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Miscellanea chernetologica (Arachnida: Pseudoscorpiones), based on the collection of the Natural History Museum in Vienna, Part 1

Разрозненные заметки по ложноскопионам (Arachnida: Pseudoscorpiones) на основе коллекции Музея естественной истории в Вене, Часть 1

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КЛЮЧЕВЫЕ СЛОВА: Pseudoscorpiones, Neobisiidae, *Microbisium*, синонимия, партеногенез.

ABSTRACT. Revision of the holotype of *Nepalobisium franzi* Beier, 1974, from Nepal, showed this species to be a new junior subjective synonym of *Microbisium brevifemoratum* (Ellingsen, 1903), while the genus *Nepalobisium* Beier, 1974 is a new junior subjective synonym of *Microbisium* Chamberlin, 1930, both syn.n. Parthenogenesis seems to be characteristic of several *Microbisium* species, both Palaearctic and Nearctic.

РЕЗЮМЕ. Переизучение голотипа вида *Nepalobisium franzi* Beier, 1974 из Непала показало, что этот вид — новый младший субъективный синоним *Microbisium brevifemoratum* (Ellingsen, 1903), а род *Nepalobisium* Beier, 1974 — новый младший субъективный синоним *Microbisium* Chamberlin, 1930 (оба syn.n.). Кажется, партеногенез харатерен для ряда видов *Microbisium*, как палеарктических, так и неарктических.

Introduction

The pseudoscorpion collection of the Natural History Museum in Vienna (NHMW) is highly important worldwide, chiefly because of the activities, between 1928 and 1979, of Max Beier, a renown Austrian specialist who published a total of 252 papers on false scorpion systematics alone [Mahnert, 1980, 2004]. However, progress in the knowledge of the taxonomy of Pseudoscorpiones since the 1980's mandates revision of some of Beier's taxa.

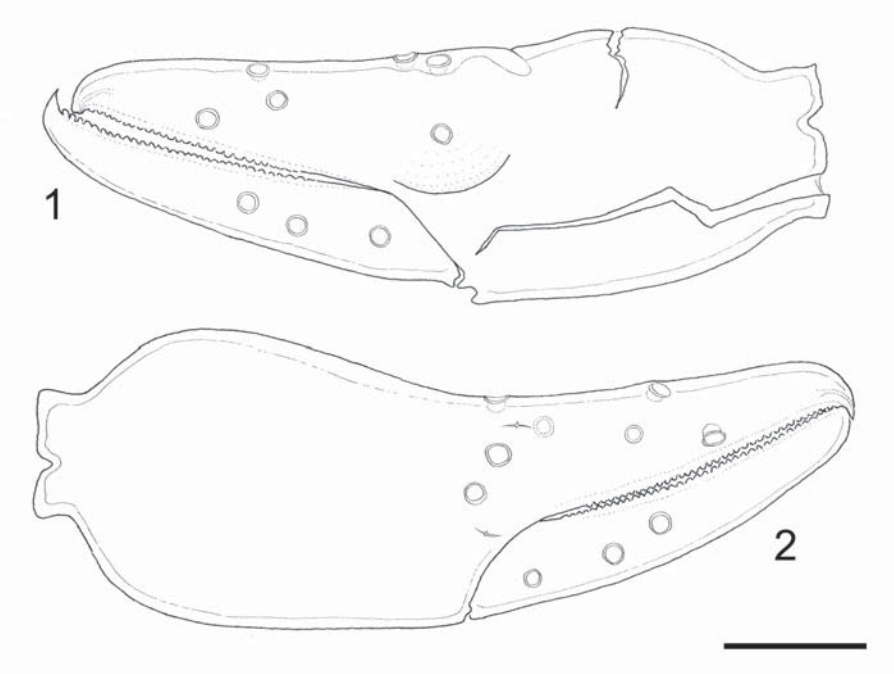
This publication starts a series of short miscellanous reports devoted to the NHMW pseudoscorpion collection. We deal here with the status of *Nepalobisium franzi* Beier, 1974, a Himalayan form.

Identity of *Nepalobisium franzi* Beier, 1974

In general, the false scorpion fauna of Nepal is perhaps among the best-known in Asia, with numerous endemic taxa involved [Schawaller, 1987, 1991]. One of such endemic forms is the monotypic genus *Nepalobisium* Beier, 1974, with the type, and only, species *Nepalobisium franzi* Beier, 1974. It was described from a single female holotype [Beier, 1974] still preserved in alcohol (NHMW, Pa. 126) and accompanied by the following label: Central Nepal, Thakkhola, Taksang, above Tukche, 3150 m, 23.VII.1971, leg. H. Franz.

The basic character that Beier considered of generic rank was the presence in *Nepalobisium* of only six trichobothria on the fixed finger of the pedipalp, as opposed to seven or eight in the remaining Neobisiidae. Based on the original description alone, all other traits of *N. franzi* resembled those of the widespread trans-Palaearctic *Microbisium brevifemoratum* (Ellingsen, 1903) so vividly that, in connection with the first record of *M. brevifemoratum* in northern Pakistan, Dashdamirov [2005] suggested, but not formalised, their synonymy.

