

On the genera *Dolerocypria* and *Hansacypris* (Crustacea, Ostracoda), with the description of three new species from Papua New Guinea

by Karel WOUTERS

Abstract

Two new species of the genus *Dolerocypria* (*D. heylenae* sp. nov. and *D. habra* sp. nov.) and one new species in *Hansacypris* (*H. motuporensis* sp. nov.) (Cypridoidea) are described from marine environments in Papua New Guinea, and compared with other species. The world distribution of the known species of both genera is illustrated and discussed.

Key words: Ostracoda, taxonomy, Papua New Guinea, zoogeography.

Résumé

Deux espèces nouvelles du genre *Dolerocypria* (*D. heylenae* sp. nov. et *D. habra* sp. nov.) et une espèce nouvelle du genre *Hansacypris* (*H. motuporensis* sp. nov.) (Cypridoidea) sont décrites de milieu marins en Papouasie Nouvelle-Guinée, et comparées avec d'autres espèces. La distribution mondiale des deux genres est analysée et discutée.

Mots-clés: Ostracoda, taxonomie, Papouasie Nouvelle-Guinée, zoogeographie.

Introduction

Marine and brackish water cypridoidean ostracods remain a poorly understood group. Adding new species to this group must on the long term lead to a better understanding of the phylogenetical relationships in the subfamily, and within the genera themselves. Furthermore, the introduction of new species documents the world distribution of the genera. On the basis of new material collected in marine environments in N. and S. Papua New Guinea, three new species belonging to the genera *Dolerocypria* and *Hansacypris* are described. This alpha-taxonomic approach is considered a basic tool in biodiversity research.

All studied specimens are deposited in the ostracod collections of the Royal Belgian Institute of Natural Sciences, Brussels (O.C.-numbers).

Systematics

Order Podocopida G.W. MÜLLER, 1894
Suborder Podocopina SARS, 1866
Superfamily Cypridoidea BAIRD, 1845

Family Candonidae KAUFMANN, 1900
Subfamily Paracypridinae SARS, 1923
Tribe Thalassocypridini HARTMANN & PURI, 1974

Genus *Dolerocypria* TRESSLER, 1937

Synonym: *Thalassocypris* HARTMANN, 1955 (KEYSER, 1975, WOUTERS, 1987, MADDOCKS, 1992, MARTENS & BEHEN, 1994).

Dolerocypria heylenae sp. nov.
(Pl. 1, Figs 1-10, Pl.4, Figs 1-4)

TYPE LOCALITY

S. Papua New Guinea, Motupore Island (small island along the southern coast of Papua New Guinea, about 16 km SE of the capital Port Moresby), collected between roots of mangrove trees, along the high water line. Leg. F. FIERS, 22 november 1986 (station n° 86.86).

HOLOTYPE

A male with valves stored dry (O.C.2384a) and dissected limbs preserved in a sealed glycerine preparation (O.C.2384b).

PARATYPES

Two females and one male with valves stored dry and dissected limbs preserved in a sealed glycerine preparation (O.C.2385-2387), one female left valve (O.C.2389) and one empty carapace (O.C.2388). Two undissected females preserved in ethanol (O.C.2390).

OTHER MATERIAL

A male with valves stored dry and dissected limbs (O.C.2391) from Laing Island, N. Papua New Guinea, Madang Province, intertidal zone of the reef flat, on *Halimeda*-algae (Leg. J. VAN GOETHEM, 20 June 1977, station 77/404).

DERIVATION OF NAME

Named after my wife, Carla HEYLEN.

DIAGNOSIS

Large, oblong valves, zone of conrescence relatively wide,

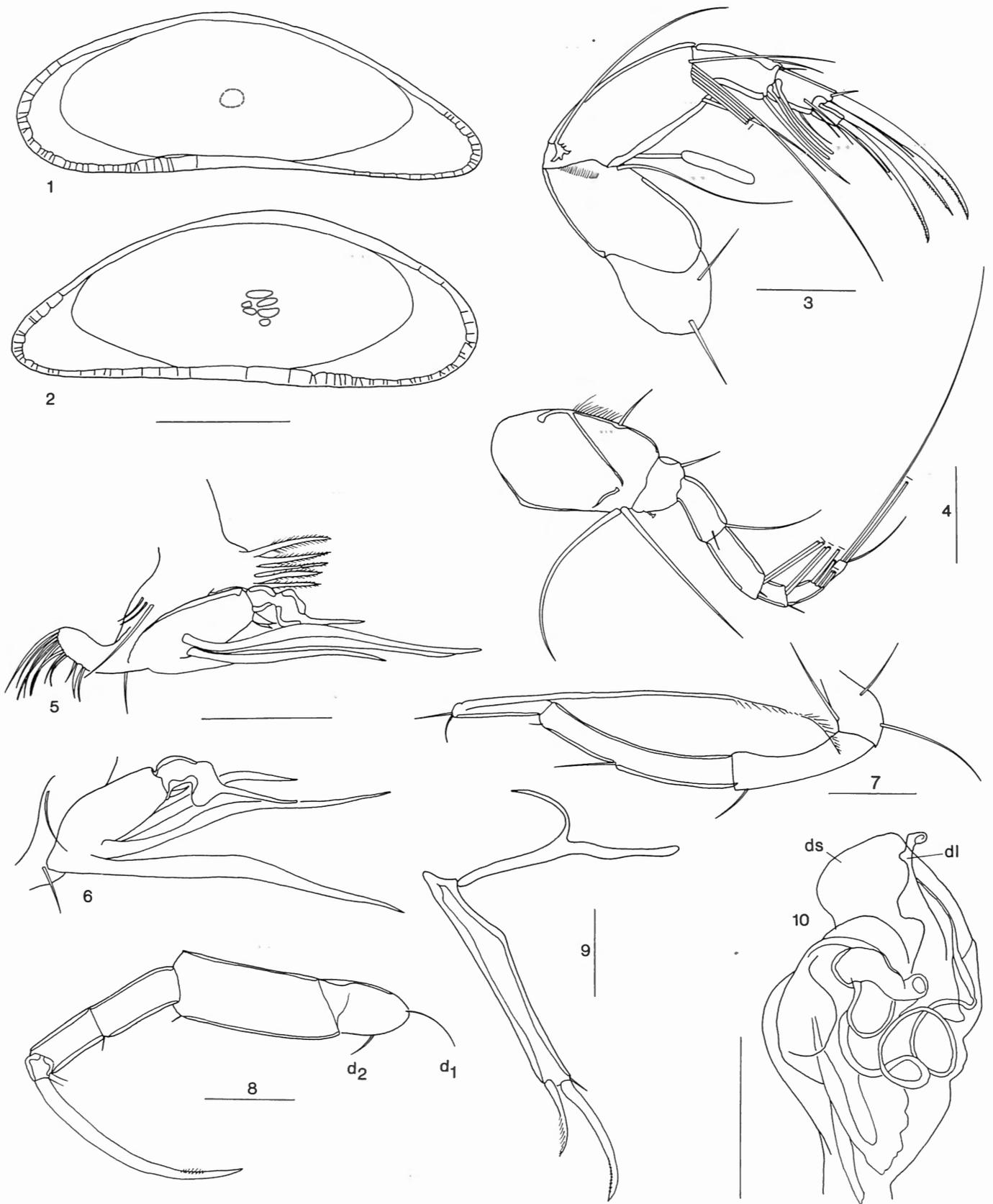


Plate 1. *Dolerocypria heylenae* sp. nov., Motupore Island, S. Papua New Guinea. Fig. 1. Right valve, internal view, male, holotype (O.C.2384). Fig. 2. Left valve, internal view, female, paratype (O.C.2385). Fig. 3. Antenna, male, holotype. Fig. 4. Antennule, male, holotype. Fig. 5 and 6. Fifth limbs, male, holotype. Fig. 7. Seventh limb, female, paratype (O.C.2385). Fig. 8. Sixth limb, male, holotype. Fig. 9. Furca and furcal attachment, male, holotype. Fig. 10. Male copulatory appendage, holotype, ds = distal shield, dl = distal lobe. Scales: Figs 1-2: 200 μ m; Figs 3-10: 50 μ m.

with some bifurcated marginal pore canals; terminal hook of male fifth limb medially constricted; hemipenis with long and narrow distal lobe with undulating dorsal margin.

