

midline; posterior margin truncate with a short smoothly rounded median notch. Appendages— $A_1$  with peduncle article 1 tuberculate, just longer than articles 2 and 3 together; article 2 short; article 3 slender, 11-articled flagellum extending to level of pereonite 1.  $A_2$  slender, 12-articled flagellum extending to level of pereonite 1. Epistome lambdoid with a median, transverse, tuberculate ridge and a truncate apex. Mnds each with incisor processes rounded.  $Mx_1$  with inner lobe bearing four pectinate spines increasing in length from external to internal; outer lobe bearing approximately eight curved spines.  $Mx_2$  with two outer lobes each bearing six slender spines; inner lobe bearing a row of plumose

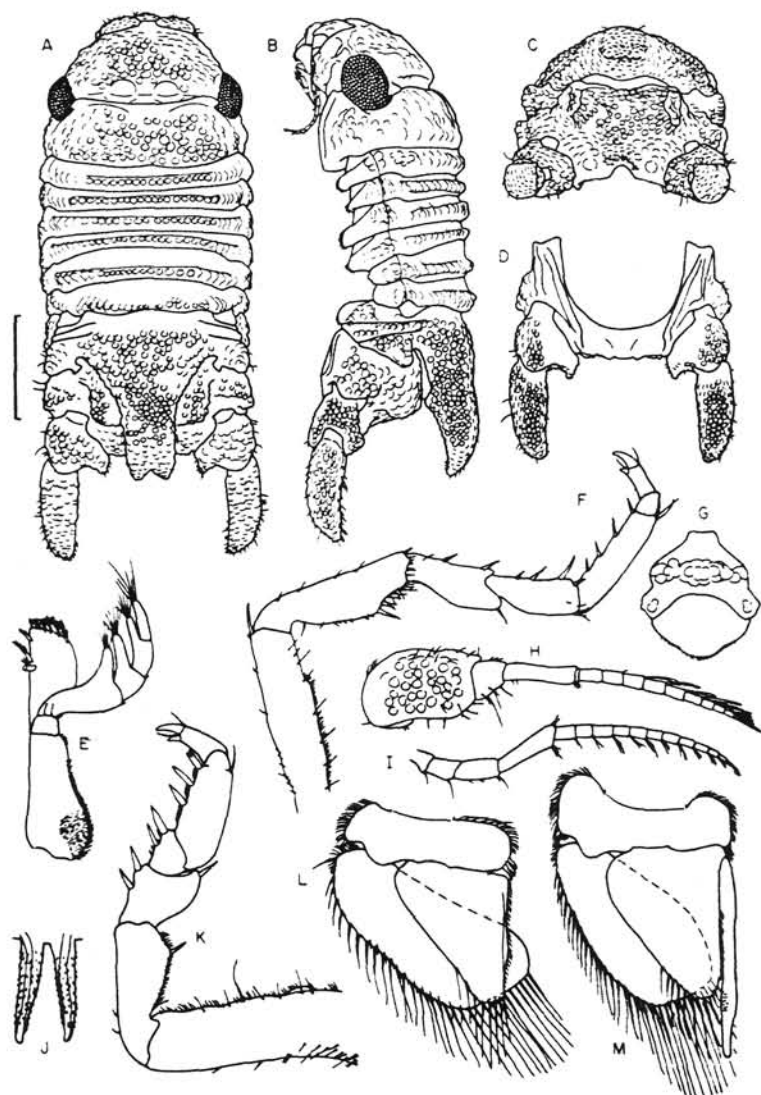


Figure 28. *Ciliaeopsis furculata* sp. nov. Adult male (Paratype), 4.14 mm: A, dorsal; B, lateral; C, posterior; D, pleotelson, ventral; E, maxilliped; F, pereopod 2; G, epistome and labrum; H, antennule; I, antenna; J, penes; K, pereopod 1; L, pleopod 1; M, pleopod 2. Scale line represents 1 mm.

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spines. Mxpd with palp articles 2 and 3 each bearing one very short, fine, superior distal seta. Prpds slender. Prpd 1 with basis slender; ischium bearing one short superior spine; merus with one short superior distal spine and two stout inferior spines; carpus with two stout inferior spines; propodus with three stout inferior spines, most distal being clearly apically bifid. Prpds 2-7 very slender with merus carpus and propodus each bearing an inferior row of simple spines. Penes each five times as long as broad, tapering evenly to narrowly rounded, slightly incurved, apices; surface bearing numerous microtrichia. Plpd 1 with endopod subtriangular, apex narrowly truncate; exopod  $1\frac{1}{2}$  times length of endopod with a broadly truncate apex. Plpd 2 with rami as in plpd 1 but endopod relatively slightly longer. Appendix masculina linear, almost  $1\frac{1}{2}$  times length of endopod; lateral margins subparallel until just beyond ramal apex, then tapering slightly; terminal one-sixth half width of proximal appendix, with a narrowly rounded apex. Plpd 3 with endopod broad, subtriangular, with a truncate apex; exopod  $1\frac{1}{4}$  times length of endopod with a complete subterminal articulation and apex broadly truncate. Plpds 1-3 each with basis bearing three internal coupling hooks. Plpd 4 with endopod bearing a shallow, internal, subterminal indentation, and one short, apical, internally directed spine; exopod subtriangular with a complete subterminal articulation. Plpd 5 with endopod subreniform with a slight, internal, apical, marginal deflection; exopod with a complete subterminal articulation. Uropod tuberculate, endopod reduced, tapering slightly to an uneven, slightly oblique, distal margin; all of distal margin extending posteriorly beyond pleotelsonic apex; external margin concave. Exopod of uropod cylindrical, internal margin sublinear, external margin slightly convex, distally curving internally to a blunt apex; entire exopod positioned posterior to pleotelsonic apex.

#### *Etymology*

*Cilicaeopsis* plus Latin *furculata*, i.e. with a small fork.

#### *Remarks*

*Cilicaeopsis furculata* sp. nov. is separated from other species of *Cilicaeopsis* by the robust nature of the forked pleonal process and the stout uropodal exopods.

*Cilicaeopsis furculata* is known only from sublittoral coral in the Chesterfield Reefs. The female of the species is unknown.

#### *Material examined*

Holotype: Adult ♂, 4.14 mm (QM: W.8077), Long Island, Chesterfield Reefs, Coral Sea ( $19^{\circ}52.2'S$ ,  $158^{\circ}19.2'E$ ), in coral rock on reef slope, depth 15 m, coll. N. L. Bruce, May 1979.

Paratype: Long Island, seaward edge, depth 12 m, 1 adult ♂ (QM: W.9644), coll. N. L. Bruce, 05.v.1979.

#### Genus *Cilicaea* Leach, 1818

*Cilicaea* Leach, 1818: 342. Hale, 1929a: 272, 280; *et auct.*

Type species: *Cilicaea latreillei* Leach, 1818

*Generic description*

Hemibranchiate Sphaeromatidae with endopod of plpd 3 lacking branchial folds. Both sexes with cephalosome and pereon lacking dorsal extensions. Pleon bearing two long, straight, parallel sutures at each side extending to postero-lateral angle. Pleotelsonic apex with a marked notch bearing a median tooth. Prpds 1-3 with superior surfaces of ischium and merus bearing, at most, several short superior setae or spines. Exopod of plpd 5 with apex and internal margin of distal article covered with fine teeth; anterior surface of distal article bearing a long, slender, projecting boss toothed in distal half; interno-distal angle of proximal article bearing two small toothed bosses. Sexual dimorphism pronounced.

Adult male: Penes slender, separate to base. Appendix masculina arising from interno-proximal angle of endopod of plpd 2 and extending well beyond ramal apex; appendix strongly recurved in most species. Pleon with posterior margin extended posteriorly in midline; extension usually freely projecting. Mxpd with palp articles 2-4 bearing pronounced setigerous lobes. Uropod with endopod reduced; exopod elongate, thickened, subcylindrical or subelliptical in transverse section, extending posteriorly beyond level of pleonal extension.

Ovigerous female: Mpts metamorphosed—mnds partially fused with cephalosome, incisor and molar processes absent, mandibular apices as flat quadrate surfaces juxtaposed in midline; mx<sub>1</sub> as two simple lobes (inner lobe may bear four very short, straight, plumose setae); mx<sub>2</sub> as three simple lobes, lacking long setae; mxpd with endite bearing distal coupling hook, expanded proximally as setigerous lobes, palp not reduced but with lobes lacking setae. Brood pouch formed from four pairs of oostegites arising from pereonites 1, 2, 3 and 4 and overlapping in the midline. Anterior pair of oostegites broad, each with a longitudinal fold such that the anterior region of the oostegite covers the posterior mpts. Brood not housed in the marsupium thus formed, but held in five pairs of internal pouches. Pockets absent. Pleon with posterior margin simple, lacking a posterior extension. Uropod with rami lamellar, extending approximately to level of pleotelsonic apex; endopod usually slightly longer and broader than exopod with apex truncate or broadly rounded; exopod usually with distal external margin bearing an acute notch or a shallow indentation (sometimes lacking such an indentation).

*Australian species*

*Cilicaea crassa* Haswell, 1882

*Cilicaea crassicaudata* Haswell, 1881

*Cilicaea hystrix* Haswell, 1882

*Cilicaea latreillei* Leach, 1818 (NRA) (See Remarks)

*Cilicaea longispina* Miers, 1884

*Cilicaea spinulosa* Haswell, 1882

*Cilicaea tenuicaudata* Haswell, 1881 (NRA)

? *Cilicaea curtispina* Haswell, 1881

***Cilicaea calcarifera*, sp. nov.**

(NRA = Not restricted to Australia. See Appendix 2 for all known species of *Cilicaea*).

*Remarks*

The question-mark next to *Cilicæa curtispina* denotes that this species shows several marked differences from other species of *Cilicæa*. In *C. curtispina*, the cuticle is extremely thick, heavily calcified, and smooth; the second article of the antennular peduncle bears a bifid, distal process; the apex of the epistome is broadly truncate, not acute; in dorsal view the apex of the pleotelson bears a trilobed extension, not a notch with a median tooth; the uropods of the female are not lamellar, but have the exopod thickened and much longer than the endopod; and the mandibles are unusual for a sphaeromatid in having the incisor processes white, not dark (pers. obs.).

*Cilicæa latreillei* has been recorded from Australia by Miers (1884) and Naylor (1966), but these records are open to some doubt. Miers (1884: 309) recorded a series of specimens from precise Australian localities, but these were all female specimens, hence their exact specific status must remain questionable. Miers (*loc. cit.*) also said that he saw a collection of both sexes of *C. latreillei* from "Australian seas" but that "the exact locality has not been preserved". Naylor (1966: 190, 191) described some specimens from Port Phillip Bay, Victoria which he referred to *C. latreillei*. These specimens appear to differ from those illustrated by Stebbing (1905) and Nierstrasz (1931) in having the apex of the uropodal exopod truncated in the adult male, not rounded, and they may represent a separate undescribed species. The present authors have seen specimens similar to Naylor's (but with the pleonal process longer than in his figured male, and with the epistome lacking a prominent tubercle) in collections from West and North Australia.

Miers (1884: 309, 310) considered *Cilicæa crassicaudata* to be a variety of *Cilicæa latreillei*. This does not appear to be the case (see below). Miers also founded *C. longispina* as a variety of *C. latreillei* (1884: 310) but this was treated as a full species by Stebbing (1905).

The only other Australian species currently housed in the genus *Cilicæa*, *C. tridens* Baker, 1910, must be excluded from this genus as it has the uropodal endopod longer than the exopod. In addition, the pleonal process bears large, acute, lateral extensions. The correct generic placement of this species is not currently known.

Species of *Cilicæa* are known from the Old World (Australia, New Zealand, Indonesia, The Philippines, Sri Lanka, and South Africa). Most species of *Cilicæa* occur in Australia or New Zealand. Only *C. tenuicaudata* (recorded from New Britain as well as E. Australia) and *C. latreillei* have been recorded from other areas. Species of *Cilicæa* which occur in New Zealand do not occur in Australia, and no Australian species are known from New Zealand.

Specimens belonging to this genus are usually collected sublittorally (0–289 m), but they may occur intertidally.

***Cilicæa calcarifera*, sp. nov.**

(Figs 29, 30)

*Description (Queensland specimens)*

Adult male: *Cilicæa* with dorsal surface of body covered with short setae. Cephalosome and pereonites 1 and 2 weakly granulose. Pereonites 3–7 each bearing a transverse band of conical tubercles. Pleon bearing scattered

prominent tubercles. Posterior margin of pleon, median to points of articulation with pleotelson, curving postero-medially; in midline pleon bearing a broad, deep, posteriorly directed process. Process one quarter width of entire pleon, extending just beyond apex of pleotelson; lateral margins subparallel, apex dilated slightly with a marked terminal emargination, postero-lateral angles extended as conical tubercles. Ventral surface of process with median subterminal tuft of short setae; tuft of setae lying posterior to two transverse tubercles and between two longitudinal rows, each of four or five tubercles. Pleotelson markedly tuberculate with a narrow, prominent, granulose boss either side of pleonal process; each boss lying anterior and lateral to a shallow subreniform depression. Posterior margin of pleotelson with a broad, subrectangular, median notch; notch with a subquadrate median tooth just greater than one-third width of notch and bearing an obtusely angled apex. Pleotelson with two subterminal foramina, one either side of midline; each foramen connected to terminal notch by a closed, sinuous channel. Appendages— $A_1$  with peduncle article 1 longer than articles 2 and 3 together; article 2 short; article 3 cylindrical, narrow; 17-articled flagellum extending to level of pereonite 1.  $A_2$  slender, 15-articled flagellum extending to level of pereonite 1. Epistome lambdoid with a narrowly rounded, acute apex. Mnds each with incisor process broadly rounded; left mnd with lacinia mobilis broadly rounded.  $Mx_1$  with inner lobe bearing a short, terminal, external seta, and the four pectinate spines subequal in length; outer lobe with stout curved spines.  $Mx_2$  with two outer lobes each bearing seven slender spines; inner lobe with a row of plumose spines.  $Mxpd$  with palp articles 2, 3 and 4 bearing very short superior distal setae; articles 3 and 4 each bearing one median superior seta. Prpds moderately slender. Prpd 1 more robust than succeeding prpds; superior margin of basis smooth, lacking tubercles; ischium with an acute, superior, median lobe bearing several short spines; merus with superior distal lobe bearing several short spines; inferior margin bearing five stout spines; carpus bearing four stout inferior spines; propodus bearing five stout spines. Prpds 2-7 more slender, bases of prpds 2-6 inclusive bearing superior tubercles. Prpd 2 with basis bearing two short curved superior tubercles; ischium, merus and carpus with short superior spines; merus, carpus and propodus with long inferior spines. Prpd 4 with basis bearing approximately six curved superior tubercles; ischium, merus and carpus with long superior spines; merus, carpus and propodus with inferior spines. Prpd 7 slender; ischium and merus with short superior distal spines; merus with a double row of inferior spines and a distal row of similar spines; propodus bearing five inferior spines. Penes each four times as long as wide, tapering slightly to a rounded apex. Plpd 1 with basis bearing four internal coupling hooks; endopod subtriangular with internal margin apically indented; exopod  $1\frac{1}{2}$  times length of endopod, apically truncate with one slender, external, proximal spine. Plpd 2 with basis bearing three internal coupling hooks; endopod subtriangular with apex acute, interno-proximal region extended proximally to overlap basis; exopod just longer than endopod with apex broadly rounded, external margin lacking a proximal spine. Appendix masculina twice length of endopod, linear as far as endopodal apex, then strongly recurved internally with distal region linear, with a curved, narrowly rounded apex. Plpd 3 with basis bearing three internal coupling hooks; rami subequal in length; endopod subtriangular, broad, with an

