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ARTIGO / ARTÍCULO / ARTICLE

Contribution to the knowledge of the weevil fauna from the province of Guilan, northern Iran (Coleoptera: Curculionidae).

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Abstract: This paper is a faunistic survey of weevils (Coleoptera: Curculionidae) from the province of Guilan, northern Iran. In total, 32 species belonging to 5 subfamilies and 12 genera were collected and identified.
Key words: Coleoptera, Curculionidae, Faunistics, Guilan, Iran.

Resumen: Contribución al conocimiento de la fauna de gorgojos de la provincia de Guilán, norte de Irán (Coleoptera: Curculionidae). Este trabajo es un estudio faunístico de la fauna de gorgojos (Coleoptera: Curculionidae) de la provincia de Guilán, norte de Irán. Se capturaron e identificaron 32 especies pertenecientes a 5 subfamilias y 12 géneros.
Palabras clave: Coleoptera, Curculionidae, faunística, Guilán, Irán.

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Introduction

Curculionidae is the largest of all other families of Curculionoidea and, with about 4,600 genera and 51,000 described species, it is comprised of more than 80% of all weevils, bark and ambrosia beetles. Curculionidae occurs all over the world, from the arctic zone in the north to the subantarctic islands in the south, from beaches to high elevation on mountains, and from deserts to rainforests. Its members feed on virtually all plants, mainly angiosperms but also gymnosperms, pteridophytes, bryophytes and lichens and occasionally they even browse on algae and cyanobacteria (Marvaldi *et al.* 2002; Oberprieler 2004).

The composition of the fauna of Curculionidae of Iran can be considered still not well known, although after the latest checklist of Iranian Curculionoidea by Legalov *et al.* (2010), a number of other papers have been published on regional faunas (e.g. Ghahari & Legalov 2011; Ghahari *et al.* 2011; Ghahari & Arzanov 2012a, 2012b; Ghahari & Colonnelli 2012; Eshraghi & Sadeghi 2012; Fathi & Shariary Nejad 2013; Sanaei *et al.* 2014).

The aim of this research is a faunistic survey of the Curculionidae of the province of Guilan, northern Iran, that lies along the Caspian Sea, just west of the province of Mazandaran, east of the province of Ardabil, north of the provinces of Zanjan and Qazvin. This province has a humid temperate climate with a comparatively abundant annual rainfall. The Alborz mountain range provides further diversity to the land in addition to the Caspian coasts. The amount of humidity is quite high in the warm seasons of the year, and Guilan is known for its moderate, mild and Mediterranean-like climate.

Material and methods

Specimens were collected by sweeping, beating tray, canopy fogging, leaf litter sifting and processing the samples through Berlese funnels, Malaise and flight intercept traps, in addition to hand picking them by searching and locating the insects on suitable hosts or refuges, e.g. under barks. When available, information concerning date of collection, locality, coordinates, and number of specimens in brackets are given. In this paper we follow the classification and the nomenclature of weevils as suggested by Zherichin & Egorov (1991), Alonso-Zarazaga & Lyal (1999, 2002, 2006, 2009), Colonnelli (2003, 2004), Velázquez de Castro *et al.* (2007), and Löbl & Smetana (2011, 2013). Tribes, genera and species of the recorded insects have been listed in alphabetical order, whereas the order of subfamilies follows Löbl & Smetana (2013).

As a total, 32 species belonging to 12 genera and 5 subfamilies of Curculionidae were collected and identified. A list is given below with distribution data.

Results

Curculioninae, Curculionini Latreille, 1802

Archarius (Archarius) excellens (Iablokov-Khnzorian, 1953)

Material examined: Province of Guilan: Rasht, 39 m, 37°16'N 49°42'E, (1), June 2010.
Distribution: Armenia (Caldara 2013); Iran (Ghahari & Arzanov 2012b, as *Curculio excellens*).

Archarius (Archarius) pyrrhoceras (Marsham, 1802)

Material examined: Province of Guilan: Masal, 70 m, 37°23'N 49°00'E, (3), August 2007; Astara, -19 m, 38°20'N 48°46'E, (3), September 2011.
Distribution: Europe, Mediterranean countries of northern Africa and west Asia (Caldara 2013).

Curculioninae, Tychiini C.G. Thomson, 1859

Tychius (Tychius) breviusculus Desbrochers, 1873

Material examined: Province of Guilan: Asalem, 46 m, 37°43'N 48°57'E, (1), August 2011.
Distribution: Palaearctic region (Caldara 2013).

Tychius (Tychius) consputus Kiesenwetter, 1864

Material examined: Province of Guilan: Hashtpar, 46 m, 37°48'N 48°54'E, (2), June 2012.
Distribution: Mediterranean countries (Caldara 2013); Iran (Ghahari & Arzanov 2012a).

Tychius (Tychius) flavus Becker, 1864

Material examined: Province of Guilan: Rezvanshahr, 5 m, 37°32'N 48°57'E, (2), August 2011.
Distribution: Europe, western and central Asia (Caldara 2013).

