JOSE CARLOS OTERO (*) (*) - HASSAN GHAHARI (**) - FERNANDO ANGELINI (***)

CONTRIBUTION TO THE KNOWLEDGE OF CRYPTOPHAGIDS
(COLEOPTERA CRYPTOPHAGIDAE) FROM IRAN(*) *Departamento de Biología Animal, Facultad de Biología, E - 15782 Santiago de Compostela, Spain.* E-mail: josecarlos.otero@usc.es(**) *Department of Plant Protection, Yadegar – e-Imam Khomeini (RAH) Shahre Rey Branch, Islamic Azad University, Tehran, Iran.* E-mail: hghahari@yahoo.com(***) *Via De Reggio, 142 - 72021 Francavilla Fontana (Brindisi), Italy.* E-mail: angelini_fernando@libero.it

(*) Correspondence: josecarlos.otero@usc.es

Otero, J.C., Ghahari, H., Angelini, F. – Contribution to the knowledge of cryptophagids (Coleoptera Cryptophagidae) from Iran.

This paper summary the *Cryptophagidae* species from Iran and provides new data on the distribution. Seven species are newly recorded for the fauna of Iran: *Cryptophagus intermedius* Bruce, 1934; *Cryptophagus opacosericeus* Reitter, 1896; *Cryptophagus pallidus* Sturm, 1845; *Cryptophagus quadrimaculatus* Reitter, 1877; *Cryptophagus setulosus* Sturm, 1845; *Atomaria (Atomaria) fasciata* Kolenati, 1846 and *Atomaria (Atomaria) munda* Erichson, 1846.

KEY WORDS: Coleoptera, *Cryptophagidae*, distribution, new record, Iran

INTRODUCTION

Cryptophagidae is a Coleoptera family with about 1,000 described species placed in approximately 50 genera and represented in all biogeographic regions. Both adults and larvae of silken fungus beetles are commonly found on mold, fungi, under bark, as well as in decaying vegetation. Some genera are characterized by inquilinism with termites and social hymenopterans (*Apidae*, *Vespidae* and *Formicidae*) (LESCHEN, 1999; OTERO *et al.*, 2001; LJUBARSKY & PERKOVSKY, 2011). Most cryptophagids are nidicolous beetles; they are one of the most abundant beetles in the nests and burrows of rodents, birds and social insects (LJUBARSKY, 1992).

Iran forms a large part of the Iranian plateau, and covers an area of 1,623,779 km². It is bordered to the north by the Caucasus Mountains, Middle Asian natural regions, and the Caspian Sea (-27 m below sea level); to the west by the Anatolian and Mesopotamian regions; to the east by the eastern part of the Iranian plateau (Afghanistan and adjacent west Pakistan) and the Baluch-Sindian region; and finally to the south by the Persian Gulf and Gulf of Oman, which are connected by the latter to the Indian Ocean (Fig. I). Climatologically, Iran is a predominantly arid and semi-arid country, but the northern slopes of the Alburz ranges and the Caspian lowland receive 800 to 2000 mm annual rainfall, making them the most humid parts of the country. The Dasht-e Kavir and Dasht-e Lut deserts are the driest areas with an annual precipitation of less than 150 mm. The highlands receive between 250 and 800 mm (ZEHZAD *et al.*, 2002).

Faunistic knowledge for Iran is limited. JOHNSON (1993) and LJUBARSKY (2000) give some information. Six *Cryptophagidae* species have also been listed as agricultural pests in the country (MODARRES AWAL, 1997). In addition, several species are listed in the Catalogue of Palaearctic

Coleoptera (JOHNSON *et al.*, 2007) without indicating of locality.

This paper which its aim is cataloging of all the data on Iranian *Cryptophagidae*, is a continuation of the series of checklists of *Coleoptera* of Iran (LEGALOV *et al.*, 2010; LASON & GHAHARI, 2013; BUNALSKI *et al.*, 2014; BARTOLOZZI *et al.*, 2014; GHAHARI *et al.*, 2015; GHAHARI & NOVAK, 2015).

MATERIAL AND METHODS

Based on literature and new date sampling sites *Cryptophagidae* beetles found in Iran (Table 1) were included and summarized by province.

The first author investigated and determined beetle species from different depositories:

- Muséum d'Histoire Naturelle, Gèneve, Switzerland: MHNG;
- Hungarian Natural History Museum, Budapest, Hungary: HNHM.

Note: “no locality cited– this is locality for species, which were listed in JOHNSON *et al.* (2007) without indicating of locality.