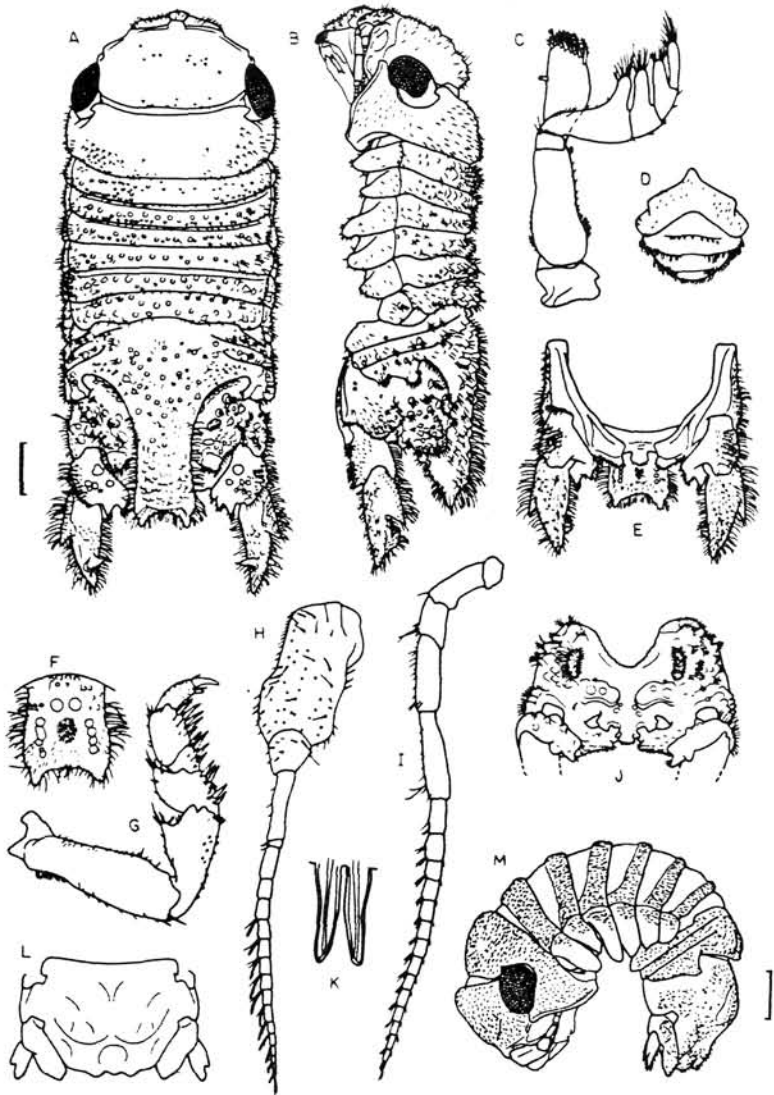


Figure 29. *Cilicæa calcarifera* sp. nov. Adult male (Paratype), 9.15 mm: A, dorsal; B, lateral; C, maxilliped; D, epistome and labrum; E, pleotelson, ventral; F, pleonal process, ventral; G, pereopod 1; H, antennule; I, antenna; J, pleotelson, posterior; K, penes. Non-ovigerous female (Paratype): L, pleotelson, dorsal (setation omitted); M, lateral. Scale line represents 1 mm in each case.

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obliquely truncate apex; exopod broad, subelliptical, with a broadly rounded apex and a complete subterminal articulation. Plpd 4 with endopod bearing an internal, subterminal indentation and one short apical seta; exopod subtriangular with a complete subterminal articulation and two short apical setae. Plpd 5 with apex of endopod broadly rounded; exopod narrow with a complete subterminal articulation. Uropod with endopod reduced, anterodistal angle curved, apically bifid with two large, acute, posteriorly directed teeth extending beyond level of pleotelsonic apex; endopod tuberculate, setose, dorsal surface bearing two large tubercles along anterior margin; exopod  $2\frac{1}{2}$  times as

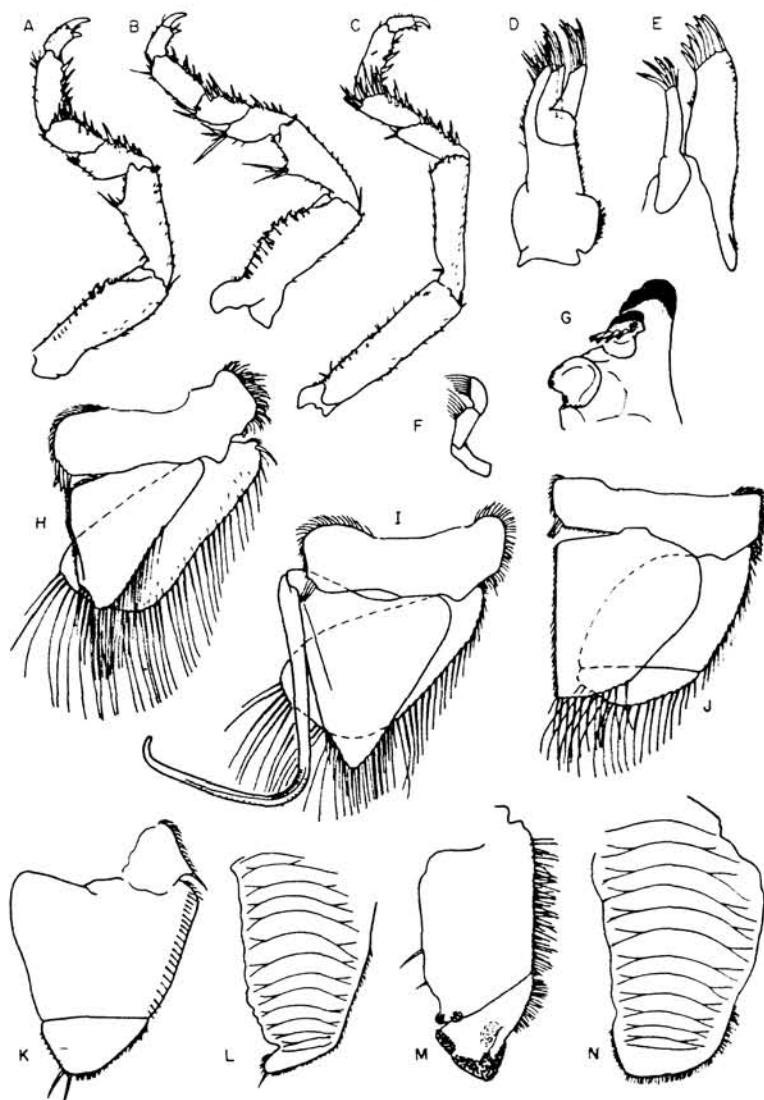


Figure 30. *Cilicæa calcarifera* sp. nov. Adult male (Paratype): A-C, pereopods 2, 4 and 7 respectively; D, maxilla; E, maxillule; F, mandibular palp; G, left mandible; H-J, pleopods 1, 2 and 3 respectively; K, pleopod 4, exopod; L, pleopod 4, endopod; M, pleopod 5, exopod; N, pleopod 5, endopod.

long as broad, extending well beyond apex of pleonal process, tapering to an acute apex; external margin of exopod with a large conical tooth midway along length, internal margin with a large, subterminal, medially directed, conical tubercle.

Non-ovigerous female: Cephalosome and pereonite 1 covered with short, bulbous, transparent setae. Pereonites 2-7 with posterior margin bearing a transverse band of similar setae. Pleon and pleotelson covered with such setae. Apex of pleotelson weakly tridentate in midline; median tooth shorter than lateral teeth (more obvious in postero-dorsal view than in the dorsal view shown in Fig. 29L). Uropod with endopod extending just beyond pleotelsonic margin,

apex obliquely truncate, external margin slightly convex; exopod just shorter than endopod with a pronounced external distal notch (the tooth produced by this notch being apically blunt), and the apex rounded.

#### Etymology

*Cilicæa* plus Latin *calcar*+*ifera*, i.e. bearing spurs (a reference to the uropodal exopod).

#### Remarks

*Cilicæa calcarifera* sp. nov. bears some resemblance to the species *Cilicæa crassa* Haswell but differs in being dorsally tuberculate, not smooth, and in having the conical bosses of the pleotelson less pronounced.

*Cilicæa calcarifera* is known only from the north coast of Western Australia and from North Queensland, and was collected sublittorally.

#### Material examined

Holotype: Adult ♂, 9.15 mm (AM: P.25010), off Peak Point, North Queensland, rocky bottom, depth 5.5–11 m, coll. 01.ix.1928.

Paratypes: Queensland: From type-locality, collection details as for holotype, 1 adult ♂ (AM: P.25010). Western Australia: Holothuria Banks (13°35'S, 126°00'E), depth 22–66 m, 2 adult ♂♂, 1 non-ovigerous ♀ (BM (NH): 1983.49).

#### *Cilicæa crassicaudata* Haswell, 1881

(Figs 31, 32)

*Cilicæa crassicaudata* Haswell, 1881: 475, 480, pl. 17. Hansen, 1905: 123; Stebbing, 1905: 36–37; Nierstrasz, 1931: 204.

*Cilicæa crassicaudata*: Whitelegge, 1902: 273–274; Stebbing, 1905: 37.

*Cilicæa latreillei* var. *crassicaudata*: Miers, 1884: 309; Haswell, 1884: 1002.

*Cilicæa crassicaudata*: Naylor, 1966: 190 (*lapsus calami*).

#### Description

Adult male: *Cilicæa* with cuticle slightly translucent, not heavily calcified. Dorsal surface of cephalosome and pereonite 1 smooth. Pereonites 2–7 each with posterior half very weakly granulose and bearing numerous very short, fine setae. Pleon very weakly granulose, bearing numerous fine setae except in extreme anterior region. Posterior margin of pleon, median to points of articulation with pleotelson, directed postero-medially, converging evenly in mid-point of pleotelson. From mid-point of pleotelson pleon bearing a posteriorly directed process. Lateral margins of process subparallel, distal half extending beyond pleotelsonic apex to a broadly rounded tip; process tapering slightly dorso-ventrally. Pleotelson with a low smoothly domed boss either side of midline; each boss bearing low tubercles. Apex of pleotelson slightly crenulate with a deep subquadrate median notch; notch with a subtriangular median tubercle extending half way to posterior pleotelsonic margin. Appendages—A<sub>1</sub> with peduncle article 1 just longer than articles 2 and 3 together; article 2 short; article 3 cylindrical, narrow; 17-articled flagellum extending to level of pereonite 1. A<sub>2</sub> slender, 16-articled flagellum extending to level of pereonite 3. Epistome lambdoid with a narrowly rounded, acute apex. Mnds each with incisor process oblique, smooth, not dentate. Mx<sub>1</sub> with inner lobe bearing a short external terminal seta, and having the four pectinate spines increasing in



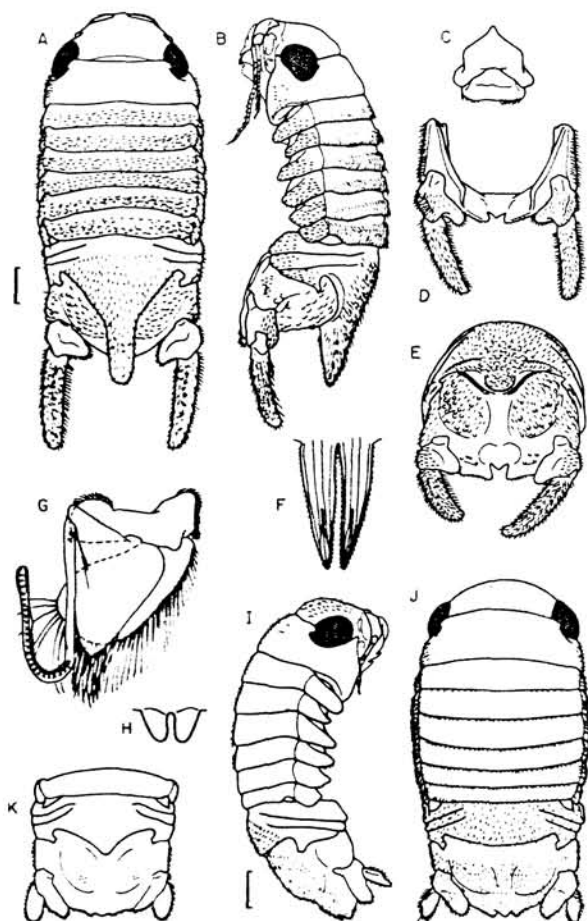


Figure 31. *Cilicaca crassicaudata* Haswell. Adult male, 9.52 mm: A, dorsal; B, lateral; C, epistome and labrum; D, pleotelson, ventral; E, posterior; F, penes; G, pleopod 2. Subadult male: H, penes; K, pereonite 7, pleon and pleotelson, dorsal. Ovigerous female, 9.2 mm: I, lateral; J, dorsal. Scale line represents 1 mm in each case.

length slightly from external to internal; outer lobe with stout, curved, simple spines.  $Mx_2$  with two outer lobes each bearing six slender spines; inner lobe with a row of plumose spines.  $Mxpd$  with palp articles 3 and 4 each bearing one very short superior distal seta.  $Prpds$  moderately slender.  $Prpd$  1 more robust than succeeding  $prpds$ ; ischium with an acute, superior, median lobe bearing a group of short spines; merus with superior distal lobe bearing several simple spines, inferior margin bearing 10 stout spines with serrulate margins; carpus bearing nine such inferior spines; propodus with 11 such spines.  $Prpds$  2-7 more slender; ischium, merus, carpus and propodus each with several superior distal spines; merus, carpus and propodus bearing inferior serrulate spines. Penes each  $3\frac{1}{2}$  times as long as width at base, tapering evenly to a narrowly rounded apex with surface bearing microtrichia.  $Plpd$  1 with basis bearing four internal coupling hooks; endopod subtriangular with internal margin apically indented; exopod just longer than endopod, apically truncate, with one stout, external, proximal spine.  $Plpd$  2 with basis bearing three internal coupling hooks; endopod subtriangular with apex acute, interno-proximal region extended proximally to

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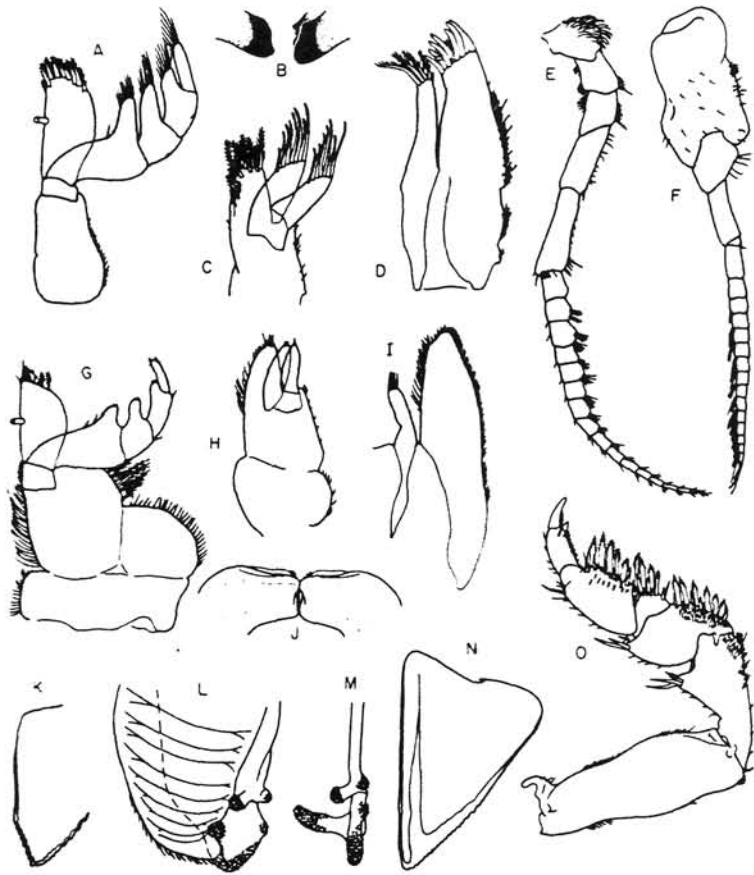


