

**Ostracoda (Crustacea) from Lizard Island,  
northern Great Barrier Reef, Australia.**  
**I. Families: Cytherellidae, Loxoconchidae,  
Cytherideidae, Cytheruridae, Paracytherideidae,  
Pectocytheridae, Krithidae, Cytheromatiidae,  
Bythocytheridae, Cytheridae**

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**ABSTRACT:** This paper deals with the taxonomy of the ostracod families Cytherellidae, Cytheridae, Cytheromatidae, Cytherideidae, Krithidae, Loxoconchidae, Paracytherideidae, Cytheruridae, Pectocytheridae and Bythocytheridae from the coral reefs around Lizard Island, northern Great Barrier Reef, Australia. 22 species belonging to these families were found. 7 species had been described from Australian coasts, 1 from the Red Sea and 1 with Indopacific-Westatlantic distribution. 9 species are newly described and 4 species remain in open nomenclature.

INTRODUCTION

This paper is part of an investigation on the taxonomy, biology and ecology of ostracods of the suborders Podocopa and Platycopa around Lizard Island, Great Barrier Reef. The author collected ostracods during 7 months from different biotopes around the island and in different seasons.

Knowledge on the benthic littoral Ostracoda of the Pacific area is sparse. The ostracod fauna of the northern tropical part including the Great Barrier Reef is virtually unknown. The podocopidan ostracods of the Great Barrier Reef are known mostly from the papers of Brady (1866, 1890), especially from the Challenger Expedition. Unfortunately, the descriptions of the species are incomplete and only carapaces are described. The first paper showing soft parts is by McKenzie (1967), dealing with Ostracoda from South Australia. Recently, Hartmann (1981) has dealt with ostracods from Heron Island, and Howe & McKenzie (1989) with ostracods from Darwin and Western Australia. In his unpublished thesis (1977), Labutis reported on Cytheridea from the Southern Great Barrier Reef, mainly around Gladstone. Due to the lack of information, investigations from other geographical areas have formed the basis for this present study on Ostracoda from the northern Great Barrier Reef. These include the papers of Hartmann (1978, 1984; Western Australia, Huahiné and Rangiroa), Yassini & Jones (1987; Southeastern

Australia), McKenzie (1986; SW Pacific), Cabioch et al. (1986; New Caledonia), and of Bentley (1988; Brisbane Water).

Lizard Island (14°40' S; 145°28' E) is a continental island in the northern tropical section of the Great Barrier Reef. It is located 36 km off the Queensland coast and only 16 km from the outer barrier reefs which mark the edge of the continental shelf (Text-Fig. 1). Lizard Island is fringed by a coral reef which also encompasses two nearby islands and encloses a lagoon of 10 m depth. Samples were taken in 0.5–16 m depth from different environments, including mangroves, sand flats, mud flats, seagrasses, dead coral fragments and algae. The sampling stations are shown in Text-Figure 1 and described in Table 1. The water temperature range is between 25 °C in June/July and 30 °C in December/February. The salinity is 34 S during the whole year.

#### MATERIALS AND METHODS

Sediment samples were taken from 0.5–12 m depth by hand, using a handnet of 0.18 mm mesh, and either by snorkel or SCUBA diving. Coral fragments, algae or rocks were also collected by hand, put into a bucket filled with water and mixed with a few drops of 4 % Formalin. The animals were washed and rubbed from the substrate and put into new water to keep them alive. In the laboratory, the living ostracods were picked out individually under a stereomicroscope and stored in vials with alcohol. The animals were dissected and the soft parts embedded in Polyvinyl-Lactophenol stained with Orange G. The left valves of about 5 specimens of each sex, if there was enough material, were measured under the microscope. Mean sizes are given in the text. Holotypes and some paratypic material are deposited at the Australian Museum, Sydney. Paratypes are also deposited at the Zoologisches Museum, Hamburg.

Abbreviations: AMS = Australian Museum Sydney; ZMH = Zoologisches Museum Hamburg. LV = left valve; RV = right valve; VM = ventral margin; DM = dorsal margin; AM = anterior margin; PM = posterior margin; Au = antennula; Aa = antenna; Md = mandible; Mxu = maxillula; P1 = first walking leg (maxilla); P2 = second walking leg; P3 = third walking leg, 1, 2, 3 . . . = segments of the extremities, counted distally.

#### SYSTEMATIC DESCRIPTIONS

Family Cytherellidae Sars, 1866

Subfamily Cytherellinae Sars, 1866

Genus *Keijcyoidea* Malz, 1981

*Keijcyoidea poikilokosmena* sp. n.

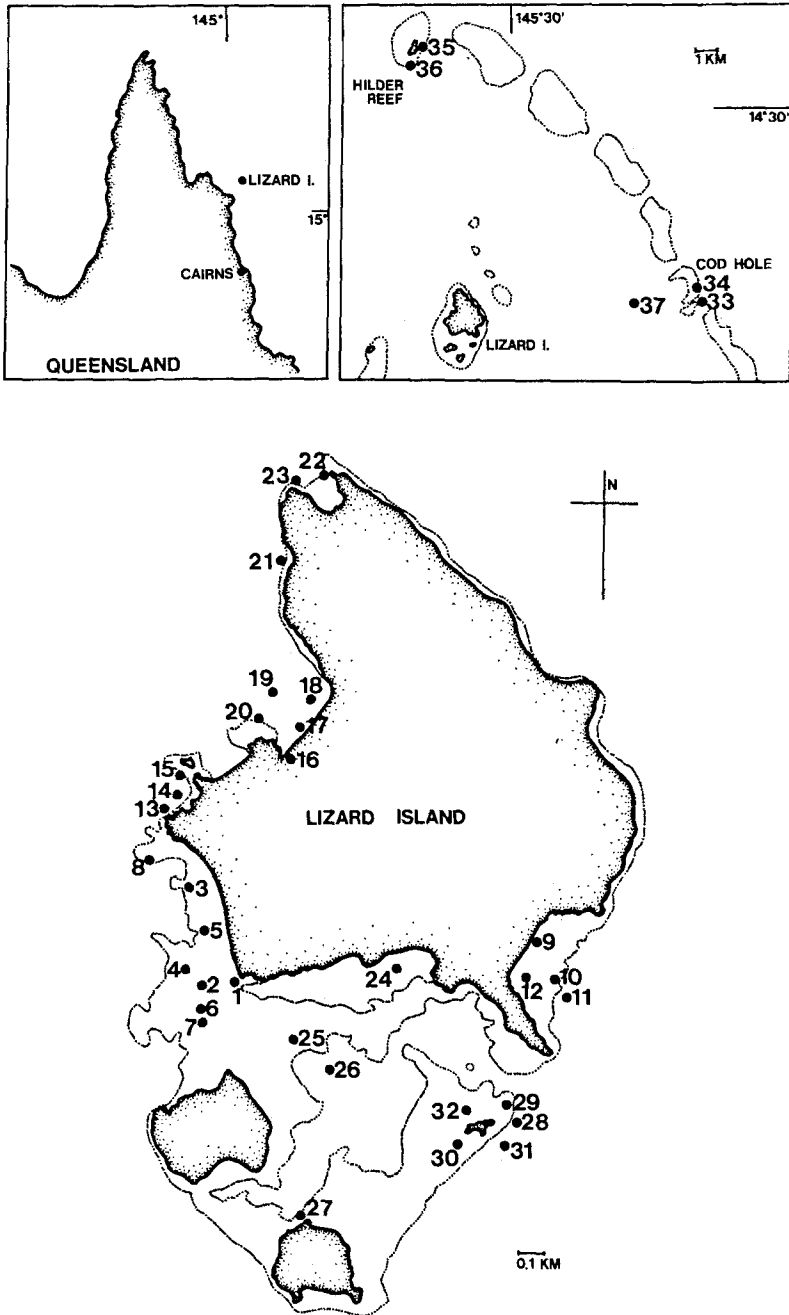
Figs 1–6, Plate 1: Figs 1–5

#### Material

Holotype: male, May 18, 1988, Lizard Island, Sta. 10, AMS.

Paratypes: Lizard Island: 1 female, August 24, 1989, Sta. 4; 1 female, May 18, 1988, Sta. 11; AMS; 1 female, 1 male, August 16, 1989, Sta. 11; ZMH K-34571.

Locus typicus: Lizard Island, dead coral fragments.



Text-Fig. 1. Map of Lizard Island showing positions of sampling stations

Table 1. List of sampling stations

Sta.	Location	Depth	Substrate
1	Lagoon	0.5 m	gravel
2	Reef flat, leeward	1.0 m	sand
3	Reef flat, leeward	0.5 m	sand between seagrass
4	Reef flat, leeward	0.5 m	dead coral fragments
5	Reef flat, leeward	0.5 m	calcareous algae ( <i>Halimeda</i> sp.)
6	Reef flat, leeward	1.0 m	bluegreen algae ( <i>Hormothamnion</i> sp.)
7	Reef flat, leeward	1.0 m	sand between algae
8	Reef flat, leeward	2.0 m	dead coral fragments
9	Reef flat, windward	0.5 m	shell sand
10	Reef slope, windward	2.0 m	dead coral fragments
11	Reef slope, windward	6.0 m	dead coral fragments
12	Reef flat, windward	1.0 m	red algae ( <i>Laurencia</i> sp.)
13	Reef flat, leeward	3.0 m	dead coral fragments
14	Reef flat, leeward	3.0 m	red algae ( <i>Galaxaura</i> sp.)
15	Reef flat, leeward	3.0 m	shell sand
16	Mangroves	1.0 m	fine sand
17	Reef flat, leeward	0.5 m	gravel
18	Reef flat, leeward	1.0 m	sand
19	Reef flat, leeward	3.0 m	seagrass
20	Reef flat, leeward	3.0 m	dead coral fragments
21	Reef flat, leeward	4.0 m	dead coral fragments
22	Reef flat, leeward	3.0 m	bluegreen algae ( <i>Micrococleus</i> sp.)
23	Reef flat, leeward	5.0 m	dead coral fragments
24	Lagoon	0.5 m	fine sand
25	Lagoon	3.0 m	dead coral fragments
26	Lagoon	4.0 m	shell sand
27	Lagoon	0.5 m	shell sand
28	Reef slope, windward	14.0 m	dead coral fragments
29	Reef slope, windward	3.0 m	dead coral fragments
30	Reef flat, windward	3.0 m	algae ( <i>Turbinara</i> sp.)
31	Reef slope, windward	15.0 m	shell sand
32	Reef slope, windward	3.0 m	shell sand
33	Outer reef	15.0 m	shell sand
34	Outer reef	6.0 m	dead coral fragments
35	Outer reef	14.0 m	shell sand
36	Outer reef	14.0 m	dead coral fragments
37	Outer reef	16.0 m	dead coral fragments

Name: The greek words "poikilos" (= different) and "kosmena" (= ornament) refer to the differently ornamented right and left valves.

Description: The shell has its maximum height in the anterior half, declining to the posterior part. The VM is concave, the AM broadly rounded, and the PM ends in a blunt tip. The AM forms a wavy line. LV and RV have different carapace ornamentations. The LV has one row of larger fossae running parallel to the AM. That row is not developed in the RV. Hingement in the middle of the shell with inwardly directed extension. Au seven-segmented, with the following bristles: 1 laterally with one bristle, dorsodistally with two bristles and ventrodistally with one bristle. 3 ventrodistally with

one short bristle. 4 and 5 dorsally with one claw and two bristles each, 4 ventrodistally with two long bristles. 6 dorsally with one claw and one bristle, ventrodistrally with one long bristle. 7 with one weakly developed claw, two bristles and one sensory stick. Aa at its basis dorsally with one long bristle, endopodite ventrally at the basis with two long bristles. 2 ventrally with one claw and two bristles, dorsally with one strong claw. 3 terminally with two bristles and one weak claw. Swimming bristles numerous. Palp of the Mxu with long segments, terminally with three bristles. Maxilla of the male three-segmented, ventrally with two bristles on 1, laterally with four bristles on 2. 3 dorsally with one bristle and terminally with one claw. Fu with 9 distally and 2 proximally directed bristles. Copulatory organ of the male triangular with long copulatory tube.

Size: females, LV: length 0.49 mm, height 0.29 mm;  
males, LV: length 0.46 mm, height 0.27 mm.

Ecology: *K. poikilokosmena* was found on dead coral fragments.

Remarks: Due to its differentiated hingement, the systematic value of which is discussed by Malz (1981), the new species is placed in the genus *Keijcyoidea*. It resembles *Cytherelloidea fijiensis* (Brady, 1890) as illustrated by McKenzie (1986), but lacks the denticulation at the PM and the ridge running parallel to the dorsal margin in the posterior part of the shell. McKenzie also indicates a length of 0.55 mm for *C. fijiensis*, which is much larger than *K. poikilokosmena* sp. n.

#### Family Cytheridae Baird, 1850

##### Subfamily Cytherinae Baird, 1850

##### Tribus Microcytherurini Hartmann, 1979

##### Genus *Microcytherura* G. W. Müller, 1894

##### *Microcytherura aestuaricola* Hartmann, 1980

##### Plate 1: Figs 6–9

*Microcytherura aestuaricola* Hartmann, 1980: 117–118, Figs 18–21, Plate 3: Figs 7–13.

Material: Lizard Island: 34 females, 43 males, 19 larvae, August 3, 1989, Sta. 1; ZMH K-34572; 128 females, 160 males, 62 larvae, August 11, 1989, Sta. 17; AMS.

Size: females, LV: length 0.28 mm, height 0.14 mm;  
males, LV: length 0.30 mm, height 0.14 mm.

Ecology: The species lives seasonally on Lizard Island, and was found only during winter months; however, during these months in huge numbers in the sandy eulitoral.

Remarks: The individuals of the Lizard Island population are smaller in body size than those of the South and Southeast coast of Australia, where the females have a length of 0.29–0.32 mm and the males of 0.33–0.36 mm (Hartmann, 1980).

## Tribus Cytherini Baird, 1850

Genus *Corallicythere* Hartmann, 1974? *Corallicythere arcanis* sp. n.

Figs 7–13, Plate 1: Figs 10, 11, Plate 2: Figs 1–9

## Material

Holotype: male, March 30, 1988, Cod Hole, Sta. 33; AMS.

Paratypes: Lizard Island: 1 female, March 13, 1988, Sta. 26; 2 females, 4 males, September 2, 1989, Sta. 26; ZMH K-34573. Cod Hole: 10 females, 7 males, March 30, 1988, Sta. 33; ZMH K-34573.

Locus typicus: Lizard Island, lagoon, shell sand.

Name: The latin word "arcanus" means mysterious.

