

TWO MORE NEW SPECIES OF *LECANE* (ROTIFERA, MONOGONONTA) FROM THAILAND

by

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SUMMARY

Two new species of *Lecane*, *L. shieli* n. sp. and *L. thailandensis* n. sp. are described from two localities in Thailand. *L. shieli* n. sp. is known from the type locality only, and occupies an isolated position in the genus, whereas *L. thailandensis* n. sp. is also known from China, and is close to *L. latissima*.

Key words : Rotifera, taxonomy, *Lecane*, new species, Thailand.

INTRODUCTION

The genus *Lecane* NITZSCH, 1827 is, with over 160 valid species, one of the most species-rich of all Rotifera. It reaches its highest diversity in the tropics and sub-tropics, but representatives are also found in the Arctic and Antarctic. Although many species are cosmopolitan, a considerable number have restricted distributions, are endemic or have been found on single occasions only (SEGERS, 1994a). Considering that the rotifer fauna of South East Asia has received relatively little attention so far, it came as no surprise to find representatives of three hitherto unknown species in samples from Thailand. Of one of these species, a single specimen only was found. The taxon is figured and commented upon, but not named.

MATERIAL AND METHODS

Samples were collected using a 30 μ m mesh-size plankton net, and preserved in 4 % formaldehyde. Specimens were picked under a Wild M5 dissection microscope, and examined using a Olympus CH2 microscope. Trophi were isolated by dissolv-

ing tissues with NaOCl. Scanning Electron Microscopy (S.E.M.) was performed using a JEOL JSM-840 microscope on critical-point dried specimens.

All measurements are in μm .

RESULTS

Representatives of hitherto unknown *Lecane* were present in two samples from Sakon Nakhon province (North-East Thailand). One species occurred as a single specimen (Fig. 1). It may have been confused with *L. aculeata* (JAKUBSKI, 1912) (Fig. 2) in the past, as it bears a strong but superficial resemblance to that species. However, it is much larger, and its antero-lateral spines are prolongations of the ventral plate, rather than emerging from between the ventral and dorsal plate as in *L. aculeata*.

Two species appeared in numbers, sufficient to warrant description. They are as follows :

Lecane shieli n. sp.

Figs 3a-b

Material examined

Holotype (RIR 35) and five paratypes (RIR 34) deposited in the royal Belgian Institute for Natural Sciences, Brussels (K.B.I.N. : IG 28055). Five paratypes in the collection of the Institute of Animal Ecology (RUG) and in the second author's collection each. All from Nam Pung reservoir, Sakon Nakhon province, Thailand, 4 June 1993 (type locality). Many more specimens, all parthenogenetic females, present in the sample.