Figure 32. *Cilicæa crassicaudata* Haswell. Adult male: A, maxilliped; B, incisor processes of mandibles; C, maxilla; D, maxillule; E, antenna; F, antennule; K, inner margin of endopod of pleopod 4 and exopod of pleopod 5 showing common sphaerotid coupling mechanism; L, endopod of pleopod 4 and exopod of pleopod 5 showing common sphaerotid coupling mechanism; M, distal internal margin of exopod of pleopod 5, internal view; O, pereopod 1. Ovigerous female: G, maxilliped; H, maxilla; I, maxillule; J, incisor processes of mandibles. Subadult male: N, endopod of pleopod 2 (setation omitted).

overlap basis; exopod just longer than endopod with apex broadly rounded and external margin lacking a proximal spine. Appendix masculina twice length of endopod, linear as far as endopodal apex then strongly recurved internally with distal region held subparallel to proximal region; lateral margins of appendix subparallel but tip subapically dilated and apex truncate; internal margin, in the area of curvature, crenulate. Plpd 3 with basis bearing three internal coupling hooks; rami subequal in length; endopod subtriangular, broad, with a truncate apex; exopod broad, subelliptical, with a broadly rounded apex and a complete subterminal articulation. Plpd 4 with endopod bearing an internal, subterminal indentation and one short apical seta; exopod subtriangular with a complete subterminal articulation. Plpd 5 with apex of endopod broadly rounded; exopod narrow with a complete subterminal articulation. Uropod with endopod reduced, tapering slightly to an evenly rounded apex, extending to level of pleotelsonic apex; exopod subcylindrical, very weakly granulose-setose, sublinear with lateral margins subparallel, apex rounded, deflected very

slightly medially; distal two-thirds of exopod extending beyond apex of pleonal process.

Ovigerous female: Cephalosome, pereon and pleon smooth; pleon and pleotelson bearing numerous fine short setae. Pleotelson with a low, weakly granulose boss either side of midline, apex tridentate in midline. Uropod with endopod extending to level of pleotelsonic apex, subrectangular, tapering slightly in distal half to a truncate apex; exopod just shorter than endopod, external margin bearing a shallow distal indentation, apex narrowly rounded.

Non-ovigerous female: As above but lacking brood pouch and with mpts not metamorphosed.

Subadult male: Resembling non-ovigerous female except for primary sexual characters and form of pleon and uropodal exopods. Posterior margin of pleon, median to points of articulation with pleotelson, curving posteromedially, converging to produce a short, subtriangular, median process; process reaching almost to mid-point of pleotelson. Exopod of uropod subequal in length to endopod, broad, subelliptical, with apex broadly rounded. Penes short, each  $1\frac{1}{2}$  times as long as broad with a rounded apex. Endopod of plpd 2 subtriangular with apex acute, internal margin extended proximally to overlap basis; appendix masculina forming beneath cuticle as a narrow, linear process along full length of internal margin.

#### Remarks

Miers (1884: 309) considered *Cilicaea crassicaudata* to be a variety of *C. latreillei* Leach, and subsequent authors (e.g. Stebbing, 1905: 37) included *C. crassicaudata* as a junior synonym of *C. latreillei*. Nierstrasz (1931: 204) cast doubt on this synonymy but stated that whether it was justified or not could not be ascertained. The present specimens show that *C. crassicaudata* deserves full status and the name should not be synonymized with *C. latreillei*.

*Cilicaea crassicaudata* is separated from *C. latreillei* most obviously by having the exopod of the uropod sublinear, slender, with the external margin lacking any indication of a notch; by the form of the pleotelsonic notch, with its short subtriangular median tooth; and by the dorsal surface of the pleotelson, which has the lateral bosses evenly convex, not conical as in *C. latreillei*.

*Cilicaea crassicaudata* is known from the type-locality at Holborne Island (south of Townsville, Queensland) and from Miers' record for the Arafura Sea. The present material extends the known range of this species south to Gladstone.

#### Material examined

Queensland: Cleveland Bay, Townsville (19°15.5'S, 146°52.5'E), on bryozoans, depth 3 m, 7 adult ♂♂, 3 ovigerous ♀♀, 2 non-ovigerous ♀♀, 2 juveniles (NUZ), coll. B. Barnett, 10.v.1977; Calliope River, Gladstone, from transmission line plates at river mouth, 2 adult ♂♂, 1 subadult ♂, 1 non-ovigerous ♀ (QM: W.5738), coll. P. Sanger, 26.v.1975.

#### Genus *Zuzara* Leach, 1818

*Zuzara* Leach, 1818: 344. Hale, 1929a: 272, 278; *et auct.*

*Cyclura* Stebbing, 1874: 146, 147 (*nomen praeoccupatum*).

*Cycloidura* Stebbing, 1878: 36. Stebbing, 1910b: 431; Nierstrasz, 1931: 197.

Type species: *Zuzara semipunctata* Leach, 1818.

*Generic description*

Hemibranchiate Sphaeromatidae with endopod of plpd 3 lacking branchial folds. Both sexes with cephalosome and pleon lacking dorsal extensions. Pleon with postero-lateral margin bearing two long curved sutures at each side. Mxpd with palp articles 2-4 bearing pronounced setigerous lobes. Prpds 1-3 with superior surfaces of ischium and merus bearing, at most, several short superior setae or spines. Exopod of plpd 5 with an apical toothed boss; a low, anterior, subapical boss; a small, marginal, interno-distal boss; and two interno-distal bosses on the proximal article. Uropod with both rami lamellar, subequal or exopod slightly longer than endopod. Sexual dimorphism pronounced.

Adult male: Penes slender, separate to base. Appendix masculina arising from interno-proximal angle of endopod of plpd 2 and extending well beyond ramal apex. Pereonite 7 with dorsal posterior margin bearing a prominent, narrow, median, posterior extension overhanging pleotelson. Apex of pleotelson truncate—or possibly indented—bearing a pronounced, narrow, median projection extending beyond posterior margin of pleotelson. Uropod with rami broad, extending beyond pleotelsonic apical extension; apex of exopod broadly or narrowly rounded, never sharply acute; external margin of exopod often curled dorsally.

Ovigerous female: Mpts not metamorphosed. Brood pouch formed from three pairs of oostegites arising from pereonites 2, 3 and 4 and not reaching the midline. Brood not housed in the marsupium thus formed, but held in four pairs of internal pouches. Ventral pockets absent. Pereonite 7 as preceding pereonites, lacking an extension. Pleotelson subtriangular; apex acute or bearing a short blunt extension, lacking a narrow process. Uropod with rami narrow, subequal, not extending as far as pleotelsonic apex, apices rounded.

*Australian species*

*Zuzara semipunctata* Leach, 1818

*Zuzara venosa* (Stebbing, 1874)

***Zuzara curtispina*, sp. nov.**

***Zuzara digitata*, sp. nov.**

(See Appendix 2 for all known species of *Zuzara*).

*Remarks*

In 1874 Stebbing erected a new genus, *Cyclura* (later changed to *Cycloidura* because *Cyclura* had been preoccupied) for his new species *C. venosa*. In 1905 Hansen synonymized *Cycloidura* with *Zuzara*, but Stebbing (1910b: 431) defended his name *Cycloidura* and made it a senior synonym of *Zuzara* saying that *Zuzara* was "far from clearly established". Stebbing's objections have not been generally accepted and, indeed, Leach did fulfil the requirements of the International Code of Zoological Nomenclature (as currently constituted) when he described *Zuzara*. *Cyloidura* is here, as elsewhere, now considered to be a junior synonym of *Zuzara*.

The collection locality of *Z. semipunctata* was not known by Leach, and White (1847) appears to have been the first person to identify this species as occurring in Australia.

The species *Z. diadema* Leach, 1818; *Z. dicantha* (Milne Edwards, 1840); and *Z. armata* (Milne Edwards, 1840) have not been recorded since their original

descriptions. Hansen noted (1905: 119) that Haswell's transfer of *Cymodoce armata* Milne Edwards to the genus *Zuzara* was "rather dubious". In the figure of *C. armata* (Milne Edwards, 1840: pl. 31, fig. 16) the uropodal rami are subequal and subacute (unlike species of *Zuzara* which have the endopod, at least, broadly rounded). In dorsal view this specimen resembles a species of the eubranchiate genus *Haswellia* Miers. Unfortunately, the type-specimen has been lost (J. Forest, pers. com.) so its true status must remain undetermined.

The present authors have seen photographs of the type-specimens of *Z. semipunctata* and *Z. dicantha* and consider these two species to be identical. The type-specimen of *Z. diademais* damaged and only the anterior half remains (pers. obs.). Mr W. F. Seed, who has carried out a study of *Zuzara semipunctata* in Southern Australia, believes that *Z. dicantha* and *Z. diadema* should be considered junior synonyms of *Z. semipunctata*. Although the type-specimen of *Z. diadema* is damaged, the anterior half seen and the description by Leach do agree with specimens of *Z. semipunctata* seen by the present authors and Seed's opinion is accepted here. Seed has also studied the variation shown by *Z. semipunctata* in different localities (Seed, *in litt.*) and considers that *Z. integra* Haswell, 1882 should also be considered a junior synonym of *Z. semipunctata*. This opinion is also accepted here. Baker, in 1910, synonymized *Z. integra* with *Z. venosa* (Stebbing). However, *Z. venosa* differs from *Z. integra* in having the pleotelson covered with small, white tubercles and in having the uropodal exopod broadly rounded, and the specimens that Baker described as *Z. venosa* appear to be specimens of *Z. integra, sensu stricto* (and hence specimens of *Z. semipunctata*).

Species of the genus *Zuzara* are known only from South and East Australia and South Africa, where they are found intertidally and in the shallow sublittoral zone (0-14 m).

### ***Zuzara curtispina, sp. nov.***

(Figs 33, 34)

#### *Description*

Adult male: *Zuzara* with cephalosome having anterior transverse ridging. Dorsal surface of pereon smooth, pereonites 2-7 with prominent coxal plates. Pereonite 7 with median process short, just longer than pleon with apex smoothly rounded; posterior margin of tergite, midway between process and lateral margin on each side, with a slight low bulge. Pleotelson subtriangular with main dome bearing many discrete low tubercles and one prominent median tubercle each side of midline. Apex of pleotelson with a broad notch filled by a median tooth extending well beyond posterior margin of pleotelson. Tooth dorsally carinate,  $1\frac{1}{2}$  times as long as broad with lateral margins subparallel in proximal half, converging distally to an acute apex. Appendages— $A_1$  with peduncle article 1 subequal in length to articles 2 and 3 together; article 2 short; article 3 cylindrical; 10-articled flagellum extending to level of pereonite 1.  $A_2$  slender, 15-articled flagellum extending to level of pereonite 2. Epistome anteriorly broadly rounded; lateral margins concave. Mnds each with incisor process tridentate; left mnd with lacinia mobilis tridentate.  $Mx_1$  with inner lobe bearing a very short terminal external seta, and having the four pectinate spines increasing in length slightly from external to internal; outer lobe with stout curved spines.  $Mx_2$  with two outer lobes each bearing slender spines; inner lobe

with a row of plumose spines. Mxpd with palp articles 3 and 4 each bearing one short superior distal seta; article 5 with one short median superior seta. Prpds moderately slender. Prpd 1 more robust than succeeding prpds; ischium lacking a superior lobe, but bearing several short spines; merus with superior lobe bearing two spines, inferior margin with a pad of short fine setae and one short infero-distal spine; carpus with an inferior pad of short fine setae and one short infero-distal spine; propodus with inferior row of short setae and one prominent infero-distal spine. Succeeding prpds with ischium, merus and carpus each bearing several superior spines; merus, carpus and propodus each with an inferior fringe of setae. Prpd 7 slender with propodus bearing only three short equidistant spines. Penes each four times as long as broad, tapering slightly to a rounded

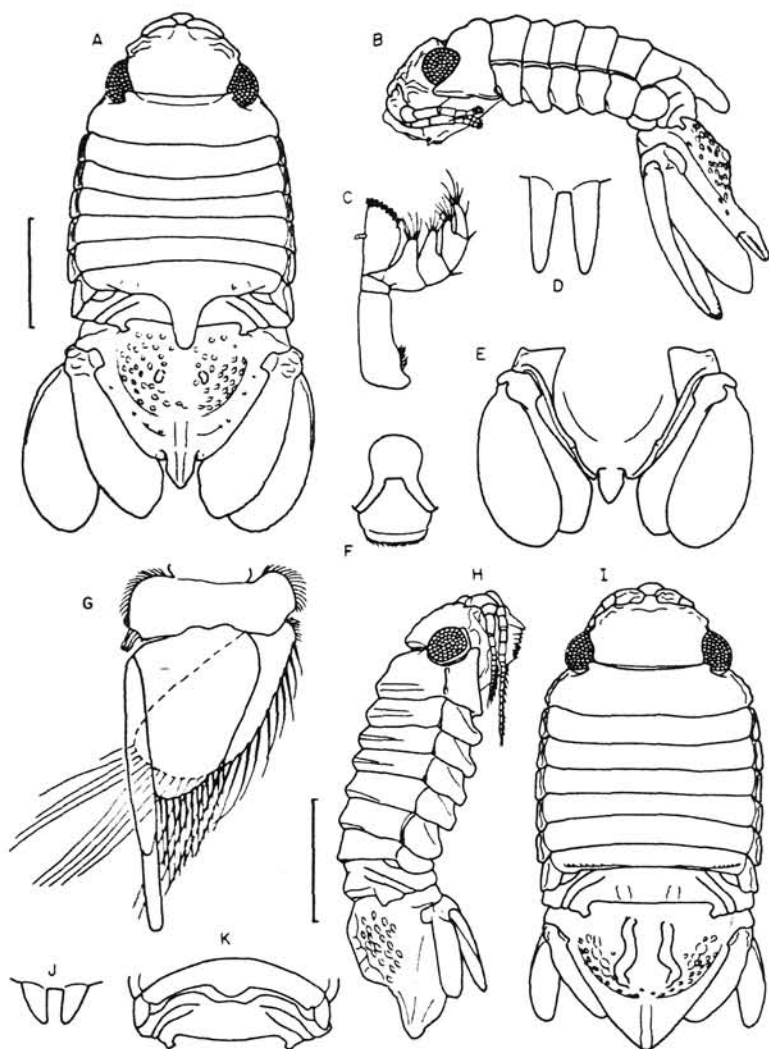


Figure 33. *Zuzara curtispina* sp. nov. Adult male (Paratype), 4.23 mm: A, dorsal; B, lateral; C, maxilliped; D, penes; E, pleotelson, ventral; F, epistome and labrum; G, pleopod 2. Ovigerous female (Paratype) . 3.68 mm: H, lateral; I, dorsal. Sub-adult male (Paratype): J, penes; K, pereonite 7 and pleon, dorsal. Scale line represents 1 mm in each case.

