

Contribution to the knowledge of the jewel beetles (Coleoptera: Buprestidae) fauna of Mazandaran province of Iran

Материалы к изучению фауны жуков-златок (Coleoptera: Buprestidae) провинции Мазандаран, Иран

Н. Barimani Varandi¹, М.Ю. Kalashian², Н. Barari¹
Х. Баримани Варанди¹, М.Ю. Калашян², Х. Барари¹

¹Agricultural and Natural Resources Research Centre of Mazandaran, PO Box 48175-556 Sari, Iran. E-mail: hbarimani@yahoo.com

²Institute of Zoology, Scientific Centre of Zoology and Hydroecology of the National Academy of Sciences of Armenia, Yerevan 0014 Armenia. E-mail: mkalashian@yahoo.com

¹Исследовательский центр сельскохозяйственных и природных ресурсов Мазандарана. PO Box 48175-556 Сари, Иран

²Институт Зоологии (Научный центр зоологии и гидроэкологии НАН РА), Ереван 0014 Армения

Key words: Coleoptera, Buprestidae, Iran, Mazandaran, fauna, new records.

Ключевые слова: Coleoptera, Buprestidae, Иран, Мазандаран, фауна, новые указания.

Abstract. 34 species of jewel-beetles (Coleoptera, Buprestidae) were collected in Mazandaran province of Iran during 2007–2008. Of these 3 species (*Anthaxia sponsa* Kiesenwetter, 1857, *Agrilus derasofasciatus* Lacordaire, 1835, *Agrilus obscuricollis* Kiesenwetter, 1857) are new for Iranian fauna, and 14 species (*Acmaeoderella mimonti* (Boieldieu, 1865), *Acmaeoderella gibbulosa* (Ménétriés, 1832), *Lamprodila tuerki* (Ganglbauer, 1882), *Sphenoptera cauta cauta* Jakovlev, 1904, *Sphenoptera simplex* Jakovlev, 1893, *Sphenoptera tappesi* Marseul, 1865, *Anthaxia passerini* (Pecchioli, 1837), *Anthaxia hungarica sitta* (Küster, 1852), *Agrilus graminis* Kiesenwetter, 1857, *Agrilus pratensis* Ratzeburg, 1837, *Agrilus hyperici* (Creutzer, 1799), *Coraebus elatus* (Fabricius, 1787), *Trachys minutus* (Linnaeus, 1758) and *Trachys phlyctaenoides* Kolenati, 1846) are new for Mazandaran province.

Резюме. В 2007–2008 годах в провинции Мазандаран (Северный Иран) были собраны 34 вида жуков-златок (Coleoptera, Buprestidae). Из них (*Anthaxia sponsa* Kiesenwetter, 1857, *Agrilus derasofasciatus* Lacordaire, 1835, *Agrilus obscuricollis* Kiesenwetter, 1857) оказались новыми для фауны Ирана и 14 (*Acmaeoderella mimonti* (Boieldieu, 1865), *Acmaeoderella gibbulosa* (Ménétriés, 1832), *Lamprodila tuerki* (Ganglbauer, 1882), *Sphenoptera cauta cauta* Jakovlev, 1904, *Sphenoptera simplex* Jakovlev, 1893, *Sphenoptera tappesi* Marseul, 1865, *Anthaxia passerini* (Pecchioli, 1837), *Anthaxia hungarica sitta* (Küster, 1852), *Agrilus graminis* Kiesenwetter, 1857, *Agrilus pratensis* Ratzeburg, 1837, *Agrilus hyperici* (Creutzer, 1799), *Coraebus elatus* (Fabricius, 1787), *Trachys minutus* (Linnaeus, 1758) и *Trachys phlyctaenoides* Kolenati, 1846) впервые указываются для Мазандарана.

Introduction

Fauna of the jewel-beetles of Mazandaran province of Iran is studied insufficiently. In most recent list of Palaearctic beetles – Catalogue of Palaearctic Coleoptera (thereafter – “Catalogue”) [Bílý, 2006; Jendek, 2006; Kubáň, 2006; Volkovitsh, 2006; Volkovitsh, Kalashian, 2006; Volkovitsh, Kubáň, 2006] 366 species and subspecies of Buprestidae are referred to Iranian fauna. Among these only 40 species are cited for Mazandaran province (including 15 species which are reported for “Northern provinces of Iran” as a whole without reference to the concrete provinces) in several survey works on Iranian fauna (both faunistic and dedicated to agricultural and forestry pests) [Farahbakhsh, 1961; Radjabi, 1968, 1974, 1991; Bílý, 1983; Abai, 1984; Modarres Awal, 1997; Borumand, 2002; Ghahari et al., 2008]. Actual taxonomic position of many of the species listed in the works above mentioned is not clear and some identifications are obviously wrong. So, faunistic composition of the fauna of Mazandaran have to be clarified. In this paper the results of study of material collected by one of the authors (H. Barimani Varandi) in 2007–2008 in the province are presented; in general 34 species were collected, 3 of them are new for Iranian fauna and 14 – for the fauna of Mazandaran.

