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An Annotated Catalogue of the Iranian Attelabidae (Coleoptera: Curculionoidea)

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ABSTRACT

An overview of Iranian Attelabidae (Coleoptera: Curculionoidea) is given. In total, 30 species within 12 genera are listed as belonging to the fauna of Iran (three species of Attelabinae, and 27 species of Rhynchitinae). Two Rhynchitinae species, *Temnocerus coeruleus* (Fabricius, 1798) and *Mecorhis* (*Pseudomechoris*) *aethiops* Bach, 1854 are new records for the fauna of Iran.

Key words: Curculionoidea, Attelabidae, checklist, host plants, distribution, Palaearctic Region, Iran.

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INTRODUCTION

The family Attelabidae Billberg, 1820, comprises a group of curculionoid beetles of about 2500 described species in 150 genera worldwide (Skuhrovec & Kresl, 2014). Some authors consider Rhynchitidae Gistel, 1856 as a distinct family (Legalov, 2003, 2007, 2018; Alonso-Zarazaga, 2011) whereas others treat it as belonging to Attelabidae as subfamily (Kuschel, 1995; Oberprieler, Marvaldi, & Anderson, 2007; Bouchard, et al., 2011; Skuhrovec & Kresl 2014; Alonso-Zarazaga et al, 2017). We follow here the taxonomic arrangement by Alonso-Zarazaga et al (2017).

Attelabidae, commonly named leaf-rolling weevils, morphologically differ from other Curculionoidea mainly in their straight antennae with relatively short scape, and ventrites with similar form and structure in combination with non-geniculate antennae (Legalov, 2004, 2018; Urban, 2012a; Riedel, 2014). They are found in all zoogeographic regions, excluding New Zealand and Pacific islands, with the notable exception of a single species occurring in New Caledonia (Riedel, 2014). In addition to those making various leaf rolls for their larvae, other species damage fruits or vegetative parts of plants inside which their larvae will develop (Legalov, 2007). Females of leaf-rollers show sophisticated behaviour in caring for offsprings. Their are laying eggs in self-made “nests” inside rolled up leaves in the form of compact, thimble-shaped leaf rolls, that often remain hanging on the tree by a narrow strip of leaf tissue, rolls where larvae develop. Other members of this weevil family deposit eggs in fruit and buds. In general, these beetles are too scarce to cause serious damage to trees (Craighead, 1950; Urban, 2012b), but some are important pests in agriculture, fruit growing and viticulture. Also, species developing in young shoots or leaf rolls can be occasionally harmful (Urban, 2012a, b; Riedel 2014).

Adults of the subfamily Attelabinae are characterized by claws connate, mandibles without teeth on external edge, tibiae serrate on inner margin and with obvious mucro on outer apex, ventrites 1-4 fused, rostrum short, body usually glabrous or with appressed setae (Legalov, 2007, 2018). Almost all Attelabinae roll leaves in order to provide protection and food for their larvae (Zuppa, Osella, & Biondi, 1994; Legalov, 2005).

Adults of the large subfamily Rhynchitinae are characterized by rostrum long, mandibles with teeth at external edge and absence of labrum, claws free from base, tibiae not serrate on inner margin and lacking obvious mucro on outer apex, distinct elytral epipleura, only ventrites 1 and 2 fused, body usually with erect and/or adpressed setae (Bright, 1993; Legalov, 2007, 2018; Riedel, Santos Rolo, Cecilia, & van de Camp, 2012). These beetles lay their eggs in young buds, fruits, or seeds of trees which are then destroyed by the larvae. Some species feed on blossoms or foliage, and some others skillfully cut leaves to build an apparatus called “cradle” for breeding (Sawada, 1993). A peculiar behaviour is shown by a few species (e.g., *Lasiorhynchites sericeus* (Herbst, 1797), members of *Pterocolus* Say) which enter the leaf rolls of *Attelabus* spp., destroying the *Attelabus* egg, and then oviposit his own egg inside the roll (Bright, 1993).

Iran forms a large part of the Iranian plateau and covers an area of 1,623,779 km². Climatologically, Iran is a predominantly arid and semi-arid country, but the northern slopes of the Alburz ranges and the Caspian lowland receive from 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 from 250 to 800 mm (Zehzad, Kiabi, & Madjnoonian, 2002).

The aim of this work is to update the catalogue of Iranian Attelabidae which was published by Legalov, Ghahari, Arzanov, Yu (2010).