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apex. Plpd 1 with endopod narrow, subtriangular, subequal in length to subelliptical exopod; exopod with one stout external proximal spine. Plpd 2 with endopod subtriangular, subequal in length to subelliptical exopod; exopod lacking an external spine. Appendix masculina linear, almost twice length of endopod; lateral margins subparallel in proximal and distal halves but distal half slightly narrower than proximal half; apex evenly rounded. Plpd 3 with endopod subtriangular but apex narrowly truncate; exopod subelliptical, just longer than endopod with a complete articulation in distal half. Plpds 1-3 each with basis bearing three internal coupling hooks. Plpd 4 with endopod narrow, tapering distally to a narrowly rounded apex with one short, plumose, internal, subterminal seta; exopod subovate with a complete subterminal articulation and several short terminal setae. Plpd 5 with endopod slightly subreniform, apex slightly emarginate; exopod narrow with a complete subterminal articulation. Uropod with rami subelliptical, large, broad, subequal, extending beyond level of apical pleotelsonic tooth; apex of exopod smoothly arcuate, external margin slightly upcurved; endopod with distal margin arcuate, but slightly sinuous in region next to pleotelsonic tooth.

Ovigerous female: Cephalosome and pereonites 1-6 as in adult male. Pereonite 7 with posterior margin simple, transverse. Pleon with a weak, low bulge either side of midline. Pleotelson subtriangular with main dome bearing

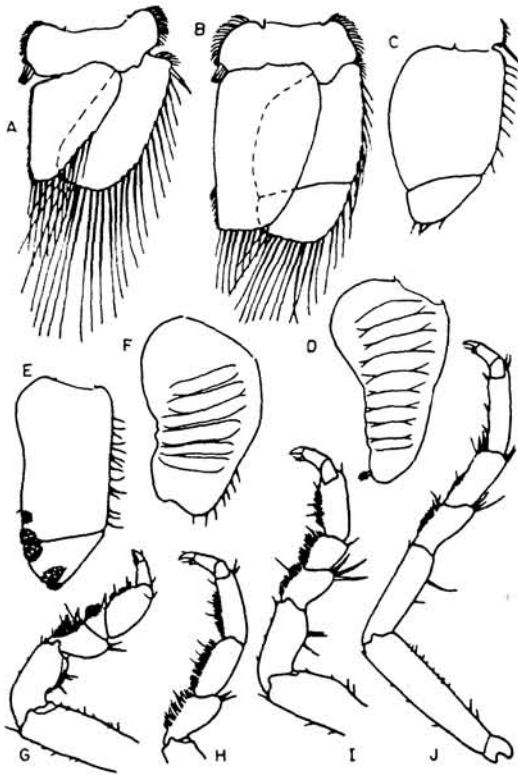


Figure 34. *Zuzara curtispina* sp. nov. Adult male (Paratype): A, pleopod 1; B, pleopod 3; C, pleopod 4, exopod; D, pleopod 4, endopod; E, pleopod 5, exopod; F, pleopod 5, endopod; G-J, pereopods 1, 2 (distal), 4 and 7 respectively.

discrete low tubercles; each side of midline, dome bearing a prominent, sinuous, longitudinal ridge; ridges subparallel in anterior half, arcing laterally then deflecting medially in posterior half. Apex of pleotelson acute with a short longitudinal carina; tip slightly 'overhanging' in lateral view. Uropods with rami narrow, subequal, extending three-quarters of distance to pleotelsonic apex, each ramus with distal margin smoothly rounded.

Non-ovigerous female: As above but lacking brood pouch, and with pleotelsonic sculpturing less pronounced.

Subadult male: Resembling non-ovigerous female in dorsal view, but pereonite 7 with a short median projection. Projection smoothly rounded, broader than long. Penes present, each twice as long as broad with apex narrowly rounded. Endopod of plpd 2 with appendix masculina forming beneath cuticle; internal, terminal margin of ramus bearing a very short blunt extension with one long plumose seta.

#### *Etymology*

*Zuzara* plus Latin *curtus* + *spina*, i.e. shortened + thorn.

#### *Remarks*

*Zuzara curtispina* sp. nov. is clearly separated from other species of *Zuzara* by its short pereon process together with the stout apical pleotelsonic tooth. Some specimens of *Z. semipunctata* can have a relatively short process (W. F. Seed, *in litt.*) but that species has the apical pleotelsonic tooth very narrow and slender (and specimens of that species are much larger than specimens of *Z. curtispina* and occur in southern Australia).

*Zuzara curtispina* is known only from Lizard Island in northern Queensland where it was found intertidally in crevices and under stones and dead coral.

#### *Material examined*

Holotype: Adult ♂, 4.23 mm (QM: W.9638), Kapoek Cove, Lizard Island, Queensland (14°40'S, 145°30'E), from stones and dead coral on coral sand, mid-shore, coll. D. M. Holdich, 08.vi.1976.

Paratypes: From type locality, collection details as for holotype, 18 adult ♂♂, 11 subadult ♂♂, 15 ovigerous ♀♀, 8 non-ovigerous ♀♀, 25 immature specimens, 7 juveniles (1 subadult ♂ & 1 ovigerous ♀ as QM: W. 9639); Casuarina Beach, Lizard Island, in beach rock crevices, mid and upper shore, 8 adult ♂♂, 1 subadult ♂, 16 ovigerous ♀♀, 1 immature specimen (NUZ), coll. D. M. Holdich, 9-12, vi. 1976; Casuarina Beach, under stones at low-tide mark, 2 adult ♂♂, 1 ovigerous ♀, 1 non-ovigerous ♀, 1 juvenile (AM: P28832), coll. A. R. Jones & P. C. Terrill, 11.x.1978; Research Station Beach, Lizard Island, in 24 h emergence trap, depth 1.5 m, 2 adult ♂♂, 1 subadult ♂, 1 ovigerous ♀, 3 immature specimens (NUZ), coll. P. Slattery, 07.x.1977.

#### *Zuzara digitata*, sp. nov.

(Figs 35, 36)

#### *Description*

Adult male: *Zuzara* with dorsal surface of cephalosome and pereon smooth. Pereonite 7 with median process long, extending almost to apex of pleotelson.



with lateral margins parallel and apex smoothly rounded. In lateral view, process with apex tapering abruptly from ventral surface only. Posterior margin of pereonite 7, each side of process, with an obvious posterior lobe. Pleotelson smooth, with one prominent blunt tubercle each side of midline. Apex of pleotelson with a deep notch completely filled by a long tooth; tooth with distal half extending beyond opening of notch and tapering slightly to a narrow, blunt apex. Appendages— $A_1$  with peduncle article 1 just shorter than articles 2 and 3 together; article 2 short; article 3 cylindrical; 11-articled flagellum extending to level of pereonite 1.  $A_2$  slender, 16-articled flagellum extending to level of pereonite 2. Epistome anteriorly broadly rounded, lateral margins concave. Mnds each with incisor process dentate; left mnd with lacinia mobilis dentate.  $Mx_1$  with inner lobe bearing a very short terminal external seta, and having the four pectinate spines increasing in length slightly from external to internal; outer lobe with stout curved spines, several being pectinate.  $Mx_2$  with two outer lobes each bearing slender spines; inner lobe with a row of plumose spines.  $Mxpd$  with palp articles 2 and 3 each bearing one long superior distal seta.  $Prpds$  moderately slender.  $Prpd$  1 with ischium bearing several long superior spines; merus with superior lobe bearing one long spine, inferior margin with a pad of short fine setae and one short infero-distal spine; carpus with a pad of short fine setae and one short infero-distal spine; propodus with inferior row of short setae and one short infero-median, and two short infero-distal, spines. Succeeding  $prpds$  with ischium, merus and carpus each bearing several long superior spines; merus, carpus and propodus each with an inferior fringe of setae.  $Prpd$  7 slender with propodus bearing only three short, equidistant, inferior spines. Penes each  $4\frac{1}{2}$  times as long as broad, tapering slightly to a rounded apex.  $Plpd$  1 with basis bearing four internal coupling hooks; endopod narrow, subtriangular, subequal in length to subelliptical exopod; exopod with two stout, proximal, external spines.  $Plpd$  2 with basis bearing four internal coupling hooks; endopod subovate, elongate, subequal in length to apically truncate, subelliptical exopod; exopod lacking external spines. Appendix masculina linear,  $1\frac{1}{2}$  times length of endopod, tapering very slightly to a narrowly rounded apex.  $Plpd$  3 with basis bearing three internal coupling hooks; endopod subovate, elongate, subequal in length to subelliptical exopod; exopod with a complete articulation in distal half.  $Plpd$  4 with endopod narrow, tapering to a narrowly rounded apex; internal distal margin of endopod sinuous with one short, plumose, subterminal seta; exopod subovate with a complete subterminal articulation and several short terminal setae.  $Plpd$  5 with endopod subrectangular, internal margin sinuous, apex truncate; exopod narrow with a complete subterminal articulation. Uropod with rami subelliptical, large, broad, subequal, extending beyond level of apical pleotelsonic tooth; apex of exopod smoothly arcuate, external margin slightly upcurved; endopod distally arcuate, but with a weak externo-distal indentation.

Ovigerous female: Cephalosome and pereonites 1–6 as in adult male. Pereonite 7 with posterior margin simple, transverse. Pleon with a single low tubercle each side of midline. Apex of pleotelson extended slightly medially, narrowly rounded. Uropods with rami narrow, subequal, extending three-quarters of distance to pleotelsonic apex; apex of exopod smoothly rounded; apex of endopod slightly truncate.

Non-ovigerous female: As above but lacking brood pouch.

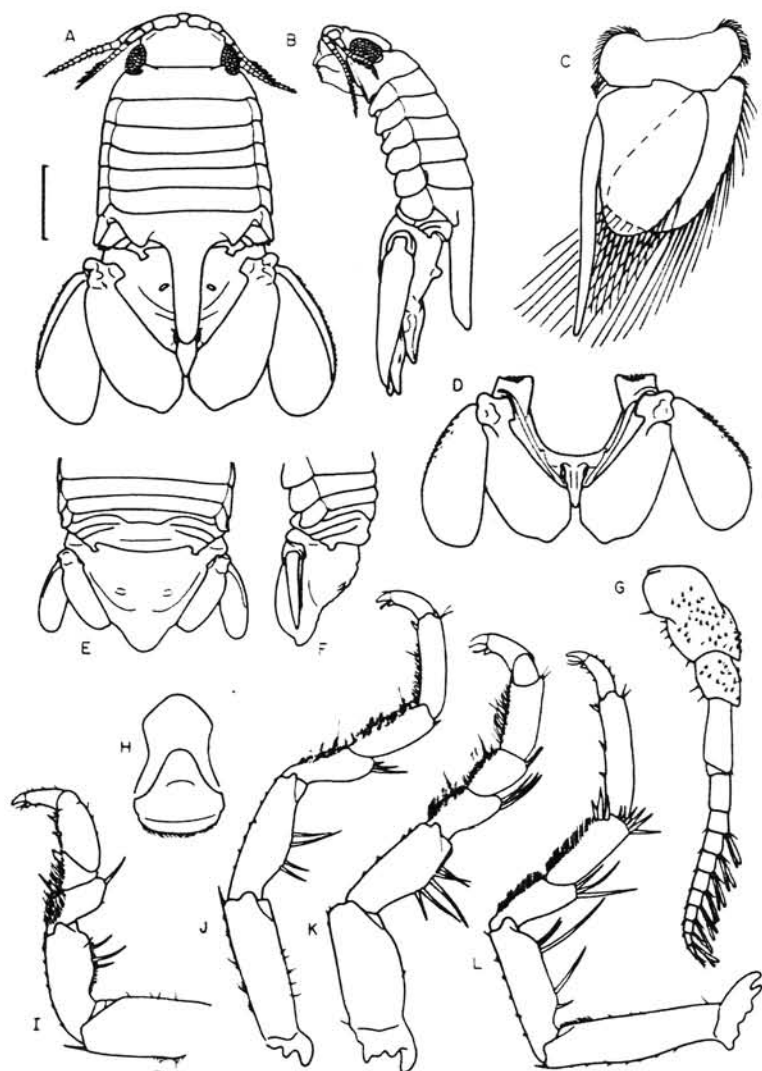


Figure 35. *Zuzara digitata* sp. nov. Adult male (Paratype), 4.78 mm: A, dorsal; B, lateral; C, pleopod 2; D, pleotelson, ventral; G, antennule; H, epistome and labrum, I-L, pereopods 1, 2, 4 and 7 respectively. Ovigerous female (Paratype), 4.6 mm: E, posterior half, dorsal; F, posterior half, lateral. Scale line represents 1 mm.

#### Etymology

*Zuzara* plus Latin *digitata*, i.e. with a finger (pereonal process).

#### Remarks

*Zuzara digitata* sp. nov. can be separated from most other species of *Zuzara* by the form of the apical pleotelsonic tooth. It bears some resemblance to the species *Z. furcifera* Barnard, from South Africa, but can be distinguished from this species by having the pereonal process apically rounded, not bifid.

*Zuzara digitata* is known only from the intertidal zone on the mainland coast of Queensland at Caloundra. Detailed habitat information is not known.

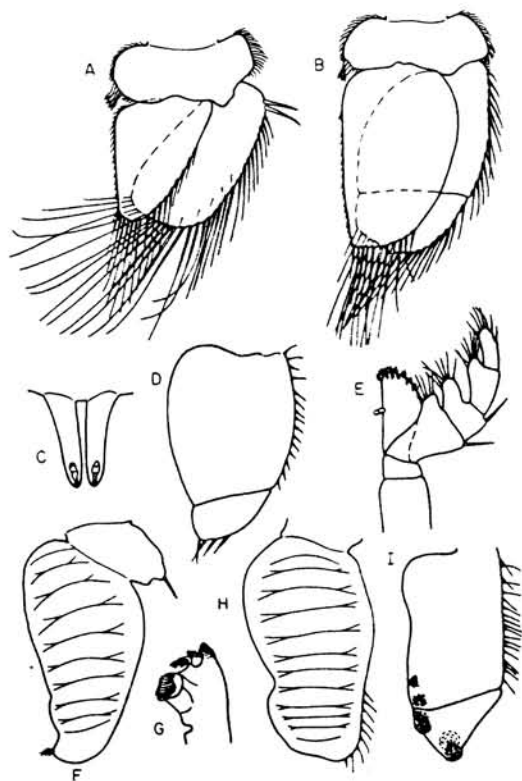


Figure 36. *Zuzara digitata* sp. nov. Adult male (Paratype : A, pleopod 1; B, pleopod 3; C, penes; D, pleopod 4, exopod E, maxilliped; F, pleopod 4, endopod; G, left mandible; H, pleopod 5, endopod; I, pleopod 5, exopod.

#### Material examined

Holotype: Adult ♂, 4.78 mm (QM: W.9636), Moffat Beach, Caloundra, South-east Queensland, coll. N. L. Bruce, 22.vi.1978.

Paratypes: Collection details as for holotype, 2 adult ♂♂, 2 ovigerous ♀♀, 1 non-ovigerous ♀ (QM: W.9637).

#### Genus *Clanella* Boone, 1923

*Clanella* Boone, 1923: 152. Menzies & Glynn, 1968: 58; Iverson, 1982: 250.

*Paradynoides* Loyola e Silva, 1960: 101, 102. Bruce, 1980: 199, 210; Bruce, 1982: 447. (New synonymy).

*Dynoidella* Pillai, 1965: 78–80. Bruce, 1980: 199, 210; Bruce, 1982: 477. (New synonymy).

Type-species: *Clanella elegans* Boone, 1923.

