

BAKER, W.H.
1928. Australian Sphaeromidae
(continued)

INVERTEBRATE
ZOOLOGY
Crustacea

AUSTRALIAN SPECIES OF THE ISOPOD FAMILY SPHAEROMIDAE
(Continued).

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PLATES I. TO VI.

The following paper is a continuation of one submitted to this Society in 1926, in which I dealt with species—among others—in the collection of the Australian Museum, Sydney. Through the kindness of the authorities of the Western Australian Museum, I have had the opportunity of recording some more Western Australian forms, together with some which have come to hand since from our east and south coasts.

SPHAEROMA WALKERI, Stebbing.

Sphaeroma walkeri, Stebbing, Rep. Isopoda (collected by Prof. Herdman at Ceylon), 1902, p. 31, pl. vii.

The present specimens are from Blackwattle Bay, Darling Harbour, New South Wales.

Found not attacking timber, but were taken from surface growths. Report by inspectors.

Exosphaeroma serventii, n. sp.

Pl. i., figs. 1, 2.

The body of this elegant species is marked like many oniscids with a ground of slaty colour with small irregular lighter areas arranged on each side of a darker median region, these lighter markings are much smaller and more numerous on the anterior division of abdomen and much less numerous on the posterior division. The head is short with a small anterior transverse ridge continuous with a slight rostral elevation. The eyes are conspicuous. The segments of thorax are subequal in length, the 1st being a little shorter than the head; a very shallow longitudinal depression on each side marks off the epimera, which are obtuse. The anterior division of abdomen is short, the posterior evenly domed, but towards the end shelving off less steeply, the end is moderately pointed. The antennule has a flagellum of 12 joints. The peduncular joints of the antenna are stout, rather short, and the flagellum has 16 joints, the setae are in small groups. The epistome is elongate, pointed obtusely anteriorly, where it curves towards the rostrum. Mandibles slender, the left with 4-toothed primary plate, secondary trifold, nearly as large as primary. Spine row present; there is a well-developed molar. Maxilliped large with distal plate of 2nd joint about half as long as the whole joint, with strongly setose crown, palp large, the fringes of lobes well developed, 2nd, 3rd, and 4th joints each with distal posterior setum. Legs robust, sparsely spined, but with dense fur. Filaments of 8th sternite short and converging. Pleopoda with long fringes on the usual rami; 1st pleopod with short peduncle and 5 coupling spines, and the outer side with coarser fur than usual; outer margin of endopod straight, inner thickened, there is no outstanding spine at base of exopod (in type specimen). 2nd pleopod with rather thick appendix reaching to end of endopod, 3rd, 4th, and 5th pleopods with rami as in *E. calcareus*, except that the endopod on the 4th carries few branchial rugae.

This species is near *E. calcareus*, Dana, *E. falcatum*, Tattersall, and *E. bicolor*, Baker.

The non-ovigerous female has the abdomen a little less pointed and the legs less robust and not furry. The marsupial plates are rudimentary.

Length of male, 7 mm.

The specimens are from Pallinup Estuary, Western Australia, and were collected by D. L. Serventy, 11625, Western Australian Museum.

ISOCLADUS EXCAVATUS, Baker.

Pl. i., fig. 3.

Zuzara (Isocladus) excavata, Baker, Trans. Roy. Soc. S. Austr., vol. xxxiv., 1910, p. 84, pl. xxiv., figs. 4-6.

This Western Australian specimen seems to be older than the type. This I propose as a co-type with the following characters. The head is very short, steeply abrupt in front. The epimera are separated from the tergites by well-marked longitudinal grooves and are especially prominent on the 5th and 6th segments; on the 6th there is a small tubercle in the groove and one submedian on each side just above those that occur on the 7th segment. The process of the 7th segment is contracted behind to a point (this is probably the correct condition, that occurring in the type being a slight malformation). The anterior division of abdomen is short and tumid medianly. The posterior division is nearly flat (convexity rather exaggerated in figure) with a faint median depression above and a slight lateral furrow round the two sides meeting behind; the immediate end is slightly raised.

Length, 7 mm.

The single male specimen is from Cottesloe, Western Australia; collected from a rock pool by L. G. Glauert, placed in Western Australian Museum, 10607.

NEOSPHAEROMA PLUMOSA, Whitelegge.

Sphaeroma plumosa, Whitelegge, "Thetis" Scientific Results, Isopoda, pt. ii., p. 254.