Materials and Methods

The material was collected from different parts of Mazandaran province in 2007 and 2008. Traditional collecting methods were used: sweeping on grass vegetations, beating of branches of trees and bushes, trapping using different kinds of traps: sticky traps [Oliver

et al., 2004], color traps [Sakalian, Langourov, 2003], window traps, yellow pan traps [Bellamy, 2000], malaise traps [Matheus, Matheus, 1983]. Some species were reared from field-collected larvae in cages.

Data on general distribution, taxonomy and nomenclature are given according to Catalogue. Data on distribution in Iran are taken mainly from some surveys on country's fauna listed in Introduction.

List of species

Subfamily Polycestinae Lacordaire, 1857

Acmaeodera (s. str.) *pilosellae* (Bonelli, 1812)

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 19.07.2007, on *Rubus persica*; Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 1.04.2008; Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 28.04 and 11.06.2008, window trap; same locality, 13.05.2008, color traps; Savadkoh Sorkh-Abad, 35°58'15"N / 53°00'29"E, 1128 m, 11.05.2008, on *Haplophyllum perforatum*.

Distribution. The species is distributed in S Europe, Algeria, Turkey (*A. p. pilosellae* Bonelli, 1812), Israel, Syria, S Turkey, Iraq (*A. p. syriaca* Abeille de Perrin, 1900) and in Transcaucasia, Turkmenistan, Turkey and Iran (*A. p. persica* Mannerheim, 1837); reported by Bílý [1983] as *A. araxicola* Reitter, 1890 from S Iran (Zagros: Sisakht) and by Volkovitsh [1986] with the same name from Central Ostan, Semnan, Mazandaran and Fars.

Acmaeodera (*Acmaeotethya*) *rufoguttata* Reitter, 1890

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 17.06.2007, yellow pan traps; same locality, 18, 25, 27.05.2008, window trap; same locality, 3.04.2008, color traps; same locality, 3, 25.04, 8.05, 12.06, 18.07.2008, sticky traps; Sari, Varand, 36°32'50"N / 53°11'33"E, 413 m, and 36°20'50"N / 53°11'30"E, 279 m, 1.04.2008, on *Senecio vulgaris*; Haftkhal, 36°17'36"N / 53°28'30"E, 1600 m, 27.05.2007, yellow pan traps and sticky traps; Haftkhal, 36°17'16"N / 53°23'43"E, 855 m, 3.04.2008, color traps; Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 11.06.2008, color traps; same locality, 11.06.2008, window trap; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 13.05.2008; same locality, 11.06, 17.07.2008, sticky traps; Ghaemshahr, 36°42'00"N / 53°12'26"E, 88 m, 6.06.2008, malaise trap.

Distribution. S Azerbaijan (Lenkoran, Talysh Mts.); Iran: reported by Volkovitsh [1986] from Gilan and Mazandaran.

Acmaeoderella (*Carininota*) *flavofasciata* (Piller et Mitterpacher, 1783)

Material. Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 8.04.2007; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 8.07.2007, 1.06.2008, yellow pan traps; Savadkoh: Sorkh-Abad, 35°58'15"N / 53°00'29"E, 1128 m, 11.05.2008, on *Haplophyllum perforatum*; Kordmir, 36°14'57"N / 53°42'37"E, 1857 m, 28.05.2008.

Distribution. This species is widely distributed in Southern Palearctic Region (from Western Europe and North Africa to Mongolia) and it is divided into several subspecies. From Iran it is reported by Volkovitsh [1986] as *A. f. aequistriata* Abeille de Perrin, 1904, from Western

Azerbaijan, Bakhtiaria and Chaharmahal, and as *A. f. persica* Mannerheim, 1837 from Gilan, Mazandaran and Khorasan, and by Borumand [2002] as *Acmaeodera* (sic!) *f. decorata* Marseul, 1865 from Kerman and *Acmaeodera* (sic!) *f. persica* Mnnh. from Sistan and Belujistan (the name *persica* Mnnh. now is attributed as subspecific name for taxon belonging to *Acmaeodera pilosellae*, and the name *decorata* Mars. now is in use for subspecies of *A. mimonti* Boield. So, the names of taxa mentioned by both authors are not clear), and by Bílý [1983] – as *A. f. tschitscherini* Semenov, 1895, from Golestan. In Catalogue [Volkovitsh, 2006] only *A. f. aequistriata* and *A. f. chorasana* Volkovitsh et Alexeev, 1994, are referred for Iran (without exact locality data). Distributional patterns and state of the subspecies of *A. flavofasciata* in Iran have to be clarified.

Acmaeoderella (*Carininota*) *mimonti* (Boieldieu, 1865)

Material. Poshte-Koh: Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 18.07.2008, color traps.

Distribution. SE Europe, Turkey, Georgia, Kazakhstan, Turkmenistan, SW Siberia (*A. m. mimonti* (Boieldieu, 1865)); NE Turkey, Armenia, Azerbaijan (*A. m. decorata* Marseul, 1865). Reported by Volkovitsh and Alexeev [1994] from Iran without exact data and subspecies name; this record was omitted in Catalogue [Volkovitsh, 2006]. Our material belongs to *A. m. decorata*. New record for Mazandaran.