#### Generic description

Hemibranchiate Sphaeromatidae with endopod of plpd 3 lacking branchial folds. Both sexes with cephalosome, pereon and pleon lacking dorsal extensions. Pleon with postero-lateral margin bearing two long curved sutures at each side. Pleotelson tuberculate or smooth with an apical notch. Mxpd with palp articles

2-4 bearing low setigerous lobes. Prpds 1-3 with superior surfaces of ischium and merus bearing, at most, several short superior setae or spines. Exopod of plpd 5 with three low, weak, marginal, toothed bosses; one apical, one internal subapical, and one midway along the internal margin. Uropod with both rami lamellar, subequal in length. Sexual dimorphism pronounced.

Adult male: Penes long, slender, completely fused in proximal half. Appendix masculina arising from interno-proximal angle of endopod of plpd 2; proximal half extending just beyond ramal apex; distal half acutely reflexed, extending back to level of pleopodal basis. Pleotelsonic apical notch forming a deep narrow slit with lateral margins smooth (*C. elegans*) or denticulate (all other known species). Slit extending anteriorly almost to mid-point of pleotelson, broadening at anterior end, with a short, anterior, median tooth. Uropod with rami broad, extending just beyond pleotelsonic apex; exopod with external margin folded longitudinally, deflected dorsally.

Ovigerous female: Mpts not metamorphosed. Brood pouch formed from three pairs of oostegites arising from pereonites 2, 3 and 4 and overlapping well in the midline. Brood not housed in the marsupium thus formed, but held in internal pouches (number not currently known). Ventral pockets absent. Pleotelsonic apex with a deep, simple, rounded notch. Uropod with rami flat, subequal, extending to level of pleotelsonic apex.

*Australian species*

***Clianella brucei*, sp. nov.**

(See Appendix 2 for all known species of *Clianella*).

*Remarks*

The history of this genus is somewhat confused and a detailed explanation of its validity is necessary.

In 1923 Boone described a new eubranchiate genus and species from California, *Clianella elegans*, without illustrating it. Menzies & Glynn (1968: 59) said they had examined the type specimens of *C. elegans* and this was a species of the eubranchiate genus *Dynamenella* Hansen, 1905. They therefore included *Clianella* as a junior synonym of *Dynamenella*. Harrison & Holdich (1982a: 89) accepted the opinion of Menzies & Glynn without examining specimens of *C. elegans*, but Iverson (1982: 250) examined the type specimens and declared that *Clianella* was a valid genus. Iverson also transferred *Clianella* to the hemibranchiate subfamily Sphaeromatinae without comment. The present authors have now examined specimens of *C. elegans* from the USNM (Reg. no. 154967). *Clianella* is related to the genus *Dynoides* Barnard, 1914 but lacks a pleonal process. Bruce (1980) discussed the genus *Dynoides* and synonymized the generic names *Dynoides*, *Paradynoides* Loyola e Silva, 1960; *Dynoidella* Pillai, 1965; and *Dynoidella* Nishimura, 1976. The present authors disagree with Bruce's treatment and a full review is considered necessary.

In 1914 Barnard described a new genus *Dynoides* in which the adult male bore a pronounced dorsal pleonal extension. In 1954 Pillai described a new species which he placed in the genus *Dynoides* as *Dynoides amblysinus*. *Dynoides amblysinus* differed from existing species of *Dynoides* in lacking a posterior dorsal process on the pleon. Pillai accepted that this was a significant difference and suggested that if the absence of this process was considered to be of significant generic

value then a new genus would need to be erected to house this species (1954: 11). He did not, however, found such a genus at that time.

In 1960 Loyola e Silva described a new species, *Dynoides castroi*. This species was based on one adult male specimen and, like Pillai's species, differed from the type-species of *Dynoides* in lacking a pleonal extension. Loyola e Silva did not seem to be aware of Pillai's species or opinions, but he also appreciated that this difference created problems. He attempted to justify the inclusion of his species in *Dynoides* as follows. He first quoted part of Barnard's description of *Dynoides*, viz. "Pleon (4th ? segment) with median process" (Barnard, 1914: 407) but then (a) he quoted Hansen as saying (for *Cassidinella Whitelegge*) "the upper surface of abdomen with no processes, but this character is of slight value . . ." (Hansen, 1905: 124); and (b) he mentioned that Barnard modified Hansen's diagnosis of *Dynamenella* Hansen from "both sexes" . . . "without real processes" (Hansen, 1905: 107) to read "7th peraeon segment with or without processes in male" (Barnard, 1914: 410). On the basis of these comments by Hansen and Barnard, Loyola e Silva placed his species in the genus *Dynoides*, but modified the generic diagnosis to read 'Pleon (4th ? segment) with or without a process'. Unfortunately, Loyola e Silva appears to have misunderstood Hansen's comment ('a' above). When Hansen said this, he was comparing *Cassidinella* with the genus *Cymodoce* (neither of which bear processes on the pleon). Hansen used the term abdomen to include the pleotelson (a common practice in research papers of that time) and appeared to be referring to the fact that *Cassidinella* has the pleotelson smooth, while *Cymodoce* has the pleotelson bearing prominent ridges and tubercles. It was this difference which Hansen was claiming to be of "slight generic value". (He had stated earlier (1905: 75) that he considered *Cassidinella* to be a sub-genus of *Cymodoce*.)

Regarding point (b) above: Barnard modified Hansen's original diagnosis of *Dynamenella* so that he could include his new species *Dynamenella dioxus* in the genus *Dynamenella*. Barnard was not justified in making this change as his *D. dioxus* is not a species of *Dynamenella* (see Harrison & Holdich, 1982a) and the absence of processes remains a sound generic character for *Dynamenella*. Loyola e Silva does not, therefore, seem to have been justified in changing the diagnosis for *Dynoides* as he did.

Following the description of *Dynoides castroi*, Loyola e Silva erected a new genus, *Paradynoides*, to contain a new species *Paradynoides brasiliensis*, (Loyola e Silva, 1960: 101-112). *Paradynoides brasiliensis* was based on subadult males, and females, of a *Dynoides*-like species, and as the specimens were collected from the same locality as *Dynoides castroi* there seems little doubt that they represent females and subadults of that species.

In 1965 Pillai, apparently unaware of Loyola e Silva's work, founded a new genus, *Dynoidella*, to house his species *Dynoides amblysinus*. He included in his generic diagnosis "Pleon without median process" and went on to say of this species "the absence of a median process on the pleon excludes it from *Dynoides*" (Pillai, 1965: 78-80).

In 1976 Nishimura, apparently unaware of Pillai's work, described a new genus which he named *Dynoidella*. *Dynoidella* Nishimura was based on immature specimens of *Dynoides dentisinus* Shen, 1929 (Nunomura & Nishimura, 1976; Bruce, 1980; Nishimura, pers. comm.). Nishimura was also unaware of *Paradynoides*, which resembled his *Dynoidella* Nishimura (both being based on immature specimens) (Nishimura, pers. comm.).

Following Pillai's description of *Dynoidella* Pillai there was no revision of this group of species (which would presumably have resulted in a redistribution of species between *Dynoides* and *Dynoidella* Pillai) until Bruce's 1980 work. Bruce repeated the argument of Loyola e Silva (Bruce, 1980: 210) and, largely on the basis of this, rejected *Dynoidella* Pillai, which he made a junior synonym of *Dynoides*. Bruce also recognized the similarity between *Paradynoides* and *Dynoidella* Nishimura and he made these names junior synonyms of *Dynoides* also.

It is considered here that Bruce was unjustified in accepting the opinions of Loyola e Silva regarding the generic significance of the pleonal process. The presence or absence of dorsal processes is an important generic character within the family Sphaeromatidae. The only genera which currently contain both species with, and species without, such processes, are those genera which are in need of revision (e.g. *Cilicacopsis*, *Cymodoce*, and *Cymodopsis* Baker). In the present authors' opinion, the presence or absence of such a process should be considered a consistent generic character.

Bruce's synonymy for the genus *Dynoides* is therefore not accepted here. It is proposed instead that those species containing a pleonal process be retained within the genus *Dynoides*, but those species lacking such a process be removed to another genus. Previous authors have not been aware that *Clanella elegans* belongs to this complex of species and it was not included during the above considerations. It can now be seen that the second genus mentioned—resembling *Dynoides* but lacking a pleonal extension—will include the species *C. elegans*. The name of this genus will therefore be, by priority, *Clanella* Boone, 1923. In addition to *C. elegans*, the genus *Clanella* will contain the species *Dynoidella amblysinus*. It will also contain the species *Dynoides castroi*, and as *Paradynoides brasiliensis* appears to have been based on immature specimens of *Dynoides castroi*, then *Paradynoides brasiliensis* will also be included within this genus. The genus *Clanella* therefore contains two further available generic names, *Paradynoides* Loyola e Silva and *Dynoidella* Pillai, and these two names become junior synonyms of *Clanella* Boone.

*Dynoidella* Nishimura was based on immature specimens of a species of *Dynoides*, *sensu stricto*, therefore *Dynoidella* Nishimura is a junior synonym of *Dynoides* Barnard.

In her original description of *Clanella*, Boone (1923: 152) said that both pleopod 1 and pleopod 2 bore appendices masculinae in the adult male. This is not so. The penes in the genus *Clanella* (and in the genus *Dynoides*) are very long, slender, and fused along most of their length, and Boone appears to have mistaken this structure (lying alongside pleopod 1) for an additional appendix. Only pleopod 2 bears an appendix masculina in the genus *Clanella*.

Species of the genus *Clanella* are known from California, the Atlantic coast of South America and Tierra del Fuego, India, and East Australia, and they are found intertidally on rocky shores.

### ***Clanella brucei*, sp. nov.**

(Figs 37, 38)

#### *Description*

Adult male: *Clanella* with dorsal surface of cephalosome, pereon and pleon smooth. Pleotelson with main dome bearing slight median longitudinal

depression; bulge, either side of midline, bearing numerous, short, acute, conical tubercles and short setae. Apex of pleotelson acute with margin irregular with a deep median incision. Incision subtriangular, anteriorly broad with a short blunt median tooth; lateral margins with a row of acute dorsal teeth; incision closed posteriorly. Appendages— $A_1$  with peduncle articles 1 and 2 subrectangular, subequal in width, article 1 three times length of article 2; article 3 slender, half width of articles 1 and 2; 12-articled flagellum extending to level of pereonite 1.  $A_2$  slender, 21-articled flagellum extending to level of pereonite 3. Epistome lambdoid, tuberculate with apex broadly truncate. Mnds each with incisor process dentate; left mnd with lacinia mobilis dentate.  $Mx_1$  with inner lobe bearing a very short external terminal seta and four subequal pectinate spines; outer lobe with approximately six stout curved spines.  $Mx_2$  with two outer lobes bearing slender spines; inner lobe with a row of plumose spines.  $Mxpd$  with palp article 4 bearing one short superior distal seta.  $Prpds$  moderately slender, each with superior distal lobe of merus (and of carpus in  $prpd$  7) bearing one or two simple spines; inferior margins of merus, carpus, and propodus bearing a fringe of short setae and several long, thin spines. Propodus of  $prpd$  1 with a stout, simple, infero-distal spine and a stout, distal, plumose spine. Penes nine times as long as broad, tapering from base to point of bifurcation, then broadening slightly and tapering to two acute apices. Bases of  $plpds$  1–3 each bearing two internal coupling hooks. Endopod of  $plpd$  1 narrow, subtriangular, subequal in length to subelliptical exopod; exopod with a stout externo-proximal spine.  $Plpd$  2 with endopod narrow, subtriangular; exopod subelliptical, lacking an externo-proximal spine. Appendix masculina with proximal half broad, margins subparallel; distal half narrow, tapering to an acute tip.  $Plpd$  3 with endopod broad, subtriangular, apex narrowly rounded; exopod narrow, subelliptical, with a complete transverse articulation in distal half.  $Plpd$  4 with exopod bearing a complete transverse articulation; endopod tapering slightly to a broadly rounded apex.  $Plpd$  5 with apex of endopod broadly rounded, distal internal margin with a pronounced lobe; exopod broadly sinuous, lacking an obvious articulation but bearing a weak curved pleat; distal external margin of exopod bearing fine teeth. Uropod with endopod flat, dorsal surface bearing scattered small tubercles, external margin slightly concave, apex abruptly truncate, serrulate, bearing short setae; exopod subequal in length to endopod, external half deflected abruptly dorsally with distal margin slightly concave in lateral view and external surface covered with short setae and scattered small tubercles.

Ovigerous female: Cephalosome, pereon and pleon smooth. Pleotelson with main dome bearing a slight median longitudinal depression; bulge, each side of depression, bearing scattered, small, low, inobvious tubercles. Pleotelsonic apical notch elliptical, twice as deep as wide in dorsal view. Uropodal rami narrow, subelliptical, subequal in length; apical margin of exopod serrulate.

Non-ovigerous female: As above but lacking brood pouch.

Immature male: As above in dorsal view but pleotelsonic apex slightly more acute and apical notch slightly longer and narrower. Penes present, separate to base, each three times as long as broad with a semi-circular tip. Endopod of  $plpd$  2 narrow, subtriangular, with appendix masculina separating from endopodal tissue beneath cuticle in distal half.

Subadult male: Cephalosome, pereon and pleon as in immature male.

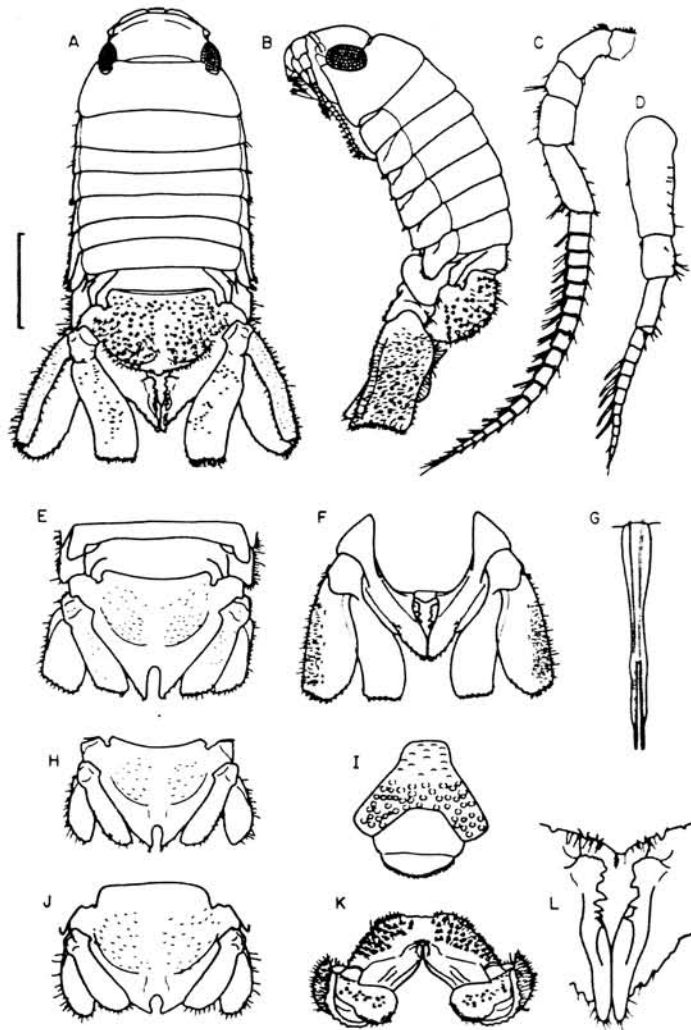


Figure 37. *Clianella brucei* sp. nov. Adult male (Paratype), 4.42 mm: A, dorsal; B, lateral; C, antenna; D, antennule; F, pleotelson, ventral; G, penes; I, epistome and labrum; K, posterior; L, pleotelson apical notch, dorsal. Sub-adult male (Paratype): E, pereonite 7, pleon and pleotelson, dorsal. Immature male (Paratype): H, pleotelson, dorsal. Ovigerous female (Paratype): J, pleotelson, dorsal. Scale line represents 1 mm.