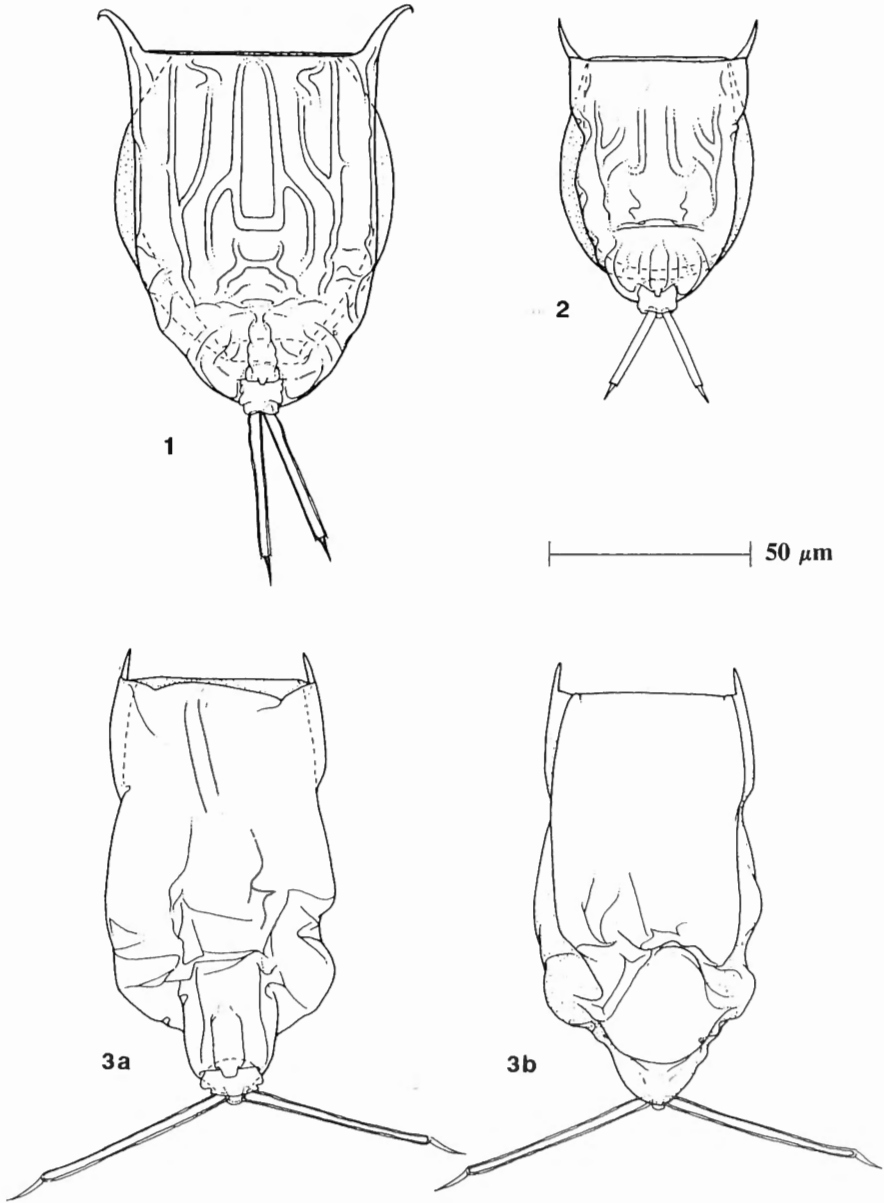
Differential diagnosis

L. shieli n. sp. can hardly be confused with any congener, by its characteristic soft and elongate lorica, long toes and peculiar claws. The species appears close to *L. eutarsa* HARRING and MYERS, 1926 and relatives, but cannot be mistaken for any of these by the above-mentioned characters.

The species keys out to *L. eswari* DHANAPATHI, 1976 using the identification key by SEGERS (1994a), but can, however, not be confused considering the stiffer, less elongate lorica, shorter antero-lateral spines and toes, and straight claws of *L. eswari*.

Description

Parthenogenetic female (male unknown) : lorica relatively soft, irregularly folded through conservation. Dorsal plate consistently narrower than ventral plate, elongate. Head aperture margins nearly coincident, straight or with irregular



Figs 1-3. — 1. *Lecane* sp., ventral view. — 2. *L. aculeata* (JAKUBSKI), ventral view. — 3. *L. shieli* n. sp. a : ventral view, b : dorsal view.

notches. Antero-lateral corners armed with long, sharp and straight spines. Ventral plate longer than wide, generally parallel-sided, irregularly folded. No lateral sulci. Foot plate especially separated, coxal plates indistinct. Prepedal fold narrow,

elongate, distally with median projection. Foot pseudosegment short, not or scarcely projecting. Toes long and slender, nearly parallel-sided, slightly outcurved distally. Claws weakly curved, inserted eccentrically.

Measurements : dorsal plate length 94-101, width 41-46, ventral plate length 99-115, width 51-59, toe length 48-51, claw length 7-11.

Etymology

The species is named after Dr. R. J. Shiel (Albury, Australia), in recognition of his work on Rotifera.

Distribution and ecology

Only known from the type locality. At the time of sampling, temperature was at 26° C, conductivity 85 μ S and pH 7.8. A list of the accompanying rotifer fauna is presented in table 1.

TABLE 1

*Rotifer record of a sample from Nam Pung reservoir,
Sakon Nakhon province, Thailand.*

