

Two new species of the water mite family Pontarachnidae (Acari: Hydrachnidia), with a discussion of the taxonomic status of *Pontarachna hinumaensis* Imamura

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Abstract

Two new species are described of the predominantly marine water mite family Pontarachnidae, i.e. *Pontarachna africana* n. sp. from South Africa and *Litarachna hongkongensis* n. sp. from Hong Kong, China. *Pontarachna hinumaensis* Imamura, 1958 is synonymized with *P. anellata* Sokolov, 1936. A checklist is provided of all known species of Pontarachnidae, including their geographical distribution.

Key words: Acari, Hydrachnidia, Pontarachnidae, water mites, new species.

Introduction

Water mites of the family Pontarachnidae Koenike are widely distributed in the world, with the exception of South America, Antarctica and the Atlantic coasts of Europe and North America. Most species live in the marine littoral, but a few species are known from freshwater or brackish water habitats. Only two genera have been described, i.e. *Pontarachna* Philippi and *Litarachna* Walter, with 13 (+ one subspecies) and nine known species respectively (see Table 1). Two more *Litarachna* species are reported from Southeast Africa (Wiles pers. communication), three more *Pontarachna* and two more *Litarachna* species from Western Australia (Smit in prep.).

In this paper two new species are described, one *Pontarachna* species from South Africa and one *Litarachna* species from Hong Kong, China.

TABLE 1. Known *Pontarachna* and *Litarachna* species with their distribution

Species	Distribution
<i>Pontarachna adriatica</i> Morselli, 1980	Mediterranean Sea, Italy
<i>P. anellata</i> Sokolov, 1936	Pacific, Sea of Ochotsk; Hinuma marsh, Japan
<i>P. capensis</i> Lohmann, 1907	South Africa, Cape Town
<i>P. cruciata</i> Hall, 1912	Pacific, California
<i>P. erythraea</i> K.O. Viets, 1966	Red Sea, Egypt
<i>P. formosae</i> Lohmann, 1909a	Taiwan
<i>P. hoffmannae</i> Cook, 1996	South Africa
<i>P. otto</i> Harvey, 1998	Queensland, Australia
<i>P. pacifica pacifica</i> Uchida, 1935	Pacific, Japan
<i>P. pacifica pilosa</i> Sokolov, 1936	Pacific, Japanese Sea
<i>P. pontica</i> K. Viets, 1928	Black Sea, Ukraine
<i>P. punctulum</i> Philippi, 1840	Black Sea, Ukraine; Mediterranean Sea (wide-spread); Red Sea, Egypt
<i>P. valkanovi</i> Petrova, 1978	Black Sea, Bulgaria
<i>Litarachna amnicola</i> Cook, 1986	Tasmania, Australia
<i>L. communis</i> Walter, 1925	Mediterranean Sea (widespread)
<i>L. degiustii</i> Cook, 1958	Bimini, Caribbean Sea
<i>L. denhami</i> (Lohmann, 1909b)	Western Australia; Red Sea, Egypt; South Africa
<i>L. divergens</i> Walter, 1925	Mediterranean Sea; Black Sea; Japan
<i>L. duboscqi</i> Walter, 1925	Mediterranean Sea (widespread)
<i>L. halei</i> (Womersley, 1937)	South Australia
<i>L. kamui</i> Uchida, 1935	Japan
<i>L. sabangensis</i> K.O. Viets, 1984	Camotes Sea, Philippines

Material and methods

All holotypes are deposited in the Zoological Museum of the University of Amsterdam (ZMAN), paratypes in the Zoological Museum and the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main (SMF). The following abbreviations are used: PI-PV palp segments 1-5; IV-leg-4-6 fourth-sixth segments of fourth leg. Measurements are in μm ; measurements of leg and palp segments are of the dorsal margins.

Family Pontarachnidae Koenike, 1910***Pontarachna* Philippi, 1840*****Pontarachna africana* n. sp.**

