Zootaxa 2332: 1–20 (2010)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

The first sexually dimorphic species of *Oribatella* (Acari, Oribatida, Oribatellidae) and a review of sexual dimorphism in the Brachypylina

VALERIE M. BEHAN-PELLETIER[1] & BARBARA EAMER
Systematic Entomology, Agriculture and Agri-Food Canada, K. W. Neatby Building, 960 Carling Ave., Ottawa, Ontario K1A 0C6, Canada
[1]*Corresponding author. E-mail: Valerie.Behan-Pelletier@agr.gc.ca*

Abstract

The oribatid mite genus *Oribatella* includes over 100 named species, none of which shows distinct sexual dimorphism in the octotaxic system of dermal glands. We propose a new species of this genus, *Oribatella canadensis* sp, nov., collected from dry soil habitats in western Canada, that shows distinct dimorphism in these dermal glands, the first record of this dimorphism in the Oribatelloidea. The posterior pair of glands in males, but not females, is enlarged and associated with a shallow, medial pit-tubercle complex, and is generally similar to convergent dimorphisms in some genera of Mochlozetidae (Oripodoidea), Mycobatidae (Ceratozetoidea) and Galumnidae (Galumnoidea). We describe this species based on adult and nymphal stages, and expand the diagnosis of the genus to accommodate the newly described immatures. We review the expression of sexual dimorphism in brachypyline oribatid mites and discuss its association with periodically dry habitats.

Key words: Oribatida, *Oribatella*, Oribatelloidea, Brachypylina, octotaxic system, sexual dimorphism, Canada

Introduction

The oribatid genus *Oribatella* Banks, 1895 is comparatively species rich, encompassing over 100 species distributed throughout the Nearctic, Palaearctic and Neotropical regions (Subías 2004, 2009). The genus has been intensively studied in Europe (Bernini 1975, 1977, 1978, Bernini & Avanzati 1983), but the North American fauna is little-known and the 17 named species (Marshall *et al.* 1987) represent at most 50 percent of the potential diversity. As part of a ongoing revision of *Oribatella* for North America, we describe a new species from western Canada based on adults and all nymphal stages. This species, collected from Alberta and British Columbia, is unique among Oribatelloidea in showing sexual dimorphism of the octotaxic system of dermal glands (secretory porose organs). In addition, nymphs differ from those previously described – *O. calcarata* (Koch) (Grandjean 1953), *O. berlesei* Michael and *O sexdentata* Berlese (Chistyakov 1984a, 1984b) – in having strongly dimorphic dorsocentral setae in the deutonymph and tritonymph. We provide an expanded diagnosis of *Oribatella* to accommodate these differences.

Other than genitalic differences and body size, secondary sexual characteristics are rare in Oribatida, but take many expressions. We review the taxonomic and morphological range of sexual dimorphism in Brachypylina, including dimorphism of the octotaxic system of dermal glands, setal modifications and other distinct differences in adult morphology, and discuss its partial association with periodically dry habitats.

Materials and methods

Terminology and Conventions

Morphological terminology used in this study follows that developed by Grandjean (see Travé & Vachon

Accepted by H. Schatz: 27 Nov. 2009; published: 11 Jan. 2010