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A New Species of *Syscenus* Harger, 1880 (Crustacea: Isopoda: Aegidae) from Eastern Australia, With a Revised Diagnosis of the Genus

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ABSTRACT. *Syscenus springthorpei* n.sp. is described from a single specimen taken from the south-eastern Australian coast at a depth of about 500 m. This species is characterised by a sub-acute pleotelson apex, uropods that do not extend beyond the posterior margin of the pleotelson and a short antennal flagellum that does not extend beyond pereonite 3. A revised diagnosis of the genus and an annotated list of the known species is presented.

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The genus *Syscenus* is widely distributed throughout the world oceans. The species comprising this genus are usually known from single specimens from diverse localities. *Syscenus* has not previously been recorded from Australian waters and there exists only a single record from the Southwest Pacific: that of Monod (1973), which is considered of doubtful identity. The record of this genus brings the number of aegid genera known from Australian waters to four, only the Atlantic genus *Xenuraega* Tattersall, 1909 (Bruce 1993) and the pelagic genus *Barybrotos* Schiødte & Meinert, 1879 being absent. Brusca (1983) reviewed the history of the taxonomy of the family and Bruce (1993) provided a key to the known genera.

Abbreviations used: AM—Australian Museum, Sydney; BL—body length; PMS—plumose marginal setae; PS—plumose setae; ZMUC—Zoologisk Museum, University of Copenhagen, Denmark.

Taxonomy

Genus *Syscenus* Harger

Syscenus Harger, 1880: 387.—Sars, 1899: 66.—Richardson, 1905: 212.—Stebbing, 1924: 9.—Wahrberg, 1930: 24.—Nierstrasz & Schuurmans Steckhoven Jr., 1930: 77.—Schultz, 1969: 196.—Menzies & George, 1972: 12.—Kussakin, 1979: 269.

Harponyx Sars, 1882: 60 (type species *Harponyx pranizoides* Sars, 1882).

Rocinela.—Bovallius, 1885: 4 (not *Rocinela* Leach, 1818).

Syscenus.—Stephensen, 1948: 41.

Type species. *Syscenus infelix* Harger, 1880, by monotypy. Gender neuter.

Diagnosis. Body elongate, about 3 to 4 times as long as wide. Cephalon without eyes, anterior margin forming median point. Coxae present on pereonites 2–7, those of pereonites 4–7 shorter than respective segment, not posteriorly produced. Pleon abruptly narrower than pleon, about 30–40% BL; pleonites all visible, becoming progressively wider towards posterior, with free lateral margins; pleonites 3–5 lateral margins produced to form an acute point. Pleotelson large, as long or longer than pleon, usually with caudomedial point. Pleonal sternite present anterior to pleopod 1 peduncles.

Antennule peduncle 3-articulate, antenna peduncle 5-articulate; flagellae of both not extending to pleon.

Frontal lamina, clypeus and labrum present. Mandible with unicuspid incisor; molar process and spine row absent; palp 3-articulate. Maxillule slender, styliform, with 5 hooked, terminal spines; reduced medial lobe present. Maxilla lateral lobe present, with 3 recurved terminal spines. Maxilliped 4 articulate, article 3 with 2–3 recurved spines, article 4 with 1 recurved spine; endite absent.

Pereopods 1–3 robust; distal margins of ischium to merus with long simple setae; dactylus prehensile, strongly recurved, longer than propodus. Pereopods 4–7 becoming progressively longer; ischium to propodus provided with spines and abundant simple setae; dactylus shorter than propodus, weakly recurved.

Pleopods 1 and 2, both rami with PMS; pleopods 3–5 endopods with reduced setae (pleopod 3) or naked, distinctly smaller than exopods; coupling hooks present on peduncles of pleopods 1–5; pleopods not extending beyond pleotelson lateral margins. Uropods flat, lamellar; endopod longer than exopod.

Remarks. The genus is readily separated from all others of the family except *Xenuraega* by the pleon being abruptly narrower than the pereonite 7. *Syscenus* and *Xenuraega* are readily differentiated by *Syscenus* having a frontal lamina and lamellar uropods with both rami prominent, while *Xenuraega* lacks a frontal lamina and has a filamentous uropodal exopod and a stub-like endopod.

Several accounts illustrate the maxilliped as having only three articles (Harger 1883; Sars, 1899; Menzies & George, 1972; Monod, 1973; Nunomura, 1981). Examination of Atlantic specimens of *Syscenus infelix* (ZMUC CRU2073–2076) show that a small fourth maxilliped article (as illustrated here in Fig. 2G) is in fact present. The generic diagnosis given here is based on the type species and the new species described herein. The extent of character variation within the genus is not possible to assess as the remaining species are inadequately described.