RESULTS AND DISCUSSION

Family *Cryptophagidae* Kyrby, 1826Subfamily *Cryptophaginae* Kirby, 1826*Cryptophagus acutangulus* Gyllenhal, 1827

EXAMINED MATERIAL – East Azarbaijan province, Sofian, 5.VI.1975, 1 ex; Bostanabad, 25.VI.1975, 1 ex; Fars province, Dasht-e-Arjan, 1.VI.1974, 1 ex; Northern

Fig. I – Map of Iran

Khorasan province, Bodjourn, 26.VII. 1974, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Species present in Holarctic, Neotropical and Oriental Regions (JOHNSON *et al.*, 2007; OTERO, 2011; LJUBARSKY, 2014).

HOST – Both larvae and adults feed on fungal spores and hyphae (*Psaliota campestris* L., *Merulius lacrymans* (Wolf.), *Penicillium glaucum* Horr, etc.) (OTERO, 2011).

Cryptophagus araxicola Reitter, 1889

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

GENERAL DISTRIBUTION – Armenia, Azerbaijan (JOHNSON *et al.*, 2007).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus bruckii Reitter, 1875

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Albania, Armenia, Bosnia Herzegovina, Spain, Georgia, South Russia, Afghanistan, Iran, Israel, Jordan, Pakistan, Syria, Turkmenistan, Turkey, Uzbekistan, China (JOHNSON *et al.*, 2007; OTERO, 2013; LJUBARSKY, 2014).

Cryptophagus cellaris (Scopoli, 1763)

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

NEW DATA – East Azarbaijan province, Sofian, 5.I.1975, 2 ex; Hamadan province, Ganznamh, 2100 m, 4.VII. 1974, 3 ex; Tehran province, Tehran, 2.IX.1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Cosmopolitan species. Europe, Atlantic Islands, North Africa, Egypt, Asia (WOODROFFE & COOMBS, 1961; JOHNSON *et al.*, 2007; OTERO, 2011; 2013).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus cellaroides Reitter, 1921

DISTRIBUTION IN IRAN – Tehran, 17.V.1938, 1 ex (LJUBARSKY, 2000)

GENERAL DISTRIBUTION – South European Territory (Kavkaz), Azerbaijan, Iran, Central Asia, (JOHNSON *et al.*, 2007; LJUBARSKY, 2000; OTERO, 2013).

Cryptophagus dentatus (Herbst, 1793)

EXAMINED MATERIAL – Mazandaran province, Nowshahr, 3.VIII. 1974, 1 ex; Mazandaran province, route de Tchorth, 1300 m, 5.VIII.1974, 1 ex (leg. A. Senglet, MHNG); Kuhgiloyeh & Boyerahmad province, 3 km N. Ssaht, N 53° 22'21" E 31°9', 2700 m, 10.V.1998 (leg. Fabian-Szekely,

Table 1 – NI: New record for Iran.

Species	Notes	Provinces
Cryptophaginae		
<i>Cryptophagus acutangulus</i> Gyll		East Azarbaijan, Fars, Northern Khorasan
<i>C. araxicola</i> Reitter		East Azarbaijan
<i>C. bruckii</i> Reitter		No locality cited
<i>C. cellaris</i> (Scop.)		East Azarbaijan, Hamadan, Tehran
<i>C. cellaroides</i> Reitter		Tehran
<i>C. dentatus</i> (Hebst)		Fars, Kuhgiloyeh & Boyerahmad, Mazandaran,
<i>C. denticulatus</i> Heer		East Azarbaijan, Ilam
<i>C. dilutus</i> Reitter		No locality cited
<i>C. distinguendus</i> Sturm		East Azarbaijan, Mazandaran,
<i>C. erichsoni</i> Reitter		No locality cited
<i>C. hauseri</i> Reitter		No locality cited
<i>C. hexagonalis</i> Tournier		East Azarbaijan
<i>C. insulicola</i> Roubal		No locality cited
<i>C. intermedius</i> Bruce	NI	Fars
<i>C. jakowlewi</i> Reitter		Fars, Mazandaran
<i>C. lapidicola</i> Reitter		No locality cited
<i>C. laterangulus</i> Reitter		No locality cited
<i>C. laticollis</i> Lucas		East Azarbaijan, Mazandaran, Tehran
<i>C. opacosericeus</i> Reitter	NI	East Azarbaijan,
<i>C. pallidus</i> Sturm	NI	Mazandaran
<i>C. punctipennis</i> Bris.		Chaharmahal & Bakhtiari, East Azarbaijan, Hamadan, Kerman, Kordestan, Kuhgiloyeh & Boyerahmad, Lorestan, Mazandaran, Tehran,
<i>C. quadrimaculatus</i> Reitter	NI	Northern Khorasan
<i>C. scanicus</i> (L.)		Guilan, Mazandaran, Tehran
<i>C. scutellatus</i> New.		Mazandaran
<i>C. setulosus</i> Sturm	NI	West Azarbaijan
<i>C. simplex</i> Miller		East Azarbaijan
<i>C. skalitzyi</i> Reitter		Isfahan, Mazandaran, Tehran
<i>Micrambe nigricollis</i> (Reitter)		Fars
<i>M. woodroffei</i> Johnson		Guilan
Atomariinae		
<i>Atomaria (Atomaria) analis</i> Erich		No locality cited
<i>A. apicalis</i> Erich.		No locality cited
<i>A. atricapilla</i> Steph.		No locality cited
<i>A. fasciata</i> Kol.	NI	Ardabil
<i>A. gravidula</i> Erich.		No locality cited
<i>A. lewisi</i> Reitter		No locality cited
<i>A. munda</i> Erich.	NI	Razavi Khorasan
<i>A. peltata</i> Kraatz		No locality cited
<i>A. pusilla</i> (Payk.)		No locality cited
<i>A. rubricollis</i> Bris.		No locality cited
<i>Atomaria (Agathengis) nigrirostris</i> Steph.		No locality cited
<i>A. pulchra</i> Erich.		No locality cited
<i>A. vespertina</i> Mäklin		No locality cited
<i>Curelius exiguus</i> (Erich.)		No locality cited
<i>Ephistemus globulus</i> (Payk.)		No locality cited
<i>E. reitteri</i> Casey		No locality cited

