

NEW RECORDS OF MARINE ISOPOD CRUSTACEANS
(SPHAEROMATIDAE, CIROLANIDAE) FROM SOUTH-EASTERN AUSTRALIA

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Abstract

Bruce, N.L., 1991. New records of marine isopod crustaceans (Sphaeromatidae, Cirolanidae) from south-eastern Australia. *Memoirs of the Museum of Victoria* 52: 263-275.

The sphaeromatid genus *Bathycopea* Tattersall, 1905, is recorded for the first time from Australia and is the first record of the subfamily Ancininae from Australian waters. *B. typhlops* Tattersall, 1905 is figured. *Cirolana binyana* sp. nov. is described from a single specimen and its systematic position briefly discussed. The genus *Politolana* Bruce, 1981, previously recorded only from the Atlantic, is recorded for the first time from Australia, and *P. dasyprion* sp. nov. is described from a specimen taken in Bass Strait.

Introduction

The revisionary work on Australian Sphaeromatidae by Keith Harrison and David Holdich (summarised in Harrison and Holdich, 1984) and on Australian Cirolanidae (Bruce, 1986) resulted in a considerable increase in the number of genera and species known from Australia. This paper records three species and a further two genera new to Australian waters. This demonstrates that even for these recently revised families our knowledge is far from complete. *Bathycopea typhlops* Tattersall is the first record of the sphaeromatid subfamily Ancininae from Australia.

Material is from the Australian Museum, Sydney (AM) and the Museum of Victoria, Melbourne (NMV).

Bathycopea Tattersall

Bathycopea Tattersall, 1905a: 601.—Tattersall, 1905b: 12.—Loyola e Silva, 1971: 215.—Kussakin, 1979: 366.

Ancinella Hansen, 1905: 114.

Type species. Bathycopea typhlops Tattersall, 1905, by monotypy.

Remarks. This genus has been diagnosed most recently by Loyola and Silva (1971) and Kussakin (1979). Although the valid date of publication for both *Bathycopea* and *Ancinella* appears to be 1905, the name *Bathycopea* is well established, and *Ancinella* has long been regarded as the junior synonym (initially by Hansen, 1916). The genus is here recorded for the first time from Australian waters.

The four species of the genus are known to occur from a depth of 135 metres (present record) to 4070 metres (Kussakin, 1979: 372).

Bathycopea typhlops Tattersall

Figures 1-3

Bathycopea typhlops Tattersall, 1905a: 601.—Tattersall, 1905b: 3, 12, 65, pl. 3 figs 1-13.—Hansen, 1916: 179, 180, figs 7a-7l.—Omer-Cooper and Rawson, 1934: 48, pl. IV figs 1-13.—Loyola e Silva, 1971: 216, Figs 2, 3.—Kensley, 1978a: 144, fig. 13.—Kensley, 1978b: 115, fig. 50.—Kussakin, 1979: 366, figs 227, 228.—Iverson, 1982: 249 (table 1).

Ancinella profunda Hansen, 1905: 132, 133.

Material examined. NSW. E of Broken Bay (33°34.5'S, 151°41.0'E), 135 m, R.T. Springthorpe on RV Kapala, 10 Feb 1986 (AM P37257, non-ovigerous female, 6.3 mm).

Tas. Off Freycinet Peninsula (42°02.2'S, 148°38.7'E), 800 m, coarse shelly sand bottom, M.F. Gomon on RV Franklin, 27 Jul 1986 (NMV J19142, non-ovigerous female, 2 juveniles). 48 km ENE of Cape Tourville (42°00.25'S, 148°43.55'E), 1264 m, gravel with lumps of sandy mud aggregate, G.C.B. Poore et al. on RV Franklin, 30 Oct 1988 (NMV J19144, male, 2 females).

Vic. 67 km S of Point Hicks (38°23.95'S, 149°17.02'E), 1277 m, fine mud, G.C.B. Poore et al. on RV Franklin, 25 Oct 1988 (NMV J19143, 3 unsexed specimens). S of Point Hicks (38°21.9'S, 149°20.0'E), 1000 m, G.C.B. Poore et al. on RV Franklin, 23 Jul 1988 (NMV J19140, 20 unsexed specimens).

Remarks. A single female specimen (AM P37257) was examined and is figured. The species is reasonably well known, and the morphology of the pleotelson and uropods unambiguously distinguishes *B. typhlops* from the other three species (all figured by Kussakin, 1979).

Comparison of these specimens with the drawings of Tattersall (1905b), Loyola e Silva (1971) and Kensley (1978a, b) reveal few differences. Kensley and Loyola e Silva figured the cephalon fused to pereonite which is not the case

