

Contribution to the knowledge of the jewel beetles (Coleoptera: Buprestidae) fauna of Kurdistan Province (Iran), Part 2. Subfamilies Buprestinae and Agrilinae

Ghobari, H.^{a*}, Yurkuvich Kalashian, M.^b, Nozari, J.^c

^a *Department of Plant Protection, College of Agriculture University of Kurdistan, Sanandaj, Iran.*

^b *Institute of Zoology, Scientific Centre of Zoology and Hydroecology of the National Academy of Sciences of Armenia, Yerevan, Armenia*

^c *Department of Plant Protection, University College of Agriculture and Natural Resources, University of Tebran, Karaj, Iran*

(Received: 6 May 2016; Accepted: 22 November 2016)

The results of a faunistic survey of jewel beetles (Coleoptera: Buprestidae) in Kurdistan Province of Iran are presented. Totally 30 species belonging to two subfamilies (Buprestinae and Agrilinae) and 8 genera were collected and identified. Of these 1 species is new for Iranian fauna and 19 species are new for Kurdistan Province.

Key words: *Buprestidae; Iran; Kurdistan; new records*

INTRODUCTION

The Buprestidae is the eighth largest family of Coleoptera with many extant buprestids common and abundant in their respective habitats (Pan et al., 2011). Investigations on family of Buprestidae have not only theoretical but also great practical importance. There are many dangerous pests of fruit trees, forest trees, shrubs and herbaceous plants among buprestidae (Sakalian and Langourov, 2004). These insects are wood-boring as larvae, with the immature forms slowly tunneling through a variety of woody tissues of many tree and shrub species and some of them are leaf miner.

The Buprestidae is comprised of nearly 14900 valid species (Bellamy, 2009) by six subfamilies (Bellamy 2008). Totally, 428 species belonging to 6 subfamilies are recorded from Iran in quite recently published catalogue of the Buprestidae of Iran (Ghahari *et al.*, 2015); this catalogue generalized previously published data of several survey works on Iranian fauna as well as of publication of wider geographical scale (Rikhter, 1949, 1952; Salavatian, 1950; Farahbakhsh, 1961; Radjabi, 1968, 1974, 1991; Bily, 1983, 2006a; Abaei and Adeli, 1984; Behdad, 1988; Modarres Awal, 1997; Borumand, 2002, 2004; Ghahari *et al.*, 2008; Ghahari and Bellamy, 2008; Barimani Varandi *et al.*, 2009; Jendek & Grebennikov, 2011; Baiocchi, 2011; Ghobari *et al.*, 2012; Abaei, 2014, etc.). Present paper is continuing our studies on Buprestidae of Kurdistan (Ghobari *et al.*, 2012) and is dedicated to the subfamilies Buprestinae and Agrilinae. 146 species from these subfamilies are listed in catalogue of the Buprestidae of Iran (Ghahari *et al.*, 2015), and only 15 species are cited for Kurdistan (including 1 species reported as “generally distributed” in Iran).

MATERIAL AND METHODS

Material was collected in 2009-2011 in different regions of Kurdistan Province in ecosystems with different types of vegetation (rangelands, oak forests, gardens, etc.). Traditional collecting methods were used: sweeping on grass vegetations, beating of branches of trees and bushes, hand collecting,

*Corresponding Author: h.ghobari@uok.ac.ir

Trapping technique using different kinds of traps (colored sticky traps, pan traps and window trap) [Bellamy, 2000; Oliver *et al.*, 2004 and Sakalian & Langourov, 2004) was applied as well.

Data on general distribution, taxonomy and nomenclature are given according to Catalogue of Palaearctic Coleoptera [Bily, 2006b; Jendek, 2006; Kubaň, 2006a, b and Kubaň & Kalashian, 2006]. Data on distribution in Iran are presented according to Catalogue of Ghahari *et al.* (2015).

RESULTS

The results of the study of material collected are presented. In total, 30 species from two subfamilies, Buprestinae and Agrilinae, were collected and identified. Of these, 1 species is new for Iranian fauna and 19 species are new for Kurdistan Province. The list of species is presented below.

