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Annotated Catalog of Iranian Aradidae (Hemiptera: Heteroptera: Pentatomomorpha: Aradoidea)

HASSAN GHAHARI^{1,3} & ERNST HEISS²

¹Department of Plant Protection, Shahre Rey Branch, Islamic Azad University, Tehran, Iran. E-mail: hghahari@yahoo.com

²Tiroler Landesmuseum, Josef Schraffl Strasse 2a, A-6020 Innsbruck, Austria. E-mail: aradus@aon.at

³Corresponding author: E-mail: hghahari@yahoo.com

Abstract

In addition to previous contributions to a general catalog of Iranian Heteroptera, this paper presents a catalog of the flat bug family Aradidae. Nine species and subspecies belonging to two genera (*Aneurus* Curtis and *Aradus* Fabricius) of two subfamilies (Aneurinae and Aradinae) are reported.

Key words: Hemiptera, Heteroptera, Pentatomomorpha, Aradidae, catalog, Palaearctic, Iran

Introduction

The Aradidae (flat bugs or bark bugs) are a large dendrobiont and mycetophagous family of Heteroptera with 233 genera and 1931 species separated into eight subfamilies (Henry 2009). Only representatives of two subfamilies (Aneurinae, Aradinae) are recorded to date from Iran (Heiss 2001). These insects are flat and elliptical, oval or rectangular in shape, and they are dark-colored (black or brown). They often have a granular or rough dorsal surface which provides an excellent mechanism to transport fungi spores (Hubbard 1892). The insects are distributed over all the biogeographical regions of the world (Henry 2009; Contreras & Coscaron 2012). Most species are found on or under the bark of dead or decaying trees and branches in a wide variety of habitats, associated with fungi. Only few (e.g., the European *Aradus cinnamomeus* Panzer, 1803) suck fluids from young twigs of living trees causing damage to *Pinus* sp. (Heliövaara 1984). They also live associated with termites, in bird and rodent nests, and, occasionally, in the galleries of woodboring beetles (Schuh & Slater 1995). Aradidae are a very old family among the Heteroptera. The oldest records are from Burmese amber (around 100 million years BP; Heiss & Grimaldi 2001, 2002). Records in Baltic amber were dated to 40-50 million years BP (Heiss 1997, 1998, 2002b, 2012).

Despite their wide distribution and abundance, this is a little-known group from the biological, ecological, and systematic point of view (Contreras & Coscaron 2012). The habitat requirements of most Aradidae and the decisive factors that influence their occurrence are still poorly understood. Gossner *et al.* (2007) hypothesized that a) with increasing 'habitat tradition' (temporal continuity), population densities of Aradidae increase; b) increasing dead wood supply supports higher abundance of Aradidae; c) there are key structures for particular species with respect to type of dead wood, diameter, and exposure to sunlight; d) the occurrence of particular fungi species determines the occurrence of Aradidae.

Usinger & Matsuda (1959) provided a systematic account of Aradidae, Kormilev & Froeschner (1987) gave a catalog of the world species, and Heiss (2001) a catalog of the Heteroptera of the Palearctic Region. The present catalog is an additional contribution to a general catalog of Iranian Heteroptera, of which several parts have already been published (Ghahari *et al.* 2009a, b, 2010a, b, 2012; Ghahari & Moulet 2012).