Cymodopsis plumosa, Baker, Trans. Roy. Soc. S. Austr., vol. 1., p. 265, pl. xlv., figs. 6-9.

Two male specimens of this species have reached me; they are in better preservation than those dealt with in the above paper. There is no need of my further supplementing Mr. Whitelegge's description, except that I have noticed that the endopod of the 3rd pleopod bears a few branchial folds and the 4th pleopod has on both exopod and endopod some plumose setae.

The specimens are from 20 fathoms off coast, New South Wales. Presented to Australian Museum by Mr. C. W. Mulvey.

CYMODOCE BIDENTATA, var. TASMANICA.

Pl. ii., fig. 1; pl. iv., fig. 9.

The abdomen is hairy with tufts of longer hairs on the tubercles. On the posterior division there is an obscure tubercle almost under each of the two submedian projections of the anterior division, posterior to these there are a pair of tubercles on each side of the middle, the inner-more ones spiniform, the outer scarcely raised, then a median spiniform tubercle on the basal portion of the median process of the notch, and again two more side by side at its end. There is a small tubercle on the peduncular portion of the uropod above and the inner ramus has the end double-pointed.

The single specimen is from Simpson's Bay, D'Entrecasteaux Channel, Tasmania, dredged by scallop fishers in 8-15 fathoms. It is placed in the Australian Museum, Sydney.

CYMODOCE CORONATA, Haswell.

Pl. ii., figs. 3, 4.

Cymodoce coronata, Haswell, Cat. Austr. Crust., p. 292, and Trans. Linn. Soc. N.S. Wales, vol. vi., p. 10

The body is covered with very small black dots. Anteriorly the segments are nearly smooth, but posteriorly they become coarsely pubescent and granular. The head is evenly rounded with a very slight anterior transverse ridge. The eyes are prominent and large. The segments of thorax are subequal in length, the epimera are more or less acute at their posterior angles except the last, which is rounded, and falls short of their inferior level. The anterior division of abdomen is short with two submedian tubercles on its posterior border (these are very variable in size and projection). The posterior division is not very convex, it is marked by two tubercles just external to and below the two of the anterior division and two behind these nearer together, and often with points turned up (these tubercles vary much also). The deep notch of the posterior border has the median process raised and ends obtusely reaching as far as the sides of notch; an oblique sulcation from near the insertion of the uropods reaches down to the median process of the notch on each side. The epistome is short, anteriorly tumid, and has short limbs; the upper lip is transversely sulcate. The basal joint of the antennule is about twice as long as broad, its anterior distal angle is short and obtuse, the posterior reaches to near the end of the 2nd joint; the 2nd joint is small; the flagellum carries 20-30 joints. The antennal flagellum carries 34 joints. The mandibles are short and stocky, with incisory plates entire, the secondary plate on the left is close to the primary, also entire, spine row is insignificant, the molar is short, there is a strong palp, the 1st and 2nd joints of which are expanded and subequal in length. The maxilliped has crown of plate of 2nd joint with pectinate setae not very crowded, some longer setae are on the inner border, lobes of palp well developed, the crowns of each with short setae rather crowded, 2nd and 3rd joints each with a posterior setum. The legs are long and well spined; the 1st has a series of thorn-like spines on merus, carpus, and propodus, and also a small patch of fur on ischium. The merus and carpus of the following legs have furry pads on the usual joints, but this condition becomes less on the more posterior pairs; the last two pairs are well provided with spines. The filaments of the 8th sternite are rather small and slender. The 1st pleopod has the peduncle short with four or five coupling spines which appear shorter than usual, the outer side is a little depressed and densely furry; the exopod has a slightly sinuous outer margin and becomes a little broader at the end and has a large proximal spine; the inner ramus is triangulate. The appendix on the 2nd pleopod is long and very slender. The endopod of 3rd pleopod has an oblique ridge near its inner proximal angle, its outer margin is very convex. The distal end of exopod of 4th pleopod has six or seven plumose setae; the endopods of 4th and 5th pleopods are large with crowded branchial folds; the exopod of 5th pleopod has the distal division rather narrow with an outstanding apical squamose lobe, and just below it another outstanding and longer, also on the inner border a scarcely raised lobe; on the proximal division there are two smaller lobes, both outstanding, at the inner distal angle. The uropods are indurated, very setose, the inner ramus is subfusiform, reaching beyond the end of abdomen, ending in a small tooth, the outer ramus is shorter, ends very acutely, is nearly straight on its outer margin, convex on its inner.

