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Limno-terrestrial Tardigrada of the Nearctic Realm

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ABSTRACT

We examined all available records of limno-terrestrial tardigrade distribution in the Nearctic realm (Greenland, Canada, Alaska, the continental United States of America, and northern Mexico), both to compare this fauna with other realms and to investigate distribution within North America. We included only those records in which tardigrades had been identified to species. Of 204 Nearctic limno-terrestrial tardigrade species, 38 were cosmopolitan, while 55 were unique to the Nearctic realm. The Nearctic tardigrade fauna is most similar to the Palearctic, with 135 species in common, 39 of which have not been reported elsewhere. The Nearctic realm shares 82 species with the Neotropical realm, only 10 which are not also Palearctic. These data are consistent with the geological history of the three realms, and indicate a distinction between Laurasian and Gondwanan tardigrade faunas. Although little is known about limno-terrestrial tardigrade distribution in much of North America, there are several excellent regional or local surveys. Many species are distributed widely throughout the continent, but 30.0% of Nearctic species have been reported from a single site. Cluster analysis of the fauna of 11 Nearctic regions shows that the Arctic and sub-Arctic fauna constitute a regional fauna distinct from the rest of the continent. Ecological analysis is hampered by inconsistent reporting of tardigrade substrate, though available data suggest little substrate specificity in terrestrial tardigrades. Most species are found in both mosses and lichens. Many are also present in soil and leaf litter, but few are found only in these substrates.

Key words: tardigrades, limno-terrestrial, North America, Nearctic, biogeography, substrate specificity