DESCRIPTION

Valves (Pl. 1, Figs 1, 2, Pl. 4, Figs 1-4): medium-sized, translucent, completely smooth, and elongate; H/L-ratio ranging from 0.34 to 0.38; anterior margin evenly rounded; dorsal margin gently arched, with an indistinct angle in the left valve, somewhat in front of the middle; ventral margin slightly concave to nearly straight; carapace in dorsal view spindle-shaped, with maximal width slightly in front of the middle. Inner lamella wide, without anterior striae; fused zone narrow, but relatively wide for the genus, with numerous marginal pore canals, some of them bifurcated; muscle scar pattern consisting of four anterior and two posterior scars.

Antennule (Pl. 1, Fig. 4) eight-segmented, podomeres 1 and 2 more or less fused; second segment with large ventral setae, the distal one nearly straight and the proximal one curved; small Rome organ on third segment; segments five to eight with long distal natatory setae.

Antenna (Pl. 1, Fig. 3): six-segmented in males and five-segmented in females; exopodite long, and reaching to the middle of the fourth segment; large Y-aesthetasc medially sutured, with inflated distal part; long swimming setae, reaching to the tip of the terminal claws; ultimate and penultimate segments with long and curved, distally serrate claws; two male bristles.

Male fifth limb (Pl. 1, Figs 5, 6): endopodite a two-segmented clasping apparatus, with medially constricted terminal hook, with a long distal "seta"; left and right fifth limbs with three broad, ribbon-like long rays, inserted on ventro-proximal part of palp; rays entirely covered with minute spinules (difficult to see); terminal hooks symmetrical.

Sixth limb (Pl. 1, Fig. 8) five-segmented, with short first segment, long and broad second segment, short and narrow third and fourth segments and very short sixth segment, bearing a long and curved, distally serrate claw; setae tiny; $d_1 = 2 \times d_2$.

Seventh limb (Pl. 1, Fig. 7) a cleaning limb, with a long, reflexed seta with terminal setules arranged in a comb-like pattern.

Furca (Pl. 9, Fig. 9) relatively short, with nearly straight margins; posterior setae absent; distal seta short; one long and one short terminal claw. Furcal attachment with curved dorsal branch and nearly straight central branch.

Copulatory appendage (Pl. 1, Fig. 10) with subtriangular distal shield, with convex ventral margin and concave dorso-proximal and convex dorso-distal margin; long and narrow distal lobe, with undulating dorsal margin and concave ventral margin, giving this lobe a very characteristic appearance.

Eye: small eye.

Dimensions

Holotype: RV length 0.68 mm, height 0.24 mm, LV length 0.69 mm, height 0.25 mm.

Paratypes: length 0.68-0.74 mm, height 0.23-0.28 mm ($n = 7$).

Females are slightly longer and higher than males.

OCCURRENCE

Dolerocypria heylenae sp. nov. was found in its type locality, Motupore Island, living on sediment between the roots of mangrove trees, near the high water line.

A single (male) specimen of the species was also found on *Halimeda*-algae living in the intertidal zone of the reef flat of Laing Island. Both localities are marine environments, with fluctuating salinities during the rainy season.

DISCUSSION

Dolerocypria heylenae resembles *Dolerocypria taalensis* TRESSLER, 1937, but differs from the latter by the markedly longer valves, the absence of striae on the antero-ventral and antero-median zone of the anterior inner lamella, by the wider zone of concrescence (although this can be age dependent, WOUTERS, 1999), the higher number of marginal pore canals, and by the presence of bifurcated marginal pore canals.

There is only one other known *Dolerocypria*-species with a medially constricted terminal hook on the male fifth limb, namely *D. ensigera* MADDOCKS, 1992. The latter species is smaller (length 0.59, height 0.23) and less elongate than *D. heylenae* sp. nov. (length 0.68, height 0.34), has a more angular distal shield in the hemipenis, lacks the distal lobe with undulating dorsal margin, and has shorter swimming setae on the Antenna.

The morphology of the distal shield and lobe of the male copulatory appendage is a feature by which the new species can easily be distinguished from other *Dolerocypria*-species. In absence of the soft parts, however, it may not be possible to unequivocally distinguish between all *Dolerocypria*-species, as valve shape and structure are highly similar in this genus.

Dolerocypria habra sp. nov.

(Pl. 2, Figs 1-9, Pl. 4, Figs 5-7)

TYPE LOCALITY

N. Papua New Guinea, western point of Hawei Island (= small island N. of Manus Island, off Lorengau, the capital of Manus Island); on sand with green and brown algae, depth 30 cm; Leg. E. VAN WALSUM, 9 April 1998 (station 98/9c).

HOLOTYPE

A male with valves stored dry (O.C.2392a) and dissected limbs preserved in a sealed glycerine preparation (O.C.2392b).

PARATYPES

One male and one female with valves stored dry and dissected limbs preserved in a sealed glycerine preparation (O.C.2393-2394). Two undissected males preserved in ethanol (O.C.2395).

DERIVATION OF NAME

Greek: *habros* = elegant, with reference to the oblong elegant shape of the valves.



Plate 2. *Dolerocypria habra* sp. nov. Hawei Island, N. Papua New Guinea. Fig. 1. Right valve, internal view, male, holotype (O.C.2392). Fig. 2. Left valve, internal view, female, paratype (O.C.2394). Fig. 3. Antenna, male, holotype (not all setae drawn). Fig. 4. Antennule, male, holotype. Fig. 5. Fifth limb, male, holotype. Fig. 6. Furca and furcal attachment, male, holotype. Fig. 7. Seventh limb, male, holotype. Fig. 8. Sixth limb, male, holotype. Fig. 9. Male copulatory appendage, holotype, ds = distal shield, dl = distal lobe. Scales: Figs 1-2: 200 μ m; Figs 3-9: 50 μ m.

DIAGNOSIS

Large, very oblong valves, H/L-ratio: 0.32-0.34; very narrow zone of conrescence; long ribbon-like rays on male fifth limb; large Rome organ; hemipenis with large trapezoidal distal shield and long and narrow distal lobe.