Species of the genus have been recorded at depths between 146 and 3260 m.

Species included

Syscenus atlanticus Kononenko, 1988. This species has been recorded from a single North Atlantic location at a depth between 810–860 m. It is not possible to characterise this species against other congeneric species, although the original figures suggest that it differs from *Syscenus infelix* in having a broadly rounded pleotelson, and far longer antennal flagellae, supported by the examination of previously unreported material (ZMUC CRU2077).

Syscenus infelix Harger, 1880. The type species and the most widely recorded species of the genus. The type locality is “15 miles northeast of Cape Cod,” northwestern Atlantic (Harger 1880). The species has been reported from depths between 146 and 1117 m; records are from the northeastern and northwestern North Atlantic (Richardson, 1905), Japan (Richardson, 1909) the Philippines (Richardson, 1910), New Caledonia (Monod, 1973) and South Africa (Stebbing, 1924). Given the differences noted between Japanese and Atlantic specimens, the condition of the Philippine specimen, and lack of detail in the early records, confirmation of all these localities is required.

Syscenus intermedius Richardson, 1910. Known only from the Philippines, Albatross Station 5301.

Syscenus latus Richardson, 1909. Known only from Japan, taken at a depth of 742 m, southwest of Koshika Island, c. 31°39'N 129°20–23'E.

Syscenus pacificus Nunomura, 1981. Known only from the East China Sea, 660–990 m. Nunomura (1981, p. 16) apparently believed that he was describing only the second species of the genus, overlooking the publications of Richardson (1909, 1910) and Menzies & George (1972). The illustrations of Nunomura (1981) show striking points of resemblance to *S. latus* from the same area and the validity of *S. pacificus* is open to question.

Syscenus peruanus Menzies & George, 1972. The species is based on a juvenile with eyes, taken from the Peru-Chile Trench at a depth of 3254–3260 m.

Syscenus springthorpei n.sp.

Figs 1–4

Type Material. HOLOTYPE: male (36 mm), east of Long Reef Point, Broken Bay, New South Wales, Australia, 33°41'S 151°55'E, 19 December 1985, 476–531 m, coll. R.T. Springthorpe on FRV *Kapala* (AM P37507).

Other species examined: 1 specimen each of *Syscenus atlanticus* (ZMUC CRU2077) and *Syscenus latus* (ZMUC CRU2079); 4 samples of Atlantic *Syscenus infelix* (ZMUC CRU2073–2076).