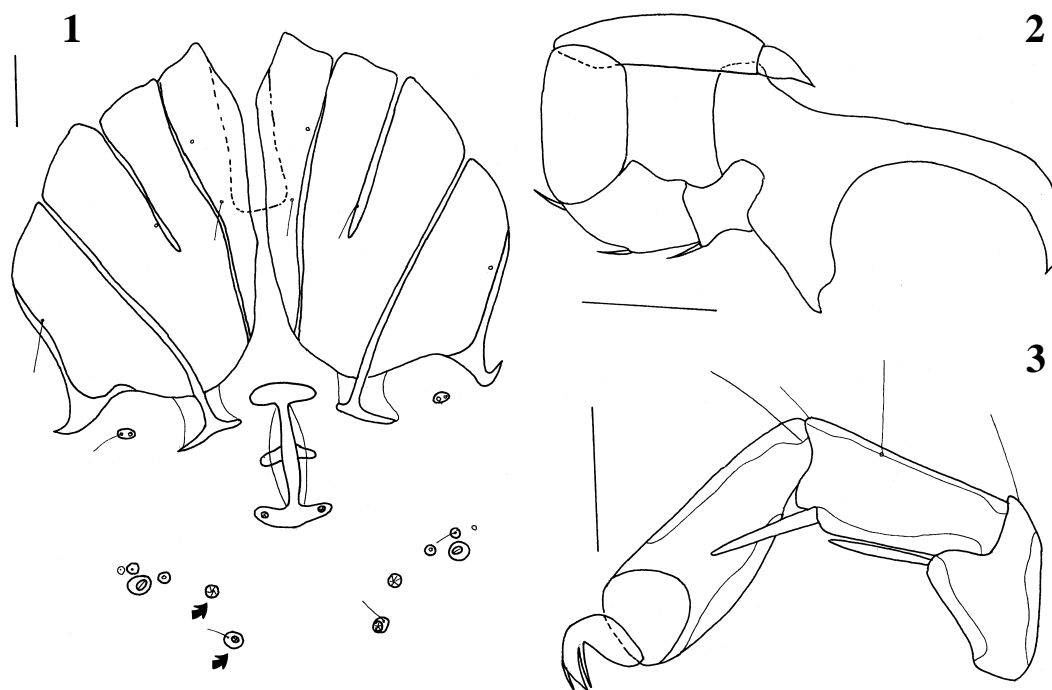
Figs. 1-3

Material examined

Holotype, female: Gansbaai, 100 km Southeast of Cape Town, South Africa, 28 November 2000, leg. D. Marshall & S. Proches (ZMAN). Paratype: 1 female, same data as holotype (ZMAN).

Diagnosis

In females the shape of the pre- and postgenital sclerites in combination with the configuration of the wheel-like acetabula are diagnostic for the new species. Male unknown.



FIGURES 1-3. *Pontarachna africana* n. sp., holotype female. 1, ventral view; 2, palp + capitulum; 3, I-leg-4-6. Scale bar 50 μ m.

Description

Female: body soft, 510 (526) long and 445 (421) wide. First coxal plates separated medially. Suture line of second and third coxal plates incomplete, suture line of third and fourth coxal complete and ending in apodemes. Both lateral and medial posterior apodemes of fourth coxal plates short. Pregenital sclerite slightly bowed, postgenital sclerite almost straight, 46 and 52 wide respectively. Pregenital sclerite located between medial posterior apodemes of fourth coxal plates. Postgenital sclerite with a pair of wheel-like acetabula sensu Cook (1996). Posteriorly of genital field two pairs of wheel-like acetabula (see arrows). Posteriorly of fourth coxal plates a large glandularium-like structure. Lengths of PI-PV: 20, 58, 56, 82, 22; ventral margin of PIV straight. Lengths of I-leg-4-6: 60, 80, 82. Lengths of IV-leg-4-6: 108, 130, 122; IV-leg-5 with two swimming setae.

Male: Unknown.

Remarks

Similar species are *Pontarachna valkanovi* and *P. pacifica*, which have more or less similarly shaped (although much narrower) pre- and postgenital sclerites. However, the configuration of the wheel-like acetabula of *valkanovi* and *pacifica* is different compared to the new species, while PIV of these species is more bowed.

Litarachna* Walter**Litarachna hongkongensis* n. sp.**

Figs. 4-8

Material examined

Holotype, female, Starfish Bay, on Serpulidae, Hong Kong, 20 April 1989, leg. I. Bartsch (ZMAN). Paratypes: 3 males, 2 females (ZMAN), 2 males and 2 females (SMF), same data as holotype.