MATERIAL AND METHODS

The published data on the distribution of the family Attelabidae in Iran are summarized by province. Subfamilies, tribes, genera and species are listed alphabetically. The following data are included in the catalogue for each species: valid name, published Iranian records by province in alphabetical order with relevant references in chronological order, precise data of newly studied materials, general distribution by country at a world scale, comments when appropriate, published host plants in Iran when available. Taxonomy and nomenclature are according to Alonso-Zarazaga et al (2017), distribution data were taken from Alonso-Zarazaga (2011) and Alonso-Zarazaga et al (2017). When accurate data about local distribution in Iran are lacking in a quoted reference, the mere mention “Iran” is used. The provinces of Iran are shown in Fig. 1.

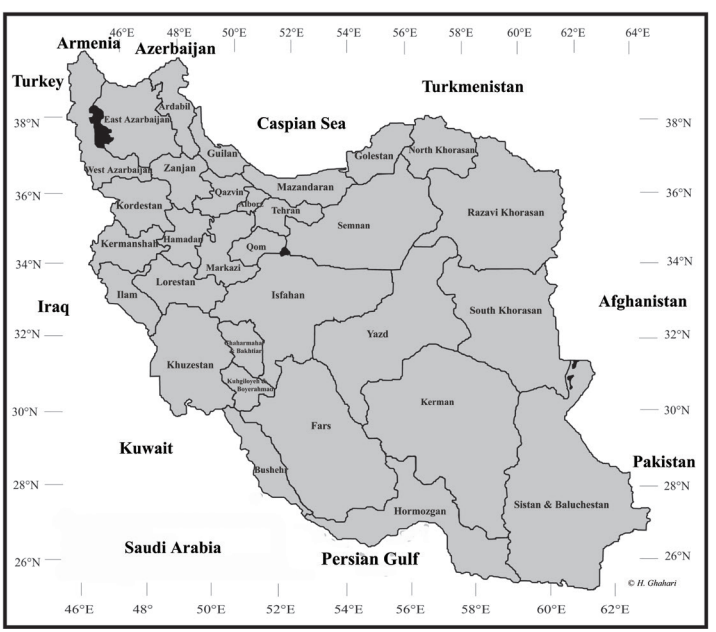

Fig. 1. Map of Iran with provincial boundaries.

RESULTS

Totally 30 species of Attelabidae within two subfamilies, Attelabinae (3 species) and Rhynchitinae (27 species), comprising 12 genera *Aletinus* (2 species), *Attelabus* (3), *Byctiscus* (2), *Deporaus* (2), *Eurostauletes* (1), *Involvulus* (4), *Lasiorhynchites* (1), *Mecorhis* (2), *Neocoenorrhinus* (3), *Rhynchites* (7), *Tatianaerhynchites* (1) and *Temnocerus* (2) are listed as the fauna of Iran. *Temnocerus coeruleus* (Fabricius, 1798) and *Mecorhis* (*Pseudomechoris*) *aethiops* Bach, 1854 (both Rhynchitinae) are new records for Iran. The list of species is given below alphabetically with distribution data and host plants in Iran.

Family Attelabidae Billberg, 1820

Subfamily Attelabinae Billberg, 1820

Tribe Attelabini Billberg, 1820

Genus *Attelabus* Linnaeus, 1758

***Attelabus chalybaeus* K. Daniel & J. Daniel, 1898**

Distribution in Iran: East Azarbaijan (Radjabi, 1991; Modarres Awal, 1997, 2012), Mazandaran (Hoffmann, 1968, as *Attelabus cyanellus* Voss, 1925; Legalov et al, 2010), Northern provinces (Farahbakhsh, 1961; Modarres Awal, 1997).

General distribution: Azerbaijan, Iran, Turkmenistan.

Comments: It is clear that the indication by Hoffmann (1968) of *A. cyanellus* Voss, 1925 from Iran (Mazandaran province) was due to a misidentification with the similar *A. chalybaeus*. In both revisions by Legalov (2003, 2007) and by Alonso-Zarazaga et al (2017), *A. cyanellus* is reported only from the East of Palaearctic (China, Mongolia, East Siberia, Far East of Russia), whereas only *A. chalybaeus* is recorded from Mazandaran (Legalov et al, 2010).

