

An Annotated List of the Weevils (Coleoptera: Curculionidae) from the Arasbaran Biosphere Reserve and vicinity, Northwestern Iran

Hassan Ghahari, Andrei Aleksandrovich Legalov, Genrikh Yur'evich Arzanov

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A total of 29 curculionid species of 7 genera including, *Tychius* Germar, *Ceutorhynchus* Germar, *Donus* Jekel, *Hypera* Germar, *Larinus* Dejean, *Lixus* Fabricius and *Otiorhynchus* (Germar) in the subfamilies Curculioninae (tribe Tychiini), Ceutorhynchinae, Hyperinae, Lixinae and Entiminae were collected from the Arasbaran Biosphere Reserve and vicinity, Northwestern Iran. Host plants from which the curculionid species were collected, are also given.

Key words: Curculionidae, weevils, host plants, Arasbaran, Iran, inventory, biodiversity, species list

Hassan Ghahari. Department of Agriculture, Islamic Azad University; Shahre Rey Branch, Tehran, Iran; h_ghahhari@yahoo.com

Andrei Aleksandrovich Legalov. Siberian Zoological Museum, Institute of Animal Systematics and Ecology, SB RAS, Frunze street-11, Novosibirsk 630091 Russia; e-mail: legalov@ngs.ru

Genrikh Yur'evich Arzanov. South Scientific Centre of RAS, Chekhov str., 41, Rostov-on-Don 344006 Russia; e-mail: arz99@mail.ru

INTRODUCTION

The Curculionidae represent one of the most stunning radiations of animals (Mayr, 1963). Collectively, weevils use every plant part and nearly every plant taxon (Anderson, 1995), and related species are often similar in host use. Weevils constitute various taxonomic groups feeding on plant roots, stems, leaves, flowers, fruits, or seeds. They are among the first enemies to consume healthy plants or may be specialists on decaying tissues or the dead remains of plants felled by other causes (Farrell et al., 2001; Lanteri et al., 2002). Taxonomic groups of weevils are

often restricted to particular host plant groups, specializing on conifers, cycads, dicots, or monocots or on subsets of these plant taxa, although there are many exceptionally polyphagous species. Because weevils and other herbivores likely have shifted niches among plant parts and plant taxa many times, studies of the rate and direction of change in these different aspects of host use may reveal repeated patterns. These patterns would suggest further lines of inquiry into the possible ecological and genetic bases that could eventually permit synthesis of evolutionary processes among and within species (Marvaldi et al., 2002).

Arasbaran is an important region in the East Azerbaijan province. This biosphere reserve is situated in the north of Iran at the border to Armenia and Azerbaijan and belongs to the Caucasus Iranian Highlands. In between the Caspian, Caucasus and Mediterranean region, the area covers mountains up to 2,200 meters, including high alpine meadows, semi-arid steppes, rangelands and forests, rivers and springs. Arasbaran is the territory of about 23,500 nomads who are mainly living in the buffer and transition zones. Economic activities in the biosphere reserve are mainly agriculture, animal husbandry, horticulture, apiculture, handicrafts and tourism, but business activities can also be found in urbanized areas. The location of Arasbaran is 38°40' to 39°08'N; 46°39' to 47°02'E and its elevation (meters above sea level) is +250 to +2,887.

The fauna of Iranian Curculionidae and especially in Arasbaran region has been poorly studied so far (Modarres Awal, 1997; Broumand, 1998). With special attention to the importance of this largest family of Coleoptera in agroecosystems, the fauna of curculionid beetles in Arasbaran is briefly studied in this paper.

MATERIALS AND METHODS

Materials were collected mainly by sweep net and aspirator from different regions of the Arasbaran Biosphere Reserve and vicinity from 2004 - 2007. The sampled regions were Khodafarin, Ahar, Khomarloo, Horand, Abshahmad, Kalibar, Aras boundary and Aynalo. In addition to the specimens collected by the author, several other specimens collected by many researchers and amateur students have also been included in this study. The information concerning the species' name, describer, locality and the date of collection, place/plant on which the species was collected and the number of specimens (in brackets) was also given. Although the name of the plants, on which the specimens were collected, have been given, this doesn't necessarily mean that they are the host

of the species. In this paper the classifications and nomenclature of curculionids suggested by Zherichin & Egorov (1991), Alonso-Zarazaga & Lyal (1999), Colonnelli (2003) and Velazquez de Castro et al. (2007) have been followed.

RESULTS

In total, 29 species of 6 genera of Curculionidae were collected from the Arasbaran region and vicinity. The list of species is given below.