HNHM); Fars province, Saadat-Shah, 1900 m, 20.IV.1999, 2 ex (leg. Nadai, HNHM).

GENERAL DISTRIBUTION – Common in Europe, North Africa, Iran, central Asia, Far East, Nearctic Region (JOHNSON *et al.*, 2007; OTERO, 2011; OTERO & JOHNSON, 2013).

HOST – The larva lives in the droppings of various xylophagous insects and on some species of *Polyporus* sp. (DONISTHORPE, 1939).

Cryptophagus denticulatus Heer, 1841

EXAMINED MATERIAL – East Azarbaijan province, 7 km NW Miyaneh, 12-13.X.2002, 1 ex (leg. P. Gyulai and A. Garani); Ilam province, Sarab, 26.VI.1974, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Europe, Morocco, Atlantic Islands (Madeira), Asian Turkey, Israel, Iran, Uzbekistan, Siberia, also Afrotropical, Australasian and Nearctic Regions (JOHNSON *et al.*, 2008; OTERO, 2011; 2013; OTERO & JOHNSON, 2013).

Cryptophagus dilutus Reitter, 1874

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007; LJUBARSKY & PERKOVSKY, 2011).

GENERAL DISTRIBUTION – Europe, North Africa, Asia and Nearctic Region (JOHNSON *et al.*, 2007; LJUBARSKY & PERKOVSKY, 2011; OTERO, 2013).

Cryptophagus distinguendus Sturm, 1845

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

NEW DATA – Mazandaran province, Gol-e-Loveh, 1200 m, 21.VIII.1975, 3 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Asia, Europe, North Africa, Nearctic and Afrotropical Regions (JOHNSON *et al.*, 2007; OTERO, 2011; 2013).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus erichsoni Reitter, 1888

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Romania, Russia, Armenia, Azerbaijan, (JOHNSON *et al.*, 2007; OTERO, 2013).

Cryptophagus hauseri Reitter, 1890

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Central and South European Territory (Kavkaz), Armenia, Iran, Central Asia, Xinjiang (Sinkiang), Ukraine (JOHNSON *et al.*, 2007).

Cryptophagus hexagonalis Tournier, 1872

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

GENERAL DISTRIBUTION – Finland, Belarus, Russia, Turkey, Siberia, Mongolia, Kazakhstan, Turkmenistan (JOHNSON *et al.*, 2007; OTERO, 2013).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus insulicola Roubal, 1919

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007; OTERO & JOHNSON, 2013).

GENERAL DISTRIBUTION – Species very rare in Europe. Great Britain, Germany, Greece, Switzerland, Afghanistan, Iran, Tajikistan, Turkmenistan, Uzbekistan (JOHNSON *et al.*, 2007; OTERO, 2013; OTERO & JOHNSON, 2013).

Cryptophagus intermedius Bruce, 1934

EXAMINED MATERIAL – Prov. Fars, Sadat-Shah; 53° 12' 38" E 30° 5' 21" N., 1900 m; 20.IV.1999, 1 ex (leg. Meszaros-Zombori, HNHM).