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Pleotelson with low tubercles as in immature male, but apex more extended, acute; apical notch  $2\frac{1}{2}$  times as long as wide with margins subparallel. Uropod with rami relatively longer than those of immature male, extending to level of pleotelsonic apex; endopod with dorsal surface finely granulose, apex obtusely truncate, serrulate; exopod broad, flat, outer margin straight for proximal two-thirds of length, not markedly flexed dorsally, in distal one-third outer margin obliquely truncate, serrulate. Penes short, three times as long as wide, fused in proximal half, not tapering distally, apices semi-circular. Endopod of plpd 2 with appendix masculina fused to ramus along most of length, separate from ramus distally and distal one-third extending beyond ramal apex. Appendix with a short terminal seta.



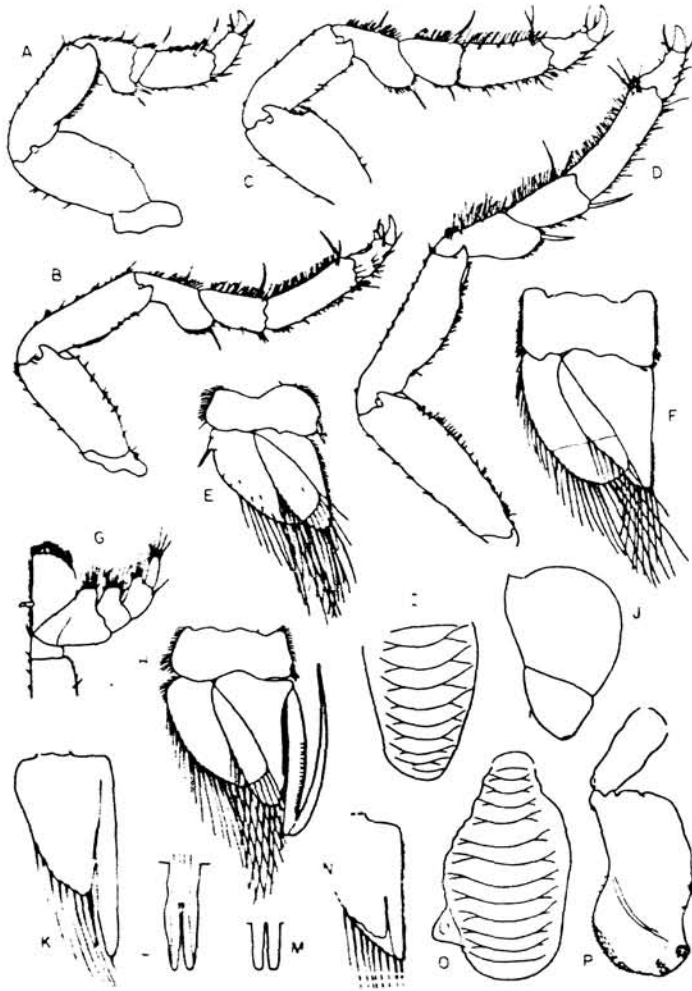


Figure 38. *Clianella brucei* sp. nov. Adult male Paratype: A-D, pereopods 1, 2, 4 and 7 respectively; E, pleopod 1; F, pleopod 3; G, maxilliped, distal; H, pleopod 2; I, pleopod 4, endopod; J, pleopod 4, exopod; O, pleopod 5, endopod; P, pleopod 5, exopod. Subadult male (Paratype): K, endopod of pleopod 2; L, penes. Immature male (Paratype): M, penes; N, endopod of pleopod 2, inner half.

#### Etymology

*Clianella* plus Latin *brucei*, i.e. of Bruce. This species is named in honour of N. L. Bruce whose widespread collecting and generous donation of specimens to the present authors has greatly facilitated an increased knowledge of the Australian sphaeromatid fauna.

#### Remarks

*Clianella brucei* sp. nov. most closely resembles *C. amblycina* (Pillai), comb. nov. (from India) but is separated from it most obviously in having the pleotelsonic notch posteriorly closed, not broadly open. *Clianella brucei* can be distinguished from other known species of *Clianella* by the angular, truncate nature of the uropodal rami.

*Clianella brucei* is known only from the intertidal region of two islands off the Queensland coast where it was found amongst rock oysters and algae, and in barnacle tests and crevices. No other species of *Clianella* are known from Australia.

*Material examined*

Holotype: Adult ♂, 4.42 mm (QM: W.9648), West Point, Lizard Island, Queensland (14°40'S, 145°30'E), in midshore barnacle tests and crevices, coll. D. M. Holdich, 09.vi.1976.

Paratypes: *Queensland*: From type locality, collection details as for holotype, 1 adult ♂, 6 subadult ♂♂, 6 immature ♂♂, 7 non-ovigerous ♀♀, 4 immature specimens (QM: W9649); Alma Bay, Magnetic Island (19°10'S, 146°50'E), in rock oyster zone and below, intertidal, 2 adult ♂♂, 2 ovigerous ♀♀, 1 non-ovigerous ♀ (NUZ), coll. D. M. Holdich, 28.iv.1976; Alma Bay, from weed and wood on old pier pile, intertidal, 2 subadult ♂♂, 2 immature ♂♂, 2 ovigerous ♀♀, 2 immature specimens, 1 juvenile (NUZ), coll. D. M. Holdich, 26.iv.1976.

Genus *Dynoides* Barnard, 1914

*Dynoides* Barnard, 1914: 407. Nierstrasz, 1931: 198; Pillai, 1954: 11; Loyola e Silva, 1960: 91; Pillai, 1965: 79, 80; Bruce, 1980: 199, 208, 210; Iverson, 1982: 250; Bruce, 1982: 447.

*Dynoidella* Nishimura, 1976: 275. Bruce, 1980: 199; Iverson, 1982: 250; Bruce, 1982: 447. (non *Dynoidella* Pillai, 1965).

Type-species: *Dynoides serratisinus* Barnard, 1914.

*Australian species*

*Dynoides barnardi* Baker, 1929

*Dynoides viridis* Bruce, 1982

(see Appendix 2 for all known species of *Dynoides*).

*Remarks*

The only species of *Dynoides* known from Queensland waters is *D. viridis* from Heron Island, but this species was not represented in the present collections.

*Dynoides* most closely resembles the genus *Clianella*, but adult males of *Dynoides* have a median process projecting from the dorsal, posterior margin of the pleon.

*Dynoides viridis* Bruce, 1982

*Dynoides viridis* Bruce, 1982: 449-453.

*Remarks*

Adult males of *D. viridis* have the dorsal pleonal process short and apically rounded, not reaching the apex of the pleotelson. The apex of the pleotelson bears a short median incision which is not closed posteriorly, and the uropodal rami are apically rounded, not angular, with the external margin of the exopod only slightly deflected dorsally (cf. *Clianella brucei*).

Females and immature specimens of *D. viridis* and *C. brucei* appear to resemble one another and may be difficult to separate.

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## APPENDIX I

## CHECKLIST OF QUEENSLAND SPHAEROMATIDAE

(Q = only known from the coastal region of Queensland and/or the Great Barrier Reef; CS = only known from the Coral Sea, east of Queensland; A = only known from Australian waters).

## Subfamily CASSIDININAE Inverson, 1982

- Chitonopsis* Whitelegge, 1902  
*Chitonopsis hanseni* Nierstrasz, 1931  
*Cymodetta* Bowman & Kühne, 1974 (A)  
*Cymodetta gambosa* Bowman & Kühne, 1974 (A)  
*Cymodetta gracilipes* Holdich & Harrison, 1983 (Q)  
*Exosphaeroides* Holdich & Harrison, 1983 (Q)  
*Exosphaeroides fluvialis* Holdich & Harrison, 1983 (Q)  
*Paracassidina* Baker, 1911 (A)  
*Paracassidina pectinata* Baker, 1911 (A)  
*Platysphaera* Holdich & Harrison, 1981a (CS)  
*Platysphaera membranata* Holdich & Harrison, 1981a (CS)  
*Syncassidina* Baker, 1929 (A)  
*Syncassidina aestuaria* Baker, 1929 (A)

## Subfamily SPHAEROMATINAE Milne Edwards, 1840

- Calcipila*, gen. nov. (Q)  
*Calcipila cornuta*, sp. nov. (Q)  
*Cilicæa* Leach, 1818  
*Cilicæa calciferæa*, sp. nov. (A)  
*Cilicæa crassicaudata* Haswell, 1881 (A)  
= *Cilicæa latreillei* var. *crassicaudata* Haswell, 1881

*Cilicæopsis* Hansen, 1905

- Cilicæopsis furculata*, sp. nov. (CS)  
*Cilicæopsis glebosa*, sp. nov. (Q)  
*Cilicæopsis granulata* (Whitelegge, 1902)  
= *Cilicæa granulata* Whitelegge, 1902  
*Cilicæopsis whiteleggei* (Stebbing, 1905)  
= *Cilicæa whiteleggei* Stebbing, 1905  
*Clianella* Boone, 1923  
*Clianella brucei*, sp. nov. (Q)  
*Cymodoce* Leach, 1814  
*Cymodoce bipapilla*, sp. nov. (Q)  
*Cymodoce longistylis* Miers, 1884  
*Cymodoce mammifera* Haswell, 1881 (Q)  
*Cymodoce pelsarti* Tattersall, 1922 (A)  
*Cymodoce tribullis*, sp. nov. (Q)  
*Dynoides* Barnard, 1914  
*Dynoides viridis* Bruce, 1982 (Q)  
*Neosphaeroma* Baker, 1926  
*Neosphaeroma australe* (Whitelegge, 1902) (A)  
= *Sphaeroma australis* Whitelegge, 1902  
*Paracilicæa* Stebbing, 1910a  
*Paracilicæa aspera*, sp. nov. (Q)  
*Paracilicæa stebbingi* Baker, 1926 (Q)  
*Sphaeroma* Latreille, 1802  
*Sphaeroma intermedium* (Baker, 1926), comb. nov. (A)  
= *Exosphaeroma intermedium* Baker, 1926



- Sphaeroma quoyanum* Milne Edwards, 1840  
 = *Sphaeroma verrucauda* White, 1847  
 = *Sphaeroma pentodon* Richardson, 1904a
- Sphaeroma terebrans* Bate, 1866  
 = *Sphaeroma vastator* Bate, 1866  
 = *Sphaeroma tuberculatocrinium* Hilgendorf, 1879  
 = *Sphaeroma destructor* Richardson, 1897  
 = *Sphaeroma bigranulatum* Budde-Lund, 1908
- Sphaeroma triste* Heller, 1865  
 = *Sphaeroma felix* Lanchester, 1902
- Sphaeroma walkeri* Stebbing, 1905
- Zuzara* Leach, 1818  
*Zuzara curtispina*, sp. nov. (Q)  
*Zuzara digitata*, sp. nov. (Q)
- Subfamily DYNAMENINAE Bowman, 1981
- Cerceis* Milne Edwards, 1840  
*Cerceis aspericaudata* Miers, 1884 (A)  
 = *Cerceis bidentata* var. *aspericaudata* Miers, 1884  
 = *Cerceis tridentata* var. *aspericaudata* Miers, 1884  
 = *Cerceis tridentata* var. *intermedia* Baker, 1926  
 = *Paradynamene benjaminsis* Richardson, 1905
- Cerceis pravipalma* Harrison & Holdich, 1982b (Q)  
*Cerceis pustulosa* Harrison & Holdich, 1982b (Q)
- Dynamene* Leach, 1814  
*Dynamene curalii* Holdich & Harrison, 1980 (Q)
- Dynamenella* Hansen, 1905  
*Dynamenella liochroea* Harrison & Holdich, 1982a (Q)  
*Dynamenella ptychura* Harrison & Holdich, 1982a (Q)
- Dynamenella trachydermata* Harrison & Holdich, 1982a (Q)  
*Haswellia* Miers, 1884 (A)  
*Haswellia carnea* (Haswell, 1881) (A)  
 = *Calyptura carnea* Haswell, 1881
- Ischyromene* Racovitza, 1908  
*Ischyromene polytyla* Harrison & Holdich, 1982a (Q)
- Neonaesa* Harrison & Holdich, 1982b (Q)  
*Neonaesa rugosa* Harrison & Holdich, 1982b (Q)
- Paracerceis* Hansen, 1905  
*Paracerceis sculpta* (Holmes, 1904)  
 = *Dynamene sculpta* Holmes, 1904  
 = *Cilicaea sculpta* (Holmes, 1904)  
 = *Sergiella angra* Pires, 1980
- Paradella* Harrison & Holdich, 1982a  
*Paradella dianae* (Menzies, 1962)  
 = *Dynamenopsis dianae* Menzies, 1962  
 = *Dynamenella dianae* (Menzies, 1962)
- Paradella octaphymata* Harrison & Holdich, 1982a (Q)
- Pistorius* Harrison & Holdich, 1982b (Q)  
*Pistorius bidens* Harrison & Holdich, 1982b (Q)
- Pseudocerceis* Harrison & Holdich, 1982b (A)  
*Pseudocerceis furculata* Harrison & Holdich, 1982b (Q)  
*Pseudocerceis* sp. (see Harrison & Holdich, 1982b) (Q)
- Ptyospharra* Holdich & Harrison, 1983 (A)  
*Ptyospharra alata* (Baker, 1926) (A)  
 = *Exosphaeroma alatum* Baker, 1926
- Sphaeromopsis* Holdich & Jones, 1973  
*Sphaeromopsis serriguberna* Holdich & Harrison, 1981b (Q)

## APPENDIX 2

## ALL KNOWN SPECIES BELONGING TO THE SPHAEROMATINAE DISCUSSED

(\* = species occurring in Australia)

Genus *Sphaeroma* Latreille, 1802

Species (and subspecies) (i.e. the recommended name for species and subspecies apparently belonging to the genus)	Current name (i.e. name as it currently appears in the literature)	Recommended change (if any) based on examination of:	Geographical distribution
<i>Sphaeroma annandalei annandalei</i> Stebbing, 1911	<i>Sphaeroma annandalei</i>	Type specimens	India; Persian Gulf; S Africa; Brazil. (a wood borer)
<i>Sphaeroma annandalei travancorense</i> Pillai, 1955	<i>Sphaeroma annandalei</i> var. <i>travancorensis</i> (sic)	Specimens	India. (a wood borer)
<i>Sphaeroma bocqueti</i> Daguerre de Hureaux <i>et al.</i> , 1961	<i>Sphaeroma bocqueti</i>	Literature	Atlantic coast of Morocco; Portugal.
<i>Sphaeroma ephippium</i> Costa, 1882	<i>Sphaeroma ephippium</i>	Literature	Tunisia.
? <i>Sphaeroma emarginatum</i> Grube, 1864	<i>Sphaeroma emarginatum</i>	Literature	Adriatic Sea.
<i>Sphaeroma exosphaeroma</i> Boone, 1918	<i>Sphaeroma exosphaeroma</i>	Literature	Philippines; Indonesia.
<i>Sphaeroma hoestlandti</i> Daguerre de Hureaux <i>et al.</i> , 1965	<i>Sphaeroma hoestlandti</i>	Literature	Atlantic coast of Morocco.

