

Anilocra ankistra n. sp.

Figs 26, 27, 28

Material examined. All material from North West Shelf, WA.

HOLOTYPE: female (ovig 43.5), north-west of Beagle Bay, 15°10.4'S 121°04.7'E, 11 Feb 1984, depth 449 m, Engel trawl over muddy bottom, coll. FRV *Soela* (WAM 608-85).

PARATYPES: female (ovig 36.0), 127 nautical miles north-

west of Port Hedland, 18°26'S 117°36'E, 11 April 1982, depth 418 m, coll. L.M. Marsh on FRV *Soela* (WAM 603-85). Female (ovig 20.0), 17°59.0'S 118°19.9'E, 27 Feb 1984, depth 418 m, coll. A.J. Bruce on FRV *Soela* (NTM Cr636). Female (non-ovig 23.0), 17°30.1'S 118°28.9'E, Feb 1984, trawled, 504-506 m, coll. A.J. Bruce (NMT Cr639). Male?, (18.0), 19°25.2'S 119°11.8'E, 4 Feb 1984, trawled 356 m, coll. A.J. Bruce on FRV *Soela* (NTM Cr640). Female (non-ovig 21.0), 17°16.3'S 119°01.5'E, 3 Feb 1984, trawled 458 m, coll. A.J.

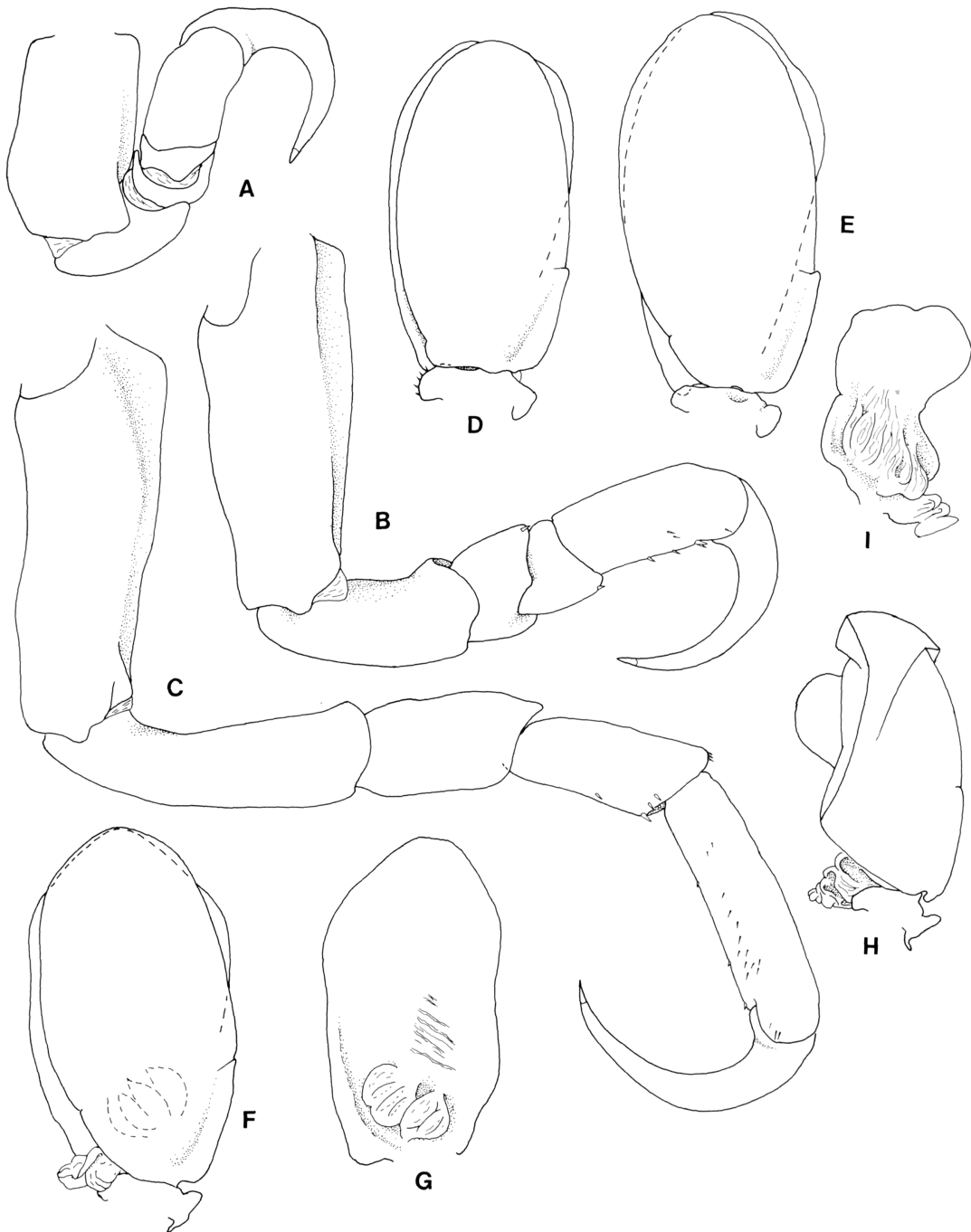


Fig. 25. *Anilocra longicauda*, female 39.0 mm ex *Priacanthus* (AM P36286). **A**, pereopod 2; **B**, pereopod 6; **C**, pereopod 7; **D-F**, pleopods 1 to 3 respectively; **G**, pleopod 3 endopod, posterior view; **H**, pleopod 5; **I**, pleopod 5, posterior view.