It is noteworthy that, since its description, *Nepalobisium franzi* was recorded in Nepal two times [Schawaller, 1987, 1991]. In both cases, however, most if not all of the material referred to by Schawaller consisted of immature individuals (deutonymphs) characterised by the presence of six trichobothria on the fixed finger, and further two on the mobile finger, of the



Figs 1 & 2. *Nepalobisium franzi* Beier, 1974, ♀ holotype: 1 — left chela, lateral view; 2 — right chela, lateral view. Scale bar 0.1 mm.

Рис. 1 и 2. *Nepalobisium franzi* Beier, 1974, голотип ♀: 1 — левая хела сбоку; 2 — правая хела сбоку. Масштаб 0,1 мм.

pedipalp. This 6+2 formula alone would seem sufficient to unequivocally refer that material to *Microbisium* deutonymphs.

Morikawa [1968] recorded in Nepal a tritonymph he identified as an *Ideobisium* sp. Schawaller [1987], with reservation though, referred this report to *Nepalobisium franzi*. The 3+1 trichobothriotaxy formula as depicted by Morikawa, however, suggests that in fact this might have been a protonymph. Based on its very small size, this could well have represented *Microbisium brevifemoratum*.

A re-examination of the holotype of *N. franzi* revealed that actually it is abnormal. Thus, the left chela (Fig. 1) shows six trichobothria on a deformed, slightly shortened fixed finger (chelal length/width ratio, 3.0, according to Beier [1974]), while the right chela (Fig. 2) is absolutely normal and supplied with seven trichobothria (total length with pedicel 0.56 mm, hand with pedicel, 0.3 mm, moveable finger, 0.3 mm, length/width ration of chela, 2.8). So the holotype appears to demonstrate the classical 7+3 trichobothriotaxy pattern characteristic of a *Microbisium*. Furthermore, the location of the trichobothria, especially that of trichobothrium IST, as well as body size, the shape of the epistome and carapace, certain proportions of the pedipalp etc. clearly indicate that *Nepalobisium franzi* Beier, 1974 is only a new subjective junior synonym of *Microbisium brevifemoratum* (Ellingsen, 1903), **syn.n.** This also means that *Nepalobisium* Beier, 1974 is only a new subjective junior synonym of *Microbisium* Chamberlin, 1930, **syn.n**.

The distribution range of *M. brevifemoratum* is thus to be extended further to the south, to cover the Himalaya as well. This is undoubtedly the most widespread congener that occurs in humid habitats throughout the Palaearctic, possibly even beyond.

Evidence of parthenogenesis in Eurasian *Microbisium* species

Parthenogenesis has long been suggested in some Pseudoscorpiones [Chamberlin, 1931], but very little has since been revealed in this respect. Males in the populations of both species of *Microbisium* occurring basically in the Nearctic appear to be extremely rare to absent [Chamberlin, 1930; Nelson, 1973, 1982, 1984]. Such a profoundly female-biased sex ratio strongly suggests parthenogenesis.

As regards the Asian congeners, *M. pygmaeum* (Ellingsen, 1907), from Japan and Korea, is shown to lack males [Sakayori, 1989]. The few sexed samples of widespread *Microbisium* species in Europe, e.g. of *M. brevifemoratum* and *M. suecicum* Lohmander, 1945 in Poland [Jędryczkowski, 1987], contained no males. The recent record of males and females of *M. brevifemoratum* in Pakistan [Dashdamirov, 2005] erred in that those samples actually contained 16 adult females, but no males whatever. This allows for the conclusion to be drawn that several species of *Microbisium*, both Nearctic (*M. brunneum* (Hagen, 1868) and *M. parvulum* (Banks, 1895)) and Palaearctic (*M. brevifemora-*

tum, M. pygmaeum, possibly also *M. suecicum*), show parthenogenesis, likely thelytoky which is so widespread among Arthropoda.

Parthenogenesis, often coupled with vast distributions, seriously exacerbates the taxonomic problems encountered in *Microbisium* [Nelson, 1984]. Thus, Harvey [1990] lists seven species of this genus as occurring in Eurasia. In contrast, Schawaller [1985, 1989] questions the differences between the European and central Siberian *M. brevifemoratum*, on the one hand, and the populations from the Russian Far East (usually referred to as *M. brevipalpe* (Redikorzev, 1922)), Korea and Japan (normally referred to as *M. pygmaeum*), and even North America (*M. parvulum*), on the other hand. Moreover, Schawaller [1995], when providing several records of *M. brevifemoratum* in China, explicitly referred to its trans-Palearctic distribution pattern.

It is experimental work, primarily on the genetics, cross-breeding and behaviour of *Microbisium* species at the population level that is deemed to provide the necessary clues to solving at least some of the taxonomic problems this genus is so rich in.

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