Acmaeoderella (*Euacmaeoderella*) *gibbulosa* (Ménétriés, 1832)

Material. Poshte-Koh Kevat, , 36°14'58"N / 53°46'52"E, 1501 m, 15.08.2008, color traps; Savadkoh Sorkh-Abad, 35°58'15"N / 53°00'29"E, 1128 m, on *Haplophyllum perforatum*, 11.05.2008.

Distribution. Known from Bulgaria, Macedonia, Greece, Ukraine, Southern Russia, Turkey, Jordan, Israel, Syria, Lebanon, Iraq, Transcaucasia, Turkmenistan and Kazakhstan; Iran: reported by Volkovitsh [1986] from Central ostan, Semnan, Lorestan, Hamadan, and Fars and by Bílý [1983] from Golestan. New record for Mazandaran.

Subfamily Chrysochroinae Laporte, 1835

Capnodis tenebricosa (Oliver, 1790)

Material. Evel Village, 36°14'01"N / 53°40'16"E, 1686 m, 28.05.2008, on *Rumex acetelosa*; Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 28.05.2007, sticky traps; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 28.04, 13.05, 11.06, 16, 31.08.2008, sticky traps; env. Pahnehkola, 28.04.2008, on *Rumex acetelosa*.

Distribution. Widely distributed in SW Palearctic from SW Europe and N Africa to Central Asia, Kazakhstan, Iraq and Afghanistan; Iran: reported by Bílý [1983] as *C. t. aurosparsa* Abeille, 1891 (synonym of *C. t. tenebricosa* (Oliver, 1790)) from several localities from S, N and NE Iran. According to Borumand [2002] this species is represented in Iran in 3 subspecies – *C. t. tenebricosa*

in Chaharmahal and Bakhtiari, Fars, Golestan, Kerman, Khorasan, Khuzestan, Kohgiluyeh-Boyerahamad and Tehran, *C. t. aurosparsa* in Esfahan, Ghazvin and Lorestan and *C. t. persica* Obenberger, 1945, in Ilam, Kermanshah, Khuzestan and Mazandaran; real state of the Borumand's material is not clear. In Catalogue [Kubáň, 2006] 3 subspecies (without exact locality data) are referred for Iranian fauna as well – *C. t. tenebricosa*, *C. t. bucharica* Obenberger, 1945, and *C. t. bushirensis* Kubáň, 2006 (replacement name for *C. t. persica*). Distributional patterns of these subspecies in Iran have to be clarified. Our specimens belong to *C. t. tenebricosa*.

Capnodis tenebrionis (Linnaeus, 1761)

Material. Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 1.04.2007, on *Prunus vulgaris*; Poshte-Koh Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 19.06, 18.07.2008, on *Cerasus avium* and *Prunus domestica*.

Distribution. Widely distributed in Mediterranean Region, in Central Europe, Ukraine, whole Caucasus, in Iraq, Uzbekistan and Kazakhstan; according to Bílý [1983] and Borumand [2002] widely distributed in Iran, including Mazandaran.

Dicerca fritillum Ménétrés, 1832

Material. Sari: Amreh, 36°24'35"N / 53°08'20"E, 300 m, 26.08.2007; Savadkoh: Polesehid, Amirkola 36°05'40"N / 53°04'30"E, 870 m, 22.05.2007; Neka: Bala-zarandin, Qormaraz 36°36'58"N / 53°22'00"E, 270 m, on *Carpinus betula*; Ghaemshar, 36°42'00"N / 53°12'26"E, 883 m, 24.10.2008; same locality, 8.11.2008, malaise trap; Behshar, on *Carpinus betula*, 13.08.2008.

Distribution. S Azerbaijan (Talysh Mts.), SW Turkmenistan; Iran: reported by Rikhter [1952] (as *Hemidicerca*) from Mazandaran (env. Bender-Shah) and by Borumand [2002] from Fars.

Dicerca scabida Marseul, 1865

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 8.06.2007, 27.06.2008, sticky traps; Savad koh Asas, Shor-sar, 36°08'18"N / 53°03'50"E, 950 m, 21.05.2007; Neka, Kohsar-kandeh, 36°35'00"N / 53°20'00"E, 200 m, 27.06.2008.

Distribution. S Azerbaijan (Talysh Mts.), Iran: reported from Gilan (Lahijan) [Rikhter, 1952] and Mazandaran (Tonekabon) [Borumand, 2002].

Perotis lugubris (Fabricius, 1777)

Material. Poshte-Koh: Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 19.06, 18.07.2008, on *Prunus domestica*.

Distribution. S and Central Europe, E Mediterranean region, Iraq, Turkmenistan, divided into 4 subspecies. In Iran *P. l. longicollis* Kraatz, 1880, reported by Abai [1984] from Northern provinces, and *P. l. mutabilis* Abeille de Perrin, 1896 (as *Aurigena*) by Bílý [1983] from S Iran. In Catalogue [Kubáň, 2006] besides subspecies above

mentioned *P. l. transcaspica* Semenov, 1890 is reported for Iran as well. Our material belongs to *P. l. longicollis*.

