: wide-spread and frequent.

***Amphimallon* Le Peletier et Serville, 1825**

Amphimallon assimile (Herbst, 1790) - prov. Tetovo: Mts. Šar Planina, Popova Šapka, 1900 m, 1997. VII. 12., RG - General distribution: West- and Central-European species. This is a new rare scarabaeoid species of Macedonia.

Amphimallon ochraceum (Knoch, 1801) - prov. Kruševo: Crn Vrv, Kruševo, 1997. VII. 13., RG - General distribution: West- and South-European species. This is a new rare scarabaeoid species of Macedonia.

***Haplidia* Hope, 1837**

Haplidia transversa transversa (Fabricius, 1801) - prov. Skopje: Skopje, Matka, 300 m, Mon. Sveti Nikola, 1997. VII. 7., RG et RIB; Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. VII. 9., RG et RIB - General distribution: Balkan endemic subspecies. Occurrence: very wide-spread and frequent.

***Holochelus* Reitter, 1889**

Holochelus costulatus (Frigalszky, 1835) - prov. Skopje: Skopska Crna Gora, 1400-1500 m, 1998. V. 26., RI - General distribution: Balkan-Anatolian species. This species had a one previous literary data (Vodno) from Macedonia. This is a second locality of occurrence of his rare species.

***Miltotrogus* Reitter, 1902**

Miltotrogus vernus (Germar, 1823) - prov. Resen: Mts. Baba, Makazi, 1981. V. 22., RG - General distribution: Pontic species. Occurrence: sporadic and not frequent.

***Pseudotrematodes* Jacquelin du Val, 1860**

Pseudotrematodes frivaldszkyi (Ménétriés, 1836) - prov. Prilep: Kutleševo, 1998. V. 9., RI; Mt. Prilepsko Pl., 400 m, Volkovo, 1997. V. 6., RG et RIB; prov. Veles: 5 km SW of Viničani, 1997. V. 1-5., RG et RIB - General distribution: Balkan endemic species. Occurrence: wide-spread and not rare.

Rhizotrogus Berthold, 1827

Rhizotrogus aestivus (Olivier, 1789) - prov. Ohrid: Pesočani, 1998. VI. 3-4., RI - General distribution: European-Anatolian species. Occurrence: wide-spread and not rare.

Homaloptia Stephens, 1830

Homaloptia (s.str.) erythroptera Frivaldszky, 1835 - prov. Delčevo: Delčevo, 1982. VI. 3., RI - General distribution: Central- and East-European species. Occurrence: sporadic and not frequent.

Homaloptia (s.str.) graeca Reitter, 1887 - prov. Skopje: Mts. Skopska Crna Gora, Mt. Ranino, 1000-1500 m, 1997. VII. 9., RG - General distribution: Balkan species. Occurrence: rare.

Homaloptia (s.str.) illyrica Baraud, 1965 - Bogile, 1978. VI. 7., RI; prov. Tetovo: Mts. Šar Planina, Popova Šapka, 2000-2200 m, 1997. VII. 11., RI; 1900 m, 1997. VII. 11., RG; prov. Skopje: Mts. Skopska Crna Gora, Mt. Ranino, 1000-1500 m, 1997. VII. 9., RG - General distribution: Balkan species. Mikšić (1970) and Baraud (1992) mentioned from Macedonia. Occurrence: rare.

Hoplia Illiger, 1803

Hoplia (s.str.) argentea (Poda, 1761) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Delčevo: Delčevo, 1982. VI. 3., RI; prov. Berovo: Mts. Maleševski Pl., Palažlija-pass, 1140 m, 1998. VI. 5., RI; prov. Skopje: Mt. Ivanje, 900 m, Matka, 1998. VI. 1., RI - General distribution: Balkan species. Occurrence: very wide-spread and frequent.

Rutelidae**Anisoplia** Fischer, 1824

Anisoplia (s.str.) bureschi Zacharieva-Stoilova, 1958 - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA - General distribution: Balkan species. Mikšić (1970) considered to the subspecies of *Anisoplia flavipennis* Brullé, 1832, Baraud (1992) wrote to an independent species. Occurrence: sporadic and not frequent.

Anisoplia (s.str.) lata lata Erichson, 1847 - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., 1982. VI. 4., RI et RA - General distribution: Balkan subspecies. Mikšić (1970) considered to the subspecies of *Anisoplia flavipennis* Brullé, 1832, Baraud (1992) described it as an independent species. Occurrence: wide-spread and frequent.

