

FURTHER RECORDS OF SCARABAEOIDEA
FOUND INSIDE BURROWS OF RODENTS IN IRAN
(Coleoptera)

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INTRODUCTION

After Moradi Gharakhloo & Ziani (2009), Ziani & Moradi Gharakhloo (2010) and Moradi Gharakhloo & Ziani (2010) the project research undertaken by the authors to increase the knowledge of the Iranian nidicolous scarab beetles is proceeding and has produced further results, herein published. Other records of Scarabaeoidea found inside burrows and nests of small mammals, mainly rodents, in Iran, are reported, two of them new for the Country.

Burrows and nests of *Meriones crassus* Sundevall, 1842, *M. persicus* (Blanford, 1875), *Allactaga elater* (Lichtenstein, 1828), *Gerbillus cheesmani* Thomas, 1919, *Apodemus sylvaticus* (Linnaeus, 1758), *Jaculus blanfordi* (Murray, 1884) and some *Microtus* species, in 20 provinces of Iran (fig 4), were investigated by the second author within the space of four months, from March to July 2010. Only one record is dated from April 2009.

The list of the beetles collected inside those burrows follows.

When not specified the general distribution of the species is taken from Löbl & Smetana (2006).

LIST OF SPECIES

***Acrossus luridus* (Fabricius, 1775)**

Scarabaeus luridus Fabricius, 1775: 19

TYPE LOCALITY. "Anglia" [England].

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MATERIAL EXAMINED. 16 specimens: IR-Ardabil, Ardabil, 1311 m, III.2010, (2); IR-Ardabil, Meshginshahr, 1395 m, III.2010, (7); IR-Ardabil, Razi, 1190 m, (4); IR-Qazvin, Qazvin, 1290 m, IV.2010, (1); IR-Qazvin, Nahavand, 1660 m, IV.2010, (1); IR-Zanjan, Sultaniyeh, 1560 m, IV.2010 (1).

DISTRIBUTION. Europe; Morocco and Tunisia; Middle East, central and eastern Asia.

***Aphodius coniugatus* (Panzer, 1795)**

Scarabaeus coniugatus Panzer, 1795: 364

TYPE LOCALITY. "Germania" [Germany].

MATERIAL EXAMINED. 1 specimen: IR-Ardabil, Ardabil, 1311 m, III.2010.

DISTRIBUTION. Central and southern Europe; Turkey, Turkemistan. Herein recorded for the first time from Iran.

***Aphodius fimetarius* (Linnaeus, 1758)**

Scarabaeus fimetarius Linnaeus, 1758: 348

TYPE LOCALITY. "Europa".

MATERIAL EXAMINED. 3 specimens; IR-Mazandaran, Polesefid, 550 m, iii.2010, (2); IR-Mazandaran, Larijan, 85 m, iii.2010, (1).

DISTRIBUTION. Nearly cosmopolitan.

***Calamosternus granarius* (Linnaeus, 1767)**

Scarabaeus granarius Linnaeus, 1767: 547

TYPE LOCALITY. "Europa".

MATERIAL EXAMINED. 6 specimens: IR-Lorestan, Aligodaz, 1981 m, 27.v/1.VI.2010, (1); IR-Kordestan, Ghorveh, 1900 m, 11/15.V.2010 (1); IR-Kordestan, Marivan, 1273 m, 11/15.V. 2010 (2); IR-Markazi, Delijan, 1520 m, 2/7.VI.2010, (1); IR-Chaharmahal and Bakhtiari, Lordgan, 1580 m, 13/18.VI.2010, (1).

DISTRIBUTION. Nearly cosmopolitan.

***Calamosternus hyxos* (Petrovitz, 1962)**

Aphodius (Calamosternus) granarius ssp. *hyxos* Petrovitz, 1962: 123

TYPE LOCALITY. "Ägypten, Alexandria" [Egypt].

MATERIAL EXAMINED. 311 specimens: IR-Ardabil, Ardabil, 1311 m, III.2010, (1); IR-Mazandaran, Polesefid, 550 m, III.2010, (4); IR-Mazandaran, Klardasht, 120 m, III.2010, (2); IR-Hamadan, Malayer, 1750 m, 22/26.V.2010, (6); IR-Kermanshah, Kermanshah, 1322 m, 16/21.V.2010, (11); IR-Lorestan, Khorramabad, 1200 m, 27.V/1.VI.2010, (1); IR-Chaharmahal and Bakhtiari, Lordgan, 1580 m, 13/18.VI.2010, (9); IR-Yazd, Bafgh, 995 m, 19/24.VI.2010, (7); IR-Lorestan, Aligodaz, 1981 m, 27.V/1.VI.2010, (11); IR-Kordestan, Ghorveh, 1900 m, 11/15.V.2010 (9); IR-Kordestan, Marivan, 1273 m, 11/15.V.2010 (8); IR-Markazi, Delijan, 1520 m, 2/7.VI.2010, (7); IR-Yazd, Mehriz, 1480 m, 16/24.VI.2010, (14); IR-Esfahan, Fridonshahr, 2530 m, 8/12.VI.2010, (6); IR-Yazd, Yazd, 1210 m, 19/24.VI.2010, (11); IR-Sistan and Baluchestan, Iranshahr, 566 m, 7/10.vii.2010, (2); IR-Lorestan, Brojerd, 1580 m, 27.V/1.VI.2010, (10); IR-Hamadam, Hamadam, 1585 m, 22/26.V.2010, (13); IR-Esfahan, Najafabad, 1560 m, 8/12.VI.2010, (7); IR-Kordestan, Bijar, 1940 m, 11/15.V.2010, (13); IR-Esfahan, Esfahan, 1575 m, 8/12.VI.2010, (14); IR-Hamadam, Kabudarahang, 1675 m, 22/26.V.2010, (6); IR-Chaharmahal and Bakhtiari, Sharekurd, 2040 m, 13/18.VI.2010, (6); IR-Kermanshah, Ravansar, 1280 m, 16/21.V.2010, (20); IR-Chaharmahal and Bakhtiari, Lordgan, 1580 m, 13/18.VI.2010, (2); IR-Lorestan, Norabad, 1800 m, 27.V/1.VI.2010, (12); IR-Kordestan, Baneh, 1550 m, 11/15.V.2010, (10); IR-Sistan and Baluchestan, Zahedan, 1372 m, 7/10.VII.2010, (10); IR-Esfahan, Golpaiegan, 1830 m, 8/12.VI.2010, (8); IR-Hamadam, Nahavand, 1850 m, 22/26.V.2010, (9); IR-Markazi, Shazand, 1190 m, 2/7.VI.2010, (11); IR-Chaharmahal and Bakhtiari, Fariman, 2040 m, 13/18.VI.2010, (6); IR-Markazi, Tafresh, 1900 m, 2/7.VI.2010, (10); IR-Kordestan, Sanandaj, 1372 m, 11/15.V.2010 (5); IR-Markazi, Saveh, 995 m, 2/7.VI.2010, (7); IR-Kordestan, Saqqez, 1476 m, 11/15.V.2010 (6); IR-Kermanshah, Paveh, 1540 m, 16/21.V.2010, (7); IR-Hamadam, Asadabad, 1660 m, 22/26.V.2010, (9); IR-Kermanshah, Islamabad Gharb, 1335 m, 16/21.V.2010, (3).