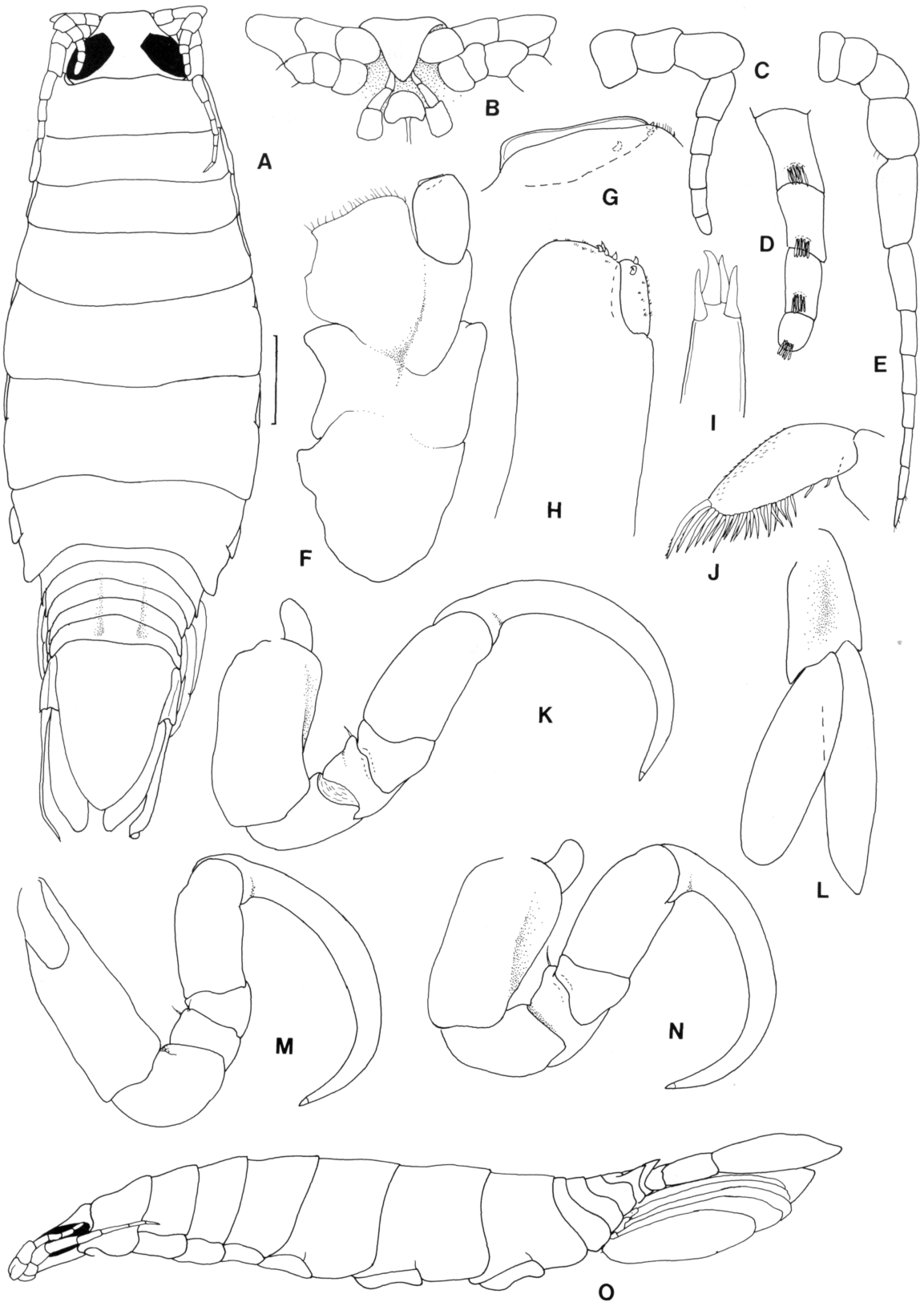


Fig. 26. *Anilocra ankistra* n. sp., A, B, O, holotype, remainder female 36.0 mm (WAM 603-85). A, dorsal view; B, frons; C, antennule; D, antennule, ventral surface of articles 5 to 8; E, antenna; F, maxilliped; G, maxilliped article 3; H, maxilla; I, maxillule apex; J, mandible palp article 3; K, pereopod 1; L, uropod; M, pereopod 4; N, pereopod 2; O, lateral view. Scale line represents 5.0 mm.

Bruce on FRV *Soela*, (NTM Cr642). Female (non-ovig 22.0), 18°41.6'S 117°18.6E, 25 Apr 1983, trawled 360–320 m (NTM Cr4247). Female (non-ovig 31.0), 18°06.5'S 117°45'E, 7th Apr 1982, depth 472–520 m, coll. M. McGrouther & J. Paxton on FRV *Soela*, (AM P36269).

Type locality. North West Shelf of Western Australia, 15°10.4'S 121°04.7'E.

Description of female. Body slightly more than 3

times as long as wide; dorsum only moderately vaulted. Coxae 2–4 broad, subrectangular, coxae 5–7 posteriorly rounded. Cephalon dorsal surface flat; rostrum prominent, anterior margin slightly indented. Eyes about 0.7 width of cephalon, facets distinct. Pleonites all visible; lateral margins not produced; dorsal posterolateral angles of pleonites 4 and 5 weakly produced, acute. Pleotelson flat, lateral margins not