Host plants in Iran: *Crataegus aronia* (L.) DC. (Rosaceae) (Farahbakhsh 1961; Modarres Awal, 1997, 2012), *Malus* (Rosaceae) (Radjabi, 1991; Modarres Awal, 1997, 2012); occasionally on *Quercus* spp. (Fagaceae) (Hoffmann, 1968, as *A. chalybaeus*).

***Attelabus nitens* (Scopoli, 1763)**

Distribution in Iran: East Azarbaijan (Borumand, 1998; Sadaghian, Nikdel, & Dordaei, 2000; Kamangar & Abaii, 2002; Nikdel, Sadaghian, & Dordaei, 2002; Legalov et al, 2010; Modarres Awal, 2012), Mazandaran (Hoffmann, 1968), Northern and northwestern provinces (Farahbakhsh 1961; Modarres Awal, 1997, 2012 both as *Attelabus curculionoides* (Linnaeus, 1767)).

General distribution: Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Israel, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, the Netherlands, Poland,

Portugal, Romania, European part of Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Turkey, Turkmenistan, Ukraine.

Host plants in Iran: *Acer* sp. (Sapindaceae), *Alnus* sp. (Betulaceae), *Castanea sativa* Mill. (Fagaceae), *Salix* sp. (Salicaceae) (Farahbakhsh, 1961; Modarres Awal 1997, 2012), *Quercus* spp. (Fagaceae) (Farahbakhsh 1961; Hoffmann 1968; Modarres Awal 1997, 2012; Nikdel et al, 2002).

***Attelabus sulcifrons* (Argod-Vallon, 1895)**

Distribution in Iran: West Azarbaijan (Samin, Háva, & Kubisz, 2016).

General distribution: Armenia, Bulgaria, Georgia, Greece, Macedonia, Syria, Turkey (Alonso-Zarazaga et al, 2017), Iran (Samin et al, 2016).

Subfamily Rhynchitinae Gistel, 1848

Tribe Auletini Desbrochers des Loges, 1908

Genus *Aletinus* Desbrochers des Loges, 1908

Subgenus *Heterauletes* Voss, 1933

***Aletinus* (*Heterauletes*) *akinini* (Faust, 1885)**

Distribution in Iran: Mazandaran (Samin et al, 2016).

General distribution: Afghanistan, China, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

***Aletinus* (*Heterauletes*) *constrictus* (Reitter, 1891)**

Distribution in Iran: Markazi (Samin et al, 2016).

General distribution: Armenia, Azerbaijan, Georgia, Iran, Turkey, Turkmenistan, Uzbekistan.

Genus *Eurostauletes* Voss, 1933

***Eurostauletes procerus* (Reitter, 1901)**

Distribution in Iran: Southern Khorasan (Samin et al, 2016).

General distribution: Afghanistan, Iran, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

Tribe Byctiscini Voss, 1923

Genus *Byctiscus* Thomson, 1859

***Byctiscus betulae* (Linnaeus, 1758)**

Distribution in Iran: East Azarbaijan (Radjabi, 1991; Modarres Awal 1997, 2012), Markazi, Tehran, Zanjan (Modarres Awal, 1997, 2012), Northern provinces (Farahbakhsh 1961; Modarres Awal, 1997, 2012).

General distribution: Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Korea, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Turkey, Turkmenistan, Ukraine.

Host plants in Iran: *Cydonia*, *Malus domestica* (Borkh.), *Pirus*, *Prunus*, *Rosa*, *Sorbus* (Rosaceae) (Radjabi, 1991; Modarres Awal, 1997, 2012), *Betula* (Betulaceae), *Carpinus* (Betulaceae), *Castanea* (Fagaceae), *Fagus* (Fagaceae), *Populus* and *Salix* (Salicaceae), *Tilia* (Tiliaceae), *Ulmus glabra* Huds. (Ulmaceae), *Vitis* (Vitaceae) (Modarres Awal 1997, 2012).

***Byctiscus populi* (Linnaeus, 1758)**

Distribution in Iran: Iran (no locality cited) (Legalov, 2007; Legalov et al, 2010; Alonso-Zarazaga, 2011; Alonso-Zarazaga et al, 2017).

General distribution: Austria, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, the Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Ukraine, Uzbekistan.

Tribe Deporaini Voss, 1929

Genus *Deporaus* Samuelle, 1819

Subgenus *Deporaus* Samouelle, 1819

***Deporaus* (*Deporaus*) *betulae* (Linnaeus, 1758)**

Distribution in Iran: Mazandaran (Sakenin et al, 2018).