DISTRIBUTION. Iberian Peninsula, Italy, Corsica; North Africa; Middle East.

Chilothorax melanostictus (W. Schmidt, 1840)

Aphodius melanostictus W. Schmidt, 1840: 153

TYPE LOCALITY. "Nördlichen Deutschland" [northern Germany].

MATERIAL EXAMINED. 27 specimens: IR-Mazandaran, Kiyasar, 35 m, III.2010, (4); IR-Mazandaran, Polesefid, 550 m, III.2010, (5); IR-Mazandaran, Larijan, 85 m, III.2010, (5); IR-Ardabil, Razi, 1190 m, (1); IR-Ardabil, Razi, 1190 m, III.2010, (2); IR-Mazandaran, Boldeh, 350 m, III.2010, (10).

DISTRIBUTION. Central and southern Europe; northern Africa; Middle East, central and eastern Asia.

Colobopterus erraticus (Linnaeus, 1758)

Scarabaeus erraticus Linnaeus, 1758: 348

TYPE LOCALITY. "Europa; India".

MATERIAL EXAMINED. 2 specimens: IR-Ardabil, Ardabil, 1311 m, III.2010, (1); IR-Fars, Darab, 1250 m, 25/30.VI.2010, (1).

DISTRIBUTION. Europe; Morocco, Algeria, Tunisia; Middle East, central and eastern Asia.

Eudolus quadriguttatus (Herbst, 1783)

Scarabaeus quadriguttatus Herbst, 1783: 10

TYPE LOCALITY. "Reppen" [Poland, Rzepin].

MATERIAL EXAMINED. 2 specimens: IR-Tehran, Talgan, 1360 m, IV.2010, (1); IR-Lorestan, Khorramabad, 1200 m, 27.V/1.VI.2010, (1).

DISTRIBUTION. Europe; northern Africa; Turkey, Levant, Iraq, Iran, Afghanistan, central Asia, China.

Eupleurus subterraneus ssp.subterraneus (Linnaeus, 1758)

Scarabaeus subterraneus Linnaeus, 1758: 348

TYPE LOCALITY. "Europa".

MATERIAL EXAMINED. 1 specimen: IR-Fars, Firozabad, 1320 m, 25/30.VI.2010.

DISTRIBUTION. Europe; Morocco, Algeria; Middle East, central and eastern Asia. The subspecies *krasnojarskicus* Dellacasa, 1986 is described from central Siberia.

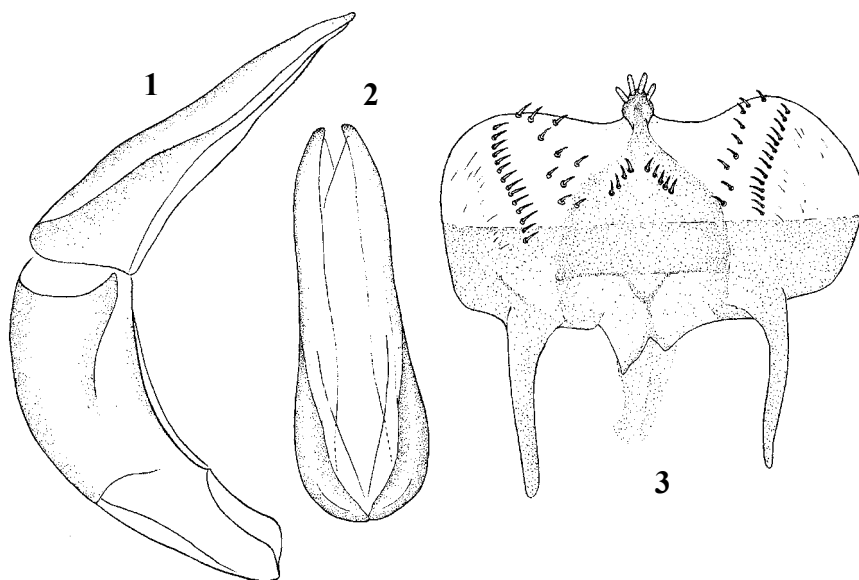
Osmanius balthasari (Petrovitz, 1963)

Paracoptochirus balthasari Petrovitz, 1963: 244

TYPE LOCALITY. "Anatolien, zwischen Iskenderun und Belen" [central-southern Turkey, between Iskenderun and Belen].

MATERIAL EXAMINED. 20 specimens: IR-Kordestan, Saqqez, 1500 m, IV.2010 (1); IR-Hamadan, Malayer, 1750 m, 22/26.V.2010, (1); IR-Esfahan, Najafabad, 1560 m, 8/12.VI.2010, (2); IR-Kordestan, Sanandaj, 1372 m, 11/15.V.2010 (3); IR-Kordestan, Saqqez, 1476 m, 11/15.V.2010 (3); IR-Kermanshah, Islamabad Gharb, 1335 m, 16/21.V.2010, (10).

DISTRIBUTION. Greece; Turkey, Iran (Moradi Gharakhloo & Ziani 2010).



Figs 1-3 – *Phaeaphodius tauricola* (Hrubant, 1961), male [Iran, Kordestan province, Saqqez, 1500 m]: aedeagus in lateral view (1); paramera in dorsal view (2); ephypharynx (3). Drawings by Ivo Gudenzi.

***Phaeaphodius tauricola* (Hrubant, 1961) (figs 1-3)**

Aphodius (*Phaeaphodius*) *tauricola* Hrubant, 1961: 97

TYPE LOCALITY. “Kleinasien, Taurus-Gebirge, Berendi-Eregli” [Turkey, Taurus Mountains].

MATERIAL EXAMINED. 3 specimens: IR-Kordestan, Saqqez, 1500 m, IV.2009.

DISTRIBUTION. Turkey. Herein recorded for the first time from Iran.

***Pleurophorus anatolicus* Petrovitz, 1961**

Pleurophorus anatolicus Petrovitz, 1961: 394

TYPE LOCALITY. “Asia minor, Adana” [Turkey].