Description: The DM of the shell is convex. The maximum height lies just in front of the middle. AM and PM are rounded, the VM is slightly concave in the region of the mouth. The shell of the female is larger than that of the male and serves as breeding chamber. The hingement is smooth. In its anterior part it is covered by small, spherical excrescences. These excrescences form ringlike structures around some of the pore canals. The eyecups are fused. Au six-segmented, 2 ventrodistally with one bristle, 3 and 4 dorsodistally with one short bristle each, 4 ventrodistally with one long bristle. 5 dorsodistally with two long bristles, ventrodistally with one long bristle. 6 terminally with one claw, two bristles and one sensory stick. Aa four-segmented with two short terminal claws, spinneret bristle three-segmented. 2 ventrodistally with one short bristle, 3 ventrally with two bristles and one sensory stick, dorsally with one long bristle. 3 more distally with one bristle. Respiratory plate of Md with three Strahlen, palp with very short bristles, no filter bristles developed. Mxu only with equally directed Strahlen. Walking leg P1 with one long anterior bristle, one kneebristle, one bristle distally at 2 and one long bristle at the posterior margin. P2 and P3 with bristles similarly located, but the kneebristles more strongly developed. P3 with strong bristle at 2. Copulatory organ of the male with pointed side-capsule, copulatory tube circular.

Size: females, LV: length 0.44 mm, height 0.22 mm;

males, LV: length 0.38 mm, height 0.19 mm.

Ecology: The species was exclusively found in shell sand.

Remarks: ?*Corallicythere arcanis* sp. n. lives in the interstitial system of coral sand, and displays morphological adaptations. Therefore, a systematic classification is difficult. The species differs from the Parvocytheridae, Cobanocytheridae and Psammocytheridae as it has three normally developed walking legs in both sexes. For the following characters, ?*C. arcanis* could be placed in the Cytherinae as well as in the Leptocytheridae: hingement, fused eyecups, respiratory plate with equally directed Strahlen, Aa with two terminal claws. The structure of the male's copulatory organ and the slight indication of a dorsoterminal angulation of the carapace are characters typical of the Leptocytheridae, but might be present in the Cytherinae as well. ?*C. arcanis* differs from the Leptocytheridae in the margin of the shell, which is thought to be a systematic character of high value. The Leptocytheridae have, as a commonly differentiated character, a broadly fused outer and inner lamella, with numerous marginal pore canals which are branched. The new species however has narrow fused lamellas and few marginal

pore canals, which are not branched but single. Therefore, the species is assumed to belong to the Cytherinae, Tribus Cytherini, whose common character is the structure of the hingement. ?*C. arcanis* has several characters in common with *Corallicythere verrucosa* Hartmann, 1974 from the interstitial of the African coast. Both species have a similar marginal zone and have fused eyecups. They differ in the following characters: ?*C. arcanis* sp. n. has no caudal process such as that observed in *C. verrucosa*; the Au has six segments instead of five; the posterior part of the valve of the female serves as a breeding chamber; the male of *C. verrucosa* is larger. Knowledge on the interstitial species is meagre. Certainly, ?*C. arcanis* is more closely related to *Corallicythere* than to all the other described interstitial genera, which have derived in different families. On the other hand, provided that knowledge on interstitial species will increase in the future, the differences between both species may one day be interpreted on the level of genera. At the moment, the new species is, with reservation, placed to the *Corallicythere*.

### Family Pectocytheridae Hanai, 1957

#### Genus *Morkhovenia* Teeter, 1975

##### *Morkhovenia inconspicua* (Brady, 1880) (Plate 4, Figs 9–10)

*Cythere inconspicua* Brady, 1880: 70, Plate 13: Figs 1a–d.

*Morkhovenia inconspicua* (Brady, 1880), – Teeter, 1975: 435, gen. nov.; Hartmann, 1984: 126 (Synonomie).

**Material:** Lizard Island: 3 females, 1 larva, August 24, 1989, Sta. 4; 1 larva, March 19, 1988, Sta. 6; 1 larva, May 18, 1988, Sta. 11; 1 female, May 10, 1988, Sta. 21; 1 female, August 14, 1989, Sta. 21; 1 female, August 12, 1989, Sta. 25; 2 females, 4 larvae, March 13, 1988, Sta. 26; 1 larva, September 2, 1989, Sta. 26; 1 female, August 17, 1989, Sta. 29; AMS. Cod Hole: 2 females, 2 larvae, March 30, 1988, Sta. 33; ZMH K-34574. Hilder Reef: 3 females, April 24, 1988, Sta. 35; 1 female, April 24, 1988, Sta. 36; ZMH K-34574. Reef near Cod Hole: 1 larva, May 1, 1988, Sta. 37; ZMH K-34 574.

**Size:** females, LV: length 0.41 mm, height 0.22 mm.

**Ecology:** The species was found on dead coral fragments as well as on sandy substrates.

**Remarks:** The sizes of the individuals of the Lizard Island population resemble the largest sizes given by Hartmann (1981) for the population of Heron Island. The species has Indowestpacific-Westatlantic distribution.

#### Genus *Keijia* Teeter, 1975

*Aenigmocythere* Bonaduce, Masoli & Pugliese 1976: 9.

##### *Keijia hirundo* (Bonaduce, Masoli & Pugliese, 1976)

##### Plate 2: Figs 12, 13

*Aenigmocythere hirundo* Bonaduce, Masoli & Pugliese, 1976: 380–382, Plate 4: Figs 6–11, Text-Fig. 4.

*Pectocythere foveata* Hartmann, 1978, – Yassini & Jones, 1987: 826, Plate 14: Figs 12–13; non Hartmann, 1978.

**Material:** Lizard Island: 1 female, August 24, 1989, Sta. 4; 2 females, August 8, 1989, Sta. 13; AMS; 1 female, August 12, 1989, Sta. 25; ZMH K-34575.

**Size:** females, LV: length 0.45 mm, height 0.21 m.

**Ecology:** The species was collected from dead coral fragments.

**Remarks:** The species coincides in all characters with the diagnostic features of the genus *Keijia*. Therefore, *Aenigmocythere*, as a monotypic genus, is synonymous with *Keijia*.

*Keijia foveata* (Hartmann, 1978)

Plate 3: Figs 1, 2

*Pectocythere* (?) *foveata* Hartmann, 1978: 144, Figs 619–620, Plate 14, Figs 12–13.

*Keijia foveata* (Hartmann, 1978), – Howe & McKenzie, 1989: 32, new comb.

**Material:** Hilder Reef: 1 female, 1 male, 1 larva, April 24, 1988, Sta. 35; AMS.

**Size:** females, LV: length 0.49 mm, height 0.22 mm;

males, LV: length 0.52 mm, height 0.21 mm.

**Ecology:** The species was found on shell sand in a depth of 15 m.

**Remarks:** The individuals of the Hilder Reef population are smaller compared to those of the Western Australia population, which are 0.53–0.55 mm in length (Hartmann, 1978). However, the sculpture of the carapace as well as the soft parts are identical with the description given by Hartmann.

Family Cytheromatidae Elofson, 1939

Subfamily Cytheromatinae Elofson, 1939

Genus *Paracytheroma* Juday, 1907

*Paracytheroma aestatophila* sp. n.

Figs 14–20, Plate 3: Figs 5–10

**Material**

**Holotype:** male, March 10, 1988, Lizard Island, Sta. 3; AMS.

**Paratypes:** Lizard Island: 1 male, March 10, 1988, Sta. 2; 80 females, 71 males, 42 larvae, March 10, 1988, Sta. 3; AMS; 2 females, August 23, 1989, Sta. 3; 1 male, March 15, 1988, Sta. 4; 5 females, 2 males, 4 larvae, March 15, 1988, Sta. 5; 1 male, March 19, 1988, Sta. 6; 5 females, 7 males, March 28, 1988, Sta. 7; 3 larvae, May 1, 1988, Sta. 18; 5 females, 3 males, 3 larvae, November 5, 1989, Sta. 18; ZMH K-34576.

**Locus typicus:** Lizard Island, leeward side, sand.

**Name:** The greek words "aestas" (= summer) and "philein" (= to love) refer to the seasonal distribution of the species on Lizard Island.

**Description:** The carapace of the female is higher than that of the male, especially in the posterior part. The AM is rounded and proceeds in an almost straight DM that ends at an angle. The PM forms a caudal process, about half the height of the shell. The VM is straight, in the region of the mouth slightly concave; the VM of the



female in the posterior part is slightly convex. The shell is smooth. There are about 50 marginal pore canals; the inner margin and line of conchescence only coincide in the region of the mouth. Hingement weak, with weak median bar and small anterior and posterior teeth in the LV. Au six-segmented, both terminal segments longer than segments 3 and 4. 2 ventrodistally with one long bristle, 3 dorsodistally with one claw. 4 and 5 dorsodistally with one claw and ventrodistally with one strong bristle each. 6 terminally with one weak claw, one long bristle and one sensory stick. Aa four-segmented, with two terminal claws, of which only the dorsal one emerges from the terminal segment. Spinneret bristle three-segmented: 2 ventrodistally with one bristle, 3 distally with one of the terminal claws and one bristle, medioventrally two bristles and one sensory stick, laterally two bristles. Walking legs all with one long bristle at the posterior margin. P1 with two long bristles at the anterior margin, two kneebristles and one short bristle distally at 2. P2 with one long bristle at the anterior margin, one kneebristle and one long bristle at 2. P3 with one short anterior bristle, one kneebristle and one bristle at 2, which is longer than the following segment. Copulatory organ of the male with large basal capsule, distally with a large chitinous clasp.

Size: females, LV: length 0.54 mm, height 0.26 mm;

males, LV: length 0.54 mm, height 0.24 mm.

Ecology: The species lives in large populations in the sandy eulitoral among seagrass but was found only in April and May; then, however, in large numbers.

Remarks: *P. aestatophila* sp. n. resembles *P. caudata* Hartmann, 1978, but differs in the shape of the carapace and the structure of the male's copulatory organ.

#### Family Cytherideidae Sars, 1925

#### Subfamily Cytherideinae Sars, 1925

#### Tribus Cyprideidini Kollmann, 1960

#### Genus *Cyprideis* (*Cyprideis*) Jones, 1857

#### *Cyprideis australiensis* Hartmann, 1978

Plate 3: Figs 11, 12, Plate 4: Figs 1, 2

*Cyprideis australiensis* Hartmann, 1978: 85–86, Figs 147–155, Plate 5: Figs 1–5.

Material: Lizard Island: 9 females, 6 males, 4 larvae, May 8, 1988, Sta. 16; 6 females, 3 males, 1 larva, August 14, 1989, Sta. 16; AMS.

Size: females, LV: length 1.10 mm; height 0.70 mm;

males, LV: length 1.10 mm; height 0.60 mm.

Ecology: *C. australiensis* was found in brackish water (20 S) among mangroves in muddy sediment.

Remarks: The individuals of the west Australian population described by Hartmann (1978) were smaller in body size than those of the Lizard Island population (females LV 0.90–0.94 mm length, males LV 0.86–0.88 mm length), but the soft parts of the body as well as the characters of the shell correspond well in both populations.

Family Krithidae Mandelstam, 1958  
 Subfamily Krithinae Mandelstam, 1958  
 Tribus Krithini Mandelstam, 1958  
 Genus *Parakrithella* Hanai, 1959

*Parakrithella* sp. Lizard 1

Plate 4: Fig. 3

**Material:** Lizard Island: 1 female, May 18, 1988, Sta. 11; AMS.

**Size:** females, LV: length 0.40 mm, height 0.17 mm.

**Ecology:** One single female was found on dead coral fragments.

**Remarks:** The species differs in size as well as in shape from all other species of the genus, but remains in open nomenclature because of the insignificant material found.

*Parakrithella* sp. Lizard 2

Plate 4: Figs 4, 5

**Material:** Lizard Island: 1 female, August 8, 1989, Sta. 13; 1 female, 1 larva, August 5, 1989, Sta. 14; AMS.

**Size:** females, LV: length 0.47 mm, height 0.22 mm.

**Ecology:** The species was found on red algae and dead coral fragments.

**Remarks:** The species resembles in size and shape of the shell *Parakrithella australis* McKenzie, 1967, but differs in the soft parts, especially in the palp of the Mxu and in the bristles of the walking legs. Because of the insignificant material, the species remains in open nomenclature.

Family Loxoconchidae Sars, 1925  
 Subfamily Loxoconchinae Sars, 1925  
 Genus *Loxoconcha* Sars, 1866

*Loxocorniculum* Benson & Coleman 1963: 38.

Benson & Coleman (1963) gave as the only diagnostic character to distinguish the genus *Loxocorniculum* from *Loxoconcha* the development of a posterodorsal protuberance. Because of the shape of the carapaces in the family, the posterodorsal part of the shell is distinctly developed with numerous transitions from a more strongly developed ridge to a prominent protuberance. These transitions can be observed even in closely related species. Therefore, the development of a posterodorsal protuberance does not possess the systematic value that would justify the introduction of a genus.

*Loxoconcha georgei* Hartmann, 1978

Plate 4: Figs 6–9

*Loxoconcha georgei* Hartmann, 1978: 259–268, Plate 9: Figs 13–16.

*Loxocorniculum georgei* (Hartmann, 1978), – Cabioch, Anglada & Babinot, 1986: 28; Howe & McKenzie, 1989: 24.

**Material:** Lizard Island: 1 female, March 10, 1988, Sta. 3; 1 female, 1 larva, August 24, 1989, Sta. 4; 17 females, 13 males, 16 larvae, May 14, 1988, Sta. 8; 1 female, August 16, 1989, Sta. 12; 13 females, 2 males, 2 larvae, April 27, 1988, Sta. 13; 3 females, 1 male, 2 larvae, August 8, 1989, Sta. 13; 13 females, 5 larvae, May 3, 1988, Sta. 14; 7 females, 3 males, 2 larvae, August 5, 1989, Sta. 14; AMS. 11 females, 13 males, 13 larvae, May 10, 1988, Sta. 21; 3 females, 1 male, 3 larvae, August 14, 1989, Sta. 24; 1 female, August 15, 1989, Sta. 23; 3 females, May 17, 1989, Sta. 25; 2 females, August 12, 1989, Sta. 25; 1 female, August 17, 1989, Sta. 29; ZMH K-34577. Cod Hole: 1 female, August 7, 1989, Sta. 34; ZMH K-34577. Reef near Cod Hole: 1 female, May 1, 1988, Sta. 37; ZMH K-34577.

**Size:** females, LV: length 0.50 mm, height 0.33 mm;  
males, LV: length 0.53 mm, height 0.32 mm.

**Ecology:** *L. georgei* was found on dead coral fragments as well as on algae.

**Remarks:** Together with *L. broomensis* Hartmann, 1978 and *L. minyaustralis* Howe & McKenzie, 1989, *L. georgei* belongs to a group of species which are closely related, all having quite similar shells. The species of the group can mainly be distinguished by their distinctly different soft parts. The population of Lizard Island differs from the one described by Hartmann in having two kneebristles on P1 instead of one. Both populations correspond in size.