Lamprodila (Scintillatrix) tuerki (Ganglbauer, 1882)

Material. Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 11.06, 16.07.2008, color traps.

Distribution. Described from Astrabad (Gorgan), known from S Azerbaijan (Talysh Mts.); new record for Mazandaran.

Sphenoptera (Chilostetha) cauta Jakovlev, 1904

Material. Poshte-Koh Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 18.07.2008, color traps.

Distribution. Distributed in S Russia, Ukraine and Kazakhstan (*S. c. palea* Obenberger, 1952), nominotypical subspecies is known from Spain, Italy, Slovenia, Hungary, Greece, Macedonia, Bosnia-Herzegovina, Bulgaria, Slovakia, Jordan, Syria, Turkey, Armenia; Iran: reported by Bílý [1983] (as *S. palea* Obenberger, 1952) from N Iran (Ziaran near the border between Gilan and Ghazvin provinces). New record for Mazandaran.

Sphenoptera (s. str.) *tragacanthae* (Klug, 1829)

Material. Poshte-Koh: Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 1.04.2008.

Distribution. Greece, Crimea, Transcaucasia, Syria, Lebanon, Turkey, Afghanistan, Pakistan, Turkmenistan; Iran: Bílý [1983] and Borumand [2002] have reported this species under several names (*S. glabrata irenae* Obenberger, 1927, *S. adusta* Jakovlev, 1887, *S. aethiops* Jakovlev, 1891, *S. klickai* Obenberger, 1927, *S. luristana* Kerremans, 1909, *S. mmiszzechi* Marseul, 1865, *S. morosa* Jakovlev, 1908, *S. zarathustrae* Obenberger, 1920), from several provinces of Iran, including Mazandaran.

Sphenoptera (Deudora) simplex Jakovlev, 1893

Material. Sari, Varand, 1.04.2008.

Distribution. Greece (Aegean Islands), Armenia, Azerbaijan, Turkey; Iran: reported by Volkovitsh and Kalashian [2006] without exact locality data; new record for Mazandaran.

Sphenoptera (Tropaeopeltis) tappesi Marseul, 1865

Material. Poshtkoh, Kevat, 19.06.2008.

Distribution. Albania, Macedonia, Greece, Turkey, Jordan, Syria, Israel; Iran: reported by Bílý [1983] as *S. simulatrix* Reitter, 1895, from S and Central Iran and by Borumand [2002] with the same name from Yazd; new record for Mazandaran.

Subfamily Buprestinae Leach, 1815*Anthaxia* (s. str.) *hyrcana* Kiesenwetter et Kirsch, 1880

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 25.04.2008; same locality, 8.05.2008, sticky traps; 26.05, 1.06, 7.07.2007, yellow pan traps; same locality, 3, 25.04.2008, color traps; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 16.07.2008, sticky trap.

Distribution. S Azerbaijan (Talysh Mts.); Iran: described from "Astrabad", then as *A. seminigra* Thery, 1925 – from "Elburs".

Anthaxia (s. str.) *intermedia* Obenberger, 1913

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 28.05.2007, fallen wood of *Quercus castaneifolia*; same locality, 3, 25.04, 8.05.2008; Sari, Varand, 36°22'05"N / 53°11'33"E, 413 m, 1.04.2007, on *Zelkova carpinifolia*; same locality, 29.04.07, on *Crataegus melanocarpa*; Haftkhal, 36°17'36"N / 53°28'30"E, 1600 m, 27.05.2007, sticky trap; Poshte-Koh Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 1.04.2008, color traps; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 13.05, 11.06.2008, sticky traps.

Distribution. Transcaucasia, Central Asia; Iran: reported by Rikhter [1949] from N Iran, by Borumand [2002] from Mazandaran (Tonekabon).

Anthaxia (s. str.) *passerini* (Pecchioli, 1837)

Material. Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 6.06.2008, color traps.

Distribution. Sardinia, Italy, former Yugoslavia, southern Bulgaria, Greece, Turkey, Caucasus and Transcaucasia, western Turkmenistan; Iran: referred by Bílý [1982] from N Iran without locality data; this report was omitted both in Bílý [1997] and in Catalogue [Bílý, 2006]. New record for Mazandaran.

Anthaxia (*Cratomerus*) *hungarica* (Scopoli, 1772)

Material. Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 8.06.2007; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 1.06.2007; Poshte-Koh: Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 21.05.2008; Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 6.06.2008, yellow pan traps; Shavilasht, Mazarostagh village, 36°15'55"N / 53°24'40"E, 880 m, 15.06.2008, on *Brassica napus*.

Distribution. Mediterranean region, Central Europe (*C. h. hungarica* (Scopoli, 1772)), subspecies *C. h. sitta* Küster, 1852 is distributed estwards, in S Russia, Crimea, Transcaucasia, Turkey, Turkmenistan; Iran: reported by Borumand [2002] (without subspecific name) from Golestan (Gorgan and Minudasht); new record for Mazandaran.

Anthaxia (*Cratomerus*) *sponsa* Kiesenwetter, 1857

Material. Poshte-Koh Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 19.06.2008, yellow pan traps.

