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

HARRY SMIT
Zoological Museum, University of Amsterdam, Plantage Middenlaan 64, 1018 DH Amsterdam, The Netherlands (smit.h@wolmail.nl)

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

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

### 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.
Systematics

Family Pontarachnidae Koenike, 1910

Pontarachna Philippi, 1840

Pontarachna africana n. sp.

Figs. 1-3

Material examined


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, 1-leg-4-6. Scale bar 50 μm.
**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. Barttsch (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 μm.

**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 μm.

**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*.

**Acknowledgements**

I am indebted to Dr Ilse Bartsch (Forschungsinstitut Senckenberg) for providing the specimens from Hong Kong, to Dr David Marshall (University of Durban-Westville, Durban) and Serban Proches for providing specimens from South Africa and to Dr M. Grasshoff (Senckenberg Museum) for the loan of reference material of *Litarachna duboscqi* from the Viets collection. Johannes Postma (Ann Arbor) improved the English.

**References**


*PONTARACHNIDAE* © 2002 Magnolia Press


