



## *Unduloribates* from North America (Acari, Oribatida, Unduloribatidae)

VALERIE M. BEHAN-PELLETIER\*<sup>1</sup> & DAVID E. WALTER<sup>2</sup>

<sup>1</sup> Systematic Entomology, Agriculture and Agri-Food Canada, K. W. Neatby Building, Ottawa, Ontario K1A 0C6, Canada  
E-mail: Valerie.behan-pelletier@agr.gc.ca

<sup>2</sup> Department of Biological Sciences, University of Alberta, Edmonton, Alberta, T6G 2E9 Canada & Invertebrate Zoology, Royal Alberta Museum, 12845 - 102 Ave., Edmonton, Alberta T5N 0M6, Canada

\*Corresponding author

### Abstract

We propose a new species of oribatid mite, *Unduloribates diana* sp. nov., based on material collected from a variety of boreal habitats in the Canadian Provinces Newfoundland, Nova Scotia, Québec, Alberta and British Columbia, and in New York State in the USA. This is the first species in this genus from the Nearctic. Description is based on adults and all immature stages. We present an expanded generic diagnosis and a key to world species of *Unduloribates*, and argue for the retention of Unduloribatidae as a monogeneric family in Phenopelopoidea.

**Key words:** Brachypyliina, Phenopelopoidea, new species, immatures, Nearctic, boreal

### Introduction

The small oribatid mite genus *Unduloribates*, with 4 included species, has had a chequered history. It was proposed by Balogh (1943) with *Sphaerozetes* (*Tectoribates*) *undulatus* Berlese 1914, as type species, and considered a member of the Oribatellidae by Balogh (1961, 1972) and Sitnikova (1975). Aoki (1965) described a second species, *U. hebes* Aoki, from the Himalayas, based on the adult, but did not provide familial attribution. Kunst (1971) established the monogeneric Unduloribatidae, but without suggesting a relationship to other brachypyline families. Piffel (1972) described adults and immatures of a third species, *Unduloribates medusa* Piffel, from Nepal, and removed the genus from Oribatellidae because of the absence of a genal incision and posterior notogastral tectum, the presence of a fused seta and solenidion (“double horn”) on the palptarsus, and the number of genital setae (9–10 pairs). He also proposed the monogeneric family, Unduloribatidae, and suggested a close relationship with apherodermous non-poronotic Oribatida, based on his description of immatures of this species. More recently, *Unduloribates brevisetosus* from the Himalayas of Nepal was described by Nübel-Reidelbach and Woas (1992), based on the adult, who considered the genus broadly related to the ‘lower’ and ‘higher’ plicates, sensu Norton and Alberti (1997) such as Passalozetidae, Scutoverticidae, Achipteriidae and Phenopelopoidea.

Norton and Behan-Pelletier (1986) argued for a close relationship of Unduloribatidae with Phenopelopoidea based primarily on the synapomorphy of blocky, birefringent integument, and a suite of other shared character states. They included Unduloribatidae in the Phenopelopoidea, a placement followed by Marshall et al. (1987) and Balogh and Balogh (1992). However, Subías (2004) proposed another relationship when he recognized the Unduloribatoidea with Unduloribatidae, Eremaozetidae and Idiozetidae as included families. He based this relationship on adults of these families sharing thick, heavily sclerotized integument and large, wide lamellae that are closely adjacent medially.

We describe the first species of *Unduloribates* from the Nearctic region, based on specimens from a variety of habitats. We present a key to world species of *Unduloribates* and use adult and immature characters