General distribution: Algeria, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Ireland, Italy, Japan, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, the Netherlands, North Korea, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine.

***Deporaus* (*Deporaus*) *podager* Desbrochers des Loges, 1889**

Distribution in Iran: Iran (no locality cited) (Legalov 2007; Legalov et al, 2010; Alonso-Zarazaga 2011).

General distribution: Iran, Turkey, Syria.

Tribe Rhynchitini Gistel, 1848

Genus *Involvulus* Schrank, 1798

Subgenus *Involvulus* Schrank, 1798

***Involvulus* (*Involvulus*) *cupreus* (Linnaeus, 1758)**

Distribution in Iran: Tehran and probably other Northern provinces (Farahbakhsh 1961, Radjabi 1991; Modarres Awal 1997, 2012 as *Rhynchites cupreus*), Iran (no locality cited) (Legalov, 2007; Legalov et al, 2010).

General distribution: Algeria, Austria, Belgium, Bulgaria, Belarus, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Iran, Italy, Japan, Kazakhstan, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, the Netherlands, North Korea, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, Ukraine.

Host plants in Iran: Cultivated Rosaceae of the genera *Malus* and *Prunus* (Farahbakhsh, 1961; Modarres Awal, 1997, 2012).

Subgenus *Teretriorhynchites* Voss, 1938

***Involvulus* (*Teretriorhynchites*) *icosandriae icosandriae* (Scopoli, 1763)**

Distribution in Iran: Mazandaran (Hoffmann, 1968 as *Rhynchites coeruleus* (DeGeer, 1775)), Iran (no locality cited) (Erol, 1994; Legalov et al, 2010 as *I.* (*Teretriorhynchites*) *coeruleus coeruleus*).

General distribution: Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, Estonia, France, Georgia, Germany, Great Britain, Hungary, Iran, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Moldavia, the Netherlands, Poland, Romania, European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine.

***Involvulus* (*Teretriorhynchites*) *icosandriae iranensis* Legalov, 2004**

Distribution in Iran: Mazandaran (Legalov 2004, Legalov et al, 2010 as *Teretriorhynchites* (*Teretriorhynchites*) *caeruleus iranensis*), Iran (no locality cited) (Alonso-Zarazaga 2011 as *I.* (*Teretriorhynchites*) *coeruleus iranensis*).

General distribution: Iran.

***Involvulus* (*Teretriorhynchites*) *pubescens* (Fabricius, 1775)**

Distribution in Iran: Iran (no locality cited) (Modarres Awal 1997, 2012 as *Rhynchites pubescens*; Legalov, 2007; Legalov et al, 2010 as *Teretriorhynchites* (*Aphlorhynchites*) *pubescens*).

New material examined: East Azarbaijan province, Sarab, 1800 m, 37°56'N 47°23'E, 3 exx, leg. Pad. Mal., 25.05.1999 (Biondi personal collection).

General distribution: Armenia, Austria, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, France, Georgia, Germany, Hungary, Iran, Italy, Kazakhstan, Kyrgyzstan, Latvia, Moldavia, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Turkey, Ukraine.

Genus *Lasiorhynchites* Jekel, 1860

Subgenus *Lasiorhynchites* Jekel, 1860

***Lasiorhynchites* (*Lasiorhynchites*) *cavifrons* (Gyllenhal, 1833)**

Distribution in Iran: Guilan (Sakenin et al, 2018).

General distribution: Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Italy, Luxembourg, Macedonia, Moldavia, the Netherlands, Poland, Romania, Slovakia, Slovenia, Spain, European Russia, Sweden, Switzerland, Turkey, Ukraine.

Host plants in Iran: *Quercus petraea* (Matt.) (Fagaceae) (Sakenin et al, 2018).

Genus *Mecorhis* Billberg, 1820

Subgenus *Mecorhis* Billberg, l820

***Mecorhis* (*Mecorhis*) *ungarica* (Herbst, 1783)**

Distribution in Iran: Iran (no locality cited) (Farahbakhsh, 1961 as *Rhynchites hungaricus*; Erol, 1994 as *Involvulus hungaricus*); Modarres Awal, 1997, 2012 as *Rhynchites* (*Homalorhychites*) *hungaricus*; Legalov et al, 2010).