Subfamily Curculioninae Latreille, 1802

Tribe Tychiini C.G. Thomson, 1859

Genus *Tychius* Germar, 1817

Tychius aurarius Boheman, 1843

Syn.: *Tychius cervicolor* Desbrochers, 1875; *Tychius hypaetrus* var. *akbesianus* Pic, 1904; *Tychius cervinoaureus* Desbrochers, 1907; *Tychius mazurai* Formanek, 1923.

Material: East Azarbayjan province: Khodafarin (2), July 2006 on *Brassica oleracea* (Brassicaceae).

Distribution outside Iran: Southern Europe, Asia Minor.

Tychius balcanicus Caldara 1990

Material: West Azarbayjan province: Salmas (1), July 2004 on: *Cordia* sp. (Boraginaceae).

Distribution outside Iran: South-eastern Europe, Asia Minor.

Tychius hirtellus Tournier, 1873

Material: East Azarbayjan province: Ahar (3), September 2005 on *Vitex pseudo-negundo* (Verbenaceae).

Distribution outside Iran: Asia Minor.

Tychius polylineatus (Germar, 1824)

Syn.: *Tychius globithorax* Desbrochers, 1873; *Tychius lineolatus* Desbrochers, 1873; *Tychius arietatus* Tournier, 1873; *Tychius rectinasus* Desbrochers, 1908; *Tychius sublineatus* Desbrochers, 1908; *Tychius desbrochersi* Klima, 1934; *Tychius brevitarsis* Hustache, 1944; *Tychius indicus* Hoffmann, 1957; *Tychius tapirus* Caldara, 1975.

Material: East Azerbaijan province: Tabriz (1), June 2006, on *Malus communis* (Rosaceae).
Distribution outside Iran: Western Palaearctic.

***Tychius striatulus* Gyllenhal, 1836**

Syn.: *Tychius fuscolineatus* Lucas, 1849; *Tychius decoratus* Rosenhauer, 1856; *Tychius deliciosus* Perris, 1870; *Tychius bellus* Kirsch, 1870; *Tychius italicus* Tournier, 1873; *Tychius convexiusculus* Desbrochers, 1875; *Tychius areatus* Rey, 1895; *Tychius fallens* Desbrochers, 1908; *Tychius striatulus* var. *berytensis* Pic, 1917; *Tychius henoni* Pic, 1917; *Tychius diversicolor* Lindberg, 1950; *Tychius striatulus* var. *pseudonigracollis* Hoffmann, 1954.

Material: East Azerbaijan province: Maragheh (2), August 2006 on *Lantana camara* (Verbenaceae).
Ardabil province: Pars-Abad (1), June 2004.
Distribution outside Iran: Western Palaearctic.

Subfamily Ceutorhynchinae Gistel, 1856

Genus *Ceutorhynchus* Germar, 1824

***Ceutorhynchus assimilis* (Paykull, 1792)**

Syn.: *Curculio alauda* Fabricius, 1792: 411 [non Herbst, 1784]; *Curculio pleurostigma* Marsham, 1802.

Material: West Azerbaijan province: Ourmieh (1), August 2005 on *Nerium oleander* (Apocynaceae).

Distribution outside Iran: Western Palaearctic.

***Ceutorhynchus fabrilis* Faust, 1887**

Syn.: *Ceutorhynchus angustulus* var. *elegantulus* Faust, 1887; *Ceuthorrhynchus nigratarsis* Schultze, 1897.

Material: East Azerbaijan province: Maragheh (1), July 2006 on *Corylus avellana* (Betulaceae).

Distribution outside Iran: South-eastern Europe, Siberia, Kazakhstan, Middle Asia, Mongolia, Asia Minor.

***Ceutorhynchus languidus* Schultze, 1902**

Syn.: *Ceuthorrhynchus perversus* Schultze, 1903
Material: Ardabil province: Bilehsavar (1), August 2004 on *Nerium oleander* (Apocynaceae).

Distribution outside Iran: Western and Central Palaearctic.

***Ceutorhynchus pallidactylus* (Marsham, 1802)**

Syn.: *Curculio quadridens* Panzer, 1794 [non Fabricius, 1775]; *Ceutorhynchus seriesetosus* Dietz, 1896; *Ceutorrhynchus quadridens* var. *annulipes* Hoffmann, 1933.

Material: East Azerbaijan province: Kalibar (3), August 2003 on *Rosa canina* (Rosaceae).
Ardabil province: Pars-Abad (2), June 2004 on *Cordia* sp. (Boraginaceae).

Distribution outside Iran: Holarctic.

***Ceutorhynchus picitarsis* (Gyllenhal, 1837)**

Syn.: *Ceutorhynchus scutellaris* Brullé, 1832; *Ceuthorrhynchus tarsalis* Boheman, 1845; *Ceutorhynchus poncyi* Stierlin, 1899.