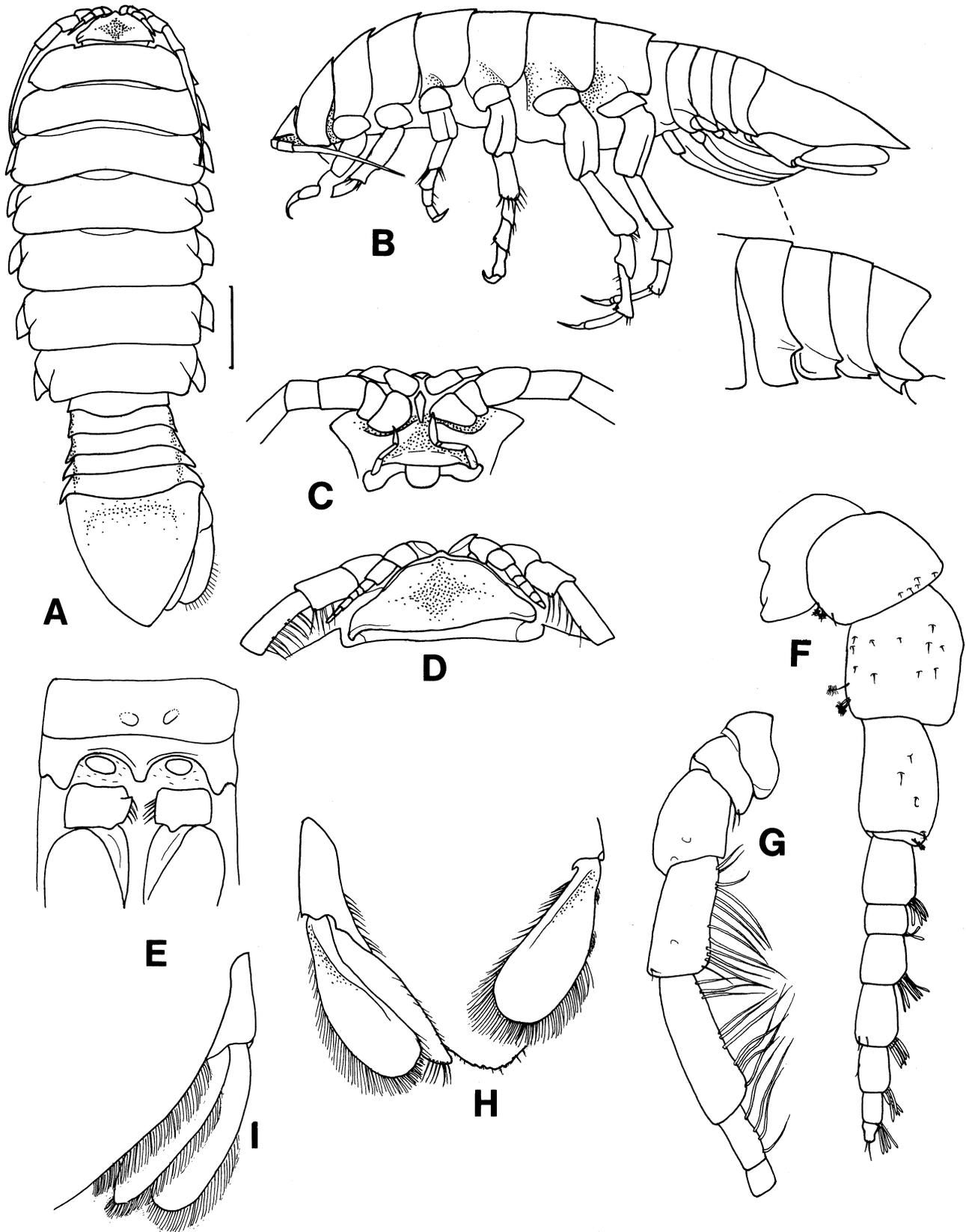


Fig. 1. *Syscenus springthorpei* n.sp., holotype. A, dorsal view; B, lateral view and pleon detail; C, frons; D, cephalon, dorsal view; E, sternite 7 showing penial openings and pleonal sternite; F, antennule; G, antenna peduncle; H, pleotelson and uropods, ventral view; I, uropods, in situ, dorsal view. Scale 5.0 mm.

