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Taxonomy and biology of a new species of Pincushion Millipede of the genus *Monographis* (Diplopoda: Polyxenidae) from Australia

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Abstract

Monographis queenslandicus n. sp. is described from Brisbane, Queensland, Australia. The genus *Monographis* may be divided into two groups based on the arrangement of sensilla on the 6th antennal article. Species with a crescent-shape arrangement are *M. kraepelini*, *M. annandalei*, *M. baihualingensis*, *M. demangei* and *M. mirus*; species with a triangular arrangement are *M. tamoyensis*, *M. yunnanensis* and *M. queenslandicus* n. sp.

Key words: Microantatomy, morphology, lifecycle

Introduction

The genus *Monographis*, the third genus of Polyxenidae to be named, was first described by Attems (1907) based on one species, *Monographis kraepelini* Attems 1907, from Java, Indonesia. The description of this species was quite brief, based on a comparison of the structure of the caudal trichomes with those of the two existing genera of Polyxenidae, *Polyxenus* Latreille 1804 and *Saroxenus* Cook 1896. The description of *Monographis kraepelini* lacked detail and led to misidentifications and confusion. Some important taxonomic details were omitted resulting in uncertainty about the identification of this genus, so redescription of the type specimen of *Monographis kraepelini* was required. Silvestri (1948) defined *Monographis* by the presence of a characteristic spine on the tarsus. The presence of a spine on tarsus 2 and a large number of sensilla on the 6th antennal article allowed *Monographis* to be differentiated from other genera in Polyxenidae (Nguyen Duy-Jacquemin & Condé 1967). Four species were placed in this genus based on their similarity to *Monographis kraepelini*: *Monographis demangei* Nguyen Duy-Jacquemin & Condé 1967 formerly confused with *M. kraepelini*, collected from Redi, India; *M. tamoyoensis* (Condé & Nguyen Duy-Jacquemin 1963), formerly *Allographis tamoyoensis*, from Brazil; *M. mirus* (Turk 1947), formerly *Saroxenus mirus* Turk 1947, collected from northern India and *M. annandalei* (Silvestri 1948), formerly *Allographis annandalei* Silvestri 1948, from northeastern India (Nguyen Duy-Jacquemin & Condé 1967). Another two species, both with a setiform seta present on tarsus 2 instead of a spine, *M. mjobergi* Verhoeff 1924 and *M. schultzei* Attems 1909 were then placed in genus *Unixenus* Jones 1944 then becoming *Unixenus mjobergi* (Verhoeff 1924) and *Unixenus attemsi* (Nguyen Duy-Jacquemin & Condé 1967). Additionally, two subspecies, *Monographis kraepelini malayanus* Condé & Nguyen Duy-Jacquemin 1984 from Malaysia and *M. kraepelini sabahnus* Condé & Nguyen Duy-Jacquemin 1984 from Sabah, Indonesia were described. The genus further expanded in 2000, when two new species from Yunnan, China were added, *M. baihualingensis* Ishii & Yin 2000 and *M. yunnanensis* Ishii & Yin 2000. *Monographis queenslandicus* n. sp. is described below as the first species of *Monographis* from Australia.

Materials and methods

The pincushion millipede—*Monographis* is common and abundant in soil and litter, and under the bark of trees