



***Doryphoribius smokiensis*, a new species of Eutardigrada (Hypsibiidae) from the Great Smoky Mountains National Park, TN, USA (North America)**

PAUL J. BARTELS¹, DIANE R. NELSON², ŁUKASZ KACZMAREK³ & ŁUKASZ MICHALCZYK⁴

¹Department of Biology, Warren Wilson College, CPO 6032, PO Box 9000, Asheville, NC 28815, USA.

E-mail: pbartels@warren-wilson.edu

²Department of Biological Sciences, East Tennessee State University, Johnson City, TN, 37614, USA. E-mail nelsond@etsu.edu

³Department of Animal Taxonomy and Ecology, A. Mickiewicz University, Umultowska 89, 61-614 Poznań, Poland.

E-mail: kaczmar@amu.edu.pl

⁴Centre for Ecology, Evolution and Conservation, School of Biological Sciences, University of East Anglia, Norwich NR4 7TJ, UK.

E-mail: agnostic@poczta.fm

Abstract

A new eutardigrade, *Doryphoribius smokiensis* **sp. nov.**, is described from soil and leaf litter samples collected in the Great Smoky Mountains National Park in Tennessee, USA. The new species differs from two similar species (with two macroplacoids and a sculptured dorsal cuticle without gibbosities) by the presence of a very wide buccal tube (high buccal tube *pt* ratio: >20.0), absence of enlarged bases of claws, absence of eyes, and other morphological and morphometric characters.

Key words: taxonomy, Tardigrada, *Doryphoribius smokiensis* **sp. nov.**, *D. flavus*, *D. polynettae*, new species, Tennessee

Introduction

The genus *Doryphoribius* Pilato, 1969 includes more than 20 species known from around the world. In this paper a new species, *Doryphoribius smokiensis* **sp. nov.**, from Tennessee, USA, North America is described and illustrated. The new species is similar to two species that have two macroplacoids and a sculptured dorsal cuticle without gibbosities: *Doryphoribius flavus* (Iharos, 1966) and *Doryphoribius polynettae* Biserov, 1988.

The new species was found as part of the tardigrade survey (Bartels & Nelson 2006, 2007; Nelson & Bartels *in press*) for the All Taxa Biodiversity Inventory (ATBI) occurring in the Great Smoky Mountains National Park (see www.discoverlifeinamerica.org). The goal of the ATBI is to identify all organisms within this park which is renowned as a highly biodiverse, temperate, mixed-deciduous forest. Since 1998, the ATBI has produced over 4600 new records for the park, and over 650 species new to science. This is the first paper describing a new tardigrade species from the Great Smoky Mountains National Park (GSMNP). We think there are 2–3 additional new species of *Doryphoribius* in our collection, and these will be described in a separate paper. In total, we anticipate about 20 new species of tardigrades will eventually be described from the ATBI.

Material and methods

Field collection and laboratory techniques for the tardigrade inventory in the GSMNP are described in Bartels