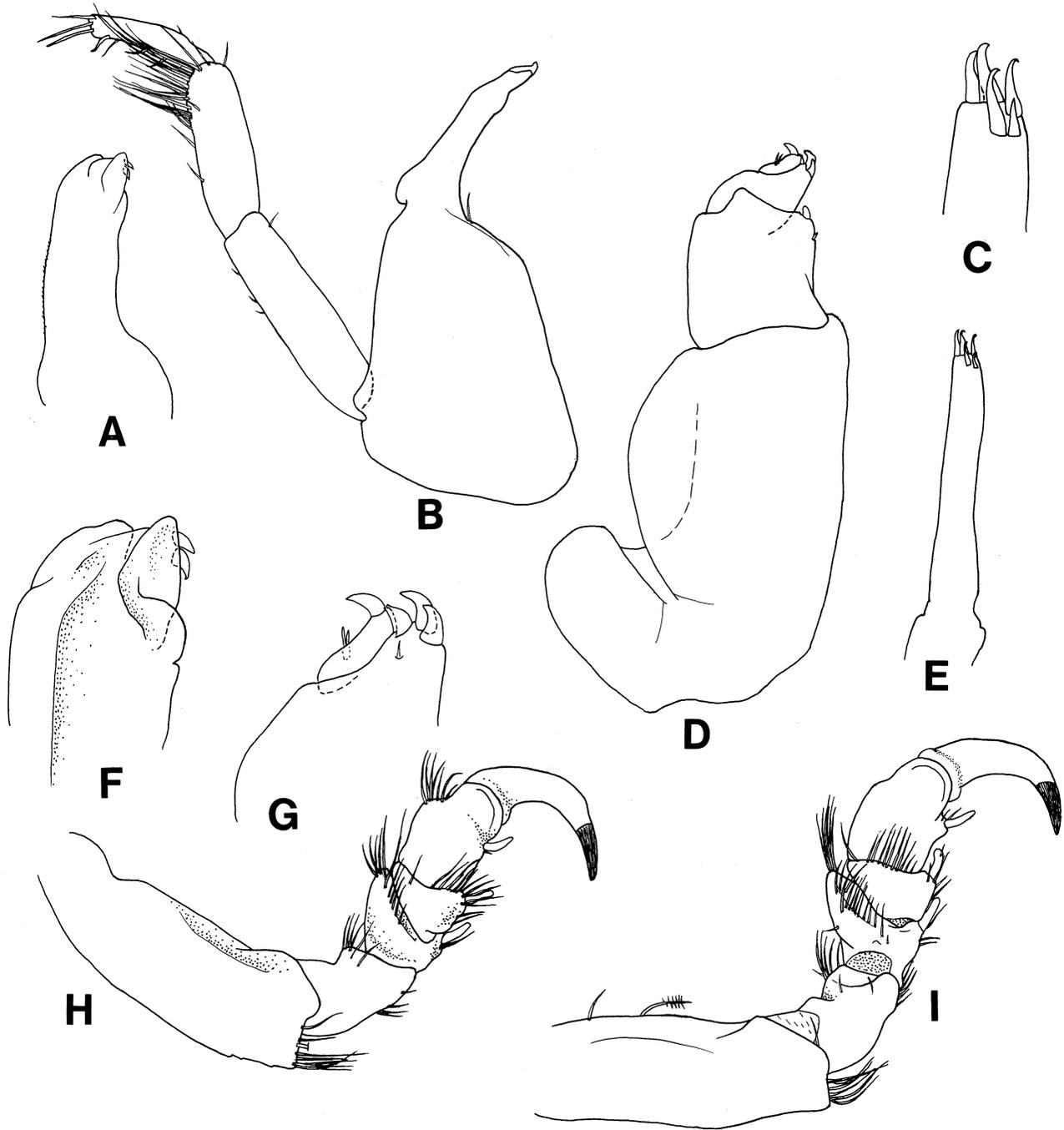


Fig. 2. *Syscenus springthorpei* n.sp., holotype. A, maxilla; B, mandible; C, maxillule apex; D, maxilliped; E, maxillule; F, maxilla apex; G, maxilliped palp, terminal articles; H, pereopod 1; I, pereopod 2.

Description of male holotype

Body: about 3 times as long as greatest width, dorsal surfaces smooth, unornamented; lateral margins subparallel; maximum width at pereonites 3–6. **Cephalon:** with small but distinct median rostral process; anterolateral margins sinuate; posterior margin forming distinct ridge, posterior to which is abruptly narrower (“neck-like” in appearance); eyes absent, ocular lobes weakly developed. **Pereonites:** 5 and 6 longest, subequal

in length; pereonite $1 < 2 = 3 < 4 < 5 = 6 > 7$; posteroventral angle of pereonite 1 forming acute point; coxae not extending beyond posterior of segment, those of pereonites 2–3 posteriorly rounded; pereonites 4–6 truncate; pereonite 7 posteriorly subacute. **Pleon** about 16% BL, markedly narrower than pereon, anteriorly 0.4 times as wide as maximum pereonal width; all pleonites visible with free lateral margins; pleonites 4 and 5 wider than 1–3; posterolateral angles of pleonites 4–5 acute; pleonite 5 nearly twice as long as pleonite 4. **Pleotelson** about 25%