Subfamily Buprestinae Leach, 1815

Melanophila cuspidata Klug, 1829

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 19.08.2011, blue sticky trap; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 5.07.2011, purple sticky trap.

Distribution: Widely distributed in Mediterranean region from Morocco and Portugal to Asia Minor, in Iraq, Afghanistan, Transcaucasia and Central Asia; Iran: reported from Fars, Kermanshah and Kuhgiluyeh & Boyerahmad. New record for Kurdistan.

Trachypteris picta decostigma (Fabricius, 1787)

Material: Divandare-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 08.07.2010, window trap; Marivan-Garan, oak forest 35°32'2"N / 46°18'5"E, 1350 m, 14.07.2010, blue sticky trap; 1.09.2010, window trap; Sanandaj-Kamyaran road, garden, 35°13'7"N / 46°59'52"E, 1360 m, 25.06.2010, window trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 26.08.2011, window trap; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 06.07.2010, purple sticky trap; 01.08.2010, window trap; 16.06.2011, purple sticky and window traps; 04.07.2011, blue sticky and window traps; 25.07. and 19.08.2011, window trap; Sarve Abad, Oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 31.05. and 30.06.2010, purple sticky trap.

Distribution: Widely distributed in S Palearctic Region from North Africa and South and Central Europe to Caucasus, Turkey, West of Iran (*T. p. decostigma* (Fabricius, 1787)), and from West of Iran to North of China (*T. picta picta*); Iran: the species is reported from several provinces and as "generally distributed" (Abai & Adeli 1984) as both *Melanophila picta decostigma* and *M. p. picta*. Our material belongs to *T. p. decostigma*.

Buprestis (Orthocheira) salomonii Thomson, 1878

Material: Sanandaj-Gerize, garden, 35°16'18"N / 47°1'43"E, 1400 m, 6.05.2009, sweeping.

Distribution: Turkey, Southern Transcaucasia, Afghanistan, Pakistan, Central Asia, Western China (Sinkiang); Iran: reported from Khozestan, Mazandaran, Qazvin and Tehran. New record for Kurdistan.

Anthaxia (Cratomerus) diadema Fischer von Waldheim, 1824

Material: Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, yellow pan trap, 07.07. and 13.08.2010; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 1.08.2010, white pan trap and 15.08.2010, yellow pan trap; Sanandaj-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 08.07.2010, yellow pan trap; Sanandaj-Hezarkanian, 5.06.2010, rangeland, sweeping; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 23.06.2010, white and red pan trap and 14.07.2010,

yellow pan trap; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 31.05. and 20.07.2010, yellow pan traps.

Distribution: This species has three subspecies. Nominotypical subspecies is distributed in Bulgaria, Greece, Macedonia, South European Russia, Turkey, Ukraine, Cyprus, Israel, Jordan, Lebanon, Syria. *A. d. shelkovnikovi* Obenberger, 1940 is distributed in Transcaucasia and Iran. *A. d. bazuftensis* Obenberger, 1946 is described from Iran (Chaharmahal & Bakhtiari). *A. d. shelkovnikovi* reported from East Azarbaijan, Mazandaran, Zanjan and "Caspian Sea area". New record for Kurdistan; our material belongs to *A. d. shelkovnikovi*.

***Anthaxia* (s. str.) *bicolor* Faldermann, 1835**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 1.10.2010, 16.06.2011, red pan trap, 16.06.2011, green pan trap; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 01.06 and 23.06.2010, window trap, 13.06.2011, green and purple pan trap; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 31.07.2010, window trap.

Distribution: This species divided into three subspecies. Nominotypical subspecies is distributed in Balkan Peninsula, South European Russia, in Crimea, Transcaucasia, Turkey, Cyprus, Iraq, Israel, Jordan, Syria and Turkmenistan. *A. b. comptei* Cobos, 1966 is reported from Spain, Portugal and Algeria. *A. b. uzbekistana* Bily, 2002 is described from Uzbekistan; Iran: the species is reported from Mazandaran and Kuhgiluyeh & Boyerahmad, Tehran and East Azarbaijan. New record for Kurdistan; our material belongs to *A. b. bicolor*.