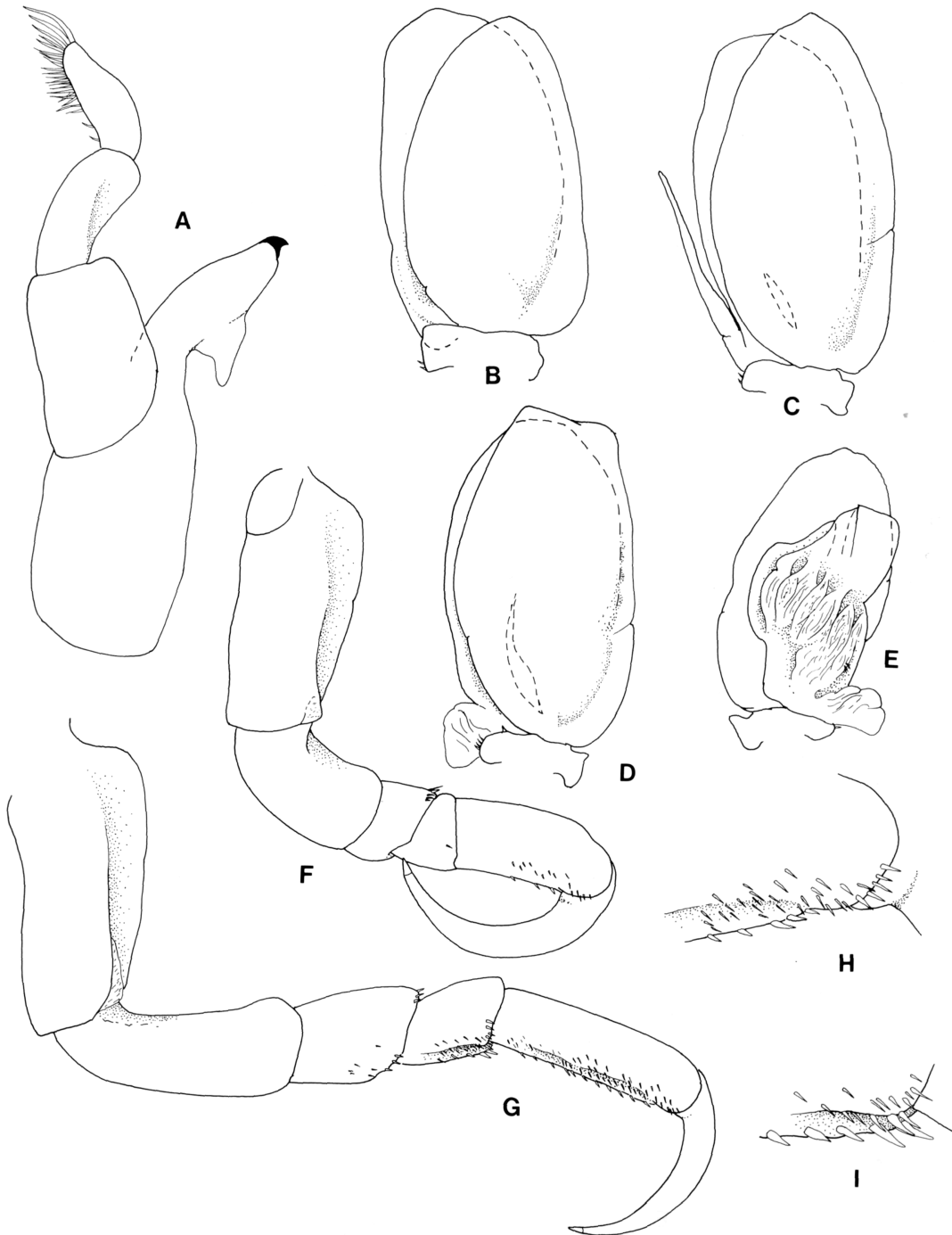


Fig. 27. *Anilocra ankistra* n. sp., female 36.0 mm (WAM 603-85). **A**, mandible; **B–D**, pleopods 1 to 3 respectively; **E**, pleopod 5, posterior view; **F**, pereopod 6; **G**, pereopod 7; **H**, pereopod 7 propodal palm, detail; **I**, pereopod 7 merus, detail.

upturned, converging smoothly to caudomedial point.

Antennule extending to posterior of cephalon; anterodistal angle of article 3 produced. Antenna composed of 12 articles, extending to pereonite 3; articles 6–12 elongate.

Mandible incisor recurved; palp article 3 elongate, lateral margin with 25 stout setae, distal setae longest. Maxillule with 4 terminal spines. Maxilla lateral lobe with 4 spines, medial 2. Maxilliped article 3 small, largely concealed in ventral view by article 2; provided with 3 recurved spines.

Pereopods 1–4 with dactylus about twice as long as propodus; pereopods 5–7 with dactylus progressively decreasing in length. Pereopod 1 basis slightly longer than propodus, basis of pereopods 2–7 becoming progressively longer towards posterior. Pereopod 7 carpus and propodus medial margins with abundant small spines.

Pleopod 1 with peduncle about twice as wide as long, peduncles of pleopods 2–5 about 3 times wider than long. Pleopod 2 with appendix masculina retained. Pleopods 3–5 endopods with large and convoluted proximomedial lobe; pleopods 2–4 endopod with single simple fold; endopod of pleopod 5 massively and complexly folded. Uropod rami extending clearly beyond posterior of pleotelson, exopod slightly longer than endopod, apex acute; endopod apex broadly rounded.

Male. Body about 3.2 times as long as wide; appendages similar to those of female, but pleopod 2 appendix masculina proportionally longer. As the

female of this species retains the appendix masculina, it was not possible to positively identify males.

Colour. Densely covered by chromatophores which give a dark brown appearance, extending onto ventral surface of cephalon and appendages including the ventral surface of pleopod 1.

Size. Ovigerous females: 20.0–43.5 mm; non-ovigerous: 21.0–31.0 mm; and male at 18.0 mm.

Remarks. This species is easily distinguished from all others by the large eyes, very long dactylus on the anterior pereopods, and generally weakly vaulted body shape. The elongate third mandible palp article, presence of 4 spines on the maxilla lateral lobe, and retention of the appendix masculina in the female are unique characters within the genus.

Hosts. Not known.

Distribution. Trawled from several localities on the North West Shelf of Western Australia.

Etymology. The name derives from the Greek for fishhook, *ankistron*, and alludes to the long dactyli.

Anilocra morsicata n. sp.

Figs 29, 30

Material examined. HOLOTYPE: female (23.5), off Fraser Island, south-eastern Qld, 23°28'S 153°19'E, 20 Sept 1980, depth 562 m, coll. Q.F.S. (QM W10186).

Type locality. Off south-eastern Queensland, 23°28'S 153°19'E.