The female of this species has mouth parts modified. It is less pubescent than the male and scarcely granular. The posterior division of abdomen is obscurely divided into two lobes or domes, and at the end is pointed with the

notch almost obliterated. The inner ramus of uropod does not reach the end of abdomen, it is nearly oblong, narrow, truncate at end, the outer ramus is shorter, very slightly sigmoid and distally acute.

Numerous specimens are placed in South Australian Museum.

Length of neotype, 17 mm.

I am informed through Mr. F. A. McNeil, Zoologist of the Australian Museum, Sydney, that the types specimens of *C. bidentata*, Haswell, and *C. coronata*, Haswell, are missing, consequently, as my identifications have been taken from the descriptions extant, which are not accompanied by figures, there is a certain amount of doubt in each case. Under the circumstances, I would now propose the present description of *C. coronata* as neotype held by the South Australian Museum.

CYMODOCE CORONATA, Haswell, var. FUSIFORMIS.

Pl. ii., figs. 2, 5-8.

This variety differs from the foregoing species in the following points. The covering is a short pubescence through which longer hairs protrude, this is easily brushed off; the body is also more granulate, being much less smooth anteriorly. The epistome and basal antennular joints are rougher with hairs and granules. The posterior margin of the anterior division of abdomen carries six tubercles, two submedian are larger and more outstanding, differing in length and projection in various specimens. The posterior division has the median process of the notch with a wide raised base and a slight sulcation above it, and close to its end is a small bifid tubercle; the sides of the notch are acute and double-pointed. The peduncle of the uropod carries a tubercle above; the inner ramus tapers to a terminal tooth in a much greater degree than in *C. coronata*, and there is a small tubercle just above the end. The outer ramus is much shorter approaching that of *C. bidentata*. There are also slight differences in the females. In this variety the two slight domes of the posterior division of abdomen are each surmounted by a small tubercle. The pubescence is coarser and more plentiful, and the abdomen is much more pointed in the non-ovigerous female.

The species and variety are very common on the southern coast of Australia. Numerous specimens have been placed in the South Australian Museum.

CYMODOCE CORONATA, var. INTERMEDIA.

Pl. ii., fig. 9.

A second variety is represented in the figure. It will be seen to be of an intermediate character.

CYMODOCE MULTIDENS, var. AUSTRALIS.

Pl. i., figs. 4-6.

Cymodoce multidens, Richardson, Marine Isopods collected in the Phillipines by U.S. Fisheries Dept., Commerce and Labour, Bureau of Fisheries, 1907-8, p. 27, fig. 26.

The body is rough with rather small granules which in parts become spiniform, very rigid and brittle. The head is narrow and anteriorly depressed where there are two submedian spiniform teeth with one median on the rostrum and two or three spinuliform granules anterior to each eye. The eyes are rounded and of moderate size. The 1st thoracic segment is longest, the remaining segments are short and nearly equal in length; the epimera of the 5th and 6th segments are squared and those of the 7th shortened. The anterior division of abdomen is short and somewhat thickened on its posterior border, the posterior division is scarcely domed, with a slight oblique ridge on each side bearing a few spinuliform granules. The posterior notch is not deeply cut, the median process is equal to the lateral and on the same level, there is a wide insinuation below

but no channel. The antennules are visible from above when the body is extended, the basal joints bear many bristle-like hairs and a crest of nine small pearly teeth with two larger ones posteriorly on each, the remaining joints are also very setose, as also the flagella, which are short with eight joints. The antennae are also very setose, the flagella of eight or nine joints. The epistome is small and consists of a rough forward portion reaching the rostrum, behind which are three transverse teeth, the lateral limbs also are marked with similar teeth. The mandibles are slender, with bifid incisory plates. The left mandible has secondary plate, spine row and molar normal. The palp of maxilliped has long lobes like that of *C. tuberculosa*, Stebbing. The legs are well spined with longer ones on the more distal joints. The filaments on the 8th sternite are well developed, as also the appendix on the 2nd pleopod, the end of which is slightly hooked. The peduncle of the 1st pleopod has four slender coupling spines and its outer side is hairy; the exopod, which is nearly oblong, has the outer proximal angle overreaching the peduncle. The endopod of the 3rd pleopod is abruptly angled distally. The exopod of the 5th has three squamose lobes slightly outstanding. The uropods are highly indurated and sublinear, the inner ramus curved outwards with a row of teeth on the underside and is coarsely setose and distally bifid. The external ramus is shorter, rough, with teeth, and also bifid and setose.