***Anthaxia* (s. str.) *tractata* Abeille de Perrin, 1901**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 22.05.2010, window trap; 1.06.2010, window trap, white and yellow pan traps; 23.06.2010, red sticky & window traps; 13.06.2011, window trap; 5.07.2011, white pan trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 7.09.2010, white sticky trap; Sanandaj Hassan-abad, garden, 35°13'7"N / 46°59'52"E, 1360 m, 29.05.2010, white pan trap; 29.06.2010, window trap; 27.07.2010, green pan trap; Sanandaj-Saral, 35°40'18"N / 46°22'2"E, 2070 m, rangeland, 25.05.2010, white sticky trap; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 27.07.2010, white pan trap; Sarve Abad – Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160m, 31.05.2010, window trap.

Distribution: Turkey, Iraq, Armenia, Georgia; Iran; reported from Kurdistan and Kermanshah.

***Anthaxia* (s. str.) *morgani* Théry, 1925**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 1.06.2010, window and white pan traps; 13.06.2011, yellow pan traps; Sarve-Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 31.05.2010, yellow and white pan traps.

Distribution: Syria and Iraq; Iran: reported for Fars. New record for Kurdistan.

***Anthaxia* (s. str.) *brevis* Gory & Laporte, 1839**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, purple pan trap, 1.06.2010.

Distribution: Nominotypical subspecies distributed in Balkan peninsula, Southern Transcaucasia, Southern European Russia, Ukraine, Cyprus, Israel, Turkey, Syria; Iran: subspecies *A. b. kovari* Bílý, 1983 described from Lorestan. New record for Kurdistan.

***Anthaxia* (s. str.) *permisa* Abeille de Perrin, 1904**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 1.06.2010, purple and white pan and white sticky traps; 23.06.2010, white and blue pan traps; 13.06.2011, window trap; Sanadaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 28.08.2011, green sticky trap.

Distribution: Turkey; Iran: reported for Chaharmahal & Bakhtiari. New record for Kurdistan.

***Anthaxia* (s. str.) *winkleri* Obenberger, 1914**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 15.06.2010, purple pan and window traps; 6.07.2010, window, blue, green and yellow sticky traps; 1.08.2010, purple sticky, yellow and red pan traps; 16.06.2011, purple and blue sticky traps; 4.07.2011, window and blue sticky traps; 25.07.2011, purple, blue and yellow sticky traps; 17.08.2011, red sticky trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, blue pan trap, 18.06.2011; 07.07.2011, purple and blue pan, and purple and blue sticky traps; 02.08.2011, yellow sticky trap; Sanandaj-Hassan Abad, garden, 35°13'7"N / 46°59'52"E, 1360 m, 26.06.2010, window, blue and purple pan traps; Sanandaj-Abidar, rangeland, 35° 17'46"N / 46° 58' 35"E, 1700 m, 4.07.2010, window trap; Sarve Abad-Dorod, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 18.08.2010, yellow pan trap; Marivan-Dezli, 35°19'49"N / 46°11'8"E, 1700 m, rangeland, 35°19'49"N / 46°11'8"E, 1700 m, 20.06.2010, sweeping; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 14.07.2010, white and red pan and window traps.

Distribution: Syria, Turkey; Iran: reported for Kurdistan as *A. winkleri winkleri* and for Kuhgiloyeh & Boyerahmad and Tehran as *A. armeniaca* Obenberger, 1929.

***Anthaxia* (s. str.) *lgockii* Obenberger, 1917**

Material: Marivan-Dezli, 35°19'49"N / 46°11'8"E, 1700 m, on *Astragalus* sp., 10.06. and 20.06.2010; Sanandaj-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 8.07.2010, purple pan trap.

Distribution: Azerbaijan, Armenia, Russia: South European Territory and Turkey; Iran: reported from Kurdistan and Mazandaran.

***Anthaxia* (s. str.) *berytensis* Abeille de Perrin, 1895**

Material: Sanandaj-Abidar, rangeland, 35°17'46"N / 46°58' 35"E, 1700 m, 4.05.2009; 4.07.2010, white pan traps; 19.07.2010, blue pan traps; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 6.07.2010, white pan trap; 1.08.2010, white pan and window traps; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 23.06.2010, white pan trap.