General distribution: Albania, Armenia, Austria, Azerbaijan, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Georgia, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Kazakhstan, Macedonia, Moldavia, Poland, Russia (South European Territory, West Siberia), Slovakia, Slovenia, Syria, Turkey, Ukraine.

Host plants in Iran: *Rosa canina* L. (Rosaceae) (Farahbakhsh 1961; Modarres Awal 1997, 2012).

Subgenus *Pseudomechoris* Legalov, 2003

***Mecorhis* (*Pseudomechoris*) *aethiops* Bach, 1854**

Material examined: Lorestan province, Shool-Abad, 33°18′N 49°19′E, 1 ex, leg., H. Ghahari, det. E. Colonelli, August 2009. New record for Iran.

General distribution: Albania, Armenia, Austria, Azerbaijan, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Iran, Italy, Macedonia, Moldavia, Poland, Romania, Russia (Central European Territory, South European Territory), Slovakia, Slovenia, Switzerland, Turkey, Ukraine.

Genus *Neocoenorrhinus* Voss, 1952

Subgenus *Neocoenorhinidius* Legalov, 2003

***Neocoenorrhinus* (*Neocoenirhinidius*) *pauxillus* (Germar, 1823)**

Distribution in Iran: Mazandaran (Hoffmann 1968 as *Rhynchites pauxillus*), Razavi Khorasan (Legalov et al, 2010), Iran (no locality cited) (Winkler 1930; Voss 1933;

Ter-Minassian, 1950 all as *Coenorrhinus* (*Coenorrhinus*) *pauxillus*; Modarres Awal 1997, 2012 as *Rhynchites pauxillus*).

General distribution: Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldavia, Montenegro, the Netherlands, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Turkmenistan, Ukraine, Oriental region.

Host plants in Iran: Several Rosaceae of the genera *Malus*, *Pirus*, *Prunus*, *Mespilus*, and *Crataegus* (Modarres Awal, 1997, 2012).

***Neocoenorrhinus* (*Neocoenorhinidius*) *pseudocribrum pseudocribrum* Legalov, 2002**

Distribution in Iran: Fars (Legalov & Fremuth, 2002; Legalov et al, 2010).

General distribution: Azerbaijan, Iran, Turkey.

Subgenus *Schoenitemnus* Legalov, 2003

***Neocoenorrhinus* (*Schoenitemnus*) *minutus* (Herbst, 1797)**

Distribution in Iran: Razavi Khorasan (Legalov et al, 2010 as *Schoenitemnus minutus*).

General distribution: Algeria, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, Estonia, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Italy, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, European Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine.

Genus *Rhynchites* Schneider, 1791

Subgenus *Epirhynchites* Voss, 1969

***Rhynchites* (*Epirhynchites*) *auratus* (Scopoli, 1763)**

Distribution in Iran: Alborz (Borumand, 1959; Behdad, 1991; Sanaei & Seiedy 2017), East Azarbaijan, Sistan & Baluchestan (Borumand, 1998; Legalov et al, 2010 as *Epirhynchites* (*Tshernyshevinius*) *auratus*; Modarres, Awal 2012), Fars (Farahbakhsh 1961; Modarres Awal, 1997, 2012 as *R. auratus ferganensis* Nevskii, 1928; Borumand, 1998; Legalov et al, 2010), Hamadan (Modarres Awal, 1997, 2012, Radjabi, 1991), Isfahan, Zanjan, central and northern provinces (Modarres Awal 1997, 2012), Kerman (Behdad, 1991; Radjabi, 1991; Modarres Awal, 1997, 2012 as *R. auratus ferganensis*; Borumand, 1998; Legalov et al, 2010), Kordestan (Khanizad, Mansour, & Karimi, 2012), Markazi (Kolyaee, Dezianian, & Akbarzadeh Shoukat, 2004), Mazandaran (Borumand, 1998; Legalov et al, 2010 as *E.* (*Tshernyshevinius*) *auratus*), Qazvin (Farahbakhsh 1961; Behdad 1991; Radjabi, 1991), Razavi Khorasan (Radjabi, 1991; Modarres Awal, 1997, 2012; Kolyaee et al, 2004), Semnan (Dezianian, 2004, 2005), Tehran (Farahbakhsh,

1961; Behdad, 1991; Radjabi, 1991; Modarres Awal, 1997, 2012 as *R. auratus ferganensis*; Borumand,1998; Kolyaee et al, 2004; Legalov et al, 2010), West Azarbaijan (Kolyaee et al, 2004; Legalov et al, 2010), Iran (no locality cited) (Ter-Minassian, 1950; Erol 1994; Esmailii, Mirkarimi, Azmayesh Fard, 2006; Esmailii, 2011).

