

## TWO NEW SPECIES OF PEBBLE CRAB (OXYSTOMATA : LEUCOSIIDAE) FROM WESTERN AUSTRALIA

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and

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### ABSTRACT

*Leucosia thysanotus* sp. nov. from northwest Australia and *Leucisca levigena* sp. nov. from southwest Australia are described. *L. thysanotus* is distinguished from the closely related *L. whitei* Bell by the fringe of hair on the epibranchial angle and the weakly bilobed front. *L. levigena* is only the second species described for the genus which was erected by Macleay for the South African south coast species *L. squalina*.

### INTRODUCTION

Since the publication on the Oxystomata and Gymnopleura of Western Australia by Tyndale-Biscoe and George (1962), further collecting, particularly in the shallower waters of the north coast, has been carried out. Two of the most important expeditions were the Crown of Thorns Starfish Survey in the Dampier Archipelago (1972-1974) and the *Dorothea* cruise (1962), which obtained collections between Port Hedland and Brisbane. This paper describes two new species of pebble crab resulting from these efforts. We wish to thank the members of the Commonwealth and Queensland Governments' Crown of Thorns Research Committee and Mr and Mrs W. Goode, owners of *Dorothea* whose support has advanced our knowledge of the State's marine fauna. Illustrations were prepared by Sue Clark.

Measurements of the crabs are midline carapace lengths from rostrum to posterior margin of carapace.

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*Leucosia thysanotus* sp. nov.

(Figs 1 - 4)

**Description**

Carapace slightly longer than broad; front prominent, weakly bilobed; hepatic regions broadly raised with 40-60 microscopic granules; epibranchial angles pronounced, margined with a thick fringe of hair above base of arm; upper surface of lateral region with band of pubescence covering small marginal granules; thoracic sinus deep, extending posteriorly to level of last pair of walking legs, without anterior granules; thickened epimeral edge granulate, visible dorsally.

Dorsal inner and outer surfaces of arm of cheliped granular, interspersed with pubescence proximally; ventral surface smooth; dorsal proximal margin of arm with fringe of hair similar in texture and extent to that on epibranchial margin (Figure 3). Dorsal and ventral surfaces of wrist covered with small granules. Ventral margin of hand sharply granular; dorsal margin smooth or microscopically granular. Movable finger crested, with ridge on central inner surface; immovable finger with two feebly granular ridges on inner surface; fingers cross; cutting edge of fingers with hair.

Merus of 2nd to 4th walking legs almost square in section with microscopic granules along some angles. Carpus of 2nd and 3rd walking legs bicarinate; carpus of 5th uncarinate and of 4th uni- or bicarinate.

Abdominal formula of male 1+R+6+T; small projection on penultimate segment of abdomen. Abdominal formula of female 1+R+T.

Male pleopod (Figure 4). Short, stout, slightly curved with bulbous tip. Distal aperture at tip of tooth in centre of bulb surrounded by strong tuft of hair. Shaft bare, untwisted. Ridge straight on inner side of shaft.