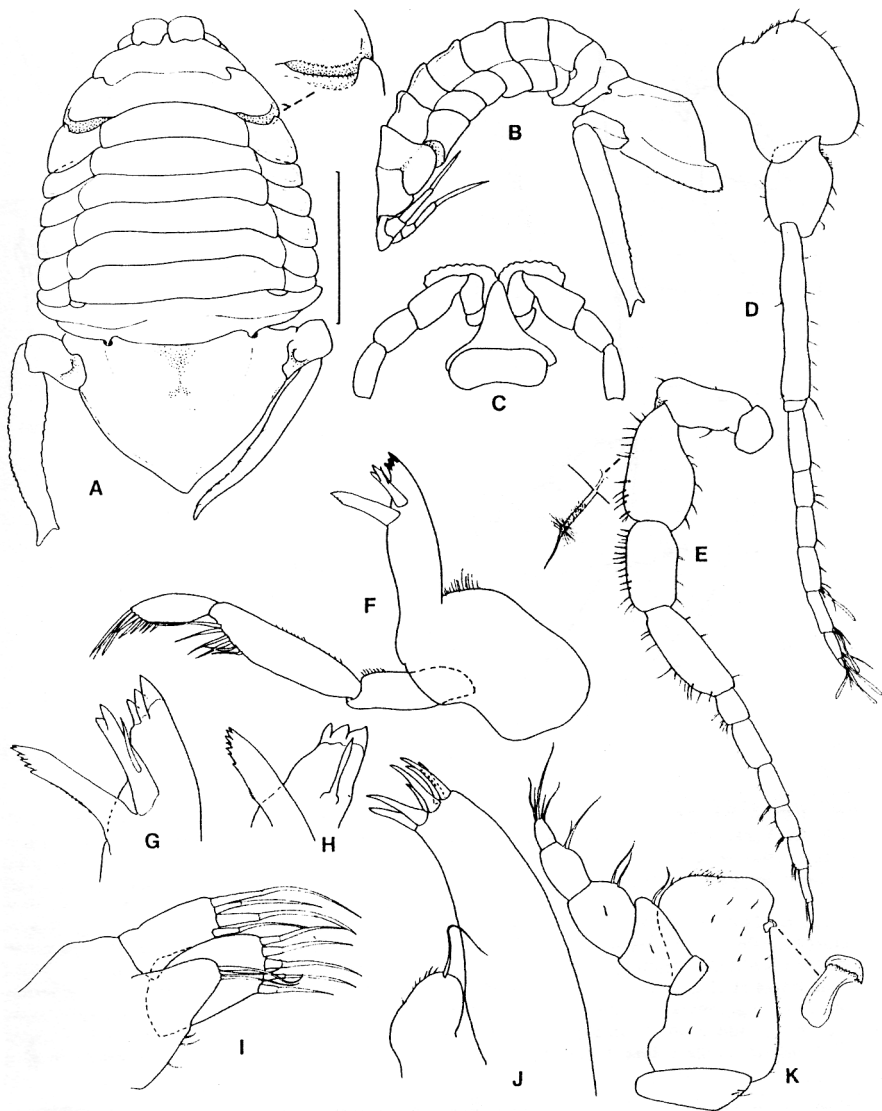


Figure 1. *Bathycopea typhlops* (AM P37257). A, dorsal view; B, lateral view; C, frons; D, antennule; E, antenna; F, left mandible; G, lacinia mobilis and molar process, left mandible; H, right mandible; I, maxilla; J, maxillule; K, maxilliped. Scale line 2.0 mm.

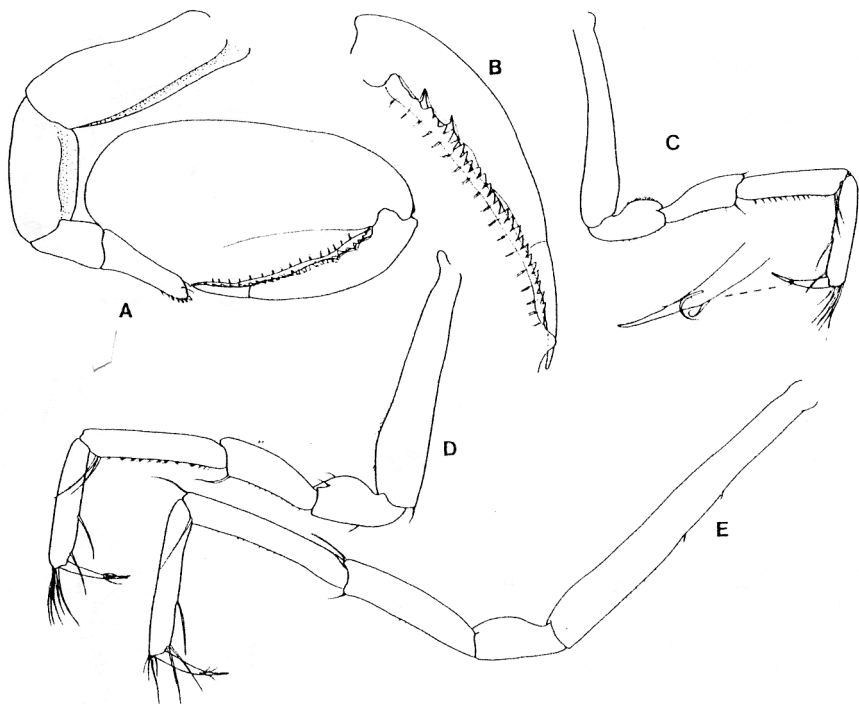


Figure 2. *Bathycopea typhlops* (AM P37257). A, pereopod 1; B, dactylus and propodus palm, pereopod 1; C, pereopod 2; D, pereopod 3; E, pereopod 7.

in the present material nor in the figures given by Tattersall (later reproduced in Omer-Cooper and Rawson, 1934 and Kussakin, 1979). The Australian material shows a variable degree of cephalic fusion, in some specimens the suture is distinct, in others it is scarcely discernable.

Distribution. Off Ireland, at about 800 m (Tattersall, 1905b, Loyola and Silva, 1971); off Natal, South Africa, 680 m (Kensley, 1978a), eastern Australia at 135 metres, the shallowest record, and Bass Strait at depths from 800 to 1277 m. Kussakin (1979) previously reported a depth range from 370 to 963 metres.

Cirolana Leach

See Bruce (1986: 139) for detailed synonymy.

Cirolana binyana sp. nov.

Figures 4–6

Material examined. Holotype, NSW, E of Crescent Head (31°12'S, 153°18'E), plankton tow at 221 m over 355–384 m bottom depth, Australian Museum staff, HMAS Kimbla, 14 Aug 1985 (AM P37256 male, 5.5 mm).