Distribution: Israel, Lebanon, Syria, Turkey; new record for Iran.

Diagnostic information: Bluish-black, posterior half of pronotum golden, ventral surface cupreous, head in female golden, in male – green. Elytra violet-blue, Length 4-5.5 mm.

***Anthaxia* (s. str.) *magnifica* Bílý, 1983**

Material: Sanandaj-Noshor, 35°1'39"N / 46°56'5"E, 1460 m, garden, 15.06.2010, blue pan trap.

Distribution: Iranian endemic, described from Ziyaran in Qazvin Province. Reported also from Mazandaran, Kurdistan and Tehran.

***Anthaxia* (*Haplanthaxia*) *flavicomis* Abeille de Perrin, 1900**

Material: Sanandaj-Abidar, rangeland, 35°17'46"N / 46°58' 35"E, 1700 m, 4.07.2010, yellow pan trap; Sanandaj-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 8.07.2010, yellow pan trap; Sarve Abad, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 5.07.2011, yellow pan trap; Marivan-Garan, 35°32'2"N / 46°18'5"E, 1350 m, oak forest, 10.06.2010; 14.07.2010, green pan trap; 8.08.2010, yellow pan trap.

Distribution: Armenia, Azerbaijan, Iraq, Turkey; Iran: reported from Kuhgiloyeh & Boyerahmad, Fars and Lorestan. New record for Kurdistan.

***Anthaxia* (*Haplanthaxia*) *cichorii* (Olivier, 1790)**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 15.06.2010, yellow pan and window trap; 6.07.2010, yellow pan and yellow sticky traps; 1.08.2010, yellow pan traps; 16.06.2011,

red and yellow sticky traps; 4.07.2011, red and yellow sticky traps; 25.07.2011, yellow sticky, yellow and blue pan traps; 19.08.2011, yellow sticky traps; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 13.06.2010, yellow pan traps; 7.07.2010, white and yellow pan traps; 18.06.2011, green and blue pan and blue and white sticky traps; 7.07.2011, yellow sticky and yellow pan traps; Sanandaj-Hassan Abad, garden, 35°13'7"N / 46°59'52"E, 1360 m, 26.06.2010, white pan trap; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, oak forest, 14.06.2011, yellow and red sticky traps; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 18.06.2010, window trap; Sanadaj-Baghel Abad, garden, 35°35'09"N / 47°09'1"E, 1160 m, 18.05.2010; sweeping; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 23.06.2010, blue pan trap; 14.07.2010, yellow pan trap; 5.07.2011.

Distribution: Central and Southern Europe, Ukraine, Southern European Russia, Caucasus, Asia Minor; Iran: reported from several provinces, but not from Kurdistan; New record for Kurdistan.

***Anthaxia (Haplanthaxia) astoreth* Obenberger, 1934**

Material: Marivan-Garan, 35°32'2"N / 46°18'5"E, 1350 m, Oak-forest, red sticky trap, 13.06.2011; yellow pan trap, 05.07.2011; 01.06.2010 window trap; 23.06.2010, window trap, white pan trap, green pan trap; Sanadaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, yellow pan trap, 13.08.2010; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, window trap, 31.05.2010; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 15.06.2010, yellow pan trap; 16.06.2011, green sticky trap.

Distribution: Israel, Lebanon, Syria, Turkey; Iran: reported from Kurdistan.

***Anthaxia (Haplanthaxia) truncata* Abeille de Perrin, 1900**

Material: Marivan-Dezli, 35°19'49"N / 46°11'8"E, 1700 m, on *Astragalus* sp., 20.06.2010.

Distribution: Syria, Iraq; Iran: reported from Mazandaran, Tehran, Qazvin, Kuhgiloyeh & Boyerahmad and Chaharmahal & Bakhtiari. New record for Kurdistan.

***Anthaxia (Haplanthaxia) aspera* Bílý, 1977**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 23.06.2010, window trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 9.07.2010, white pan trap; 28.08.2011, red sticky trap.