Anisoplia (s.str.) agricola (Poda, 1761) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; Bogile, 1978. VI. 7., RI et RA; prov. Kavadarci: Debriste, 1998. V. 31., RI - General distribution: European-Siberian species. Occurrence: wide-spread and frequent.

Anomala Samouelle, 1819

Anomala (s.str.) solida Erichson, 1847 - prov. Prilep: Prilep, 1971. VII. 10-18., PA; prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Delčevo: Delčevo, 1976. VII. 15., RI - General distribution: Balkan-Anatolian species. Occurrence: sporadic and rare.

Blitopertha Reitter, 1903

Blitopertha lineolata Fischer, 1823 - prov. Delčevo: Delčevo, 1982. VI. 3., RI; prov. Vinica: He Kalimanci, 1982. VI. 3., RI; prov. Kratovo: Trnovac, 1998. VI. 7., RI; Žguri-pass, 880 m, 1998. VI. 6., RI; prov. Prilep: Mažučiste, 1998. V. 31., RI; prov. Ohrid: Pesočani, Bank of Sateskar, 1978. VI. 9., RI et RA; Pesočani, 1998. VI. 3-4., RI - General distribution: East-Mediterranean species. Occurrence: wide-spread and common.

Chaopteropia Medvedev, 1949

Chaopteropia segetum segetum (Herbst, 1781) - prov. Mak. Brod: Mt. Drobaci, Treska-valley, 1998. VI. 2-3., RI; prov. Prilep: Mts. Babuna, Rakle, 1982. VI. 4., RI - General distribution: European species. Occurrence: very wide-spread and frequent.

Chaopteropia segetum balcanicola Machatschke, 1961 - prov. Mak. Brod: Mt. Drobaci, Treska-valley, 1998. VI. 2-3., RI; prov. Prilep: Bogile, 1978. VI. 7., RI et RA - General distribution: Balkan endemic subspecies. Occurrence: sporadic and not rare.

Dynastidae***Oryctes*** Illiger, 1798

Oryctes (*s.str.*) *nasicornis kuntzeni* Minck, 1914 - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Delčevo: Delčevo, 1976. VII. 15., RI - General distribution: Balkan-Anatolian subspecies. Occurrence: sporadic, and rare.

Pentodon Hope, 1837

Pentodon idiota (Herbst, 1789) - prov. Veles: 5 km NW of Viničani, 1997. V. 5., RI - General distribution: East-Mediterranean species. Occurrence: wide-spread and not frequent.

Cetoniidae***Valgus*** Scriba, 1790

Valgus hemipterus Linnaeus, 1758 - Mts. Suva Gora, Izvor, 1000 m, 1978. VI. 9., RI et RA; prov. Prilep: Mts. Babuna, Rakle, 1982. VI. 4., RI; prov. Radoviš: Radoviš, 1982. V. 17., RI; prov. Berovo: Mts. Maleševski Pl., 800-1000 m, 1998. VI. 6., RI; prov. Skopje: Mt. Ivanje, 800 m, Matka, 1998. VI. 1., RI; prov. Prilep: Ropcovo, 1998. V. 31., RI - General distribution: West-Palaearctic species. Occurrence: very wide-spread and common.

Gnorimus Serville, 1825

Gnorimus nobilis (Linnaeus, 1758) - prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. VII. 9., RG et RIB; Skopska Crna Gora, Mt. Ranino, 1000-1500 m, 1997. VII. 9., RG et RIB - General distribution: European-Anatolian species. Occurrence: wide spread, but not frequent.

Trichius Fabricius, 1775

Trichius fasciatus (Linnaeus, 1758) - prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. VII. 9., RG et RIB; Skopska Crna Gora, Mt. Ranino, 1000-1500 m, 1997. VII. 9., RG et RIB - General distribution: European-Siberian species. Occurrence: on the mountainous district is sporadic, not frequent.

Trichius sexualis Bedel, 1906 - prov. Prilep: Mts. Babuna, Rakle, 1982. VI. 4., RI; prov. Vinica: He Kalimanci, 1982. VI. 3., RI; prov. Skopje: Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. VII. 9., RG et RIB - General distribution: European species. Occurrence: wide-spread, but not frequent.