MATERIAL EXAMINED. 1 specimen: IR-Mazandaran, Polesefid, 550 m, III.2010.

DISTRIBUTION. Middle East.

Euoniticellus fulvus (Goeze, 1777)

Scarabaeus fulvus Goeze, 1777: 74

TYPE LOCALITY. Probably Germany [see remarks].

MATERIAL EXAMINED. 18 specimens: IR-Ardabil, Razi, 1190 m, (1); IR-Kerman, Baft, 1082 m, 1/6.VII.2010, (9); IR-Fars, Shiraz, 1540 m, 25/30.VI.2010, (1); IR-Fars, Firozabad, 1320 m, 25/30.VI.2010, (7).

DISTRIBUTION. Central and southern Europe; northern Africa; Middle East and central Asia.

REMARKS. The species was first described by Geoffroy (1762) in the work suppressed for nomenclatorial purposes (ICZN 1954, but see also ICZN 1994) such that Goeze (1777) became the acknowledged author of *E. fulvus* (see Branco 2003, for problems connected with homonymy matters). In any case, Goeze's intention was not to describe a new species, but only to refer to Geoffroy's species. So, obviously, there are no types for Goeze's name. No types and no type locality, since in Goeze (1777), under *Copris fulvus*, there is no indication of the country from where the species was described. But in the introduction, the German author distinguished between species coming from "Vaterland" [= Fatherland, most probably Germany] and species coming from outside, for which, in the text, the collecting locality is always given. Under *Copris fulvus* there are no geographical indications, hence in our opinion is reasonable considering Germany as the type locality of the species.

Caccobius (Caccobius) schreberi (Linnaeus, 1767)

Scarabaeus schreberi Linnaeus, 1767: 551

TYPE LOCALITY. "Germania" [Germany].

MATERIAL EXAMINED. 3 specimens: IR-Gilan, Abbar, 260 m, III.2010, (1); IR-Qazvin, Qazvin, 1290 m, IV.2010, (1); IR-Zanjan, Kidar, 2000 m, IV.2010, (1).

DISTRIBUTION. Central and southern Europe; Northern Africa; Middle East, Turkmenistan.

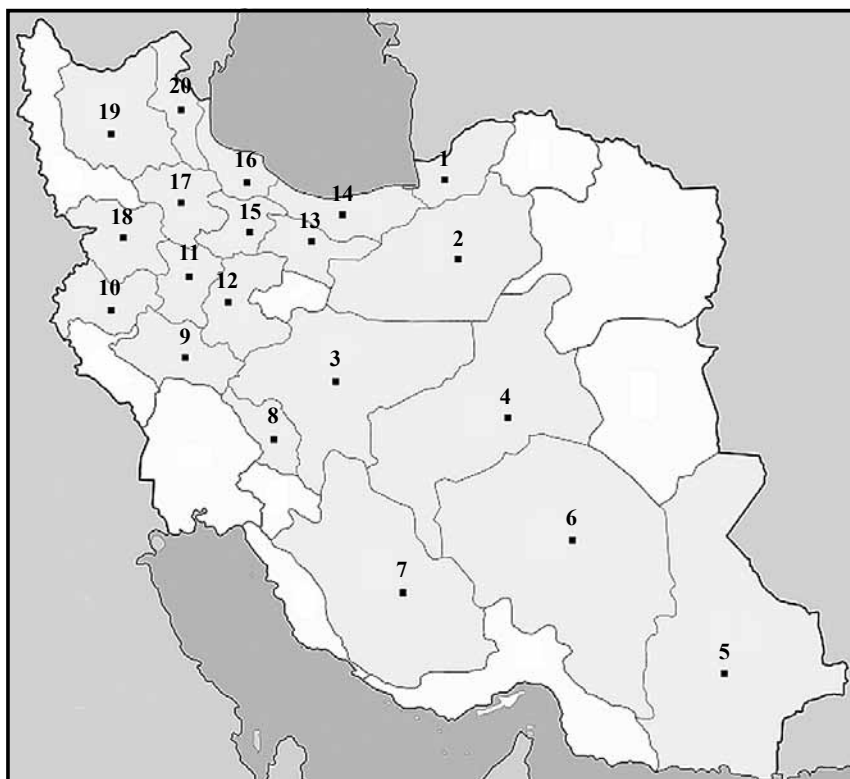


Fig. 4 – Provinces of Iran in which the samplings were carried out. 1: Golestan. 2: Semnan. 3: Esfahan. 4: Yazd. 5: Sistan and Baluchestan. 6: Kerman. 7: Fars. 8: Chaharmahal and Bakhtiari. 9: Lorestan. 10: Kermanshaha. 11: Hamadan. 12: Markazi. 13: Tehran. 14: Mazandaran. 15: Qazvin. 16: Gilan. 17: Zanjan. 18: Kordestan. 19: East Azarbaijan. 20: Ardabil.

***Euonthophagus amyntas* ssp. *auchenia* (Redtenbacher, 1850)**

Onthophagus auchenia Redtenbacher, 1850: 48

= *Onthophagus (Euonthophagus) amyntas* ssp. *aspadanaensis* Petrovitz, 1965: 671
[TYPE LOCALITY. “Kuh-rāng, west. Esfahan” (Iran)]

= *Onthophagus (Euonthophagus) rechingeriorum* Mandl, 1976: 372 [TYPE LOCALITY. “Surmandeh bei Semiran” (Iran, Esfahan)]

TYPE LOCALITY. “Südpersien” [Iran, Fars].

MATERIAL EXAMINED. 16 specimens: IR-Kerman, Zarand, 1655 m, 1/6.VII.2010, (5); IR-Fars, Shiraz, 1540 m, 25/30.VI.2010, (4); IR-Kerman, Sirjan, 1725 m, 1/6.VII.2010, (2); IR-Kerman, Kerman, 1775 m, 1/6.VII.2010, (5).

DISTRIBUTION. Western Iran (Ziani 2006).

***Euonthophagus amyntas* ssp. *subviolaceus* (Ménétries, 1832)**

Onthophagus subviolaceus Ménétries, 1832: 177

TYPE LOCALITY. “Bakou” [Azerbaijan, Baku].

MATERIAL EXAMINED. 2 specimens: IR-Ardabil, Hir, 1280 m, III.2010.

DISTRIBUTION. North-eastern Turkey, Caucasus, northern Iran, central Asia (Ziani 2006).

***Euonthophagus atramentarius* (Ménétries, 1832)**

Onthophagus atramentarius Ménétries, 1832: 179

TYPE LOCALITY. “Bakou” [Azerbaijan, Baku].