<i>Ascomorpha ovalis</i> (BERGENDAL, 1892)	<i>L. ludwigii</i> (ECKSTEIN, 1883)
<i>Brachionus angularis</i> GOSSE, 1851	<i>L. luna</i> (O.F. MULLER, 1776)
<i>B. dichotomus</i> SHEPHARD, 1911	<i>L. lunaris</i> (EHRENBERG, 1832)
f. <i>reductus</i> KOSTE & SHIEL, 1980	<i>L. papuana</i> (MURRAY, 1913)
<i>B. falcatus</i> ZACHARIAS, 1898	<i>L. shieli</i> n. sp.
<i>Colurella uncinata</i> (O.F. MÜLLER, 1773)	<i>L. rhenana</i> HAUER, 1929
f. <i>bicuspidata</i> (EHRENBERG, 1832)	<i>L. thailandensis</i> n. sp.
<i>Euchlanis dilatata</i> EHRENBERG, 1832	<i>Lepadella acuminata</i> (EHRENBERG, 1834)
<i>Keratella cochlearis</i> (GOSSE, 1851)	<i>L. biloba</i> HAUER, 1958
<i>K. lenzi</i> HAUER, 1953	<i>L. discoidea</i> SEGERS, 1993
<i>K. tropica</i> (APSTEIN, 1907)	<i>L. ehrenbergi</i> (PERTY, 1850)
<i>Lecane batillifer</i> (MURRAY, 1913)	<i>L. rhomboides</i> (GOSSE, 1886)
<i>L. bulla</i> (GOSSE, 1851)	<i>Macrochaetus collinsi</i> (GOSSE, 1867)
<i>L. closteroerca</i> (SCHMARD, 1859)	<i>Mytilina ventralis</i> (EHRENBERG, 1832)
<i>L. crepida</i> HARRING, 1914	<i>Ploesoma hudsoni</i> (IMHOF, 1891)
<i>L. curvicornis</i> (MURRAY, 1913)	<i>Scaridium longicaudum</i> (O.F. MÜLLER, 1786)
<i>L. furcata</i> (MURRAY, 1913)	<i>Testudinella patina</i> (HERMANN, 1783)
<i>L. hastata</i> (MURRAY, 1913)	<i>Trichocerca braziliensis</i> (MURRAY, 1913)
<i>L. hornemanni</i> (EHRENBERG, 1834)	<i>T. chattoni</i> (DE BEAUCHAMP, 1907)
<i>L. leontina</i> (TURNER, 1892)	<i>T. similis</i> (WIERZEJSKI, 1893)
	<i>T. tropis</i> HAUER, 1938

Lecane thailandensis n. sp.

Figs 4a-i

L. hornemanni in WANG, 1961.**Material examined**

Holotype (RIR 32) and one paratype (RIR 33) deposited in the royal Belgian Institute for Natural Sciences, Brussels (K.B.I.N. : IG 28055). One paratype in the collection of the Institute of animal Ecology, RUG and in the second author's collection each. Two specimens on S.E.M. preparation. All from Nam Pung reservoir, Sakon Nakhon province, Thailand, 4 June 1993 (type locality). A single specimen from Nong Takai swamp, Sakon Nakhon province, Thailand, 5 June 1993.

In total, 10 specimens, all parthenogenetic females, were seen.

