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First records of a leptestherid clam shrimp in Australia (Crustacea,Spinicaudata,Leptestheriidae,*Eoleptestheria*)

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Abstract

Eoleptestheria ticinensis, a highly variable Eurasian species, was collected from three widely separated sites in northern Australia. Each population is described and compared with the eight described species of *Eoleptestheria*, now all synonyms of *E. ticinensis*. It is postulated that the Australian occurrences of these clam shrimps are initiated or maintained by dispersal due to migrating birds from China.

Keywords

Taxonomy, *Eoleptestheria ticinensis*, biogeography, dispersal, morphological variability

Introduction

Of the approximately 150 species of clam shrimps in the world (Brendonck et al. 2008), 31 are reported from Australia (Richter and Timms 2005; Timms in press; Timms and Richter in press). These are divided among the families Lynceidae (two species) Limnadiidae (17), Cyzicidae (11) and the Cyclestheriidae (1), but none in the Leptestheriidae. Of the later, Garcia and Pereira (2003) list 34 species worldwide, Brtek (1997) lists 35 valid species and Brendonck et al. (2008) count about 37 species. It is difficult to know how many species (and genera) there are because of wide variability within and between populations (e.g. Straškraba 1965) and because some authors synonymise species without argument (e.g. Brtek 1997; Naganawa 1999) and still others do not accept some genera (e.g. Brtek 1997; Dumont and Negrea 2002).

Herein, I report the first Australian records of leptestheriid clam shrimp, which on current understanding belongs to the genus *Eoleptestheria*.

Leptestheriid clam shrimps (Fig. 1) are characterised by having an elongated delicate carapace with numerous growth lines, head lacking a pyriforme frontal organ, a body of 22–32 segments, a rostral spine in both sexes, females with dorsal extensions to hold the eggs on thoracopods 10 and 11 or maybe up to number 15, a telson with numerous (>40) subequal fine dorsal spines, and a caudal furca also with numerous (>30) subequal fine spines (adapted from Dumont and Negrea 2002).

It is the purpose of this paper to describe three populations of *Eoleptestheria* recently found in Australian and to note their relationships.

Methods

Measurements were made using a stereomicroscope and a template placed under the specimens and marked in half millimetres (accurate to ±0.25 mm). Drawings were made with the aid of an ocular drawing tube. Thoracopod terminology is after McLaughlin (1980) and Ferrari and Grygier (2003). In the drawings of the fifth thoracopod not all setae are shown. Classification follows Martin and Davis (2001), and synonymy Straškraba (1965) and Naganawa (1999). Specimens were sourced from the Australian Museum, Sydney (AM), National Museum of Victoria, Melbourne (NMV), and The Department of Environment and Conservation Research Laboratories, Woodvale, Western Australia (DEC).

Taxonomy

Order Diplostraca Gerstaeker, 1866
Suborder Spinicaudata Linder, 1945
Leptestheriidae Daday, 1923

***Eoleptestheria* Daday, 1913**

***Eoleptestheria ticinensis* (Balsamo-Crivelli, 1859)**

Isaura ticinensis Balsamo-Crivelli, 1859: 115, Tab I.
Estheria ticinensis.– Grube, 1865: 234.
Eoleptestheria ticinensis.– Daday, 1913: 96, Fig.8a-o; Daday 1923: 263, Fig. 82 a-q; Straškraba, 1965: 578–584, Fig. 5–7, Tables III-V; Brtek and Thiery 1995: 266.
Eoleptestheria inopinata Daday, 1923: 262, Fig. 81 a-i; Straškraba, 1965: 581–582, Table V.
Eoleptestheria chinensis Daday, 1923: 269, Fig. 83 a-q; Uéno 1940: 99–100, 21–28; Røen 1952: 212, Fig.19; Straškraba, 1965: 581–582, Table V; Zhang et al. 1976: 24; Hu 1988: 82, Figs 92–98; Shu et al. 1990: Table 1.

Eoleptestheria variabilis Botnariuc, 1947: 82, Pls 1,2,4,5, Figs. 2,3; Straškraba, 1965: 581–582, Table V.
Eoleptestheria spinosa Marinček, 1978: 103–118.
Eoleptestheria spinosa tenuis Marinček & Valvajter, 1979: 155–167.
Eoleptestheria spinosa magna Marinček & Valvajter, 1982: 63–72.
Eoleptestheria spinosa mira Marinček & Petrov, 1983: 89–103.
Eoleptestheria dongpingensis Hu 1987: 341–347, Fig. 1–15; Hu 1988: 82–83, Figs 99–109; Zhang and Hu, 1992: Table 1; Shu et al. 1990: Table 1.
Eoleptestheria yanchowensis Shu et al., 1990: 410–416, Figs. 1–21, Table 1.
Eoleptestheria sangziensis Zhang and Hu, 1992: 65–72, Figs. 1–12, Table 1, syn. n.

