

NEW SPECIES OF *ILYARACHNA* SARS, 1869 (ISOPODA: ASELOTATA: MUNNOPSIDAE) FROM SOUTHEASTERN AUSTRALIA

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ABSTRACT

The munnopsid genus *Ilyarachna* Sars, 1869 is reported from Australian waters for the first time. Five new species of *Ilyarachna*, all collected from the southeastern Australian continental slope, namely southern New South Wales, eastern Victoria, and eastern Tasmania. *Ilyarachna cheropin* n. sp., *I. ellae* n. sp., *I. flindersensis* n. sp., *I. mokari* n. sp., and *I. quorna* n. sp. were collected from depths of 720–1840 m. A revised diagnosis of *Ilyarachna* is presented, as well as a key to the Australian species of the genus.

KEY WORDS: identification key, New South Wales, new species, Tasmania, Victoria

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INTRODUCTION

The genus *Ilyarachna* Sars, 1869 is the largest genus of the munnopsid subfamily Ilyarachninae Hansen, 1916. The first *Ilyarachna* species was described by G. O. Sars, who had collected specimens from Christiania Fjord, Norway. He established the genus *Mesostenus* Sars, 1864 for *Mesostenus longicornis* Sars, 1864 but the name *Mesostenus* was preoccupied and Sars (1869) renamed the genus as *Ilyarachna*.

The first munnopsid isopods from the southwestern Pacific were collected by HMS *Challenger* in the early 1870s (Beddard, 1886) and the first Ilyarachninae from this area were collected by the Danish deep-sea *Galathea* Expedition in 1950–52. *Ilyarachna kermadecensis* Wolff, 1962 was collected from three stations in the Kermadec Trench, north of New Zealand, at depths of 4540–7000 m (Wolff, 1962). Five new species from three genera of Ilyarachninae have been described from southeastern Australian waters in recent years (see Merrin, 2004, 2009, 2011; Merrin and Bruce, 2006), none have been from the genus *Ilyarachna*.

Ilyarachna is the most species-rich of Ilyarachninae genera and unlike *Epikopais* Merrin, 2009, *Notopais* Hodgson, 1910, and *Nyctobadistes* Merrin, 2011, which are known exclusively from the Southern Hemisphere, *Ilyarachna* has a worldwide distribution. The known depth distribution of the genus is quite sizable, the shallowest record being 8 m for *Ilyarachna longicornis* (Sars, 1864) collected from King Charles Land, east of Spitzbergen, Norway (Hult, 1941) to 7230 m for *I. kussakini* Birstein, 1963 from the northwestern Pacific (Birstein, 1963). This large bathymetric range is both the shallowest and deepest records for the subfamily.

This article describes five new species of *Ilyarachna*, all from waters around southeastern Australia, namely southern New South Wales, eastern Victoria, eastern Bass Strait, and eastern Tasmania, with much of the material being

collected during Museum Victoria's SLOPE expeditions of southeastern Australia.

MATERIALS AND METHODS

Illustrations and descriptions were prepared based on the type material and are indicated in the text and figure captions. Illustrations of specimens were prepared using a Zeiss Stemi SV11 dissecting microscope and a Nikon Optiphot-2 compound microscope. Both microscopes were fitted with a camera lucida.

Descriptions were prepared in the computer program DEScriptive LANguage for TAXonomists (DELTA; Dallwitz et al., 1997). All ratios, unless otherwise stated, were calculated using the maximum lengths and widths of segments. With antennal articles, the most basal article is referred to as article 1, the next article as article 2, and so on. Directional information concerning pereopods follows Brusca et al. (1995).

Abbreviations used in text are as follows: NSW, New South Wales; Vic, Victoria; NMV, Museum Victoria, Melbourne.

SYSTEMATICS

Family Munnopsidae Lilljeborg, 1864 Subfamily Ilyarachninae Hansen, 1916 *Ilyarachna* Sars, 1869

Mesostenus Sars, 1864: 211 (preoccupied name).

Ilyarachna Sars, 1869: 44; 1897: 134; Hansen, 1916: 121; Wolff, 1962: 94; Birstein, 1971: 217; Menzies and George, 1972: 76; Thistle, 1980: 116; Kussakin, 2003: 189.

Type Species.—*Mesostenus longicornis* Sars, 1864; by monotypy.

Diagnosis (Modified After Thistle, 1980).—Cephalic frons wide, rectangular; cephalic anterior flanges present, small. Pereonites 1–4 anterior margins either with spines or row of robust setae or smooth, if spines present, each topped with an apical seta; pereonites 5–7 lateral margins not narrow, more streamlined, natasome not reduced. Pleon longer than wide in dorsal view, without anterolateral spine. Antennae positioned closely together; antenna 1 not small,

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article 1 lateral flange absent; antenna 2 article 1 without spine (except *Ilyarachna zachsi* Gurjanova, 1933). Mandible lacinia mobilis present, reduced; spine row, mandibular palp both present; mandibular fossa angular, sub-horizontal across mandible. Pereopod 2 ambulatory, not enlarged, ischium elongated; pereopods 5, 6 carpus discoid; dactyli of natatory pereopods narrowing distally. Pleopod 4 with more than one long plumose seta. Uropod uniramous or biramous, if biramous, exopod rudimentary, never large, articulating.

Species Included.—*Ilyarachna acarina* Menzies and Barnard, 1959; *Ilyarachna affinis* Barnard, 1920; *Ilyarachna antarctica* Vanhöffen, 1914; *Ilyarachna armata* Thistle, 1980; *Ilyarachna bergendali* Ohlin, 1901; *Ilyarachna bicornis* Hansen, 1916; *Ilyarachna calidus* George and Menzies, 1968; *Ilyarachna calva* Pasternak, 1982; *Ilyarachna cheropin* n. sp.; *Ilyarachna crassiceps* Barnard, 1920; *Ilyarachna crozetensis* Kensley, 1980; *Ilyarachna ellae* n. sp.; *Ilyarachna defecta* Menzies and George, 1972; *Ilyarachna distincta* Birstein, 1971; *Ilyarachna dubia* Hansen, 1916; *Ilyarachna flindersensis* n. sp.; *Ilyarachna frami* Just, 1980; *Ilyarachna hirticeps* Sars, 1870; *Ilyarachna kermadecensis* Wolff, 1962; *Ilyarachna kurilensis* Kussakin and Mezhev, 1979; *Ilyarachna kussakini* Birstein, 1963; *Ilyarachna longicornis* (Sars, 1864); *Ilyarachna medorientalis* Chardy, 1974; *Ilyarachna mokari* n. sp.; *Ilyarachna nordenstami* Wolff, 1962; *Ilyarachna perarmata* Birstein, 1971; *Ilyarachna pervica* Menzies and George, 1972; *Ilyarachna plana* Thistle, 1980; *Ilyarachna polita* Bonnier, 1896; *Ilyarachna profunda* Schultz, 1966; *Ilyarachna propinqua* Birstein, 1971; *Ilyarachna quorna* n. sp.; *Ilyarachna setosa* Kussakin, 1979; *Ilyarachna torleivi* Svavarsson, 1988; *Ilyarachna triangulata* Menzies, 1962; *Ilyarachna una* Thistle, 1980; *Ilyarachna vemae* Menzies and George, 1972; *Ilyarachna wolffi* Kensley, 1978; *Ilyarachna zachsi* Gurjanova, 1933.

Remarks.—The most recent English-language diagnosis (Kussakin (2003) is in Russian) is that of Thistle (1980) and that brief diagnosis was based on approximately half the number of species now included in the genus. The diagnosis has here been expanded to include the characters of shape of the front of the cephalon, details of ornamentation (or their absence) on the margins of pereonites 1-4, the shape of the natasome, and the shape of the mandibular fossa.

Ilyarachna is defined by the combination of the following: wide, rectangular cephalic frons; mandible palp, lacinia mobilis and spine row present; a large, streamlined natasome without lateral extensions; pereopods 5 and 6, each with a discoid carpus; and the uropod being either uniramous or biramous, if biramous, exopod rudimentary, never large and articulating.

The highly specialised mandibles of Ilyarachninae, used in for the crushing of foraminiferans (Svavarsson et al., 1993; Gudmundsson et al., 2000), is one of the distinguishing features of the subfamily. Within the subfamily, the presence or absence of the mandibular palp is considered to be a generic-level character, with four of the genera having this character: *Ilyarachna*; *Aspidarachna* Sars, 1897; *Bathybadistes* Hessler and Thistle, 1975; and *Nyctobadistes* Merrin, 2011. Although retaining a mandibular palp, the mandible of *Aspidarachna* lacks a lacinia mobilis and a spine row, two characters that are retained by *Ilyarachna*.

The large, streamlined natasome of *Ilyarachna* distinguishes it from the remaining two Ilyarachninae genera that have a mandibular palp. Both *Bathybadistes* and *Nyctobadistes* have a reduced natasome and associated muscle, with pereonites 5-7 well defined laterally from each other. Not only does *Bathybadistes* have a reduced natasome, but pereonites 5-7 also exhibit lateral extensions, a character not found in *Ilyarachna*.

The five new species described here from southeastern Australia, bring the total number of species of *Ilyarachna* to 39.