Distribution: Iraq; Iran: reported from Fars. New record for Kurdistan.

***Chrysobothris* (s. str.) *parvipunctata* Obenberger, 1914**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 08.08.2010, window trap.

Distribution: Iraq, Afghanistan, Pakistan, Saudi Arabia, N India; Iran: reported from Kuhgiloyeh & Boyerahmad, Kerman, Qom, Tehran, Hormozgan, Yazd and "Zagros area" as *Ch. beesoni* Obenberger 1928, and from Sistan & Baluchestan as both *Ch. zarudniana* Semenov & Rikhter, 1934 and *Ch. beesoni*. New record for Kurdistan.

***Chrysobothris (Abothris)* sp. nov. cf. *cuprina* Klug, 1829**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 1.9.2010, window trap; 23.06.2010, red sticky trap; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160m, 30.6.2010, blue pan trap.

Distribution: According to W. Barries (personal communication), material collected belongs to a new species close to *Ch. cuprina*, known from North Africa (Algeria, Egypt), Arabian peninsula and some countries of Sub-Saharan Africa.

Subfamily Agrilinae Laporte, 1835***Meliboeus (Meliboeoides) parvulus parvulus* Küster, 1852**

Material: Marivan-Garan, Oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 01.6.2010, white pan, purple sticky, window trap, 23.06.2010, blue sticky trap, 14.07.2010, window, yellow sticky trap, 14.06.2011, yellow sticky, purple sticky, green sticky, blue sticky trap; Sanandaj-Babariz, garden, 35°21' 20"N / 47°3'49"E, 1460 m, 07.07.2010, blue pan trap; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 16.06.2011, green sticky trap; Sarv abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 31.05.2010, blue pan, blue sticky trap; 3.06.2011, blue pan trap, 5.07.2011, red sticky trap.

Distribution: Distributed in Italy, Balkan Peninsula, Transcaucasia, Central Asia Hungary, Czech Republic, Romania, Russia: South European Territory, Turkey, Iraq, Israel, Syria; Iran: reported from Mazandaran Kuhgiloyeh & Boyerahmad as *M. amethystinus violaceus* Kiesenwetter, 1857, and from East Azarbaijan, Ilam and Lorestan as *M. amethystinus* auctorum (not Olivier, 1790). New record for Kurdistan.

***Meliboeus (Meliboeoides) robustus* Küster, 1852**

Material: Divandare-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 16.06.2010, blue pan trap; Marivan-Garan, Oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 1.6.2010, purple pan trap; 14.07.2010, yellow pan trap; 14.06.2011, yellow sticky trap; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 15.06.2010, blue pan trap; Sanandaj-Abidar, rangeland, 35°17'46"N / 46°58'35"E, 1700 m, 4.07.2010, purple and blue sticky traps; 11.08.2010, yellow sticky trap.

Distribution; Transcaucasia, Southern European Russia, Turkey, Iraq, Turkmenistan; Iran: reported from Ardabil, East Azarbaijan, West Azarbaijan, Fars, Qazvin, Hormozgan, Tehran, Mazandaran and Semnan. New record for Kurdistan.

***Meliboeus (s.str.) staneki* Obenberger, 1935**

Material: Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 27.07.2011, blue sticky trap.

Distribution: Turkey, Turkmenistan; Iran: reported for the country without reference to exact provinces. New record for Kurdistan.

***Agrilus (Quercuagrilus) derasofasciatus* Lacordaire, 1835**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 15.06., green pan trap and 01.08.2010 purple sticky and; 16.06. and 04.07.2011, blue sticky trap; 25.07.2011, white pan trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 26.08.2011, yellow pan trap; Sarve Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 31.05.2010, yellow pan trap; Sanandaj-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 29.08.2010, rangeland, yellow pan trap; Marivan-Garan, Oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 01.06.2010, yellow pan trap.

Distribution; Widely distributed in Southern and Central Europe, in North Africa, Israel, Lebanon, Syria, Turkey, known from SW Turkmenistan; introduced to USA; Iran: reported from Mazandaran. New record for Kurdistan.