Descriptions of Australian populations

Toomaroo population

Figs 1–3

Material examined. 9 females, Queensland, via Thargomindah, Bindegolly National Park, Lake Toomaroo, 27° 59´S, 144° 12´E, 1 February 2006, Mark Handley, AM.

Description of female. Carapace (Fig 2A) 6–7 mm by 3.3–4.6 mm, oval, but dorsally centrally humped, a dorsoposterior angle and no dorsoanterior angle and broadly rounded both ventroanteriorly and ventroposteriorly. Umbo only slightly developed and associated with a small protuberance anteriodorsally. Growth lines 15–22, unevenly spaced, with tighter spacing marginally and interstices between lines granular. Carapace thin, semitransparent and usually brown in colour, especially in the older areas.

Head (Fig 2B) with a rounded occipital condyle and well separated from the trunk. Conspicuous ocular tubercle and large winged fornices of triangular rostrum terminating in an anteriorly directed rostral spine, about one-third length of the rostrum. Ocellus oval and within rostrum, usually in a ventrobasal position.

First antennae about 1.5 times the length of the base of the second antenna and with 10–13 lobes, each with 2–4 dorsal setae. Second antenna base (Fig. 2D) with about 12 rows of dorsal spines and bearing two rami with 13–14 antennomeres each. Each antennomere with 3–8 dorsal spines and 2–6 ventral setae, all evenly spaced except terminal on basal antennomeres. Flagellum middle antennomeres with most spines and setae, while terminal and basal antennomeres with least spines and setae.

Trunk segments 24 (Fig. 1). Posteriormost 14 segments (Fig. 2E,F), sometimes fewer, armed dorsally with numerous spines inserted on a common broad base, triangular in central segments of the array, pedunculate in the 3–4 most anterior segments. Segments around 17 th (i.e. seventh last segment) with strongest and most (typically 13) spines, and those anterior to and posterior to this segment with fewer spines, e.g. 5 spines on third last segment. Fifth thoracopod (Fig. 3) with five endites on the medial surface, each about the same size. Also a comb-like discoid lobe (Ferriera and Grygier 2003) with many closely packed setae basally at right angles to the first endite. First endite with about 20 anterior and posterior setae, while remainder with about 12 anterior and posterior setae. All setae two segmented, but only the posterior setae plumose. Anterior setae 2–3 times longer on first endite than on endites 2–5. Distal posterior setae tend to be longer than proximal setae on each endite. Fifth endite with a long unsegmented palp with few setae and many setules apically. Sixth endite (= endopod of some authors) also elongated but longer and wider than the palp and with more setae than palp, more medially than externally. Bipolar exopod with distal part (the flabellum) long and finger-like and a similarly shaped but smaller proximal extension. Exopod clothed with a few setae similar in structure to the posterior setae of the endites. These setae limited to apex region of flabellum and middle external edge. Epipodite finger-like, about half the length of the proximal exopod. A triangular lamellar (cf Marinček 1978), edged with setae, protruding from base of flabellum. Gross examination of other thoracopods reveal slightly different proportions of some components, especially the exopod. Eleventh and twelfth pairs with flabellum sheathed and carrying eggs. Palp of fifth endopod of third thoracopod one segmented.

Telson (Fig. 2C) with a concave dorsal surface with about 40 (39–43) small spines of similar size throughout. Paired telsonic setae (filaments) inserted on slight mound between the first and second denticles. Caudal furca even curved, a little shorter than the dorsal surface of the telson, and with about 40 small, subequal spines arranged on a

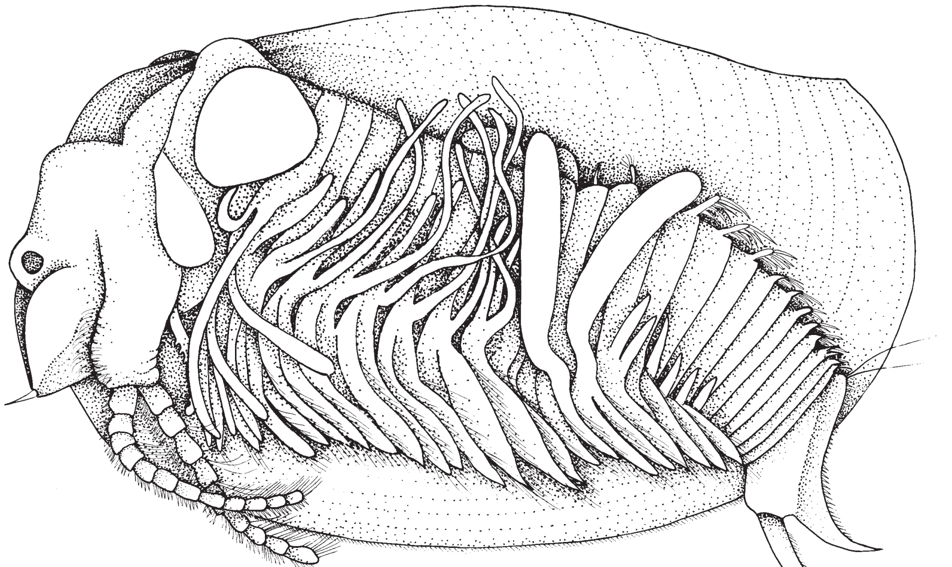

Figure 1. Lateral view of a whole female of *Eoleptestheria ticinensis* from Lake Toomaroo, Queensland. Drawing by Jane McRae.