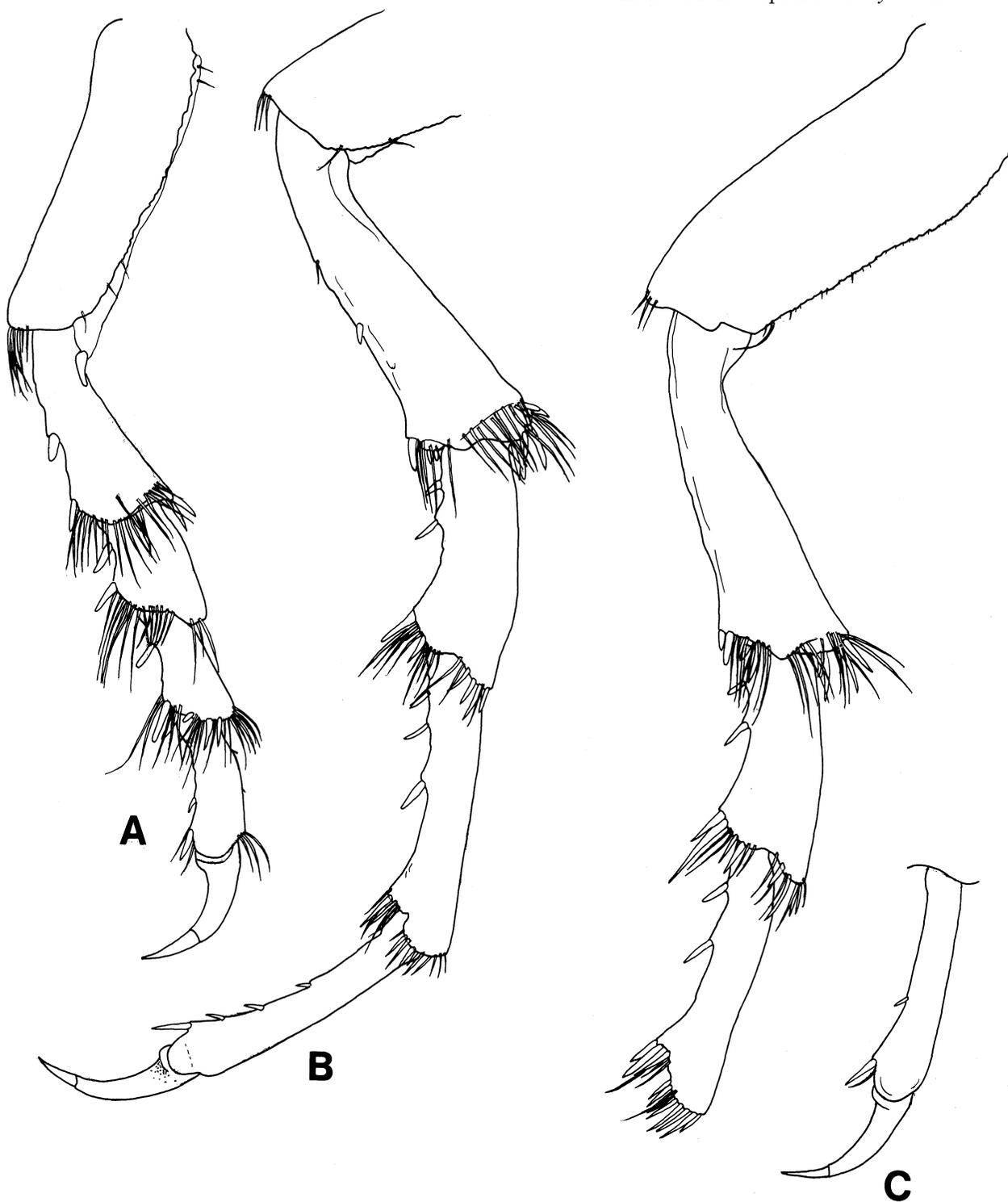


Fig. 3. *Syscenus springthorpei* n.sp., holotype. A, pereopod 4; B, pereopod 6; C, pereopod 7.

BL, 1.2 times as long as greatest width; lateral margins converging smoothly to an acute apex, forming a distinct sub-acute caudomedial point; margins with PMS running from about position of uropod peduncle to apex.

Antennule peduncular article 1 slightly wider (1.2 \times) than long, with scattered small setae on distal and posterior

submarginal surface; article 2 as wide as long, slightly longer than article 1 (1.1 \times), posterodistal angle with 3 palmate setae; article 3 slightly longer than article 2, 1.6 times as long as wide; flagellum 0.8 times as long as peduncle, extending to posterior of cephalon, with 7 articles, article 1 of which is longest, about 2.2 times longer than article 2. *Antenna* peduncle articles 1–2