Key to the *Ilyarachna* Species of Australia

- 1 – Cephalon without dorsal spines 2
- 1' – Cephalon with dorsal spines
. *Ilyarachna quorna* n. sp.
- 2(1) – Pereonites 1-4 anterior margins with robust setae; pereonites 7 ventrally with spine(s) 3
- 2' – Pereonites 1-4 anterior margins without robust setae; pereonites 7 ventrally without spines
. *Ilyarachna cheropin* n. sp.
- 3(2) – Pereonite 7 ventrally with single medial spine 4
- 3' – Pereonite 7 ventrally without single medial spine, instead with pair of small spines
. *Ilyarachna ellae* n. sp.
- 4(3) – Pereonite 4 with anterolateral lobes; pereonite 5 lateral margin without indentation; male antenna 1 elongated, of about 25 articles, article 3 over two-thirds length of article 2; pereopod 1 basis inferior margin with row of robust setae
. *Ilyarachna mokari* n. sp.
- 4' – Pereonites 3 and 4 with anterolateral lobes; pereonite 5 lateral margins indent; male antenna 1 short, of about 14 articles, article 3 half the length of article 2; pereopod 1 basis inferior margin with robust setae at distal end only *Ilyarachna flindersensis* n. sp.

Ilyarachna cheropin n. sp.

Figs. 1-4

Material Examined.—Holotype. Female (3.0 mm), 76 km south of Point Hicks, Victoria, stn SLOPE 69, from 38° 26.81'–38° 29.33'S to 149° 19.98'–149° 20.78'E, 26 October 1988, WHOI epibenthic sled, 1840–1750 m, RV *Franklin*, sandy mud, fine shell (NMV J18864). Paratypes. 4 males, 2 females, 11 fragments (1 male, 3.0 mm, dissected; 1 male, 2.5 mm, dissected), type locality (NMV J54116).

Additional Material.—2 males, 3 females, 54 km east-southeast of Nowra, NSW, stn SLOPE 53, from 34° 52.72'–34° 54.3'S to 151° 15.04'–151° 19.5'E, 22 October 1988, WHOI epibenthic sled, 996–990 m, RV *Franklin*, mud, fine sand, fine shell (NMV J18869). 2 males, 2 females, 2 fragments, south of Point Hicks, Vic., stn SLOPE 27, 38° 25.00'S, 149° 00.00'E, 22 July 1986, WHOI epibenthic sled, 1500 m, RV *Franklin*, compacted clay (NMV J18867). 1 male, off Nowra, NSW, stn SLOPE 7, 34° 52.29'S, 151° 15.02'E, 15 July 1986, WHOI epibenthic sled, 1096 m, RV *Franklin*, shell (NMV J18865).

Etymology.—*Cheropin* is an Australian Aboriginal word meaning “to swim”; noun in apposition.

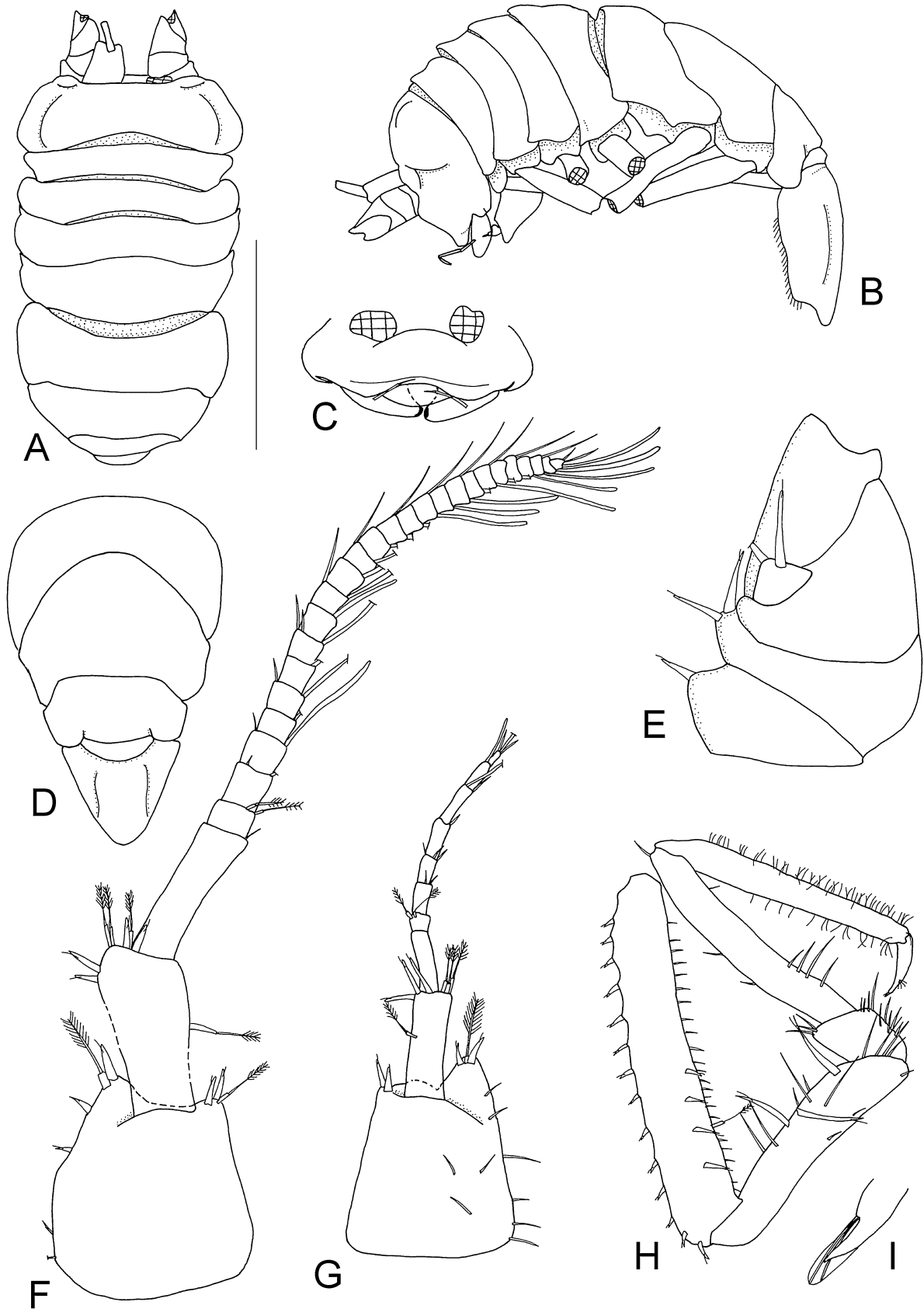


Fig. 1. *Ilyarachna cheropin* n. sp. A-D, G, female holotype, 3.0 mm (NMV J18864); E, F, H, I, male paratype, 3.0 mm (NMV J54116). A, dorsal view; B, lateral view; C, cephalon; D, dorsal view of pereonites 5-7 and pleon; E, left antenna 2; F, left antenna 1; G, right antenna 1; H, left pereopod 1; I, unguis of left pereopod 1. Scale bar = 1 mm, for dorsal and lateral views only.