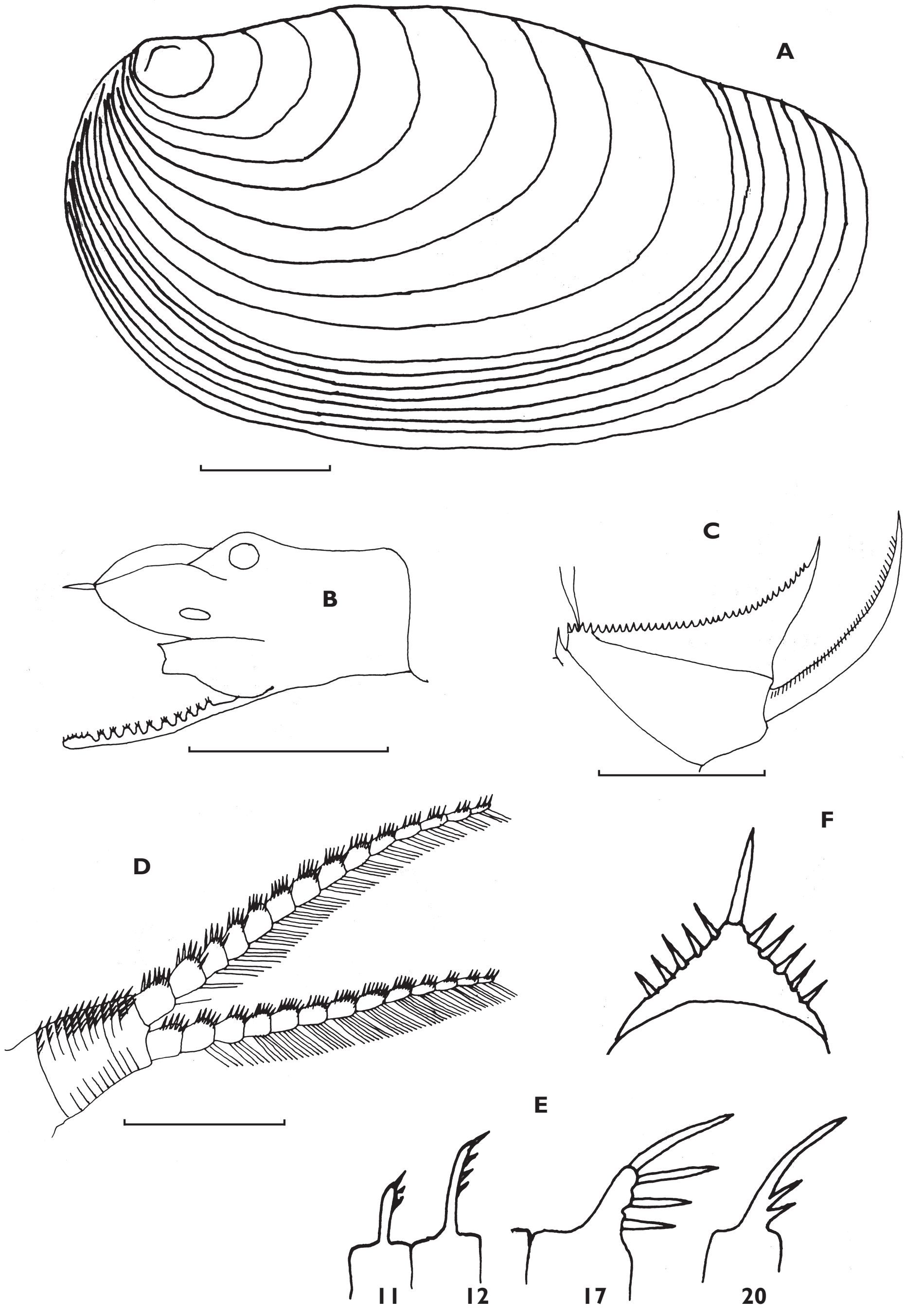

Figure 2. A female of *Eoleptestheria ticinensis* from Lake Toomaroo. **A** carapace **B** head **C** telson **D** second antenna **E** dorsal spination on segments, 11, 12, 17 and 20 **F** frontal view of spines and their common triangular base on segment 18. Scale bars 1 mm.