Description of holotype. Body smooth, unornamented, about 2.6 times as long as maximum width. Cephalon anterior margin smoothly rounded, with median shallow indentation; anterior margin with complete submarginal interocular furrow; partial furrow running from posteromedial angle of each eye. Eyes round, orange, together about 0.4 width of cephalon. Posterolateral angles of cephalon with submarginal groove indicating presence of maxillipedal somite. Pereonite 1 about 1.6 times as long as pereonite 2; pereonites 3–6 progressively increasing in length; pereonite 7 slightly shorter

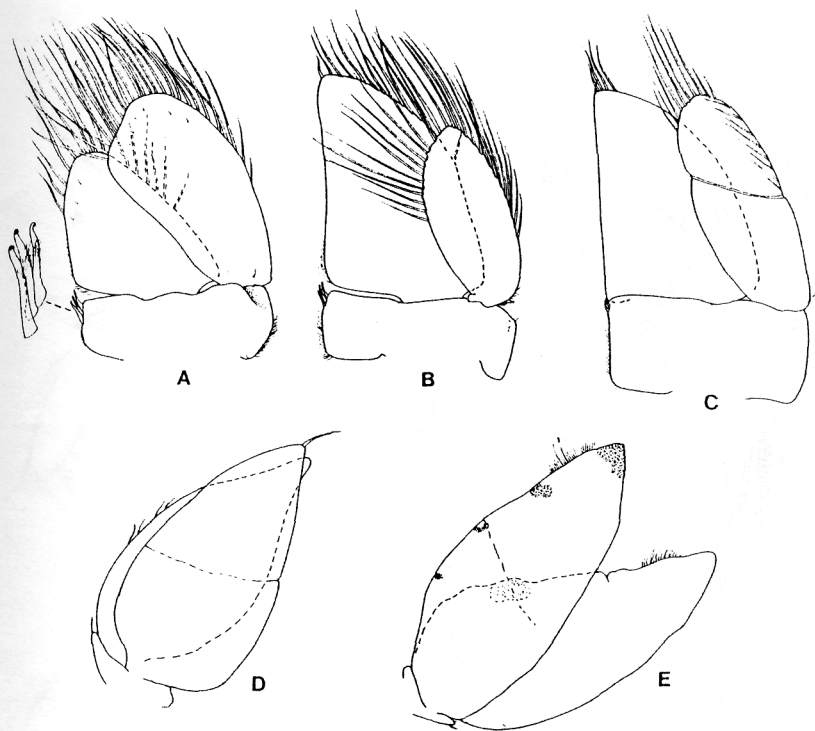


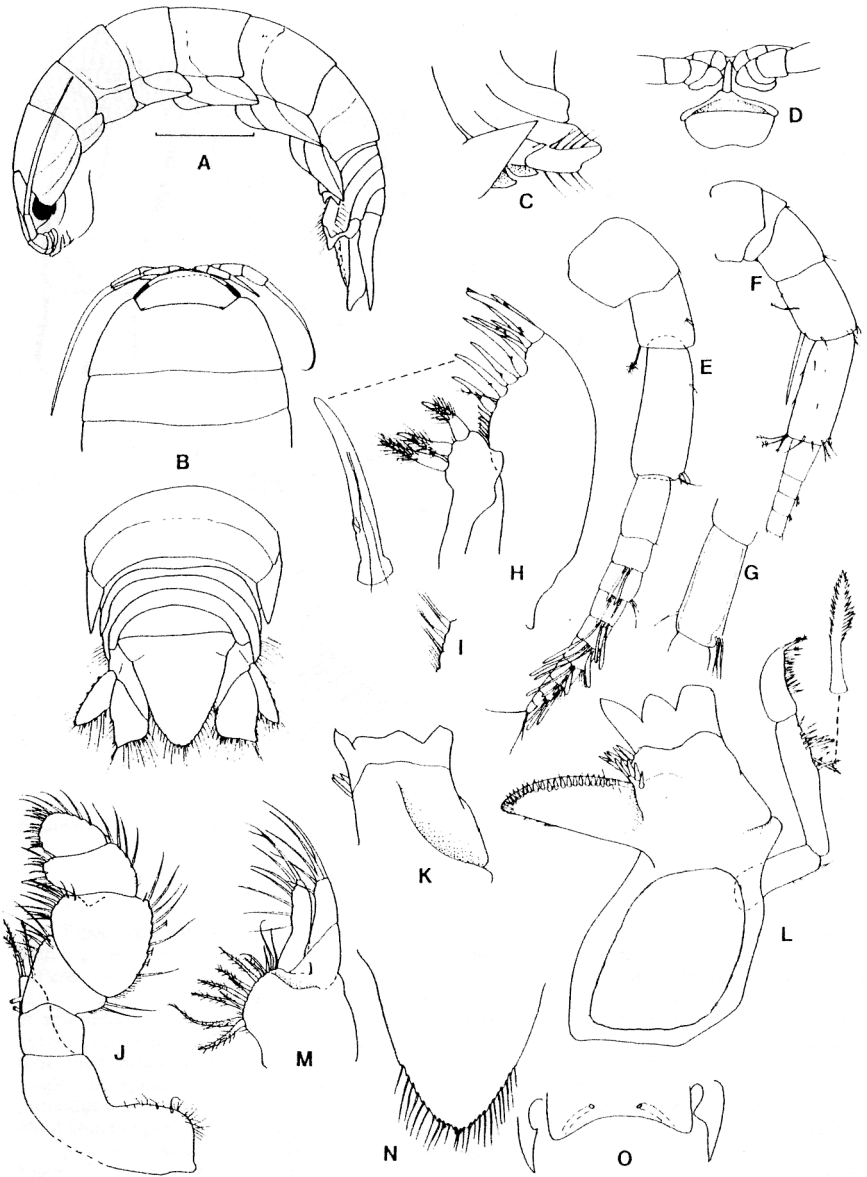
Figure 3. *Bathycopea typhlops* (AM P37257). A-E, pleopods 1-5.

than 6; pereonites 3-5 with incomplete transverse furrow, pereonites 6 and 7 with complete transverse furrow; pereonite 1 with 1 distinct and 1 indistinct lateral furrow. Coxae 2 and 4-7 with complete carina; coxae of pereonite 3 without carina; coxae 2-7 posterior margin becoming increasingly acute towards posterior. Pleonite 1 largely concealed by pereonite 7; pleonites 2-4 subequal in length, pleonite 5 twice as long as 4; lateral margin of pleonite 3 large, posteriorly produced, laterally overlapping pleonites 4 and 5, and extending beyond

posterior of pleonite 5; ventral margin and medial carina provided with setae. Pleotelson linguiform, posterior margin serrate, with 4 apical spines set amongst marginal plumose setae.