*Loxoconcha insulaecapricornensis* Hartmann, 1981

Plate 4: Figs 10, 11, Plate 5: Figs 1, 2

*Loxoconcha insulaecapricornensis* Hartmann, 1981: 118–119, Figs 55–57, Plate 9: Figs 7–17.

**Material:** Lizard Island: 2 females, March 19, 1988, Sta. 6; 2 females, 1 larva, May 14, 1988, Sta. 8; 1 female, May 18, 1988, Sta. 11; 7 females, 2 larvae, September 17, 1989, Sta. 29; 1 female, 2 males, October 12, 1989, Sta. 30; 1 female, October 13, 1989, Sta. 31; AMS. Cod Hole: 11 females, 2 males, 7 larvae, August 7, 1989, Sta. 34; ZMH K-34578. Hilder Reef: 1 female, 1 larva, April 24, 1988, Sta. 36; ZMH K-34578.

**Size:** females, LV: length 0.48 mm; height 0.28 mm;  
males, LV: length 0.55 mm; height 0.34 mm.

**Ecology:** *L. insulaecapricornensis* was found only on dead coral fragments and algae at the windward side of the island.

**Remarks:** The individuals of the Lizard Island population are smaller than the populations of Rangiroa and Huahiné: females 0.51–0.53 mm long, males 0.56–0.57 mm long (Hartmann, 1984), and of Heron Island: females 0.53–0.57 mm long (Hartmann, 1981).

*Loxoconcha heronislandensis* Hartmann, 1981

Plate 5: Figs 3–6

*Loxoconcha heronislandensis* Hartmann, 1981: 117–118, Figs 52–54, Plate 9: Figs 1–6.

**Material:** Lizard Island: 1 female, March 7, 1988, Sta. 1; 1 larva, March 19, 1988, Sta. 6; 2 females, August 23, 1989, Sta. 6; 1 female, 1 larva, March 28, 1988, Sta. 7; 2 females, 1 larva, May 14, 1988, Sta. 8; 5 females, 3 males, 5 larvae, May 18, 1988, Sta. 11; 1 female, 2 males, 1 larva, August 16, 1989, Sta. 11; 6 females, 2 larvae, April 27, 1988, Sta. 13; 3 females, August 8, 1989, Sta. 13; 8 females, 3 larvae, May 3, 1988, Sta. 14; AMS;

2 females, 1 male, August 5, 1989, Sta. 14; 1 female, August 11, 1989, Sta. 20; 21 females, 12 larvae, May 19, 1988, Sta. 23; 2 females, August 15, 1989, Sta. 23; 1 female, 1 male, 3 larvae, May 17, 1988, Sta. 25; 2 females, April 1, 1988, Sta. 28; 6 females, 4 larvae, August 17, 1989, Sta. 29; 1 female, October 12, 1989, Sta. 30; 1 female, October 13, 1989, Sta. 31; 1 larva, October 13, 1989, Sta. 32; ZMH K-34579. Hilder Reef: 1 female, April 24, 1988, Sta. 36; ZMH K-34579. Reef near Cod Hole: 2 females, 7 males, 1 larva, May 1, 1988, Sta. 37; ZMH K-34579.

Size: females, LV: length 0.54 mm, height 0.34 mm;  
males, LV: length 0.56 mm, height 0.33 mm.

Ecology: Most specimens were collected from dead coral fragments, single specimens were also found on algae and sand.

Remarks: The individuals of the Lizard Island population are larger than those of the populations of Rangiroa and Huahiné: 0.50–0.53 mm length (Hartmann, 1984), and of Heron Island: 0.48–0.51 mm length (Hartmann, 1981).

*Loxoconcha violacea* sp. n.

Figs 21–27, 34, Plate 5: Figs 7–10, Plate 6: Figs 1–4

Material

Holotype: male, March 13, 1988, Lizard Island, Sta. 26; AMS.

Paratypes: Lizard Island: 1 larva, March 10, 1988, Sta. 3; 1 male, March 15, 1988, Sta. 5; 1 male, May 18, 1988, Sta. 10; 1 female, April 27, 1988, Sta. 13; 1 male, August 8, 1989, Sta. 13; 1 male, 1 larva, May 1, 1988, Sta. 18; 1 female, November 5, 1989, Sta. 18; 17 females, 7 males, 13 larvae, March 13, 1988, Sta. 26; AMS; 1 female, 1 male, September 2, 1989, Sta. 26; 3 females, 2 males, 3 larvae, May 17, 1988, Sta. 27; ZMH K-34580.

Locus typicus: Lizard Island, lagoon, sand.

Name: The latin word "violaceus" means pink and refers to the colour of the living animal's shell.

Description: The shell of the female is higher in relation to the length than that of the male. The AM is broadly rounded. The VM is slightly concave in the region of the mouth but otherwise convex. The DM runs more or less in a straight line, slightly convex behind the eye. The VM has a selvage which extends to the middle of the PM, and gives the impression of a caudal process. The sculpture of the shell consists of fossae in the mid region. The pore canals are exposed in the posterior and anterior part, where the sculpture is smooth with some ridges. In the anterior part, there is a vestibule; in the posterior part the line of concrescence and the inner margin coincide. Hingement gongyodont. Au six-segmented, 4 and 5 only weakly subdivided. 2 ventrodistally with one hairy bristle, 3 and 4 dorsodistally with one claw each which bear very small sensory hairs at their ends. 5 dorsodistally with two bristles, ventrodistally with one bristle. 6 long, with very long terminal bristles. Aa four-segmented, spinneret bristle two-segmented, not longer than the terminal segment. 2 ventrodistally with one hairy bristle, 3 dorsodistally covered with hair, with one bristle. Medioventrally one bristle, ventrodistally one weakly developed claw. Last segment with two uniform terminal claws. Respiratory plate of the Md with four Strahlen, two of them long and hairy, two shorter. Bristles of the palp short, masticatory process with strong teeth. Respiratory plate of the Mxu with one long

aberrant Strahl. Walking legs with bristles at the posterior margins. P1 with two bristles at the anterior margin of 1, two kneebristles and one bristle distally on 2. P2 and P3 with two bristles at the anterior margin of 1, one kneebristle and one bristle distally on 2.

**Size:** females, LV: length 0.56 mm, height 0.36 mm;  
males, LV: length 0.62 mm, height 0.34 mm.

**Ecology:** The species lives mainly on sandy substrates; single specimens were found on dead coral fragments and algae.

**Remarks:** *L. violacea* sp. n. largely resembles *L. judithae* Howe & McKenzie, 1989, but differs from it in the shape and the ornamentation of the shell. The transition from the VM to the PM is more steeply developed in *L. judithae*. Both posterior ridges of *L. judithae* run much closer together. There are no soft parts available of *L. judithae* to study the systematic relationship between both species, but they are probably closely related. The shape of the shell of *L. violacea* sp. n. is similar to that of *L. gracilis* (Brady, 1890), but the species can be distinguished by the ornamentation. The hingement of *L. undulata* Al-Furaih, 1984 differs from that of *L. violacea* sp. n. in having a smaller posterior tooth and different shape of the anterior socket in the right valve. *L. batei* Bate & Gurney, 1981 has a DM which is more convex. *L. abditocostata parva* Hartmann, 1984 has a distinct dorsoterminal protuberance, which is not developed in *L. violacea* sp. n. The latter two species also differ in the structure of the male copulatory organs.

*Loxococoncha parahuahinéensis* sp. n.

Figs 28–33, 35, Plate 6: Figs 5–12

*Loxococoncha* cf. *fischeri minima* Teeter, 1975, – Cabioch, Anglada & Babinot, 1986: 28, Plate 10; Figs 3–6; non Teeter (1975).

**Material**

**Holotype:** male, May 3, 1988, Lizard Island, Sta. 14; AMS.

**Paratypes:** Lizard Island: 1 female, March 15, 1988, Sta. 5; 1 larva, May 18, 1988, Sta. 10; 3 females, 2 males, 2 larvae, May 18, 1988, Sta. 11; 1 female, May 3, 1988, Sta. 14; 1 female, August 5, 1989, Sta. 14; 2 larvae, May 16, 1988, Sta. 20; 2 females, 2 larvae, August 11, 1989, Sta. 20; 1 female, August 14, 1989, Sta. 21; 1 female, 1 larva, August 15, 1989, Sta. 23; 1 female, 2 males, May 17, 1988, Sta. 25; 1 female, August 12, 1989, Sta. 25; 1 female, March 13, 1988, Sta. 26; 1 larva, September 2, 1989, Sta. 26; 1 female, 1 male, 1 larva, April 1, 1988, Sta. 28; 1 female, 1 larva, August 17, 1989, Sta. 29; AMS. Cod Hole: 3 females, 5 males, 4 larvae, August 7, 1989, Sta. 34; ZMH K-34581. Reef near Cod Hole: 9 females, 2 males, May 1, 1988, Sta. 37; ZMH K-34581.

**Locus typicus:** Lizard Island, windward side, dead coral fragments.

**Name:** The latin words "para" (= near to) in connection with "huahinéensis" refer to the resemblance of the species with *L. huahinéensis* Hartmann, 1984.

**Description:** The shell of the female is higher than that of the male in relation to the length. The DM is straight and ends in a posterodorsal protuberance. The VM of the female's shell is straight, whereas the VM of the male's shell is slightly convex in the posterior part. The AM bears five thorns of equal size, covered by a broad selvage. The VM in its transition to the PM bears four thorns which are less developed than the anterior ones. The PM ends in a caudal process. Eyecups are distinct. The ornamentation of the shell consists of deep fossae and ridges, some of the latter are very pronounced.

Large wings protrude from either side of the shell. There are about 14 marginal pore canals. A small vestibule has developed in the anterior part; elsewhere the inner margin and line of concrescence coincide. Hingement gongylodont, strongly developed. Au five-segmented, with the former segments 4 and 5 fused. 2 ventrodistally with one bristle, 4 ventrodistally with one long bristle and dorsodistally with one long and one short bristle. 5 terminally with one long and two shorter bristles. Aa four-segmented with two terminal claws. Spinneret bristle two-segmented. 2 ventrodistally with one hairy bristle, 3 medio-ventrally and mediodorsally with two bristles and distally with one weak claw. Md with respiratory plate and long teeth at the masticatory process. Mxu with aberrant Strahl. Walking legs with one bristle at the posterior margins of 1, two bristles at the anterior margins of 1 and one bristle distally on 2. P1 with two kneebristles, P2 and P3 with one kneebristle each. The bristles of P3 are poorly developed.

Size: females, LV: length 0.53 mm, height 0.33 mm;  
males, LV: length 0.58 mm, height 0.33 mm.

Ecology: *L. parahuahinéensis* sp. n. was collected from dead coral fragments, mainly in depths over 10 m.

Remarks: *L. parahuahinéensis* sp. n. is closely related to *L. huahinéensis* Hartmann, 1984. Both species differ in the following characters: The lateral wing-like processes of the shell are more developed in *L. parahuahinéensis*. The posterior margin of the shell of *L. huahinéensis* bears less thorns. One of the thorns is larger than the others. The more pronounced ridges of the sculpture lie in different positions in both species. The posterodorsal ridge has the same height as the anterodorsal ridge in *L. huahinéensis*, whereas the posterodorsal one extends higher than the anterodorsal one in *L. parahuahinéensis*. The soft parts differ in the Au, in which the terminal segment is shorter and broader in *L. parahuahinéensis*. The segments 4 and 5 are not divided in *L. huahinéensis*. The basal capsule of the male's copulatory organ is larger, and the side capsule lacks some of the chitinous clasps in *L. huahinéensis*. *L. fischeri minima* Teeter, 1975 differs from *L. parahuahinéensis* in that it lacks a caudal process, and its PM declines more steeply.

#### Gattung *Loxoconchella* Triebel, 1954

##### *Loxoconchella lizardensis* sp. n.

Figs 36–39, Plate 7: Figs 1–3

#### Material

Holotype: male, October 12, 1989, Lizard Island, Sta. 30; AMS.

Paratypes: Lizard Island: 2 females, August 24, 1989, Sta. 4; 2 females, March 15, 1988, Sta. 5; 2 females, 2 larvae, August 4, 1989, Sta. 5; 7 females, 3 larvae, August 23, 1989, Sta. 6; AMS; 1 female, August 8, 1989, Sta. 13; 1 female, May 3, 1988, Sta. 14; 1 female, August 5, 1989, Sta. 14; 2 females, 1 larva, October 12, 1989, Sta. 30; ZMH K-34582.

Locus typicus: Lizard Island, algae.

Name: The species name refers to Lizard Island.

Description: The VM of the shell is straight. The DM rises from the distinct eyecup posteriorly. It declines behind the lateral protuberance and ends in a caudal process. The lateral protuberance is on the same level as the caudal process. The

sculpture of the shell consists of fossae, which are small and reticulate at the margins and larger towards the middle. There are 22 marginal pore canals and also numerous false marginal pore canals. The latter are highly branched. The inner margin and line of concrescence mostly coincide. The hingement consists of a smooth bar. Au corresponds with that of *L. pulchra* McKenzie, 1967. Aa four-segmented with two terminal claws, spinneret bristle two-segmented, not longer than the terminal claw. 2 ventrodistally with one bristle, 3 medioventrally and mediodorsally with two bristles each, ventrally, but more distally located, one bristle. Md corresponds with that of *L. pulchra*, but the inner bristle of the palp is not so strong and not hairy. Mxu with well developed aberrant bristle at the respiratory plate. Walking legs in relation to the whole body very long. P1 with two bristles at the anterior margin, two kneebristles and one bristle distally at 2. Posterior margin with one bristle. P2 with two bristles at the anterior margin, one kneebristle, one bristle distally at 2 and one bristle at the posterior margin. P3 with one kneebristle and one bristle distally at 2. Fu with three bristles.

Size: females, LV: length 0.53 mm, height 0.39 mm.

(The valves of the single male found were destroyed.)

Ecology: *L. lizardensis* sp. n. was found on algae and dead coral fragments.

Remarks: *L. lizardensis* sp. n. belongs to a group of species with a lateral protuberance of the shell. There are very few data on the soft parts of the genus; only those of *L. pulchra* and *L. dorsobullata* Hartmann, 1964 have been investigated. The species show as diagnostic soft part characters a furca bearing three bristles and a reduction of bristles at P3. The copulatory organ of the male has the same elongated structure. Regarding the characters of the shell, they differ in having the lateral protuberance which *L. pulchra* lacks. The shell of *L. scottoi* Bonaduce, Masoli, Minichelli & Pugliese, 1980 differs in shape from that of *L. lizardensis* sp. n. in having angular transitions in the posterior dorsal and ventral parts and in having a larger protuberance. *L. dorsobullata* differs in the line of the dorsal margin, which does not decline in its posterior part. In *L. anomala* (Brady, 1880), the lateral protuberance is located more in the middle of the shell, whereas in *L. lizardensis* sp. n. more dorsally. The protuberance of *L. ishizaki* Keji, 1978 is less prominent than that of *L. lizardensis* sp. n.