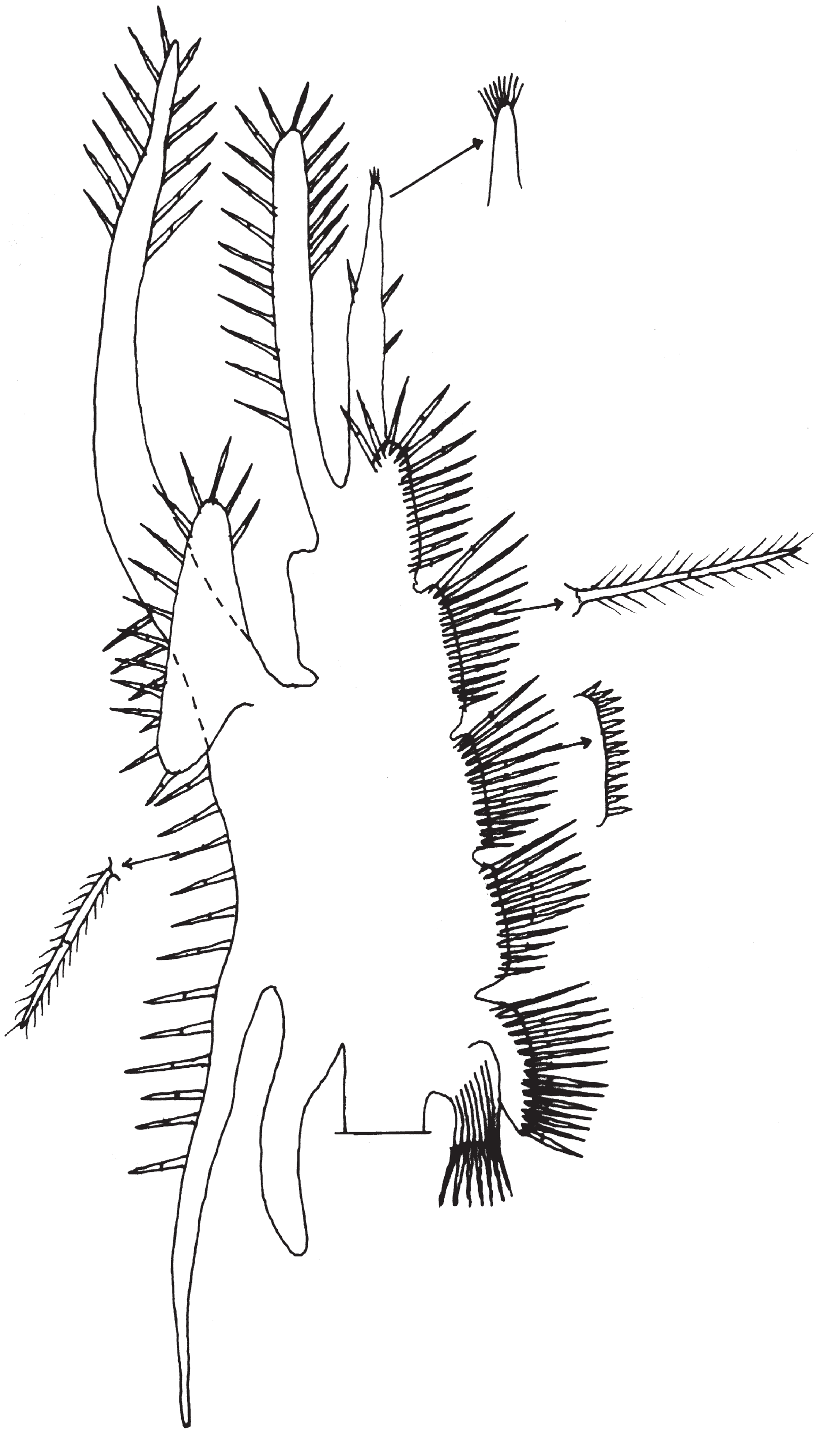

Figure 3. Fifth thoracopod of *Eoleptestheria ticinensis* from Lake Toomaroo. Only posterior setae shown on endites, though for third endite they are shown on an extra outline to the right of the main diagram.

curved line commencing on medial surface basally but on dorsal surface apically. These spines slightly smaller than the telsonic spines.

Kuranda population

Fig. 4

Material examined. 5 females, Queensland, via Cairns, Kuranda, Mrs Armitage, 27 February 2006, NMV J93994.

Description of female. Carapace (Fig. 4A) larger 9.0–9.8 by 5.8–6.4 mm with more growth lines (26–32), but same shape as in the Toomaroo material and with same number of body segments (24). Head (Fig. 4C) as in Toomaroo material. Dorsal armature similar to that in the Toomaroo material, but with slightly more segments (15) involved. Similar arrangement and number of dorsal spines, ie those on central segments on a quasiequilateral triangular base and number up to 13 per segment, those most posterior segments number fewer (3–7) and on a slightly protruding triangular base, and the most anterior on a column.

