

Interstitial water mites of Argentina: *Omartacarus* Cook (Omartacaridae) and *Meramecia* Cook (Limnesiidae) (Acari: Hydrachnidia)

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Abstract

A male exemplar identified as *Omartacarus brevipalpis* Cook, collected in Tucuman (Argentina), is reassigned to *O. tucumanensis* Fernández, as is the nymph described by Cook in 1980 near the type locality of *O. tucumanensis*. New distributional data are presented for *Omartacarus* and *Meramecia* (*Submeramecia*) *diamphida* Cook. *Meramecia saltensis* Fernández is assigned to the subgenus *Parameramecia*, where it is the second species at the present.

Key words: Hyporheic, *Parameramecia*, *Submeramecia*, stygobiotic, wide distributions

Introduction

The stygobiotic (sensu Gibert et al. 1994) water mites in South America and especially in Argentina are richer than previously expected (Cook, 1980, 1988). The diversity of this interesting group of mites is far from completely known, as recent sampling in river floodplains is revealing many new forms (Fernández, 1987, 1988, 1993, 2001, Fernández and Palacios, 1989, Fernández and Grosso, 1991).

The family Omartacaridae was proposed by Cook (1980) to accommodate the genera *Omartacarus* and *Maharashtracarus*. Unlike most families of water mites, in which species can be found in surficial and hyporheic water, species of Omartacaridae (and other five families), are exclusively interstitial (Di Sabatino et al. 2000). Within the Limnesiidae, the subfamily Neomamersinae currently includes three genera (*Meramecia*, *Neomamersa* and *Arizonacarus*) whose relationships and characteristics were discussed by Smith and Cook (1994). These authors concluded that this South American group is diversified from gondwanic ancestors.

The purpose of this paper is to present a description of the male of *Omartacarus tucumanensis* Fernández, to add a new southern record of the interstitial species *Meramecia diamphida* Cook and to assign *Meramecia saltensis* Fernández to the subgenus *Parameramecia*.

Specimens were collected by the author except when noted otherwise. Specimens are deposited in the Instituto Miguel Lillo (IML), Tucuman, Argentina. All specimens were collected from the hyporheic zone using the Karaman-Chappuis method (Fernández and Palacios, 1989).

Omartacaridae Cook

Omartacarus tucumanensis Fernández 1988

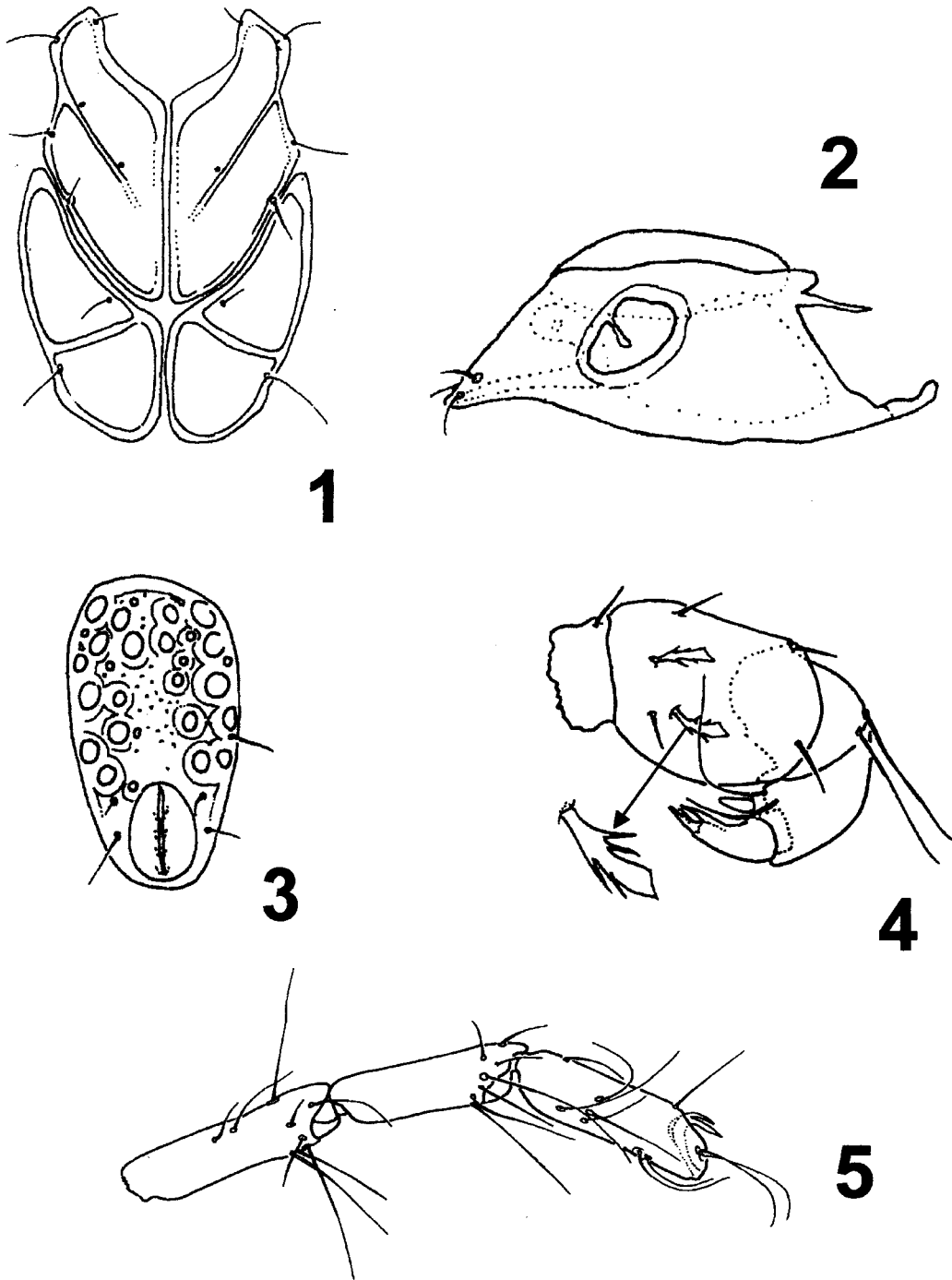
Omartacarus tucumanensis Fernández, 1988: 395 - Fernández & Grosso, 1991: 43