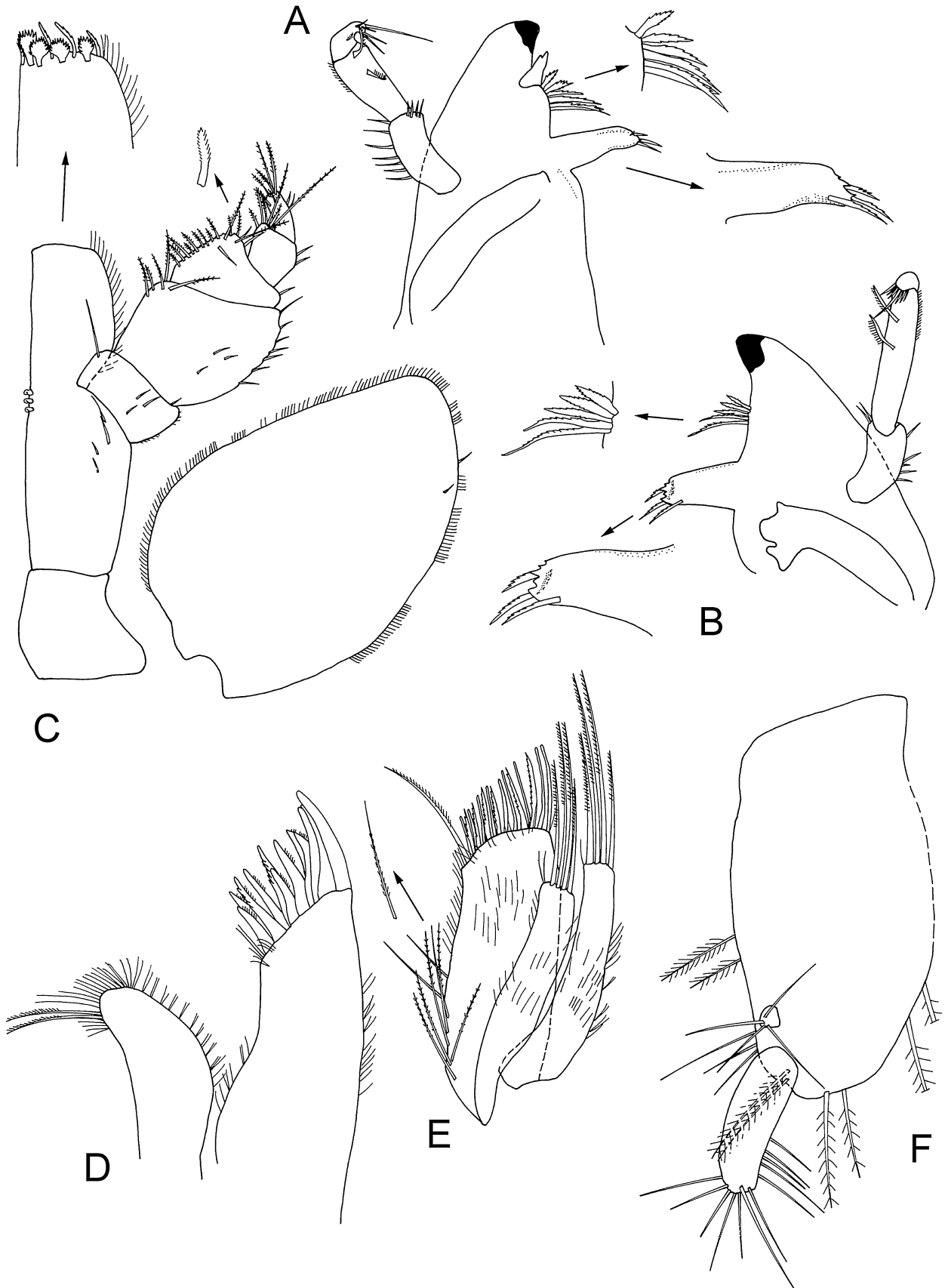


Fig. 2. *Ilyarachna cheropin* n. sp. All figures from male paratype, 3.0 mm (NMV J54116). A, left mandible; B, right mandible; C, left maxilliped; D, left maxilla 1; E, left maxilla 2; F, left uropod.

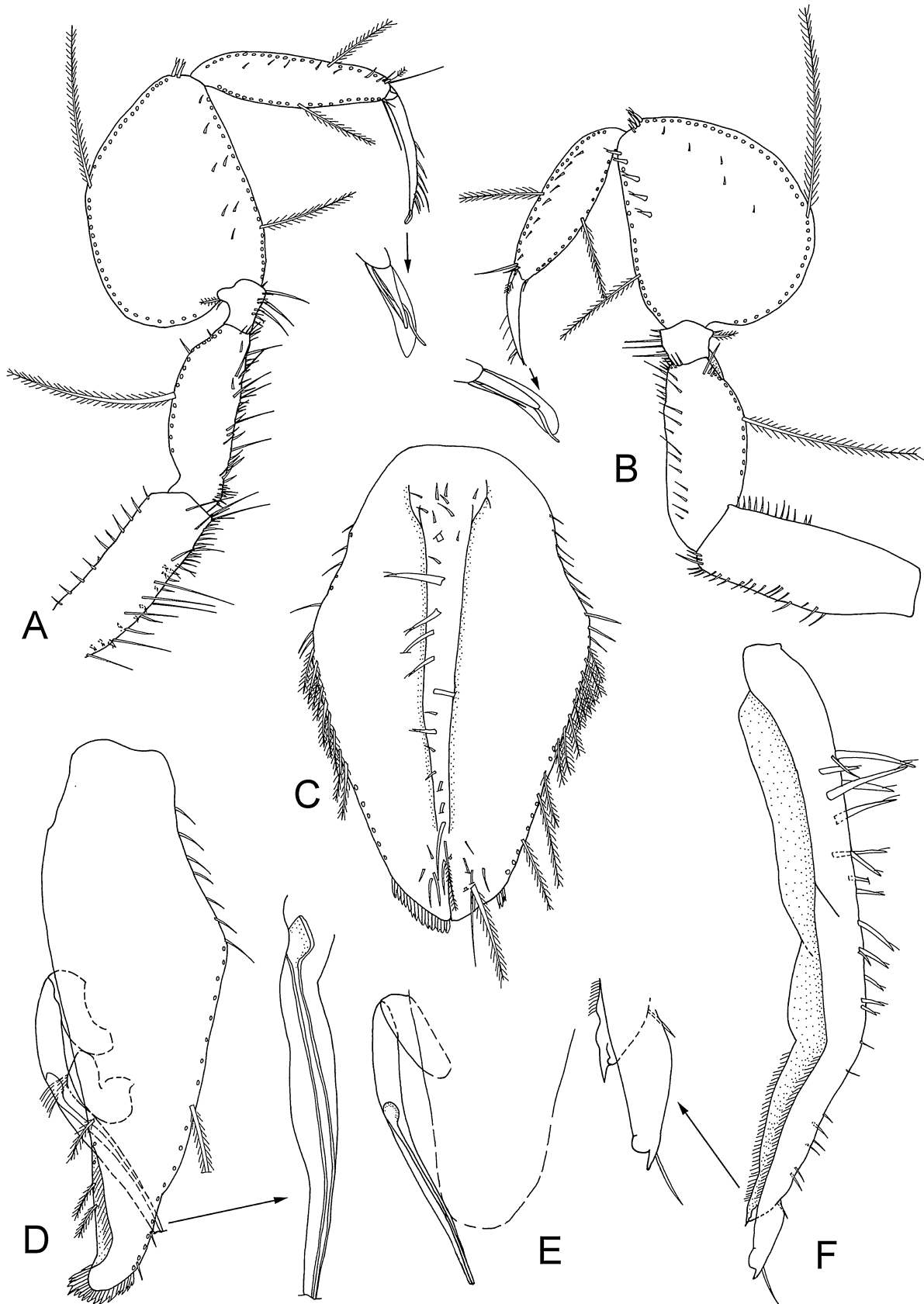


Fig. 3. *Ilyarachna cheropin* n. sp. A, B, E, male paratype, 3.0 mm (NMV J54116); C, female holotype, 3.0 mm NMV J18864); D, F, male paratype, 2.5 mm (cephalon missing; NMV J54116). A, right pereopod 6; B, left pereopod 5; C, operculum; D, left pleopod 2; E, stylet of left pleopod 2 (protopod encrusted in crystals); F, lateral view of pleopod 1.

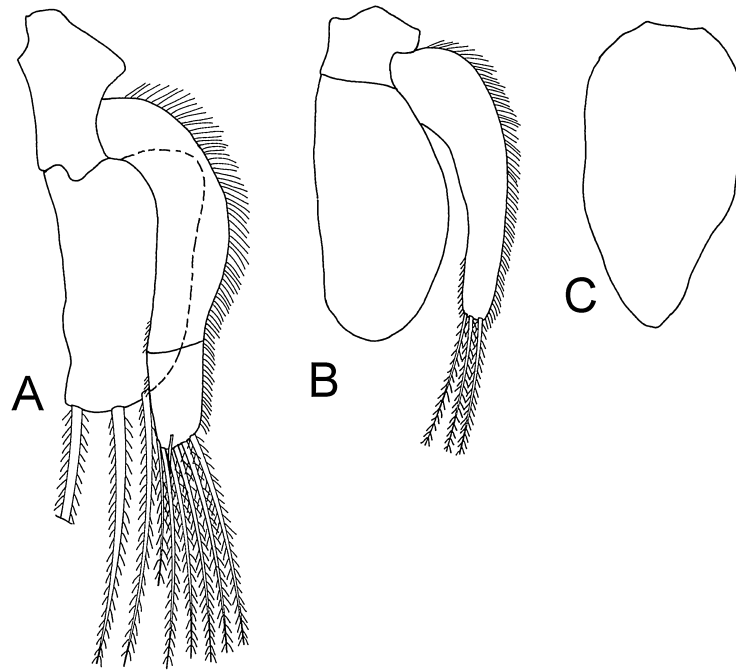


Fig. 4. *Ilyarachna cheropin* n. sp. All figures from male paratype 2.5 mm (cephalon missing; NMV J54116). A, left pleopod 3; B, left pleopod 4; C, left pleopod 5.

Description of Female.—Body (Fig. 1A, B) length 2.8 times pereonite 2 width; cuticle smooth. Cephalon smooth, spines absent. Pereonites 1-5 anterior margins smooth, no ornamentation; anterolateral margins rounded except for pereonites 3, 4 with small lobes; pereonites 6, 7 ventrally without ornamentation. Pleon (Fig. 1D) length 1.4 times proximal width.

Antenna 1 (Fig. 1G) composed of 10 articles; article 1 length 1.2 times width, surface with 3 simple setae, lateral margin with 6 simple setae, distal margin with 4 sensillate robust setae, single penicillate seta; article 2 length 2.9 times width, mesial margin with single penicillate seta at mid-point, distal rim with 3 sensillate robust setae, 3 penicillate setae; article 4 with 2 penicillate setae; article 5 with 2 simple setae; article 6 with 3 simple setae; article 7 with single simple seta; from article 8, each article has an aesthetasc, some an additional simple setae; terminal article with 2 simple setae, single distal aesthetasc.