Tychius (Tychius) grenieri C. Brisout, 1862

Material examined: Province of Guilan: Masal, 70 m, 37°23'N 49°00'E, (3), August 2007; Hashtpar, 46 m, 37°48'N 48°54'E, (2), June 2012.

Distribution: Algeria, Armenia, Bulgaria, Croatia, Cyprus, Egypt, France, Georgia, Israel, Italy, Libya, Malta, Macedonia, Morocco, Saudi Arabia, Spain, Syria, Tunisia, Turkmenia, Yemen (Caldara 2013); Iran (Ghahari & Arzanov 2012a).

Tychius (Tychius) picirostris (Fabricius, 1787)

Material examined: Province of Guilan: Rezvanshahr, 5 m, 37°32'N 48°57'E, (1), August 2011.
Distribution: Holarctic (Caldara 2013).

Ceutorhynchinae, Ceutorhynchini Gistel, 1848

Ceutorhynchus anatolicus A. Schultze, 1900

Material examined: Province of Guilan: Fooman, 34 m, 37°13'N 49°19'E, (1), June 2010.
Distribution: Lebanon, Syria, Turkey (Colonnelli 2013); Iran (Ghahari & Arzanov 2012a).

Ceutorhynchus sophiae Gyllenhal, 1837

Material examined: Province of Guilan: Lahijan, 4 m, 37°14'N 50°02'E, (2), August 2011.
Distribution: Europe, western and central Asia (Colonnelli 2013).

Ceutorhynchus subpilosus C. Brisout, 1869

Material examined: Province of Guilan: Masal, 70 m, 37°23'N 49°00'E, (1), August 2007; Hashtpar, 46 m, 37°48'N 48°54'E, (1), June 2012.
Distribution: Armenia, Austria, Bulgaria, Czech Republic, France, Georgia, Greece, Italy, Moldova, Romania, Spain, Slovakia, Turkey, Ukraine (Colonnelli 2013); Iran (Ghahari & Arzanov 2012a).

Glocianus brevicollis (A. Schultze, 1897)

Material examined: Province of Guilan: Rezvanshahr, 5 m, 37°32'N 48°57'E, (3), August 2011.
Distribution: Azerbaijan, Armenia, Austria, Bosnia, Bulgaria, Georgia, Hungary, Romania, southern Russia, Slovakia, Ukraine, Syria, Turkey (Colonnelli 2013); Iran (Ghahari & Arzanov 2012a).

Neoglocianus albovittatus (Germar, 1824)

Material examined: Province of Guilan: Rasht, 39 m, 37°16'N 49°42'E, (1), June 2010; Astara, -19 m, 38°20'N 48°46'E, (2), September 2011.
Distribution: Europe, western Asia (Colonnelli 2013).

Entiminae, Otiorhynchini Schoenherr, 1826

Otiorhynchus (Cryphiphorus) ligustici (Linnaeus, 1758)

Material examined: Province of Guilan: Siahkal, 25 m, 36°56'N 49°54'E, (2), July 2008.
Distribution: Western Palaearctic, and introduced in North America (Magnano & Alonso-Zarazaga 2013); Iran (Ghahari & Arzanov 2012b).

Otiorhynchus (Melasemnus) ovalipennis Boheman, 1843

Material examined: Province of Guilan: Asalem, 46 m, 37°43'N 48°57'E, (3), August 2011.
Distribution: Southeastern Europe, Cyprus, Syria, Iran, Israel, Turkey (Magnano & Alonso-Zarazaga 2013).

Otiorhynchus (Nehrodistus) turca Boheman, 1842

Material examined: Province of Guilan: Astara, -19 m, 38°20'N 48°46'E, (2), September 2011.
Distribution: Southeastern Europe, western Asia (Magnano & Alonso-Zarazaga 2013).

Entiminae, Sitonini Gistel, 1848

Sitona macularius (Marsham, 1802)

Material examined: Province of Guilan: Fooman, 34 m, 37°13'N 49°19'E, (2), June 2010.
Distribution: Western and central Palaearctic (Velázquez de Castro 2013).

Sitona puncticollis Stephens, 1831

Material examined: Province of Guilan: Lahijan, 4 m, 37°14'N 50°02'E, (2), August 2011.
Distribution: Western and central Palaearctic (Velázquez de Castro 2013).

Phytonominae, Phytonomini Gistel, 1856

Note: The name Phytonominae Gistel, 1856 has priority over Hyperinae Marseul, 1863. However, Alonso-Zarazaga & Lyal (1999) selected the junior name pending a submission by them to the International Commission of an application for suppressing all names prior to Hyperinae. As this application has never been submitted, we apply here the strict priority for the subfamily name.

Brachypera (Antidonus) zoilus (Scopoli, 1763)

Material examined: Province of Guilan: Siahkal, 25 m, 36°56'N 49°54'E, (2), July 2008.
Distribution: Western Palaearctic, and introduced in North America (Skuhrovec 2013).