GENERAL DISTRIBUTION – Rare but widely distributed in Europe. Austria, Denmark, Estonia, France, Great Britain, Germany, Georgia, Italy, Norway, Poland, Romania, Slovakia, South of Russia (Kavkaz), Spain, Sweden, Switzerland, Azerbaijan, Armenia (JOHNSON *et al.*, 2007; OTERO, 2011; OTERO & JOHNSON, 2013).

COMMENTS – New record for Iran.

Cryptophagus jakowlewi Reitter, 1888

EXAMINED MATERIAL – Mazandaran province, Tang-e-Rah, 16.VII.1975, 3 ex (leg. A. Senglet, MHNG); Fars province, 3 km W Sangas, 52° 1' 8" E 30° 11' 4" N, 11.IV.1999, 1 ex; Fars province, Saadat-Shahr, 1900 m, 20.IV.1999 (leg. Fabian-Nadai, HNHM).

GENERAL DISTRIBUTION – Europe, North Africa, Caucasus, Turkey, Central Asia (Kirghizia, Iran), East Siberia (LJUBARSKY, 2002; JOHNSON *et al.*, 2007; OTERO, 2011; 2013).

Cryptophagus lapidicola Reitter, 1879

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Armenia, Azerbaijan, Georgia, South Russia, Turkey (JOHNSON *et al.*, 2007; OTERO, 2011; 2013).

Cryptophagus laterangulus Reitter, 1891

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007; LJUBARSKY & PERKOVSKY, 2011).

GENERAL DISTRIBUTION – South Russia, Iran, Iraq, Kazakhstan, Turkmenistan (JOHNSON *et al.*, 2007; LJUBARSKY & PERKOVSKY, 2011; OTERO, 1996; 2013).

Cryptophagus laticollis Lucas, 1846

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

NEW DATA – Mazandaran province, Chorthesh, 1600 m, (VII.1973, 7 ex; Tehran province, Pol-e-Zanguleh, 230 m, 12.VII, 1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Europe, all North Africa, Atlantic Islands, Afganistan, India, Russia, Israel, Iraq, Jordania, Kyrgystan, China, Syria, Turkmenistan, Turkey, Uzbekistan, India, Afrotropical, Nearctic, Australian and Oriental Regions (JOHNSON *et al.*, 2007; LJUBARSKY, 1997; OTERO, 1997; 2011; 2013; OTERO *et al.*, 2001;).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus opacosericus Reitter, 1896

EXAMINED MATERIAL – East Azarbaijan province, 7 km NW Miyaneh, 12-13.X.2002, 1 ex (leg. Gyulai-Garai, HNHM).

GENERAL DISTRIBUTION – Albania, South European Territory Russia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tadzhistan (JOHNSON *et al.*, 2007; OTERO, 2013).

COMMENTS – New record for Iran.

Cryptophagus pallidus Sturm, 1845

EXAMINED MATERIAL – Mazandaran province, Tang-e-Rah, 16.VII.1975, 1 ex; Mazandaran province, Gol-e-Loweh, 700 m, 21.VII.1975, 3 ex; Mazandaran province, Shahps Sand, 28. VII.1974, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Europe, North Africa, Turkey, Israel, Lebanon, Iran (JOHNSON *et al.*, 2007; OTERO, 2011; 2013).

COMMENTS – New record for Iran.

Cryptophagus punctipennis C. N. F. Brisout de Barneville, 1863

EXAMINED MATERIAL – East Azarbaijan province, Bonab, 4.VI.1975, 10 ex; East Azarbaijan province, Miyaneh, 7.VI.1975, 1 ex; Chaharmahal & Bakhtiari province, barrage Kührang, 18.VI.1974, 5 ex; Chaharmahal & Bakhtiari province, route Kührag, 17.VI.1974, 6ex; Hamadan province, 29.VII.1975, 1 ex; Kerman province, 4.VIII.1973, 1 ex; Northern Khorasan province, Esfarayen, 1200 m, 20.VII.1975, 2 ex; Kuhgiluyeh & Boyerahmad province, route Yasuj, 220 m, 27.V.1974, 1 ex; Kordestan province, Sanandaj, 21.VI.1975, 2 ex; Lorestan province, Azna, 23.VI.1974, 3 ex; Lorestan province, Ma'amulan, 24.VI.1974, 1 ex; Lorestan province, Borudjerd, 10.IX.1975, 2 ex; Mazandaran province, Tang-e-Rah, 16.VII.1975, 1 ex; Mazandaran province, Gol-e-Loweh, 700 m, 21.VIII.1975, 1 ex; Tehran province, Disine, 3500 m, 13.VIII.1973, 1 ex; Tehran province, Kendvan, 12.VII.1973, 1 ex; Tehran province, Pol-e-Djadjirud, 16.VII.1973, 1 ex; Tehran province, Polur, 2300 m, 17.VII.1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – It is possibly a cosmopolitan species, in greater or lesser degree, Europe, North Africa, Atlantic Islands, Asia from Turkey and Iran to Japan, Australian and Nearctic Regions (JOHNSON *et al.*, 2007; OTERO, 2011; 2013; WOODROFFE & COOMBS, 1961).