Operculum (Fig. 3C) length 4.8 times proximal width, medial keel with row of robust setae and simple setae, distal surface with single plumose seta, few scattered setae, medial excision and veined lamellar extension, margins anterolaterally with 19 simple setae, laterally with numerous plumose setae.

Description of Male.—Antenna 1 (Fig. 1F) with 28 articles; article 1 length 1.1 times width, lateral margin with 2 simple setae, 2 sensillate robust setae, distal margin with 4 sensillate, robust setae, 2 penicillate setae; article 2 length 2.0 times width, mesial margin with single penicillate seta, distally with 4 sensillate robust setae, 3 penicillate setae; article 3 with single simple seta; article 4 with 2 penicillate setae; article 5 with 2 simple setae; from article 6 onwards, each article has single aesthetasc, many with

additional simple setae; terminal article with 2 simple setae, single aesthetasc. Antenna 2 (Fig. 1E) damaged; article 1 distolateral margin with single sensillate robust seta; article 2 distolateral margin with 2 sensillate robust setae; article 3 scale with 2 sensillate robust setae; article 4 without ornamentation.

Mandible (Fig. 2A, B) lacinia mobilis distally with 2 points; spine row with 6 spines (on left mandible, 5 spines on right); molar small, distally with 3 uniserrate setae; mandibular palp extending beyond incisor, article 1 with 13 simple setae (on left mandibular palp, 7 on right mandibular palp), article 2 with 2 small pectinate setae, cuticular scales, article 3 with 5 simple setae (on left mandibular palp, 7 simple setae on right mandibular palp). Maxilla 1 (Fig. 2D) lateral, mesial margins with fine simple setae; lateral lobe width 1.8 times mesial lobe width, distal margin with few fine simple setae, 3 robust setae, single dentate robust seta, 7 pectinate robust setae, single pectinate dentate robust seta, mesial lobe terminated with many fine simple setae, 2 long pectinate setae. Maxilla 2 (Fig. 2E) lateral lobe margins, surface with scattered fine simple setae, distally with 4 long pectinate setae; middle lobe width equal to lateral lobe width, distally with 4 long pectinate setae; mesial lobe width 2.2 times lateral lobe width; margins, surface with fine simple setae, mesial margin proximally also with 5 elongated bi-serrate, 3 elongated simple setae, distally with 9 blunt simple setae, 6 toothed setae, single long pectinate seta. Maxilliped (Fig. 2C) coxa length 0.9 times width; basis length 3.1 times width, with 4 simple setae; endite with 3 coupling hooks, 3 toothed setae, 5 fan setae, few fine simple setae; palp article 1 lateral margin with cuticular scales, distolateral corner with single simple seta, surface with 3 simple setae, distomesial margin with simple seta; article 2 length 2.8 times article 1, lateral margin with 7 simple setae,

surface with 3 simple setae, mesial margin with 5 distally pappose setae; article 3 length 1.3 article 1, lateral margin with single simple seta, mesial margin with 3 simple setae, 13 distally pappose setae; article 4 length equal to article 1, lateral margin with 2 simple setae, 6 distally pappose setae; article 5 length equal to article 1, lateral margin with 2 simple setae, terminally with 6 distally pappose setae; epipod length 1.5 times width, margins with many cuticular scales, 2 simple setae.

Pereopod 1 (Fig. 1H, I) basis length 5.9 times width, inferior margin with 14 evenly spread sensillate robust setae, lateral surface with 4 sensillate robust setae, superior margin with 22 simple setae, single penicillate seta; ischium length 4.4 times width, inferior margin with 3 sub-marginal simple setae, lateral surface with single simple seta, superior margin with 3 sensillate robust setae, 5 simple setae, distal margin with 4 simple setae; merus length 1.1 times width, inferior margin with 9 simple setae, distosuperior margin with 3 simple setae; carpus length 6.1 times width, inferior margin with 5 simple setae, superior margin with 3 simple setae; propodus length 7.9 times width, inferior margin with 17 simple setae, superior margin with 51 simple setae; dactylus length 3.4 times proximal width, superior margin with 4 distal simple setae.

Pereopod 5 (Fig. 3B) basis length 2.7 times width, inferior margin with 20 simple setae, superior margin with 12 simple setae; ischium length 2.4 times width, inferior margin with 11 simple setae, lateral surface with 12 simple setae, superior margin with 3 simple setae; merus length 0.8 times width, inferior margin with 8 simple setae, distosuperior margin with single simple seta, single short plumose seta; carpus length 1.1 times width, lateral surface with 5 sensillate robust setae, 5 small scattered simple setae, distosuperior margin with 3 sensillate robust setae, single simple seta; propodus length 3.2 times width, inferior margin with single simple seta, lateral surface with 8 small simple setae, superior margin with single penicillate seta, 2 simple setae; dactylus 5.6 times as long as proximal width, superior margin with 6 simple setae.

Pereopod 6 (Fig. 3A) basis damaged, inferior margin with at least 29 simple setae, lateral surface with at least single simple seta, 11 sensillate robust setae (on opposing surface), superior margin with at least 11 simple setae; ischium length 2.8 times width, inferior margin with 47 simple setae, superior margin with 2 simple setae; merus length 1.1 times width, inferior margin with 11 simple setae, distosuperior margin with single simple seta, single small plumose seta; carpus length 1.5 times width, lateral surface with 7 simple setae, superior margin with 2 sensillate robust setae; propodus length 3.8 times width, distoinferior margin with 2 simple setae, lateral surface with 7 simple setae, distosuperior margin with 3 simple setae, single penicillate seta; dactylus length 6.9 times proximal width, superior margin with 7 simple setae.

Pleopod 1 (Fig. 3F) length 14.5 times proximal height, with 14 sensillate robust setae, 12 simple setae. Pleopod 2 (Fig. 3D, E) protopod length 3.1 times width, lateral margin with 9 simple setae, row of plumose setae, distally with lamellar extension, mesial margin with 5 plumose setae; exopod length 0.2 times protopod length, with fine

simple setae; stylet elongated, terminating as point (tip broken off). Pleopod 3 (Fig. 4A) exopod length 1.3 times endopod length, distally with 6 long plumose setae, single submarginal simple seta; endopod length 1.6 times width, with 3 long plumose setae. Pleopod 4 (Fig. 4B) exopod with 3 terminal long plumose setae; endopod length 2.0 times width. Pleopod 5 (Fig. 4C) length 2.0 times width.

Uropod (Fig. 2F) protopod length 2.0 times width, lateral margin with 4 plumose setae, 3 simple setae, distal margin with 2 plumose setae, mesial margin with 2 plumose setae; exopod rudimentary, 0.05 times as long as protopod, with 4 simple setae; endopod length 0.4 times protopod length with 12 simple setae.

Remarks.—*Ilyarachna cheropin* n. sp. is distinguished from congeners by a combination of characters: cephalon without ornamentation, smooth pereonites without robust setae, pereonites 6 and 7 without ventral ornamentation, pereopod 1 basis and propodus with many setae, pereopods 5 and 6 merus superior margin with a small plumose seta, and mandible palp article 3 terminally with many setae.

Ilyarachna cheropin n. sp. resembles *I. longicornis* as both species have a smooth cephalon, a smooth body, and pereonites 6 and 7 without ventral ornamentation. The new species can be distinguished from *I. longicornis* by several characters. The anterior margin of pereonite 6 is more domed in *I. cheropin* n. sp. than in *I. longicornis*, pereopod 1 basis inferior margin has a row of evenly spaced sensillate robust setae in *I. cheropin* n. sp., whereas in *I. longicornis* the basis has a row of sensillate robust setae on the superior margin, pereopod 1 carpus superior margin with over 50 simple setae in *I. cheropin* n. sp., whereas there are very few simple setae on the same margin in *I. longicornis*, and pereopod 5 basis and ischium inferior margins collectively with 31 simple setae (20 + 11) in *I. cheropin* n. sp., whereas *I. longicornis* has less than half the number of setae for the same margins.

Distribution.—Australia, between Nowra, NSW and south of Point Hicks, Victoria, between 990–1840 m.

Ilyarachna ellae n. sp.

Figs. 5–6

Material Examined.—Holotype. Female (3.2 mm), off Freycinet Peninsula, Tasmania, Australia, stn SLOPE 46, 42°0.20'S, 148°37.70'E, 27 July 1986, WHOI epibenthic sled, 720 m, RV. Franklin, coarse shelly sand (NMV J18863). Paratypes. 2 females (4.0 mm, dissected; 3.0 mm), type locality (NMV J54115).

Etymology.—Named for my daughter Ella.

Description of Female.—Body (Fig. 5A, B) length 2.5 times pereonite 2 width. Cephalon without spines. Pereonites 1–4 anterior margins with robust setae (setae on pereonite 4 not intact); anterolateral margins of pereonites 1, 2, 6, 7 rounded, pereonites 3, 4 with small lobes, pereonite 5 anterolateral margin square; pereonite 6 ventrally without ornamentation; pereonite 7 (Fig. 5I) ventrally with 2 small spines. Pleon length 1.4 times proximal width, posterior tip rounded.