Distribution. Bulgaria, Romania, Greece, Transcaucasia, Turkey, Israel, Lebanon, Syria, Jordan,

Turkmenistan. New record for Iran.

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

Material. Behshar, Pasand village, 36°69'76"N / 53°61'32"E, 27 m, 22.05.2007, yellow pan traps; Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 5, 13.06.2008, on *Anthemis altissima*; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 8.06.2007, color traps; Kordmir, 36°14'57"N / 53°42'37"E, 1857 m, 28.05.2008, on *Anthemis altissima*.

Distribution. Central and S Europe, Turkey, Israel, Syria, Turkmenistan; Iran: reported by Bílý [1983] and Borumand [2002] from several provinces of Iran, including Mazandaran.

Chrysobothris (s. str.) *affinis* (Fabricius, 1794)

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 28.04.2007, 3, 25.04 and 8, 24.05.2008, fallen wood of *Quercus castaneifolia*; Haftkhal, 36°17'36"N / 53°28'30"E, 1600 m, 27.05.2007, sticky traps; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 28.04, 13.05, 11.06, 16.07.2008, sticky traps; Neka, Kuhsar-kandeh, 36°35'00"N / 53°20'00"E, 200 m, 27.06.2007; same locality, 21.06.2008, reared from *Quercus castaneifolia*; Savad koh Asas, Shor-sar, 36°08'18"N / 53°03'50"E, 950 m, 21.05.2007; Dashte-Naz, 36°41'36"N / 53°12'36"E, 20 m, 11, 28.04, 22.05.2008, malaise trap; Ghaemshar, 36°42'00"N / 53°12'26"E, 88 m, 9, 23.05.2008.

Distribution. Widely distributed in Mediterranean region, in Central Europe, Transcaucasia, in Central Asia, Kazakhstan. Divided into several subspecies, from Iran it was reported from several provinces (including Mazandaran) by Radjabi [1991] as *C. a. tetragramma* Ménétris, 1832, *C. a. nevskyi* Rikhter, 1944 and *C. a. heterochroa* Obenberger, 1916 (the last name was proposed for aberration and so it is unavailable), and by Borumand [2002] – as *C. affinis* without subspecific name and as *C. a. tetragramma*. In Catalogue both *C. a. tetragramma* and *C. a. nevskyi* are referred for Iran. In our material only *C. a. tetragramma* is represented.

Subfamily Agrilinae Laporte, 1835*Agrilus* (s. str.) *viridis* (Linnaeus, 1758)

Material. Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 10.04.2007, reared from stem of seedling maple; Neka, Kuhsar-kandeh, 36°35'00"N / 53°20'00"E, 200 m; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 7.07.2007, yellow pan trap; Haftkhal, 2.05.2007, yellow pan trap.

Distribution. Transpalaeartic species. Iran: referred by Modares Aval [1994], Behdad [1988] and Abai [1984] from Zanjan, Fars, Kerman and Northern provinces, by Espahbodi et al. [2003] from Mazandaran.

Agrilus (*Anambus*) *biguttatus* (Fabricius, 1777)

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 25.04.2008, red sticky traps.

Distribution. Widely distributed in European countries (except Scandinavia), in Northern Africa (Algeria, Morocco), in Caucasus and Transcaucasia, in Turkey and

Syria; Iran: reported by Behdad [1988] and Abai [1984] from Northern provinces.

praeclarus Krogerus, 1925). Reported from Iran without locality data [Jendek, 2006]. New record for Mazandaran.

Agrilus (Quercuagrilus) graminis Kiesenwetter, 1857

Agrilus (Spiragrilus) hyperici (Creutzer, 1799)

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 8.06.2008, on *Quercus castaneifolia*; Neka, Kuhsar-kandeh, 36°35'00"N / 53°20'00"E, 200 m, 2, 27.06.2007; same locality, 21.06, 1.07.2008, reared from *Quercus castaneifolia*; Pahneh Kola, 36°27'30"N / 53°05'67"E, 171 m, 10.04.2007, reared from stem of seedling maple.

Material. PahnehKola, 36°27'30"N / 53°05'67"E, 171 m, 5.07.2007, red sticky traps.

Distribution. Mediterranean region, Central Europe, whole Caucasus; reported from Iran in Catalogue [Jendek, 2006] without locality data. New record for Mazandaran.

Distribution. Widely distributed in European countries (except Scandinavia), in Caucasus and Transcaucasia, and in Turkey, introduced to USA and Australia; Iran: reported by Bílý [1983] from NE Iran (Dasht). New record for Mazandaran.

Agrilus (Quercuagrilus) hastulifer Ratzeburg, 1837

Coraebus elatus (Fabricius, 1787)

Material. Neka, Kuhsar-kandeh, 36°35'00"N / 53°20'00"E, 200 m, 27.06.2007, reared from *Quercus castaneifolia*.

Material. Pahneh Kola, 36°27'14"N / 53°03'06"E, 218 m, 11.06.2008, window trap; same locality, 13.05, 8.06.2008, color traps; Kordmir, 36°14'57"N / 53°42'37"E, 1857 m, 28.05.2008, on *Anthemis altissima*; Poshte-Koh: Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 18.07.2008, on *Prunus domestica*.