Description. Body 3 times as long as wide, lateral

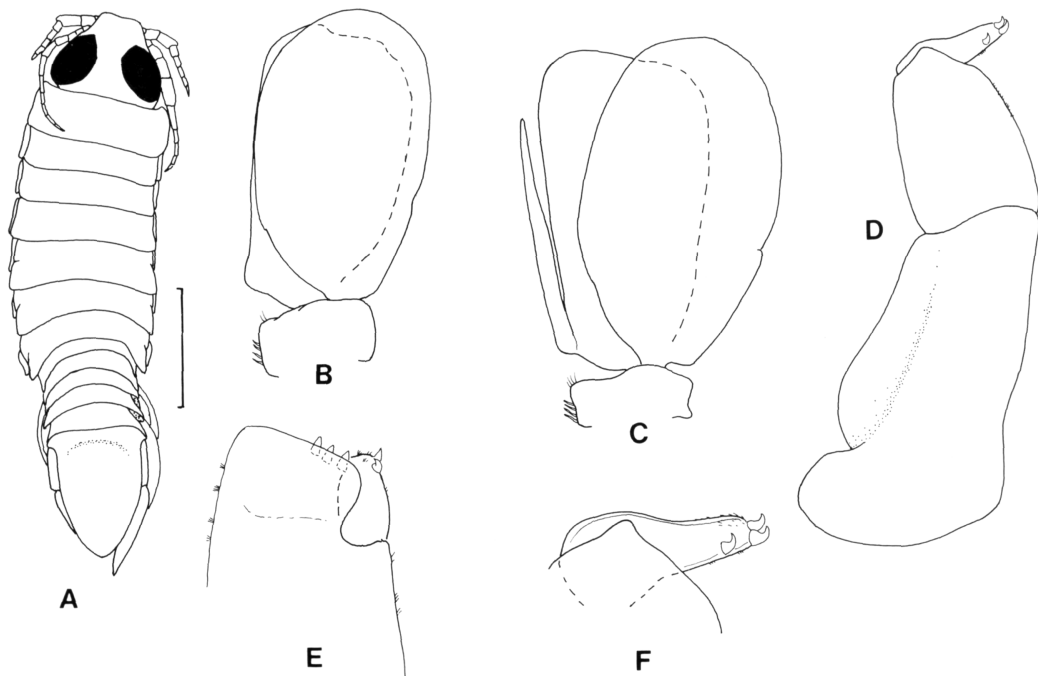


Fig. 28. *Anilocra ankistra* n. sp., ?male 18.0 mm (NTM Cr 649). A, dorsal view; B, pleopod 1; C, pleopod 2; D, maxilliped; E, maxilla apex; F, maxilliped article 3. Scale line represents 4.0 mm.

margins subparallel in dorsal view; dorsum strongly vaulted. Cephalon anterior margin wide, rostrum scarcely developed in dorsal view; eyes about 0.40 width of cephalon. Medial posterior margin of pereonites 3–7 weakly produced. Lateral margins of pleonites not posteriorly produced, not acute; posterodorsal margin of pleonites 3–5 weakly produced. Pleotelson lateral margins not turned up, posterior margin evenly

rounded; anterodorsal surface with depression.

Antennule extending to posterior of eye; article 3 not produced. Antenna with 12–14 articles, extending to pereonite 3; article 4 with plumose setae along posterior margin; articles 7–11 posterodistal margin weakly lobed.

Mandible palp article 3 not folded, distolateral margin with 10 setae; article 2 distolateral margin with 2 setae. Maxillule with 4 terminal spines. Maxilla with 2 spines

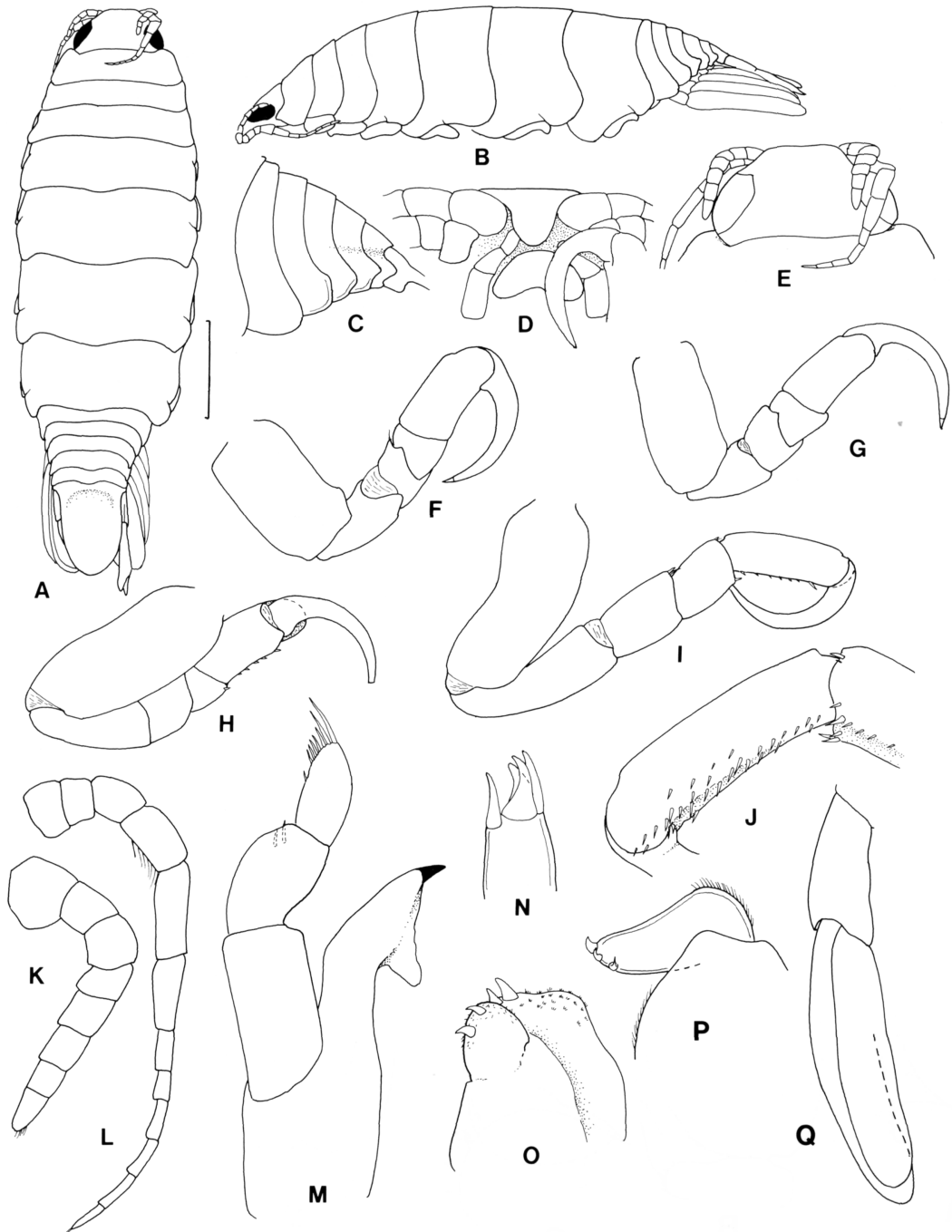


Fig. 29. *Anilocra morsicata* n. sp., holotype. A, dorsal view; B, lateral view; C, pleon, lateral view; D, frons; E, cephalon; F, pereopod 1; G, pereopod 2; H, pereopod 6; I, pereopod 7; J, pereopod 7, merus, propodus, lateral view; K, antennule; L, antenna; M, mandible; N, maxillule apex; O, maxilla apex; P, maxilliped article 3; Q, uropod. Scale line represents 4.0 mm.

each on medial and lateral lobes respectively. Maxilliped article 3 with 3 recurved spines.