Antenna 1 (Fig. 5D) composed of 10 articles; article 1 length 1.1 times width, surface with 2 simple setae, 2 penicillate setae, lateral margin with 6 simple setae,

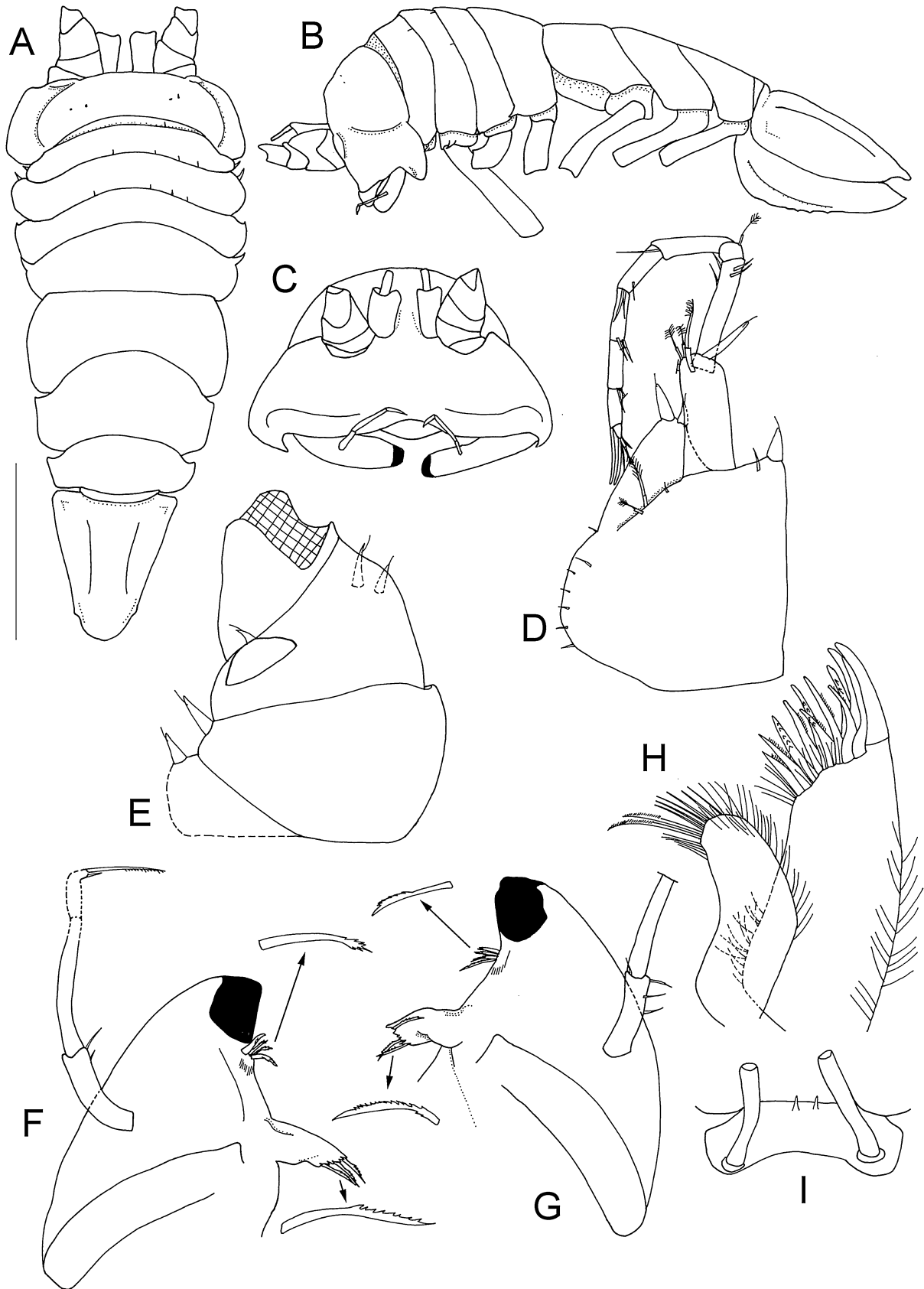


Fig. 5. *Ilyarachna ellae* n. sp. A-C, I, female holotype, 3.2 mm (NMV J18863); D-H, female paratype, 4.0 mm (NMV J54115). A, dorsal view; B, lateral view; C, cephalon; D, left antenna 1; E, left antenna 2; F, left mandible; G, right mandible; H, left maxilla 1; I, ventral view of pereonite 7. Scale bar = 1 mm, for dorsal and lateral views only.

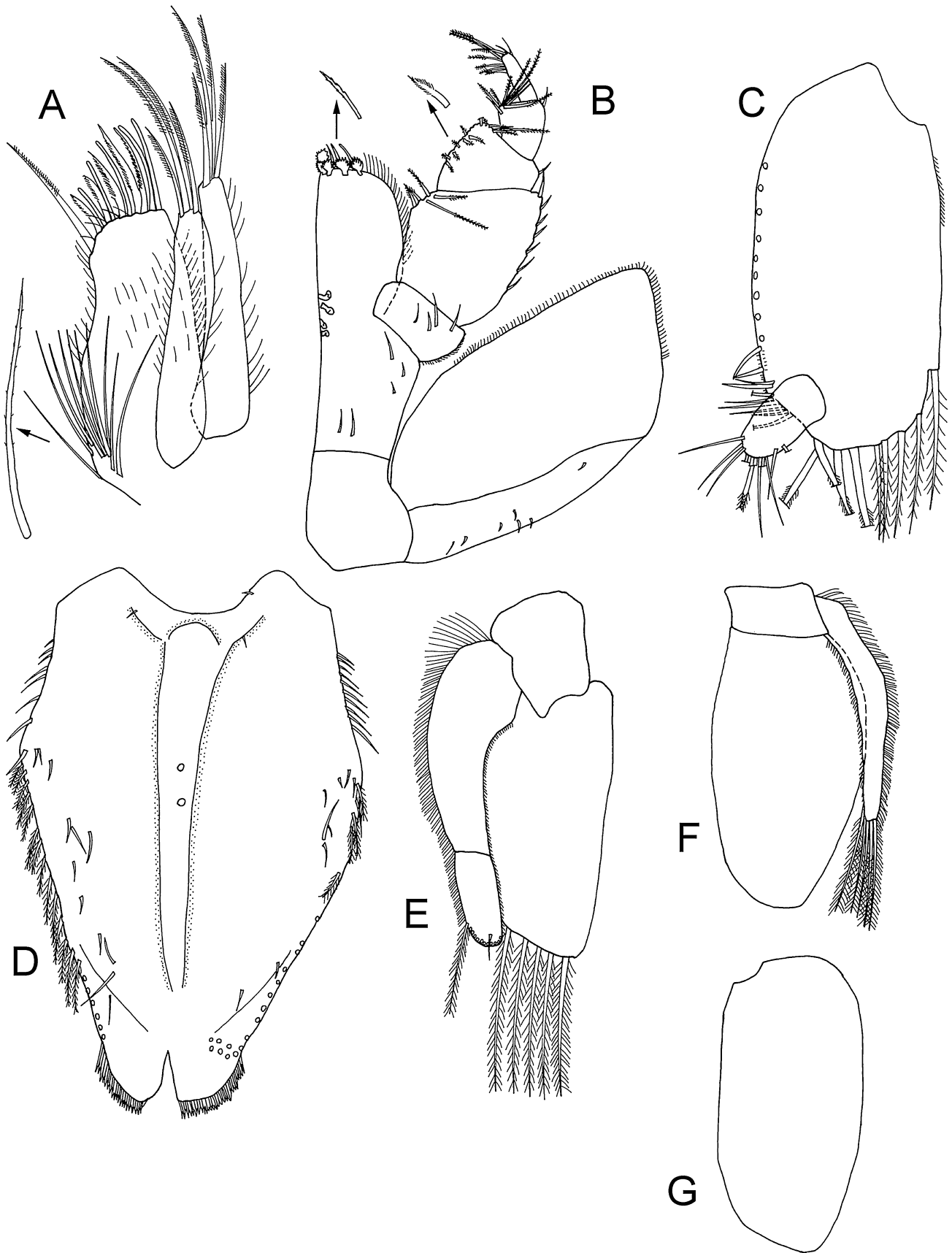


Fig. 6. *Ilyarachna ellae* n. sp. All figures from female paratype, 4.0 mm (NMV J54115). A, left maxilla 2; B, left maxilliped; C, left uropod; D, operculum; E, right pleopod 3; F, left pleopod 4; G, left pleopod 5.

distomesial margin with single sensillate robust seta, single simple seta, distolateral margin with 2 sensillate robust setae; article 2 length 2.4 times width, distally with 3 sensillate robust setae, 3 penicillate setae; article 3 distally with 4 simple setae; article 4 with single penicillate seta; from article 5, each article with distal simple setae, from article 9 onwards each article with aesthetasc; terminal article with 3 simple setae, single penicillate seta, single aesthetasc. Antenna 2 (Fig. 5E) damaged; article 1 lateral margin with single robust seta; article 2 length 2.0 times article 1 length, with distolateral robust setae similar to article 1; article 3 length 2.0 times article 1 length, scale with single sensillate robust seta, distomesial margin with 2 sensillate robust setae; article 4 length 1.6 times article 1 length, without ornamentation.