Species (and subspecies) (i.e. the recommended name for species and subspecies apparently belonging to the genus)	Current name (i.e. name as it currently appears in the literature)	Recommended change (if any) based on examination of:	Geographical distribution
<i>Sphaeroma hookeri</i> Leach, 1814	<i>Sphaeroma hookeri</i>	Literature	Sweden; Britain; Atlantic coast of Europe from Denmark to Spain; E Africa; Mediterranean Sea. NE Australia.
* <i>Sphaeroma intermedium</i> (Baker, 1926), comb. nov.	<i>Exosphaeroma intermedium</i>	Specimens	
<i>Sphaeroma laurensi</i> Hurley & Jansen, 1977	<i>Sphaeroma laurensi</i>	Literature	New Zealand.
<i>Sphaeroma levii</i> Argano & Ponticelli, 1981	<i>Sphaeroma levii</i>	Literature	Ireland; Britain; Atlantic coast of Europe from Belgium to Spain. Tunisia; S coast of France.
<i>Sphaeroma marginatum</i> Milne Edwards, 1840	<i>Sphaeroma marginatum</i>	Literature	Mediterranean Sea; Black Sea.
<i>Sphaeroma monodi</i> Arcangeli, 1934	<i>Sphaeroma monodi</i>	Literature	Atlantic coast of Morocco.
<i>Sphaeroma panousei</i> Daguerre de Hureaux <i>et al.</i> , 1964	<i>Sphaeroma panousei</i>	Literature	Atlantic coast of N America.
<i>Sphaeroma papillae</i> (Bayliff, 1938), comb. nov.	<i>Exosphaeroma papillae</i>	Literature	Peru. a wood borer
<i>Sphaeroma peruvianum</i> Richardson, 1910a	<i>Sphaeroma peruvianum</i>	Type specimens	Atlantic coast of Morocco; Gulf of St Malo; N France.
<i>Sphaeroma podicipitis</i> Monod, 1931b	<i>Sphaeroma podicipitis</i>	Literature	Atlantic coast of N America.
<i>Sphaeroma quadridentatum</i> Say, 1818	<i>Sphaeroma quadridentatum</i>	Literature	E Australia; New Zealand; Pacific coast of N America. (a wood borer)
* <i>Sphaeroma quoyanum</i> Milne Edwards, 1840	<i>Sphaeroma quoyanum</i>	Specimens	Japan. (a wood borer)
<i>Sphaeroma retrolaevae</i> Richardson, 1904b	<i>Sphaeroma retrolaevae</i>	Type specimen	Sweden; Britain; Atlantic coast of Europe from Denmark to Spain; W Africa.
<i>Sphaeroma rugicaudum</i> Leach, 1814	<i>Sphaeroma rugicauda</i> (sic)	Specimens	Britain; Atlantic coast of Europe; Mediterranean Sea; Black Sea; S Africa; W Australia.
* <i>Sphaeroma serratum</i> (Fabricius, 1787)	<i>Sphaeroma serratum</i>	Specimens	Japan. (a wood borer)
<i>Sphaeroma sieboldii</i> Dollfus, 1889	<i>Sphaeroma sieboldii</i>	Type specimens	Atlantic coast of France.
<i>Sphaeroma teissieri</i> Bocquet & Lejuez, 1967	<i>Sphaeroma teissieri</i>	Literature	Atlantic coast of N America from Georgia to Texas; Brazil; S Africa; India; Sri Lanka; Thailand; Indonesia; NE Australia. a wood borer
* <i>Sphaeroma terebrans</i> Bate, 1866	<i>Sphaeroma terebrans</i>	Specimens	

* <i>Sphaeroma triste</i> Heller, 1865	<i>Sphaeroma triste</i>	Type specimens	India; Nicobar Islands (NE Indian Ocean); Malaya; Indonesia; NE Australia. (a wood borer)
<i>Sphaeroma tuberculatum</i> Purusotham & Rao, 1971	<i>Sphaeroma tuberculatum</i> George	Literature	India.
<i>Sphaeroma venustissimum</i> Monod, 1931a	<i>Sphaeroma venustissimum</i>	Specimens	Atlantic coast of NW Africa.
* <i>Sphaeroma walkeri</i> Stebbing, 1905	<i>Sphaeroma walkeri</i>	Specimens	Hawaii; California; Florida; Puerto Rico; Brazil; S and E Africa; Middle East; N Egypt; Israel; Sri Lanka; India; E Australia.
<i>Sphaeroma weilli</i> Elkaïm, 1966	<i>Sphaeroma weilli</i>	Literature	Atlantic coast of Morocco.

### Remarks

*Oniscus conglobator* Pallas, 1766 appears to be a British species of *Sphaeroma*, but it cannot be determined which species should bear this name (see main text, above).

Grube's description of *Sphaeroma emarginatum* is very brief and it is not possible to be certain that this species is a species of *Sphaeroma*. However, as Grube said his specimen(s) were closely related to *Sphaeroma serratum*, this species is included here (with some reservation).

*Sphaeroma exosphaeroma* appears very close to *Sphaeroma intermedium* (see main text, above).

From the published illustrations of *Exosphaeroma papillae* this is clearly a species of *Sphaeroma*. Bayliff presumably placed this species in the genus *Exosphaeroma* because the articles of the maxillipedal palp bore inferior lobes.

*Sphaeroma teissieri* and *S. weilli* appear very similar, and when *S. teissieri* was described it was not contrasted with *S. weilli*. These two species should be compared to ensure their separate specific status.

For the remaining species currently housed in the genus *Sphaeroma* the following observations can be made.

The present authors have been unable to trace the original description of *Sphaeroma laevigatum* Phillipi (*vide* Nierstrasz, 1931: 193) and can render no opinion on this species.

From the original description of *Sphaeroma tuberculatum* Brocchi, 1877 it would appear that this species is either a species of *Exosphaeroma* or, more probably, the female or immature form of a *Zuzara* or *Isocladus* Miers.

*Sphaeroma tuberculatum* Purusotham and Rao was first described by George in his unpublished Ph.D. thesis (1963a). Purusotham & Rao (1971: 21, 28a) gave a short description and reproduced George's illustration. These authors appear to have been the first to publish this description. Unfortunately, *S. tuberculatum* Purusotham and Rao is a junior homonym of *S. tuberculatum* Brocchi, and needs to be replaced by a *nomen novum*.

*Sphaeroma grantii* Walker & Scott, 1903 appears to be congeneric with *Cymodoce amplifrons* (Stebbing, 1902), but these species do not appear to belong in either *Sphaeroma* or *Cymodoce* and their correct generic placement is currently unknown.

From the original description, *Sphaeroma irakiensis* Ahmed, 1971 is undoubtedly a junior synonym of *Sphaeroma annandalei annandalei* Stebbing.

The species *Sphaeroma antiqua* Desmarest, 1822; *S. exsors* von Eichwald, 1863; *S. burkartii* Barcena, 1876; *S. moldavicum* Simionescu, 1934; *S. weinfurteri* Bachmayer, 1947; and *S. bachmayeri* Tauber, 1950 are all fossil species and are not considered here.

Special attention must now be given to the work of one researcher, Verhoeff. Verhoeff described a number of species of *Sphaeroma* between 1942 and 1946. These species were: *Sphaeroma aenariense* Verhoeff, 1942; *S. foveolatum* Verhoeff, 1943; *S. aegaeum* Verhoeff, 1946; *S. dalmatinum* Verhoeff, 1946; *S. adriaticum* Verhoeff, 1946; *S. capraea* Verhoeff, 1946; and *S. illyricum* Verhoeff, 1946. In 1942 Verhoeff erected a new genus, *Europosphaera*, and the species *E. excavatum* Verhoeff, 1942 and *E. noduliger* Verhoeff, 1942. The following year he described a third species, *Europosphaera media* Verhoeff, 1943.

Verhoeff's taxonomic work on the Sphaeromatidae can best be described as idiosyncratic. His opinions are difficult to interpret and his publications appear somewhat confusing. Forsman synonymized *Europosphaera* with *Sphaeroma* in 1952 (Forsman, 1952: 154). The present authors have examined a specimen belonging to another of Verhoeff's genera, *Sorrentosphaera* Verhoeff, 1944, and have found this to belong to a previously described genus. This type specimen of the type-species, *Sorrentosphaera hirsuta* Verhoeff, 1944, is in fact the female of a species of the eubranchiata genus *Dynamene* Leach (close to, if not conspecific with, *D. edwardsi* (Lucas)) and *Sorrentosphaera* is therefore a junior synonym of *Dynamene*. It seems probable that many of Verhoeff's species will be found to be junior synonyms of existing species, and the tendency of subsequent authors to ignore Verhoeff's work has probably prevented much taxonomic confusion. It is recommended here that Verhoeff's opinions are not accepted without intensive critical appraisal. Under the circumstances Verhoeff's species are omitted from the above list.

#### Genus *Neosphaeroma* Baker, 1926

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Neosphaeroma australe</i> (Whitelegge, 1902)	<i>Neosphaeroma australe</i>	Specimens	E Australia.
* <i>Neosphaeroma laticaudum</i> (Whitelegge, 1901)	<i>Neosphaeroma laticaudum</i>	Specimens	E Australia.

#### Genus *Cymodoce* Leach, 1814

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Cymodoce aculeata aculeata</i> Haswell, 1881	<i>Cymodoce aculeata</i>	Literature	E Australia.
* <i>Cymodoce aculeata grandis</i> Baker, 1929	<i>Cymodoce aculeata</i> var. <i>grandis</i>	Literature	E and SE Australia.
<i>Cymodoce alis</i> Barnard, 1955	<i>Cymodoce alis</i>	Literature	S Africa.
<i>Cymodoce australis</i> Richardson, 1906	<i>Cymodoce australis</i>	Literature	Brazil.

<i>Cymodoce bentonica</i> Loyola e Silva, 1962	<i>Cymodoce bentonica</i>	Literature	Brazil.
* <i>Cymodoce bipapilla</i> , sp. nov.	—	Type specimens	NE Australia.
<i>Cymodoce comans</i> Barnard, 1914	<i>Cymodoce comans</i>	Literature	S Africa.
<i>Cymodoce emarginata</i> Leach, 1818	<i>Cymodoce emarginata</i>	Literature	Britain; ? Mediterranean Sea; ? W Africa.
<i>Cymodoce hanseni</i> Dumay, 1972b	<i>Cymodoce hanseni</i>	Literature	N Mediterranean Sea.
* <i>Cymodoce haswelli</i> , nom. nov.	<i>Cymodoce tuberculata</i> Haswell, 1882	Literature	E Australia.
* <i>Cymodoce longistylis</i> Miers, 1884	<i>Cymodoce longistylis</i>	Specimens	NE Australia; Philippines; Indo China; Indonesia; Singapore;? Nicobar Islands.
<i>Cymodoce meridionalis</i> Richardson, 1906	<i>Cymodoce meridionalis</i>	Literature	Brazil.
<i>Cymodoce ornata</i> Richardson, 1906	<i>Cymodoce ornata</i>	Literature	(Locality unknown)
* <i>Cymodoce pelsarti</i> Tattersall, 1922	<i>Cymodoce pelsarti</i>	Type specimens	W and NE Australia.
<i>Cymodoce pilosa</i> Milne Edwards, 1840	<i>Cymodoce pilosa</i>	Literature	Mediterranean Sea.
<i>Cymodoce richardsoniae</i> Nobili, 1906	<i>Cymodoce richardsoniae</i>	Specimens	Red Sea; NE Africa.
<i>Cymodoce robusta</i> Nierstrasz, 1918	<i>Cymodoce robusta</i>	Literature	W Africa.
<i>Cymodoce rubropunctata</i> (Grube, 1864)	<i>Cymodoce rubropunctata</i>	Literature	N Mediterranean Sea.
<i>Cymodoce spinosa</i> (Risso, 1816)	<i>Cymodoce spinosa</i>	Literature	Mediterranean Sea.
<i>Cymodoce tattersalli</i> Torelli, 1928	<i>Cymodoce tattersalli</i>	Literature	N Mediterranean Sea.
* <i>Cymodoce tribullis</i> , sp. nov.	—	Type specimens	NE Australia.
<i>Cymodoce truncata</i> Leach, 1814	<i>Cymodoce truncata</i>	Specimens	Britain;? Atlantic coast of Europe and Morocco; ? Mediterranean Sea.
<i>Cymodoce tuberculata</i> Costa in Hope, 1851	<i>Cymodoce tuberculata</i> Costa	Literature	N Mediterranean Sea.
<i>Cymodoce zanzibarensis</i> Stebbing, 1910a	<i>Cymodoce zanzibarensis</i>	Type specimens	E Africa.
In addition, the following nine species may be tentatively assigned to the genus <i>Cymodoce</i> . (see also <i>Remarks</i> —below).			
? <i>Cymodoce acuta</i> Richardson, 1904b	<i>Cymodoce acuta</i>	Literature	Japan.
? <i>Cymodoce bicarinata</i> Stebbing, 1904	<i>Cymodoce bicarinata</i>	Literature	N Indian Ocean; Sri Lanka; ? E Africa.
*? <i>Cymodoce bidentata bidentata</i> Haswell, 1882	<i>Cymodoce bidentata</i>	Literature	S and SE Australia.
*? <i>Cymodoce bidentata tasmanica</i> Baker, 1929	<i>Cymodoce bidentata</i> var. <i>tasmanica</i>	Literature	SE Australia.
*? <i>Cymodoce convexa</i> Miers, 1876	<i>Cymodoce convexa</i>	Literature	New Zealand; ? E Australia.
*? <i>Cymodoce coronata coronata</i> Haswell, 1882	<i>Cymodoce coronata</i>	Type specimen	S and SE Australia.
*? <i>Cymodoce coronata fusiformis</i> Baker, 1929	<i>Cymodoce coronata</i> var. <i>fusiformis</i>	Literature	S Australia.
*? <i>Cymodoce coronata intermedia</i> Baker, 1929	<i>Cymodoce coronata</i> var. <i>intermedia</i>	Literature	S Australia.
? <i>Cymodoce erythraea erythraea</i> Nobili, 1906	<i>Cymodoce erythraea</i>	Specimens	NE Africa; N Mediterranean Sea.
? <i>Cymodoce erythraea euxinica</i> Bacesco, 1958	<i>Cymodoce erythraea euxinica</i>	Literature	Black Sea.
? <i>Cymodoce japonica</i> Richardson, 1906	<i>Cymodoce japonica</i>	Specimens	Japan; Korea; NW North America (Washington).
*? <i>Cymodoce mammifera</i> Haswell, 1881	<i>Cymodoce mammifera</i>	Literature	NE Australia.
? <i>Cymodoce natalensis</i> Barnard, 1920	<i>Cymodoce natalensis</i>	Literature	S Africa.

*Remarks*

*Cymodoce australis* Richardson, 1906 is a junior homonym of *Cymodoce australis* Hodgson, 1902 (see below) and should be given a replacement name.

The status of *C. emarginata* is not clear. This species was described from Britain and has been considered by some authors to be a variant of *C. truncata*. Torelli (1928) applied this name to a species found in the Mediterranean Sea, but this species may or may not be the same species as that of Leach. Monod (1931b) recorded *C. emarginata* from W. Africa.

Dumay's illustrations of *C. hansenii* (1972b: 199) bear strong similarities to her illustrations of *C. pilosa* (1972a: 643) but, curiously, she did not contrast these two species.

Torelli (1930: 307) included (with some doubt) *C. richardsoniae* in the synonymy of *C. truncata*. Examination of specimens by the present authors shows that *C. richardsoniae* is a distinct species.

*Cymodoce truncata* was originally described from Britain. Within Britain it appears to show some variability (*vide* Omer-Cooper & Rawson, 1934). This variability has left the characteristics of this species rather vaguely defined, and many subsequent records, from other areas, cannot be considered with certainty to refer to this species. *C. truncata* will need to be made the subject of a detailed taxonomic investigation before its true distribution can be determined.