Cetonia Fabricius, 1775

Cetonia aurata (Linnaeus, 1761) - prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA; prov. Bitola: Mts. Baba, 700 m, Magarevo, Pelister-camp, 1978. VI. 7., RI et RA; prov. Delčevo: Delčevo, 1982. VI. 3., RI; prov. Strumica: Udovo, Vardar-valley, 1996. VI. 11., RI; prov. Mak. Brod: Mt. Drobaci, Treska-valley, 1998. V. 2-3., RI; prov. Kruševo: Mt. Crn Vrv, 1400 m, Kruševo, 1998. V. 31., RI; prov. Skopje: Mt. Ivanje, 800 m, Matka, 1998. VI. 1., RI; Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. V. 9., RI; Skopska Crna Gora, 500-600 m, Mon. Sv. Jovan, 1998. V. 27., RI; Skopska Crna Gora, Mt. Ranino, 1000-1500 m, 1997. VII. 9., RG et RIB; prov. Gostivar: Mts. Bukovik, 1000-1200 m, 1997. V. 2-3., RI - General distribution: European species. Occurrence: very wide-spread and very common.

Netocia Costa, 1852

Netocia (*s.str.*) *hungarica* (Herbst, 1790) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA; prov. Kavadarci: Debrište, 1998. V. 31., RI - General distribution: Pontic species. Occurrence: wide-spread and frequent.

Netocia (*Potosia*) *angustata* (Germar, 1817) - prov. Strumica: Udovo, Vardar-valley, 1996. VII. 11., RI - General distribution: East-Mediterranean species. Occurrence: wide-spread and frequent.

Netocia (*Potosia*) *cuprea obscura* (Andersch, 1797) - prov. Delčevo: Delčevo, 1976. VII. 15., RI, 1982. VI. 3., RI; prov. Ohrid: Mts. Galičica, Ljubanište, 1978. VI. 8-9., RI et RA - General distribution: Balkan subspecies. Occurrence: wide-spread and frequent.

Tropinota Mulsant, 1842

Tropinota hirta (Poda, 1761) - prov. Radoviš: Radoviš, 1976. VI. 28-29., RI; prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA, 1982. VI. 4., RI; prov. Ohrid: Pesočani, bank of Sateskar, 1978. VI. 9., RI et RA; prov. Skopje: Katlanovo, Vardar-valley, 1982. V. 16., RI; prov. Delčevo: Delčevo, 1982. VI. 3., RI - General distribution: Circummediterranean species. Occurrence: wide-spread and common.

Tropinota hirta suturalis Reitter, 1913 - prov. Veles: 5 km NW of Viničani, 1997. V. 5., RI; prov. Resen: Leva Reka, 1997. V. 2., RI; prov. Skopje: Torbešija, D. Količan, 1997. IV. 30., RI; Skopska Crna Gora, Mt. Dušanovac, 800 m, 1997. V. 9., RI; Mt. Ivanje, 900 m, Matka, 1998. VI. 1., RI; prov. Kavadarci: Debriste, 1998. V. 31., RI - General distribution: Pontomediterranean subspecies. Occurrence: very wide-spread and common.

***Oxythyrea* Mulsant, 1842**

Oxythyrea albopicta (Motschulsky, 1854) - prov. Veles: 5 km NW of Viničani, 1997. V. 5., RI; prov. Štip: Mts. Konecka Pl., 600 m, Leskovica, 1997. V. 7., RI - General distribution: Pontomediterranean species. It is known only from Macedonia in the Balkans, very rare.

Oxythyrea cinctella (Schaum, 1841) - prov. Prilep: Mts. Babuna, Rakle, 1978. VI. 5-7., RI et RA, 1982. VI. 4., RI; prov. Štip: Lakavica, 1982. V. 16., RI; prov. Strumica: Udovo, Vardar-valley, 1996. VII. 11., RI; prov. Valandovo: Dedeli, 1998. VI. 5., RI; prov. Kavadarci: Debriste, 1998. V. 31., RI - General distribution: East-Mediterranean species. Occurrence: wide-spread, but not common.

Oxythyrea funesta (Poda, 1761) - prov. Prilep: Mts. Babuna, Rakle, 1982. VI. 4., RI; prov. Delčevo: Delčevo, 1982. VI. 3., RI; prov. Štip: Lakavica, 1982. V. 16., RI; prov. Strumica: Udovo, Vardar-valley, 1996. VII. 11., RI - General distribution: Mediterranean species. Occurrence: wide-spread and very frequent.