Mandible (Fig. 5F, G) lacinia mobilis reduced, tooth-like, with single larger cusp, 2 smaller cusps; spine row with 3 spines (on left mandible, 4 on right); molar large, distally with 3 uni-serrate setae; mandibular palp extending beyond incisor, palp article 1 with 2 simple setae (on left palp, right palp article 1 with 4 simple setae), articles 2, 3 covered with crystals, article 3 with single simple seta, single long pectinate seta. Maxilla 1 (Fig. 5H) lateral, mesial margins with fine simple setae; lateral lobe width 1.8 times mesial lobe width, distal margin with few fine simple setae, 3 robust setae, 3 dentate robust setae, 6 pectinate robust setae, mesial lobe terminated with 6 simple setae, many fine simple setae, 2 long pectinate setae. Maxilla 2 (Fig. 6A) lateral lobe margins with fine simple setae, distally with 4 long pectinate setae; middle lobe width 0.8 times lateral lobe width, distally with 4 long pectinate setae; mesial lobe width 2.2 times lateral lobe width, margins, surface with fine simple setae, mesial margin proximally also with 10 long bi-serrate setae, distally with 5 blunt simple setae, 5 toothed setae, single long pectinate seta. Maxilliped (Fig. 6B) coxa length 1.1 times width; basis length 2.9 times width, with 5 scattered simple setae; endite with 4 coupling hooks, 3 blunt bi-serrate setae, 5 fan setae, many fine simple setae; palp article 1 with cuticular scales, surface with 4 scattered simple setae; article 2 length 3.1 times article 1, lateral margin with single robust seta, 6 simple setae, mesial margin with 5 distally pappose setae; article 3 length 1.4 times article 1, lateral margin with single simple seta, distomesial margin with single simple seta, 13 distally pappose setae; article 4 length 1.2 times article 1, lateral margin with single simple seta, distal margin with 3 simple setae, 6 distally pappose setae; article 5 length equal to article 1, with 2 simple setae, single pectinate seta, 6 distally pappose setae; epipod length 1.9 times width, margins with cuticular scales, 7 scattered simple setae.

Operculum (Fig. 6D) length 2.0 times proximal width, distally with medial excision, veined lamellar extension, medial keel with few robust setae, proximally with 3 small simple setae, distal surface probably with plumose setae (some sockets visible, but area covered by crystals), surface with scattered simple setae, margins anterolaterally with 18 simple setae, laterally with numerous plumose setae. Pleopod 3 (Fig. 6E) exopod length equals endopod length, distally with 12 long plumose setae, single simple seta; endopod length 2.2 times width, with 5 long plumose setae.

Pleopod 4 (Fig. 6F) with 5 terminal long plumose setae; endopod length 1.7 times width. Pleopod 5 (Fig. 6G) length 2.1 times width.

Uropod (Fig. 6C) protopod length 2.0 times width, margins with few cuticular scales, lateral margin with 19 setae (10 robust setae, 9 sockets clearly visible, type of setae unknown), distal margin with 4 robust plumose setae, 3 plumose setae, mesial margin with 2 plumose setae; endopod length 0.3 times protopod length, with 2 penicillate setae, 10 simple setae.

Males unknown.

Remarks.—*Ilyarachna ellae* n. sp. is distinguished from congeners by the combination of several characters: cephalon with few scattered robust setae, pereonites 1-4 anterior margins with few robust setae, pereonite 7 ventrally with 2 spines, and uropods uniramous.

Ilyarachna ellae n. sp. resembles *Ilyarachna antarctica* Vanhöffen, 1914, but can be distinguished from that species by having pereonite 4 anterolateral margins with acute lobes, which, in *I. antarctica* are much smaller processes; mandibular palp article 2 longer than article 1 in *I. ellae* n. sp., whereas it is subequal in *I. antarctica*; and pereonite 7 ventrally has 2 spines as opposed to *I. antarctica* which only has 1 medial spine.

Distribution.—Known only from type locality, off Freycinet Peninsula, Tasmania, Australia, at a depth of 720 m.

Ilyarachna flindersensis n. sp.

Figs. 7-9

Material Examined.—Holotype. Female (2.5 mm), Flinders Canyon, eastern Bass Strait, Australia, 79-K-1 stn 34, 39°38.7'S, 148°49.4'E, 27 March 1979, dredge, 770 m, HMAS *Kimbla*, shell/sand (NMV J18882). Paratypes. 7 females (1 female, 4.0 mm, dissected; 1 female, 3.5 mm, partially dissected), type locality (NMV J54118). Male (2.0 mm) 57 km east of Nowra, NSW, Australia, stn SLOPE 62, 34°53.57'S, 151°14.09'E, 23 October 1988, 0.1 m² box corer, 1011 m, RV *Franklin*, green-grey sandy mud (NMV J18881).

Etymology.—*Ilyarachna flindersensis* n. sp. is named after the type locality, the Flinders Canyon.

Description of Female.—Body (Fig. 7A, B) length 2.5 times width of pereonite 2; Cephalon (Fig. 7C) cuticle smooth, without spines. Pereonites 1-4 anterior margins with robust setae; pereonite 5 anterior margin smooth, laterally with small indentation; anterolateral margins of pereonites all rounded except pereonite 4, which has small lobes. Pleon length 1.2 times proximal width.

Antenna 1 (Fig. 7F) composed of 9 articles; article 1 length 1.1 times width, surface with single simple seta, distosuperior margin with 2 robust setae (one is socket only); article 2 length 2.6 times width, with 4 setae (sockets only, but most likely sensillate robust setae); article 3 with single distal simple seta; article 4 with 2 penicillate setae; article 5 with 2 simple setae; article 6 with 2 simple setae; from article 7 onwards, each article with single aesthetasc, many articles with additional setae; terminal article with 2 simple setae and single distal aesthetasc.

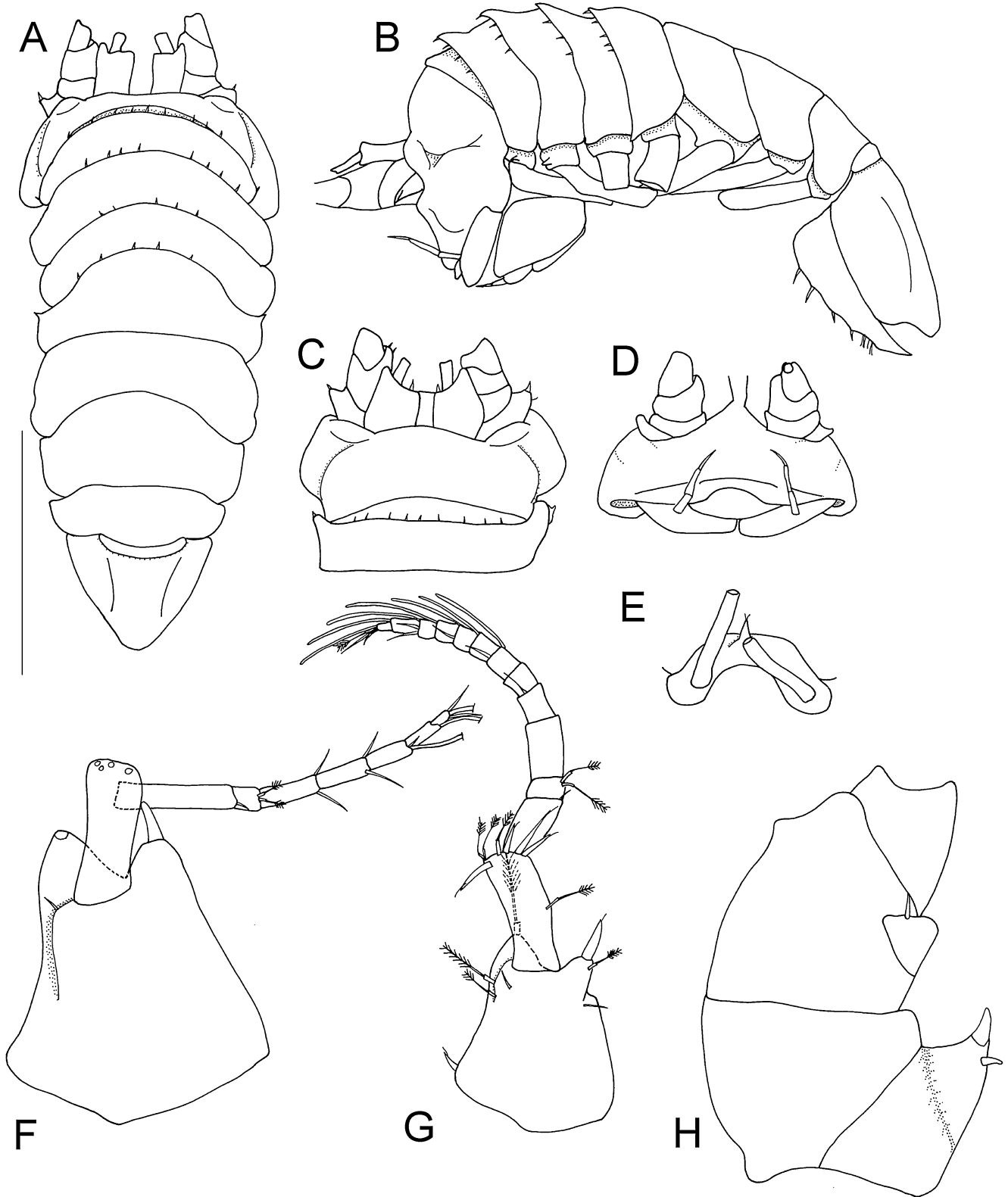


Fig. 7. *Ilyarachna flindersensis* n. sp. A-D, female holotype, 2.5 mm (NMV J18882); F, H, female paratype, 4 mm (NMV J54118); E, G, male paratype, 2.0 mm (NMV J18881). A, dorsal view; B, lateral view; C, dorsal view of cephalon and pereonite 1; D, cephalon; E, ventral view of pereonite 7; F, left antenna 1; G, left antenna 1; H, right antenna 2. Scale bar = 1 mm, for dorsal and lateral views only.