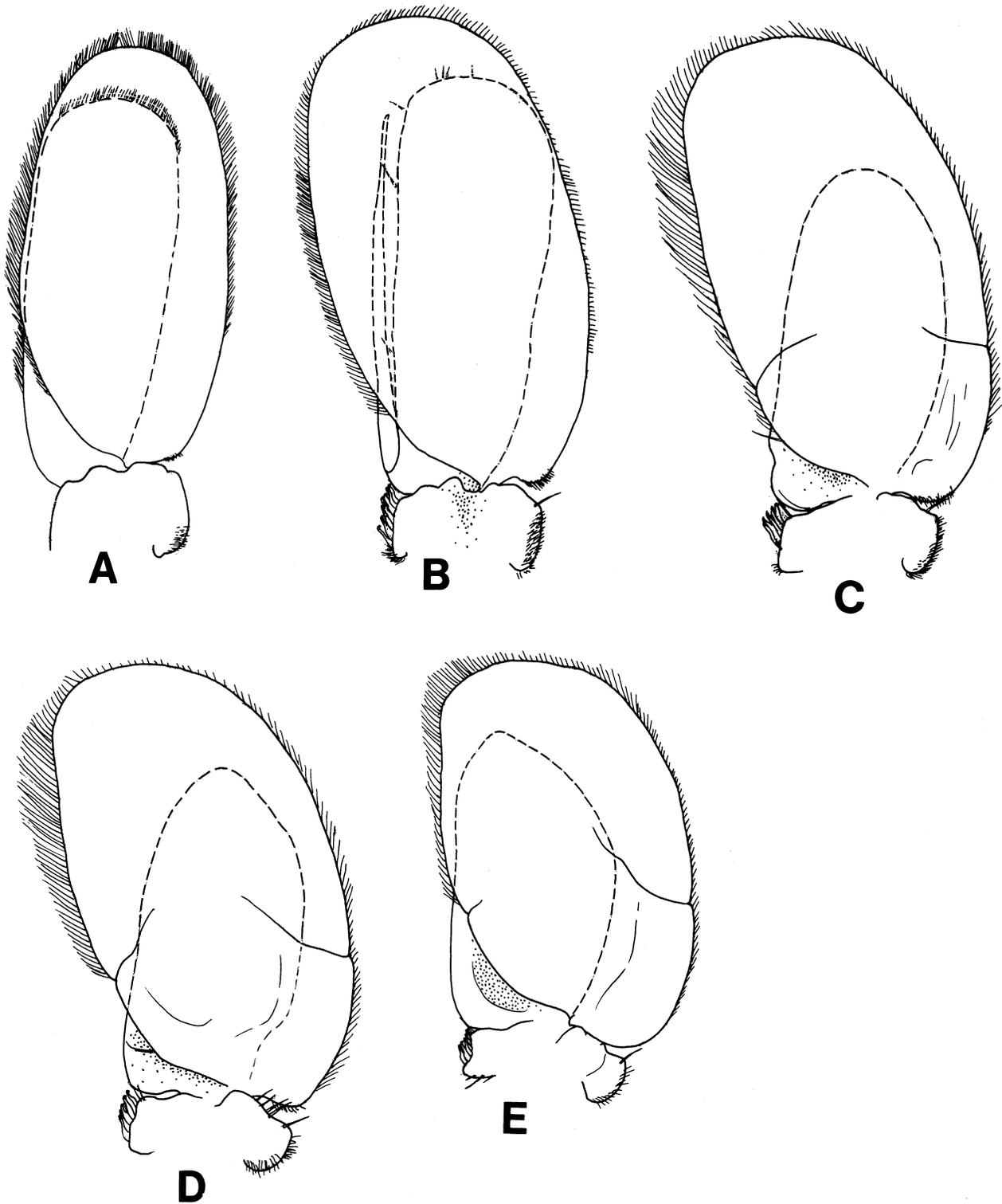


Fig. 4. *Syscenus springthorpei* n.sp., holotype. A-E, pleopods 1-5 respectively.

short, subequal in length; article 3, 2.5 times as long as article 1, 1.25 times as long as wide; article 4, 1.4 times as long as article 3, 1.8 times as long as wide, posterior margin with 13 long PS; article 5 longest, 1.3 times as long as article 4, about 2.7 times as long as wide, posterior margin with 10 long PS; flagellum 1.6

times as long as peduncle, composed of about 20 articles, extending to posterior of pereonite 3; posterior margins of articles 1-11 with long PS.

Frontal lamina anteriorly acute, lateral margins converging posteriorly, not making contact with clypeus.

Mandible incisor falcate; molar process weak; palp article 1 longest, 1.4 times as long as article 2, 1.8 times as long as article 3; article 2 with about 12 long stiff setae at distolateral margin and 3 shorter submarginal setae; article 3 with 9 stout marginal setae, terminal 4 setae being longest. *Maxillule* without small medial lobe, distally with 2 minute simple setae; lateral lobe with 3 terminal and 2 subterminal falcate spines on distal margin. *Maxilla* lateral lobe without spines, medial lobe with 2 weakly hooked spines. *Maxilliped* palp article 1 with distinct distomedial blunt spine, article 2 with 3 spines at distomedial end; article 3 minute, with 2 recurved spines and 2 small simple setae.