Distribution. Mediterranean region, Central Europe, whole Caucasus, Iraq; in Iran endemic subspecies *A. h. aladaghensis* Obenberger, 1918, reported by Bílý [1982] from Mazandaran (Behshahr) and by Borumand [2002] from Kohgiluyeh and Boyerahmad.

Distribution. Mediterranean region, Central Europe, eastwards to SW Siberia, whole Caucasus, Iraq; Iran: cited from Golestan [Borumand, 2002]; new record for Mazandaran.

Agrilus (Quercuagrilus) derasofasciatus Lacordaire, 1835

Coraebus rubi (Linnaeus, 1767)

Material. Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 8.06, 26.08.2007, on fallen wood; same locality, red sticky traps, 8.07.2007; same locality, yellow pan traps, 8.06, 1.07.2007; same locality, 10.08.2007, blue traps; same locality, 15.08.2008, green pan trap; Ghaemshar, 36°42'00"N / 53°12'26"E, 88 m, 27.06.2008, maleise trap; PahnehKola, 36°27'30"N / 53°05'67"E, 171 m, 13.08.2008, white sticky traps; same locality, 11.06.2008, blue pan traps; Haftkhal, 36°17'16"N / 53°23'43"E, 855 m, 15.07.2008, green pan traps.

Material. Pahnehkola, 36°27'14"N / 53°03'06"E, 218 m, 11.06.2008, color traps and window trap.

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

Distribution. Mediterranean region, Central Europe, eastwards to SE part of European Russia, whole Caucasus; Iran: reported by Radjabi [1974] and Borumand [2002] from Mazandaran, and by Bílý [1983] from N Iran (Lahijan).

Agrilus (Quercuagrilus) obscuricollis Kiesenwetter, 1857

Trachys minutus (Linnaeus, 1758)

Material. Haftkhal, 36°17'36"N / 53°28'30"E, 1600 m, 7.05.2007, sticky trap; Dashte-Naz, 36°41'36"N / 53°12'36"E, 20 m, 7.07.2007; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 24.05.2007, red sticky trap.

Material. Sari, Varand, 36°32'05"N / 53°11'33"E, 413 m, 1.04.2008, on *Ulmus glabra*.

Distribution. Widely distributed in Southern and Central Europe, in Algeria, Israel and Turkey. New record for Iran.

Distribution. Nearly Transpalearctic species. Iran: reported from E Azerbaijan, Tehran and Gilan [Modarres Awal, 1997]. New record for Mazandaran.

Agrilus (Robertius) pratensis Ratzeburg, 1837

Trachys phlyctaenoides Kolenati, 1846

Material. Poshte-Koh Kevat, 36°14'58"N / 53°46'52"E, 1501 m, 19.06.2008, red pan traps.

Material. Dashte-Naz, 36°41'36"N / 53°12'36"E, 20 m, 27.05.2008, on *Stachys byzanthina*; Zarin-Abad, 36°32'50"N / 53°09'15"E, 160 m, 2.06.2008, on *Stachys byzanthina*; Sari, Alamdardeh, 36°21'21"N / 53°15'60"E, 396 m, 19.07.2008, on *Stachys byzanthina*; same locality, 10.08.2007, white trap; same locality, 8.05.2008, sticky trap; Kordmir, 36°14'57"N / 53°42'37"E, 1857 m, 28.05.2008; Pahnehkola, 36°27'30"N / 53°05'67"E, 171 m, 28.04, 13.05, 16.07.2008.

Distribution. From W Europe to N China (*A. p. pratensis* Ratzeburg, 1837), E Siberia, Far East of Russia and Mongolia (*A. p. djukini* Obenberger, 1935), Finland (*A. p.*

Distribution. Known from E Transcaucasia, Dagestan, Turkmenistan, Turkey; Iran: reported by Bílý [1983] as *T. iranica* Obenberger, 1937, from S and most NE Iran. New record for Mazandaran.

Acknowledgments

We are glad to express our deepest gratitude to Curator of the Insecta Collection of the Institute of Zoology Dr. M.A. Mardjanyan (Yerevan, Armenia) for her kind help.