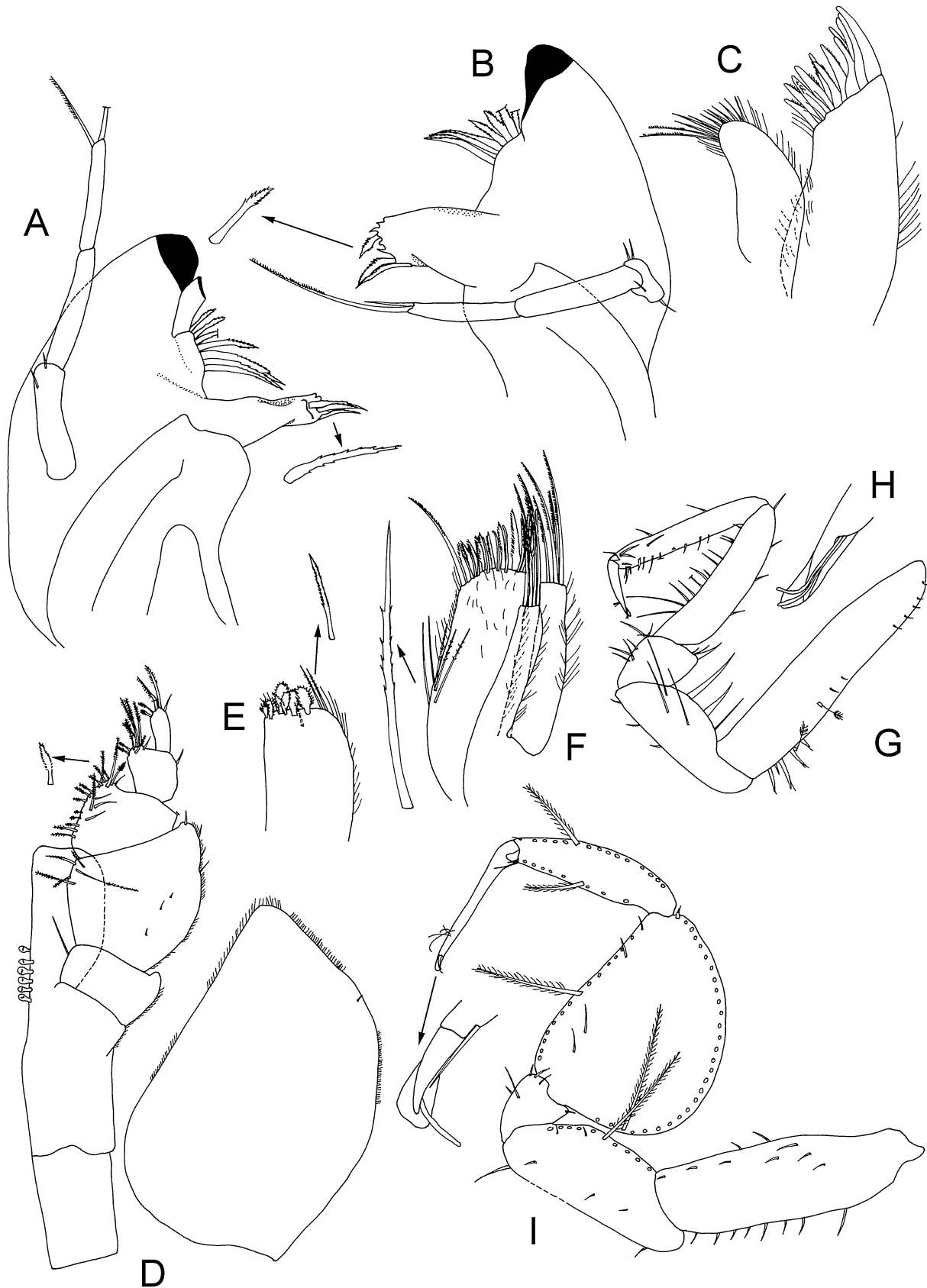


Fig. 8. *Ilyarachna flindersensis* n. sp. A-F, female paratype, 4.0 mm (NMV J54118); G-I, female paratype, 3.5 mm (NMV J54118). A, left mandible; B, right mandible; C, left maxilla 1; D, left maxilliped; E, distal part of left maxilliped endite; F, left maxilla 2; G, right pereopod 1; H, unguis of right pereopod 1; I, left pereopod 6.

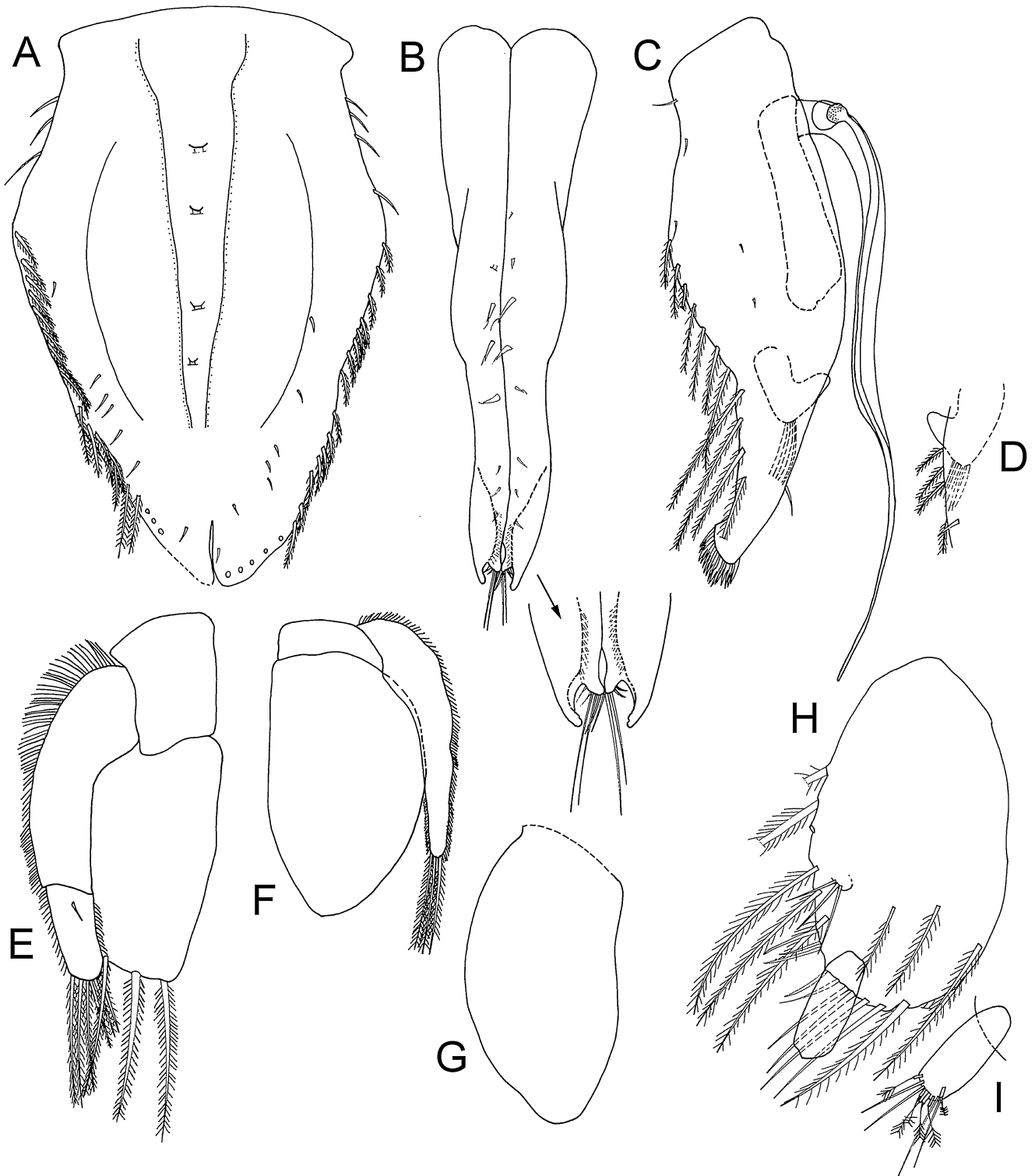


Fig. 9. *Ilyarachna flindersensis* n. sp. A, E-G, female paratype, 4.0 mm (NMV J54118); B-D, male paratype, 2.0 mm (NMV J18881); H, I, female paratype, 3.5 mm (NMV J54118). A, operculum; B, pleopod 1; C, right pleopod 2; D, exopod of left pleopod 2; E, right pleopod 3; F, right pleopod 4; G, right pleopod 5; H, left uropod; I, endopod of left uropod.