### Family Paracytherideidae Puri, 1957

Genus *Paracytheridea* (*Paracytheridea*) G. W. Müller, 1894

*Paracytheridea gynaikokratia* sp. n.

Figs 40–43, Plate 7: Figs 4–9

#### Material

Holotype: female, April 27, 1988, Lizard Island, Sta. 13; AMS.

Paratypes: Lizard Island: 1 larva, March 15, 1988, Sta. 5; 1 female, 1 larva, May 14, 1988, Sta. 8; 1 larva, May 18, 1988, Sta. 10; 2 females, 2 larvae, May 18, 1988, Sta. 11; 4 females, 7 larvae, August 16, 1989, Sta. 11; 2 females, April 27, 1988, Sta. 13; 2 females, 1 larva, August 8, 1989, Sta. 13; 1 female, August 5, 1989, Sta. 14; 2 females, 2 larvae, August 11, 1989, Sta. 20; 2 females, May 10, 1988, Sta. 21; 1 female, 1 larva, August 14, 1989, Sta. 21; 1 larva, May 19, 1988, Sta. 23; 1 female, 1 larva, August 15, 1989, Sta. 23; AMS; 3 females, 1 larva, August 12, 1989, Sta. 25; 2 females, 5 larvae, August 17, 1989,

Sta. 29; ZMH K-34583. Hilder Reef: 1 female, 1 larva, April 24, 1988, Sta. 36; ZMH K-34583.

**Locu s typicu s:** Lizard Island, windward side, dead coral fragments.

**Na m e:** The greek word "gynaikokratia" (= ruled by women) refers to the fact that males were not found.

**De scription:** The DM of the shell declines posteriorly, interrupted by irregular bulges. In its posterior part, the DM is obscured by strong ridges. The PM ends in a long caudal process. The AM is rounded and undulated, which results from ridges coming from the posterior middle of the shell. The VM is straight; it is obscured by ventrally located lateral wing-like protuberances. There is no vestibule. The hingement is complicated, with taxodont bar. Au six-segmented, 2 ventrodistally with one long bristle, 3 dorsodistally with one short bristle, 4 dorsodistally with two bristles, ventrodistally with one bristle. 5 dorsodistally with two bristles, ventrodistally with one bristle. 6 with two bristles and one sensory stick. Aa resembles that of *P. remanei* Hartmann, 1964. Respiratory plate of the Md with one Strahl. Walking legs with the following bristles: P1 with two bristles at the anterior margin, the distal one strongly developed, two kneebristles and one at 2. Posterior margin with one bristle. P2 and P3 each with two bristles at the anterior margin of 1, one kneebristle and one bristle at 2.

**Size:** females, LV: length 0.51 mm, height 0.25 mm.

**Ecol ogy:** *P. gynaikokratia* sp. n. was mainly collected from dead coral fragments; single specimens were found on macroalgae.

**Re m arks:** *P. gynaikokratia* sp. n. is closely related to *P. remanei*, but differs in shape and ornamentation of the carapace. The differences can be seen distinctly from the dorsal view. *P. gynaikokratia* has a notch between the posterior and anterior part of the lateral wing, which is not developed in *P. remanei*. *P. gynaikokratia* lacks eyecups which are clearly present in *P. remanei*. *P. aqabaensis* Bonaduce, Masoli & Pugliese, 1976 also differs in the shape of the carapace, especially in the shape of the lateral wings which do not have a notch. Eyecups are also developed. *P. pseudoremanei* Bonaduce, Masoli, Minichelli & Pugliese, 1980 has eyecups and a shorter caudal process. *Paracytheridea* sp. Holden, 1976 from Hawaii differs in the lateral wing which is smaller. *P. longicaudata* (Brady, 1890) differs in the ornamentation, especially in the ridges.

*Paracytheridea* sp. Lizard 1

Plate 7: Fig. 10

**Ma terial:** Lizard Island: 1 female, August 17, 1989, Sta. 29; AMS. Cod Hole: 1 female, August 7, 1989, Sta. 34; AMS.

**Size:** females, LV: length 0.52 mm, height 0.22 mm

**Ecol ogy:** The species was found twice on dead coral fragments from the windward side.

**Re m arks:** The species differs from all other species of the genus in the ornamentation of the shell. As it is not possible to describe the species sufficiently on the basis of the two females found, it will remain in open nomenclature.



## Family Cytheruridae G. W. Müller, 1894

## Subfamily Cytherurinae, G. W. Müller, 1894

Genus *Cytherura* Sars, 1866*Cytherura* cf. *densuireticulata* Hartmann, 1978

## Plate 7: Figs 11, 12

*Cytherura densuireticulata* Hartmann, 1978: 109–110, Figs 309–318, Plate 10: Figs 15–18.

**Material:** Lizard Island: 1 female, March 7, 1988, Sta. 1; 11 females, 2 larvae, August 3, 1989, Sta. 1; 1 female, March 10, 1988, Sta. 2; 3 females, 2 larvae, March 10, 1988, Sta. 3; 1 male, August 23, 1989, Sta. 3; AMS; 2 larvae, August 23, 1989, Sta. 6; 1 female, March 28, 1988, Sta. 7; 1 female, August 12, 1989, Sta. 27; 1 female, April 1, 1988, Sta. 28; ZMH K-34584.

**Size:** females, LV: length 0.38 mm, height 0.29 mm;

(The valves of the single male found were destroyed.)

**Ecology:** *Cytherura* cf. *densuireticulata* was found in the sandy upper sublittoral.

**Remarks:** A large variability can be found in some characters of the species. The male of the Lizard Island population bears a pointed process at its side whereas the population of Western Australia bears a rounded one (Hartmann, 1978). Hartmann mentioned a large variability, but could not split up the different varieties into species. The ornamentation of the shell also shows a close relationship to *C. tenuifossulata* Hartmann, 1978. Unfortunately, no soft parts of that species have been studied yet, which could give necessary information.

Genus *Hemicytherura* Eloffson, 1941*Hemicytherura viridiminor* sp. n.

## Figs 44–49, Plate 8: Figs 1–4

**Material**

**Holotype:** female, May 14, 1988, Lizard Island, Sta. 8; AMS.

**Paratypes:** Lizard Island: 1 female, March 15, 1988, Sta. 4; 2 females, March 15, 1988, Sta. 5; 2 females, March 19, 1988, Sta. 6; 8 females, May 14, 1988, Sta. 8; 1 female, May 18, 1988, Sta. 11; 1 female, August 16, 1989, Sta. 11; 1 female, April 27, 1988, Sta. 13; 3 females, August 8, 1989, Sta. 13; 1 female, August 5, 1989, Sta. 14; 3 females, 1 larva, May 10, 1988; Sta. 21; 3 females, August 14, 1989, Sta. 21; 1 female, May 19, 1988, Sta. 23; AMS; 2 females, March 13, 1988, Sta. 26; ZMH K-34585. Hilder Reef: 7 females, April 24, 1988, Sta. 36; ZMH K-34585. Reef near Cod Hole: 1 female, May 1, 1988, Sta. 37; ZMH K-34585.

**Locus typicus:** Lizard Island, dead coral fragments.

**Name:** The Latin words "viridis" (= green) and "minor" (= small) refer to size and colour of the shell.

**Description:** The RV is higher and shorter than the LV, its upper AM slightly concave. The DM extends in a convex line, with its posterior section obscured by a dorsoterminal protuberance. The PM ends in a pointed caudal process. The posterior part of the VM is also obscured by a protuberance. The AM bears six thorns and a broad

selvage. The ornamentation of the shell consists of fossae and ridges. One ridge runs parallel with the VM, but is interrupted in the area of the muscle scars. The ridges have a reticulated structure. There are about 23 marginal pore canals; a small vestibule is developed in the anterior part. Elsewhere, inner margin and line of conchrescence coincide. Hingement merodont. Au six-segmented. 2 ventrodistally with one bristle, 3 and 4 dorsodistally with one bristle each, 5 ventrodistally and dorsodistally with one bristle, 6 with three bristles. Aa five-segmented with two terminal claws, spinneret bristle three-segmented. 2 and 3 ventrodistally with one bristle each, 3 dorsodistally with one bristle and terminally with one claw. Md with strong masticatory process, bearing four teeth and a very small palp. Mxu with one aberrant Strahl. P1 with one bristle at the anterior margin, two kneebristles, one bristle distally at 2 and a long bristle at the posterior margin. P2 corresponding, but with only one kneebristle. P3 only with one kneebristle and one bristle at 2.

**Size:** females, LV: length 0.35 mm, height 0.20 mm.

**Ecology:** *H. viridimior* sp. n. was found on different substrates including algae, sand and dead coral fragments.

**Remarks:** Only one male was found, but that was subadult. The shape of the carapace shows resemblance with *Hemicytherura* sp. Yassini & Jones, 1987. However, *Hemicytherura* sp. Yassini & Jones does not have a dorsoterminal protuberance but a horizontal ridge. *H. videns* (Müller, 1894) differs in having a longer caudal process and more prominent protuberances in the posterior part of the shell.

#### Genus *Semicytherura* Wagner, 1957

##### *Semicytherura* sp. Lizard 1

Plate 8: Figs 5, 6

**Material:** 3 females, August 17, 1989, Lizard Island, Sta. 29; AMS.

**Size:** females, LV: length 0.35 mm, height 0.17 mm.

**Ecology:** All three females were found on dead coral fragments.

**Remarks:** The species is closely related to *S. kaethehoffmannae* Hartmann, 1979, *S. geraldtonensis* Hartmann, 1978, *S. cryptifera* (Brady, 1880), and *Semicytherura* sp. Hartmann, 1984. Parallel to the dorsal margin there is an anterior ridge which is present in all species, but can hardly be found in *Semicytherura* sp. Lizard 1. All species have very similar carapace ornamentations but differ in their soft parts, especially in the structure of the copulatory organs of the males. Due to these problems, a name has not been assigned to the species.

#### Family Bythocytheridae Sars, 1926

##### Genus *Bythocythere* Sars, 1866

##### *Bythocythere arenicola* sp. n.

Figs 50–55, Plate 8: Figs 7–12

##### **Material**

**Holotype:** male, October 13, 1989, Lizard Island, Sta. 31; AMS.

**Paratypes:** 1 female, 1 larva, October 13, 1989, Lizard Island, Sta. 31; AMS. 2 females, October 13, 1989, Lizard Island, Sta. 31; ZMH K-34586.

**Locus typicus:** Lizard Island, sand.

**Name:** The latin words "arena" (= sand) and "colere" (= to live) refer to the habitat of the species.

**Description:** The carapace of the female is higher in the posterior part than that of the male. The DM is straight and ends in a dorsoterminal angulation. The AM is rounded, the VM slightly convex. The PM forms a caudal process in its upper part. Eyecups are missing. The sculpture is reticulate. There are wing-like protuberances in the posteroventral part of the shell. The hingement consists of a smooth bar. Au seven-segmented, with long and slender segments. 2 dorsally and ventrally with one bristle each, dorsodistally with one bristle. 3 dorsodistally with one bristle, 4 laterally with two bristles, 5 dorsodistally with two and ventrodistally with one bristle. 7 terminally with two long and one shorter bristles. Aa with three terminal claws, spinneret bristle two-segmented. 2 ventrodistally with two bristles, 3 ventrally as well as dorsally with two short bristles, ventrodistally with one bristle. One small bristle besides the terminal claws. Respiratory plate of the Md with five Strahlen. Mxu with four aberrant Strahlen at the respiratory plate. Walking leg P1 with two long bristles at the anterior margin, two kneebristles and one bristle each at 2 and 3, at the posterior margin a respiratory plate with four Strahlen. P2 with one long bristle at the anterior margin, one kneebristle and one bristle at 2 and 3 each. One long bristle at the posterior margin. P3 with very small kneebristle, one bristle at 2 and one very strong bristle at 3. Fu with three bristles. Copulatory organ of the male with rounded basal capsule and very long side capsule.

**Size:** females, LV: length 0.40 mm, height 0.23 mm;

males, LV: length 0.42 mm, height 0.24 mm.,

**Ecology:** The species was found only once, on sandy substrate.

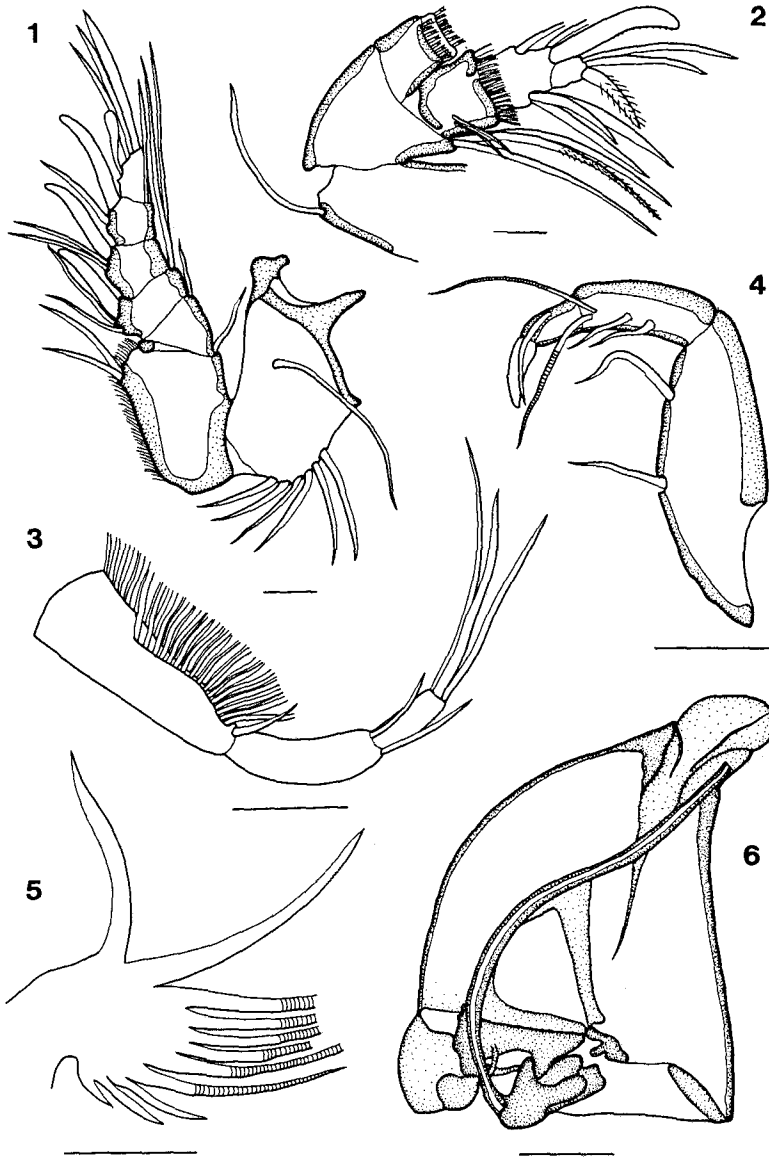
**Remarks:** The shape of the carapace as well as the sculpture of *B. arenicola* sp. n. differentiate it from all other species in the genus.