Genus	Number of Species	
Lucanidae	3	3
Geotrupidae	5	7
Ochodaeidae	1	1
Aphodiidae	1	21
Scarabaeidae	8	24
Glaphyridae	2	9
Melolonthidae	9	12
Rutelidae	4	7
Dynastidae	2	2
Cetoniidae	7	13
Altogether:	42	99

Summary

Between 1976 and 1998 researchers of the Hungarian Entomological Society collected 10 families of Lamellicornia, 42 genera, 99 species in the Republic of Macedonia (formerly Yugoslav Macedonia). The collected material is classified as such:

The records of 15 species are new as previously published Macedonian records of these don't exist. The newly recorded species are:

- Platycerus caraboides* (Linnaeus, 1758)
- Lethrus apterus* (Laxmann, 1770)
- Lethrus elephas* Reitter, 1890
- Ochodaeus chrysomeloides* (Schrank, 1781)
- Aphodius pusillus* (Herbst, 1789)
- Aphodius quadriguttatus* (Herbst, 1783)
- Aphodius coenosus* (Panzer, 1789)
- Aphodius sphaclatus* (Panzer, 1798)
- Aphodius biguttatus* Germar, 1824

Onthophagus ovatus (Linnaeus, 1767)
Onthophagus panici Petrovitz, 1964
Onthophagus sericatus Reitter, 1893
Onthophagus similis (Scriba, 1790)
Amphimallon assimile (Herbst, 1790)
Amphimallon ochraceum (Knoch, 1801)

The further research of the Macedonian Lamellicornia fauna may reveal more novelties regarding the distribution of species known from surrounding territories.

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References

- ÁDÁM L. 1994: New species of the genera *Omaloplia* and *Acarina* (Coleoptera: Scarabaeoidea). – *Folia entomologica hungarica* 55: 23-36.
- BARAUD, J. 1989: Revision du genre *Pygopleurus* Motschulsky (Coleoptera, Scarabaeoidea: Glaohyridae) – *Annales Société entomologique de France (N.S.)* 25(3): 331-375.
- BARAUD, J. 1990: Contribution á la connaissance du genre *Eulasia* Truqui (Coleoptera, Scarabaeoidea: Glaphyridae). – *Revue suisse de Zoologie* 97(1): 107-138.
- BARAUD, J. 1992: Coléoptères Scarabaeoidea d'Europe. – In: *Fauna France*, Lyon, pp. 856.
- ENDRÓDI, S. 1957: Lemezescápú bogarak – Lamellicornia. – *Fauna Hungariae* 12, 9(4): 188.
- MIKŠIĆ, R. 1954: Beitrag zur Variabilitäts- und Verbreitungskennntis des *Geotrupes vernalis* L. auf der Balkanhalbinsel. – *Acta, Musei Macedonici Scientiarum Naturalium*, Skopje, Tom. II, No. 7/18, p. 145-157.
- MIKŠIĆ, R. 1955: Beitrag zur Kennntis der Scarabaeiden – Fauna von Mazedonien. – *Acta, Musei Macedonici Scientiarum Naturalium*, Skopje, Tom III, No. 9/31, p. 227-246.
- MIKŠIĆ, R. 1955: Bemerkungen über die variabilität einiger Amphicomma-Arten. 10. Beitrag zur Kennntis Scarabaeiden. – *Fragmenta Balcanica*, Skopje, Tom I, Nr. 20, p. 175-179.
- MIKŠIĆ, R. 1956: Zweiter Nachtrag zur „Fauna Insectorum Balcanica-Scarabaeidae“. – *Acta, Musei Macedonici Scientiarum Naturalium*, Skopje, Tom IV, No. 7-9/38-40: 139-214.
- MIKŠIĆ, R. 1957: Beitrag zur Kennntis der palaearktischen Arten der Gattung *Potosia* Muls. – *Acta, Musei Macedonici Scientiarum Naturalium*, Skopje, Tom V. No. 6, 7 (47, 48): 1-34.
- MIKŠIĆ, R. 1959: Dritter Nachtrag zur „Fauna Insectorum Balcanica“ – Scarabaeidae. – *Preštampano iz godišnjaka biološkog instituta u Sarajevu*, God. 12(1-2): 47-136.
- MIKŠIĆ, R. 1960: Die Scarabäiden Jugoslawiens, I. Teil. – *Biološki Glasnik* 13: 313-343.
- MIKŠIĆ, R. 1964: Über die Artberechtigung des *Onthophagus macedonicus* Mikš., 46. Beitrag zur Kennntis der Scarabaeiden. – *Reichenbachia*, Dresden, Bd. 3, Nr. 26: 281-283.
- MIKŠIĆ, R. 1970: Katalog der Lamellicornia Jugoslawiens (Insecta-Coleoptera). – *Institut za Šumarstvo*, Sarajevo, p. 1-71.
- WINKLER, A. 1924-1932: *Catalogus Coleopterorum regionis palaearticae*. – Wien, p. 1025-1134.