Pereopods 1–4 dactylus without nodules, smoothly and shallowly curved; pereopods 2 and 3 similar to pereopod 1. Pereopod 7 with abundant spines on posteromedial margin to carpus and propodus. Pereopod 6 similar to 7 but articles shorter, especially merus and carpus.

Pleopod 1 rami margin converging to narrowly rounded apex. Pleopod 2 similar to 1, but vestigial appendix masculina present on endopod. Pleopod 3 with endopod shorter and more bluntly rounded than exopod, without folds. Pleopod 4 same as 3. Pleopod 5 endopod with 3 folds; peduncles of pleopods 1–5 with 4 coupling hooks. Uropods extending beyond pleotelson, exopod slightly longer than endopod; apex of endopod bluntly rounded.

Male. Not known.

Colour. Dorsal surfaces of pereon and pleon dark brown; antennule, antenna, pereopods (except basis), pleopods and uropods almost entirely unpigmented.

Size. Holotype, 23.5 mm.

Remarks. This species is most similar to *Anilocra meridionalis* Richardson (see Brusca, 1981). The differences are that *A. morsicata* has less strongly curved dactyls, more narrowly rounded rami on pleopods 1 and 2, longer and more narrowly rounded uropod rami and, most obviously, has a very short, bluntly rounded rostrum.

Hosts. Not known.

Distribution. Known only from the type locality.

Etymology. The name is derived from the Latin, *morsicatus*, to bite continually.

Anilocra pomacentri n. sp.

Figs 31, 32

Material examined. All Great Barrier Reef, Qld. HOLOTYPE: female (ovig 12.5), Wistari Reef, Capricorn Group, 25 March 1985, from *Chromis nitidus*, coll. R. Adlard (QM W12182).

PARATYPES: 2 females (11.0, non-ovig 8.0, imm 7.0), male? (6.5), same data as holotype (QM W12183). Female (non-ovig 9.5, imm 6.0), same locality and host, 3 Mar 1985, coll. R. Adlard (QM W12184). Female (ovig 10.5), male (9.8), sex indeterminate (7.5), Lizard Island, Qld, back reef, 22 Mar 1985, ex *Pomacentrus melanochir*, 10 m, coll. R. Pitcher (AM P36270). Female (non-ovig 11.5), reef pass, north end of Carter Reef, north-east of Lizard Island, 11 Feb 1986, on *Chromis atripes*, 18 m, coll. N.L. Bruce & N. Preston (AM P36285).

Additional material. Female, Waining Reef, north-east of Lizard Island, 14°30'S 145°15'E, 4 May 1985, on *Pomacentrus amboinensis*, coll. R. Pitcher (AM P36751). 3 females, Myrmidon Reef, north-east of Townsville, 18°16'S 147°27'E, 20 Feb 1986, on *Chromis margaritifer*, coll. P. Doherty (AM P36758). Palm Group, Qld series:- from *Pomacentrus melanopterus*: 2 females (ovig 15.0, 13.8), male (5.5), north-eastern point, Fantome Island, 18 April 1986, 7 m (AM P36757); from *Pomacentrus lepidogenys*: 3 females (ovig 10.2, non-ovig 6.0, 5.5), north bay, Pelorus Island, 9 April 1986, 9 m (AM P36756); 3 females (ovig 12.5, 10.5, 10.0), north-eastern reef, Orpheus Island, 15 April 1986, 8 m (AM P36753); 2 females (ovig 15.0, 11.5), north-eastern reef, Orpheus Island, 16 April 1986, 10 m (AM P36752); from *Pomacentrus moluccensis*: 2 females (non-ovig 6.0, 6.5), north bay, Pelorus Island, 9 April 1986, 9 m (AM P36755); female (ovig 9.1), north-eastern reef, Orpheus Island, 20 April 1986, 7 m (AM P36754); also 11 uncatalogued males and juveniles from *P. melanopterus* (1), *P. lepidogenys* (2), and *P. moluccensis* (8); all coll. N.L. Bruce, R.T. Springthorpe.

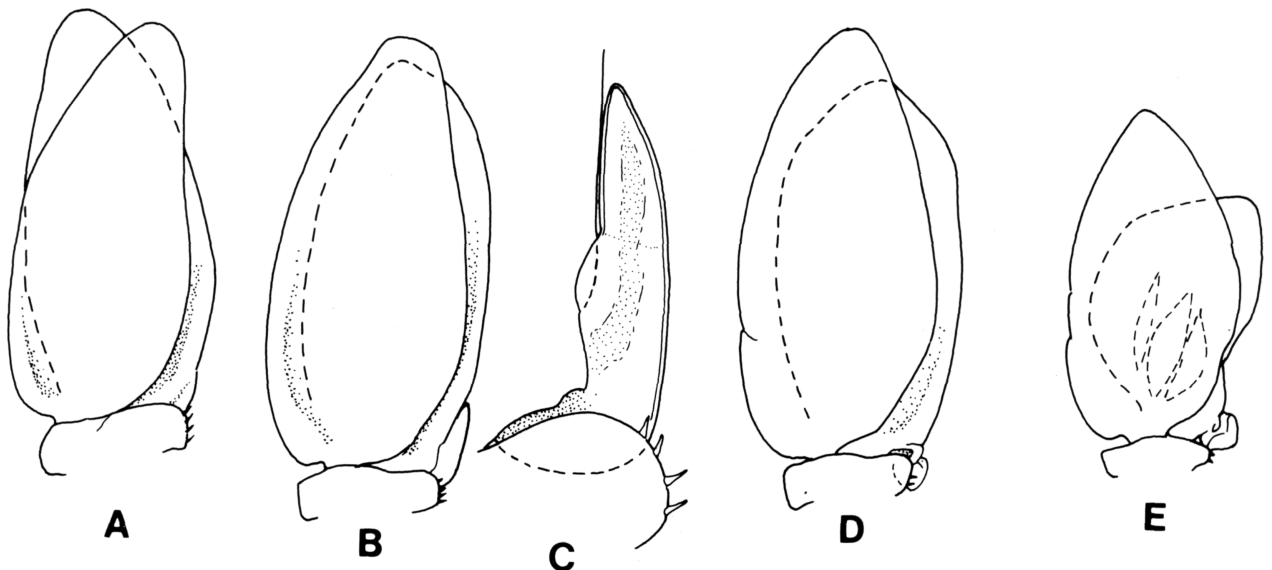


Fig. 30. *Anilocra morsicata* n. sp., holotype. A, B, D, E, pleopods, 1 to 3, 5, respectively; C, pleopod 2 endopod, proximomedial margin.