***Agrilus (Quercuagrilus) hastulifer* (Ratzeburg, 1837)**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 25.07.2011, green sticky traps; 19.08.2011, purple sticky traps; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 18.06.2011, purple sticky traps; Marivan-Garan, 35°32'2"N / 46°18'5"E, 1350 m, oak forest, 31.05.2010, purple sticky trap, 23.06.2010, green pan traps, and 23.08.2011, purple pan trap; Sarve-Abad, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, green pan traps, 14.06. and 23.06. and

23.08.2011; Sarve-Abad-Dorod, oak forest, 35°17'41"N / 46°22'25"E, 1160 m, 31.05.2010, purple sticky traps.

Distribution: Mediterranean region, Central Europe, whole Caucasus, Iraq; Iran; endemic subspecies *A. b. aladaghensis* Obenberger, 1918 reported from Mazandaran and Kuhgiluyeh & Boyerahmad and from "Northern Iran" and "Zagros area". New record for Kurdistan.

***Agrilus (Quercuagrilus) graminis* Kiesenwetter 1857**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 01.06.2010, yellow pan trap and green sticky trap.

Mazandaran (Barimani et al. 2009, 2010)

Distribution: South and Central Europe, Southern European Russia, Ukraine, Caucasus, Syria, North Africa, Turkey; Iran: reported for Mazandaran. New record for Kurdistan.

***Agrilus (Rosagrillus) chlorophyllus* Abeille de Perrin 1904**

Material: Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 23.06.2010, red pan trap; 05.07.2011, yellow and blue pan and yellow sticky traps; 27.07.2011, white pan traps; Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 4.07.2011, yellow sticky traps.

Distribution: Syria, Turkey, Israel, Central Asia [Jendek & Grebennikov, 2011]; Iran: Fars, Kerman, Kurdistan, Zanjan, Qazvin and Central Iran (as *A. viridicaerulans esfandiarinus* Davatchi 1958).

***Agrilus (Rosagrillus) roscidus* Kiesenwetter, 1857**

Material: Sanandaj-Noshor, garden, 35°1'39"N / 46°56'5"E, 1460 m, 06.07.2010, purple sticky trap; 07.07.2011, blue and purple sticky and blue and green pan traps; 16.06.2011, purple and yellow sticky traps; 35°17'46"N / 46°58' 35"E, 1700 m, 04.07.2010, window trap; 19.07.2010, yellow pan trap; Sanandaj-Saral, rangeland, 35°40'18"N / 46°22'2"E, 2070 m, 08.07.2010, white pan trap; 11.07.2011, green sticky trap; Sanandaj-Babariz, garden, 35°21'20"N / 47°3'49"E, 1460 m, 18.06.2011, yellow, green and red sticky traps; 07.07.2011, green sticky trap; 02.08.2011, blue sticky trap; Marivan-Garan, oak forest, 35°32'2"N / 46°18'5"E, 1350 m, 14.07.2010, yellow pan and window traps; 05.07.2011, yellow pan traps.

Distribution: Mediterranean Region, Central Europe, Southern European Russia, Ukraine, Caucasus; Iran: reported from Kuhgiluyeh & Boyerahmad, Fars, Tehran, Markazi, Hamadan, Lorestan, Zanjan, Kermanshah, East Azarbaijan and West Azarbaijan. New record for Kurdistan.

***Aphanisticus emarginatus* Olivier, 1790**

Material: Sanandaj-Abidar (Mamatke), 35°18'4"N / 46°56'4"E, 2000 m, 4.05.2009.

Distribution: Widely distributed in Europe, Mediterranean Region, Caucasus, Kazakhstan, Uzbekistan, Turkmenistan; Iran: reported from Lorestan. New record for Kurdistan.

Acknowledgments

We are glad to express our deepest gratitude to Dr. S. Bílý (National Museum in Prague, Czech Republic), Dr. Baiocchi (Roma, Italy) and W. Barries (Wien, Austria) for their kind help in identification of some species.

LITERATURE CITED

Abaei, M., 2014. Oak wood-boring, which cause serious damages to the north and especially west (Zagros) forests of Iran. Proceedings of the 21th Iranian Plant Protection Congress; 23–26 Aug. Oromia, Iran.