First and second antenna similar to those of the Toomaroo material, but with slightly different numbers (9–12 lobes on antenna 1 and 12–13 rami of antenna II).

Telson (Fig. 4D) with more spines (ca 50–60) and more caudal furca spines (ca 50) than in the Toomaroo material, but their arrangement similar, i.e. equal sizes and in a curved line on the claw, basially mesodorsal and apically dorsal.

Benmore Well clay pan population

Fig. 4

Material examined. One female, Western Australia, Pilbara, near Karattha–Port Headland road, Benmore Well clay pan, 21°2.7336′E, 117°39.7836′E, J. Macrae and A. Pinder, 3 February 2006, DEC PSW096.

Description of female. Carapace (Fig. 4B) 5.9 by 3.9 mm, slightly humped mid-dorsally, with rounded dorsoanterior and dorsoposterior corners, and 34 closely spaced growth lines. Areas between growth lines with small rounded protuberances tending to lie, between outer growth rings, in meridian lines. Umbo most protruding of the three populations.

Head (Fig. 4E) as in Toomaroo population, but with winged fornices unevenly developed, widest centrally.

First and second antenna similar to those of the Toomaroo material, but with slightly different numbers of lobes and rami (9 lobes on first antenna and length only just longer than peduncle of second antenna and 12–13 rami on second antenna).

Body segments 23. Posteriormost 12 segments with dorsal spines; anterior most and posteriormost with spines on a peduncle, but central segments with spines on a

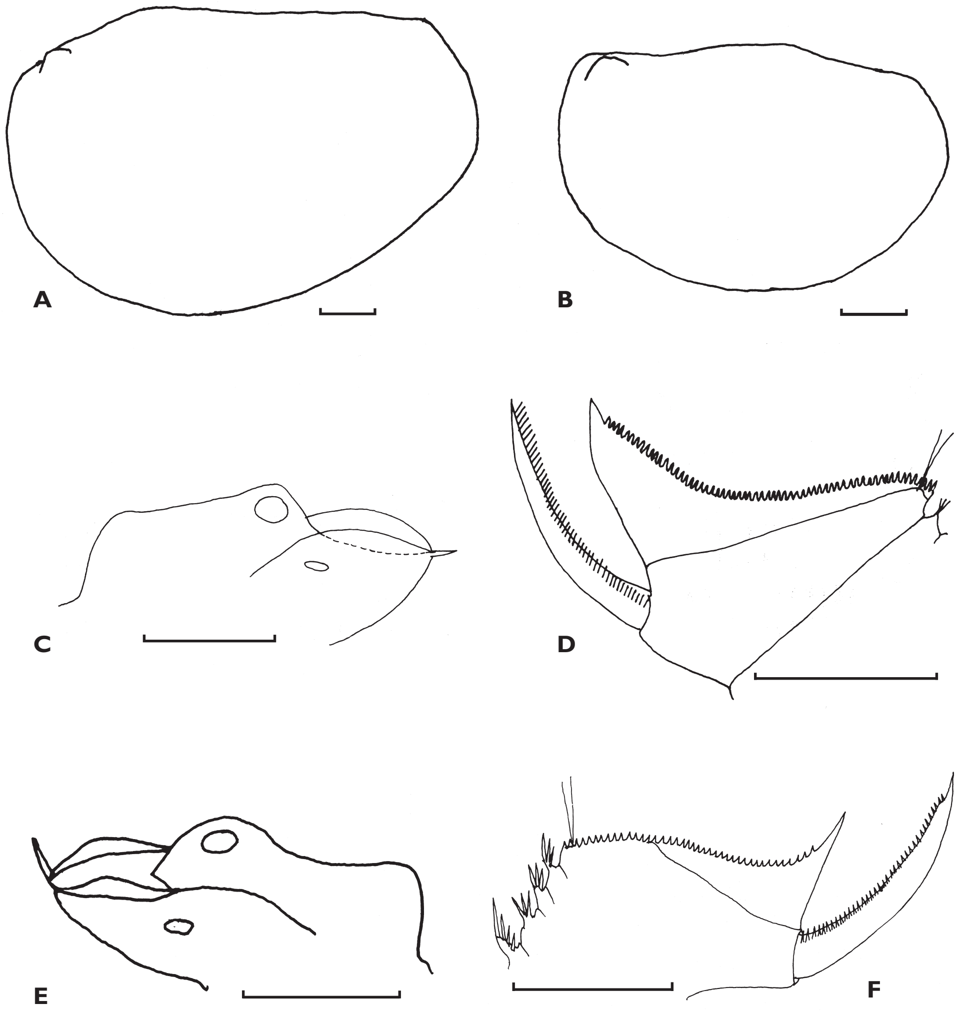

Figure 4. Females of *Eoleptestheria ticinensis* from Kuranda, Queensland (A,C,D) and from Benmore Well clay pan, Western Australia (B,E,F). **A, B** carapaces, growth lines not shown as they are too numerous **C, E** heads **D, F** telsons. Scale bars 1 mm.

flat triangular base. Up to 13 spines on segments around the seventh posterior most, descreasing anteriorly and posteriorly.