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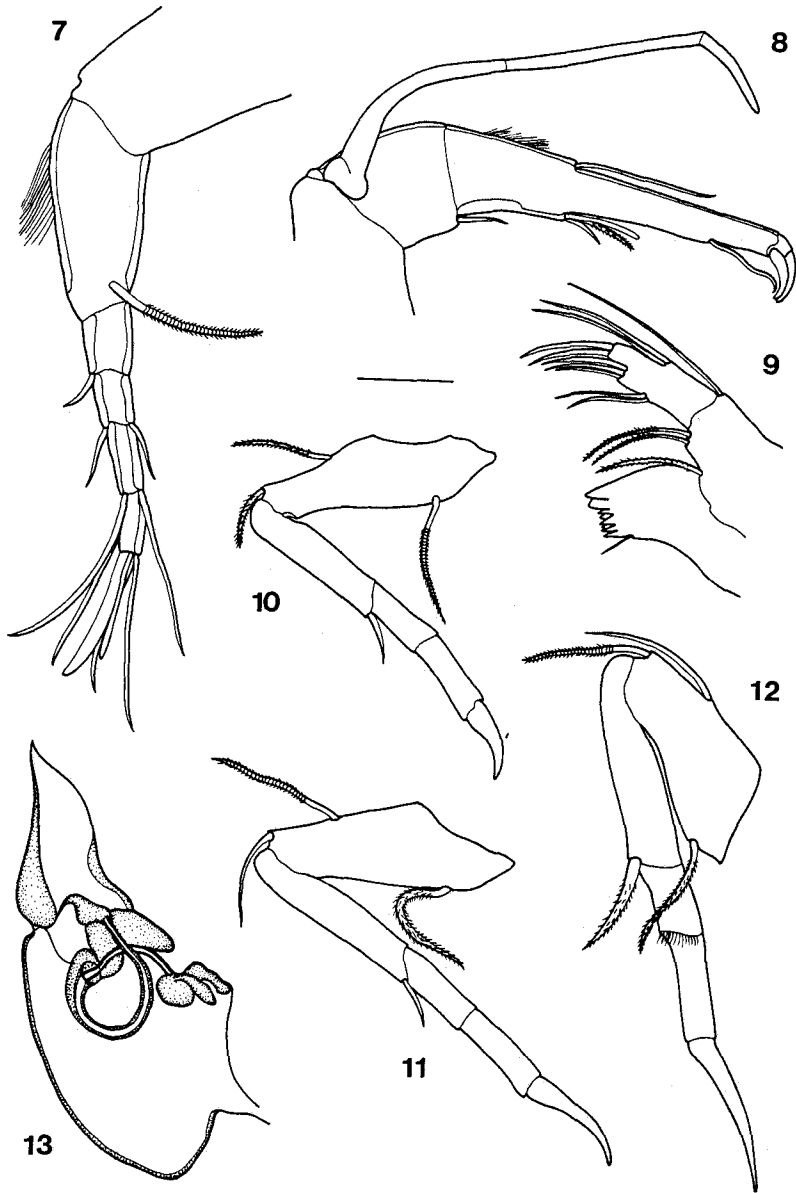
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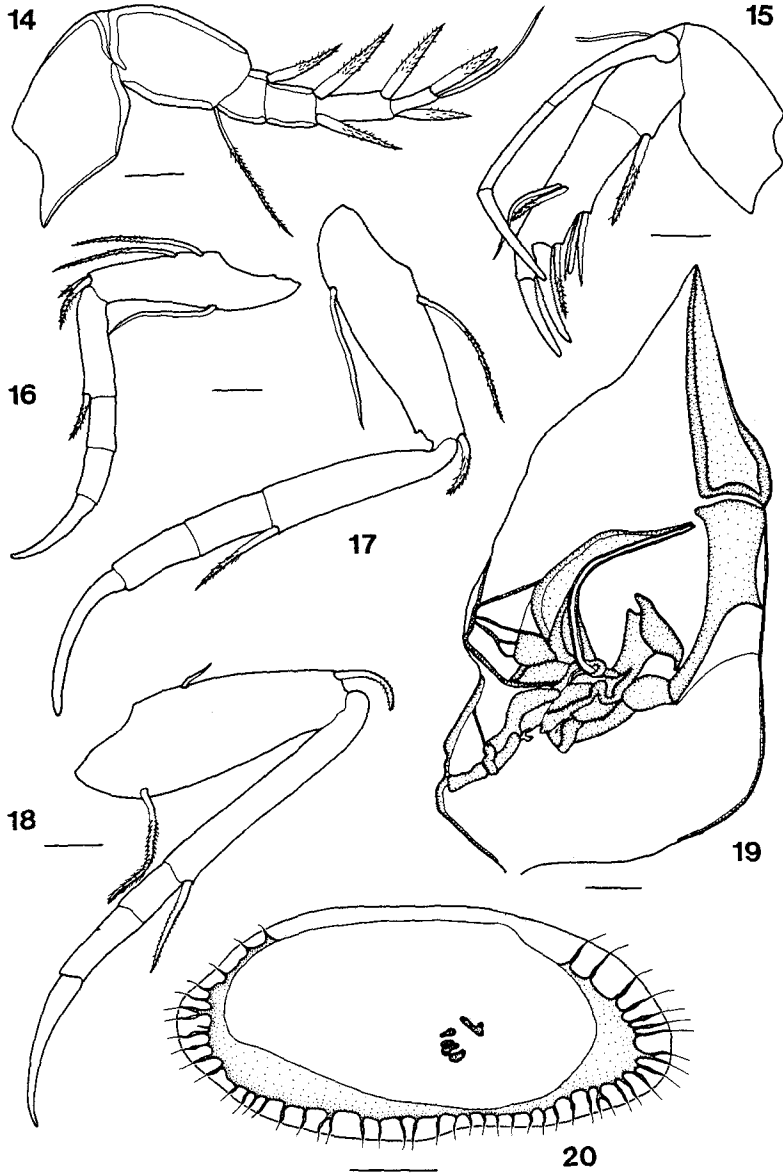
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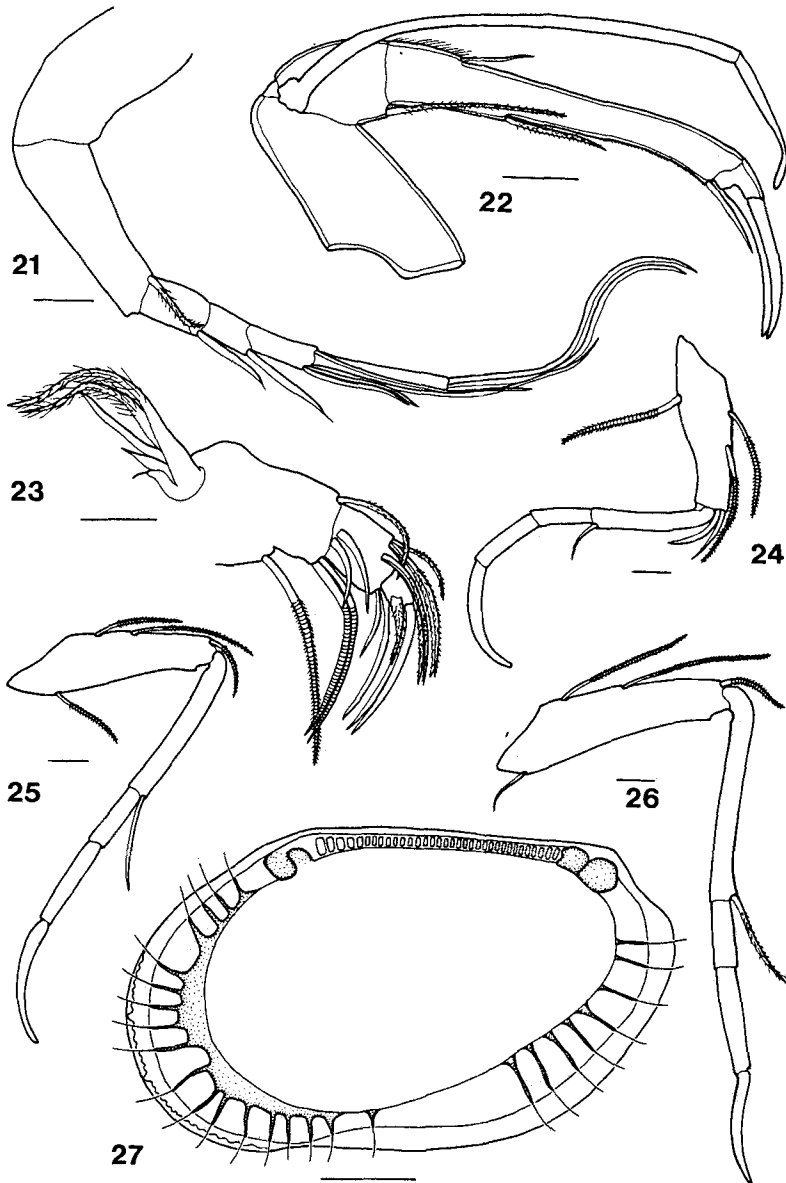
Figs 1-6. *Keijcyoidea poikilokosmena* sp. n. 1: Au. 2: Aa. 3: Mxu-palp. 4: Pl. 5: Fu. 6: Male copulatory organ (Scales of Figs 1-6 = 0.025 mm)



Figs 7-13. ?*Corallicythere arcanis* sp. n. 7: Au. 8: Aa. 9: Md-palp. 10: P1. 11: P2. 12: P3.  
13: Male copulatory organ (Scales of Figs 7-13 = 0.025 mm)

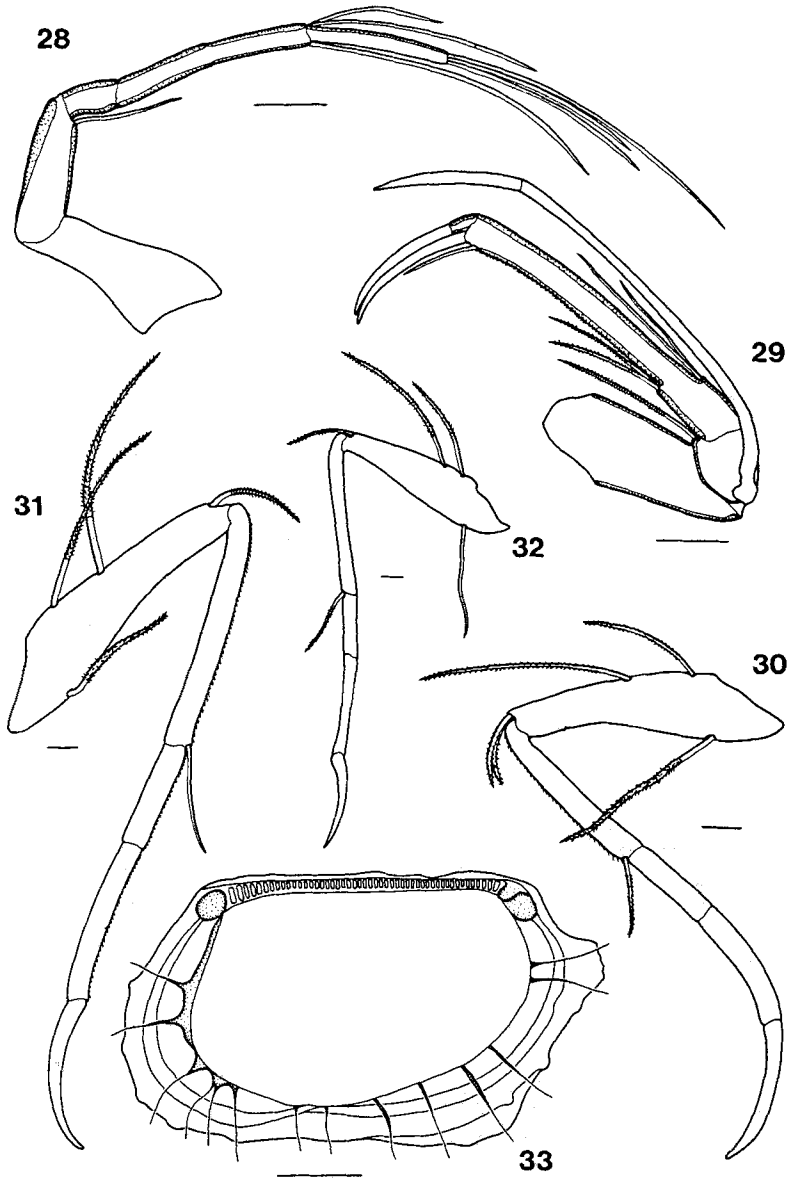


Figs 14–20. *Paracytheroma aestatophila* sp. n. 14: Au. 15: Aa. 16: P1. 17: P2. 18: P3. 19: Male copulatory organ (Scales of Figs 14–19 = 0.025 mm). 20: LV, inner view (Scale = 0.1 mm)



Figs 21–27. *Loxoconcha violacea* sp. n. 21: Au. 22: Aa. 23: Md-palp. 24: P1. 25: P2. 26: P3 (Scales of Figs 21–26 = 0.025 mm). 27: RV, inner view (Scale = 0.1 mm)





Figs 28–33. *Loxoconcha parahuahinéensis* sp. n. 28: Au. 29: Aa. 30: P1. 31: P2. 32: P3 (Scales of Figs 28–32 = 0.025 mm). 33: RV, inner view (Scale = 0.1 mm)