MATERIAL EXAMINED. 30 specimens: IR-Golestan, Kurkoy, 15 m, III.2010, (5); IR-Golestan, Gonbadkaboos, 45 m, III.2010, (1); IR-Golestan, Aliabad, 140 m, III.2010, (1); IR-Ardabil, Ashtjin, 1450 m, III.2010, (2); IR-Ardabil, Kiwi, 1240 m, III.2010, (3); IR-Mazandaran, Pool, 380 m, III.2010, (1); IR-Ardabil, Khalkhal, 1750 m, III.2010, (2); IR-Golestan, Aliabad, 140 m, III.2010, (4); IR-Qazvin, Qazvin, 1290 m, IV.2010, (1); IR-Kordestan, Saqqez, 1500 m, IV.2010 (2); IR-Kerman, Zarand, 1655 m, 1/6.VII.2010, (1); IR-Fars, Abadeh, 2005 m, 25/30.VI.2010, (1).

DISTRIBUTION. South-eastern Europe; Egypt; Turkey, Levant, Iraq, Iran, central Asia.

***Euonthophagus gibbosus* (Scriba, 1790)**

Copris gibbosus Scriba, 1790: 56

TYPE LOCALITY. “Gladenbach” [Germany, Essen].

MATERIAL EXAMINED. 28 specimens: IR-Golestan, Colaleh, 95 m, III.2010, (3); IR-Golestan, Kurkoy, 15 m, III.2010, (1); IR-Golestan, Gonbadkaboos, 45 m, III.2010, (3); IR-Golestan, Aliabad, 140 m, III.2010, (4); IR-Ardabil, Kiwi, 1240 m, III.2010, (2); IR-Ardabil, Kaloor, 1290 m, III.2010, (4); IR-Golestan, Minodasht, 180 m, III.2010, (3); IR-Ardabil, Hir, 1280 m, III.2010, (1); IR-Ardabil, Nir, 1600 m, III.2010, (1); IR-Ardabil, Khalkhal, 1750 m, III.2010, (5); IR-Kordestan, Saqqez, 1500 m, IV.2010 (1).

DISTRIBUTION. Central and southern Europe; Turkey, Israel/Palestine, Syria, Iran, Afghanistan, central and eastern Asia.

Onthophagus (Furconthophagus) furcatus (Fabricius, 1781)

Scarabaeus furcatus Fabricius, 1781: 30

TYPE LOCALITY. "Arabia".

MATERIAL EXAMINED. 216 specimens: IR-Mazandaran, Kiyasar, 35 m, III.2010, (1); IR, Gilan, Lowshan, 380 m, III.2010, (5); IR-Gilan, Foman, 15 m, III.2010, (6); IR-Ardabil, Razi, 1190 m, III.2010, (2); IR-Gilan, Jirandeh, 35 m, III.2010, (3); IR-Mazandaran, Klardasht, 120 m, III.2010, (2); IR-Gilan, Masal, 60 m, III.2010, (6); IR-Gilan, Roodbar, 250 m, III.2010, (7); IR-Gilan, Abbar, 260 m, III.2010, (4); IR-Tehran, Shahriar, 1160 m, IV.2010, (5); IR-Tehran, Damavand, 1960 m, IV.2010, (5); IR-East Azerbaijan, Sarab, 1680 m, IV.2010, (9); IR-Qazvin, Qazvin, 1290 m, IV.2010, (2); IR-Zanjan, Zanjan, 1560 m, IV.2010, (8); IR-East Azerbaijan, Miyaneh, 1100 m, IV.2010 (5); IR-Tehran, Ishtehard, 1063 m, IV. 2010 (3); IR-Semnan, Garmsar, 850 m, IV.2010, (10); IR-Qazvin, Sirdar, 1380 m, IV.2010, (6); IR-Semnan, Semnan, 1130, IV.2010, (4); IR-East Azerbaijan, Ahar, 1341, IV.2010, (6); IR-Semnan, Shahrood, 1380 m, IV.2010, (5); IR-Tehran, Varamin, 915 m, IV.2010, (3); IR-Tehran, Firuzkoh, 1980 m, IV.2010, (4); IR-East Azerbaijan, Maragheh, 1450 m, IV.2010, (6); IR-Qazvin, Boinzahra. 1210 m, IV.2010, (12); IR-Qazvin, Nahavand, 1660 m, IV.2010, (2); IR-East Azerbaijan, Haris, 1900 m, IV.2010, (8); IR-Tehran, Talgan, 1360 m, IV.2010, (6); IR-East Azerbaijan, Tabriz, 1366 m, IV.2010, (3); IR-East Azerbaijan, Jolfa, 710 m, IV.2010, (6); IR-Semnan, Damqan, 1170 m, IV.2010, (8); IR-Tehran, Tehran, 1110 m, IV.2010, (4); IR-Qazvin, Takistan, 1265 m, IV.2010, (7); IR-Zanjan, Sultaniyeh, 1560 m, IV.2010 (7); IR-Tehran, Hashgerd, 1250 m, IV.2010, (3); IR-East Azerbaijan, Malekan, 1300 m, IV.2010, (6); IR-Zanjan, Kidar, 2000 m, IV.2010, (9); IR-East Azerbaijan, Kalibar, 1400 m, IV.2010, (6); IR-East Azerbaijan, Marand, 1334 m, IV.2010, (5); IR-Zanjan, Abhar, 1540 m, IV.2010, (7).

DISTRIBUTION. Central and southern Europe; Morocco; Turkey, Israel/Palestine, Syria, Iraq, Iran, Saudi Arabia, Kazakhstan, Turkmenistan.

Onthophagus (Palaeonthophagus) aleppensis Redtenbacher, 1843

Onthophagus aleppensis Redtenbacher, 1843: 15 (985)

TYPE LOCALITY. "Syria".

MATERIAL EXAMINED. 1 specimen: IR-Fars, Kazron, 1382 m, 25/30.VI.2010.

DISTRIBUTION. Turkey, Levant, Afghanistan.

Onthophagus (Palaeonthophagus) cruciatus Ménétries, 1832

Onthophagus cruciatus Ménétries, 1832: 178

TYPE LOCALITY. "Bakou" [Azerbaijan, Baku].

MATERIAL EXAMINED. 1 specimen: IR-Lorestan, Khorramabad, 1200 m, 27.V/1.VI.2010.

DISTRIBUTION. Caucasus; Turkey, Levant, Iraq, Iran.

***Onthophagus (Palaeonthophagus) dorsosignatus* d'Orbigny, 1898**

Onthophagus dorsosignatus d'Orbigny, 1898: 237

TYPE LOCALITY. "Lac de Van" [Turkey, Van lake].

