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. tamyoensis (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 attensis (Nguyen Duy-Jacquemin & Condé 1967). Additionally, two subspecies, Monographis kraepelini malayanus Condé & Nguyen Duy-Jacquemin 1984 from Malaysia and M. kraepelini sabahmus 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...