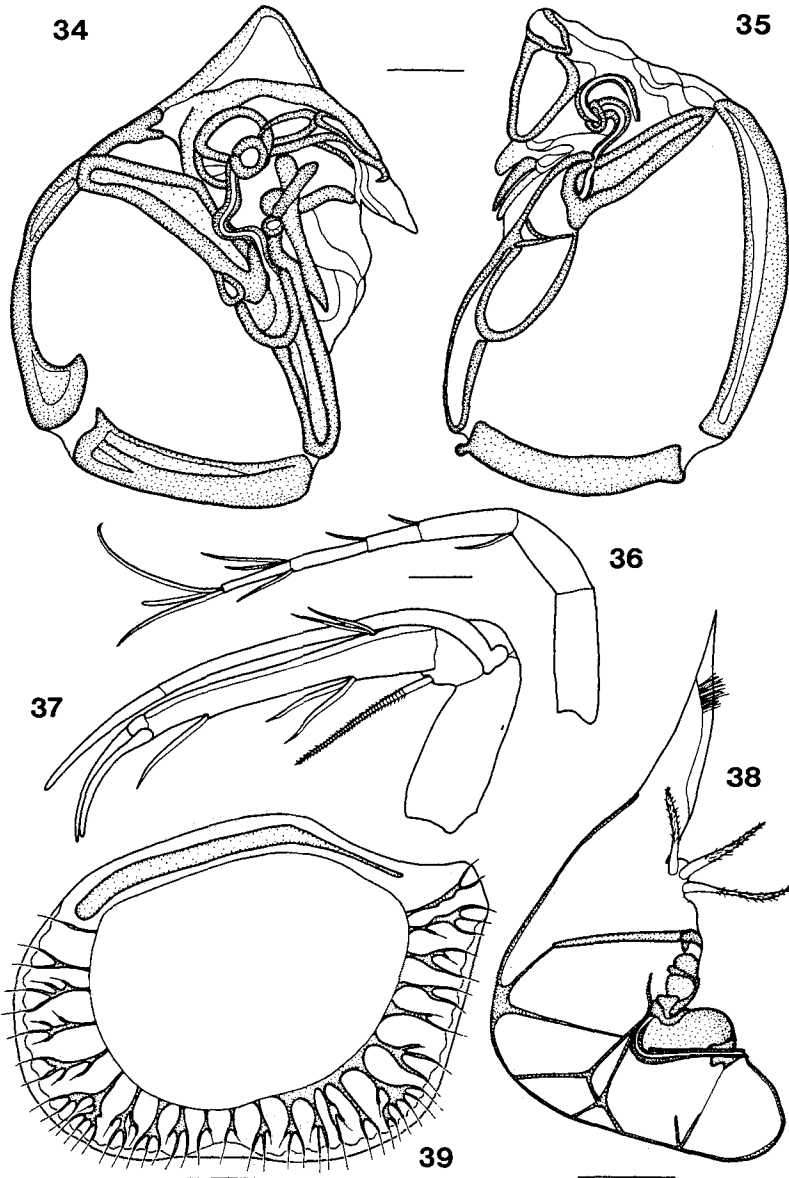
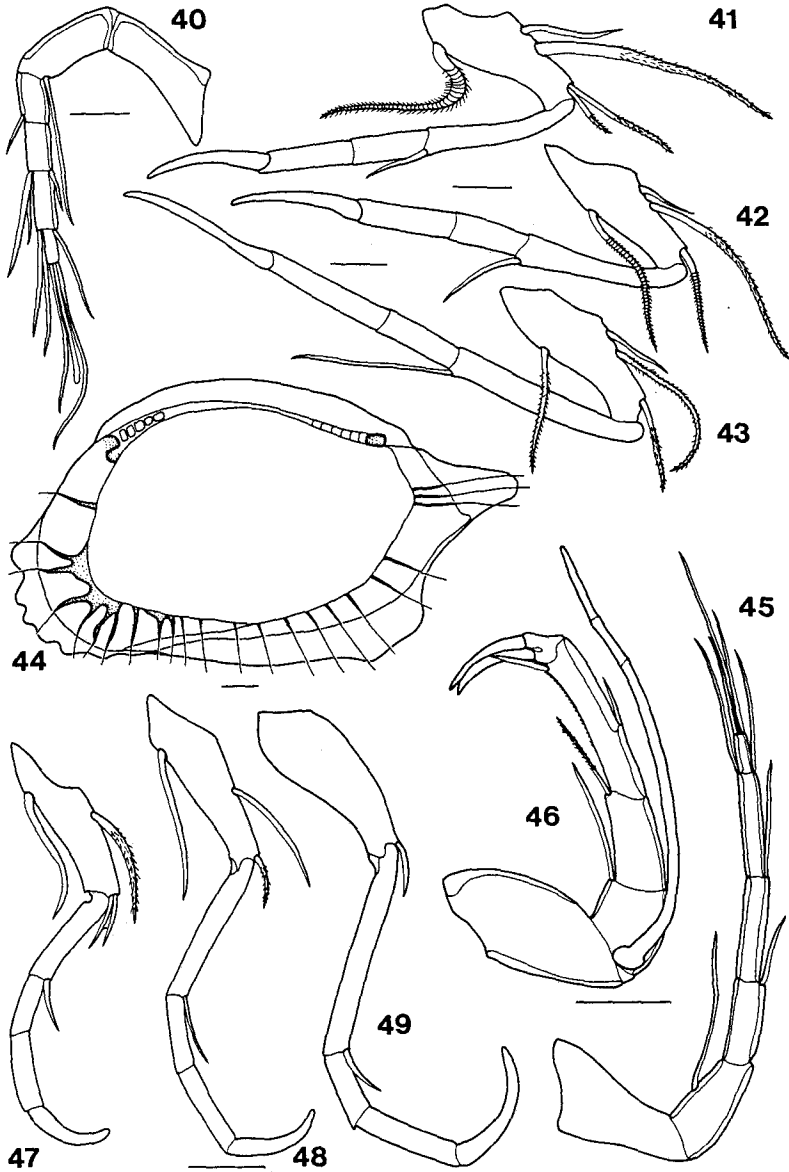
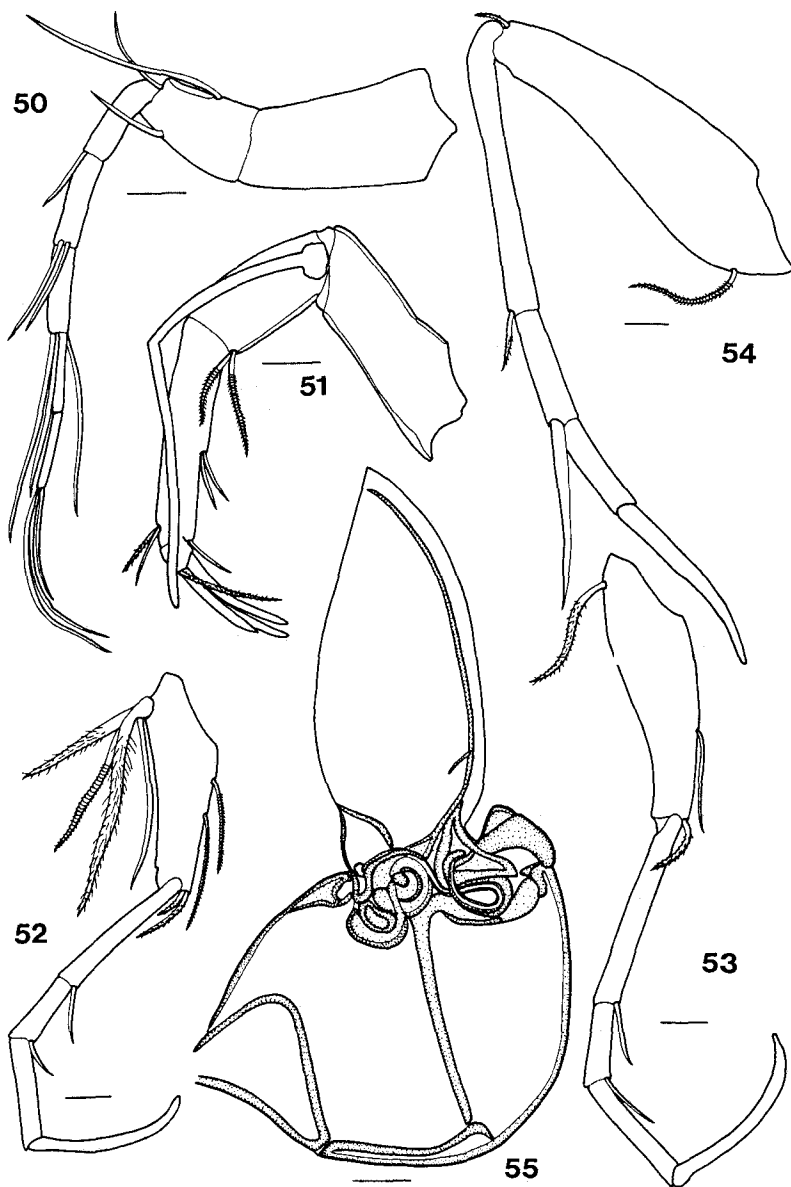


Fig. 34. *Loxoconcha violacea* sp. n. Male copulatory organ (Scale = 0.025 mm)  
 Fig. 35. *L. parahuhinéensis* sp. n. Male copulatory organ (Scale = 0.025 mm)  
 Figs 36–39. *Loxoconchella lizzardensis* sp. n. 36: Au. 37: Aa. 38: Male copulatory organ (Scales of  
 Figs 36–38 = 0.025 mm). 39: LV, inner view (Scale = 0.1 mm)



Figs 40-43. *Paracytheridea gynaikokratia* sp. n. 40: Au. 41: P1. 42: P2. 43: P3  
(Scales of Figs 40-43 = 0.025 mm)

Figs 44-49. *Hemicytherura viridiminor* sp. n. 44: LV, inner view. 45: Au. 46: Aa. 47: P1. 48: P2.  
49: P3 (Scales of Figs 44-49 = 0.025 mm)



Figs 50–55. *Bythocythere arenicola* sp. n. 50: Au. 51: Aa. 52: P1. 53: P2. 54: P3. 55: Male copulatory organ (Scales of Figs 50–55 = 0.025 mm)

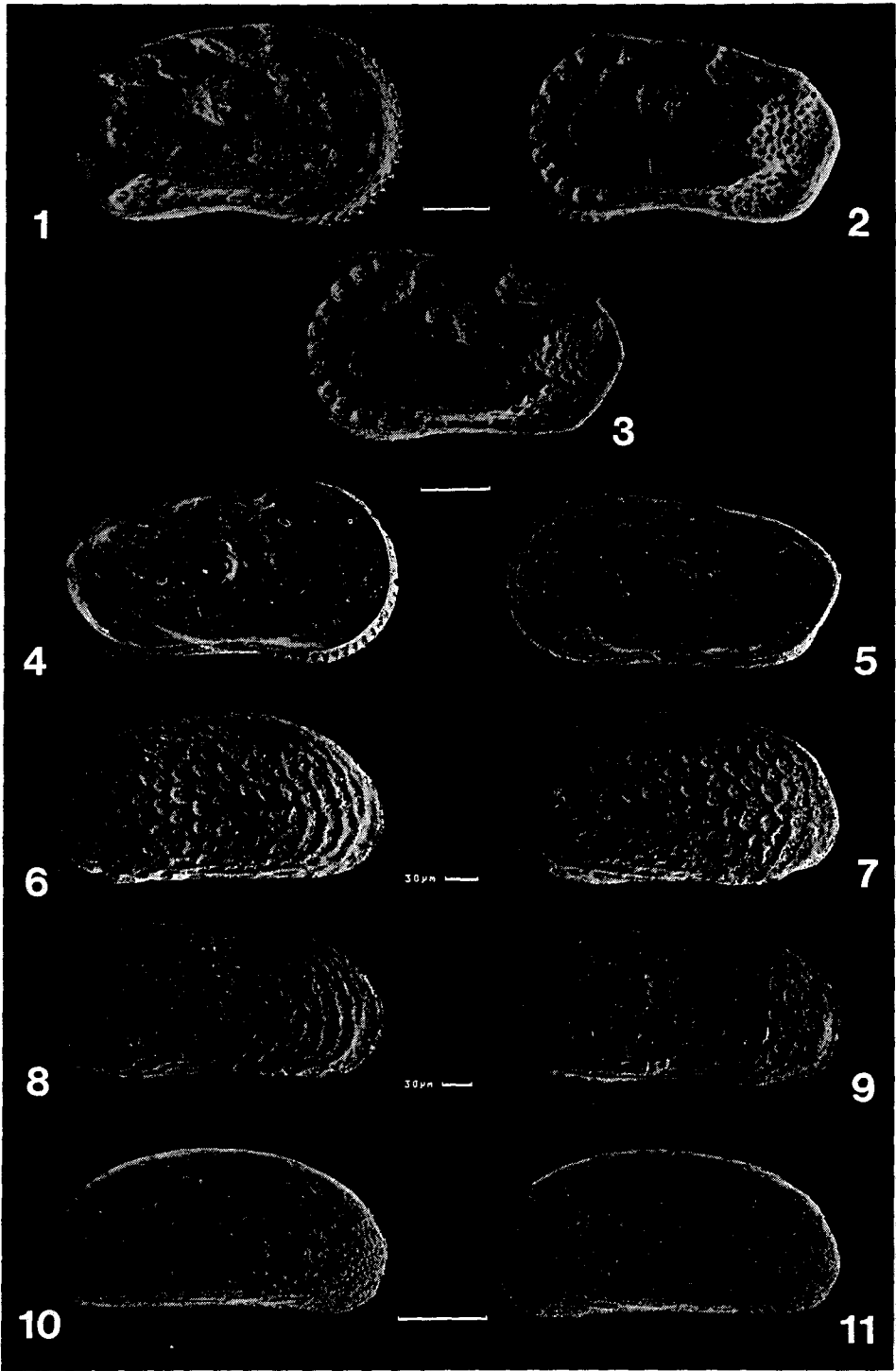


Plate 1. Figs 1-5. *Keijcyoidea poikilokosmena* sp. n. 1: Male, RV. 2: Male, LV. 3: Female, LV. 4: LV, inner view. 5: RV, inner view  
 Figs 6-9. *Microcytherura aestuaricola* Hartmann, 1980. 6: Female, RV. 7: Female, LV. 8: Male, RV. 9: Male, LV  
 Figs 10-11. ?*Corallicythere arcanis* sp. n. 10: Female, RV. 11: Female, LV.  
 (Scales = 0.1 mm)