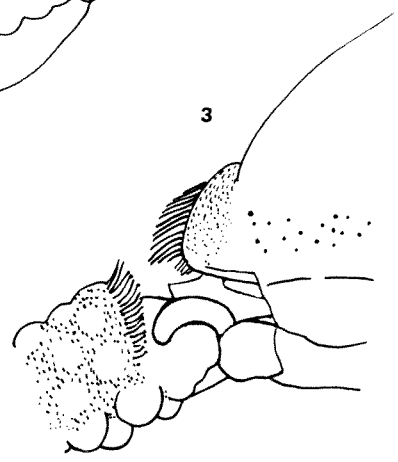
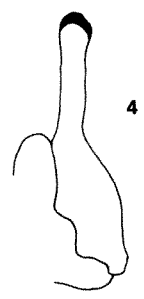
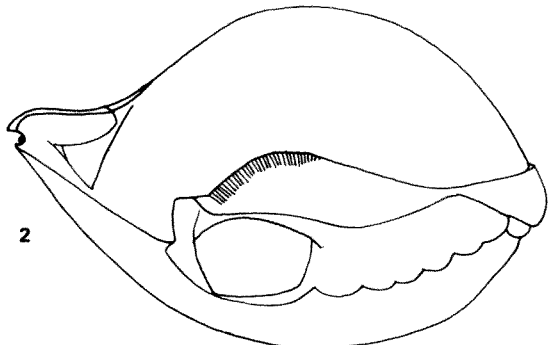
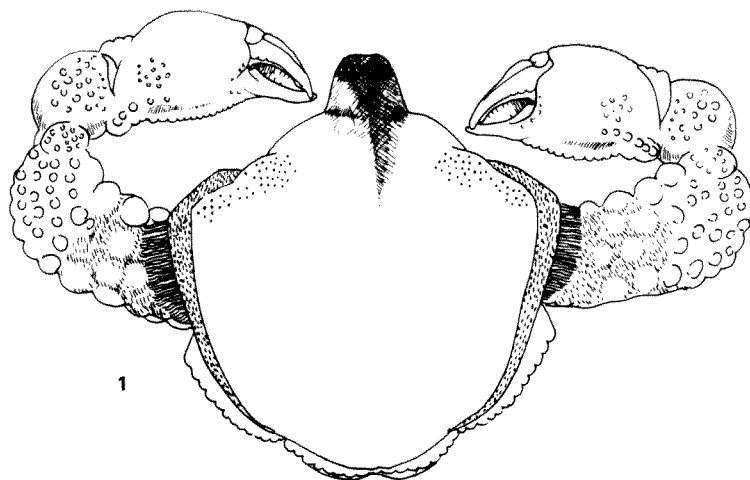
**Colour**

Carapace marbled with brown, white and orange; paler posteriorly. Front dark brown. Hepatic granules red. Arm of cheliped brown with white granules; hand pale with orange-brown spot on palm, base of fingers orange. Legs white with orange blotches.

**Material examined**

Holotype.— Adult male (14.1 mm), 22.v.74, dredged 3 m sand, some weed, Western Australian Museum Crown of Thorns Survey, WAM 79-75.

Type locality.— Norbill Bay, Rosemary I., Dampier Archipelago, northwest Australia.



Figures 1 - 4. *Leucosia thysanotus* sp. nov. 1. dorsal view; 2. lateral view; 3. cheliped joint viewed from front showing fringes on arm and on epibranchial angle; 4. 1st pleopod. Holotype male WAM 79-75.

Paratypes.— 3 ♂♂ (13.1 - 13.8 mm) NE side of Rosemary I., Dampier Archipelago, northwest Australia, 4.xi.71, intertidal sand flats, B.R. Wilson *et al.*, WAM 80-75; 1 ♂ (14.7 mm) 1.6 km S of Delambre I., Dampier Archipelago, 30.viii.61, dredged 11 m, B.R. Wilson and G.W. Kendrick, WAM 124-64; 4 ♂♂ (14.4 - 15.9 mm), 2 ♀♀ (16.2 - 16.3 mm), 2 juveniles (13.8 - 14.7 mm), Broome, northwest Australia, 16.x.62, on exposed sand bar opposite town jetty, R.W. George on 'Dorothea', WAM 16-63.

### Distribution

Northwest coast of Western Australia living in shallow protected sand flat conditions from Dampier Archipelago to Broome.

### Comments

*L. thysanotus* is similar to *L. whitei* Bell in having the epibranchial angles pronounced, the presence of hepatic granules, the lateral band of pubescence and the projection on the male penultimate abdominal segment. It is easily distinguished however by the nature of the front, the hairiness of the epibranchial angle, the hepatic granules, the dorsal margin of the hand and the carpus of the walking legs; these differences are given in Table 1. The name *thysanotus* (Gr. = fringe) refers to the fringe of hair on the epibranchial angle.