DESCRIPTION

Valves (Pl. 2, Figs 1, 2, Pl. 4, Figs 1-4): medium-sized, very translucent, completely smooth, and elongate; H/L-ratio ranging from 0.32 to 0.34; anterior margin evenly and narrowly rounded; dorsal margin gently arched; ventral margin nearly straight; carapace in dorsal view spindle-shaped, with maximal width slightly in front of the middle. Inner lamella wide, without anterior striae; fused zone very narrow, with few very short and simple marginal pore canals; muscle scar pattern consisting of four anterior and two posterior scars.

Antennule (Pl. 2, Fig. 4) eight-segmented, podomeres 1 and 2 indistinctly sutured; second segment with two large ventral setae, the distal one nearly straight and the proximal one curved; Rome organ on third segment large; segments five to eight with very long distal natatory setae.

Antenna (Pl. 2, Fig. 3): six-segmented in males and five-segmented in females; exopodite long, and reaching beyond the middle of the fourth segment; very large Y-aesthetasc; long swimming setae, almost reaching to the tip of the terminal claws; ultimate and penultimate segments with long and weakly curved claws.

Male fifth limb (Pl. 2, Figs 5): endopodite a two-segmented clasping apparatus, with small, weakly curved terminal hook, with asymmetrically inserted distal seta; left and right fifth limbs with three broad, ribbon-like very long (more than twice the length of the palp) rays, inserted on ventro-proximal part of palp; rays entirely covered with minute spinules (difficult to see); left and right terminal hooks symmetrical.

Sixth limb (Pl. 2, Fig. 8) five-segmented, with a long and curved straight, distally serrate claw; $d_1 = 2 \times d_2$.

Seventh limb (Pl. 2, Fig. 7) a cleaning limb, with a long, reflexed, almost straight seta with terminal setules arranged in a comb-like pattern.

Furca (Pl. 9, Fig. 6) relatively long and slender, with nearly straight margins; posterior setae absent; distal seta small; one long and one short terminal claw. Furcal attachment with strongly curved dorsal branch and slightly angular central branch.

Copulatory appendage (Pl. 2, Fig. 9) with trapezoidal distal shield, and long and narrow distal lobe, with nearly straight dorsal margin and concave ventral margin.

Eye: small eye.

Dimensions

Holotype: length 0.70 mm, height 0.23 mm.

Paratypes: length 0.70-0.74 mm, height 0.23-0.24 mm (n = 4).

There is almost no sexual dimorphism. Females are only slightly higher than males.

OCCURRENCE

The new species is known from its type locality only, namely Hawei Island (Papua New Guinea) where it was collected on

sand between green and brown algae, at a depth of 30 cm. This locality is a fully marine environment.

DISCUSSION

Dolerocypria habra sp. nov. resembles *D. elongata* (HARTMANN, 1955) in its large dimensions and elongate shape. The latter species, however, has a hemipenis with a large, truncate distal shield. Other *Dolerocypria*-species are smaller, such as *D. taalensis* TRESSLER, 1937, *D. ensigera* MADDOCKS, 1992, *D. fastigata* KEYSER, 1975, *D. minutissima* HARTMANN, 1991 and *D. convoluta* MADDOCKS, 1993. *Dolerocypria habra* can furthermore be distinguished from other *Dolerocypria*-species by the morphology of the distal shield and the distal lobe of the male copulatory organ.

Tribe Renaudcypridinae MCKENZIE, 1980

Genus *Hansacypris* WOUTERS, 1984

Hansacypris motuporensis sp. nov.

(Pl. 3, Figs 1-9, Pl. 5, Figs 1-6)

TYPE LOCALITY

S. Papua New Guinea, Motupore Island (small island along the southern coast of Papua New Guinea, about 16 km SE of the capital Port Moresby), collected between roots of mangrove trees along the high water line. Leg. F. FIERS, 22 november 1986 (station n° 86.86).

HOLOTYPE

A male with valves stored dry (O.C.2401a) and dissected limbs preserved in a sealed glycerine preparation (O.C.2401b).

PARATYPES

Four males and three females with valves stored dry and dissected limbs preserved in a sealed glycerine preparation (O.C.2402-2408). Eleven undissected adult males and females and four juveniles, preserved in ethanol (O.C.2409).

DERIVATION OF NAME

After Motupore Island (S. Papua New Guinea), the type locality of the species.

DIAGNOSIS

Small bean-shaped valves; H/L-ratio: 0.52-0.57; valve surface with densely set pustules, the latter larger near the margins than in the middle; hemipenis with trapezoidal distal shield and wedge-shaped distal lobe.

DESCRIPTION

Valves (Pl. 3, Figs 1, 2, Pl. 5, Figs 1-6) small, bean-shaped; H/L-ratio ranging from 0.52-0.57; dorsal margin gently arched; anterior margin broadly and evenly rounded, posterior margin obliquely rounded; ventral margin slightly con-