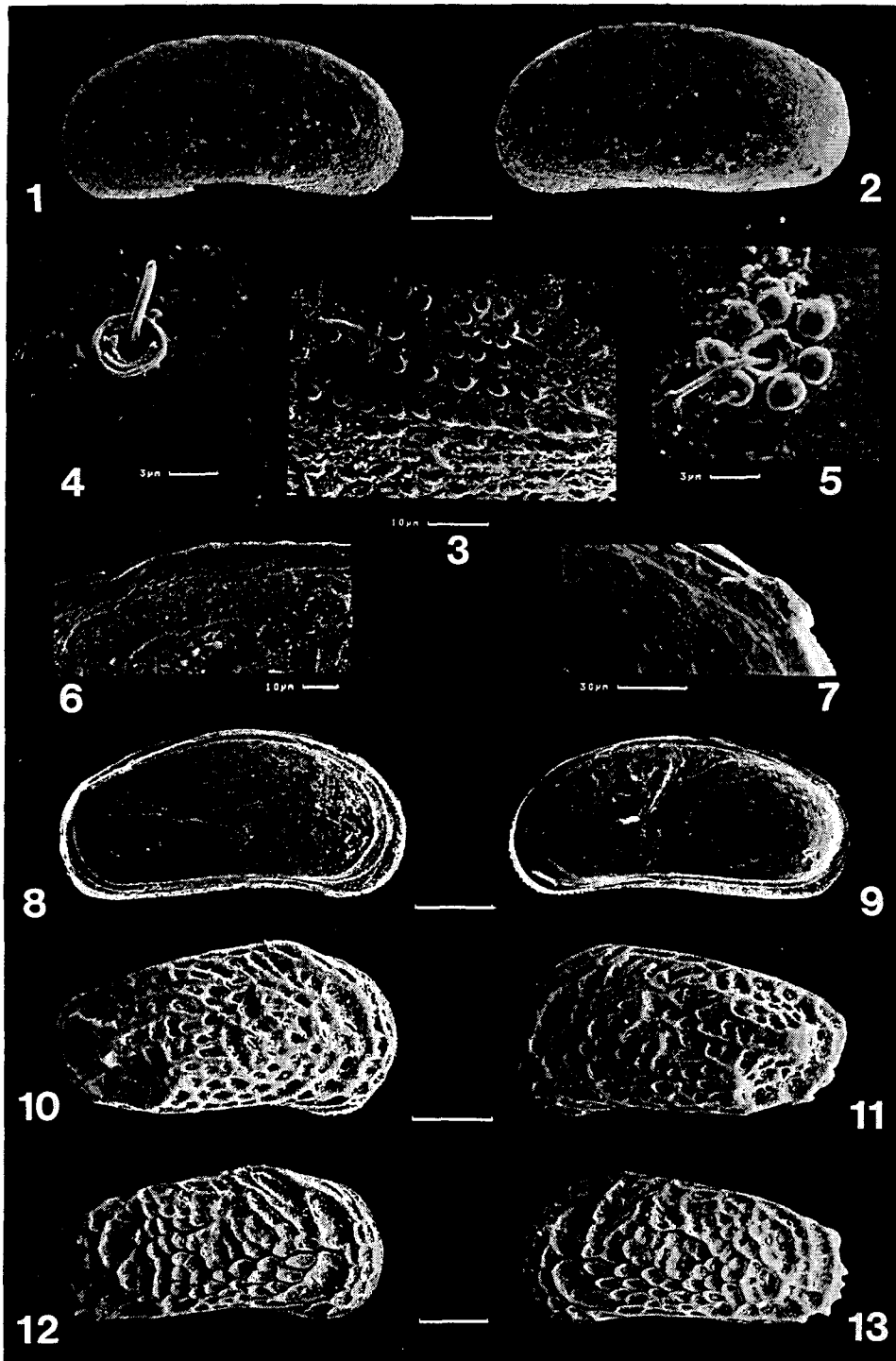


Plate 2. Figs 1-9. *?Corallicythere arcanis* sp.n. 1: Male, RV. 2: Male, LV. 3: Sculpture. 4 and 5: Pore canals. 6: Anterior hingement, RV. 7: Posterior hingement. 8: LV, inner view. 9: RV, inner view  
 Figs 10-11. *Morkhovenia inconspicua* (Brady, 1880). 10: Female, RV. 11: Female, LV  
 Figs 12-13. *Keijia hirundo* (Bonaduce, Masoli & Pugliese, 1976). 12: Female, RV. 13: Female, LV  
 (Scales = 0.1 mm, if not stated otherwise)

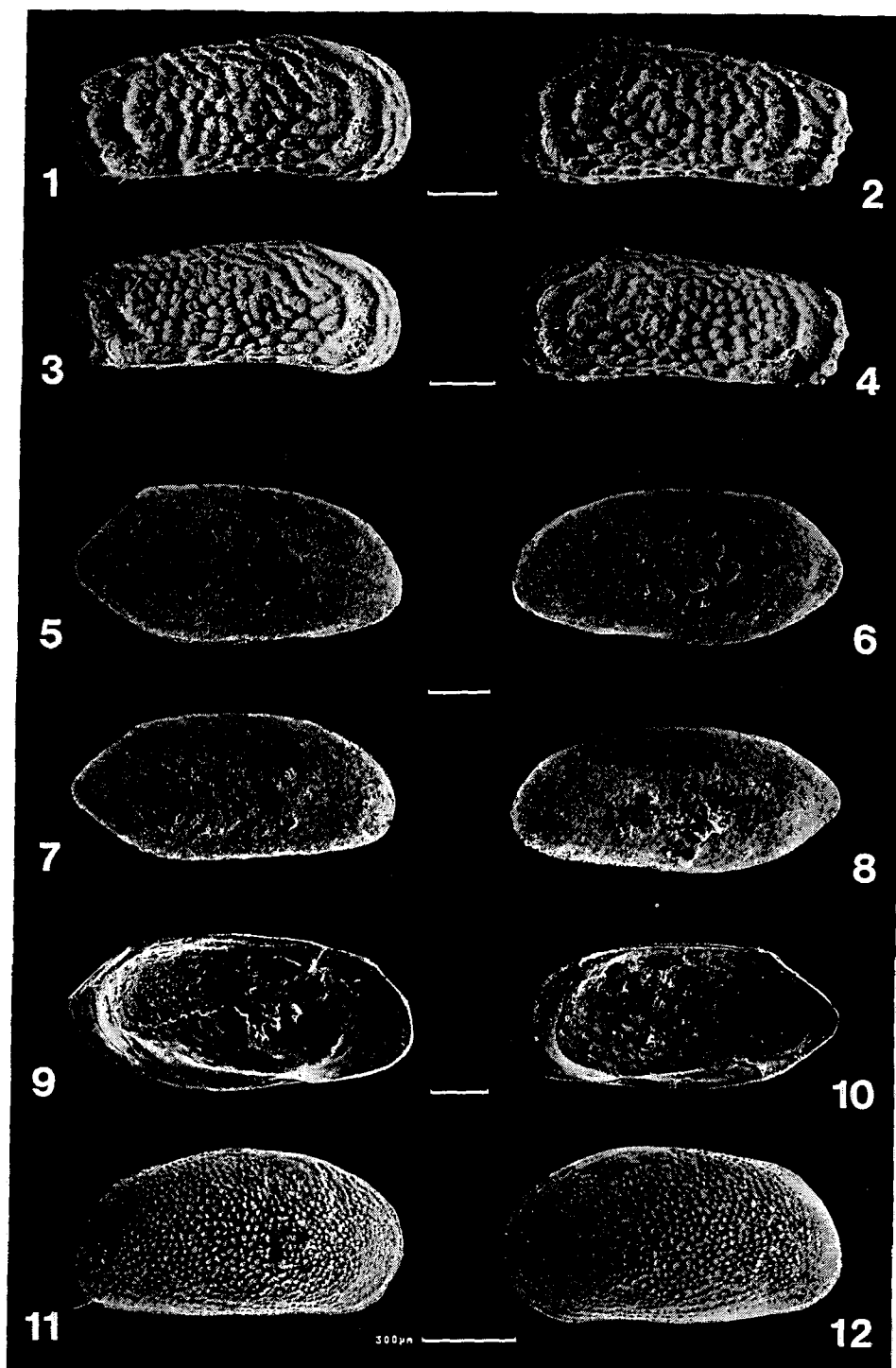


Plate 3. Figs 1-4. *Keijia foveata* (Hartmann, 1978). 1: Male, RV. 2: Male, LV. 3: Male, RV. 4: Male, LV  
 Figs 5-10. *Paracytheroma aestatophila* sp. n. 5: Female, RV. 6: Female, LV. 7: Male, RV. 8: Male, LV. 9: LV, inner view. 10: RV, inner view  
 Figs 11-12. *Cyprideis australiensis* Hartmann, 1978. 11: Male, RV. 12: Male, LV  
 (Scales = 0.1 mm)

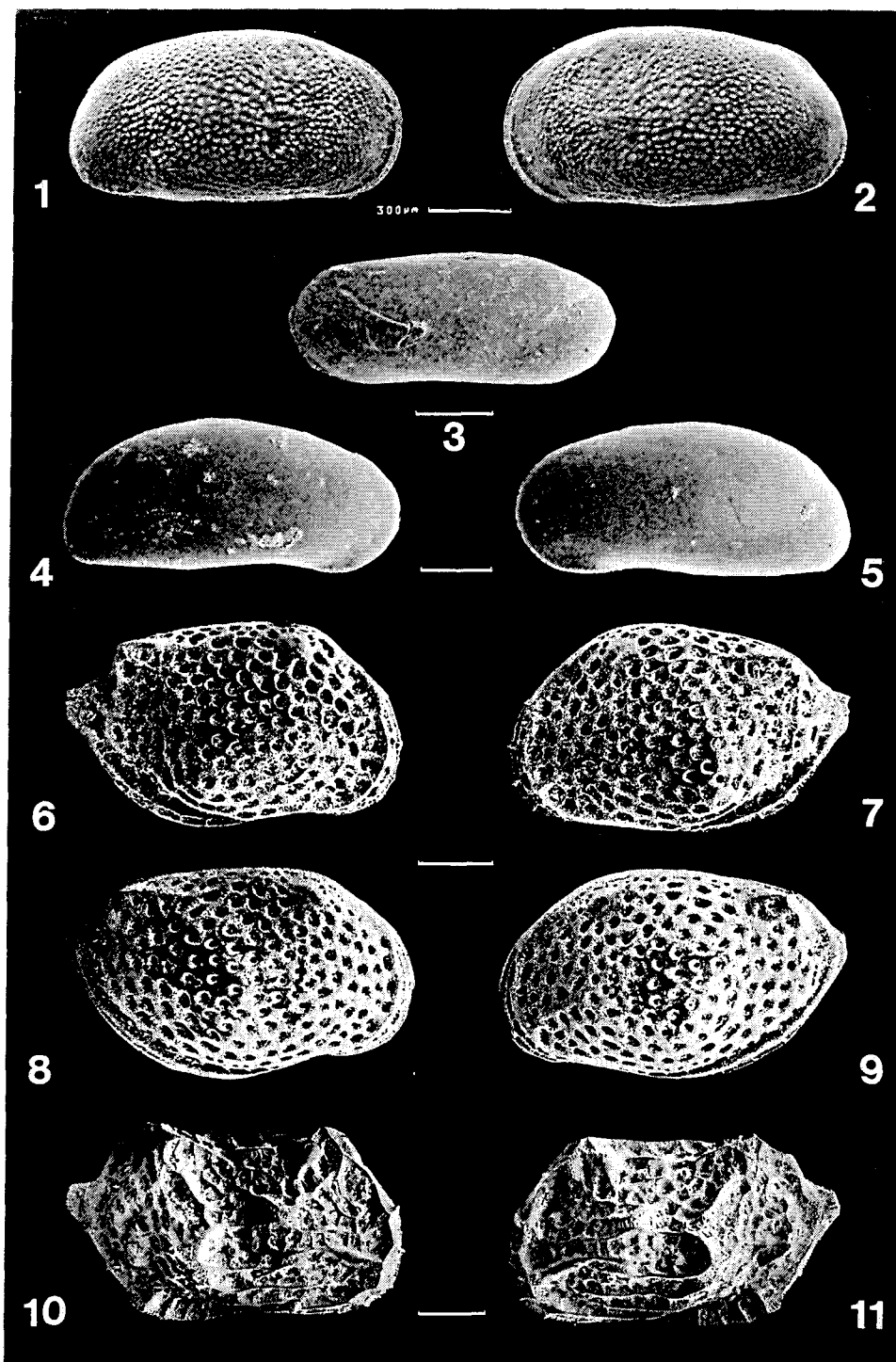


Plate 4. Figs 1-2. *Cyprideis australiensis* Hartmann, 1978. 1: Female, RV. 2: Female, LV  
 Fig. 3. *Parakrithella* sp. Lizard 1. Female, LV  
 Figs 4-5. *Parakrithella* sp. Lizard 2. 4: Female, RV. 5: Female, LV  
 Figs 6-9. *Loxoconcha georgei* Hartmann, 1978. 6: Female, RV. 7: Female, LV. 8: Male, RV.  
 9: Male, LV  
 Figs 10-11. *Loxoconcha insulaecapricornensis* Hartmann, 1981. 10: Female, RV. 11:  
 Female, LV  
 (Scales = 0.1 mm)



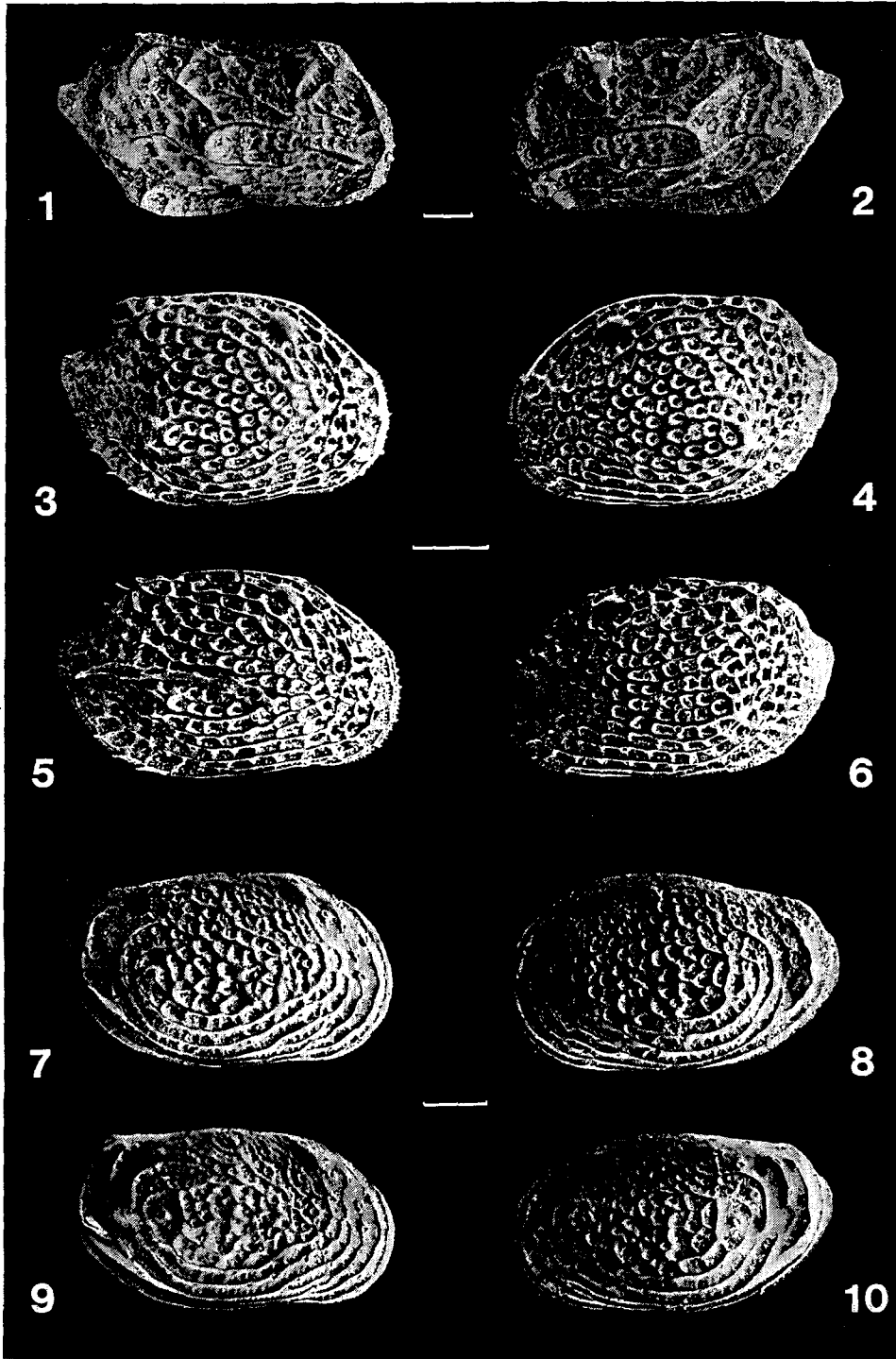


Plate 5. Figs 1–2. *Loxoconcha insulaecapricornensis* Hartmann, 1981. 1: Male, RV. 2: Male, LV  
 Figs 3–6. *L. heronislandensis* Hartmann, 1981. 3: Female, RV. 4: Female, LV. 5: Male, RV.  
 6: Male, LV  
 Figs 7–10. *L. violacea* sp. n. 7: Female, RV. 8: Female, LV. 9: Male, RV. 10: Male, LV  
 (Scales = 0.1 mm)