Coniatus (Coniatus) tamarisci (Fabricius, 1787)

Material examined: Province of Guilan: Siahkal, 25 m, 36°56'N 49°54'E, (3), July 2008; Hashtpar, 46 m, 37°48'N 48°54'E, (2), June 2012.
Distribution: Mediterranean countries, Kazakhistan, Turkey (Skuhrovec 2013); Iran (Ghahari & Arzanov 2012a).

Hypera (Erirhinomorphus) rumicis (Linnaeus, 1758)

Material examined: Province of Guilan: Masal, 70 m, 37°23'N 49°00'E, (1), August 2007.
Distribution: Holarctic (Skuhrovec 2013).

Hypera (Hypera) farinosa Boheman, 1842

Material examined: Province of Guilan: Rasht, 39 m, 37°16'N 49°42'E, (2), June 2010.
Distribution: Greece, southeastern Russia, western and central Asia (Skuhrovec 2013).

Hypera (Hypera) viciae (Gyllenhal, 1813)

Material examined: Province of Guilan: Rezvanshahr, 5 m, 37°32'N 48°57'E, (3), August 2011.
Distribution: Palaearctic (Skuhrovec 2013).

Hypera (Tigrinellus) pastinacae (Rossi, 1790)

Material examined: Province of Guilan: Fooman, 34 m, 37°13'N 49°19'E, (2), June 2010.

Distribution: Europe, north Africa, western Asia (Skuhrovec 2013).

Lixinae, Cleonini Schoenherr, 1826

Cyphocleonus cenchrus (Pallas, 1781)

Material examined: Province of Guilan: Rasht, 39 m, 37°16'N 49°42'E, (1), June 2010.
Distribution: Afghanistan, Armenia, Iran, Kazakhistan, European Russia, Ukraine, Turkmenia, Uzbekhistan (Meregalli & Fremuth 2013).

Mecaspis emarginata (Fabricius, 1787)

Material examined: Province of Guilan: Asalem, 46 m, 37°43'N 48°57'E, (1), August 2011.
Distribution: Bulgaria, Croatia, Cyprus, France, Germany, Greece, Israel, Italy, southeastern European Russia, Spain, Sweden, Turkey (Meregalli & Fremuth 2013); Iran (Ghahari & Arzanov 2012a, as *Curculio emarginatus*).

Lixinae, Lixini Schoenherr, 1823

Larinus (Larinomesius) vitellinus Gyllenhal, 1835

Material examined: Province of Guilan: Lahijan, 4 m, 37°14'N 50°02'E, (2), August 2011.
Distribution: Armenia, Iran, Lebanon, Syria, Turkey (Gültekin & Fremuth 2013).

Larinus (Larinus) elegans Desbrochers, 1897

Material examined: Province of Guilan: Astara, -19 m, 38°20'N 48°46'E, (1), September 2011.
Distribution: Algeria, Egypt, Libya, Morocco, Saudi Arabia (Gültekin & Fremuth 2013); Iran (Ghahari & Legalov 2011).

Larinus (Larinus) onopordi (Fabricius, 1787)

Material examined: Province of Guilan: Siahkal, 25 m, 36°56'N 49°54'E, (2), July 2008.
Distribution: Mediterranean countries, Arabian peninsula, western Asia, tropical Africa (Gültekin & Fremuth 2013).

Larinus (Larinus) siculus Boheman, 1843

Material examined: Province of Guilan: Rezvanshahr, 5 m, 37°32'N 48°57'E, (3), August 2011.
Distribution: Algeria, Cyprus, Iran, Israel, Italy, Libya, Portugal, Morocco, Spain, tropical Africa (Gültekin & Fremuth 2013).

Larinus (Phyllonomeus) turbinatus Gyllenhal, 1835

Material examined: Province of Guilan: Rasht, 39 m, 37°16'N 49°42'E, (1), June 2010; Hashtpar, 46 m, 37°48'N 48°54'E, (1), June 2012.
Distribution: Western Palaearctic (Gültekin & Fremuth 2013).

Lixus (Dilixellus) bardanae (Fabricius, 1787)

Material examined: Province of Guilan: Fooman, 34 m, 37°13'N 49°19'E, (2), June 2010; Astara, -19 m, 38°20'N 48°46'E, (1), September 2011.
Distribution: Europe, Israel, Morocco, Tadzikhistan, Turkey, western Siberia (Gültekin & Fremuth 2013); Iran (Ghahari & Arzanov 2012a).

Lixus (Phillixus) subtilis Boheman, 1835

Material examined: Province of Guilan: Lahijan, 4 m, 37°14'N 50°02'E, (3), August 2011.
Distribution: Europe, western and central Asia (Gültekin & Fremuth 2013).

Discussion

32 species of Curculionidae collected in some localities of the province of Guilan are reported, which, given the diverse flora of both agricultural and forest ecosystems of Guilan, are surely a small part of those actually living there. We thus expect much more weevils living in this region, particularly due to the few localities selected for sampling along this research. However, these records are valuable for completing the fauna of Iranian Curculionidae which is still quite poorly known, considering that merely 651 curculionoids were listed from Iran in the catalogue by Legalov *et al.* (2010), and there are definitely much more species still to be sampled in this large and to certain extent underexplored country.

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