MATERIAL EXAMINED. 5 specimens: IR-Lorestan, Khorramabad, 1200 m, 27.V/1.VI.2010, (1); IR-Fars, Firozabad, 1320 m, 25/30.VI.2010, (1); IR-Fars, Darab, 1250 m, 25/30.VI.2010, (1); IR-Kerman, Shahrehabak, 1845 m, 1/6.VII.2010, (2).

DISTRIBUTION. Caucasus; Turkey, Afghanistan, Iraq, Iran.

***Onthophagus (Palaeonthophagus) fissicornis* (Steven, 1809)**

Copris fissicornis Steven, 1809: 34

TYPE LOCALITY. "Iberia" [Georgia].

MATERIAL EXAMINED. 5 specimens: IR-Ardabil, Nir, 1600 m, III.2010.

DISTRIBUTION. South-eastern Europe; Turkey, Levant, Iraq, Iran, Turkmenistan.

***Onthophagus (Palaeonthophagus) fracticornis* (Preysler, 1790)**

Scarabaeus fracticornis Preysler, 1790: 99

TYPE LOCALITY. "Böhmen" [Czech Republic, Bohemia].

MATERIAL EXAMINED. 3 specimens: IR-Ardabil, Ashtjin, 1450 m, III.2010, (1); IR-Ardabil, Kiwi, 1240 m, III.2010, (1); IR-Ardabil, Kaloer, 1290 m, III.2010, (1).

DISTRIBUTION. Europe; Turkey, Levant.

***Onthophagus (Palaeonthophagus) marginalis* (Gebler, 1817) s. l.**

Copris marginalis Gebler, 1817: 315

TYPE LOCALITY. "Siberia" [Northern Asia].

MATERIAL EXAMINED. 1 specimen: IR-Kerman, Shahrehabak, 1845 m, 1/6.VII.2010.

DISTRIBUTION. South-eastern Europe, Middle East, central and eastern Asia.

REMARKS. Only a thorough study will clarify the taxonomic position of the subspecies of *Onthophagus marginalis* (*O. marginalis marginalis*, *O. marginalis nigrimargo* Goidanich, 1926, *O. marginalis marmoratus* Ménétries, 1832 and *O. marginalis przewalskii* Kabakov, 2006, according to Kabakov (2006)) as well as the very closely related species, i.e. *O. andalusicus* Walzl, 1835, *O. persianus* Olsoufieff, 1900, *O. tesquorum* Semenov & S. I. Medvedev, 1927 and probably others.

***Onthophagus (Palaeonthophagus) parmatum* Reitter, 1892**

Onthophagus parmatum Reitter, 1892: 181

TYPE LOCALITY. "Araxesthal" [Armenia, Araxes valley].

MATERIAL EXAMINED. 1 specimen: IR-Ardabil, Ashtjin, 1450 m, III.2010.

DISTRIBUTION. Romania, Moldova, Ukraine, southern Russia, Caucasus; Turkey, Syria, Iran.

***Onthophagus (Palaeonthophagus) ponticus* Harold, 1883**

Onthophagus ponticus Harold, 1883: 434

= *Onthophagus furcicornis* Reitter, 1892: 202 [TYPE LOCALITY: "Taurus", Southern Turkey, Toros dağları]

= *Onthophagus krali* Balthasar, 1963: 603 [TYPE LOCALITY: "Umgebung von Kirovabad (Jelissavetpol) in Transcaucasien stammen" (Azerbaijan, Gjandza)]

= *Onthophagus citellorum* Medvedev, 1965: 186 [TYPE LOCALITY: "Yug stepi" (Southern steppes: Ukraine? Southern European Russia?)]

TYPE LOCALITY. "Mzchet (Grusien)" [Georgia].

MATERIAL EXAMINED. 32 specimens: IR-Ardabil, Ardabil, 1311 m, III.2010, (2); IR-Ardabil, Razi, 1190 m, III.2010, (1); IR-Semnan, Semnan, 1130 m, IV.2010, (5); IR-Kerman, Ban, 1062 m, 1/6.VII.2010, (15); IR-Fars, Abadeh, 2005 m, 25/30.VI.2010, (1); IR-Kerman, Rafsanjan, 1510 m, 1/6.VII.2010, (8).

DISTRIBUTION. South-eastern Europe; Turkey, Lebanon, Iraq, Iran (Ziani & Gudenzi 2006).

***Onthophagus (Palaeonthophagus) psychopompus* Ziani & Moradi, 2010**

Onthophagus (Palaeonthophagus) psychopompus Ziani & Moradi, 2010

TYPE LOCALITY. "Iran, Tehran prov.: Hashtgerd".

MATERIAL EXAMINED. 14 specimen: IR-Ardabil, Ardabil, 1311 m, iii.2010, (2); IR-Ardabil, Meshginshahr, 1395 m, iii.2010, (1); IR-Semnan, Semnan, 1130 m, iv.2010, (5); IR-Fars, Abadeh, 2005 m, 25/30.vi.2010, (5); IR-Kerman, Rafsanjan, 1510 m, 1/6.vii.2010, (1).

DISTRIBUTION. Iran (Ziani & Moradi Gharakhloo 2010).

SYSTEMATIC NOTE. The study of further material allows us to propose a modified key to the *Onthophagus furciceps* group, lineage of *O. ponticus*, to which *O. psychopompus* belongs, based mainly on the shape and size of the lamellae of antennal club:

1. Bristles on elytral disc simple; dorsal surface shining, disc of pronotum barely or not at all microreticulate.....(....)
- Bristles on elytral disc bifid or trifold, or lanceolate; dorsal surface dull, with distinct microreticulation.....2
2. Lamellae of antennal club normally shaped. Relatively small species (length 4.8-8.2 mm). Inner angle of male fore tibial apex with a small denticle curved downward.....*O. ponticus* Harold, 1883
- Lamellae of antennal club thin and elongate, much longer than in most *Onthophagus* species, somewhat resembling those of some Melolonthini. Relatively large species (length 5.8-9.9 mm). Inner angle of male fore tibial apex without small denticle.....3
3. Proximal lamella of antennal club from shorter to as long as the distal one; antennal club generally quadrangular. Pronotum densely punctate on disc, punctures gradually more spaced towards base. Male: pronotum with four equidistant tubercles, the two median more prominent than the two lateral; female: pronotum with an antero-median transverse sunk gibbosity.....*O. psychopompus* Ziani & Moradi, 2010
- Proximal lamella of antennal club from as long as to longer than the distal one; antennal club generally rectangular. Pronotum equally densely punctate on disc and basally. Male: pronotum with four tubercles, the two median very closely placed and smaller than the two lateral; female: pronotum with an anteromedian narrow normally convex gibbosity.....*O. parmatius* Reitter, 1892

***Onthophagus (Palaeonthophagus) rechingeri* Petrovitz, 1980**

Onthophagus rechingeri Petrovitz, 1980: 605

= *Onthophagus kryzhanovskii* Kabakov, 1982: 16 [Type locality: "30 km sev.-vost. Adraskana, prob. Great" (Afghanistan)]

TYPE LOCALITY. "Evine-Tehran" [Iran].