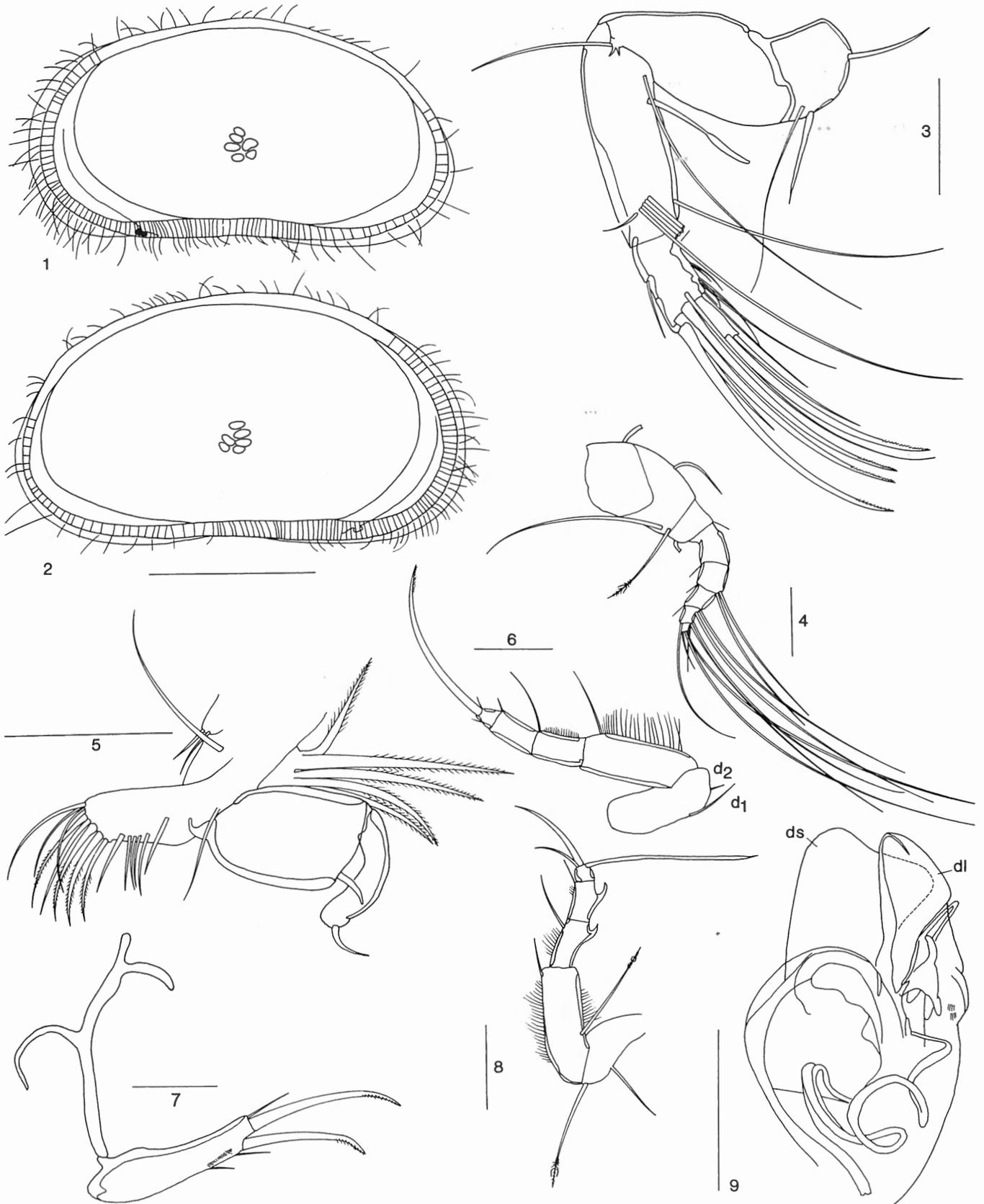


Plate 3. *Hansacypris motuporensis* sp. nov. Motupore Island, S. Papua New Guinea. Fig. 1. Right valve, internal view, male, holotype, antero-ventral socket blackened (O.C.2401). Fig. 2. Left valve, internal view, female, paratype (O.C.2405). Fig. 3. Antenna, male, holotype. Fig. 4. Antennule, male, paratype (O.C.2403). Fig. 5. Fifth limb, male, holotype. Fig. 6. Sixth limb, male, holotype. Fig. 7. Furca and furcal attachment, male, holotype. Fig. 8. Seventh limb, male, paratype (O.C.2404). Fig. 9. Male copulatory appendage, holotype, ds = distal shield, dl = distal lobe. Scales: Figs 1-2: 200 μ m; Figs 3-9: 50 μ m.

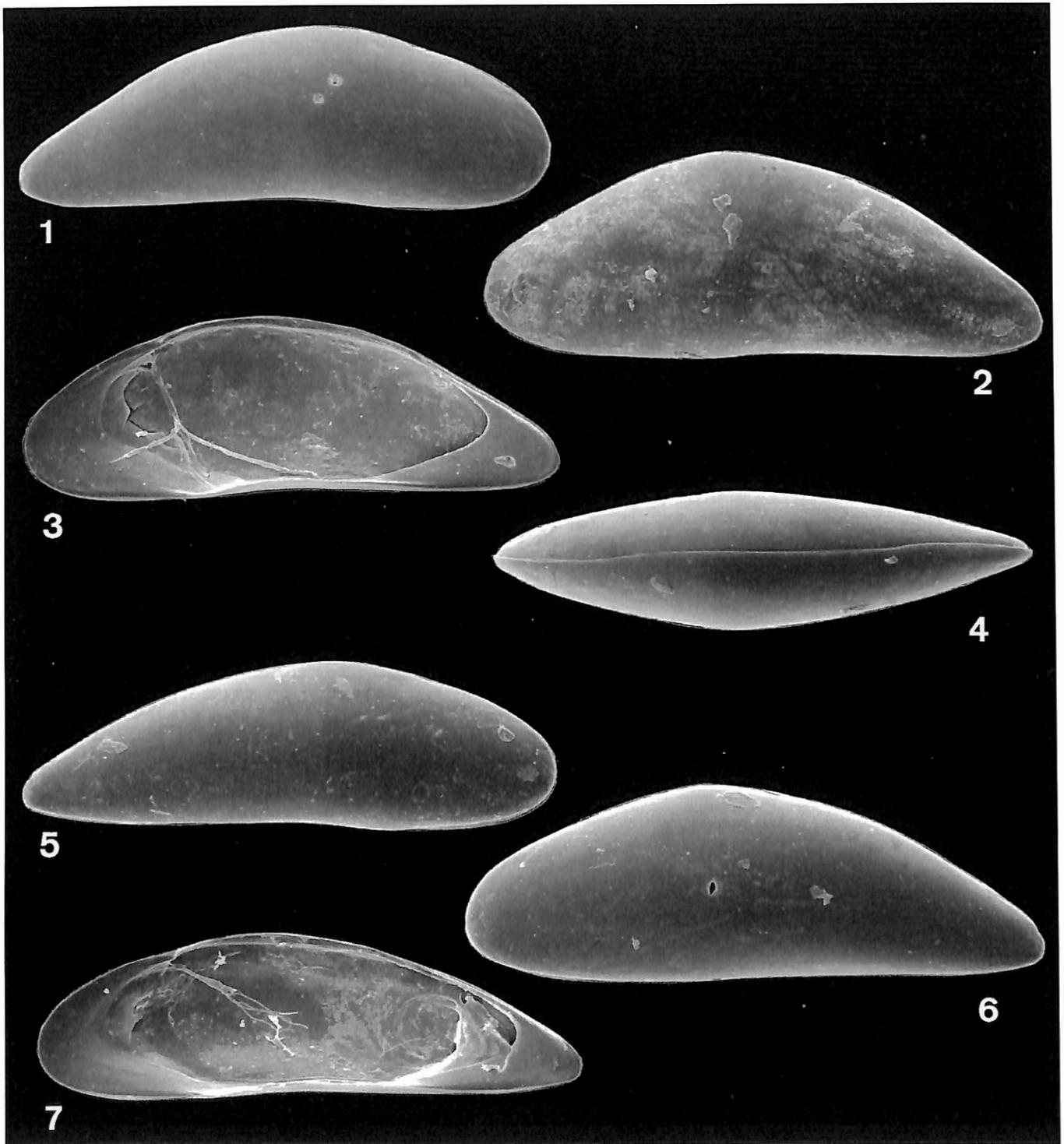


Plate 4. Figs 1-4. *Dolerocypris heylenae* sp. nov., Motupore Island. Figs 5-7. *Dolerocypris habra* sp. nov., Hawei Island. Fig. 1. Right valve, external view, male, holotype (O.C.2384). Fig. 2. Left valve, external view, female, paratype (O.C.2386). Fig. 3. Right valve, internal view, male, paratype (O.C.2387). Fig. 4. Carapace, dorsal view, paratype (O.C.2388). Fig. 5. Right valve, external view, male, holotype (O.C.2392). Fig. 6. Right valve, external view, female, paratype (O.C.2394). Fig. 7. Right valve, internal view, male, paratype (O.C.2393). Magnifications: Figs 1-7: 125 x.