### *Leucisca levigena* sp. nov.

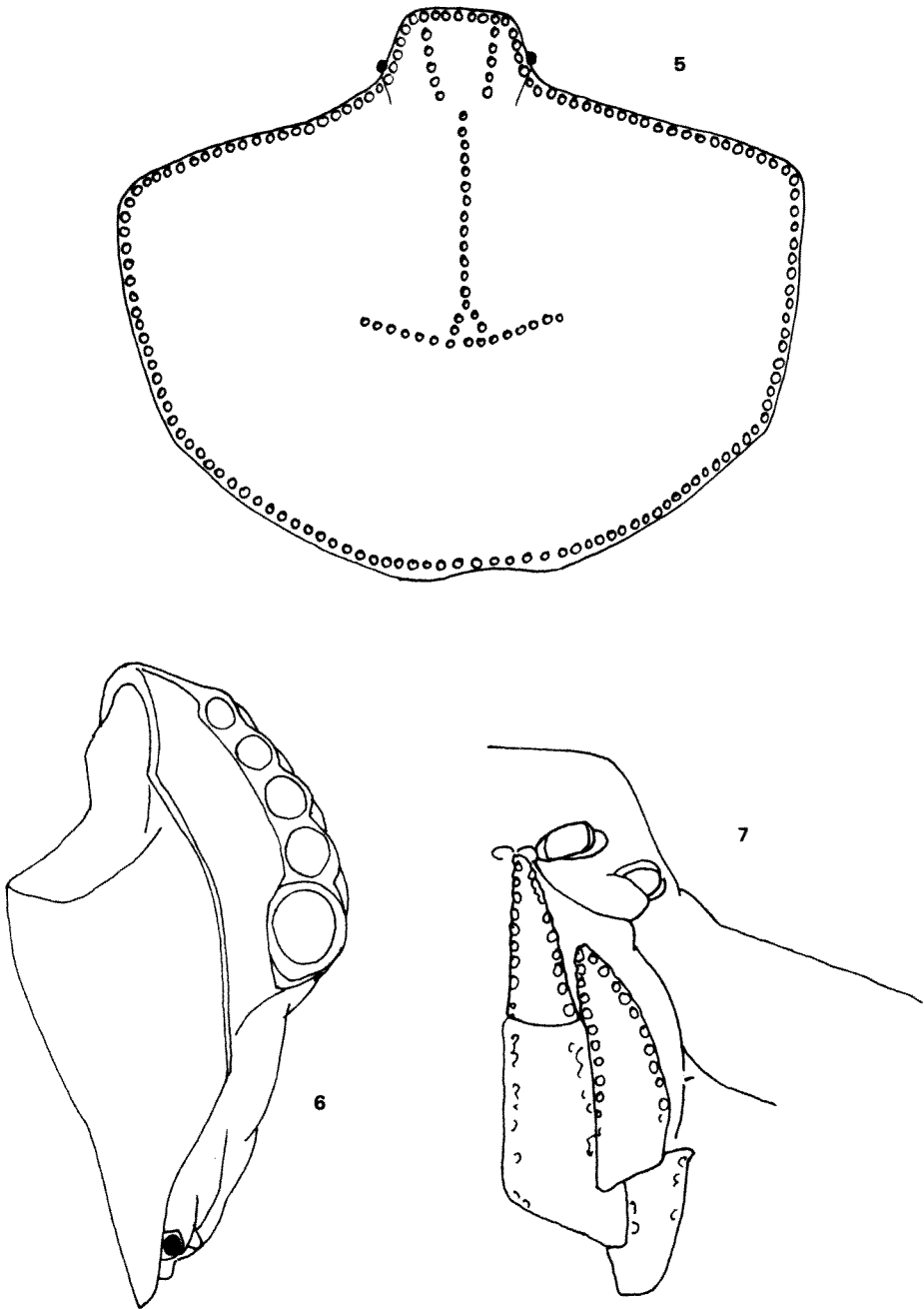
(Figs 5 - 7)

### Description

Carapace subcircular with narrow truncate front marked by faint orbital sutures; submarginally depressed; margin faintly beaded; gastric region markedly elevated, outlined posteriorly by a transverse row of low tubercles; a beaded ridge extends forward from gastric elevation to about level of eyes; front concave, bearing two anteriorly diverging ridges.

Ventral surface of front and pterygostomial region smooth, punctate (Figure 7). Thorax smooth with some pits. External maxillipeds mostly smooth, exopod distinctly shorter than endopod and both margined with elevated granules.