Omartacarus cf. brevipalpis Fernández, 1993: 112.

Omartacarus (Omartacarus) sp. Cook, 1980: 108

Male: Body soft and elongated. Length of body 770 μ , colorless, coxal area typical of the genus (Fig. 1), suture between first and second coxae incomplete, length between anterior end of first coxae and posterior end of fourth coxae, 255 μ , medial separation of first and fourth coxae 171 μ . Capitulum (Fig. 2) 140 μ in length, rostrum gradually tapering anteriorly and without distinct annulations. Genital field (Fig. 3) 115 μ in length and 59 μ in width. Gonopore 38 μ in length and located near posterior end of genital field, genital acetabula 10 on each side. Dorsal lengths of the palpal segments (Fig. 4): P-I, 14 ; P-II, 56 μ ; P-III, 24 μ ; P-IV, 45 μ ; P-V, 31 μ ; P-II bearing two medial setae expanded (Fig. 4), P-III bearing two long distodorsal setae, P-IV with a ventral setal tubercle bearing a long curved seta and a big peg-like seta. P-V with four structures like a crown, tapering distally. Dorsal lengths of the distal segments of the first leg (Fig. 5): I-Leg-4, 150 μ ; I-Leg-5, 91 μ ; I-Leg-6, 73 μ . A few long, thin setae present but no true swimming hairs. Dorsal lengths of the distal segments of the fourth leg: IV-Leg-4, 180 μ ; IV-Leg-5, 140 μ , IV-Leg-6, 175 μ .

Specimens examined: Argentina; Tucuman province. Departamento Burreyacu, Medina Hills, Medina river (Type locality), 785 m above sea level (= masl) (27° 01' S; 65° 04' W); 1 male (A05016 IML), 31 July 1984. Affluent Medina River 1 female (A21007 IML), 20 October 1986; San Javier Hills, Cañas River 750 masl (26 ° 48' S; 65° 20' W IML); 1 female (A25009 IML) 19 February 1987. Salta province. Departamento Metan, Piedras River 820 masl (25° 30' S; 64° 58' W); 1 female (A29300 IML), 18 July 1996. La Rioja, Departamento Valle Fertil, Potrereros River (30° 37' S; 67° 32' W) 4 female (A13002-005 IML), in leg. L. Grosso, 5 October 1981.



FIGURES 1-5. *Omartacarus tucumanensis*, male. fig. 1: ventral view coxal plates; fig. 2: lateral view of capitulum, fig. 3: genital field; fig. 4: lateral view of palp and setae detail; fig. 5: distal segments first leg.

