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Aquatic Hemiptera (Heteroptera) of Kazakhstan, with notes on life history, ecology and distribution

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Summary

Based on extensive field collections (2000-2014) in Kazakhstan and a review of the material in the National Institute of Zoology of Kazakhstan, we identified 68 species of aquatic Hemiptera from 11 families. Most species have broad zoogeographic distribution, dominated by West Eurasian fauna (18 species) and West Palearctic fauna (10 species). Details of habitats, feeding types, and life history are included for the described species.

Key words: aquatic Hemiptera, zoogeography, diapause, Kazakhstan

Introduction

Hemiptera are one of the largest insect groups in Kazakhstan, and play an important role in nature. They are divided into aquatic and terrestrial species, based on preferred habitat. The Hemiptera of Kazakhstan are principally terrestrial (94.5%), with only 68 aquatic species (5.5%).

Surface waters of the Republic of Kazakhstan are distributed extremely unevenly, a result of geographic location, and orographic and climatic conditions. The country has > 39,000 thousand brooks, streams and rivers (Academy of Sciences of the USSR 1969, Smolyar *et al.* 2002, Anonymous 2008). Not counting the Caspian and Aral Seas, there are > 48,000 thousand lakes \geq 1 ha, along with over 200 reservoirs. In addition there are a large number of short-lived delta and floodplain lakes and ponds (such as the deltas and floodplains of the rivers Ili, Syr Darya, Shu, Sarysu and others). In shallow waters within the photic zone, aquatic vegetation defines two main types of aquatic ecosystems: those dominated by submerged vegetation (large algae and higher aquatic plants); and those with emergent vegetation (reeds, rushes cattails in standing water marshes).

Aquatic Hemiptera are systematically and environmentally heterogeneous and are divided into two infraorders (Table 1). Infraorder Nepomorpha includes those that live in the water column, on the bottom or on moist banks of the water's edge. Infraorder Gerromorpha includes water striders, living on the surface film of water or on the nearby shore.

Material and methods

This study is based on the collections and field observations of the first author, as well as a collection of Hemiptera of Kazakhstan stored in the Institute of Zoology, Ministry of Education and Science, Kazakhstan. Field collections were made from 2000 to 2014. Aquatic Hemiptera are found in a diversity of aquatic environments from temporary pools and small ponds, to rivers, lakes and floodplains. Field collections sampled multiple locations in each