Cryptophagus quadrimaculatus Reitter, 1877

EXAMINED MATERIAL – Northern Khorasan province, 70 km NE Qucan, 2200 m, 10.V.2001, 1 ex; 12.V.2001, 8 ex; 13.V.2001, 1 ex (leg. Bendek & Csorba, MHNG).

GENERAL DISTRIBUTION – Finland, Central and South European Territory Russia, Armenia, Azerbaijan, Georgia, Siberia, Iraq, Kyrgyzstan, Mongolia, Syria, Tadzhikistan, Turkmenistan, Uzbekistan, Nearctic Region (JOHNSON *et al.*, 2007; LJUBARSKY, 2002; OTERO, 2013).

COMMENTS – New record for Iran.

Cryptophagus scanicus (Linnaeus, 1758)

DISTRIBUTION IN IRAN – Iran (no locality cited) (MAJKA & LANGOR, 2010).

NEW DATA – Mazandaran province, Tang-e-Rah, 16.VII.1975, 7 ex; Mazandaran province, Gol-e-Loweh, 21.VIII.1975, 700 m, 2 ex; Mazandaran province, Kiyasar, 1500 m, 11.VII.1975, 6 ex; Guilan province, Siahkal, 6.VII.1973, 2 ex; Tehran province, Kendran, 2700 m, 12.VII.1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Specie Holarctic: Europe, North Africa in Tunisia and Madeira, Asia in Turkey, Iran and Siberia, Afrotropical and Nearctic Regions (JOHNSON *et al.*, 2007; LJUBARSKY, 2002; OTERO, 2011; 2013).

Cryptophagus scutellatus Newman, 1834

EXAMINED MATERIAL – Mazandaran province, route Tchorteh, 1300 m, 5.VIII.1974, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Europe, North Africa (Morocco), Asian Turkey, Iran, Nearctic Region (JOHNSON *et al.*, 2007; LJUBARSKY, 2002).

Cryptophagus setulosus Sturm, 1845

EXAMINED MATERIAL – West Azarbaijan province,

Ourmieh, Zeinaloo, 37°37'57"N 45°0'22"E, 1612 m, 13.IX.2007, 2 ex.

GENERAL DISTRIBUTION – Europe, North Africa, Turkey, Kyrgyzstan, Kazakhstan, Afghanistan, East Siberia (JOHNSON *et al.*, 2007; OTERO, 2013).

COMMENTS – New record for Iran

Cryptophagus simplex Miller, 1858

DISTRIBUTION IN IRAN – East Azarbaijan (MODARRES AWAL, 1997).

GENERAL DISTRIBUTION – Austria, Czech Republic, Great Britain, Germany, Hungary, The Netherlands, South Russia, Azerbaijan, Armenia, Kyrgyzstan, Uzbekistan (JOHNSON *et al.* 2007).

HOST – Fungus and on dried fruits (in damp granaries) (MODARRES AWAL, 1997).

Cryptophagus skalitzkyi Reitter, 1875

EXAMINED MATERIAL – Isfahan province, Eskandari, 8.VII.1973, 1 ex; Mazandaran province, Baladeh, 2200 m, 12.VII.1974; Mazandaran province, Tang-e-Rah, 16.VII.1975, 2 ex; Tehran province, Disine, 3500 m, 13.VII.1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Germany, Croatia, Spain, France, Great Britain, Italy, Czech Republic, Armenia, Azerbaijan, Georgia Turkey, Iran, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan, Afghanistan, Pakistan, India, Eastern Siberia (JOHNSON *et al.*, 2007; LJUBARSKY & PERKOVSKY, 2011; OTERO, 2013).

Micrambe (Micrambe) nigricollis (Reitter, 1876)

EXAMINED MATERIAL – Fars province, Izad Khast, 16.VIII.1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Albania, Russia, Azerbaijan, Armenia, Georgia, Iran, Kyrgyzstan, Kazakhstan, Tadzhikistan, Mongolia, East Siberia (JOHNSON *et al.* 2007; OTERO, 2013).

Micrambe (Micrambe) woodroffei Johnson, 2007

EXAMINED MATERIAL – Guilan province, Pareh-Sar, 2.VIII. 1973, 1 ex (leg. A. Senglet, MHNG).