Limbs unstudied, but segments 1–9 with long exopods (flabella). Segments 10 and 11, on one side only of the only specimen, with sheathed tubular extensions carrying eggs.

Telson (Fig. 4F) as in Toomaroo material; about 42 dorsal spines and about 30 spines on the caudal claw. Spines subequal, those on caudal furca in a weakly row, basally mesodorsal and apically dorsal.

Discussion

The presence of a rostral spine, dorsal extensions of exopods on some thoracopods to hold eggs, and the presence of numerous similar spines on the telson and caudal claw define these three Australian populations as a leptestheriid spinicaudatan (Daday 1923; Dumont and Negrea 2002). Moreover they are accommodated within the genus *Eoleptestheria*, by reason of the rounded occipital condyle.

There are a number of minor variations between the three populations:

(a) Carapace size and number of growth lines vary, as do minor surface markings.

(b) Rostral fornices are uneven in the Benmore Well clay pan specimen, but even in the other two populations.

(c) The Benmore Well clay pan specimen also has a relatively shorter first antenna with fewer lobules, but the second antennae are similar in all three populations.

(d) Trunk segments vary between 23 and 24, while the number of those dorsally armed vary a little, as does the extent of the armature, with the Toomaroo population with most spinose.

(e) The Toomaroo and Kuranda populations have the epipodites of 11th and 12 th segments sheathed for carrying eggs, but in the Benmore Well clay pan population it is the 10 th and 11 th segments that are so modified.

(f) The shape of the telson and caudal claw is similar in all three populations, but the Kuranda population has far more spines than the other two (50–60 on telson cf ca 40; 50 on caudal furca cf ca 30).

Thoracopods are not thoroughly studied in *Eoleptestheria*, and the present study based on few specimens does little to redress the situation. It is clear however that while thoracopods conform to the generalised spinicaudatan structure (McLaughlin 1990; Ferrari and Grygier 2003), they have a character apparently unique to *Eoleptestheria*, a triangular lamella at the base of the distal exopodite (Fig. 2). Marinček (1978) thought that the basal discoid lobe was also unique to *Eoleptestheria*, but at least some cyzicids have it too (Ferreir and Grygier 2003). The triangular lamella is illustrated for the recently described Chinese species (Hu 1986; Shu et al. 1990; Zheng and Hu 1992), but only in *E. dongpingensis* is the discoid lobe shown (Hu 1986, Fig 13a). The component parts of the thoracopods apparently vary in relative size between individuals and certainly between thoracopods (Marinček 1978). Of most interest is the segmentation and relative size of the palp of the fifth endite (termed the palpus endopoditalis by many authors). It is one to three segmented but insufficient data are available on its variability in segment number and relative size, so that its use in species or population discrimination is presently limited.

Variations between the three populations are not systematic. Smaller size in the Toomaroo population (associated perhaps with their youth—see later) may explain the lower number of growth lines and telsonic and caudal claw spines, but other differences seem to be random. Similarities between the three groups far exceed their minor differences, so it is concluded they are all belong to the one species of *Eoleptestheria.* But is this species new or can it be accommodated within a described species?

The number of valid species of *Eoleptestheria* is disputed: Straškraba (1965) synonymised three European species and the only then known Chinese species into *E. ticinensis* (Balsamo-Crivelli 1859), Brtek (1997) accepted 4 of 8 species he listed, but Naganawa (1999) thinks, without giving any analyses, there is only one (but curiously omits *E. sangziensis* from his list). I am also of the opinion that there is only one widespread and variable species of *Eoleptestheria*. Evidence for this is provided firstly by Straškraba (1965) in his study of the variability of *E. ticinensis* in Czechoslovakia and on the overlap in characteristics of this species with those of *E. inopinata, E. variabilis* and *E. chinensis* (Table 1. *Eoleptestheria spinosa*, described after Straškraba study, also lies within the range of variability of the European material, thus confirming Naganawa's synonymy of it with *E. ticinensis*. Shu et al. (1990) give a comparative table supposedly separating *E. chinensis, E. dongpinensis* and *E. yanchowensis* and similarly Zhang and Hu (1992) give a table separating their *E. sanziensis* from *E. dongpingensis*, but the supposed differences are minor in all the Chinese forms and could be due to variability of characters in separate populations. This argument is strengthened by Petrov and Marinček's (1995) study of age induced variability in the closely related *Leptestheria saetosa* Marinček and Petrov. These authors show that many of the characters used in the separating of the various species of *Eoleptestheria* change with age, including proportions of the carapace, presence or absence of marginal hairs, shape of rostrum and occipital condyle, number of trunk segments equipped with dorsal spines, number of telsonic spines, and segmentation in the palp of the fifth endite. Also it is well known that carapace size and number of growth lines are variable and there is even some variation in number of trunk segments (Straškraba 1965; Richter and Timms 2005). Because of this, not one of the six differences between *E. sangziensis* and *E. dongpingensis* given by Zhang and Hu (1992) is significant, thus invaliding *E. sangziensis* as a separate species.

