



Article

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***Pyргеuma pyrgodesmoides*, n. gen., n. sp., a new millipede from Malaysia with unusual surface structures (Diplopoda, Chordeumatida, Heterochordeumatidae)**

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Abstract

Pyргеuma pyrgodesmoides n. gen., n. sp., is described from the Cameron Highlands of Malaysia as the sixth (or possibly seventh) species and third genus of the millipede family Heterochordeumatidae. The new species is remarkable in its resemblance to members of the unrelated polydesmidan family Pyrgodesmidae, an interesting case of convergent evolution in the tropical soil and litter fauna. The dorsal surface of the body is covered in small, curved, spatulate microtrichia and the metazonal setae are reduced to nearly undetectable size.

Introduction

Chordeumatidan millipedes are most diverse in the forested temperate zones of the world, especially in Europe and North America. Although this may be due to the fact that most workers on millipede taxonomy have lived and worked in those continents, increased recent exploration of the tropics does seem to indicate that chordeumatidans are rare there, and that only a small number of families have been able to successfully radiate under tropical conditions. The tropics of South America and of Sub-Saharan Africa are apparently devoid of chordeumatidans, though one North American family (Cleidogonidae) does occur as far south as Panama (Shear 1971), and a single genus of another family (*Betscheuma* Mauriès 1974, Pygmaeosomatidae) is found in Madagascar (Mauriès 1974, 1977). Sri Lanka hosts a single genus, *Lankasoma* Mauriès 1971, in the monobasic family Lankasomatidae (Mauriès 1971). Two south Indian species, *Hendersonula collina* Pocock 1903 and *Huttoniella cloudsleythompsoni* Rajulu 1970, were described as chordeumatids, but are of dubious placement and require restudy. Only in southeast Asia have chordeumatid millipedes enjoyed clear success, having at least four families represented (Heterochordeumatidae, Metopidiotrichidae, Vieteumatidae and Megalotyliidae) with an increasing number of genera and species (*i.e.* Golovatch 1984, Shear 2000, 2002). So far, all species described have come from forest leaf litter or from caves.

Heterochordeumatids were the first chordeumatidans to be found in the tropics with the description by Pocock in 1893 and 1894 of two species of *Heterochordeuma* Pocock 1893, from Sumatra and Myanmar. Heterochordeumatids then disappeared from the literature until a restudy of Pocock's material by Richard Hoffman in 1963. Hoffman postulated that the gonopods of heterochordeumatids gave evidence they were the most primitive of living chordeumatidans, and also that the order Chordeumatida may be closely related to the order Platydesmida, despite a long (and well-supported) tradition of assigning these two orders to different subterclasses (see Shear 2011). Forty years later, I too re-examined Pocock's specimens because new heterochordeumatids requiring description had been collected in Indonesia and Thailand (Shear 2000). I found that Hoffman's observations and hence his conclusions were in error, and postulated that in fact, heterochordeumatids were arguably among the most apomorphic of chordeumatidans, and their resemblance in somatic characters to platydesmidans was an example of parallelism, arising in unrelated taxa from similar habits (see Notes below).

The family Heterochordeumatidae previously comprised two genera, *Heterochordeuma* Pocock 1893 and *Infulathrix* Shear 2000, the former with four species and the latter monotypic. Heterochordeumatids are known from Sumatra, Myanmar, Indonesia and Thailand (Shear 2000)

Now recent collecting in Malaysia has revealed yet another aspect of heterochordeumatid diversity in the form of a new genus and species with a striking resemblance to species of the tropical polydesmidan family Pyrgodesmidae.