New material examined: Lorestan province, SE of Harsin, 1875 m, 1♀, leg. G. Sama, det. E. Colonnelli, 10.v.2008 (Colonnelli personal collection); Guilan province, Tootakabon Barehsar Road Views, 1125 m, 36°48'5.89''N 49°38'5.86''E, 1♀, leg. Jaroslav Dalihod, det. E. Colonnelli, 3.vi.2015 (Biondi personal collection); Mazandaran province, Mt. Elburz, Valiabad, 2100 m, 36°14'N 51°18'E, 1♂, leg. Pad. Mal., det. S. Biondi, 21.05.1999 (Biondi, personal collection).

General distribution: Afghanistan, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, Estonia, France, Georgia, Germany, Greece, Hungary, Iran, Iraq, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, the Netherlands, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan.

Host plants in Iran: Cultivated and wild Rosaceae of the genera *Prunus* (Farahbakhsh, 1961; Radjabi, 1991; Modarres Awal, 1997; Esmailii et al, 2006; Esmailii, 2011) and *Malus* (Radjabi, 1991; Modarres Awal, 1997).

***Rhynchites* (*Epirhynchites*) *giganteus* Schoenherr, 1832**

Distribution in Iran: Mazandaran (Hoffmann, 1968 as *Rhynchites versicolor*), Northern provinces (Farahbakhsh, 1961 as *Rhynchites giganteus* Krynicki, 1832; Modarres Awal 1997, 2012), Iran (no locality cited) (Radjabi, 1991; Erol, 1994; Modarres Awal, 1997, 2012 as *Rhynchites versicolor* Costa, 1839; Legalov, 2007, Legalov et al, 2010 as *Epirhynchites* (*Pyrorhynchites*) *giganteus* (Krynicky, 1832)).

New material examined: East Azarbaijan province, Kaleibar, 1600/1700 m, 38°52'N 47°0'E, 1♂, leg. Pad. Mal., det. S. Biondi, 26.05.1999 (Biondi, personal collection).

General distribution: Armenia, Austria, Azerbaijan, Bulgaria, China, Croatia, Czech Republic, France, Georgia, Greece, Hungary, Iran, Italy, Kazakhstan, Moldavia, Romania, European Russia, Slovakia, Slovenia, Turkey, Ukraine, Uzbekistan.

Comments: The indications of *Rhynchites* (*Epirhynchites*) *heros* (Roelofs, 1874) from Iran are erroneous (Biondi, personal communication), and indeed this eastern Palaearctic species is not quoted for Iran by Alonso-Zarazaga et al (2017). Most probably, the Iranian records of *R. heros* for Alborz (Borumand, 1959; Farahbakhsh 1961; Behdad 1991; Radjabi 1991), Mazandaran, Tehran (Radjabi 1991; Modarres Awal 1997, 2012), and for Iran (Esmailii, 2011) on the cultivated Rosaceae of the genus *Prunus* (Farahbakhsh 1961; Radjabi 1991; Modarres Awal 1997, 2012; Esmailii, 2011) belong to the closely related *R. giganteus*, instead.

Host plants in Iran: Cultivated Rosaceae of the genera *Malus*, *Pirus* and *Prunus* (Farahbakhsh, 1961; Radjabi, 1991; Modarres Awal, 1997, 2012) and *Crataegus* (Farahbakhsh, 1961; Modarres Awal, 1997, 2012).

***Rhynchites* (*Epirhynchites*) *lopatini* Ter-Minassian, 1968**

Distribution in Iran: Yazd (Zare Khormizi, Heidari Latibari, Khandehroo, Moravvej, Sadeghi Namaghi 2016).

General distribution: Iran (zare Khormizi, Heidari Latibari, Khandehroo, Moravvej, & Sadeghi Namaghi, 2016), Turkmenistan, Uzbekistan (Alonso-Zarazaga et al, 2017).