The ovigerous female of this variety is much larger than the male. The head is not depressed like it, the teeth on the forehead are absent, those on the epistome and 1st joints of the antennules are present but much smaller. The body is almost smooth. The posterior division of abdomen does not taper so much behind and the notch is less evident, marsupial plates are present but the eggs are within the body. The mouth parts are modified, but the palpal lobes of maxillipeds retain their setose condition. The uropods are similar to those of the male.

Length of male, 7 mm.

The specimens are from Western Australian coast; 10484, 10385, Western Australian Museum, collected by L. G. Glauert.

CYODOCE ACULEATA, var. GRANDIS.

Pl. i., figs. 7, 8.

Cymodoce aculeata, Haswell, Cat. Austr. Crust., p. 291, and Baker, Trans. Roy. Soc. S. Austr., vol. 1., 1926, p. 257, pl. xl., figs. 7, 8.

This fine variety agrees well with the type, except that the outermost tubercles on the posterior division of the abdomen are obsolete. This division also has two small oblique ridges below the outermost tubercles, very setose, as also is the base of the median process of the notch; the surface is minutely granular at the sides.

Length of male, 39 mm.; breadth, 19 mm.

Specimens are placed in South Australian Museum.

CYODOCE LONGISTYLIS, Miers.

Pl. vi., figs. 1-4.

Cymodoce longistylis, Miers, Voyage of the "Alert," p. 305, pl. xxxiii., fig. C.

The present specimens are from Port Hacking, New South Wales, collected by Dr. C. Anderson.

The body is very hairy, many of the hairs being plumose. The forehead has a continuous ridge between the eyes. The median process of the abdominal notch is lingulate seen from below, on each of the three termini formed by the notch and process there is a small upstanding tubercle. The epistome is covered with large granules. The mandibles have entire incisory plates. The legs are well provided with spines.

Cilicaeopsis sculpta, n. sp.

Pl. iii., figs. 5-7.

The anterior region of the head is highly sculptured, there is a prominent rostral portion with prominences on each side, and these flanked by lobes close to the eyes. The eyes are large. The posterior margins of each of the thoracic segments except the 1st have a row of strong backward curved teeth. The anterior division of the abdomen is granulate with some larger dentiform on the dorsal region, posteriorly there is a long process which is finely granular and projects backwards well beyond the end of abdomen but not so far as the uropods, it is rather slender and bifid at the extremity. The posterior division consists of two granulate and setose domes separated by a sulcus, each dome has one or more teeth on its summit. The surface then descends abruptly to the posterior margin, which is medianly cut by a semicircular notch transversely shallow but with a deep channel, the exit of which is acutely toothed, with another tooth higher up on each side. The epistome is highly sculptured, it has a median prominence curved backwards, on its lateral limbs there are three or four tubercles on each.

The basal joints of the antennules have each a longitudinal row of three or four tubercles. The 2nd joint of the antennule is small and has a small tubercle above, the 3rd joint is very slender and longer, the flagellum has 14 joints. The flagellum of the antenna has 14 or 15 joints. The mandibles are robust with a few small tubercles on their basal portions, incisory plates entire, the left mandible with slightly bifid secondary plate. The palp of the maxilliped has long lobes. The legs are robust and sparingly spined without furry pads. The 1st pair have small spines on merus, carpus, and propodus, the dactyles are short and two-clawed. The filaments on 8th sternum are long and slender. The exopod of the 1st pleopod has a small proximal spine on the outer side, the endopod is triangular and rather broader than long, there are three coupling spines on the peduncle. The 2nd pleopod is similar, the appendix is small and reaches about as far as the fringe of its endopod. The inner rami of uropods are reduced to two small spiniform tubercles. The outer rami are very large, rough with tubercles, club-shaped, covered densely with short setae, each ramus spreads very widely.

This species resembles *C. granulata*, Whitelegge; also *C. whiteleggei*, Stebbing, differing especially in the much reduced inner ramus of uropod.

Length, 12 mm.

Locality, Cottesloe, Western Australia. Col. L. Glauert.