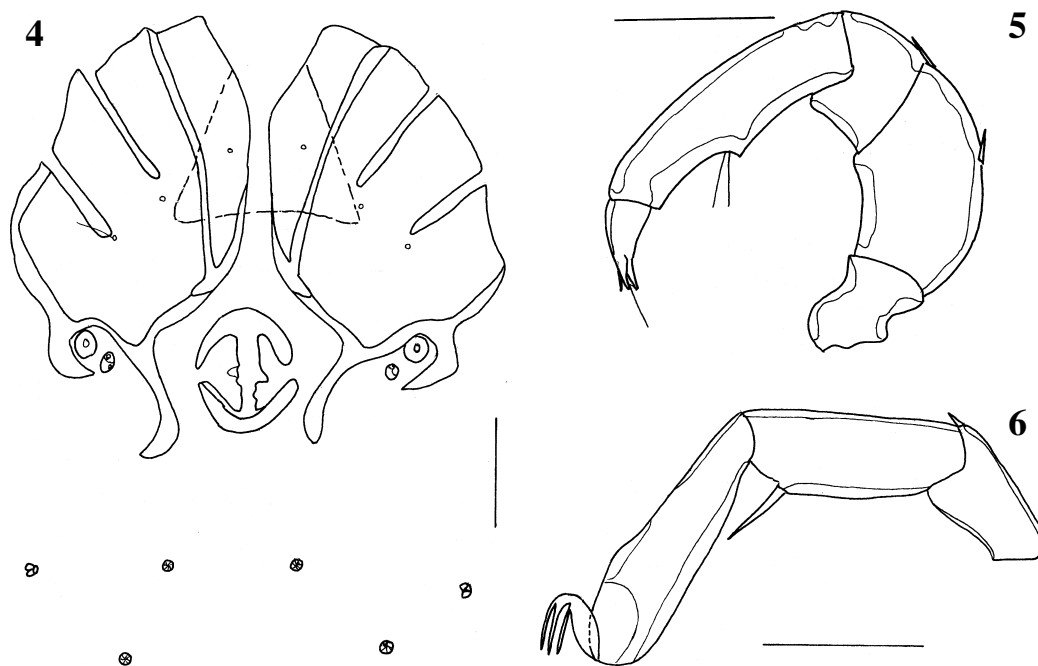
Diagnosis

Ventral margin of PIV with a small tubercle, pre- and postgenital sclerite of female bowed and almost touching, glandularium-like structure posteriorly of fourth coxal plates separated from accompanying setae.

Description

Female: Body soft, 348 (300-381) long and 300 (251-324) wide. First coxal plates separated medially. Suture line of second and third coxal plates and suture line of third and fourth coxal incomplete. Medial posterior apodemes of fourth coxal plates long, lateral apodemes short. Between these two apodemes a pair of glandularium-like structures, separated from accompanying setae. Genital field located between medial posterior apodemes. Genital field 56 long and 42 wide, pregenital sclerite and postgenital sclerite strongly

bowed and almost touching each other. Posteriorly of genital field two pairs of wheel-like acetabula. Dorsal lengths of PI-PV: 20, 74, 28, 90, 30. Ventral margin of PII slightly bowed, ventral margin of PIV with a setal tubercle. Lengths of I-leg-4-6: 48, 66, 70. Lengths of IV-leg-5-6: 104, 104; IV-leg-5 with two swimming setae.



FIGURES 4-6. *Litarachna hongkongensis* n. sp., holotype female. 4, ventral view; 5, palp; 6, I-leg-4-6. Scale bar 50 μ m.

Male: Body soft, 348 (316-365) long and 251 (284-332) wide. First coxal plates separated medially. Suture line of second and third coxal plates and suture line of third and fourth coxal incomplete. Medial posterior apodemes of fourth coxal plates long, lateral apodemes short. Between these two apodemes a pair of glandularium-like structures, separated from accompanying setae. Genital field located between medial posterior apodemes. Genital field 28 long and 25 wide, sclerotized ring around gonopore with four pairs of setae. Around genital field relatively few (approximately 20) short setae. Posteriorly of genital field two pairs of wheel-like acetabula. Lengths of PI-PV: 15, 76, 26, 86, 30; palp as in female. Lengths of I-leg-4-6: 50, 70, 66. Lengths of IV-leg-4-6: 95, 114, 102. IV-leg-5 with two swimming setae.

Remarks

The new species is remarkably similar to the Mediterranean *L. duboscqi* in the shape of the palp and coxal plates. Differences can be found in the glandularium-like structure

posteriorly of the fourth coxal plates, which is fused with the accompanying setae in *duboscqi*, and separated in the new species. Moreover, the anterior pair of wheel-like acetabula is much more separated in the new species. The palps of the two species are similar. In the holotype the setal tubercle appears smaller compared to *L. duboscqi*, but paratypes (fig. 8) have PIV similar to that of *duboscqi*.



FIGURES 7-8. *Litarachna hongkongensis* n. sp., paratype. 7, ventral view (male); 8, palp (female). Scale bar 50 μ m.

On the identity of *Pontarachna hinumaensis* Imamura

Imamura (1958) described *P. hinumaensis* from a brackish water marsh in Japan. In his description he pointed on the similarity of this species with *P. anellata* Sokolov, known from the Sea of Ochotsk (Russian Pacific coast). According to Imamura (1958) differences between the two species can be found in the shape of the posterior apodemes of the fourth coxal plates and in the relatively longer PIV of *P. hinumaensis*. When comparing the illustrations of both species, they show a striking similarity in the shape and configurations of the wheel-like acetabula: the wheel-like acetabula are very large, a characteristic not found in other *Pontarachna* species. The length of PIV of the two species is almost the same. *Pontarachna anellata* is only known from the female sex, and *P. hinumaensis* only known

from the male sex. Within the genus *Pontarachna* sexual dimorphism can be found in the shape of the posterior apodemes of the fourth coxal plates, as can be seen in the illustrations of *P. pacifica* by Uchida (1935). The female of *P. pacifica* has longer apodemes compared to the male, and this is also found in *anellata* and *hinumaensis*. The only difference between the two species is the complete suture line of the second and third coxal plates in *hinumaensis*, but as this is only found on one side, it must be considered more as an anomaly than as a character of this species. Therefore, I consider *P. hinumaensis* a junior synonym of *P. anellata*.

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