References

- Abai M. 1984. List of pests of forest trees and shrubs of Iran. Tehran: Plant Pests and Diseases Research Institute. 147 p.
- Behdad E. 1988. Pests and diseases of forest trees and shrubs of Iran. Tehran: Plant Pests and Diseases Research Institute. 807 p.
- Bellamy C.L. 2000. Buprestidae (Coleoptera: Buprestoidea) // *Dâures – biodiversity of the Brandberg Massif, Namibia*. Cimbebasia Memoir. 9: 185–191.
- Bilý S. 1982. A revision of the *Anthaxia passerini* (Pecchioli) species-group (Coleoptera: Buprestidae) // *Acta entom. bohemoslov.* 79: 221–225.
- Bilý S. 1983. Results of the Czechoslovak-Iranian entomological expedition to Iran (Coleoptera: Buprestidae) // *Acta ent. Mus. Nat. Pragae.* 41: 29–89.
- Bilý S. 1997. World catalogue of the genus *Anthaxia* Eschscholtz, 1829 (Coleoptera, Buprestidae) // *Folia Heyrovskyana, Supplementum* 2: 3–190.
- Bilý S. 2006. Anthaxiini, pp. 369–381 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.
- Borumand H. 2002. Coleoptera (XXIV): Buprestoidea: Fam. (62): Buprestidae // *Insects of Iran. The List of Coleoptera in the Insect Collection of Plant Pests & Diseases Research Institute*. Tehran: Plant Pests and Diseases Research Institute: 1–61.
- Espahbodi K., Mohammadnejad Kiasari Sh., Barimani H., Ghobadian H. 2003. Investigation on the suitable spacing and combination of ash (*Fraxinus excelsior* L.) and maple (*Acer velutinum* Boiss.) in plantation in Iran // *Iranian Journ. Forest Poplar Research.* 11(1): 19–34.
- Farahbakhsh Gh. 1961. Checklist of important insects and other enemies of plants and agricultural products in Iran. Tehran. 153 p.
- Ghahari H., Bellamy C.L., Sakenin H., Pettersson R. 2008. A contribution to new records of Iranian Buprestidae (Coleoptera) // *Munis Entom. Zool.* 3(2): 636–642.
- Jendek E. 2006. Agrilus Curtis, pp. 388–403 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.
- Kubán V. 2006. Chrysochroinae (without Paratassini and Sphenopterini). Buprestinae (without Anthaxiini). Agrilinae (without Aphanisticina and genus Agrilus), pp. 342–352; 369; 381–388; 403–404; 406–421 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.
- Matheus R.W., Matheus J.R. 1983. Malaise traps: the Townes model catches more insects // *Contrib. Amer. Ent. Inst.* 20: 928–934.
- Modarres Awal M. 1997. List of agricultural pest and their natural enemies in Iran (Revised edition). Tehran: Ferdowsi University Press. 429 p.
- Oliver J.B., Fare D., Youssef N., Klingeman W. 2004. A survey trap to monitor adult flat headed borer activity in nurseries // M. E. Lewis [ed.], *Proc. 26th Ann. University-Wide Res. Sympos., Tennessee State University* 6–8 April, 2004. Nashville TN <http://www.tnstate.edu/research/researchsymp2004/H-1.Pdf>. pp. H-1.
- Radjabi Gh. 1968. Contribution a la connaissance de la faune de Buprestides de l'Iran // *Entomologie et Phytopathologie Appliquées (Tehran-Evin)*. 27: 69–79.
- Radjabi Gh. 1974. Liste supplementaire de Buprestides de l'Iran // *Journ. Entom. Soc. Iran.* 2: 35–36.
- Radjabi Gh. 1991. Coleoptera // *Insects attacking rosaceous fruit trees in Iran*. Vol. I. Tehran: 1–221.
- Rikhter A.A. 1949. Jewel-beetles (Buprestidae), p. 2 // *Fauna SSSR. Nasekomye zhestkokrylye*. M.-L.: AN SSSR. T. 13, v. 2. 255 p. [in Russian].
- Rikhter A.A. 1952. Jewel-beetles (Buprestidae), p. 2 // *Fauna SSSR. Nasekomye zhestkokrylye*. M.-L.: AN SSSR. T. 13, v. 4. 233 p. [in Russian].
- Sakalian V., Langourov M. 2004. Colour trap a method for distributional and ecological investigations of Buprestidae (Coleoptera) // *Acta Soc. Zool. Bohem.* 68: 53–59.
- Volkovitch M.G. 1986. Review of the jewel-beetles of the tribe Acmaeoderini (Coleoptera, Buprestidae) of the fauna of USSR and adjacent countries // *Trudy Zoologicheskogo Instituta AN SSSR.* 140: 16–43 [in Russian].
- Volkovitch M.G. 2006. Polycestinae, pp. 330–342 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.
- Volkovitch M.G., Alexeev A.V. 1994. Buprestid beetles (Coleoptera: Buprestidae) from Kopetdagh and the adjacent regions of Southern Turkmenistan. // *Fet V. & Atamuradov H. (eds.) Biogeography and Ecology of Turkmenistan*. Dordrecht: Kluwer Academic Publishers: 419–449.
- Volkovitch M.G., Kalashian M.Yu. 2006. Sphenopterini, pp. 352–369 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.
- Volkovitch M.G., Kubán V. 2006. Julodinae, pp. 325–330 // *Catalogue of Palaearctic Coleoptera*. (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books. 690 p.