Material: East Azerbaijan province: Tabriz (4), June 2006 on *Laurus nobilis* (Lauraceae) and *Brassica campestris* (Brassicaceae).

Distribution outside Iran: Western and Central Palaearctic.

Subfamily Hyperinae Lacordaire, 1863

Genus *Donus* Jekel, 1865

***Donus orientalis* (Capiomont, 1867)**

Material: East Azerbaijan province: Ahar (1), July 2005 on *Beta vulgaris* (Chenopodiaceae).

Distribution outside Iran: South-eastern Europe, Asia Minor.

Genus *Hypera* Germar, 1817

***Hypera farinosa* (Boheman, 1842)**

Syn.: *Phytonomus sinuatus* Capiomont, 1868; *Phytonomus dorsiger* Faust, 1894; *Phytonomus nigrosuturalis* Petri, 1901; *Phytonomus hauseri* Petri, 1907
Material: West Azerbaijan province: Ourmieh (2), August 2005 on *Cucurbita pepo* (Cucurbitaceae).

Distribution outside Iran: Southern Europe, Caucasus, Middle Asia, Asia Minor.

***Hypera postica* (Gyllenhal, 1813)**

Syn.: *Curculio haemorrhoidalis* Herbst, 1784; *Curculio variabilis* Herbst, 1795 non Fabricius, 1777; *Curculio bimaculatus* Marsham, 1802; *Phytonomus picipes* Curtis, 1826; *Phytonomus sublineatus* Curtis, 1826; *Phytonomus villosulus* Curtis, 1826; *Phytonomus phaepus* Stephens, 1831; *Phytonomus rufipes* Stephens, 1831;

Phytonomus parvus Gyllenhal, 1834;
Phytonomus tibialis Hochhuth, 1851;
Phytonomus sericeus Capiomont, 1868;
Phytonomus siculus Capiomont, 1868;
Phytonomus brevipes Desbrochers, 1875;
Phytonomus austriacus Petri, 1901; *Phytonomus decoratus* Petri, 1901.

Material: East Azerbaijan province: Maragheh (1), July 2006 on *Ipomoea* sp. (Convolvulaceae).
Distribution outside Iran: Western and Central Palaearctic.

***Hypera rumicis* (Linnaeus, 1758)**

Syn.: *Curculio acetosae* Panzer, 1797; *Curculio pyrrhodactylus* Marsham, 1802; *Phytonomus comptus* Say, 1831; *Phytonomus diversus* Gyllenhal, 1834; *Phytonomus rostratus* Faust, 1890.

Material: East Azerbaijan province: Khodafarin (3), September 2005 on *Erica* sp. (Ericaceae).
Distribution outside Iran: Holarctic.

***Hypera striata* (Boheman, 1834)**

Syn.: *Phytonomus subvittatus* Capiomont, 1868; *Phytonomus karamani* Stierlin, 1886; *Phytonomus solymitanus* Faust, 1887; *Phytonomus sicilianus* Petri, 1901.

Material: East Azerbaijan province: Azarshahr (2), September 2005 on *Quercus macranthera* (Fagaceae).
Distribution outside Iran: Europe, Asia Minor.

Subfamily Lixinae Schoenherr, 1823

Genus *Larinus* Dejean, 1821

***Larinus centaurii* (Olivier 1807)**

Material: West Azerbaijan province: Mahabad (3), September 2007 on *Euphorbia* sp. (Euphorbiaceae).
Distribution outside Iran: Mediterranean, Transcaucasia, Iran.

***Larinus curtus* Hochhuth, 1851**

Syn.: *Larinus brevis* Gyllenhal 1835; *Larinus gyllenhalii* Gemminger & Harold, 1871.
Material: East Azerbaijan province: Khodafarin, July 2007 on *Malva sylvestris* (Malvaceae). Ahar (1), August 2006 on *Erica* sp. (Ericaceae).
Distribution outside Iran: Southern Europe, Transcaucasia, Asia Minor.

***Larinus jaceae* (Fabricius, 1775)**

Syn.: *Curculio cardui* Geoffroy, 1785; *Larinus foveicollis* Gyllenhal, 1835; *Larinus stellaris* Gyllenhal 1835; *Larinus stricticollis* Desbrochers, 1874; *Larinus zancleanus* Vitale, 1904.

Material: Ardabil province: Ardabil (2), June 2004 on *Brassica campestris* (Brassicaceae).

Distribution outside Iran: West and Central Palaearctic.

***Larinus sturnus* (Schaller, 1873)**

Syn.: *Larinus conspersus* Boheman, 1843; *Larinus striatopunctatus* Petri, 1907; *Larinus hispanicus* Petri, 1907; *Larinus proboscideus* Petri, 1907.