The original description of *C. tuberculata* Costa has not been definitely identified (*vide* Torelli, 1930: 313) but the first mention of this species appears to have been in Hope, 1851.

*Cymodoce erythraea* differs from other species of *Cymodoce* most obviously by having a weakly concave pleotelson lacking prominent tubercles, and in having the exopod of the uropod rounded, not acute.

*Cymodoce japonica* differs from many other species of *Cymodoce*, *sensu stricto* in being finely pilose with a relatively even pleotelson. Some authors have made *C. japonica* a junior synonym of *C. acuta*. *C. acuta* was based on immature specimens and it has been suggested that these are immature specimens of *C. japonica*. However, as this has never been proven, it is here considered wise to keep these two names separate.

*Cymodoce natalensis* (originally described as a variety of *C. japonica*) appears to resemble *C. japonica*. Of the additional species currently housed in *Cymodoce*, the following observations can be made. *C. barrerae* (Boone, 1918) appears to be based on an immature form of a species of *Cymodoce* but its status cannot be ascertained with certainty.

*Cymodoce tuberculosa tuberculosa* Stebbing, 1873; *C. tuberculosa bispinosa* Baker, 1910 (both from Australia); *C. tripartita* Richardson, 1910b; *C. multidentis multidentis* Richardson, 1910b; and *C. multidentis australis* Baker, 1929, are all closely related and will probably require the formation of a new genus to house them. (Barnard (1920: 363-366) described some specimens from South Africa which may also belong to this group of species. Barnard identified his specimens with *C. tripartita* and made this species a variety of *C. tuberculosa* as *C. tuberculosa* var. *tripartita*. From the published illustrations, however, Barnard's specimens do not appear to belong in the species *C. tripartita* and should probably be redescribed as a new species).

Hurley and Jansen included "*Cymodoce multidentis* var. *australis*" in the synonymy of *Cymodoce australis* Hodgson. This is an error. *C. multidentis australis* is distinct.

Most of the New Zealand species of 'Cymodoce' form a distinct group of species which will probably require a new genus. These species are: *Cymodoce australis* Hodgson, 1902; *C. hodgsoni* Tattersall, 1921; *C. allegra* Hurley & Jansen, 1977; *C. iocosa* Hurley & Jansen, 1977; *C. penserosa* Hurley and Jansen, 1977; and *C. perversa* Hurley & Jansen, 1977. All these species have the posterior margin of the pleon of the adult male bearing a pronounced, and usually bifid, median process.

Of the remaining species: *C. sarmatica* (Andrussow, 1886) and *C. oroszyi* Bachmayer, 1947 are both fossil species and are not considered here; *C. eupyga* Nobili, 1906 appears to be an East African species of *Paracilicæa*, related to *P. mossambica* Barnard; *C. trilobata* (Miers) (mentioned in Hansen, 1905: 121) does not appear ever to have been described and the correct status of these specimens is not known (but this name is a *nomen nudum*) (In the collections of the British Museum are a number of bottles containing labels which bear binomina—complete with authorities—even though the contained specimens and name have never been described or published (pers. obs.). Presumably Hansen examined such a bottle labelled *Cymodoce trilobata* Miers, during his study); the original, and only known, description of *C. bifida* Leach, 1818 is inadequate to allow definite generic placement of Leach's specimen(s); *C. amplifrons* (Stebbing, 1902) is closely related to *Sphaeroma grantii* Walker & Scott, and is discussed under *Sphaeroma* (above); *C. granulata* is transferred to the eubranchiata sub-family (despite the claims of Calman in Hansen (1905: 121)) as a synonym of '*Cerceis*' *trispinosa* in the main text above; from the original description of *Cymodoce picta* Brocchi, 1877 this species does not appear to be a species of *Cymodoce*, but may be a species of the eubranchiata genus *Ischyromene* Racovitza; *C. acanthigera* Barnard, 1914 is excluded from *Cymodoce* by the form of the pleon and uropods, but this species bears a strong resemblance to '*Cymodopsis*' *impudica* Hurley and Jansen, 1977 and these two species may be congeneric (but *C. impudica* does not appear to be a species of *Cymodopsis* Baker and its correct generic placement is currently unknown); *Cymodoce lis* Barnard, 1955 is excluded from *Cymodoce* by its smooth pleotelson with its entire apical margin, but its correct generic placement is not known; *C. radiata* Barnard, 1957 and *C. alia* Kensley, 1975 are excluded from *Cymodoce* by the form of their pleotelsons and uropods, but their correct (separate) generic placements are unknown; *C. velutina* Kensley, 1975 is not definitely based on adult male specimens, but if the males are adult (and not sub-adult as they appear) then they resemble only immature specimens of *Cymodoce*, not adults, and probably do not belong in this genus; *C. brasiliensis* Richardson, 1906 differs from species of *Cymodoce* in the form of the pleon, pleotelson and appendix masculina of the adult males, and cannot be retained in this genus (its correct generic placement is unknown); *C. faxoni* (Richardson, 1905) is not obviously adult but differs from *Cymodoce* species in the form of the pleotelson, uropods and epistome (its correct generic placement is unknown); from the structure of the pleotelson and uropods, none of the species *C. setulosa* (Stebbing, 1902), *C. uncinata* Stebbing, 1902, *C. valida* (Stebbing, 1902), *C. africana* Barnard, 1914, *C. falcata* Barnard, 1914, *C. umbonata* Barnard, 1914, *C. unguiculata* Barnard, 1914, *C. cavicola* Barnard, 1920, *C. cryptodoma* Barnard, 1920, *C. excavans* Barnard, 1920, and *C. tetrathele* Barnard, 1920 (all from South Africa) can be retained in the genus *Cymodoce*, but their correct generic placements are currently unknown.

The authors have not seen the description of *Cymodoce madrasensis* (Srinivasan, 1959), and can make no comment on its status.

Genus *Calcipila*, gen. nov.

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Calcipila cornuta</i> , sp. nov.		Type specimens	E Australia.

Genus *Paracilicæa* Stebbing, 1910a

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Paracilicæa aspera</i> , sp. nov.	—	Type specimens	NE Australia.
<i>Paracilicæa clavus</i> Barnard, 1955	<i>Paracilicæa clavus</i>	Literature	E Africa.
<i>Paracilicæa eupyga</i> (Nobili, 1906) comb. nov.	<i>Cymodoce eupyga</i>	Specimens	NE Africa.
* <i>Paracilicæa flexilis</i> Baker, 1929	<i>Paracilicæa flexilis</i>	Literature	W Australia.
<i>Paracilicæa hanseni</i> Stebbing, 1910a	<i>Paracilicæa hanseni</i>	Literature	E Africa.
* <i>Paracilicæa gigas</i> Baker, 1929	<i>Paracilicæa gigas</i>	Type specimen	S? and W Australia.
<i>Paracilicæa mossambica</i> Barnard, 1914	<i>Paracilicæa mossambica</i>	Specimens	E Africa.
* <i>Paracilicæa pubescens</i> (Milne Edwards, 1840)	<i>Cymodoce pubescens</i>	Type specimens	E Australia.
* <i>Paracilicæa stebbingi</i> Baker, 1926	<i>Paracilicæa stebbingi</i>	Specimens	NE Australia.
<i>Paracilicæa teretron</i> Barnard, 1955	<i>Paracilicæa teretron</i>	Literature	E Africa.

Two of the following species are retained, with reservations, within this genus, while *P. dakini* is provisionally placed here (see main text above).

*? <i>Paracilicæa dakini</i> (Tattersall, 1922), comb. nov.	<i>Cilicæopsis dakini</i>	Specimens	W Australia.
*? <i>Paracilicæa hamata</i> (Baker 1908)	<i>Paracilicæa hamata</i>	Literature	S Australia.
*? <i>Paracilicæa septemdentata</i> (Baker, 1910)	<i>Paracilicæa septemdentata</i>	Literature	S Australia.

*Remarks*

*Cymodoce eupyga* Nobili is clearly not a species of *Cymodoce*, differing in the form of the pleon, pleotelson and uropods. This species does, however, resemble *P. clavus*, *P. mossambica* and *P. teretron* and should be included in *Paracilicæa* with these species. These four species appear to form a distinct group, as does *P. gigas* with *P. pubescens*. However, it is not known at present (and cannot be ascertained from Stebbing's illustrations (1910a: pl. 9c)) which species within the genus as it currently stands most resemble the type species, *P. hanseni*.



Genus *Cilicaeopsis* Hansen, 1905

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Cilicaeopsis furculata</i> , sp. nov.	—	Type specimens	Coral Sea.
* <i>Cilicaeopsis glebosa</i> , sp. nov.	—	Type specimens	NE Australia.
* <i>Cilicaeopsis granulata</i> (Whitelegge, 1902)	<i>Cilicaeopsis granulata</i>	Specimens	S and E Australia; Coral Sea.
<i>Cilicaeopsis laevis</i> Nierstrasz, 1931	<i>Cilicaeopsis laevis</i>	Literature	Indonesia.
* <i>Cilicaeopsis sculpta</i> Baker, 1929	<i>Cilicaeopsis sculpta</i>	Literature	W Australia.
* <i>Cilicaeopsis whiteleggei</i> (Stebbing, 1905)	<i>Cilicaeopsis whiteleggei</i>	Specimens	Sri Lanka; Indonesia; Philippines; NE Australia; Coral Sea.

*Remarks*

*C. laevis* was founded on an immature specimen and is the only species in this genus not found in Australia (the Coral Sea being included in Australia here).

Genus *Cilicaea* Leach, 1818

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
? <i>Cilicaea angustispinata</i> Hurley & Jansen, 1977	<i>Cilicaea angustispinata</i>	Literature	New Zealand.
* <i>Cilicaea calcarifera</i> , sp. nov.	—	Type specimens	N and NE Australia.
<i>Cilicaea caniculata</i> (Thomson, 1879)	<i>Cilicaea caniculata</i>	Specimens	New Zealand.
* <i>Cilicaea crassa</i> Haswell, 1882	<i>Cilicaea crassa</i>	Literature	E Australia.
* <i>Cilicaea crassicaudata</i> Haswell, 1881	<i>Cilicaea crassicaudata</i>	Specimens	N and NE Australia.
* <i>Cilicaea curtispina</i> Haswell, 1882	<i>Cilicaea curtispina</i>	Specimens	S and SE Australia.
<i>Cilicaea dolorosa</i> Hurley & Jansen, 1977	<i>Cilicaea dolorosa</i>	Literature	New Zealand.
* <i>Cilicaea hystrix</i> Haswell, 1882	<i>Cilicaea hystrix</i>	Literature	E Australia.
* <i>Cilicaea latreillei</i> Leach, 1818	<i>Cilicaea latreillei</i>	Specimens	Indonesia; Philippines; Sri Lanka; S Africa; Red Sea; ? Australia.
* <i>Cilicaea longispina</i> Miers, 1884	<i>Cilicaea longispina</i>	Literature	SE Australia.
* <i>Cilicaea spinulosa</i> Haswell, 1882	<i>Cilicaea spinulosa</i>	Literature	E Australia.
<i>Cilicaea tasmanensis</i> Hurley & Jansen, 1977	<i>Cilicaea tasmanensis</i>	Literature	New Zealand.
* <i>Cilicaea tenuicaudata</i> Haswell, 1881	<i>Cilicaea tenuicaudata</i>	Literature	E Australia; New Britain.

*Remarks*

*Cilicaea angustispinata* does not appear to have a median tooth in the pleotelsonic apical notch (*vide* Hurley and Jansen, 1977: fig. 32B). If such a tooth is lacking this species should be placed in the genus *Cilicaeopsis*, not *Cilicaea*.

The Australian records of *Cilicaea latreillei* are discussed in the main text, above.

Genus *Zuzara* Leach, 1818

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Zuzara curtispina</i> , sp. nov.	—	Type specimens	NE Australia.
* <i>Zuzara digitata</i> , sp. nov.	—	Type specimens	NE Australia.
<i>Zuzara furcifera</i> Barnard, 1920	<i>Zuzara furcifera</i>	Literature	S Africa.
* <i>Zuzara semipunctata</i> Leach, 1818	<i>Zuzara semipunctata</i>	Type specimen (photograph)	S Australia.
* <i>Zuzara venosa</i> (Stebbing, 1874)	<i>Zuzara venosa</i>	Specimens	E Australia.

*Remarks*

Only *Zuzara furcifera* is not known from Australia. The Australian species are not known from elsewhere.

Genus *Clianella* Boone, 1923

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
<i>Clianella amblysinus</i> (Pillai, 1954), comb. nov.	<i>Dynoides amblysinus</i>	Literature	India
* <i>Clianella brucei</i> , sp. nov.	—	Type specimens	NE Australia
<i>Clianella castroi</i> Loyola e Silva, 1960, comb. nov.	<i>Dynoides castroi</i>	Literature	Brazil
	* <i>Dynoides brasiliensis</i> (Loyola e Silva, 1960)	Type specimens	Brazil
	* <i>Sphaeroma savignii</i> , sensu Dana, 1853 (non Milne Edwards)	Literature	Brazil
<i>Clianella elegans</i> Boone, 1923	<i>Clianella elegans</i>	Specimens	California
<i>Clianella globicauda</i> (Dana, 1853), comb. nov.	<i>Exosphaeroma globicauda</i> (sic)	Literature	Tierra del Fuego

*Remarks*

The binomen *Dynoides amblysinus* only occurs in the literature prior to the formation of Pillai's genus *Dynoidella*, but as Bruce (1980) synonymized *Dynoidella* with *Dynoides*, it must be assumed that the current name for this species is *Dynoides amblysinus*. Similarly, as Bruce also synonymized *Paradynoides* with *Dynoides*, *Dynoides brasiliensis* must be the current name for this species. Both *Dynoides castroi* and *Dynoides brasiliensis* refer to the same taxon (see main text, above), but as the specific epithet *castroi* has page priority over the epithet *brasiliensis*, and as *castroi* refers to the adult form, that name is retained as the senior synonym here.

*Sphaeroma savignii*, sensu Dana (1853: 782, 783; pl. 52) is not the species described by Milne Edwards. Dana's specimens appear to be immature specimens of a *Dynoides*-like species, and as they were collected from the type-locality of Loyola e Silva's *C. castroi* (Rio de Janeiro) it seems probable that they represent immature specimens of that species.

Hansen suggested (1905: 117) that Dana's species *Sphaeroma globicauda* might be a species of *Dynamenella* Hansen, while Nierstrasz placed this species in the genus *Exosphaeroma* Stebbing. In fact the description and illustration (Dana,

1853: 781, 782, pl. 52) of this species indicate that it is a species of *Clianella*. Dana's species bears a strong resemblance to *C. castroi*, and its close geographical location suggests that Loyola e Silva's species may be found to be conspecific with that of Dana.

Genus *Dynoides* Barnard, 1914

Species (and subspecies)	Current name	Recommendation based on examination of:	Geographical distribution
* <i>Dynoides barnardi</i> Baker, 1929	<i>Dynoides barnardi</i>	Literature	E Australia
<i>Dynoides brevispinus</i> Bruce, 1980	<i>Dynoides brevispina</i> (sic)	Literature	Japan
<i>Dynoides dentisinus</i> Shen, 1929	<i>Dynoides dentisinus</i>	Specimens	China; Korea
<i>Dynoides serratisinus</i> Barnard, 1914	<i>Dynoides serratisinus</i>	Literature	S Africa
* <i>Dynoides viridis</i> Bruce, 1982	<i>Dynoides viridis</i>	Literature	NE Australia

Remarks

*Dynoides brevispinus* differs from the other species of *Dynoides* in having the pleonal process short and broad, not slender.