Antennule with flagellum and peduncle subequal in length, flagellum extending to anterior of pereonite 1; peduncle article 2 shortest; article 3 longest, 2.2 times as long as article 2. Antenna with flagellum extending to posterior margin of pereonite 2, of about 15 articles; peduncle articles 1 and 2 short, article 4 1.5

Figure 4. *Cirolana binyana* sp. nov., holotype. A, lateral view; B, dorsal view of anterior and pleon and pleotelson; C, detail of pleonites, lateral view; D, clypeal region; E, antennule; F, antennal peduncle; G, antennal flagellum, article 11; H, maxillule; and detail of gnathal spine 10; I, maxillule, gnathal medial setae; J, maxilliped; K, incisor, left mandible; L, right mandible; M, maxilla; N, pleotelson; O, penial openings, sternite 7. Scale line 1.0 mm.



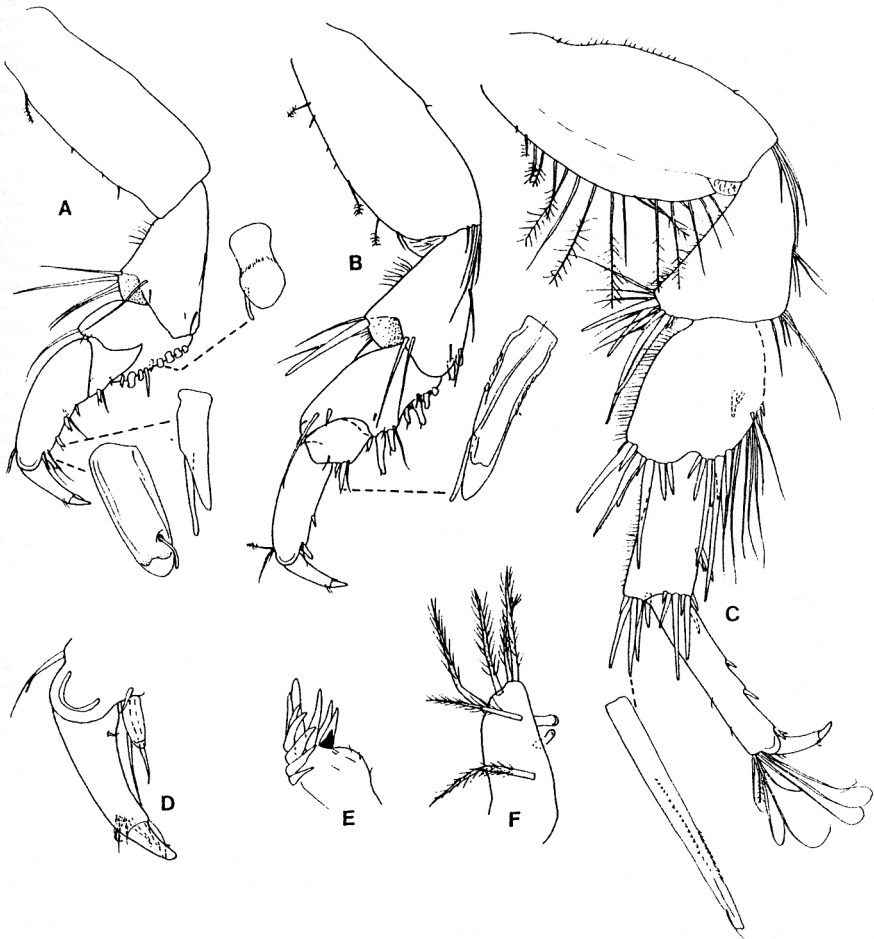


Figure 5. *Cirolana binyana* sp. nov., holotype. A, pereopod 1, with details of spines; B, pereopod 2, with details of spines; C, pereopod 7; D, dactylus, pereopod 1; E, spine row and lacinia mobilis (black); F, maxillipedal endite.

times as long as article 2, article 5 1.5 times as long as article 4 and 2.2 times as long as article 3.

Frontal lamina sessile, elongate, about 5 times as long as wide, lateral margins straight, anterior margins straight converging to distinct point. Mandible with spine row of 11 spines; molar process with distal group of setae; palp article 2

with 12 pectinate setae on distomedial margin, article 3 with 15 marginal setae, distal 3 being largest. Maxillule with 11 spines on gnathal surface of lateral lobe, each spine with 1-3 basal serrations; medial lobe with 3 large plumose spines, proximal spine largest. Maxilla with 8 plumose and 4 simple setae on medial lobe; central lobe with 7 simple setae, lateral lobe with 4.