GENERAL DISTRIBUTION – Europe, North Africa, Cyprus, Turkey, Iran, Lebanon, Israel (JOHNSON *et al.*, 2007; OTERO, 2013).

Subfamily Atomariinae LeConte, 1861

Atomaria (Atomaria) analis Erichson, 1846

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – All Europe, Turkey, Iran (JOHNSON *et al.*, 2007; LJUBARSKY, 2014).

Atomaria (Atomaria) apicalis Erichson, 1846

DISTRIBUTION IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – It is widely distributed throughout Europe and occurs in the Atlantic Islands, Turkey, Israel, Iran, Siberia, Mongolia, Central Asia, North Africa and North America (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Atomaria (Atomaria) atricapilla Stephens, 1830

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Europe, Morocco, Tunisia,

Cyprus, Turkey, Iran, Jordan, Syria, Israel (JOHNSON *et al.*, 2007).

Atomaria (Atomaria) fasciata Kolenati, 1846

EXAMINED MATERIAL – Ardabil province, Germe, 39°00'N 47°57'E, June 2010, 1 ex.

GENERAL DISTRIBUTION – Central and south Europe, North Africa (with Canary Islands), Central Asia, China (JOHNSON *et al.*, 2007).

COMMENTS – New record for Iran.

Atomaria (Atomaria) gravidula Erichson, 1846

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Europe (not Iberian Peninsula and the north), Turkey, Iran (JOHNSON *et al.*, 2007).

Atomaria (Atomaria) lewisi Reitter, 1877

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Cosmopolitan species; Europe (not Iberian Peninsula), Asia (JOHNSON *et al.*, 2007; LJUBARSKY, 2014).

Atomaria (Atomaria) munda Erichson, 1846

EXAMINED MATERIAL – Razavi Khorasan province, Taybad, 34°48'N 60°40'E, 800 m, April 2011, 2 ex.

GENERAL DISTRIBUTION – It is widely distributed all over Europe apart from the extreme north, the Atlantic Islands and North Africa and is also known from Turkey, Israel, Afghanistan, Kazakhstan (JOHNSON, 1993; JOHNSON *et al.*, 2007).

COMMENTS – New record for Iran.

Atomaria (Atomaria) peltata Kraatz, 1853

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – It is widely distributed all over Europe, except the south-west, but is commonest in the east. It occurs in Iran, Kazakhstan, Uzbekistan, Afghanistan, Siberia, Mongolia, Xinjiang (Sinkiang) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Atomaria (Atomaria) pusilla (Paykull, 1798)

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – It is widely distributed throughout most part of Europe, North Africa, the Atlantic Islands and also occurs in Turkey, Iran, Afghanistan, Kazakhstan, Mongolia, Far East and North America (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Atomaria (Atomaria) rubricollis Brisout de Barneville, 1863

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – There are records from scattered localities over much of Europe. It is also known from Turkey, Cyprus, Syria, Israel, Jordan, Iran and Central Asia (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Atomaria (Agathengis) nigrirostris Stephens, 1830

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – It is widely distributed throughout Europe, Algeria and also occurs in Siberia, Turkey, Iran, Central Asia, Mongolia and North America (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Atomaria (Agathengis) pulchra Erichson, 1846

DISTRIBUTION IN IRAN. Iran (no locality cited) (JOHNSON, 1993).

GENERAL DISTRIBUTION – Europe (not in Iberian Peninsula), Caucasus, Turkmenistan, Afghanistan (JOHNSON *et al.*, 2007; LJUBARSKY, 2014).

Atomaria (Agathengis) vespertina Mäklin, 1853

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Europe, Canary Islands, Turkey, Iran, Siberia, Japan, Mongolia, Nepal, India (JOHNSON *et al.*, 2007; LJUBARSKY, 2014).

Curelius exiguus (Erichson, 1846)

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – Europe, North Africa, Cyprus, Turkey, Israel, Jordan, Iran, Iraq, Tajikistan (JOHNSON *et al.*, 2007).

Ephistemus globulus (Paykull, 1798)

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON, 1993; JOHNSON *et al.*, 2007).

GENERAL DISTRIBUTION – This species is widely distributed throughout Europe but it is more scattered in the South. It also occurs in North Africa and the Atlantic islands, as well as Iran, Kazakhstan, Northern China, Mongolia, Far East, New Zealand and North America (JOHNSON, 1993; JOHNSON *et al.*, 2007).

Ephistemus reitteri Casey, 1900

DISTRIBUTION IN IRAN – Iran (no locality cited) (JOHNSON *et al.*, 2007; OTERO *et al.*, 2001).

GENERAL DISTRIBUTION – Europe except west and north-east, Cyprus, Israel, Turkey, Iran (JOHNSON *et al.*, 2007; OTERO *et al.*, 2001).