***Rhynchites* (*Epirhynchites*) *smyrnensis* (Desbrochers des Loges, 1869)**

Distribution in Iran: Tehran (Radjabi, 1991; Modarres Awal, 1997, 2012), Iran (no locality cited) (Erol, 1994; Legalov et al, 2010 as *Epirhynchites* (*Colonnellinius*) *smyrnensis*; Avgın & Colonnelli, 2011; Esmailii, 2011).

New material examined: Fars province, 7 Km E of Dasht-e Arzhan, 2050 m, 1♀, leg. D. Baiocchi, det. E. Colonnelli, 8.05.2016 (Colonnelli, personal collection); Markazi province, 35km E Borujerd - Ghale Samurkhan env., 2160 m, 1 ex, leg. J. Simandl, det. S. Biondi, 3.06.2016 (Biondi, personal collection).

General distribution: Greece, Iran, Israel, Jordan, Syria, Turkey, Turkmenistan.

Host plants in Iran: Cultivated Rosaceae of the genus *Malus* and *Prunus* (Modarres Awal 1997, 2012; Esmailii, 2011).

***Rhynchites* (*Epirhynchites*) *zaitzevi* Kieseritzky, 1926**

Distribution in Iran: Golestan (Ghahari & Colonnelli 2012), Lorestan (Kieseritzky 1926 as *Rhynchites* (*Epirhynchites*) *zaitzevi* Kieseritzky, 1926; Legalov et al, 2010 as *Epirhynchites* (*Tshernyshevinius*) *zaitzevi*, Iran (no locality cited) (Winkler, 1930; Ter-Minassian 1950; Farahbakhsh 1961*;* Balachowsky, 1963; Modarres Awal 1997, 2012; Legalov, 2007).

New material examined: Kuhgiloyeh & Boyerahmad province, Sisakht, 1♂, 1♀, leg. D. Baiocchi, det. E. Colonnelli, 14.05.2013; Kordestan province, Kamiaran, 1♂, leg. D. Baiocchi, det. E. Colonnelli, 23.06.2012 (Colonnelli, personal collection); Mazandaran province, 45km N Firuz-Kuh - Do-Ab, 1♂, 2♀♀, leg. F. Pavel, det. S. Biondi, 14.05.2005 (Biondi, personal collection).

General distribution: Iran.

Host plants in Iran: *Prunus dulcis* (Mill.) D.A. Webb (Rosaceae) (Farahbakhsh 1961; Radjabi, 1991; Modarres Awal, 1997, 2012).

Subgenus *Rhynchites* D.H. Schneider, 1791

***Rhynchites* (*Rhynchites*) *bacchus* (Linnaeus, 1758)**

Distribution in Iran: Alborz (Farahbakhsh, 1961), Lorestan (Legalov et al, 2010), Tehran and other Northern provinces (Modarres Awal, 1997, 2012), Iran (no locality cited) (Erol, 1994).

New material examined: East Azarbaijan province, Kaleibar, 1600/1700 m, 38°52'N 47°0'E, leg. Pad. Mal., det. S. Biondi, 1♂, 26.05.1999; Guilan province, Mt. Talesh - Khalkhal, 1600 m, 37°51'N 48°36'E, 1♀, leg. Pad. Mal., det. S. Biondi, 24.05.1999 (both S. Biondi, personal collection).

General distribution: Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, China, Croatia, Czech Republic, France, Georgia,

Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Turkmenistan, Ukraine, Uzbekistan.

Host plants in Iran: Cultivated Rosaceae of the genera *Malus*, *Pirus*, *Prunus*, and occasionally on *Laurus* (Lauraceae) (Farahbakhsh, 1961; Modarres Awal, 1997, 2012). This leaf-roller is a very important pest of cultivations of several fruits all over the world, since adults and larvae feed within plant tissues such as buds, flowers and soft fruits (Korotyaev, 1984; Ulusoy, Vatansever, & Uygun, 1999).

***Rhynchites* (*Rhynchites*) *lenaeus* Faust, 1891**

Distribution in Iran: West Azarbaijan (Sakenin et al, 2018).

General distribution: Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Israel, Macedonia, Russia (South European Territory), Slovakia, Syria, Turkey (Alonso-Zarazaga et al, 2017), Iran (Sakenin et al, 2018).

Host plants in Iran: *Prunus* (Rosaceae) (Sakenin et al, 2018).