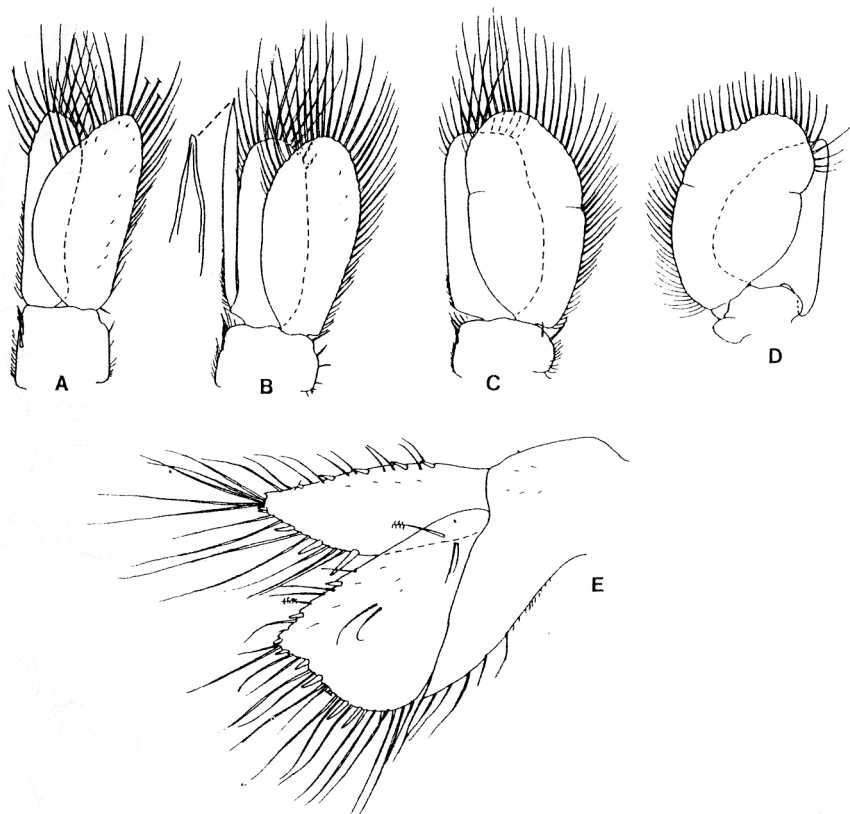


Figure 6. *Cirolana binyana* sp. nov., holotype. A-D, pleopods 1-3 and 5; E, uropod.

Maxilliped palp with simple setae only; endite with 6 plumose setae and 2 coupling hooks.

Pereopod 1 anterodistal angles of ischium and carpus not produced; ischium with 4 long setae at anterodistal angle; merus with single seta at anterodistal angle, posterior margin with 6 stout tubercular spines and 2 acute spines; carpus with single acute spine and seta at posterodistal angle; propodus with 3 acute spines on palm, and large blunt spine opposing base of dactylus; dactylus with prominent slender secondary unguis. Pereopods 2 and 3 similar to pereopod 1. Pereopod 2 with articles more slender than 1, and spines

on ischium, merus and carpus more numerous and longer; propodus with only 1 spine on palm; anterodistal angle of ischium with long stout spine. Pereopods 5-7 similar to each other, becoming progressively longer posteriorly. Pereopod 7 with basis slightly expanded, anterior margin with row of feeble plumose setae; ischium and merus flattened and expanded; distal angles of ischium, merus and carpus with groups of large stout setae; anterior margins of ischium, merus and carpus with short setal fringe; propodus with 2 spines on palm, 2 spines opposing dactylus, anterodistal angle with clus-

ter of long recurved setae. Penes absent, gonopores opening flush with surface of sternite 7, separated by one-third width of sternite.

Pleopod 1 with peduncle 0.8 times as long as wide, medial margin with 4 coupling hooks; endopod slender, about 0.6 width of exopod, with concave lateral margin; exopod with strongly curved medial margin; both rami subequal in length. Pleopod 2 with peduncle slightly shorter than 1, with 3 coupling hooks; appendix masculina arising basally, terminating acutely, extending beyond distal margin of rami. Pleopods 3–5 exopod with weakly indicated marginal sutures. Uropodal rami not extending beyond posterior margin of pleotelson. Exopod slightly shorter than endopod, ovate with narrow apex; lateral margin with 5 medial spines and 3 large and 2 small spines adjacent to apex; apex with cluster of long, simple setae. Endopod with straight lateral margin with 2 spines, and 1 subapical spine; medial margin sinuate with 5 spines, and 1 subapical spine; medial margin with continuous plumose marginal setae.

Female not known.

Etymology. The epithet is an Aboriginal word meaning chisel.

Remarks. This species is easily distinguished from all other Australian species of *Cirolana* by the weakly indented anterior margin of the cephalon, the large lateral margins of pleonite 3 which overlap pleonites 4 and 5 and the flattened articles (ischium, merus and carpus) of the posterior pereopods.

The species is similar to the specimen described by Bruce (1986: 143, fig. 96) as *Cirolana* sp. but there are some differences. The frontal lamina was illustrated with the anterior margin rounded but this may be due to the perspective during observation. The posterior interocular furrow was complete while in the holotype of *C. binyana* it is not. The posterior margin of the pleotelson is broadly rounded with 7 spines while in the holotype it is narrowly rounded and has 4 spines. Lastly, the ischium and merus of pereopod 7 are more strongly expanded in *C. binyana* than in *Cirolana* sp. These differences could be due to the immaturity of *Cirolana* sp., but as the characters mentioned are all important in species discrimination, it would be unwise to assume that the two specimens are the same species.

This species does not entirely agree with the generic diagnosis of *Cirolana* given by Bruce (1986) but is here placed in *Cirolana* until such time as this and other species of uncertain sys-

tematic position (see Bruce, 1986: 223) can be assigned to genera.

Politolana Bruce

Politolana Bruce, 1981: 958.—Bruce, 1985: 714.—Bruce, 1986: 222.—Wetzer, Delaney and Brusca, 1987: 2.

Remarks. All species of this genus have previously been recorded only from the Atlantic with the exception of *P. obtusispina* (Kensley, 1975) which occurs off the southern coast of south-western South Africa. That species does not entirely agree with the generic diagnosis and should be regarded as *incerta sedis* until the genus is fully revised. Other than the recently described *Politolana wickstenae* Wetzer, Delaney and Brusca, 1987, all species remain inadequately described.