If there is but one variable species of *Eoleptestheria*, are the populations in Australia sufficiently different to be given species rank? Most of their characteristics (Table 1) are accommodated within the range of *E. ticinensis* s.l., except for the lower number of armed trunk segments, and lower number of lobes and rami on first and second antennae respectively. Also in two of the three populations there are more spines of the dorsum of the trunk segments than in overseas populations. All four of these features could be an expression of even wider variation (cf. Straškraba 1965) or of change with age (Petrov and Marinček 1995), or be due to founder effects associated with a small number of dispersing eggs (Provine 2004). The most parsimonious conclusion is to consider the Australian populations as further variations within the E. *ticinensis* complex, rather than a separate species.

Eoleptestheria is rare in Australia, though admittedly all three collections are from remote regions, and therefore not likely to be commonly encountered. However, the Lake Toomaroo population has occurred only once in a long term study (so far 15 years) of the lake (Mark Handley, pers. comm.). Two of the three occurrences are sites in far north of Australia and as such are likely to be visited by returning migrating birds from the northern hemisphere on arrival or soon afterwards. These data suggest

Table 1. Comparative characteristics of *Eoleptestheria* species

	EUROPE				CHINA				AUSTRALIA		
Character species	*E. inopinata*	*E. variabilis*	*E. ticinensis*	*E. spinosa*	*E. dongping-ensis*	*E. s angziensis*	*E. chinensis*	*E. yanchow-ensis*	Toomaroo	Kuranda	Benmore
author and date	Daday 1923	Botnariuc 1947	(Balsamo-Crivelli 1859)	Marinček 1978	Hu 1987	Zhang & Hu 1992	Daday 1923	Shu et al. 1990			
carapace length, females	—	8.5–15.5 mm	6.3–20 mm	11.3–12.1 mm	11–11.5 mm	—	10–11 mm	10.5–11 mm	6–7 mm	9–9.8 mm	5.9 mm
upper margin of carapace	straight	humped	straight to humped	straight	humped	—	humped	humped	humped	humped	humped
growth lines	—	—	ca 15	15 to 19	15 to 17	19 to 29	22 to 26	12	15 to 22	26 to 32	34
body segments	28	26 to 28	22 to 28	26 to 30	25	26	22 to 26	—	24	24	22
ovigerous legs	—	—	10 & 11	—	11 & 12	10 & 11	10 & 11	10 & 11	11 & 12	11 & 12	10 & 11
no. of armed body seg	last 24	last 21 to 24	last 17 to 23	last 18 to 22	last 17	last 20 to 22	last 18	last 22	last 14	last 15	last 12
dorsal spines per segment	6	6 to 9	3 to 9	1 to 10	2 to 3	—	—	—	<13 spines	<13 spines	<13 spines
Ist ant lobes	16 to 17	6 to 23	16 to 19	7 to 12	19 to 20	—	16 to 17	19	11	12	9
2nd ant rami	—	—	17 to 19	15 to 20	13 to 14	—	16 to 17	13	13 to 14	12 to 13	12 to 13
telsonic spines	ca 50	32 to 58	25 to 63	53 to 71	30 to 43	30 to 37	25 to 28	—	ca 39 to 43	ca 50 to 60	ca 42
telsonic spines	—	—	equal	equal	unequal	—	—	—	equal	equal	equal
caudal claw spines	—	—	—	ca 60	30 to 35	—	—	—	ca 40	ca 50	ca 30
caudal claw spines	—	—	variable	uniform	—	—	—	—	uniform	uniform	uniform
palp on 3rd endite	—	—	—	3 segments?	2 segments	2 segments	—	2 segments	2 segments	—	—
palp on 5th endite	—	—	—	—	2 segments	2 segments	—	1 segment	1 segment	1 segment	—