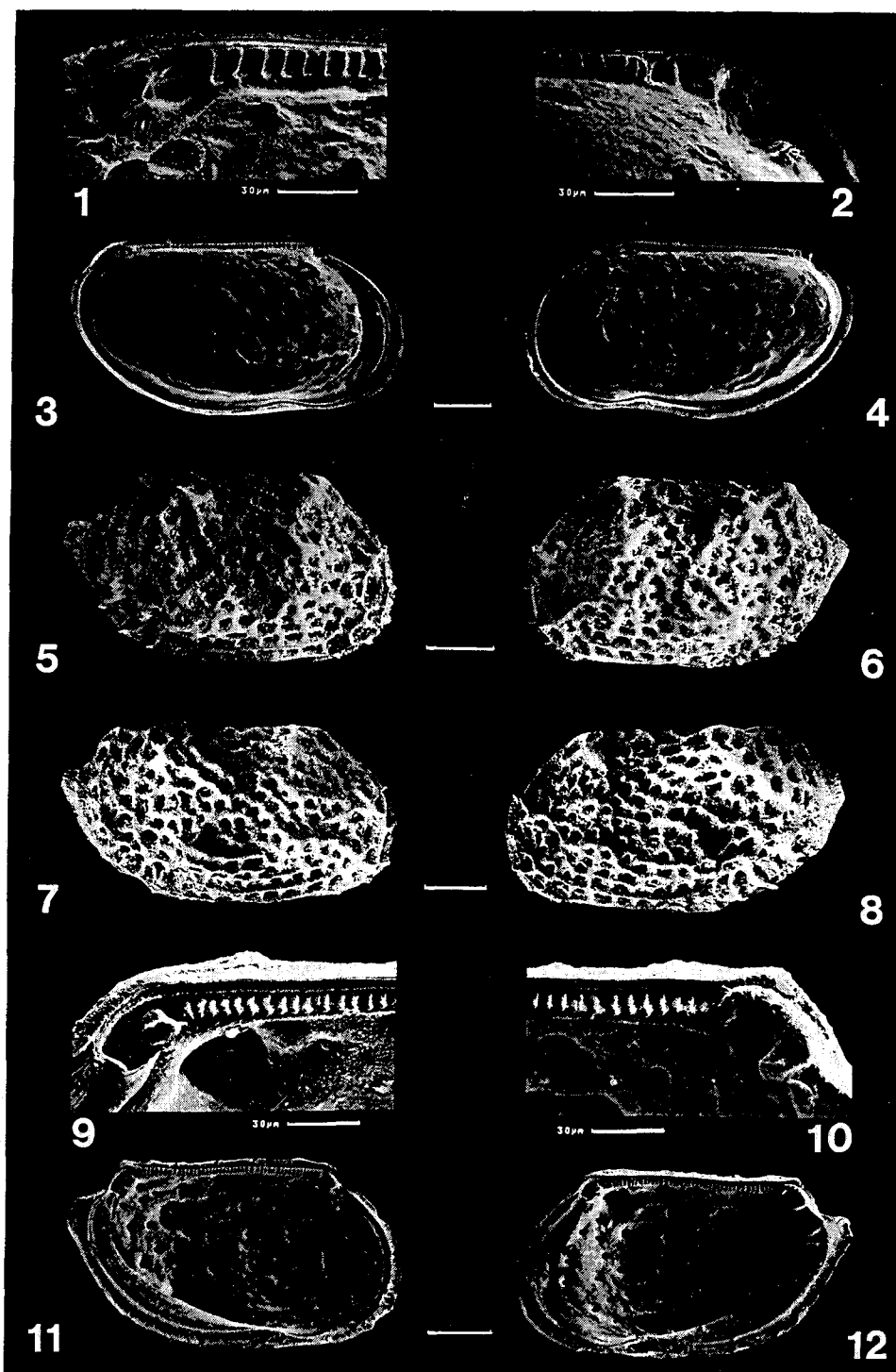


Plate 6. Figs 1-4. *Loxoconcha violacea* sp. n. 1: RV, anterior hingement. 2: RV, posterior hingement. 3: LV, inner view. 4: RV, inner view  
 Figs 5-12. *L. parahuahinéensis* sp. n. 5: Female, RV. 6: Female, LV. 7: Male, RV. 8: Male, LV. 9: RV, anterior hingement. 10: RV, posterior hingement. 11: LV, inner view. 12: RV, inner view  
 (Scales = 0.1 mm, if not stated otherwise)

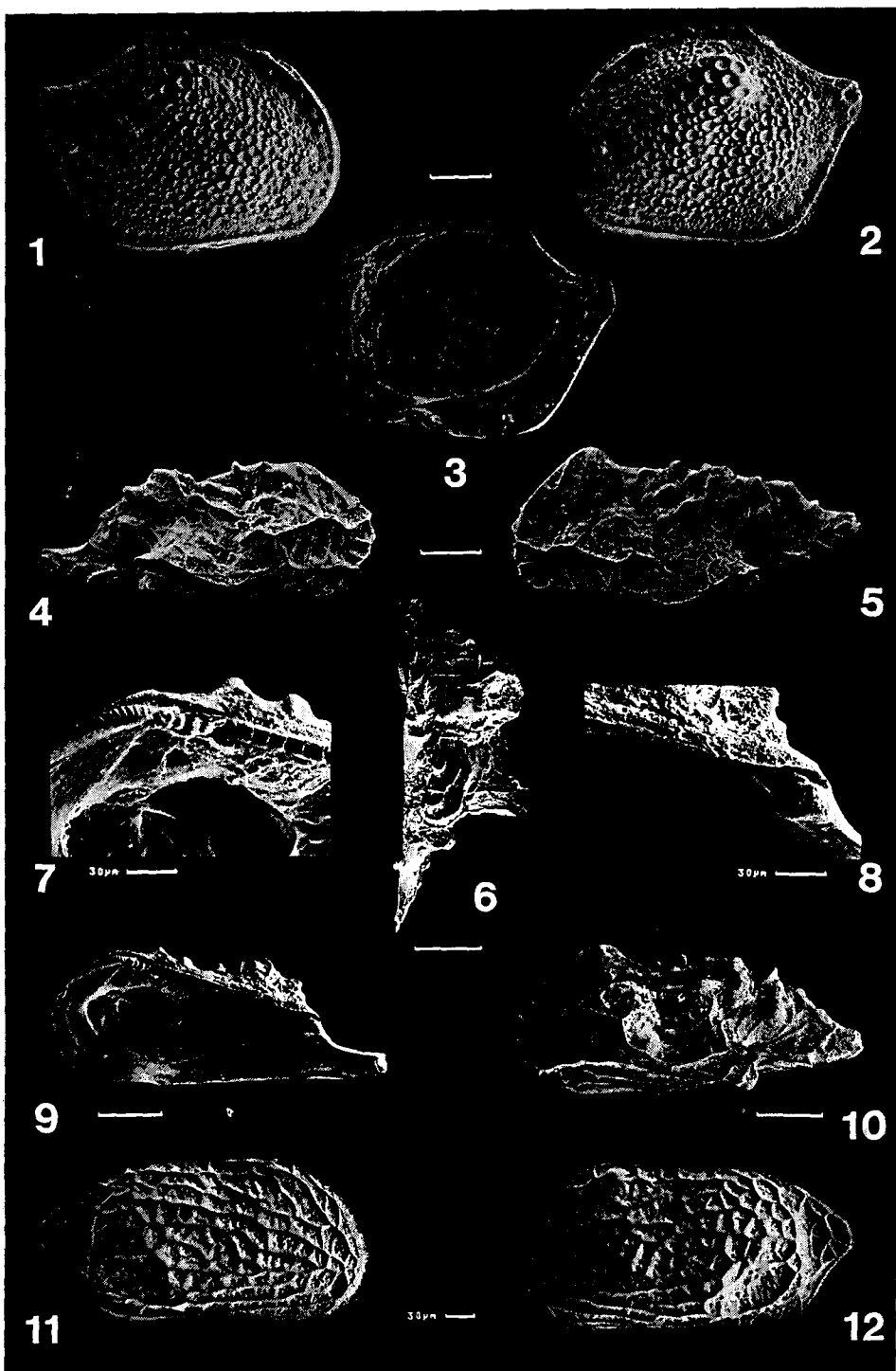


Plate 7. Figs 1-3. *Loxoconchella lizardensis* sp. n. 1: Female, RV. 2: Female, LV. 3: RV, inner view  
 Figs 4-9. *Paracytheridea gynaikokratia* sp. n. 4: Female, RV. 5: Female, LV. 6: Female, dorsal view. 7: RV, anterior hingement. 8: RV, posterior hingement. 9: RV, inner view  
 Fig. 10. *Parakrithella* sp. Lizard 1. Female, LV  
 Figs 11-12. *Cytherura* cf. *densireticulata* Hartmann, 1978. 11: Female, RV. 12: Female, LV  
 (Scales = 0.1 mm, if not stated otherwise)

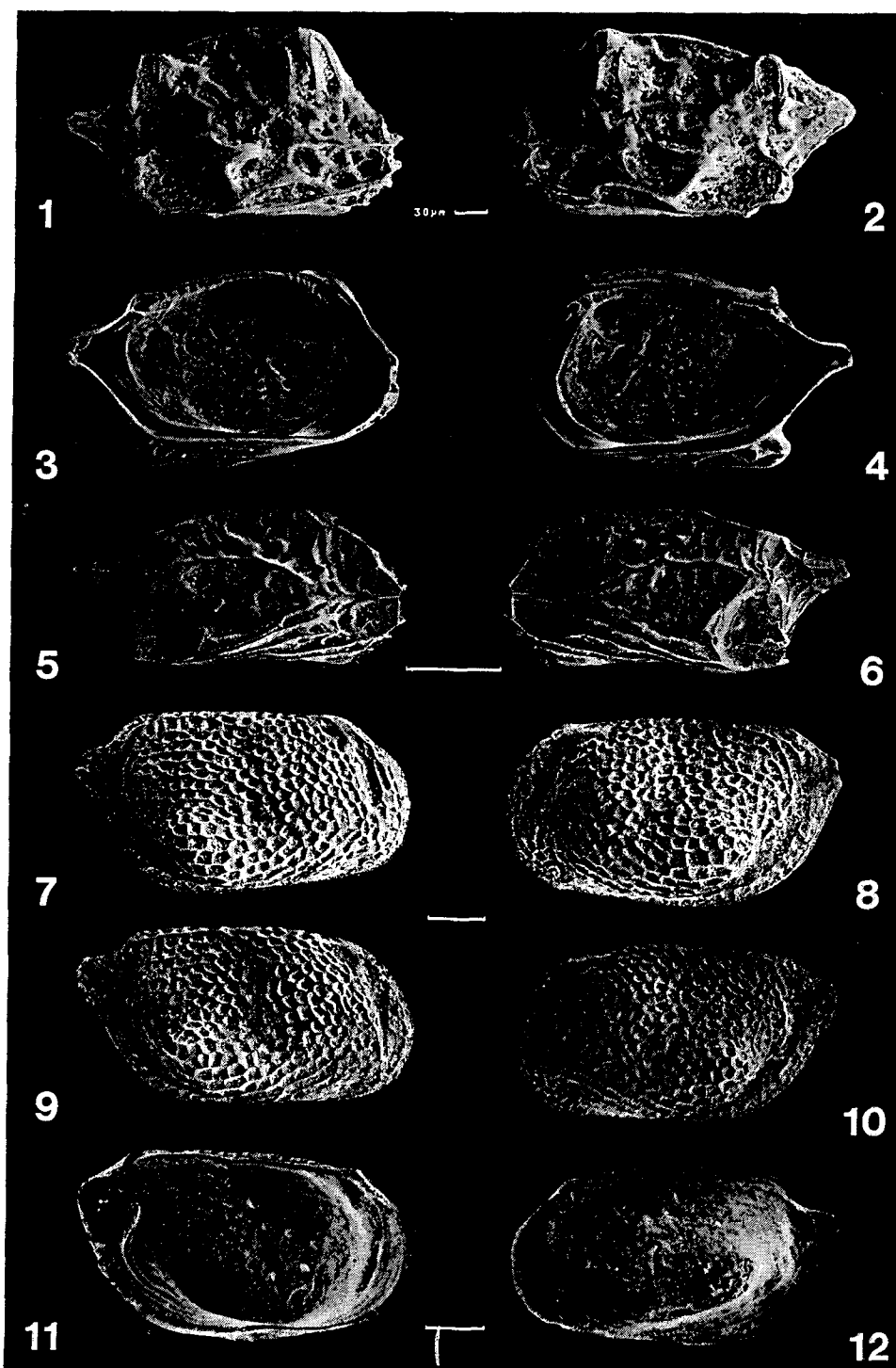


Plate 8. Figs 1-4. *Hemicytherura viridiminor* sp. n. 1: Female, RV. 2: Female, LV. 3: LV, inner view.  
 4: RV, inner view  
 Figs 5-6. *Semicytherura* sp. Lizard 1. 5: Female, RV. 6: Female, LV  
 Figs 7-12. *Bythocythere arenicola* sp. n. 7: Female, RV. 8: Female, LV. 9: Male, RV. 10:  
 Male, LV. 11: LV, inner view. 12: RV, inner view  
 (Scales = 0.1 mm)