Discussion: The male described above occurred in the same collection as an *O. tucumanensis* female. However, I had initially assigned the specimen to *O. brevivalpis*, with some doubt. Years later (February 1994) D.R. Cook called my attention to several differences between *O. brevivalpis* and the Argentine exemplar. Then I reanalyzed the information about *Omartacarus* obtained to the present, distribution data, and observed frequency of females in other collections (Fernández unpublished data). After these studies I decided to re-identify this male specimen as *O. tucumanensis*. This decision is also supported by its occurrence near the type specimen's locality; the differences from the female *O. tucumanensis* can be attributed to sexual dimorphism. The characters present in *O. tucumanensis* females (capitulum rostrum and P-IV peg-like seta), which we can attribute to a neotenic retention of some nymphal characteristics, are remarkable. Conversely, Cook (1980) observed that some nymphs of *Omartacarus* have a well-developed ejaculatory complex without a gonopore. I also tentatively assign the nymph collected by Cook (1980) from Tucuman province to *O. tucumanensis*. It was collected 8 km southern of *O. tucumanensis* type locality.

Omartacarus tucumanensis differs from *O. brevivalpis* by lacking the P-II distoventral projection, having P-II medial setae expanded and the ventral setal tubercle and associated curved seta smaller, and having fewer genital acetabula (16-18 in *O. brevivalpis*).

Limnesiidae Thor

Neomamersinae Lundblad

Meramecia (*Submeramecia*) *diamphida* Cook

Meramecia (*Submeramecia*) *diamphida* Cook, 1980. 65.- Ferradas & Mattoni, 1999. 114. - Fernández, 2001. 22.

Female: Entire dorsal shield 535 μ in length; anterior plate of the dorsal shield 143 μ in length, 208 in width; posterior plate of dorsal shield 381 μ in length, 241 μ in width.

Specimens examined: Argentina, San Luis. Departamento Pringles. Rosario River, 900 masl, 4 Km of the La Toma town. 1 female (A29029 IML), in leg. M. Peralta.

Remarks: At the present the subgenus *Submeramecia* includes only *M. diamphida*, known from Argentina. Recently Fernández (2001) indicated the notable separation among localities of *M. diamphida* in Argentina (Tucuman, Cordoba, Misiones). This species seems equivalent in distribution to *M. (Meramecia) ocularis* Cook from United States (Smith and Cook, 1994). This species is widespread throughout the Appalachians from Alabama to New Brunswick. This aspect of water mite distribution is accepted as common in subterranean forms (Di Sabatino et al. 2000). However this generalized assumption of wide distributions among meiofaunal taxa has been recently questioned (Rundle et al. 2000).

***Meramecia (Parameramecia) saltensis* Fernández: ad nov. comb.**

Meramecia saltensis Fernández, 2001. *Physis*, 58 (134-135): 22.

Recently a new species of *Meramecia* was described based on one female specimen collected in Salta province, Argentina (Fernández, 2001). After the study of the original description (Smith and Cook, 1994) of the subgenus *Parameramecia* from Arizona (U.S.A.) and comparison of *M. saltensis* with *M. (P.) multipora* Smith and Cook, I conclude that the Argentine species fits well within the subgenus description.

The inclusion of the new species from Salta requires a revision of the diagnosis of the subgenus *Parameramecia*. Acetabula number should be expanded as follows: 4-8 in the anterior group, 4-7 in the middle group, and 5-11 in the posterior group.

A good character for differentiating members of the subgenera *Meramecia* and *Parameramecia* is the size of the peg like seta on P-II, which is much more robust in *Parameramecia* species.

In contrast, the ventral P-IV setae seem to be variable in length among *Parameramecia* species. Likewise, in *Meramecia saltensis* the thick ventral setae on tibiae of legs I are located distally, while in *M. multipora* they are located near the middle of the segment. Thus, the location of these setae is not a good character for differentiating between subgenera as proposed Smith and Cook (1994). Finally, the legs of *M. saltensis* have setiferous blade-like spines as do members of the *Meramecia* subgenus. The spines of this type are absent in other *Parameramecia* species, being autapomorphic for *M. multipora*.

Remarks: The geographic distribution of *Parameramecia* is disjunct (United States and Argentina). However, this distribution may be a result of the absence of collections in the Neotropics (Cook, 1980).

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