Arm of cheliped short, squarish in section, 2/3 length of hand; ventral surface of wrist flattened; hand flattened with fingers twisted away from normal plane; tips of fingers sharply pointed and crossed; cutting edges smooth; surface of cheliped smooth and sparsely pitted.



Figures 5 - 7. *Leucisca levigena* sp. nov. 5. dorsal view; 6. lateral view; 7. pterygostomian region. Holotype female WAM 253-62.

**Table 1.** Comparison of *Leucosia thysanotus* sp. nov. and *L. whitei* Bell.

	<i>L. thysanotus</i>	<i>L. whitei</i>
Hair on epibranchial angle	Long thick fringe	Short, sparse
Front	Obscurely bilobed	Sharply tridentate
Hepatic region	40-60 microscopic red granules	10-14 obvious white granules
Dorsal margin of hand	Smooth or microscopically granular	Sharply granular
Carpus of 2nd and 3rd walking legs	Bicarinate	Unicarinate
Thoracic sinus anterior margin	Without granules	With granules

**Table 2.** Comparison of *Leucisca levigena* sp. nov. and *L. squalina* Macleay.

	<i>L. levigena</i>	<i>L. squalina</i>	
	Yanchep ♀ 4.9 mm	False Bay ♂ 9.5 mm	Natal ♂ 6 mm ♀ 6 mm
Front	Concave	Very slightly convex	Flat
Elevation of gastric region of carapace	Marked	Very slight	Slight
Pterygostomian region	Smooth	Pitted	Marked granules
Thoracic sternum	Smooth	Pits and granules	Marked granules
Beading around margin of carapace	Faint	Marked	Marked

## Colour

The preserved female holotype is uniform creamy-white.

## Material examined

Holotype.— Adult female (4.9 mm), 1.i.61, 1 m on sheltered side of reef. G.W. Kendrick. WAM 253-62.

Type locality.— Yanchep Reef, Western Australia (31° 33' S, 115° 37' E).

## Distribution

The species is represented by only one specimen from Yanchep on the southern west coast of Australia.

## Comments

The present species falls clearly into the genus *Leucisca* Macleay, 1838 which is characterised by the smooth subcircular, depressed carapace with a raised beaded margin, the truncate front and the small deeply set eyes.

*L. levigena* sp. nov. is the second species recorded for the genus if Barnard's opinion (1950) that only one species occurs on the south coast of Africa is correct. He regards *Carcinaspis marginatus* Stimpson, 1858 and *Leucisca phaenomma* Stebbing, 1920 as synonyms of *Leucisca squalina* Macleay, 1838 and notes some geographical variation in size stating (1950, p.372) 'Natal specimens are smaller (both sexes) than Cape specimens, but otherwise indistinguishable'. However, an examination of specimens at the British Museum (Natural History) by one of us (R.W.G.) suggests that there are some morphological variations (Table 2) in *L. squalina*. This table sets out the distinguishing features of *L. levigena* as well. The name *levigena* (Lat. levis = smooth, gena = cheek) refers to the smooth pterygostomial region.

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- BARNARD, K.H. (1950)—Descriptive catalogue of the South African decapod Crustacea. *Ann. S. Afr. Mus.* 38: 1-837.
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## CONTENTS

	Page
ALLEN, G.R. & KUITER, R.H. A review of the plesiopid fish genus <i>Assessor</i> , with descriptions of two new species	... .. 201
CLEVERLY, W.H. Some aspects of australite distribution pattern in Western Australia	... .. 217
STORR, G.M. Revisionary notes on the <i>Lerista</i> (Lacertilia, Scincidae) of Western Australia	... .. 241
DORTCH, C.E. & GARDNER, G. Archaeological investigations in the Northcliffe district, Western Australia	... .. 257
KITCHENER, D.J. <i>Eptesicus douglasi</i> , a new vespertilionid bat from Kimberley, Western Australia	... .. 295
GEORGE, R.W. & CLARK, M. Two new species of pebble crab (Oxystomata: Leucosiidae) from Western Australia	... .. 303

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