



## Description of *Doryphoribius dawkinsi*, a new species of Tardigrada (Eutardigrada: Hypsibiidae) from the Costa Rican highlands, with the key to the genus *Doryphoribius*

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### Abstract

A new eutardigrade from Costa Rican highlands, *Doryphoribius dawkinsi* sp. nov., is described and figured. The new species is most similar to *Doryphoribius zyxiglobus* but differs from it mainly by the presence of gibbosities I<sup>r</sup> and L<sub>IV</sub>, and also by the absence of lunules on claws. Apart from the new species description, we propose a unified system of numbering and identifying cuticular gibbosities. Moreover, using two independent traits (the number of placoids and the presence/absence of cuticular gibbosities), we define four groups of species within the genus *Doryphoribius* (*doryphorus*, *evelinae*, *vietnamensis* and *zappalai* group) and provide a diagnostic key to all known *Doryphoribius* species.

**Key words:** Tardigrada, *Doryphoribius dawkinsi* sp. nov., *D. evelinae* group, gibbosities, diagnostic key

### Introduction

*Doryphoribius* Pilato, 1969 is a worldwide genus currently comprised of twenty-nine species (including the new species described in this paper). However, the actual number of described species may be higher as some of the older species attributed to the genus *Isohypsibius* should be in fact assigned to the genus *Doryphoribius*. This is so because the main difference between the two genera is the presence of the ventral lamina on the buccal tube in *Doryphoribius* and this character was often neglected in older descriptions (e.g., *D. vietnamensis* (Iharos, 1969), see Beasley *et al.* 2006).

In this paper we describe a new species, *Doryphoribius dawkinsi* sp. nov., from Costa Rica. Moreover, we propose a system of numbering and describing cuticular gibbosities in eutardigrades. Also, in order to aid future descriptions and comparisons, we define four groups of species within the genus *Doryphoribius* using two independent characters: the number of placoids in the pharynx and the presence or absence of cuticular gibbosities. Finally, apart from the standard differential diagnosis, we also provide a diagnostic key to all known *Doryphoribius* species.

### Materials and methods

Seventeen specimens of *Doryphoribius dawkinsi* sp. nov. were found in moss and liverwort samples collected from Costa Rica in 2002. Ten animals were mounted on microscope slides in Hoyer's medium for Light Microscopy (LM) and seven were prepared for Scanning Electron Microscopy (SEM). All measurements and scale bars values are given in micrometers [µm]. Structures were measured only if their orientations were suitable. Body length was measured from the anterior extremity to the end of the body, excluding the hind