

Taxonomic review of freshwater *Gammarus* (Crustacea: Amphipoda) from Iran

MEHRDAD ZAMANPOORE^{1,2}, MICHAL GRABOWSKI³, MANFRED POECKL¹& FRIEDRICH SCHIEMER¹

¹Department of Limnology, Institute of Ecology, University of Vienna, Austria. E-mail:mzamanpoore@gmail.com, manfred.poeckl@noel.gv.at, and friedrich.schiemer@univie.ac.at

²Department of Fisheries and Aquatic Biology, Fars Research Center for Agriculture and Natural Resources, Shiraz, Iran

³Department of Invertebrate Zoology & Hydrobiology, University of Lodz, Poland. E-mail: michalg@biol.uni.lodz.pl

Abstract

The paper summarizes current knowledge upon taxonomy and distribution of the freshwater *Gammarus* Fabricius, 1775 in Iran. Based on the literature data, 24 species were recorded so far from the fresh waters in the country. Revision of previously published materials including type collections, and analysis of new materials, revealed presence of 18 valid freshwater *Gammarus* species in Iran (*G. anodon*, *G. bakhteyaricus*, *G. baloutchi*, *G. crinicaudatus*, *G. hegmatanensis*, *G. komareki*, *G. lacustris*, *G. lobifer*, *G. loeffleri*, *G. lordeganensis*, *G. paricrenatus*, *G. parthicus*, *G. pretzmanni*, *G. pseudosyriacus*, *G. sepidannus*, *G. shirazinus*, *G. sirvannus* and *G. zagrosensis*). Among the remaining six species, three (*G. arduus*, *G. laticoxalis*, *G. syriacus*) were reported as a result of misidentification and further three (*G. miae*, *G. plumipes*, *G. projectus*) appeared to be junior synonyms of other already described species. Distribution ranges of most of the species are restricted usually to only few localities in the mountainous terrain, so they may be treated as Iranian endemics. The only exceptions are: *G. lacustris* (widely distributed in Holarctic, with only few populations in Iran), *G. komareki* (widely distributed in the Balkan Peninsula and Asia Minor, in Iran recorded from the entire Alborz region) and *G. pseudosyriacus* (widely distributed in Asia Minor, in Iran found in the entire Zagros region). A brief remark on taxonomy of each species is presented, with emphasis on misidentifications, synonymies and similar species, supplemented by distribution data, and ecological details if available. An identification key for the freshwater *Gammarus* of Iran is provided.

Key words: Amphipoda, *Gammarus*, biogeography, distribution, Middle East, Zagros, Alborz, identification key

Introduction

Gammarus Fabricius, 1775 is the largest genus of the amphipod family Gammaridae Leach, 1813 and widespread in inland waters of the Northern Hemisphere. It includes more than 200 already described species with the highest diversity in Palearctic; particularly in the mountains of Mediterranean area and Near East (Väinölä *et al.* 2008).

The first record of Iranian freshwater gammarids goes back to Stanko Karaman (1934), who described *Gammarus pulex persicus* Karaman, 1934 (junior syn. of *G. komareki* Schaeferna, 1922) from Northwestern Iran. Löfller (1956), in “Some limnological observations on Iranian inland waters”, provided a thorough morphological description and a few drawings of *Gammarus* species, proposed to be *G. pulex* Linnaeus, 1758, from Kurush Gol in northwestern Iran. As Löfller (1956) emphasized, it possessed clear morphological deviations from the description of *G. pulex persicus* provided by S. Karaman (1934), including less setose antenna 2, pereopod 5–7 and uropod 3.

Later, Mateus and Mateus (1990) published a paper based on materials collected by G. Pretzmann and deposited in the Natural History Museum of Vienna. This largely overlooked publication included description of three species (*G. pretzmanni*, *G. miae*, *G. plumipes*) and records of further three species (*G. arduus*, *G. laticoxalis*, *G. syriacus*), which extended the knowledge upon distribution of freshwater gammarids in the central and southern parts of the country.

Materials from both fresh and brackish waters collected by an Iranian team in 1990s appeared in paper by Stock *et al.* (1998) with descriptions of six new species (*G. paricrenatus*, *G. anodon*, *G. projectus*, *G. parthicus*, *G. crinicaudatus*, and *G. lobifer*) and records of further four species (*G. aequicauda* Martinov, 1931, *G. komareki* Schäferna, 1922, *G. lacustris* Sars, 1863, and *G. inberbus* Karaman and Pinkster, 1977) from inland waters through-