Differential diagnosis

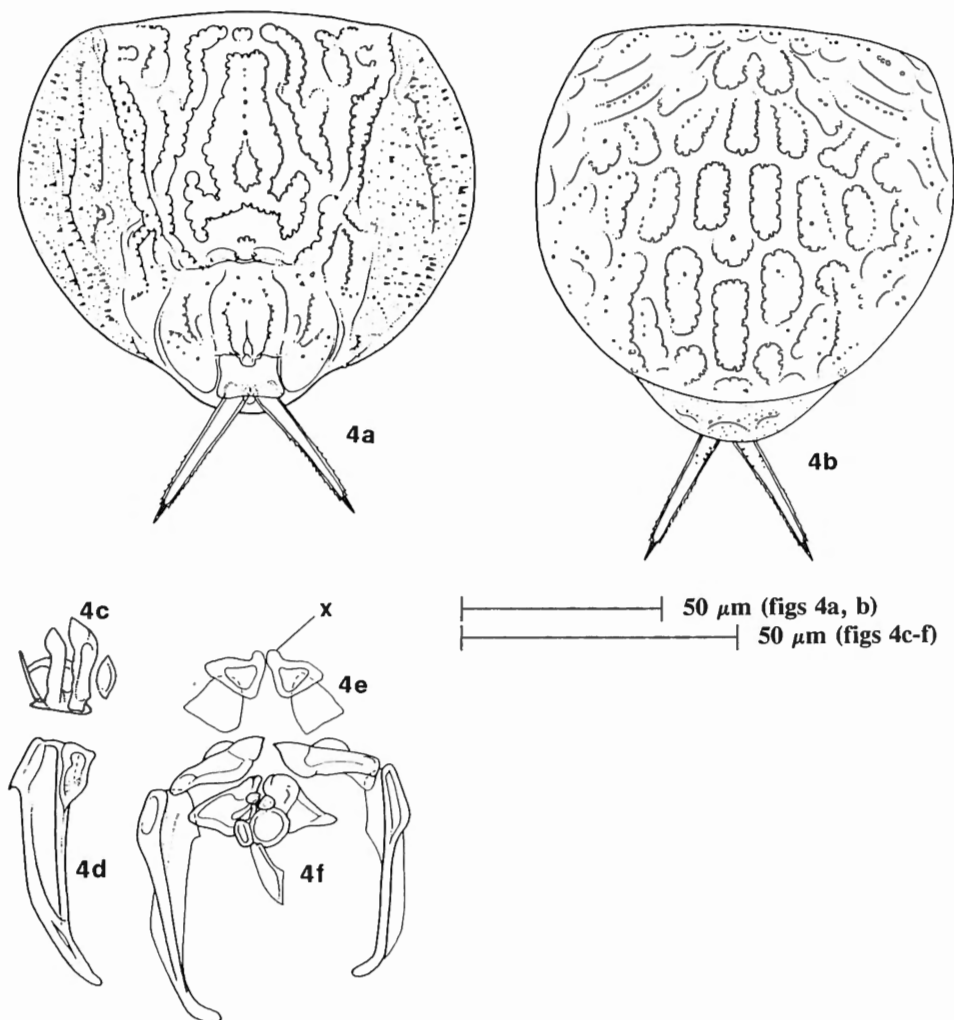
L. thailandensis n. sp. keys out to *L. latissima* YAMAMOTO, 1955. The two species differ by the lorica surface, which is strongly pustulated in *L. thailandensis* n. sp., and smooth in *L. latissima*. Differences in ecology and distribution of the two species add to the diagnosis : *L. latissima* is a well-known cold-stenotherm, *L. thailandensis* n. sp. is probably an Oriental, warm water species.

Both *L. thailandensis* n. sp. and *L. latissima* are distinguished from the related *L. hornemanni* (EHRENBERG, 1834) by their toes bearing claws, from *L. ruttneri* HAUER, 1938 by their larger size and dorsal plate being wider than long, and from *L. abanica* SEGERS, 1994 by their larger size and rounded lorica.

Description

Parthenogenetic female (male unknown) : Lorica relatively stiff. Dorsal plate wider than ventral plate, armed with rows of spines and with ornamental folds. Head aperture margins nearly coincident, straight or slightly convex, with rounded antero-lateral corners. Ventral plate slightly longer than wide, with incomplete transverse and longitudinal folds, ornamented with rows of spines. No lateral sulci. Foot plate broad, coxal plates rounded triangular. Prepedal fold relatively broad, elongate, distally with median projection. Foot pseudosegment constricted medially, not projecting. Toes long, slightly tapering to distally, with small spicules laterally and dorsally. Claws incompletely separated, bent dorsad.