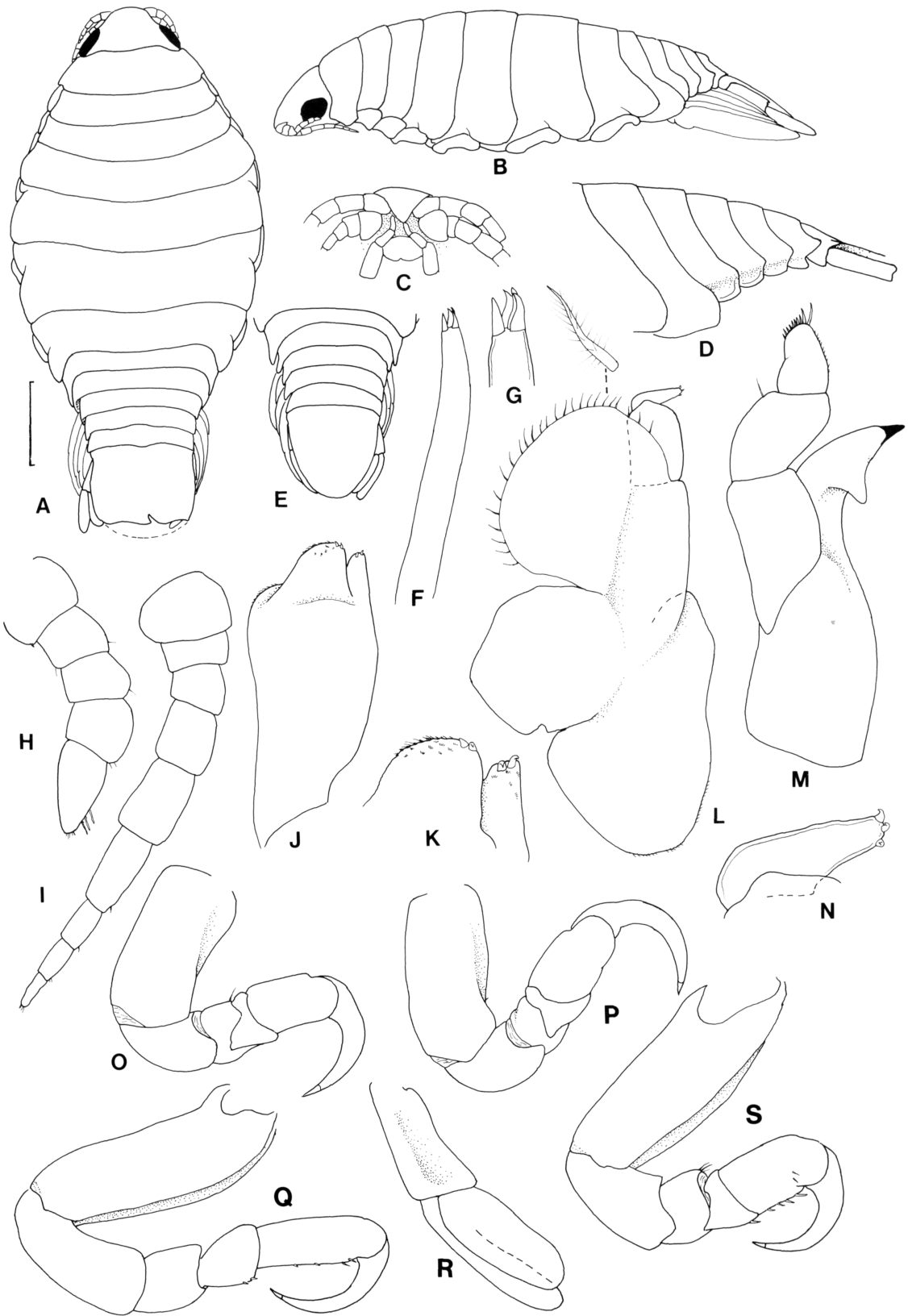


Fig. 31. *Anilocra pomacentri* n. sp., A-C, holotype; D,E, female 10.5 mm, Lizard Is. (AM P36270); remainder, female (11.0 mm, Wistari Reef (QM W12183)). **A**, dorsal view; **B**, lateral view; **C**, frons; **D**, pleon, lateral view; **E**, pleon, pleotelson; **F**, maxillule; **G**, maxillule apex; **H**, antennule; **I**, antenna; **J**, maxilla; **K**, maxilla apex; **L**, maxilliped; **M**, mandible; **N**, maxilliped article 3; **O**, pereopod 1; **P**, pereopod 2; **Q**, pereopod 7; **R**, uropod; **S**, pereopod 6. Scale line represents 2.0 mm.