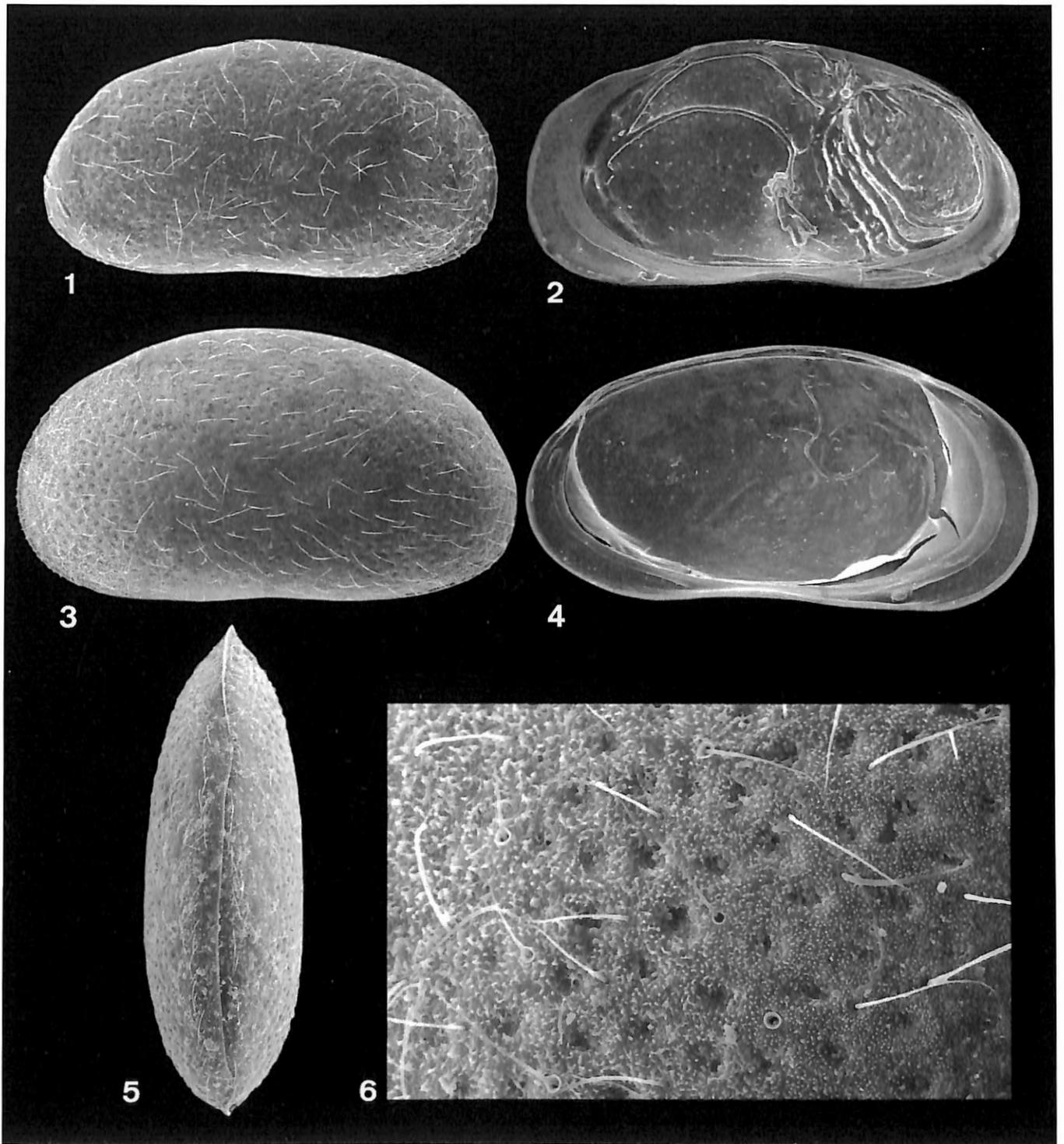


Plate 5. *Hansacypris motuporensis* sp. nov., Motupore Island. Fig. 1. Right valve, lateral view, male, holotype (O.C.2401). Fig. 2. Right valve, internal view, male, paratype (O.C.2407). Fig. 3. Left valve, lateral view, female, paratype (O.C.2405). Fig. 4. Left valve, internal view, male, paratype (O.C.2407). Fig. 5. Carapace, male, dorsal view, paratype (O.C.2409). Fig. 6. Left valve surface, antero-central area, female, paratype (O.C.2405). Magnifications: Figs 1-5: 150 x; Fig. 6: 830 x.

cave near the middle; carapace in dorsal view spindle-shaped, with nearly parallel lateral margins; anterior and posterior extremities pointed; valve surface punctate, and covered with setae. Valves with rough appearance by the presence of a microstructure (which can be seen with a SEM), consisting of small and densely set pustules, the latter larger near the margins than in the centre of the valves. Inner lamella moderately wide, with anterior and posterior vestibula; marginal pore canals numerous and simple; antero-ventral part of inner lamella with an inner list, in the left valve ending antero-ventrally in a knob, and in the right valve in a socket. Anterior, posterior and postero-ventral margins with a lamellar chitinous selvage; normal pores scattered, mostly with a narrow rim; eye spot absent.

Antennule (Pl. 3, Fig. 4) eight-segmented; 1 and 2 indistinctly sutured; first segment dorsally with large chemoreceptor organ (see WOUTERS, 1999), third segment with small Rome organ and with two setae, a shorter and nearly straight one, distally set with characteristic setules ("arrow-barbed", MADDOCKS, 1992), and a long curved one. Segments five to eight with long natatory setae.

Antenna (Pl. 3, Fig. 3): five-segmented in males and females; exopodite short, not reaching to the end of the third segment; long and slender Y-aesthetasc; long swimming setae, reaching to the tip of the terminal claws; ultimate and penultimate segments with long and weakly curved slender claws; no male bristles.

Male fifth limb (Pl. 3, Figs 5): endopodite a two-segmented clasping apparatus, with a large, curved terminal hook, with medially inserted distal seta and with large subrectangular palp segment and small peg.

Sixth limb (Pl. 3, Fig. 6) five-segmented, with a long, curved terminal claw; second segment strongly and third segment weakly hirsute ventrally; $d_1 = 4 \times d_2$.

Seventh limb (Pl. 3, Fig. 8) a five-segmented cleaning limb; postero- and antero-distal setae of the first segment with two rows of setulae, some of these being particularly enlarged, giving these setae a characteristic appearance (arrow-barbed); second segment hirsute ventrally and dorsally; third segment hirsute dorsally; third and fourth segment bearing a strong, and characteristic dorso-distal spiny process; terminal segment with a short seta, a medium-sized curved claw and a long and nearly straight somewhat reflexed seta.

Furca (Pl. 3, Fig. 7) short, with an anterior bristle, two long curved claws and two posterior bristles. Furcal attachment with slightly curved central axis; dorsal branch strongly curved, distal part of main branch forked.

Copulatory appendage (Pl. 3, Fig. 9) with two lobes: trapezoidal distal shield, with nearly straight dorsal margin and narrow wedge-shaped distal lobe with ellipsoidal distal margin.

Eyes: absent.

Dimensions

Holotype: RV length 0.50 mm, height 0.27 mm, LV length 0.51 mm, height 0.28 mm.

Paratypes: length 0.50-0.65 mm, height 0.27-0.32 mm (n = 7).

Females are slightly longer and higher than males.

OCCURRENCE

Hansacypris motuporensis sp. nov. is known from its type locality, Motupore Island only, where it was collected on sediment between the roots of mangrove trees, near the high water line.

DISCUSSION

Until now only three other *Hansacypris*-species have been described: *H. aspera* WOUTERS, 1984, *H. glabra* WOUTERS, 1984 and *H. galapagosensis* MADDOCKS, 1992. When compared with these species, *H. motuporensis* sp. nov. has the highest H/L-ratio (0.52-0.57) (*H. aspera*: 0.46-0.52; *H. glabra*: 0.48-0.52; *H. galapagosensis*: 0.50).