MATERIAL EXAMINED. 1 specimen: IR-Chaharmahal and Bakhtiari, Lordgan, 1580 m, 13/18.VI.2010.

DISTRIBUTION. Iran, Afghanistan, Turkmenistan (Kabakov 2006).

Onthophagus (Palaeonthophagus) ruficapillus Brullé, 1832

Onthophagus ruficapillus Brullé, 1832: 169

= *Onthophagus ruficapillus* ssp. *guilanensis* Pittino, 1982: 517 [TYPE LOCALITY: “Guilan, Nav’s Valley” (Iran)]

TYPE LOCALITY. “Morée” [Greece, Peloponnese].

MATERIAL EXAMINED. 173 specimens: IR, Gilan, Lowshan, 380 m, III.2010, (5); IR-Gilan, Foman, 15 m, III.2010, (4); IR-Ardabil, Razi, 1190 m, (3); IR-Gilan, Jirandeh, 35 m, III.2010, (6); IR-Mazandaran, Klardasht, 120 m, III.2010, (11); IR-Gilan, Masal, 60 m, III.2010, (6); IR-Gilan, Roodbar, 250 m, III.2010, (3); IR-Gilan, Abbar, 260 m, III.2010, (2); IR-Tehran, Damavand, 1960 m, IV.2010, (1); IR-East Azerbaijan, Sarab, 1680 m, IV.2010, (4); IR-Qazvin, Qazvin, 1290 m, IV.2010, (1); IR-Zanjan, Zanjan, 1560 m, IV.2010, (6); IR-East Azerbaijan, Miyaneh, 1100 m, IV.2010 (3); IR-Tehran, Ishtehard, 1063 m, IV.2010 (1); IR-Semnan, Garmsar, 850 m, IV.2010, (2); IR-Qazvin, Sirdar, 1380 m, IV.2010, (5); IR-Semnan, Semnan, 1130, IV.2010, (1); IR-Semnan, Shahrood, 1380 m, IV.2010, (1); IR-Tehran, Varamin, 915 m, IV.2010, (1); IR-Tehran, Firuzkoh, 1980 m, IV.2010, (2); IR-East Azerbaijan, Marageh, 1450 m, IV.2010, (3); IR-Qazvin, Boin-zahra, 1210 m, IV.2010, (4); IR-Qazvin, Nahavand, 1660 m, IV.2010, (3); IR-East Azerbaijan, Haris, 1900 m, IV.2010, (7); IR-Tehran, Talgan, 1360 m, IV.2010, (1); IR-East Azerbaijan, Tabriz, 1366 m, IV.2010, (5); IR-East Azerbaijan, Jolfa, 710 m, IV.2010, (1); IR-Semnan, Damqan, 1170 m, IV.2010, (1); IR-Qazvin, Takistan, 1265 m, IV.2010, (6); IR-Zanjan, Sultaniyeh, 1560 m, IV.2010 (4); IR-Tehran, Hashgerd, 1250 m, IV.2010, (1); IR-East Azerbaijan, Malekan, 1300 m, IV.2010, (5); IR-Zanjan, Kidar, 2000 m, IV.2010, (6); IR-East Azerbaijan, Kalibar, 1400 m, IV.2010, (4); IR-East Azerbaijan, Marand, 1334 m, IV.2010, (4); IR-Zanjan, Abhar, 1540 m, IV.2010, (4); IR-Kerman, Baft, 1082 m, 1/6. VII.2010, (1); IR-Fars, Kazron, 1382 m, 25/30.VI.2010, (9); IR-Kerman, Ban, 1062 m, 1/6.VII.2010, (14); IR-Fars, Darab, 1250 m, 25/30.VI.2010, (5); IR-Fars, Darab, 1250 m, 25/30.VI.2010, (5); IR-Kerman, Shahrehabak, 1845 m, 1/6.VII.2010, (12).

DISTRIBUTION. Central and southern Europe; Turkey, Levant, Iraq, Iran.

Onthophagus (Palaeonthophagus) suturellus Brullé, 1832

Onthophagus suturellus Brullé, 1832: 168

TYPE LOCALITY. “Morée” [Greece, Peloponnese].

MATERIAL EXAMINED. 6 specimens: IR-Mazandaran, Pool, 380 m, III.2010, (3); IR-Ardabil, Ardabil, 1311 m, III.2010, (3).

DISTRIBUTION. South-eastern Europe; Caucasus; Turkey, Levant, Iran.

Onthophagus (Palaeonthophagus) truchmenus Kolenati, 1846 s. l.

Onthophagus truchmenus Kolenati, 1846: 8

TYPE LOCALITY. “Elisabethopolin et coloniam Helenendorf” [Azerbaijan, Ganja and Goygol].

MATERIAL EXAMINED. 9 specimens: IR-Golestan, Colaleh, 95 m, III.2010, (1); IR-Golestan, Aliabad, 140 m, III.2010, (1); Ardabil, Ashtjin, 1450 m, III.2010, (1); IR-Golestan, Minodasht, 180 m, III.2010, (1); IR-Golestan, Aliabad, 140 m, III.2010, (1); IR-Fars, Shiraz, 1540 m, 25/30.VI.2010, (1); IR-Kerman, Sirjan, 1725 m, 1/6.VII.2010, (3).

DISTRIBUTION. Caucasus; Turkey, Lebanon, Syria, Iran, Afghanistan.

REMARKS. The systematic position of the subspecies of *O. truchmenus* (*O. truchmenus truchmenus*, *O. truchmenus iranicus* Kabakov, 2006, *O. truchmenus turkmenicus* Kabakov, 2006 and *O. truchmenus xerxes* Petrovitz, 1965) as well as the closely related species *O. macedonicus* Mikšić, 1959 and *O. pygargus* Motschulsky, 1845, is still to be defined.