DISCUSSION

FAUNISTIC COMPOSITION

A total of 46 species from 5 genera and 2 subfamilies, *Cryptophaginae* (29 species from 2 genera) *Atomariinae* (17 species from 3 genera) and are listed as the fauna of Iranian *Cryptophagidae* (Table 1). Seven species are newly recorded for the fauna of Iran: *Atomaria (Atomaria) fasciata* Kolenati, 1846, *Atomaria (Atomaria) munda* Erichson, 1846 (Subfamily *Atomariinae*), *Cryptophagus intermedius* Bruce, 1934, *Cryptophagus opacosericus* Reitter, 1896, *Cryptophagus pallidus* Sturm, 1845, *Cryptophagus quadrimaculatus* Reitter, 1877, *Cryptophagus setulosus* Sturm, 1845 (Subfamily *Cryptophaginae*). The list of species is given below alphabetically with distribution data.

Recoding of 14 new records indicates that the fauna of Iranian *Cryptophagidae* is diverse. Among the 5 recorded genera, *Cryptophagus* with 29 species is more diverse than the other genera, and consequently is *Atomaria* with 3 genera. Since Iran is a large country with various geographical regions and climates, conducting the faunistic surveys on *Cryptophagidae* is necessary in different regions of Iran for finding new data. Additionally, some species of *Cryptophagidae* have powerful parasitoids which have an efficient role in decreasing their population density. Larvae of beetles of the families *Curculionidae*, *Anobiidae*, and *Cryptophagidae* are the most frequently recorded hosts of *Blacus* species (Hymenoptera: *Braconidae*: *Blacinae*)

(ACHTERBERG VAN, 1988; YU *et al.*, 2012). Investigation on this host-parasitoid relationship will result to valuable findings.

ACKNOWLEDGEMENTS

The research was supported by Islamic Azad University (Yadegar – e-Imam Khomeini (RAH) Branch).