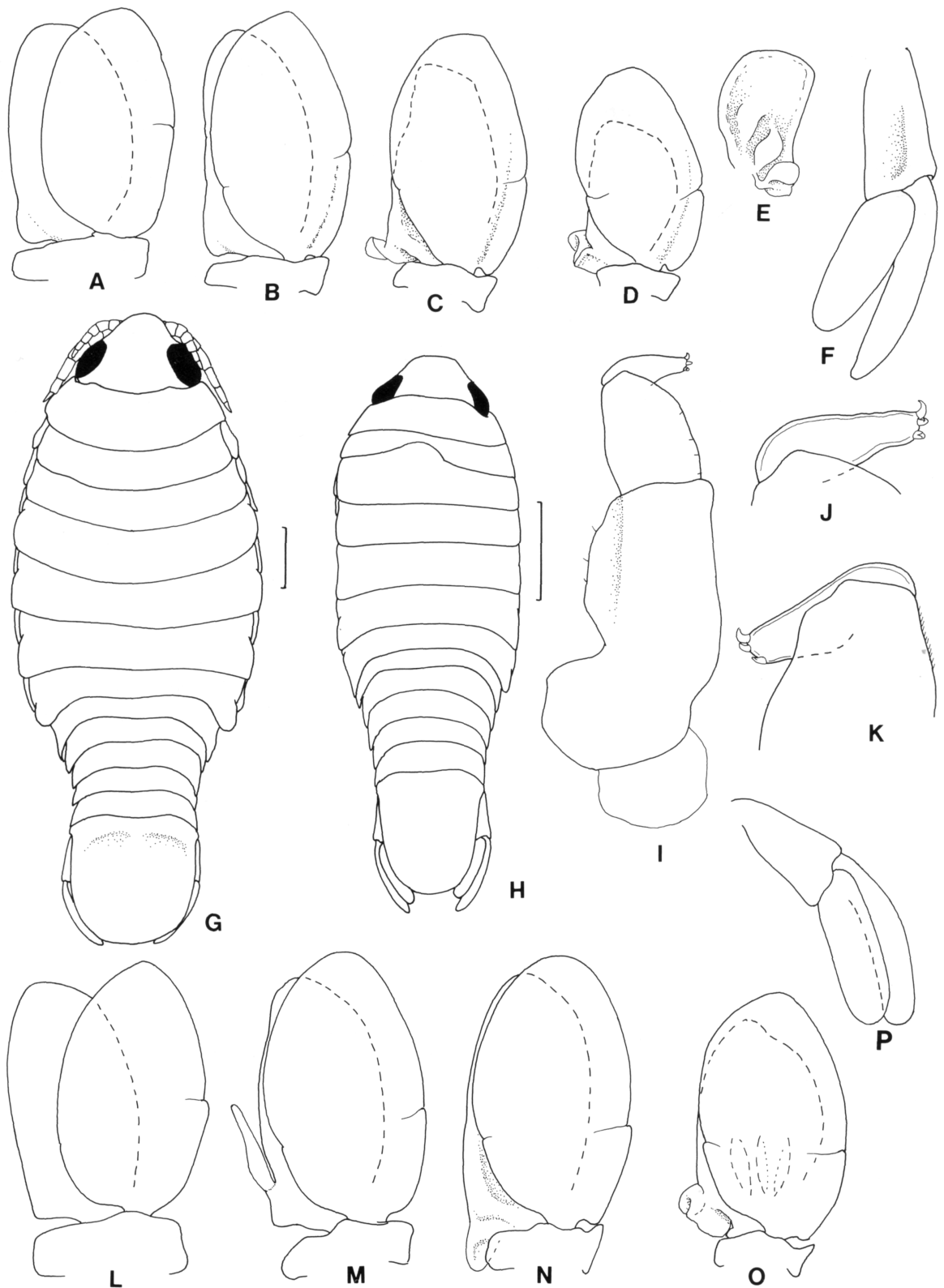


Fig. 32. *Anilocra pomacentri* n. sp., A-E, female 11.0 mm, Wistari Reef (QM W12183); F, female 9.5 mm, Wistari Reef (QM W12184); H, ?male 6.0 mm, Wistari Reef (QM W12184); remainder male 9.8 mm, Lizard Island (AM P36270). A-D, pleopods 1 to 3, 5 respectively; E, pleopod 5 endopod, posterior view; F, uropod; G, dorsal view; H, dorsal view; I, maxilliped, non-ovig female, Wistari Reef; J, maxilliped article 3, same; K, maxilliped article 3; L-O, pleopods 1 to 3, 5 respectively; P, uropod. Scale lines represent 1.0 mm.

Type locality. Wistari Reef, Capricorn Group, southern Great Barrier Reef, 23°29'S 151°53'E.

Description of female. Body about 2.0 times as long as wide. Cephalon with broad rostrum; eyes about 0.3 width of cephalon. Pc sterolateral angle of pereonite 1 weakly produced, forming rectangular lobe in lateral

view. Pleonites subequal in length, posterolateral margins of pleonite 1 produced, those of pleonites 2-5 not enlarged, without acute dorsal posterolateral angles. Pleotelson flat, lateral margins curving smoothly to broadly rounded posterior margin.