Abaei, M., Adeli, E., 1984. List of pests of forest trees & shrubs of Iran. Plant pests and diseases research institute, Tehran, p. 147.

Anthaxia (s. str.) *berytensis*. *Anthaxia* de la région Paléarctique Occidentale. Available from URL: <http://www.anthaxia.eu/images/A-berytensis.jpg>.

Baiocchi, D., 2011. Three new species of *Anthaxia* Eschscholtz, 1829 from Iran (Coleoptera: Buprestidae). *Zootaxa* 2932, 1–23.

Barimani, Varandi H., Kalashian, M Yu., Barari, H., 2009. Contribution to the knowledge of the jewel beetles (Coleoptera: Buprestidae) fauna of Mazandaran province of Iran. *Caucasian Entomological Bulletin* 5(1), 63–68.

Behdad, E., 1988. Pests and diseases of forest trees and shrubs of Iran. Plant Pests and Diseases Research Institute, Tehran, Iran, 807 pp.

Bellamy, C.L. 2009. A World Catalogue and Bibliography of the Jewel Beetles (Coleoptera: Buprestoidea), Volume 5: Appendices, Bibliography, Indices. Pensoft Series Faunistica No. 80, pp. 2685-3264.

Bellamy, C.L. 2008. A World Catalogue and Bibliography of the Jewel Beetles (Coleoptera: Buprestoidea), Volume 3: Buprestinae: Pterobothrini through Agrilinae: Rhaeboscelina. Pensoft Series Faunistica, No. 78, pp. 1260-1931.

Bellamy, CL., 2000. Buprestidae (Coleoptera: Buprestoidea). *In: Dâures – biodiversity of the Brandberg Massif, Namibia. Cimbebasia Memoir*. Windhoek: National Museum of Namibia, 9: 185–191.

Bílý, S., 1983. Results of the Czechoslovak-Iranian entomological expedition to Iran (Coleoptera: Buprestidae). *Acta Entomologica Musei Nationalis Praga* 41, 29–89.

Bílý, S., 2006a. A revision of the *Anthaxia* (*Anthaxia*) *funerula* species-group (Coleoptera: Buprestidae: Anthaxiini // *Folya Heyrovskiana*. Supplement 12, 1-75.

Bílý, S., 2006b. Anthaxiini. *In: I. Löbl and A. Smetana (ed.): Catalogue of Palaearctic Coleoptera. Scarabaeoidea– Scirtoidea– Dascilloidea– Buprestoidea– Byrrhoidea*. Apollo Books, Stenstrup, Denmark, 690 pp.

Borumand, H., 2002. Coleoptera (XXIV): Buprestoidea: Fam. (62): Buprestidae. Insects of Iran. The List of Coleoptera in the Insect Collection of Plant pests and Diseases Research Institute. Plant Pests and Diseases Research Institute, Tehran, Iran, 61 pp.

Borumand, H., 2004. Insects of Iran. The list of Coleoptera in the Hayk Mirzayans Insect Museum. Buprestidae. Plant Pests and Diseases Research Institute, Tehran, Iran, 52 pp.

Farahbakhsh, Gh., 1961. Checklist of important insects and other enemies of plants and agricultural products in Iran. Iranian Ministry of Agriculture, Tehran, Iran, 153 pp.