The type is in the Western Australian Museum, Nos. 10850, 10672, 10496/10501.

Paracilicoea gigas, n. sp.

Pl. iii., figs. 1-4.

The body is covered with a very short pubescence and many small pearly granules which become larger posteriorly. The head is rather longer than the 1st thoracic segment but much narrower. The eyes are large, 1st segment of thorax longest, the others are rather short when the animal is extended, the epimera are marked off by distinct sutures. The anterior division of the abdomen is large with the usual divisions well marked, and is a little produced behind medianly. The posterior division is large and divided into two domes not very salient, with a dimple each side of the median sulcus above; behind these the surface is tumid and abrupt to the end. The posterior notch has a much reduced median process and is deep in the vertical direction. The epistome is prominent and granular with a small median knob; the upper lip has a deep transverse sulcus. The basal antennular joints almost touch each other at their proximal posterior angles, the 2nd joints are small, the 3rd much narrower and, after the 1st, which is much longer, there are 40 very short joints to each flagellum. The legs are robust, and

in place of the furry pads on the usual joints there are crowds of small bristles among which are longer ones on the 1st pair. The internal ramus of the uropod is short, not reaching the end of abdomen; it is sublaminar and distally slightly truncate. The external ramus is long, indurated with a strong tooth on the outer side and subacute terminally.

The above characters are taken from a large specimen which is damaged and dry, and is evidently an adult male. This I have named as type. The following characters are of a young male (pl. iii., fig. 4) in the Western Australian collection which I name as co-type. The body is covered with an extremely short tomentum. The anterior division of abdomen is not produced behind. The posterior division is divided into two lobes less salient than in the type specimen. The posterior notch is narrow and deep in vertical direction but with a pointed median lobe. Mandibles with incisory plates entire, the left with secondary plate slightly bifid; the basal portion of the mandible has a transverse ridge. The legs are rather spiny, especially the more posterior pairs. The endopod of 1st pleopod has an insinuation at its distal end, the peduncle carries four coupling spines, there is a larger proximal spine on the exopod, but it is not outstanding. The exopod of the 2nd pleopod exhibits an appendix approaching the whip-like character seen in other species. The rami of the 3rd are broad with the division line of the exopod quite near the end. The exopod of the 4th pleopod has two plumose setae, and the endopod has a distal notch. The exopod of the 5th pleopod is quite like that of *C. latreillei*, except that the principal squamose lobe is pedunculate.

The resemblance of this species to *P. (?) pubescens*, Ml. Edw. (see Trans. Roy. S. Austr., 1926, p. 262, and pl. xliii.) is remarkable, and in the case of the adult male a parallel condition occurs which I have noted in that species, viz., the uropods becoming cilicaeform. The young of the present species, that of *P. pubescens* and that of *C. latreillei*, are very difficult to distinguish; this applies in a slightly less degree to females of the same species.

Length of large specimen (male), 35 mm.; breadth, 20 mm.; length of smaller male, 25 mm.; breadth, 15 mm.

Type in South Australian Museum, co-type in Western Australian Museum.

Paracilicoea flexilis, n. sp.

Pl. iv., figs. 1-4.

Head evenly rounded in front, 1st thoracic segment of about the same length as each of the remaining ones of the thorax. The body is smooth, glabrous, but becoming setose behind, a slight longitudinal groove marks off the epimera, which are uniform, the last produced a little deeper, a small notch shows on the posterior border of the 2nd and 3rd; the posterior margin of the 7th segment of thorax shows two slight submedian prominences behind. The abdomen is tuberculate and setose, the tubercles are numerous, being more or less spinuliform, and arranged mostly in longitudinal rows. The anterior division is very short, marked with the usual lines; the posterior not very convex; the posterior margin is conspicuously 3-lobed, with a broad and shallow channel below. The epistome is small and the labrum covered with brown dots. The antennule has a stout basal joint, the 2nd about one-third the length of the 1st, the narrow 3rd joint is only a little longer than the 2nd, the flagellum about the same length as the peduncle, the joints about 19 in number and very short. The antennal peduncle has short joints and a flagellum of 25 joints, very setose. The mandibles are very strong with entire incisory plates, in the left the secondary plate is very obscurely tridentate, the spine row is well developed, and there is a strong short molar with some dark spines on its inner margin. There is a large posterior lip. The 1st maxilla has a strong external ramus terminated by seven or eight strong spines