

***Dorsipes diplocheilae* sp. nov. and *Dorsipes zeelandicae* sp. nov. (Acari: Podapolipidae), subelytral parasites of *Diplocheila zeelandica* (Redtenbacher) (Coleoptera: Carabidae) in Japan**

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Abstract

Two of three new species of Podapolipidae (Acari: Tarsonemoidea) discovered under the elytra of *Diplocheila zeelandica* (Coleoptera: Carabidae) are described under the names *Dorsipes diplocheilae* sp. nov. and *D. zeelandicae* sp. nov. This is the first record of species in the *dorsipes* group of the genus *Dorsipes* from the genus *Diplocheila*. Adult females of species in the *dorsipes* group share the plesiomorphic character of two pairs of setae on plate EF. The vagina is not broad and the opening is terminal. The male genital capsule is not broader at its base than at its apex. Putative apomorphies for adult females of the *dorsipes* group are: coxal setae 3a not present, setae v₁ reduced, ambulacra I claws small and tarsi II solenidia omega absent. *Dorsipes diplocheilae* and *D. zeelandicae* are compared with five species from Europe, Asia and western North America in the *dorsipes* group, parasites of carabid beetles in the genus *Carabus*. Revised keys to species of the group *dorsipes* are provided.

Key words: Taxonomy, Podapolipidae, new species, Japan, insect parasites

Introduction

Mites in the family Podapolipidae (Acari: Tarsonemina) are highly specialized ecto- and endoparasites of insects in the orders Blattodea, Orthoptera, and especially Coleoptera. One podapolipid mite species each occurs on insects in the orders Hemiptera and Hymenoptera. Eighty two species of Podapolipidae in four genera occur on fifty one genera of beetles in the family Carabidae. A majority of the 34,175 species of Carabidae (Lorenz 2005) have not been examined thoroughly for podapolipid parasites. Regenfuss (1968) examined nearly 7,000 carabid beetles in 78 genera and found podapolipids on 839 hosts. He described the genus *Dorsipes* and placed seven species of *Dorsipes* from a relatively small area of Central Germany in three groups: *dorsipes*, *inflatus* and *platysmae* (Regenfuss 1968). Eidelberg (1994) noted *Dorsipes* from Ukraine and eastern Russia. Japanese species of *Dorsipes* are: *D. curtonoti* Kurosa and Husband, 2002, *D. limnocarabi* Husband and Kurosa, 2002, *D. yezoensis* Husband and Kurosa, 2002 and the species described herein. The expansion of literature involving *Dorsipes* after 1968 includes the following contributions: Husband and Rack (1991), Eidelberg (1994), Husband (2000), Husband and Dastych (2000), Husband and Kurosa (2002), Kurosa and Husband (2002), Husband and Husband (2005), Husband and Weatherby (2005), Husband and Husband (2007), Hajiqanbar *et al.* (2008) and Husband and Husband (2010). The purposes of this paper are to describe the first record of species in the *dorsipes* group from a host genus other than *Carabus*, the genus *Diplocheila*, compare them with five species in the *dorsipes* group from Japan, Europe and Western North America and present a revised key to species in the *dorsipes* group.