Only one other species, *H. aspera*, has an ornamented valve surface. The microstructures, consisting of small and densely set pustules, are larger near the margins than in the centre of the valves in *H. motuporensis*, which is not the case in *H. aspera*, where they are covering the whole valve surface. Furthermore there are considerable differences in the morphology of the hemipenis, and especially of the two distal lobes, in both species.

Hansacypris galapagosensis lacks the characteristic dorso-distal stout spiny process on the third and the fourth segment of the seventh limb, and the typical arrow-barbed knee setae (present both in *Renaudocypris* and *Hansacypris*). *Hansacypris galapagosensis* hereby takes a somewhat isolated position within the genus *Hansacypris*. It should be stressed, however, that apart from these smaller differences, other features, such as the morphology of the valves and of the limbs, justify the assignment of *H. galapagosensis* to *Hansacypris*.

The inner list and the tooth and socket on the inner lamella. Observations with the scanning electron microscope revealed the presence of an inner list with a tooth (left valve) and a socket (right valve) situated in the antero-ventral zone of the inner lamella. Because of this remarkable observation the present author looked at other species of the genera *Renaudocypris* and *Hansacypris*. In all studied species, i.e. *R. gorongae* MCKENZIE, 1980, *R. wolffi* (HARDING, 1962), *H. aspera* WOUTERS, 1984 and *H. glabra* WOUTERS, 1984, both tooth and socket were present, albeit not always with the same degree of development as in *H. motuporensis*. The presence of these teeth and sockets on the inner lamella is therefore considered a diagnostic feature of the *Renaudocypridini*.

Distribution

THE GENUS *DOLEROCYPRIA*

Until now ten species of the genus *Dolerocypris* have been named and described, and one has been reported in open nomenclature (Fig. 1).

1. *D. taalensis* TRESSLER, 1937, type species of the genus. Originally described from Lake Taal (Philippines), and redescribed by WOUTERS (1987) from Lake Taal, from two brackish localities in N. Papua New Guinea, and from Lake

Tegano, salinity 4.56 g l⁻¹ (Rennell Island, Solomon Islands). The species was also found living on a sand flat with dispersed mangrove trees on the east coast of Bali, Indonesia (Leg.: F. FIERS, 30 November 1986, station 86/101, O.C.2397) (new record).

2. *D. elongata* (HARTMANN, 1955). Originally described as *Thalassocypris elongata*, from the intertidal zone at Santos, Brazil. KEYSER (1975) assigned the species to the genus *Dolerocypris*, herein followed by WOUTERS (1987), MADDOCKS (1992) and MARTENS & BEHEN (1994).

3. *D. fastigata* KEYSER, 1975. Originally described from Florida, where the species is living in brackish waters with salinities ranging from 1-35 g l⁻¹, but preferentially in 1-5 g l⁻¹. KEYSER & SCHÖNING (2000) reported the species from Holocene sediments of Bermuda.

4. *D. mukaishimensis* OKUBO, 1980. Described from the inland sea of Japan. Has since been recorded from brackish waters along the east coast of China (as *Dolerocypris mukashikawai*) by ZHAO & WANG (1993) and from a brackish artificial lake at Akkeshi, Eastern Hokkaido, as an abundant nekto-benthic species by HIRUTA & SMITH (2001, p. 124, Fig. 15E). It resembles *D. taalensis*, but *D. mukaishimensis* is much higher in lateral view. The male of this species remains to be described.

5. *D. bifurca* MADDOCKS, 1986. Described from three inland marine caves on Bermuda (Green Bay Cave, type locality, surface salinity 23.6 g l⁻¹, Deep Blue Cave, surface salinity 27.2 g l⁻¹, Walshingham cave, surface salinity 18.8 g l⁻¹). The hemipenis of this species looks very much like that of *D. elongata* (HARTMANN). From the original descriptions, however, it appears that *D. elongata* has three ray-setae on the male fifth limb, while *D. bifurca* has only two.

6. *D. minutissima* HARTMANN, 1991. Described from a marine rock pool in Hawaii. It is the smallest species of the genus (only 0.28 mm long).

7. *D. ensigera* MADDOCKS, 1992. Described from an anchialine pool on Isla Santa Cruz, Galapagos Islands (surface salinity 1.5 g l⁻¹, MADDOCKS, 1991).

8. *D. convoluta* MADDOCKS, 1993. Described from anchialine habitats of Jamaica (salinities ranging from 2.0-29.5 g l⁻¹).

9. *D. heylenae* sp. nov. This paper. Collected in two marine habitats in N. and S. Papua New Guinea.

10. *D. habra* sp. nov. This paper. Collected in a marine environment, Hawei Island, N. Papua New Guinea.

11. *Dolerocypris* n.sp., MADDOCKS *et al.*, 1993. New Caledonia, Grotte de Kurine, salinity 6-10 g l⁻¹.

Dolerocypris inopinata described by KLIE (1939) from Bonaire, and recorded from Brazil by SCHUBART (1942), and from Belize by TEETER (1975) (as ?*Dolerocypris inopinata*) does not belong to the genus *Dolerocypris*. It was assigned to

the genus *Parapontoparta* by KEYSER (1975). However, the species belongs to the genus *Paracypris* and the new combination then becomes: *Paracypris inopinata* (KLIE, 1939) comb. nov. The present author disposes of material of this species from a mangrove habitat in Célestun, Yucatan, Mexico (Leg.: F. FIERS, 15 March 1993, station 2, O.C.2399), and from Canal Perrin, Grande Terre, Guadeloupe (Leg.: N. GOURBAULT & J. RENAUD-MORNANT, 3 April 1979, O.C.2400) (two new records).

THE GENUS HANSACYPRIS

Until now, four species of the genus *Hansacypris* have been described (Fig. 2).

1. *Hansacypris aspera* WOUTERS, 1984, type species of the genus, described from the surf zone of Laing Island, where it is particularly common, and from two other localities along the N. coast of Papua New Guinea. The species is also known from Rangiroa Atoll, Tuamotu Islands, as *Renaudocypris natans* HARTMANN, 1984 (*R. natans* was synonymized with *H. aspera* by GOU, 1990, p. 29). *Hansacypris aspera* is furthermore known from the Comoros (as *Hansacypris* sp., WOUTERS, 1986), from Hainan Island, South China Sea (GOU, 1990), from Tarawa Atoll, Kiribati (as *Hansacypris* sp., EAGAR, 1998), and from Heron Island, Great Barrier Reef, Australia (Leg. K. MARTENS, May, 1983, stations BR1 and BR5, O.C.2416, 2417) (new record).

2. *Hansacypris glabra* WOUTERS, 1984. Originally described from a brackish pond in a mangrove area of Laing Island, N. Papua New Guinea. The species was also found on a large sandflat at Merta Sari beach, on the east coast of Bali, Indonesia, with dispersed mangrove trees, and with fluctuating salinities (Leg.: F. FIERS, 30 November 1986, station 86/101, O.C.2411, 2412) (new record).

3. *Hansacypris galapagosensis* MADDOCKS, 1992. Described from an anchialine pool on Isla Santa Cruz, Galapagos Islands (surface salinity 1.5 g l⁻¹, MADDOCKS, 1991).