References

- Abai M. 1984. List of pests of forest trees and shrubs of Iran. Tehran: Plant Pests and Diseases Research Institute. 147 p.
- Behdad E. 1988. Pests and diseases of forest trees and shrubs of Iran. Tehran: Plant Pests and Diseases Research Institute. 807 p.
- Bellamy C.L. 2000. Buprestidae (Coleoptera: Buprestoidea). *Cimbebasia Memoir*. 9: 185–191.
- Bilý S. 1982. A revision of the *Anthaxia passerini* (Pecchioli) species group (Coleoptera: Buprestidae). *Acta Entomologica Bohemoslovaca*. 79: 221–225.
- Bilý S. 1983. Results of the Czechoslovak-Iranian entomological expedition to Iran (Coleoptera: Buprestidae). *Acta Entomologica Musei Nationalis Pragae*. 41: 29–89.
- Bilý S. 1997. World catalogue of the genus *Anthaxia* Eschscholtz, 1829 (Coleoptera, Buprestidae). *Folia Heyrovskyana*. Supplementum 2: 3–190.
- Bilý S. 2006. Anthaxiini. In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 369–381.
- Borumand H. 2002. Coleoptera (XXIV): Buprestoidea: Fam. (62): Buprestidae. In: Insects of Iran. The List of Coleoptera in the Insect Collection of Plant Pests & Diseases Research Institute. Tehran: Plant Pests and Diseases Research Institute: 1–61.
- Espahbodi K., Mohammdnejad Kiasari Sh., Barimani H., Ghabadian H. 2003. Investigation on the suitable spacing and combination of ash (*Fraxinus excelsior* L.) and maple (*Acer velutinum* Boiss.) in plantation in Iran. *Iranian Journal of Forest and Poplar Research*. 11(1): 19–34.
- Farahbakhsh Gh. 1961. Checklist of economically important insects and other enemies of plants and agricultural products in Iran. Tehran: Plan Organization Press. 153 p.
- Ghahari H., Bellamy C.L., Sakenin H., Pettersson R. 2008. A contribution to new records of Iranian Buprestidae (Coleoptera). *Munis Entomology & Zoology*. 3(2): 636–642.
- Jendek E. 2006. *Agrilus* Curtis, 1825. In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 388–403.
- Kubáň V. 2006a. Chrysochroinae (without Paratassini and Sphenopterini). In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 342–352.
- Kubáň V. 2006b. Buprestinae (without Anthaxiini). In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 369, 381–388.
- Kubáň V. 2006c. Agrilinae (without Aphanisticina and genus *Agrilus*). In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 403–404, 406–421.
- 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). Tehran: Ferdowsi University Press. 429 p.
- Radjahi Gh. 1968. Contribution a la connaissance de la faune de Buprestides de l'Iran. *Entomologie et Phytopathologie Appliquees*. 27: 69–79.
- Radjahi Gh. 1974. Liste supplementaire de Buprestides de l'Iran. *Journal of Entomological Society of Iran*. 2: 35–36.
- Radjahi Gh. 1991. Coleoptera. In: Insects attacking rosaceous fruit trees in Iran. Vol. 1. Coleoptera. Tehran: Plant Pests and Diseases Research Institute, Ministry of Agriculture and Rural Development. 221 p.
- Richter A.A. 1949. Fauna SSSR. Nasekomye zhestkokrylye. Tom 13, vyp. 2. Zlatki (Buprestidae). Chast' 2 [Fauna of the USSR. Beetles. Vol. 13, Iss. 2. Jewel-beetles (Buprestidae). Part 2]. Moscow – Leningrad: Academy of Sciences of the USSR Publ. 255 p. (in Russian).
- Richter A.A. 1952. Fauna SSSR. Nasekomye zhestkokrylye. Tom 13, vyp. 4. Zlatki (Buprestidae). Chast' 4 [Fauna of the USSR. Beetles. Vol. 13, Iss. 4. Jewel-beetles (Buprestidae). Part 4]. Moscow – Leningrad: Academy of Sciences of the USSR Publ. 233 p. (in Russian).
- Sakalian V., Langourov M. 2004. Colour trap a method for distributional and ecological investigations of Buprestidae (Coleoptera). *Acta Societatis Zoologicae Bohemicae*. 68: 53–59.
- Volkovitch M.G. 1986. Review of the jewel-beetles of the tribe Acmaeoderini (Coleoptera, Buprestidae) of the fauna of USSR and adjacent countries. In: Trudy Zoologicheskogo instituta AN SSSR. T. 140. Morfologiya, sistematika i faunistika maloizuchennykh grupp nasekomykh [Proceedings of the Zoological Institute, USSR Academy of Sciences. Vol. 140. Morphology, taxonomy and faunistics of poorly studied groups of insects]. Leningrad: Zoological Institute of Academy of Sciences of the USSR: 16–43 (in Russian).
- Volkovitch M.G. 2006. Polycestinae. In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 330–342.
- Volkovitch M.G., Alexeev A.V. 1994. Buprestid beetles (Coleoptera: Buprestidae) from Kopetdagh and the adjacent regions of Southern Turkmenistan. In: Biogeography and Ecology of Turkmenistan. Dordrecht: Kluwer Academic Publishers: 419–449.
- Volkovitch M.G., Kalashian M.Yu. 2006. Sphenopterini. In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 352–369.
- Volkovitch M.G., Kubáň V. 2006. Julodinae. In: Catalogue of Palaearctic Coleoptera (I. Löbl, A. Smetana eds.). Vol. 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Stenstrup: Apollo Books: 325–330.