DISCUSSION

During the sampling, 958 specimens of Scarabaeoidea, belonging to 2 families, 14 genera and 32 species were collected. According to the ethologic classification proposed by Halffter & Matthews (1966), two species (*Osmanius balthasari* (Petrovitz, 1963) and *Onthophagus psychopompus* Ziani & Moradi, 2010) are pholeobionts, with a biology strictly related to the rodents. *Onthophagus parmatius* Reitter, 1892 and *O. ponticus* Harold, 1883 are pholeophile species, predominantly occurring in burrows but present also outside, in dung deposited on open ground. All the other recorded species can be defined as pholoxens. Their presence inside burrows is either accidental or occasional. In the latter case the beetles are mainly looking for fresh and humid places and for excrement, whereas dung is missing on the surface.

The first two categories can be grouped in a further assemblage, the “true nidicolous Scarabaeoids”, for the species for which a more or less strict relationship with rodents is known.

From this study it appears that all the 67 specimens belonging to the 4 true nidicolous reported species, were collected in places from 1062 to 2005 m above sea level. As things stand, it is not possible to know whether, in Iran at least, true nidicolous Scarabaeoids are strictly related to medium and high mountain biotopes. On the other hand, the species collected in Iran at very low altitude – in Gilan, Golestan, Mazandaran, and Sistan and Baluchestan provinces – are well-known consumers of droppings deposited outside by large mammals, for the most part never recorded, in the literature, in burrows, hence most probably only accidentally underground. It must be considered that the relationship of the pholeo-scarabs

is not with a given burrowing rodent species but with the microhabitat and food availability underground (Moradi Gharakhloo & Ziani 2010). It is not possible to know how much importance could be given to the medium and high altitude for the occurrence in burrows of true nidicolous beetles and if their presence also depends on climatic and geographic environmental situation.

It must be kept in mind that, however useful these classifications might be, they are nonetheless artificial, and may fail to reflect the actual situation. It cannot be excluded that a number of species may be more opportunistic and adjustable to local conditions than the idea that these divisions tend to convey. For instance, it is possible that species that are strictly nidicolous at high altitudes are not so at low altitudes

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SUMMARY

A list of Scarabaeoids collected in burrows of rodents in Iran is presented. It represents the fourth contribution by the authors aimed at increasing the knowledge of the nidicolous scarab beetles. *Aphodius coniugatus* (Panzer, 1795) and *Phaeaphodius tauricola* (Hrubant, 1961) (Aphodiidae) are recorded for the first time from Iran. Original drawings of aedeagus and epipharynx of the latter species are included. A new dichotomic key to the species of the *Onthophagus ponticus* lineage (Scarabaeidae) is presented.

RIASSUNTO

Ulteriori record di Scarabaeoidea all'interno delle gallerie di roditori in Iran (Coleoptera).

Nella presente nota, il quarto contributo degli autori alla conoscenza degli scarabei foleofili, viene prospettata una lista delle specie di Scarabaeoidea raccolte nelle gallerie di roditori in Iran. *Aphodius coniugatus* (Panzer, 1795) and *Phaeaphodius tauricola* (Hrubant, 1961) (Aphodiidae) sono segnalati per la prima volta di Iran. Di questa ultima specie sono anche illustrati l'edeago e l'epifaringe. Viene inoltre proposta una nuova chiave dicotomica per le specie dell'*Onthophagus ponticus* lineage (Scarabaeidae).

REFERENCES

BALTHASAR, V. 1963. Monographie der Scarabaeidae und Aphodiidae der palaearktischen

- und orientalischen Region. Coleoptera Lamellicornia. Band 2. Coprinae (Onitini, Oniticellini, Onthophagini). Tschechoslowakischen Akademie der Wissenschaften, 627 pp., 16 pls.
- BRANCO, T. 2003. *Scarabaeus fulvus* Goeze, 1777 (currently *Euoniticellus fulvus*), a valid name (Coleoptera, Scarabaeidae). Boletín de la Sociedad Entomológica Aragonesa, 32: 67-68.
- BRULLÉ, G. A. 1832. IVe Classe. Insectes. Pp. 64-395. In: G.A. Brullé & F.M. Guérin-Ménéville (eds.). Expédition scientifique de Morée. Section des Sciences Physiques. Tome III. 1.re Partie. Zoologie. Deuxième section. Des animaux articulés. F. G. Levrault: 400 pp.
- FABRICIUS, J. C. 1775. Systema Entomologiae, sistens Insectorum Classes, Ordines, Genera, Species, adiectis Synonymis, Locis, Descriptionibus, Observationibus. Flensburgi et Lipsiae, 832 pp.
- FABRICIUS, J. C. 1781. Species Insectorum exhibentes eorum differentias specificas, synonyma auctorum, loca natalia, metamorphosim adiectis observationibus, descriptionibus. Carol. Ernest. Bohnii, Hamburgi et Kilonii, 1: viii + 552 pp.
- GEBLER, F. A. 1817. Insecta Sibiriae rariora, decas prima. Memoires de la Société Impériale des Naturalistes de Moscou, 5: 315-333.
- GEOFFROY, E. L. 1762. Histoire abrégée des insectes qui se trouvent aux environs des Paris. Durand, Paris. Vol. 1, XXVIII + 523 pp, 10 pls.
- GOEZE, J. A. E. 1777. Entomologische Beyträge zu des Ritter Linné zwölften Ausgabe des Natursystems. Weidmanns Erben und Reich, Leipzig, 1: 736 pp.
- HALFFTER, G. & E. G. MATTHEWS. 1966. The natural history of dung beetles of the subfamily Scarabaeinae (Coleoptera, Scarabaeidae). Folia entomologica mexicana, 12-14: 312 pp.
- HAROLD, E. V. 1883. Einige neue Coprophagen. Entomologische Zeitung, 44: 429-435.
- HERBST, J. F. W. 1783. Kritisches Verzeichniss meiner Insektensammlung. Archiv des Insectengeschichte [J. C. Fuessly], 4: 1-68.
- HRUBANT, M. 1961. Eine neue Art der Gattung *Aphodius* Ill. (Col.). Entomologische Abhandlungen Staatlichen Museum für Tierkunde, Dresden, 26 (9): 97-100.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1954. Opinion 228. Rejection for nomenclatorial purposes of Geoffroy, 1762, "Histoire abrégée des Insectes qui se trouvent aux environs de Paris". Opinions and declarations rendered by the International Commission on Zoological Nomenclature, 4: 210-220.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1994. Opinion 1754. Histoire abrégée des insectes qui se trouvent aux environs de Paris (Geoffroy, 1762): some generic names conserved (Crustacea, Insecta). The Bulletin of Zoological Nomenclature, London, 51 (1): 58-70.
- KABAKOV, O. N. 1982. K faune plastinchatousykh zhukov roda *Onthophagus* Latr. (Coleoptera, Scarabaeidae) srednei azhii, afganistana i irana. Trudy Zoologicheskogo Instituta, Leningrad, 110: 8-19.
- KABAKOV, O. N. 2006. Plastinchatousye zhuki podsemejstva Scarabaeinae (Insecta: Coleoptera: Scarabaeidae) fauny Rossii i soprodelel'nykh stran. Tovarishestvo nauchnykh izdanij KMK. Moskva: 374 pp.
- KOLENATI, F. A. 1846. Insecta Caucasi. Coleoptera, Dermaptera, Lepidoptera, Neuroptera, Mutillidae, Aphaniptera, Anoplura. Meletemata Entomologica, Petrepoli, 5: 140 pp.
- LINNAEUS, C. 1758. Systema Naturae per Regna tria Naturae, secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Ed. decima, reformata. Laurentii Salvii, 1: 823 pp.
- LINNAEUS, C. 1767. Systema Naturae per Regna tria Naturae, secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Ed. duodecima, reformata: 1766-1767. Laurentii Salvii, 1 (2): 533-1327.