- Ghahari, H., Bellamy, CL., Sakenin, H., Pettersson, R., 2008. A contribution to new records of Iranian Buprestidae (Coleoptera). *Munis Entomology and Zoology* 3(2), 636–642.
- Ghahari, H., Volkovitsh, M.G., Bellamy, C., 2015. An annotated catalogue of the Buprestidae of Iran (Coleoptera: Buprestoidea). *Zootaxa* 3984 (1), 001–141.
- Ghahari, H., and Bellamy, CL., 2012. A contribution to the knowledge of Buprestidae (Coleoptera) from Iran. *Wuyi Science Journal* 28, 40–47.
- Ghobari, H, Kalashian, M.Yu., Nozari, J., 2012. Contribution to the knowledge of the jewel beetles (Coleoptera: Buprestidae) fauna of Kurdistan Province of Iran. Part 1. Subfamilies Julodinae, Polycestinae and Chrysochroinae. *Caucasian Entomological Bulletin* 8(2), 232–239.
- Jendek, E., 2006. *Agrilus curtis*. In: I. Löbl and A. Smetana (ed.): Catalogue of Palaearctic Coleoptera. Scarabaeoidea– Scirtoidea– Dascilloidea– Buprestoidea– Byrrhoidea. Apollo Books, Stenstrup, Denmark, 690 pp.
- Jendek, E., Grebennikov, V., 2011. *Agrilus* (Coleoptera, Buprestidae) of East Asia. Jan Farkač, Prague, Czech, 362 pp.
- Kubáň, V., 2006a. Buprestinae (without Anthaxiini). In: I. Löbl and A. Smetana (ed.): Catalogue of Palaearctic Coleoptera. Scarabaeoidea– Scirtoidea– Dascilloidea– Buprestoidea– Byrrhoidea. Apollo Books, Stenstrup, Denmark, 690 pp.
- Kubáň, V., 2006b. Agrilinae (without genus *Agrilus* and subtribe Aphanisticina). In: I. Löbl and A. Smetana (ed.): Catalogue of Palaearctic Coleoptera. Scarabaeoidea– Scirtoidea– Dascilloidea– Buprestoidea– Byrrhoidea. Apollo Books, Stenstrup, Denmark, 690 pp.
- Kubáň, V., Kalashian, M.Yu., 2006. Subtribe Aphanisticina. In: I. Löbl and A. Smetana (ed.): Catalogue of Palaearctic Coleoptera. Scarabaeoidea– Scirtoidea– Dascilloidea– Buprestoidea– Byrrhoidea. Apollo Books, Stenstrup, Denmark, 690 pp.
- Matheus, R.W., Matheus, J.R., 1983. Malaise traps: the Townes model catches more insects. *Contributions of the American Entomological Institute*. 20, 928–934.
- Modarres Awal, M., 1997. List of agricultural pest and their natural enemies in Iran (Revised edition). Ferdowsi University Press, Iran, 429 pp.
- Oliver, J.B., Fare, D., Youssef, N., Klingeman, W., 2004. A survey trap to monitor adult flat headed borer activity in nurseries. Proceedings of the twenty sixth Ann. University-Wide Res, Sympos, 6–8 April, 2004, Tennessee State University, America.
- Pan, X., Chang, H., Ren, D., Shih, C., 2011. The first fossil buprestids from the Middle Jurassic Jiulongshan Formation of China (Coleoptera: Buprestidae). *Zootaxa* 2745: 53–62.
- Radjabi, Gh., 1968. Contribution a la connaissance de la faune de Buprestides de l'Iran. *Entomologie et Phytopathologie Appliquees* (Tehran– Evin). 27: 69–79.

- Radjabi, Gh., 1974. Liste supplementaire de Buprestides de l'Iran. *Journal of Entomological Society of Iran* 2, 35–36.
- Radjabi, Gh., 1976). List of Buprestidae (Col.) from province of Fars (1). *Journal of Entomological Society of Iran* 3: 128–129. (In Persian).
- Radjabi, Gh., 1991. Coleoptera. In: Insects attacking rosaceous fruit trees in Iran. Tehran: Iranian Ministry of Agriculture 1: 1–221.
- Sakalian, V., Langourov, M, 2004. Color trap a method for distributional and ecological investigations of Buprestidae (Coleoptera). *Acta Societatis Zoologicae Bohemicae* 68, 53–59.
- Rikhter, A.A., 1949. Jewel beetles (Buprestidae), part 2 // Fauna SSSR. Nasekomye zhestkokrylye. M.-L.: AN SSSR. T. 13. 2. p. 260. (In Russian).
- Rikhter, A.A., 1952. Jewel beetles (Buprestidae), part 4 // Fauna SSSR. Nasekomye zhestkokrylye. M.-L.: AN SSSR. T. 13. 4. P.233. (in Russian).
- Salavatian, M., 1950. Quelques buprestids de l'Iran. *Entomologie et Phytopathologie Appliquees* 11, 19–26.