Genus *Tatianaerhynchites* Legalov, 2002

***Tatianaerhynchites aequatus* (Linnaeus, 1767)**

Distribution in Iran: Ardabil, East Azarbaijan, Fars (Borumand, 1998 as *Caenorrhinus aequatus*; Legalov et al, 2010; Modarres Awal, 2012 as *Rhynchites aequatus*), Golestan (Legalov, 2002; Ghahari & Colonelli, 2012), Northern Khorasan (Hoffmann, 1968), Razavi Khorasan, Mazandaran (Legalov et al, 2010), West Azarbaijan (Akbarzadeh Shoukat, 2002, 2004 as *Coenorhinus aequatus*; Legalov et al, 2010), Iran (no locality cited) (Modarres Awal, 1997 as *R. aequatus*).

General distribution: Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Israel, Italy, Jordan, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Turkey, Turkmenistan, Ukraine.

Host plants in Iran: *Colutea* sp. (Fabaceae) (Hoffmann, 1968), most probably accidentally.

Comments: *Tatianaerhynchites aequatus* is one of the most important pests of apple, *Malus domestica*, orchards at Orumieh (West Azarbaijan) (Akbarzadeh Shoukat, 2002, 2004).

Genus *Temnocerus* Thunberg, 1815

***Temnocerus coeruleus* Fabricius, 1798**

Material examined: Golestan province, Minudasht, Tuska-Chal, 37º12’6’’N 55º32’0’’E, 1 ex, leg. Z. Karimian, det. E. Colonelli, June 2003. New record for Iran.

General distribution: Algeria, Andorra, Austria, Azerbaijan, Belgium, Bosnia Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Moldavia, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine.

***Temnocerus nanus* (Paykull, 1792)**

Distribution in Iran: Semnan (Samin et al, 2016).

General distribution: Algeria, Andorra, Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Mongolia, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Turkey, Turkmenistan, Ukraine (Alonso-Zarazaga et al, 2017), Iran (Samin et al, 2016).

DISCUSSION

The fauna of Iranian Attelabidae is rather diverse with 30 recorded species in 12 genera, of which *Rhynchites* with seven species is the richest (Fig. 2). Modarres Awal (1997) reporded *Pselactus spadix spadix* (Herbst, 1795) (Cossoninae) on *Populus* as *Rhynchites culinaris* (Germar, 1819) by evident mistake of the genus name. Subsequently, the same author (Modarres Awal 2012) recorded again the same *Pselactus* species with the same habitat under its synonym name of *Rhyncolus culinaris* whose authorship was incorrectly attributed to Dejean (1821). *Rhynchites* (*Epirhynchites*) *zaitzevi* (Kieseritzky, 1926) and *Involvulus* (*Teretriorhynchites*) *icosandriae iranensis* Legalov, 2004 are so far the only Attelabidae endemic to Iran.

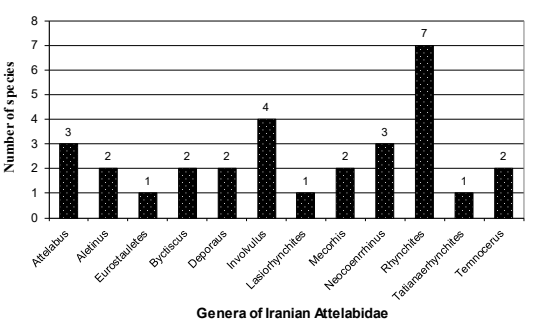

Fig. 2. Species diversity of the Iranian Attelabidae.

Among the countries adjacent to Iran (Fig. 3), apparently only the fauna of Turkey with 39 recorded species has been studied rather well. Since we have not any comprehensive study on Iranian Attelabidae fauna besides the faunistic and literature records quoted in this article, we expect that field work, in such a diverse country like Iran, may result in a substantial increase of the number of species in the future.

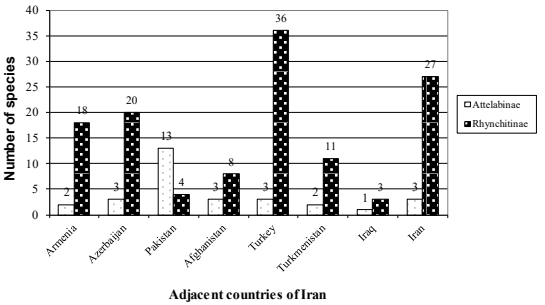

Fig. 3. Comparison of species diversity of Attelabidae in Iran with neighbouring countries.

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