Pereopods 1–3 moderately robust, 5–7 moderately elongate; pereopod 4 intermediate between both sets. *Pereopod 1* basis 2.3 times as wide as long, posterodistal angle with dense cluster of simple setae; ischium 0.4 times as long as basis, anterodistal angle with cluster of long simple setae, posterodistal margin with few simple setae; merus short, half as long as ischium, posterodistal angle with 1 large bluntly rounded spine, anterodistal angle with abundant long simple setae; carpus subequal in length to merus, short, 0.38 times as long as propodus, posterior margin with simple setae and 1 large bluntly rounded spine; propodus robust, 1.6 times as long as wide, palm with 1 large bluntly rounded spine opposing dactylus, anterodistal angle with cluster of long simple setae; dactylus long and robust, strongly recurved, 1.3 times as long as propodus. *Pereopods 2 and 3* similar to pereopod 1 but slightly less robust. *Pereopod 4* basis 2.6 times as long as wide, posterodistal angle with dense cluster of long simple setae, posterolateral margin irregularly serrate; ischium 0.7 times as long as basis, 2.3 times as long as wide, posterior margin with 1 large blunt spine medially and 1 at posterodistal angle, distal margin with abundant long simple setae; merus 0.6 times as long as ischium, about 1.3 times as long as wide, posterior margin with large narrowly rounded spine medially and 1 at posterodistal angle, distal margin with long simple setae; carpus subequal in length to ischium, about 2 times as long as distal width, posterior margin with 1 spine, distal margin with 2 spines anteriorly and 3 posteriorly; propodus 1.1 times as long as carpus, about twice as long as wide, posterior margin with 1 short acute spine, posterodistal angle with 1 acute spine, anterodistal angle with 3 simple setae; dactylus subequal in length to propodus, gently curved. *Pereopod 6* basis posterodistal angle with 3 short setae, posterolateral margin irregularly serrate; ischium 3.2 times as long as wide, posterior margin with 1 spine, distal margin with 6 spines anteriorly and 4 posteriorly, with abundant long simple setae; merus 0.6 times as long as ischium, about twice (2.1×) as long as wide, posterior margin with 2 spines, distal margin with 4 spines anteriorly and 3 posteriorly, with long simple setae; carpus 1.4 times as long as ischium, 4.2 times as long as wide, posterior margin with 3 spines, distal margin with 8 spines anteriorly and 5 spines posteriorly; propodus 0.9 times as long as

ischium, about 4.7 times as long as wide, posterior margin with 3 acute spines, posterodistal angle with 1 spine; dactylus 0.5 times as long as propodus, slender. *Pereopod 7* similar to 6, but slightly more robust and less spinose; basis 2.4 times as long as wide, posterodistal angle with 3 short setae, posterolateral margin finely serrate, with short simple seta in each indentation; ischium 0.8 times as long as basis, 3.0 times as long as wide, distal margin with 4 stout spines posteriorly, 4 spines anteriorly, with abundant long simple setae; merus 0.6 times as long as ischium, 1.7 times as long as wide, posterior margin with 2 spines, distal margin with 6 spines anteriorly and 4 posteriorly, with few simple setae; carpus 1.3 times as long as ischium, about 2.7 times as long as wide, posterior margin with 2 spines, distal margin with nearly continuous spines, 8 anteriorly and 4 posteriorly; propodus 0.9 times as long as ischium, about 3.7 times as long as wide, posterior margin with 1 spine, posterodistal angle with 2 spines and 1 simple seta; dactylus about 0.6 times as long as propodus, slender.

Penial processes absent, the vasa deferentia opening as slightly raised papillae on surface of sternite 7.

Pleopod 1 exopod 2 times as long as wide, slightly longer (1.1×) than endopod, both rami distally rounded, with continuous PMS (as illustrated); endopod 2.5 times as long as wide; peduncle 1.5 times as wide as long, medial margin with 9 coupling hooks, lateral margin without distinct lobe. *Pleopod 2* 1.1 times as long as pleopod 1, exopod 1.9 times as long as wide, endopod 0.8 times as long as exopod, 2.7 times as long as wide, both rami with PMS (as illustrated); appendix masculina basally inserted, apex not extending beyond ramus, straight, 0.9 times as long as endopod, distally slender; peduncle medial margin with 8 coupling hooks and distally with c. 5 PS, lateral margin with distinct lobe, without PS. *Pleopods 3–5* endopods distinctly smaller than exopods, 0.7, 0.7, and 0.8 times as long as respective exopods, pleopod 3 with PS at distomedial margin, pleopods 4 and 5 without PMS; peduncular medial margins with 9, 7 and 6 coupling hooks respectively, lateral margins distinctly lobate, submarginal row of PS on pereopod 5 only; exopods with continuous PS on 80–90% of margin, rami distally rounded, each with prominent but incomplete transverse suture. *Uropod* rami subequal in length, not extending beyond posterior margin of pleotelson, continuous short PS on lateral and medial margins.

Remarks. *Syscenus springthorpei* can be distinguished from the six other species of the genus by a combination of three characters: the uropods not extending beyond the posterior margin of the pleotelson, the sub-acute caudomedial point of the pleotelson and the antennal flagellum not extending beyond the posterior of pereonite 3. *Syscenus pacificus* and *Syscenus latus* both have a mediodorsal point on one or more of the pleonites. *Syscenus intermedius* is similar, but has a far longer

antennal flagellum and a broadly rounded pleotelson. In general appearance *Syscenus infelix* is most similar, but the pleotelson is distally far more acute with the posterior half of the lateral margins concave and the uropods extend well beyond the pleotelson posterior margin.