The description of *Politolana dasyprion* sp. nov. is the first record of the genus from Indo-Pacific and Australian waters. The species agrees entirely with the generic diagnosis, differing slightly only in proportions of peduncular articles of the antenna and antennule, and the relatively weakly indented uropodal endopod. The mandible spine row and lacinia mobilis are densely setose, a feature not recorded or illustrated for other species of the genus. Pleopod 1, while agreeing with the generic diagnosis, has the endopod shorter and narrower than in most other species, approaching the condition shown by *Orphelana* Bruce, 1981 and *Conilorpheus* Stebbing, 1905 (Stebbing, 1905, 1908).

Politolana dasyprion sp. nov.

Figures 7–9

Material examined. Holotype, Western Bass Strait (39°22.0'S, 143°28.4'E), 106 m, coarse sand, grab, G.C.B. Poore on HMAS Kimbla, 10 Oct 1980 (NMV J11562 male, 6.0 mm).

Description of holotype. Body about 2.5 times as long as maximum width. Cephalon without distinct rostral point; anterior margin with feeble submarginal furrow; eyes small, approximately rectangular, together occupying a little less than two-thirds (0.27) width of cephalon; posterior margin with groove at each side indicating maxillipedal somite.

Pereonite 1 1.5 times as long as pereonite 2; pereonites 2–6 becoming progressively longer from lateral view; pereonite 7 two-thirds as long as 6. Posterior margin of pereonite 7 finely crenulate. Coxae 2 and 3 each with posteroventral point and incomplete carina; coxae 4–7 with posteroventral point less clearly developed than

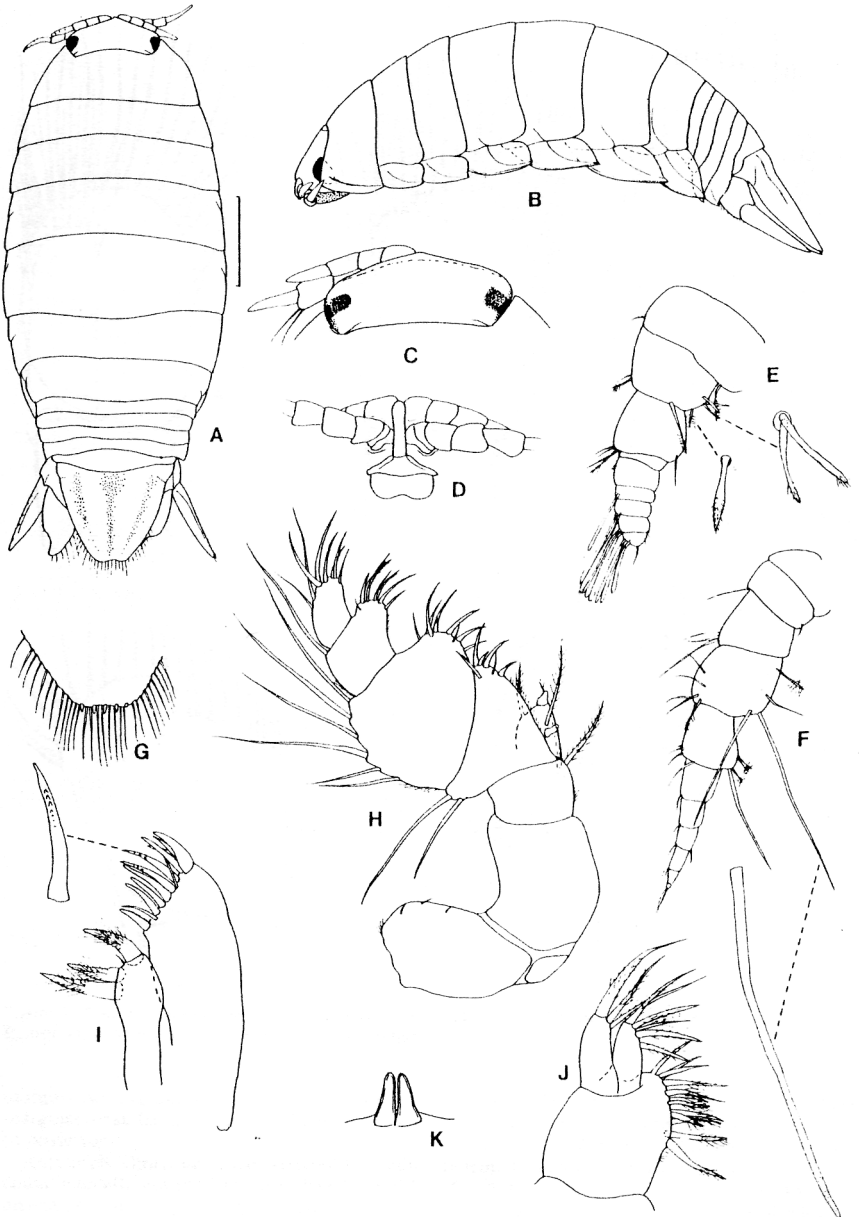


Figure 7. *Politolana dasyprion* sp. nov., holotype. A, dorsal view; B, lateral view; C, cephalon; D, clypeal region; E, antennule; F, antenna; G, plectelson apex, ventral view; H, maxilliped; I, maxillule; J, maxilla; K, penes. Scale line 1.0 mm.