- LÖBL, I. & A. SMETANA. 2006. Catalogue of Palaearctic Coleoptera. Volume 3. Scarabaeoidea - Scirtoidea - Dascilloidea - Buprestoidea - Byrrhoidea. Apollo Books, 3: 690 pp.
- MANDL, K. 1976. Ein neuer *Onthophagus* aus Persien (Coleoptera: Scarabaeidae). Entomologische Arbeiten aus dem Museum Georg Frey, 27: 372-374.
- MEDVEDEV, S. I. 1965. 26. Sem. Scarabaeidae-Plastinchatusye, pp. 166-208. In: Bej-Bienko G. Ya. (ed.): Opredelitel' Nasekomykh evropejskoj časti SSSR v pyati tomakh. Izdatel'stvo "Nauka", Moskva-Leningrad, 2: 668 pp.
- MÉNÉTRIÉS, E. 1832. Catalogue raisonné des Objets de Zoologie Recueillis dans un Voyage au Caucase et Jusqu'aux Frontières Actuelles de la Perse Entrepris par Ordre de S. M. L'Empereur. Imprimerie de L'Académie Impériale des Sciences, 271 pp.
- MORADI GHARAKHLOO, M. & S. ZIANI. 2009. Occurrence of scarab beetles inside rodent burrows in some parts of Iran. Zoology in the Middle East, 46: 95-98.
- MORADI GHARAKHLOO, M. & S. ZIANI. 2010. Iranian dung beetles (Coleoptera: Scarabaeoidea) associated with rodent burrows: list of collected species and some additional comments. Boletín de la Sociedad Entomológica Aragonesa, 47: 165-170.
- ORBIGNY, H. D' 1898. Descriptions d'espèces nouvelles d'*Onthophagus* de l'ancien Monde. Annales de la Société Entomologique de France, 66 [1897]: 230-244.
- PETROVITZ, R. 1961. *Pleurophorus caesus* Creutz. und seine nächsten Verwandten (Coleoptera Scarabaeidae). Atti della Società italiana di Scienze naturali, Milano, 100: 389-396.
- PETROVITZ, R. 1962. Neue und verkannte Aphodiinae aus allen Erdteilen (Col. Scarab.). III. Teil. Entomologische Arbeiten aus dem Museum Georg Frey, Tutzing bei München, 13: 101-131.
- PETROVITZ, R. 1963. Neue und interessante Scarabaeidae aus dem vorderen Orient. II Teil. Reichenbachia, 28 (1): 235-267.
- PETROVITZ, R. 1965. Österreichische entomologische Expeditionen nach Persien und fghanistan. Beiträge zur Coleopterologie. Teil II. Lamellicornia. Annalen des Naturhistorischen Museums in Wien, Wien, 68: 671-694.
- PETROVITZ, R. 1980. Österreichische Entomologische Expeditionen nach Persien und Afghanistan. Beiträge zur Coleopterenfauna. Teil XII, Weiteres über Lamellicornia. Annalen des Naturhistorischen Museums in Wien, Wien, 83: 597-638.
- PREYSSLER, J. D. 1790. Verzeichnis Bohemischer Insekten. Erstes Hundert mit Abbildungen. Schönfeld-Weissnerischen Buchhandlung, Prag: 108 pp.
- REDTENBACHER, L. 1843. Coleopterorum Syriae genera et specie novae. Pp. 979-990. In: J. von Russegger: Reisen in Europa, Asien und Afrika, mit besonderer Rücksicht auf die naturwissenschaftlichen Verhältnisse der betreffenden Länder, unternommen in den Jahren 1835 bis 1841. Erster Band. Zweiter Theil. E. Schweizerbart'sche Verlagshandlung: 1102 pp.
- REDTENBACHER, L. 1850. Beschreibung der neuen Arten, pp. 47-50. In: V. Kollar & L. Redtenbacher, Über den Charakter der Insecten-Fauna von Südpersien. Denkschriften der Kaiserlichen Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Klasse, 1: 42-53.
- REITTER, E. 1892. Bestimmungs-Tabelle der Lucaniden und coprophagen Lamellicornen. XXIV. Heft, (Sonderabdruck aus dem XXX. Bande der Verhandlungen des naturforschenden Vereins in Brünn). Verlag des Verfassers, 230 pp.
- SCRIBA, L. G. 1790. Verzeichniss der Insekten in der Darmstädter Gegend. Journal für die Liebhaber der Entomologie, 1: 41-73.
- STEVEN, C. 1809. Descriptions de quelques insectes du Caucase et de la Russie méridionale. Mémoires de la Société Impériale des Naturalistes de Moscou, 2: 31-42.
- ZIANI, S. 2006. Remarks on some Near Eastern *Euonthophagus* species with the description of two new species from Iran (Insecta Coleoptera Scarabaeidae: Onthophagini). Quaderno di Studi e Notizie di Storia Naturale della Romagna, 23: 95-130.

- ZIANI, S. & I. GUDENZI. 2006. Studies on Palearctic *Onthophagus* associated with burrows of small mammals. I. *O. furciceps*, *O. kindermanni*, *O. vitulus* and closely related species (Coleoptera, Scarabaeidae). Bollettino della Società entomologica italiana, Genova, 138 (3): 207-248.
- ZIANI, S. & M. MORADI GHARAKHLOO. 2010. Studies on palearctic *Onthophagus* associated with burrows of small mammals. IV. A new Iranian species belonging to the *furciceps* group (Coleoptera Scarabaeidae, Onthophagini). In: B. Ratcliffe & F.T. Krell (eds.). Current advances in Scarabaeoidea research. Zootaxa, 34: 33-40.