



Review of *Plonaphacarus* (Acari: Oribatida: Steganacaridae), with descriptions of eight new species from China

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Abstract

The oribatid mite genus *Plonaphacarus* Niedbala, 1986 (Steganacaridae) is reviewed. Ten species of *Plonaphacarus* including eight new species, *P. bicarinatus* **sp. nov.**, *P. concavus* **sp. nov.**, *P. cristatus* **sp. nov.**, *P. foveolatus* **sp. nov.**, *P. hainanensis* **sp. nov.**, *P. lanceolatus* **sp. nov.**, *P. protrusus* **sp. nov.** and *P. rotundus* **sp. nov.**, and one newly recorded species from China are identified. A checklist of all known species and a key to Chinese known species of this genus are provided.

Key words: Oribatida, Steganacaridae, *Plonaphacarus*, soil mites, new species, new record, China

Introduction

Basing on analysis of the morphological characters of Phthiracaroida, Niedbala (1986a) gave a new hypothesis on the phylogeny of the whole group with cladistic theory, and set up a series of new taxa, including the genus *Plonaphacarus* (Phthiracaroida: Steganacaridae) with *Hoplophthiracarus eximius* Niedbala, 1982 as its type species. However, not all taxonomists take this approach, and their view of taxonomy had been entirely utilitarian. As a result, the genus *Plonaphacarus* was regarded as a subgenus of *Hoplophthiracarus* (e.g., Balogh & Balogh 1992, Mahunka 1991a, 1992, 1993, 1995) or synonym of the subgenus *Rhacaplacarus* (*Rhacaplacarus*) (e.g., Subías 2004), or not accepted (e.g., Balogh & Balogh 2002). Considering biological taxonomy should construct an arrangement that reflects natural relationships between various species, but not only for the convenience of identification, we think Niedbala's system is at least scientifically defensible, and can well avoid many arbitrary and artificial decisions.

Plonaphacarus species widely occurs throughout the world except for Europe. Prior to our study, 31 valid species have been reported. However, only one species belonging to this genus has been reported from China (Wang, Wen & Chen 2002). While sorting and identifying the specimens of ptyctimous mites deposited in the National Zoological Museum of China, Institute of Zoology, Chinese Academy of Sciences, we identified ten species of *Plonaphacarus* including eight new species and one newly recorded species from China. This paper gives detailed descriptions of these species and a key to them, also a checklist of all the known species of this genus with information of distribution and taxonomic issues.

Material and methods

Measurements and descriptions are based on specimens mounted in temporary cavity slides that were studied using a standard light microscope equipped with a drawing attachment.