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References

- Bovallius, C., 1885. A new isopod from the coast of Sweden. Bihang till Kungliga Svenska Vetenskapsakademiens Handlingar 10(10): 3–10.
- Bruce, N.L., 1993. Redescription of the long overlooked crustacean isopod genus *Xenuraega* (Aegidae, Flabellifera). Journal of the Marine Biological Association, U.K. 73: 617–625.
- Brusca, R.C., 1983. A monograph on the isopod family Aegidae in the tropical eastern Pacific. 1. The genus *Aega*. Allan Hancock Monographs in Marine Biology, 12: 1–39.
- Harger, O., 1880. Report on the marine Isopoda of New England and adjacent waters. Report of the Commissioner for 1878, Part VI. Government Printing Office: Washington, D.C., pp 297–462.
- Harger, O., 1883. Reports on the results of dredging, under the supervision of Alexander Agassiz, on the East Coast of the United States, during the summer of 1880, by the U.S. Coast Survey Steamer "Blake," Commander J.R. Bartlett, U.S.N., commanding. Bulletin of the Museum of Comparative Zoology, Harvard 11: 91–104, pls 1–4.
- Kononenko, A.F., 1988. A new parasitic isopode *Syscenus atlanticus* n.sp. (Isopoda, Aegidae) from the Atlantic Ocean. Parazitologiya (Leningrad) 22: 266–269. [In Russian.]
- Kussakin, O.G., 1979. Marine and brackish-water Isopoda of cold and temperate waters of the Northern Hemisphere. Flabellifera. Academy of Science, USSR, Leningrad, pp 470. [In Russian.]
- Leach, W., 1818. Cymothoades. In F. Cuvier (ed.). Dictionnaire des Sciences naturelles, 12: 338–354. Paris.
- Menzies, R.J., & R.Y. George, 1972. Isopoda Crustacea of the Peru-Chile Trench Anton Bruun Report 9: 1–124.
- Monod, T., 1973. Sur quelques crustacés Néo-Calédoniens de profondeur. Cahiers de O.R.S.T.O.M., série Océanographique 21: 117–131.
- Nierstrasz, H.F., & J.H. Schuurmans Steekhoven Jr, 1930. Isopoda Genuina. In: *Tierwelt der Nord-und Ostsee*. Grimpe & Wagler: Leipzig. Vol Xe. Crustacea, pp. Xe57–Xe133.
- Nunomura, N., 1981. Three species of flabelliferan isopods (Crustacea) from the East China Sea, including the description of a new species of *Syscenus*. Bulletin of the Toyama Science Museum 12: 13–18.
- Richardson, H., 1905. A monograph on the isopods of North America. Bulletin of the United States National Museum 54: 1–727.
- Richardson, H., 1909. Isopods collected in the northwest Pacific by the U.S. Bureau of Fisheries Steamer "Albatross" in 1906. Proceedings of the U.S. National Museum 37: 75–129.
- Richardson, H., 1910. Marine isopods collected in the Philippines by U.S. Fisheries Steamer "Albatross" in 1907–08. Department of Commerce and Labor, Bureau of Fisheries Document 736: 1–44.
- Sars, G.O., 1882. Oversigt af Norges crustaceer med forløbige bemærkninger over de nye eller mindre bekjendte arter. Christiania Videnskabelige Selskift Forhandling 18: 1–124, pls I, II. [The date of publication is often cited as Sars (1883), but the title page of the article states 1882, and that the article was read at a meeting of 13 October; it is also entered in The Zoological Record for 1882.]
- Sars, G.O., 1899. *An Account of the Crustacea of Norway*. Volume II. Isopoda. Bergen Museum: Bergen, pp 270.
- Schiødte, J.C., & F. Meinert, 1879. Symbolae ad monographium Cymothoarum. Naturhistorisk Tidsskrift (3)12: 279–302.
- Schultz, G.A., 1969. *How to know the Marine Isopod Crustaceans*. Wm.C. Brown Company, Dubuque, Iowa, pp 359.
- Stebbing, T.R.R., 1924. Crustacea of Natal. Union of South Africa, Fisheries and Biological Survey, Report No. 3, pp 15.
- Stephensen, K., 1948. Storkrebs. IV. Ringkrebs. 3. Tanglus (marine isopoder) og tanaider. Denmarks Fauna 53: 1–187.
- Tattersall, W.M., 1909. II. Amphipoda and Isopoda, with descriptions of two new species. Memoirs of the Challenger Society 1: 210–219.
- Währberg, R., 1930. Sverige marina och lacustra isopoder. Göteborgs Kungliga Vetenskaps-och Vitterhets-samhälles Handlingar, Femte Följder, Ser B, 1, no 9: 1–76, pls 1–18.

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