4. *Hansacypris motuporensis* sp. nov. This paper. Collected on sediment between the roots of mangrove trees, near the high water line, Motupore Island, S. Papua New Guinea.

From these distributional data it appears that species of the genera *Dolerocypris* and *Hansacypris* occur in oligo- and mesohaline environments as well as in fully marine environments. All known marine occurrences are limited to the intertidal zone or to very shallow waters.

Dolerocypris-species occur in the tropical Pacific and Atlantic Oceans, but also in the subtropical and moderate regions of Japan. *Hansacypris*-species appear to be limited to the tropical Indian and Pacific Oceans, and up to now have not been observed in the Atlantic Ocean.

With exception of the occurrence of *Dolerocypris mukaishimensis* in the late Cenozoic of China (ZHAO & WANG, 1993) and of *D. fastigata* in Holocene deposits of Bermuda (KEYSER & SCHÖNING, 2000), the fossil record of both genera still remains unknown.

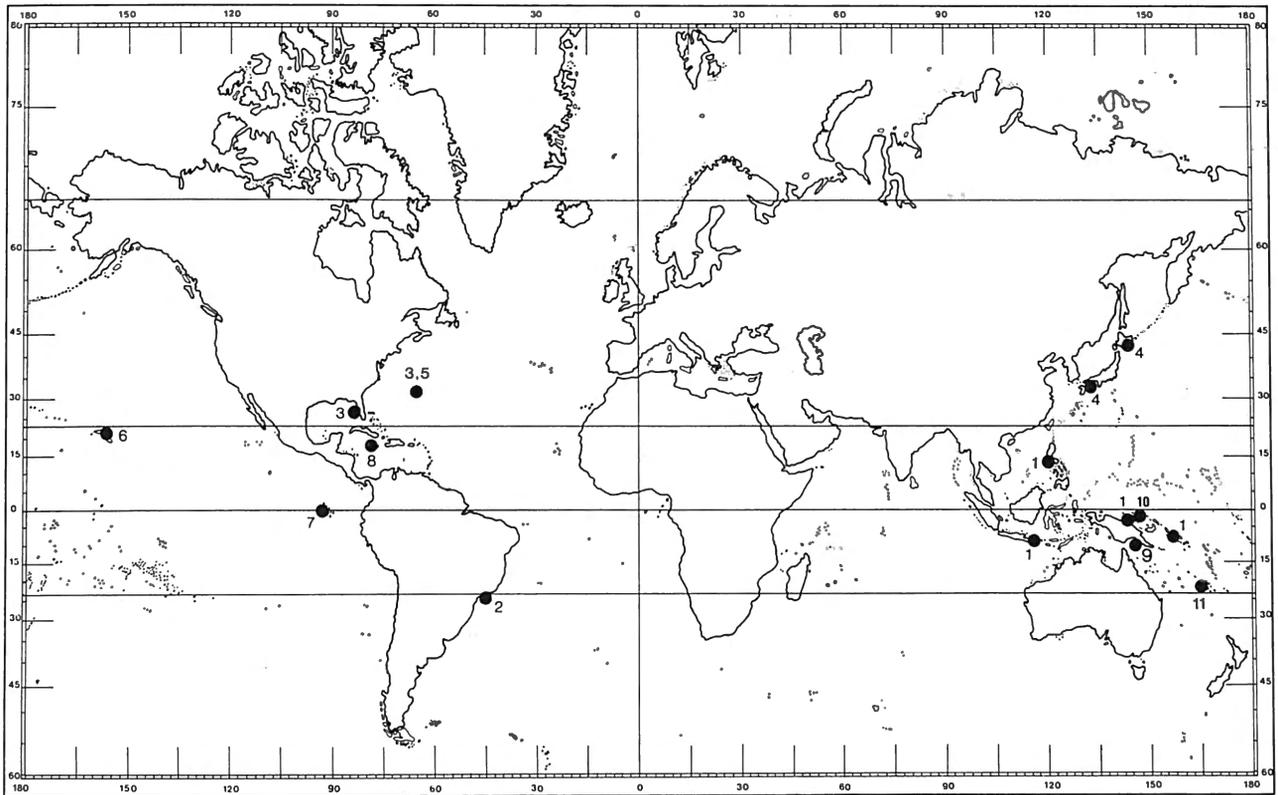


Fig. 1. Distribution of *Dolerocypris*-species. 1. *D. taalensis* TRESSLER, 1937; 2. *D. elongata* (HARTMANN, 1955); 3. *D. fastigata* KEYSER, 1975; 4. *D. mukaishimensis* OKUBO, 1980; 5. *D. bifurca* MADDOCKS, 1986; 6. *D. minutissima* HARTMANN, 1991; 7. *D. ensigera* MADDOCKS, 1992. 8. *D. convoluta* MADDOCKS, 1993; 9. *D. heylenae* sp. nov.; 10. *D. habra* sp. nov.; 11. *Dolerocypris* n.sp. MADDOCKS, 1993.