Figure 8. *Politolana dasyprion* sp. nov., holotype. A, mandible; B, spine row; C, pereopod 1; D, propodus, pereopod 1; E, tubercular spine, pereopod 1; F, pereopod 2; G, pereopod 4; H, pereopod 7.

on coxae 1 and 2, all with complete oblique carina. Pleonites 1-4 subequal in length, pleonite 1 not concealed by pereonite 7; pleonite 5 about 1.5 as long as 4. Posterior margins of pleonites

1-4 finely crenulate. Pleotelson dorsal surface with 2 low rounded submedian longitudinal ridges; posterior margin weakly indented, with 5 spines amongst plumose marginal setae; lateral

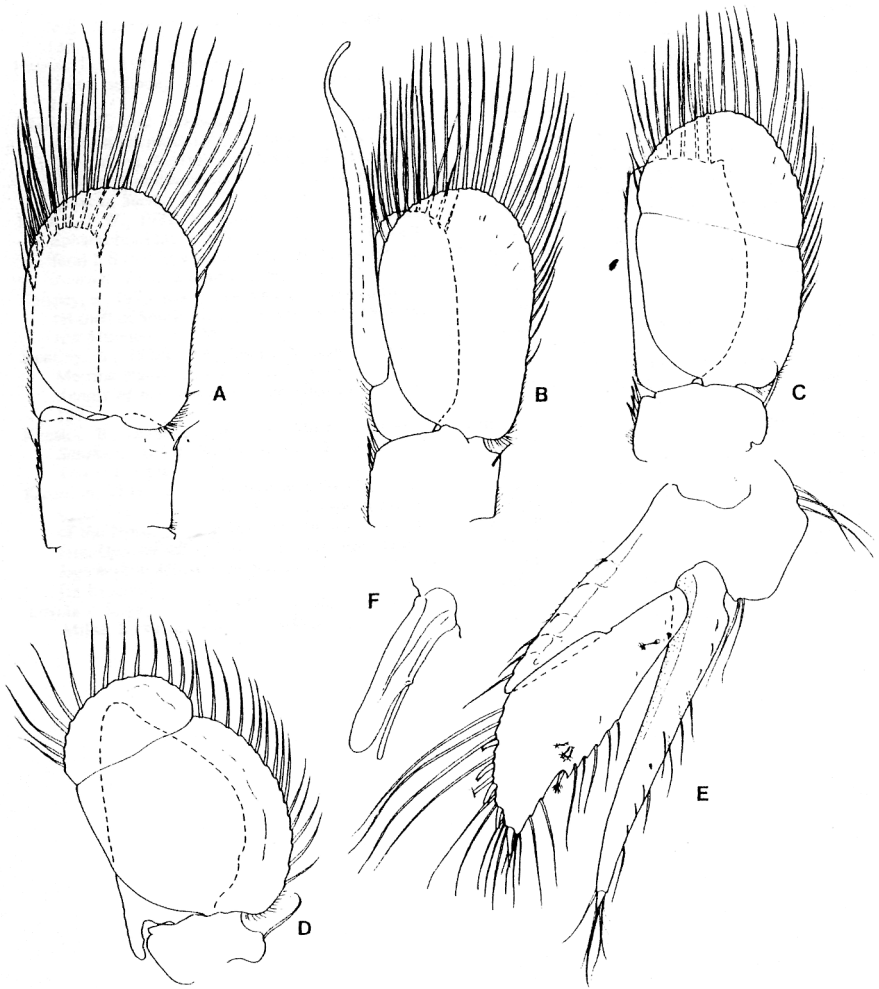


Figure 9. *Politolana dasyprion* sp. nov., holotype. A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 5; E, uropod; F, spine, uropod endopod, medial margin.

margins curving smoothly to posterior plumose marginal setae from about two-thirds of length to posterior.

Antennule short, peduncle articles 1-3 subequal in length, not reaching eyes; flagellum of 5 articles, first the longest, extending to anterior of

pereonite 1, about half length of peduncle. Antenna short, extending to about middle of pereonite 1; peduncle articles 4 and 5 subequal in length and longest; articles 3 and 1 subequal in length, lower than article 2. Peduncle articles 4 and 5 with long setae, distal third of which is

distinctly flattened; flagellum of 6 articles: article 1 longest and article 6 minute; flagellum about half length of peduncle.

Frontal lamina elongate, about 4 times as long as wide; anterior margin bluntly rounded. Mandible with spine row of at least 4 spines, possibly others obscured by dense mass of setae; molar process with prominent teeth, densely setose; mandibular palp with 5 setae on distolateral margin of article 2, about 8 setae on article 3. Maxillule lateral lobe with 11 robust spines on gnathal surface, some of the larger spines partially serrate; medial lobe with 3 robust plumose spines, proximal spine largest. Maxilla medial lobe with 9 plumose setae, 3 simple setae distally; central lobe with 5 plumose and simple setae; lateral lobe with 3 weakly plumose setae, distalmost noticeably more robust than other 2. Maxilliped palp with serrate spines on medial margin of articles 4 and 5 only; endite with 4 plumose setae, 1 coupling hook and 1 simple stout spine at distomedial angle.

Pereopod 1 basis with cluster of setae at posterodistal angle and along anterior margin; ischium with long setae on anterodistal lobe and along posterior margin; merus with long setae on anterodistal lobe, posterior margin with 4 acute and 3 blunt spines; carpus with 3 setae and 1 large blunt spine at anterodistal angle; propodus with 2 stout spines on palm, third short blunt spine opposing the dactylus; dactylus with prominent secondary unguis. Pereopods 2 and 3 similar to 1; pereopod 2 with 2 large stout spines on posterodistal angle of merus; 2 spines on posterodistal margin of ischium; spines on posterior margin of merus, carpus and propodus larger than those of pereopod 1. Pereopods 5-7 similar, becoming longer posteriorly. Pereopod 7 with distal angles of ischium merus and carpus with groups of spines; those on anterior angle with more and larger spines than posterior angle; merus with additional medial cluster of spines; ischium, carpus and propodus with additional spines on posterior margins; posterodistal angle of basis and anterior and posterior margins of ischium and merus with long setae; carpus anterior margin with setae, posterior margin without setae. Paired medial penes present at posterior of sternite 7, each process tapering distally, about 4 times as long as basal width.

