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Nearctic freshwater tardigrades: a review

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ABSTRACT

The distribution and ecology of limno-terrestrial Tardigrada in the Nearctic realm remain poorly known. This is especially true of freshwater tardigrades (i.e., species found in permanently submerged habitats), which have received much less attention than terrestrial species. We reviewed the literature on Nearctic freshwater tardigrades. Of 204 Nearctic limno-terrestrial tardigrade species, 44 have been collected from sediments and aquatic vegetation of streams, rivers, ponds, lakes, groundwater and cryoconite holes. Of these, 17 are hydrophilous species found exclusively or primarily in aquatic environments. Most of the remainder are probably washed in accidentally from terrestrial substrates. Among the hydrophilous species, five are endemic to the Nearctic realm and three cosmopolitan. Hypsibius dujardini is the most widely-distributed hydrophilous species. There are no regional collections of Nearctic freshwater tardigrades comparable to those for terrestrial species. Aquatic tardigrades are benthic, and are found in sediments and on aquatic vegetation. Hypsibius dujardini and other widespread species are found in both substrates, and there is thus no evidence of substrate specificity. Numerically, tardigrades usually comprise a minor component of benthic invertebrate communities. Nothing is known of their trophic relationships or dispersal in these habitats. The density of Nearctic freshwater tardigrade species peaks in the spring and/or fall. Future research should increase the spatial and temporal scale of study, and employ adequate replication.

Key words: limno-terrestrial, Tardigrada, substrate, freshwater