Antennule with 7 articles, extending to mid point of

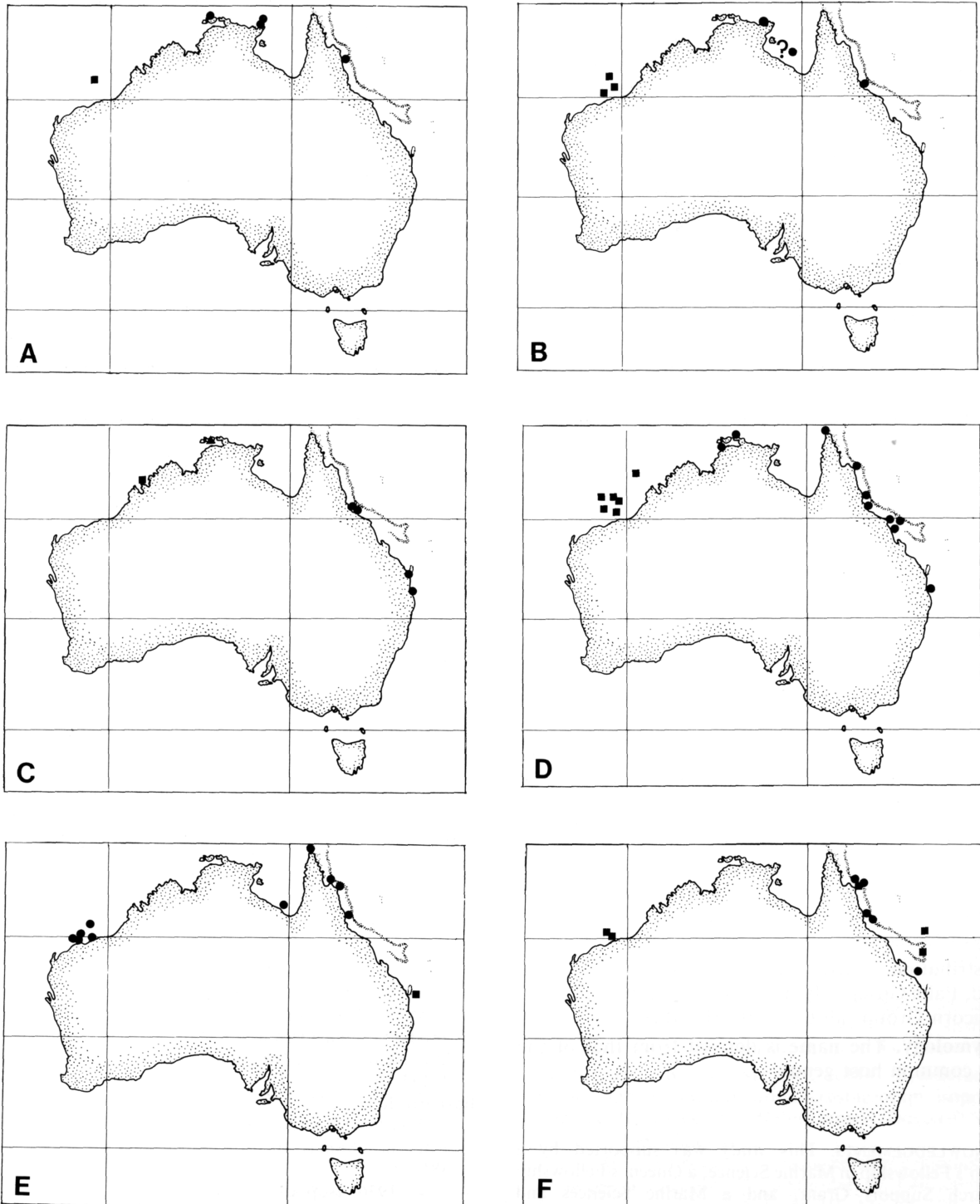


Fig. 33. Distribution of *Pleopodias* and *Anilocra* around the Australian coast. A, *Pleopodias* sp. (■), *A. caudata* (●); B, *A. soelae* (■), *A. dimidiata* (●); C, *A. koolanae* (■), *A. leptosoma* (●), *A. alloceraea* (▲); D, *A. ankistra* (■), *A. apogonae* (●); E, *A. morsicata* (■), *A. nemipteri* (●); F, *A. longicauda* (■), *A. pomacentri* (●).

eye; article 3 anterodistal margin not produced. Antenna with 8–9 articles, extending to posterior of pereonite 1.

Mandible palp with about 12 setae on distal margin of article 3. Maxilla with 2 spines each on lateral and medial lobes respectively.

Pereopods 1–4 without nodules on dactylus; pereopod 1 dactylus robust, extending to carpus. Carpus and propodus of pereopod 6 with 1 and 4 small spines, pereopod 7 with 1 and 2 small spines.

Pleopods rami elongate; endopod of pleopod 5 with only 2 simple lobes; all exopods with proximomedial lobe, weakly developed on pleopods 1–2, prominent on pleopods 3–5. Uropod rami extending beyond pleotelson, exopod narrower and longer than endopod; apices bluntly rounded.

Male. Appendages similar to those of non-ovigerous female, but uropod rami subequal in length. Appendix masculina present.

Variation. Uropod exopod proportionally longer with more acute apex in non-ovigerous and immature female specimens. Antennule articles tending to fuse together; usually number is 7; antenna usually has 8 articles (7 of 9 cases). Adult females from the Palm Group have the anterior margin of the pereopod dactylus very slightly thickened.

Colour. Dorsum with dense chromatophores appearing dark brown to black, posterior of segments with thin clear band; chromatophores extending to antennule, antenna, ventral surfaces of cephalon, pereopods 1–7, pocket of brood pouch, peduncle of pleopod 1, and lateral margins of pleopods 1–4.

Size. Ovigerous females 11.0–12.5 mm, non-ovigerous females 6.0–9.8 mm.

Remarks. The lack of nodules on dactyls of pereopods 1–4, ovate body shape, flat pleotelson, and short rounded uropod rami are characters which serve to identify *A. pomacentri*.

Hosts. Recorded from *Chromis nitidus*, *C. atripes*, *C. margaritifer*, *Pomacentrus lepidogenys*, *Pomacentrus melanochir*, *P. Tamboinensis*, *P. melanopterus* and *P. moluccensis*; sight records on *Pomacentrus pavo* at Lizard Island and *Neopomacentrus violascens* at the Palm Islands. On the Great Barrier reef only one isopod per host was observed, always situated dorsally above eye.

Distribution. Carter Reef, Waining Reef, Lizard Island, Palm Group, Myrmidon Reef, and Wistari Reef, Capricorn Group, all Great Barrier Reef.

Etymology. The name is derived from that of the most common host genus.

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References

- Avdeev, V.V., 1975a. Two representatives of parasitic isopods of the genus *Lironeca* (Cymothoidae) from the region of Australia and New Zealand. *Parasitologia* 3: 247–251.
- 1975b. A new parasitic isopod of the genus *Cterissa* (Crustacea: Cymothoidae) from the Sea of Timor. *Biologia Morya* 3: 69–73.
- 1975c. A new parasitic isopod *Tetragonocephalon lutianus* gen. et sp. nov. from the Arafura Sea. *Biologia Morya* 5: 62–65.
- 1977. Three new species of parasitic isopods (Flabellifera, Anilocridae) from the collection of the Laboratory of Parasitology of Sea Animals of TINRO. *Fisheries, Oceanography, Hydrobiology and Fish Parasitology of the Pacific Ocean* 1011: 139–144.
- 1978. Notes on the distribution of marine Cymothoidae (Isopoda, Crustacea) in the Australian–New Zealand region. *Folia Parasitologica (Prague)* 25: 281–283.
- 1979a. New species of the genus *Cymothoa* (Isopoda, Cymothoidae) from the coastal regions of north-western Australia. *Parasitologia* 13: 50–55.
- 1979b. New species of the genus *Cymothoa* Fabricius (Isopoda, Cymothoidae) from the Indian Ocean. *Parasitologia* 13: 223–234.
- 1979c. Parasitic isopods of the genus *Meinertia* from the Australian–New Zealand region. *Biologia Morya* 2: 48–54.
- 1985. Specific features of the distribution of marine parasitic isopod crustaceans of the family Cymothoidae (Isopoda, Flabellifera). In: "Parasitology and Pathology of Marine Organisms of the World Ocean." (W.J. Harger, Jr ed.) National Oceanic and Atmospheric Administration. Technical Report, National Marine Fisheries Service 25: 1–135.
- Barnard, K.H., 1925. Contributions to the crustacean fauna of South Africa. No. 9. Further additions to the list of Isopoda. *Annals of the South African Museum* 20: 381–410.
- 1936. Isopods collected by R.I.M.S. *Investigator*. Records of the Indian Museum, Calcutta 38: 147–191.
- Beumer, J.P., L.D. Ashburner, M.E. Burbury, E. Jetté & D.J. Latham, 1982. A checklist of the parasites of fishes from Australia and its adjacent territories. Commonwealth