Pleopod 1 exopod 1.45 times as wide as peduncle; endopod 0.8 times length of exopod and 0.4 times width of exopod; peduncle .11 times as long as wide, medial margin with 4 coupling hooks.

Pleopod 2 with sub-basal appendix masculina extending beyond endopod by about half its

length, apex abruptly narrowed curving medially with bluntly rounded tip; peduncle medial margin with 4 coupling hooks. Exopods of pleopods 3-5 all with complete transverse suture. Uropodal rami not extending beyond posterior of pleotelson; exopod very slender, slightly longer than endopod, apex with single stout spine; endopod lateral margin, without spines, weakly excised, medial margin with 5 stout spines set among long plumose setae.

Female not known.

Etymology. Greek *dasy*s (hairy, shaggy, dense) and *prinos* (saw) alluding to the setose molar process.

Remarks. This species is not as elongate as others of the genus, nor is the excision of the uropodal endopod as clearly developed, but otherwise it accords entirely with the generic diagnoses given by Bruce (1981) and Wetzer et al. (1987). Other minor differences include the antennule peduncle articles being subequal in length (rather than article 3 longest). The antennal peduncle article 4 is slightly longer than article 5 and about 1.3 times as long as article 3. However, the antennal peduncle still conforms to the generic diagnosis with articles 1 and 2 short, 3-5 long.

Politolana dasyprion can readily be identified by the uropod and pleotelson characters and by the unique morphology of the appendix masculina.

Acknowledgements

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References

- Bruce, N.L., 1981. Cirolanidae (Crustacea: Isopoda) of Australia: diagnoses of *Cirolana* Leach, *Metacirolana* Nierstrasz, *Neocirolana* Hale, *Anopisilana* Paulian & Debouteville, and three new genera - *Natatolana*, *Politolana* and *Cartelolana*. *Australian Journal of Marine and Freshwater Research* 32: 945-966.
- Bruce, N.L., 1985. *Calyptolana hancocki*, a new genus and species of marine isopod (Cirolanidae) from Aruba, Netherlands Antilles, with a synopsis of the Cirolanidae known from the Caribbean and Gulf of Mexico. *Journal of Crustacean Biology* 5: 707-16.
- Bruce, N.L., 1986. Cirolanidae (Crustacea: Isopoda) of Australia. *Records of the Australian Museum, Supplement* 6: 1-239.
- Hansen, H.J., 1905. On the propagation, structure and classification of the family Sphaeromidae. *Quar-*

- terly *Journal of Microscopical Science* 49: 69-135.
- Hansen, H.J., 1916. Crustacea Malacostraca (III). The Order Isopoda. *Danish Ingolf Expedition* 3: 1-262.
- Harrison, K. and Holdich, D.M., 1984. Hemibranchiate sphaeromatids (Crustacea: Isopoda) from Queensland, Australia, with a world-wide review of the genera discussed. *Zoological Journal of the Linnean Society* 81: 275-387.
- Iverson, E.W., 1982. Revision of the isopod family Sphaeromatidae (Crustacea: Isopoda: Flabellifera) I. Subfamily names with diagnoses and key. *Journal of Crustacean Biology* 2: 248-254.
- Kensley, B., 1975. Marine Isopoda from the continental shelf of South Africa. *Annals of the South African Museum* 74: 125-157.
- Kensley, B., 1978a. The South African Museum's Meiring Naude cruises. Part 7, marine Isopoda. *Annals of the South African Museum* 74: 125-157.
- Kensley, B., 1978b. *Guide to the Marine Isopods of Southern Africa*. South Africa Museum: Cape Town. 173 pp.
- Kussakin, O.G., 1979. Marine and brackish-water Crustacea (Isopoda) of cold and temperate waters of the Northern Hemisphere. Suborder Flabellifera. *Opređeliteli po Faune SSR, Izdavaemye Zoologicheskim Muzeem Akademii Nauk* 122: 1-472 [in Russian].
- Loyola e Silva, J., 1971. Sôbre os gêneros *Ancinus* Milne Edwards, 1840 e *Bathycyopa* Tattersall, 1990, da coleção U.S. Nat. Mus. (Isopoda-Crustacea). *Arquivos do Museu Nacional, Rio de Janeiro* 54: 209-223, figs 1-7.
- Omer-Cooper, J. and Rawson, J.H., 1934. Notes on British Sphaeromatidae (Crustacea Isopoda). *Dove Marine Laboratory Report, Cullercoats*, (series 3) 2: 22-58.
- Stebbing, T.R.R., 1905. Report on the Isopoda collected by Professor Herdman at Ceylon, in 1902. *Report to the Government of Ceylon on the Pearl Oyster Fisheries of the Gulf of Manaar ... Part 4. Supplementary Report* 23: 1-64, pls 1-12.
- Stebbing, T.R.R., 1908. Marine Investigations in South Africa, Vol. II. South African Crustacea. Part IV. *Annals of the South African Museum* 6: 1-96.
- Tattersall, W.M., 1905a. Some new and rare Isopoda taken in the British Area. *Report of the British Association for the Advancement of Science, 74th Meeting at Cambridge, August 1904, Transactions of Section D*: 601-602.
- Tattersall, W.M., 1905b. The marine fauna of the coast of Ireland. Part V. Isopoda. *Reports of the Department of Agriculture and Technical Instruction for Ireland, Scientific Investigations of the Fisheries Branch, 1904* 2: 1-90.
- Wetzer, R., Delaney, P.M. and Brusca, R.C., 1987. *Politolana wickstenae* new species, a new cirolanid isopod from the Gulf of Mexico, and a review of the "Conilera genus-group" of Bruce (1986). *Contributions in Science, Natural History Museum of Los Angeles County* 392: 1-10.