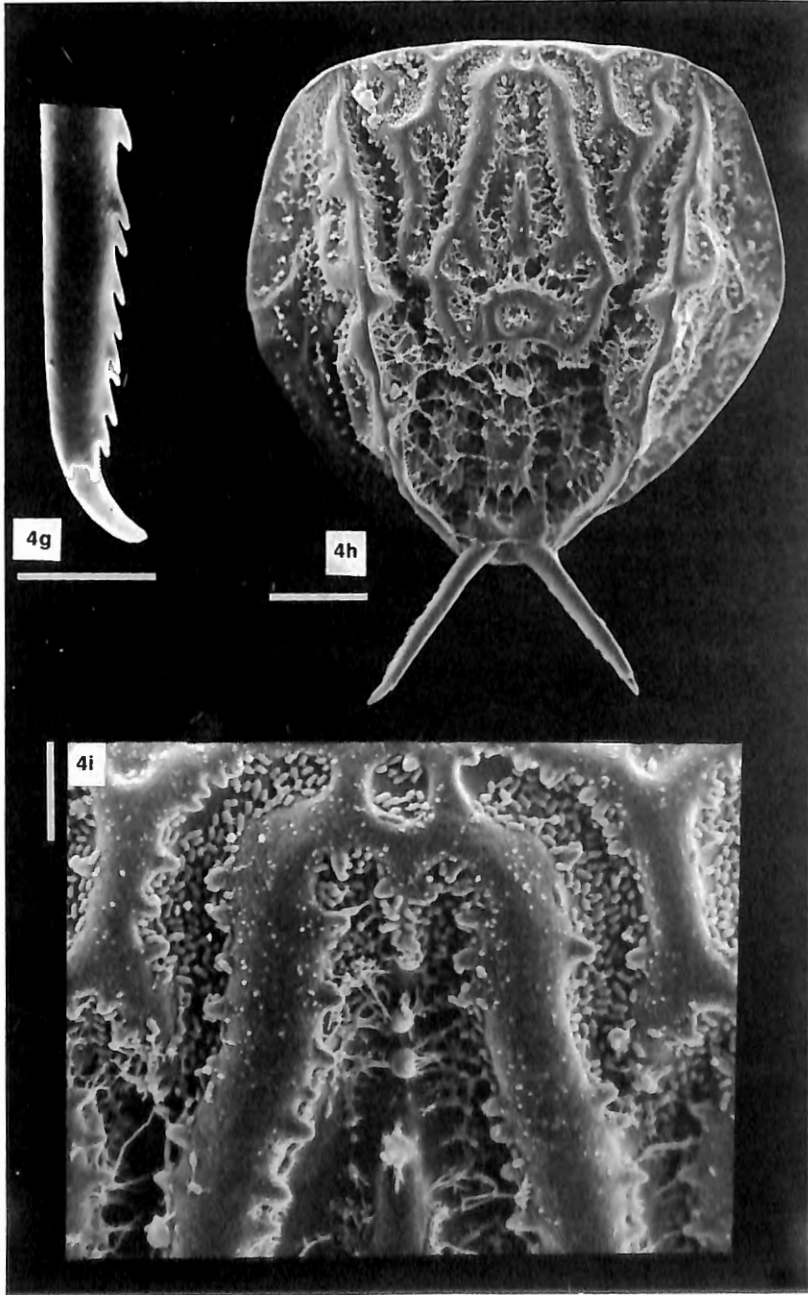
Measurements : dorsal plate length 85-95, width 95-110, ventral plate length 98-105, width 61-85, toe length 33-38, claw length 5-6.



Figs 4a-f. — *Lecane thailandensis*. — a. ventral view. — b. dorsal view. — c. right uncus, anterior view. — d. manubrium, lateral view. — e. preuncinal plates, ventral view ('x' : antero-median projection). — f. trophi, ventral view.

Etymology

The species name refers to the country from which the species was first recognised, Thailand.



Figs 4g-i. — *Lecane thailandensis*, S.E.M. photographs. — g. toe and claw, lateral view. — h. ventral view. — i. detail of ornamentation (scale bars : g, i : 5 μ m, h : 20 μ m).

Distribution and Ecology

L. thailandensis n. sp. was found in two samples from Sakon Nakhon province of Thailand, the Chinese record is from Dongqian Lake, Zhejiang Province. The species may be Oriental.

Ranges for some environmental characteristics of localities in which this species was found are : temperature 26-33° C, conductivity 85-110 μ S, pH 6.5-7.8. The rotifer fauna of the type sample is as in table 1.

Comments

By their similar lorica morphology, *L. thailandensis* n. sp. is closely related to *L. latissima*. Differences between the two are in the presence of an ornamented lorica in the former, whereas the lorica is smooth in the latter, and in the different ecology and distribution of the two species. Apart of these, differences in trophi morphology are apparent : compare figs 4c-f with the relevant drawings of *L. latissima* in SEGERS (1994b). A more pronounced asymmetry of the rami and rounded shape of the bulla rami in *L. thailandensis* n. sp., and differences in shape of the unci, manubria and, especially, preuncinal plates are apparent. On the other hand, the presence of a single, clearly discernable antero-median pair of rounded projections on the preuncinal plates ('x' in Fig. 4e), a character not seen in any other species examined, may point to their kinship. Obviously, these observations should be interpreted with care, as the observation angle appears not to be exactly the same in both cases, and only single specimens are compared.

The drawing of *L. hornemanni* by WANG (1961) undoubtedly represents a mis-identified *L. thailandensis* n. sp. WANG (*op. cit.*) did not report armed toes for his material. This is probably a consequence of the minute size of the toe spines, rather than being factual.

ACKNOWLEDGEMENTS

Mr. Guo Xiaoming is thanked for translating the relevant parts of Wang's (1961) work. The second author acknowledges a grant from the Belgian Administration for Development and Cooperation, to attend the international training course 'Lake zooplankton : a tool in lake management'.

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