REFERENCES

- ACHTERBERG C. VAN, 1988 – *Revision of the subfamily Blacinae Foerster (Hymenoptera, Braconidae)*. - Zool. Verh. (Leiden), 249: 1-324.
- BARTOLOZZI L., GHAHARI H., SPRECHER-UEBERSAX E., ZILIOLI M., 2014 – *A checklist of stag beetles (Coleoptera: Scarabaeoidea: Lucanidae) from Iran*. - Zootaxa, 3887 (3): 422-436.
- BUNALSKI M., SAMIN N., GHAHARI H., HAWKESWOOD T.J., 2014 – *Contributions to the knowledge the scarab beetles of Golestan province, Northern Iran with checklist of Iranian Scarabaeoidea (Coleoptera)*. - Polish J. Entomol., 83: 141-170.
- DONISTHORPE H., 1939 – *A preliminary list of the Coleoptera of Windsor Forest*. Nathaniel Lloyd & Co. London 126 pp.
- GHAHARI H., VOLKOVITSH M., BELLAMY C.L., 2015 – *An annotated catalogue of the Buprestidae of Iran (Coleoptera: Buprestoidea)*. - Zootaxa, 3984 (1), 1-141.
- GHAHARI H., NOVAK V., 2015 – *A checklist of comb-clawed beetles (Coleoptera: Tenebrionidae: Alleculinae) from Iran*. - Zootaxa, 4027 (1): 101-116.
- JOHNSON C., 1993 – *Provisional atlas of the Cryptophagidae-Atomariinae (Coleoptera) of Britain and Ireland*. Biological Records Centre, Huntingdon, UK. 91 pp.
- JOHNSON C., OTERO J. C., LESCHEN R.A.B., 2007 – New Acts & Comments [Esser, J.], pp. 513-531, Catalogue Cryptophagidae. In: Löbl, I. & Smetana, A. (Eds.), *Catalogue of Palaearctic Coleoptera*, Vol. 4: 65–70. Apollo Books, Stenstrup, Copenhagen, Denmark, 935 pp.
- JOHNSON C., OTERO J. C., LESCHEN R.A.B., 2008 – *Errata for volume 3, Cryptophagidae*, pp. 26-27. In: Löbl, I. & Smetana, A. (eds.), *Catalogue of Palaearctic Coleoptera*, Vol. 5. Apollo Books, Stenstrup, Copenhagen, Denmark. 670 pp.
- LASON A., GHAHARI H., 2013 – *A checklist of the Kateretidae and Nitidulidae of Iran (Coleoptera: Cucujoidea)*. - Zootaxa, 3746 (1): 101-122.
- LEGALOV A. A., GHAHARI H., ARZANOV YU G., 2010 – *Annotated catalogue of curculionid-beetles (Coleoptera: Anthribidae, Rhynchitidae, Attelabidae, Brentidae, Brachyceridae, Dryophthoridae and Curculionidae) of Iran*. - Amurian Zool. J., II (3): 191-244.
- LESCHEN R.A.B., 1999 – *Origins of symbiosis: phylogenetic patterns of social insect inquilinism in Cryptophagidae (Coleoptera: Cucujoidea)*. University of Kansas Museum of Natural History. Special Publication, 24: 85-101.
- LJUBARSKY G. YU, 1992 – *Caucasian silken fungus beetles from the genus Cryptophagus*. - Zool. Zh., 71 (10): 68-82 [in Russian].
- LJUBARSKY G. YU, 1997 – *Cryptophagidae and Languriidae from India (Coleoptera, Clavicornia)*. *Entomofauna*, 18 (5): 49-60.
- LJUBARSKY G. YU, 2000 – *New and rare species of the family Cryptophagidae from northern Palaearctic (former USSR) (Coleoptera: Clavicornia)*. - Russ. Entomol. J., 9 (4): 321-328.
- LJUBARSKY G. YU, 2002 – *[Cryptophaginae (Coleoptera: Cucujoidea: Cryptophagidae): Diagnostics, Area-logy, Ecology]*. Moscow University Publisher. Moscow. 421 p.
- LJUBARSKY G. YU, 2014 – *Cryptophagidae (Coleoptera: Clavicornia) from China and adjacent regions*. *Russ. Entomol. J.*, 23 (1): 19-40
- LJUBARSKY G. YU, PERKOVSKY E.E., 2011 – *Third contribution on Rovno amber silken fungus beetles: a new Eocene species of Cryptophagus (Coleoptera, Clavicornia, Cryptophagidae)*. In: Shcherbakov, D.E., Engel, M.S. & Sharkey, M.J. (eds), *Advances in the systematics of fossil and modern insects: Honouring Alexandr Rasnitsyn*. *ZooKeys*, 130: 255-261.
- MAJKA C. G., LANGOR D., 2010 – *Contributions towards an understanding of the Cryptophaginae (Coleoptera, Cryptophagidae) of Atlantic Canada*. - *ZooKeys*, 35: 13-35.
- MODARRES AWAL M., 1997 – Family *Cryptophagidae*, p. 161. In: Modarres Awal, M. (ed.), *List of agricultural pests and their natural enemies in Iran*. Ferdowsi University Press, Mashhad, 497 pp.
- OTERO J.C., 1996 – *Sobre la identidad de tres especies del género Cryptophagus Herbst, 1792 (Coleoptera: Cryptophagidae)*. 1ª nota. *Elytron*, 10: 5-10.
- OTERO J.C., 1997 – *Three new species and distributional records of Micrambe CG. Thomson, 1863 and Cryptophagus Herbst, 1792 (Coleoptera: Cryptophagidae) from Israel and Turkey*. - *Rev. Suisse Zool.*, 104 (1): 207-216.
- OTERO J.C., 2011 – *Coleoptera, Monotomidae, Cryptophagidae*. En: *Fauna Iberica*, vol. 35. Ramos M.A. *et al.* Museo Nacional de Ciencias Naturales. CSIC. Madrid, 365 pp.
- OTERO J.C., 2013 – *Cryptophaginae (Coleoptera) de la Región Paleártica occidental*. - *Coleop. Monographs*, 4: 1-296.
- OTERO J.C., JOHNSON C., MIFSUD D., 2001 – *Cryptophagids from the Maltese Islands with description of a new species of Micrambe Thomson (Coleoptera: Cryptophagidae)*. *Koleop. Rund.*, 71: 163-170.
- OTERO J.C., JOHNSON C., 2013 – *Species of Cryptophagus Herbst, 1792, belonging to the "dentatus group" (Coleoptera: Cryptophagidae) from the Western Palearctic region*. - *Entomol. Fenn.*, 24: 81-93.
- WOODROFFE G.E., COOMBS C.W., 1961 – *Revision of the North American Cryptophagus Herbst (Coleoptera: Cryptophagidae)*. - *Misc. Publ. Entomol. Soc. Am.*, 2 (2): 179-211.
- YU D.S., ACHTERBERG C. VAN, HORSTMANN K., 2012 – *World of Ichneumonoidea 2011*. Biological and taxonomical information), Taxapad Interactive Catalogue, Ottawa. Available from: www.taxapad.com
- ZEHZAD B., KIABI B.H., MADJNOONIAN H., 2002 – *The natural areas and landscape of Iran: an overview*. - *Zool. Midd. East*, 26: 7-10.

52 - Blank Page