the possibility this clam shrimp is not an integral part of the Australian fauna and is occasionally being introduced by migrating birds from overseas, possibly China where *Eoleptestheria* is known to occur (op.cit.). There is at least one known occurrence of migration of lake fauna the other direction: the widespread Australian copepod *Boeckella triarticulata* in Mongolia (Bayly 1979). It is postulated that arriving birds deposit egg-laden faeces (Procter et al. 1967; Sánchez et al. 2007; Green et al. 2008) and so introduce eggs of Chinese *Eoleptostheria ticinensis* s.l.. Similarly, Thiery and Pont (1987) note that three southern European populations of *E. ticinensis* could have been introduced by migrating birds from central Europe. In Australia, there could be just one founding population and then subsequent dispersal, or two or all three populations could be founders. The most likely population to result from secondary dispersal in that in Toomaroo, given its more southerly and inland location. This theory of dispersal by birds from China is enhanced by the apparent absence of *Eoleptestheria ticinensis* in southeast Asia, but this could be due to lack of collecting there or lack of suitable habitat. Finally, it is significant that almost all other large branchiopods in Australia are endemic due to their isolation in remote Australia; the only known exceptions so far are the circumtropical *Cyclestheria hislopi* (Timms 1986) and now *Eoleptestheria ticinensis*.

The Toomaroo population was young (<2 weeks old) when collected and did not survive because of fish predation (Timms & Handley 2008). It was however old enough to have reproduced, in keeping with the known short life cycle of *E. ticinensis* (Popović & Gottstein-Matočec 2006). It will be interesting in years to come to see if this species reappears in Lake Toomaroo as a self-maintaining population.

Much has yet to be learnt on the diversity of Australian clam shrimps, but an outline is available in Richter & Timms (2005). Their key to genera needs modification to include *Eoleptestheria* and updated to include other recent discoveries (see below).

Key to Genera of Clam Shrimps in Australia

1 Carapace flattened and with growth lines (sometimes inconspicuous); telson with caudal furcae **2**

– Carapace spherical and without growth lines; telson without caudal furcae... .... ***Lynceus***[1]

2 Head with pyriforme frontal organ posterior to compound eyes **3**

– Head without a pyriforme frontal organ **5**

[1] Two described species of *Lynceus*, but three species discernable genetically (Zofkova 2006). No key to species available.

3 Growth lines weakly developed and generally restricted to carapace margin; movable finger of claspers in males with small sucker-like dorsodistal projection; usually <10 mm in length **4**

– Growth lines expressed and covering entire carapace; movable finger of claspers without sucker-like dorsodistal projection; usually >10 mm in length .... ***Limnadopsis***[2]

4 Telson with a spine on its lower distal angle .... ***Eulimnadia***[3]

– Telson without a spine on its lower distal angle .... ***Limnadia***

5 Carapace elongated, coloured brown/reddish/yellowish and > 6mm in adults; dorsal margin of telson without large spines similarly sized to caudal furcae **6**

– Carapace circular, transparent and small (<5mm); dorsal margin of telson with large spines similarly sized to caudal furcae .... ***Cyclestheria***[4]

6 Rostrum without an apical spine; telson with <25 spines, usually of variable size **7**

– Rostrum with an apical spines; telson with >30 subequal spines.. ***Eoleptestheria***[5]

7 Male rostrum in lateral view narrow, only with anterior and ventral margin and no obvious posterior margin; colour of mature specimens brown/reddish...... **8**

– Male rostrum in lateral view broad and hatchet-like, with posterior margin in addition to an anterior and ventral margins; colour generally yellowish .... ***Eocyzicus***[6]

8 Dorsoposterior end of head (occipital crest) with round and short condylus, distinct from the trunk; generally > 8 mm .... ***Caenestheria***[7]

– Dorsoposterior of head with a pointed condylus, head and trunk dorsally not distinct; generally <6 mm .... ***Caenestheriella***

Conclusions

Eoleptestheria ticinensis s.l. occurs uncommonly in northern Australia and is possibly introduced by migrating birds from Asia. Like other spinicaudatan families, the Leptestheriidae are now known to be world-wide in distribution. The three Australian populations have some variable morphological features, similar to those of overseas *E. ticinensis* s.l. and indeed many spinicaudatans.

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1 Eight species of *Limnadopsis* identifiable by a key in Timms (in press)

3 Presently 2 species of *Eulimnadia* and 7 of Limnadia are recognised, but more are undescribed. Even the appropriate generic placement of Australian forms is in question (S. C. Weeks, pers.comm.). No key available.

4 Circumtropical *Cyclestheria hislopi* occurs in northern Australia (Timms, 1986).

5 The wisespread Eurasian *E. ticinensis* s.l. occurs in northern Australia as reported here.

6 Two species of *Eocyzicus* separable by a key in Timms and Richter (in press). In other regions *Cyzicus* would key out here, but this genus is not in Australia, despite many references to it in books (e.g. Williams, 1980).

7 Presently 2 species of *Caenestheriella* and 7 of *Caenestheria* are recognised, but some could be synonymous and others await description. No key available.

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