Material: East Azerbaijan province: Aynalo (1), June 2005 on *Solanum melongena* (Solanaceae).
Distribution outside Iran: Western and Central Palaearctic.

Genus *Lixus* Fabricius, 1801

***Lixus cylindrus* (Fabricius, 1781)**

Syn.: *Curculio cylindricus* Fabricius, 1787 non Herbst, 1783; *Lixus acupictus* Villa & Villa 1833.
Material: Ardabil province: Meshkinshahr (4), June 2004 on *Plantago* sp. (Plantaginaceae).
Distribution outside Iran: Western and Central Palaearctic.

***Lixus iridis* Olivier, 1807**

Syn.: *Lixus turbatus* Gyllenhal, 1824; *Lixus connivens* Gyllenhal 1835; *Lixus gemellatus* Gyllenhal, 1835; *Lixus incarnatus* Gyllenhal, 1835; *Lixus geminatus* Boheman, 1842; *Lixus conformis* Capiomont, 1874; *Lixus gracilicornis* Capiomont, 1874; *Lixus sibiricus* Ballion, 1878; *Lixus caucasicus* Petri, 1904; *Lixus levantinus* Petri, 1904; *Lixus tauricus* Petri, 1904; *Lixus brevicaudis* Petri, 1904; *Lixus asiaticus* Petri, 1904; *Lixus balcanicus* Petri, 1904.

Material: East Azerbaijan province: Khomarloo (2), September 2006 on *Cucumis sativus* (Cucurbitaceae).

Distribution outside Iran: Western and Central Palaearctic.

***Lixus scabricollis* Boheman, 1842**

Material: West Azerbaijan province: Ourmieh (1), August 2005 on *Mentha* sp. (Labiatae).

Distribution outside Iran: Europe, Asia Minor.

***Lixus vilis* (Rossi, 1790)**

Syn.: *Lixus lateralis* Stephens, 1831; *Lixus nigratarsis* Boheman, 1835; *Lixus consenescens* Boheman, 1835; *Lixus orbitalis* Boheman 1835; *Lixus cinnabarinus* Waltl, 1835; *Lixus fumidus* Boheman, 1842; *Lixus subquadrithorax* Desbrochers 1895; *Lixus quadraticollis* Desbrochers, 1904.

Material: East Azerbaijan province: Khodafarin (1), August 2006 on *Fraxinus* sp. (Oleaceae).

Distribution outside Iran: Europe, Caucasus, Asia Minor.

Subfamily Entiminae Schoenherr, 1823

Genus *Otiorhynchus* Germar, 1822

***Otiorhynchus (Cryphiphorus) dubitabilis* Fairmaire, 1866**

Material: East Azerbaijan province: Kalibar (1), August 2006 on *Punica granatum* (Punicaceae).

Distribution outside Iran: Asia Minor.

***Otiorhynchus (Arammichnus) juvenicus* Gyllenhal, 1834**

Material: Ardabil province: Pars-Abad (2), June 2004 on *Syzygium* sp. (Myrtaceae).

Distribution outside Iran: Western Palaearctic.

***Otiorhynchus (Choilisanus) pelliceus* Boheman, 1843**

Material: East Azerbaijan province: Khodafarin (2), July 2007 on *Piper* sp. (Piperaceae).

Distribution outside Iran: Asia Minor.

***Otiorhynchus (Podonebistus) prolongatus* Stierlin, 1861**

Material: West Azerbaijan province: Ourmieh (1), August 2005 on *Hedera* sp. (Araliaceae).

Distribution outside Iran: Greece, Iran.

***Otiorhynchus (Nehrodistus) scitus* Gyllenhal, 1843**

Syn.: *Otiorhynchus tarnieri* Stierlin, 1861.

Material: Ardabil province: Ardabil (3), June 2004 on *Solanum melongena* (Solanaceae).

Distribution outside Iran: South-eastern Europe, Asia Minor.

***Otiorhynchus (Melasemnus) ovalipennis* Boheman, 1843**

Syn.: *Otiorhynchus crucirostris* Hocchuth, 1851; *Otiorhynchus brevipennis* Stierlin, 1892.

Material: East Azerbaijan province: Maragheh (1), August 2006 on *Olea ferruginea* (Oleaceae).

Distribution outside Iran: Western Palaearctic.

The results of this research indicate that there is a diverse fauna of Curculionidae in the Arasbaran Biosphere Reserve and vicinity. Although only a few subfamilies were surveyed in this study, inventories of other subfamilies and additional collecting will result in many additional species being recorded from this region. Iran is a large country incorporating various geographical regions and climates and it is expected that a large number of curculionid species remain to be discovered. To find new species and distributional records, more studies should be conducted on this important insect group in Iran.

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