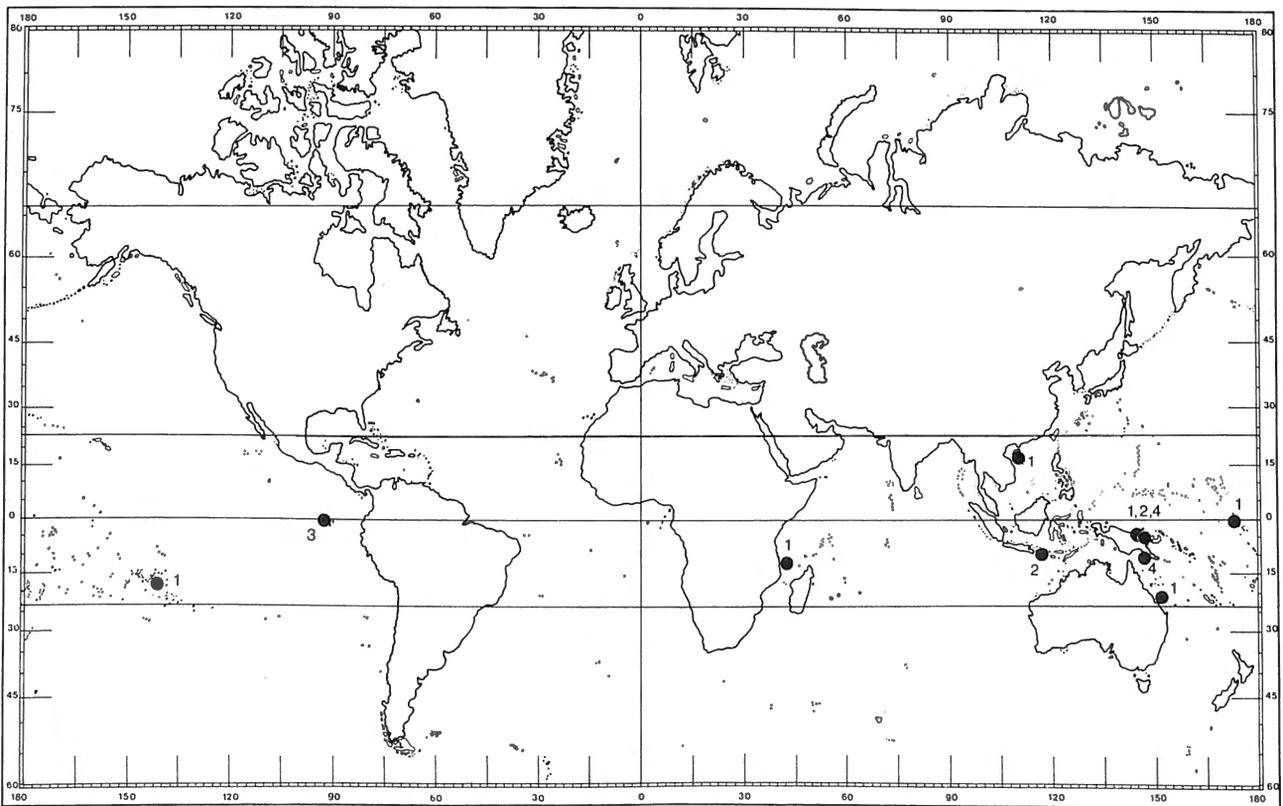


Fig. 2. Distribution of *Hansacypris*-species. 1. *H. aspera* WOUTERS, 1984; 2. *H. glabra* WOUTERS, 1984; 3. *H. galapagosensis* MADDOCKS, 1992; *H. motuporensis* sp. nov.

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References

- EAGAR, S.H., 1998. Recent Ostracoda from Tarawa Atoll, Kiribati, Pacific Ocean. In: CRASQUIN-SOLEAU, S., BRACCINI, E. & LETHIERS, F. (Eds), Proceedings of the 3rd European Ostracodologists Meeting, *Bulletin du Centre de Recherches Elf Exploration-Production, Mémoire*, 20: 55-67.
- GOU, Yun-Xian, 1990. Recent Ostracoda from Hainan Island, South China Sea. *Courier Forschungsinstitut Senckenberg*, 123: 19-36.
- HARDING, J.P., 1962. *Mungava munda* and four other new species of ostracod crustaceans from fish stomachs. *Natural History Rennell Island, British Solomon Islands*, 4: 51-62.
- HARTMANN, G., 1955. Neue marine Ostracoden der Familie Cypridae und der Subfamilie Cytherideinae der Familie Cytheridae aus Brasilien. *Zoologischer Anzeiger*, 154 (5/6): 109-127.
- HARTMANN, G., 1984. Zur Kenntnis der Ostracoden der polynesischen Inseln Huahiné (Gesellschaftsinseln) und Rangiroa (Tuamotu-Inseln). *Mitteilungen aus dem Hamburgischen zoologischen Museum und Institut*, 81: 117-169.
- HARTMANN, G., 1991. Ostracoden von Hawaii, insbesondere aus dem marinen Interstitial. *Helgoländer Meeresuntersuchungen*, 45: 165-198.
- HIRUTA, S. & SMITH, R., 2001. Living freshwater and shallow marine Ostracoda in Eastern Hokkaido, Japan. In: IKEYA, N. (Ed.), Guidebook of Excursions, 14th International Symposium on Ostracoda, Shizuoka: 107-125.
- KLIE, W., 1939. Ostracoden aus den marinen Salinen von Bonaire, Curaçao und Aruba. *Capita Zoologica*, 8(4): 2-19.
- KEYSER, D., 1975. Ostracoden aus den Mangrovegebieten von Südwest-Florida. *Abhandlungen und Verhandlungen des naturwissenschaftlichen Vereins in Hamburg, Neue Folge*, 18/19: 255-290.
- KEYSER, D. & SCHÖNING, C., 2000. Holocene Ostracoda (Crustacea) from Bermuda. *Senckenbergiana lethaea*, 80(2): 567-591.
- MADDOCKS, R.F., 1991. Anchialine podocopid Ostracoda of the Galapagos Islands. *Zoological Journal of the Linnean Society*, 103: 75-99.
- MADDOCKS, R.F., 1992. Anchialine Cyprididae (Ostracoda) from the Galapagos Islands, with a review of the subfamily Paracypridinae. *Zoological Journal of the Linnean Society*, 104: 1-29.
- MADDOCKS, R.F., ILIFFE, T.M. & SARBU, S., 1993. Anchialine podocopid Ostracoda of New Caledonia. In: MCKENZIE, K.G. & JONES, P.J. (Eds), Ostracoda in the Earth and Life Sciences, Proceedings of the 11th International Symposium on Ostracoda, Warrnambool, Australia: 439-450, Balkema, Rotterdam, Brookfield.
- MADDOCKS, R.F. & ILIFFE, TH., 1986. Podocopid Ostracoda of Bermudian caves. *Stylogia*, 2(1-2): 26-76.
- MADDOCKS, R.F. & ILIFFE, TH., 1993. Thalassocypridine Ostracoda from anchialine habitats of Jamaica. *Journal of Crustacean Biology*, 13(1): 142-164.
- MARTENS, K. & BEHEN, F., 1994. A checklist of the recent non-marine ostracods (Crustacea, Ostracoda) from the inland waters of South America and adjacent islands. *Travaux scientifiques du Musée national d'Histoire naturelle de Luxembourg*, 22: 1-81.
- MCKENZIE, K.G., 1980. A new subfamily from Gorong, Seram, Moluccas, with the description of *Renaudocypris* new genus. *Bulletin du Muséum national d'Histoire naturelle de Paris*, (4A)2: 507-515.
- OKUBO, I., 1980. Three new species of the family Candonidae (Ostracoda) from the Inland Sea of Japan. *Proceedings of the Japanese Society of Systematic Zoology*, 18: 17-26.
- SCHUBART, O. 1942. Fauna do estado de Pernambuco e dos estados limitrofes. Secunda lista. *Boletim do Museu Nacional do Rio de Janeiro*, 14-17: 23-61.
- TEETER, J.W., 1975. Distribution of Holocene marine Ostracoda from Belize. In: WANTLAND, K.F. & PUSEY, W.C. (Eds), Belize Shelf-carbonate sediments, clastic sediments and ecology. *American Association of Petroleum Geologists, Studies in Geology*, 2: 400-499.
- TRESSLER, W.L., 1937. Ostracoda. Mitteilung XVIII von der Wallace-Expedition Woltereck 1931-1932. *Internationale Revue der gesamten Hydrobiologie und Hydrographie*, 34(3/5): 188-207.
- WOUTERS, K., 1984. The Renaudocypridinae (Crustacea: Ostracoda) from Bogia area (Papua New Guinea). *Indo-Malayan Zoology*, 2: 163-175.
- WOUTERS, K., 1986. A new *Renaudocypris* (Crustacea, Ostracoda) from Lake Taal (Philippine Islands). *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Biologie*, 56: 125-129.
- WOUTERS, K., 1987. Range extension and supplementary description of *Dolerocypria taalensis* Tressler (Crustacea: Ostracoda). *Indo-Malayan Zoology*, 4: 127-133.
- WOUTERS, K., 1999. Two new species of the genus *Phlyctenophora* Brady, 1880 (Crustacea, Ostracoda) from the Indo-Pacific realm. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Biologie*, 69: 83-92.
- ZHAO, Q. & WANG, P. 1993. The Late Cenozoic brackish water ostracod fauna of China. In: MCKENZIE, K.G. & JONES, P. (Eds), Ostracoda in Earth and Life Sciences. Proceedings of the 11th International Symposium on Ostracoda, Warrnambool, Australia: 674-675 Balkema, Rotterdam, Brookfield.

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