Macrobiotus (Eutardigrada, Macrobiotidae) from the Great Smoky Mountains National Park, Tennessee/North Carolina, USA (North America): two new species and six new records

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Abstract

As part of the All Taxa Biodiversity Inventory (http://www.dlia.org), we are conducting a large-scale multihabitat inventory of tardigrades in the Great Smoky Mountains National Park (GSMNP) in Tennessee and North Carolina, USA. Here we report our findings for the genus Macrobiotus (Eutardigrada, Macrobiotidae). Two new species, Macrobiotus martini sp. nov. and Macrobiotus halei sp. nov., are described from moss, lichen, soil and leaf litter samples. Macrobiotus martini sp. nov. differs from all other species of the Macrobiotus hufelandi group by having a very simple buccal armature without bands of teeth, very large elliptical cuticular pores, unique characteristics of the egg, and other morphometric characters. Macrobiotus halei sp. nov. differs from other species in the Macrobiotus richtersi group by having very small cuticular tubercles, well-developed macroplacoids, unique characteristics of the egg, and other morphometric characters. Seven additional Macrobiotus species have been identified in the GSMNP: M. harmsworthi Murray, 1907, M. hufelandi Schultze, 1834, M. islandicus Richters, 1904, M. montanus Murray, 1910, M. pallarii Maucci, 1954, M. recens Cuénot, 1932, and M. tonollii Ramazzotti, 1956. All of these except M. harmsworthi are new records for the national park. In addition, M. pallarii is a new record for North Carolina, M. islandicus is a new record for North Carolina and Tennessee, M. montanus is a new record for the eastern USA, and M. recens is a new record for the USA.

Key words: taxonomy, Tardigrada, Macrobiotus martini sp. nov., Macrobiotus halei sp. nov., Macrobiotus hufelandi group, Macrobiotus richtersi group, new species, new records, Tennessee, North Carolina, USA

Introduction

The genus Macrobiotus C.A.S. Schultze, 1834, contains 159 species and several subspecies (Guidetti & Bertolani 2005, Degma & Guidetti 2007). The vast majority of species in this genus are terrestrial. The genus account, as reported in Nelson & McInnes (2002), is as follows:

“Ten buccal lamellae present; without peribuccal papulae. Buccal tube short, rigid and without spiral thickenings. Buccal mucrones and interior buccal ridges present. Pharynx contains apophyses and macroplacoids; microplacoids may be present; septulum absent. Cuticle with pores of various sizes, number and distribution. Two double claws of each leg of similar size and shape; lunulae present; claws not connected by cuticular bar; sequence 2112. Eggs with protruding processes are laid free.”

The species reported here were found as part of the tardigrade survey (Bartels & Nelson 2006, 2007; Nelson & Bartels 2007) for the All Taxa Biodiversity Inventory (ATBI) occurring in the Great Smoky Mountains National Park (GSMNP), which includes acreage in both Tennessee (TN) and North Carolina (NC)