Antenna 2 (Fig. 7H) damaged; article 1 lateral margin with 2 robust setae; article 2 length 1.1 times article 1 length, without setae; article 3 length 1.2 times article 1 length, scale with single robust seta; article 4 length 0.8 times article 1 length, without ornamentation.

Mandible (Fig. 8A, B) lacinia mobilis truncate; spine row with 8 spines; molar small, with 3 bi-serrate setae; mandibular palp extending beyond incisor, article 1 with 2 simple setae (on left palp, 4 simple setae on right palp), article 3 distally with single long pectinate seta, single

simple seta. Maxilla 1 (Fig. 8C) lateral, mesial margins with fine simple setae; lateral lobe width 1.7 times mesial lobe width, distal margin with few fine simple setae, 3 robust setae, 3 dentate robust setae, 6 pectinate robust setae, mesial lobe distally with 10 simple setae, numerous fine simple setae, 2 long pectinate setae. Maxilla 2 (Fig. 8F) lateral lobe margins with fine simple setae, distally with 4 long pectinate setae; middle lobe width equal to lateral lobe width, distally with 4 long pectinate setae; mesial lobe width 2.2 times lateral lobe width, margins, surface with fine simple setae, mesial margin proximally also with 3 long biserrate setae, 2 long simple setae, distally with 9 blunt simple setae, 9 toothed setae, single long pectinate seta. Maxilliped (Fig. 8D, E) coxa length 1.5 times width; basis length 3.2 times width; endite with 6 coupling hooks, distally with 5 bi-serrate setae, 6 fan setae, many fine simple setae; palp article 1 with cuticular scales, distomesial margin with single simple seta; article 2 length 2.6 times article 1, lateral margin with cuticular scales, 4 simple setae, surface with 3 simple setae, mesial margin with 5 distally pappose setae; article 3 length 1.4 times article 1, surface with 3 simple setae, single distally pappose seta, mesial margin with single simple seta, 14 distally pappose setae; article 4 length 0.8 times article 1, distolateral margin with single simple seta, distomesial margin with single simple seta, 8 distally pappose setae; article 5 length 0.7 times article 1, distally with single simple seta, single pectinate seta, 4 distally pappose setae; epipod length 1.6 times width, margins with cuticular scales, 3 simple setae.

Pereopod 1 (Fig. 8G, H) basis length 4.8 times width, inferior margin with 4 sensillate robust setae, single penicillate seta, 6 simple setae, lateral surface with 3 simple setae, single penicillate seta; ischium length 2.5 times width, inferior margin with 3 simple setae, lateral surface with 3 long simple setae, superior margin with 2 long robust setae, single long simple seta; merus length 1.1 times width, inferior margin with 8 simple setae, distosuperior margin with 2 simple setae, single robust seta; carpus length 4.0 times width, inferior margin with 12 simple setae, superior margin with 4 simple setae; propodus length 6.1 times width, inferior margin with 12 simple setae, lateral surface with 3 simple setae, superior margin with 3 simple setae; dactylus length 4.4 times proximal width, superior margin with 3 small simple setae.

Pereopod 6 (Fig. 8I) basis length 3.4 times width, inferior margin with 8 simple setae, lateral surface with 7 simple setae, superior margin with 2 simple setae; ischium length 2.3 times width, inferior margin with 2 simple setae, lateral surface with 3 simple setae, superior margin with 2 submarginal simple setae; merus length 1.1 times width, inferior margin with 3 simple setae, lateral surface with 2 simple setae, distosuperior margin with single simple seta; carpus length 1.2 times width, lateral surface with 4 simple setae, superior margin with single sensillate robust seta; propodus length 3.3 times width, distoinferior margin with 2 simple setae, distosuperior margin with single simple seta; dactylus length 6.7 times proximal width, with 4 simple setae.

Operculum (Fig. 9A) length 2.0 times proximal width, distally with medial excision, medial keel with row of robust setae, surface with scattered setae, distally 5 plumose setae

(on left, right side too damaged), margins anterolaterally with 7 simple setae (3 + 4), laterally with numerous plumose setae. Pleopod 3 (Fig. 9E) exopod length 1.3 times endopod length, distally with 6 long plumose setae, single distal simple seta; endopod length 2.0 times width, with 3 long plumose setae. Pleopod 4 (Fig. 9F) exopod with 3 terminal long plumose setae; endopod length 1.7 times width. Pleopod 5 (Fig. 9G) length 1.9 times width.

Uropod (Fig. 9H, I) protopod length 1.8 times width, lateral margin with 6 plumose setae, 3 robust setae, distal margin with 2 plumose setae, 6 robust setae, mesial margin with 2 plumose setae, surface with 2 plumose setae; exopod rudimentary, with 3 simple setae; endopod length 0.3 times protopod length, distally with 6 penicillate setae, 4 simple setae.

Description of Male.—Pereonite 6 ventrally without ornamentation; pereonite 7 (Fig. 7E) ventrally with medial spine.

Antenna 1 (Fig. 7G) composed of 14 articles; article 1 length 1.2 times width, mesial margin with single simple seta, distomesial margin with single sensillate robust seta, single penicillate seta, surface with single simple seta, lateral margin with single sensillate robust seta, 2 penicillate setae, distolateral margin with single penicillate seta; article 2 length 2.5 times width, mesial margin with single penicillate seta, distal margin with 3 penicillate setae, 4 sensillate robust setae; article 3 with single simple seta; article 4 mesial margin with 2 penicillate setae; article 6 with single simple seta; from article 8 onwards, each article with single aesthetasc, many articles with additional simple setae; terminal article with 2 simple setae, single penicillate seta, single distal aesthetasc.

Pleopod 1 (Fig. 9B) length 3.4 times proximal width, central margin with 8 sensillate robust setae, 7 simple setae, distally with 11 simple setae. Pleopod 2 (Fig. 9C, D) protopod length 3.2 times width, lateral margin with 3 simple setae, row of plumose setae, surface with 2 simple setae, distally with lamellar extension, mesial margin with single simple seta (in same position left pleopod 2 with 4 plumose setae); exopod length 0.1 times protopod length, with fine simple setae; stylet length 1.5 times protopod length, hooked up into proximal part of protopod, terminating to a point; sperm duct length 0.7 times stylet length.

Remarks.—*Ilyarachna flindersensis* n. sp. is distinguished from congeners by having a smooth cephalon, pereonites 1–4 anterior margins with robust setae, absence of anterolateral lobes on pereonite 3, pereonite 5 with lateral indentations, only pereonite 7 with ventral ornamentation, pereopod 1 basis inferior margin with penicillate setae, and male pleopod 2 with an elongated stylet, which hooks up into the proximal half of the protopod.

Ilyarachna flindersensis n. sp. resembles *Ilyarachna mokari* n. sp., but the male antenna 1 is much longer in *I. mokari* n. sp. than in *I. flindersensis* n. sp., and article 3 is two-thirds the length of article 2 in *I. mokari* n. sp., whereas in *I. flindersensis* n. sp. article 3 is only half the length of article 2. Pereonite 5 of *I. flindersensis* n. sp. has a lateral indentation, which is not present in *I. mokari* n. sp., antenna 2 article 1 and the scale on article 3 have more setae. The basis of pereopod 1 in *I. flindersensis* n. sp. is more slender than that of *I. mokari* n. sp. and has a different setal pattern. In *I.*

flindersensis n. sp. the basis superior margin is without setae (setae present in *I. mokari* n. sp.) and the inferior margin only has robust setae on the distal half (robust setae are evenly spread in *I. mokari* n. sp.).

Distribution.—Southeastern Australia, from Nowra NSW to Flinders Canyon, Bass Strait, between 770-1011 m.

Ilyarachna mokari n. sp.
Figs. 10-12

Material Examined.—All material is from Victoria, Australia. Holotype. Male (3.0 mm), 67 km south of Point Hicks stn SLOPE 67, from 38°23.95'-23.78'S, 149°17.02'-15.24'E, 25 October 1988, WHOI epibenthic sled, RV *Franklin*, 1277-1119 m, fine mud (NMV J18873). Paratypes. 2 females, 1 male (3.0 mm, partially dissected), 2 fragments, type locality (NMV J54117). 2 females (1 female, 4.0 mm, dissected), 1 male, 6 fragments, south of Point Hicks, stn SLOPE 33, 38°19.60'S, 149°24.30'E, 23 July 1986, WHOI epibenthic sled, 930 m, RV *Franklin*, rock, rubble, clay, sand (NMV J18871).

Additional Material.—1 male, 1 female, 1 fragment, south of Point Hicks, stn SLOPE 34, 38°16.40'S, 149°27.60'E, 23 July 1986, WHOI epibenthic sled, 800 m, RV *Franklin*, coarse shell, biogenic sediments (NMV J18872). 1 female, 1 male, 17 fragments, south of Point Hicks, stn SLOPE 32, 38°21.90'S, 149°20.0'E, 23 July 1986, WHOI epibenthic sled, 1000 m, RV *Franklin* (NMV J18870).

Etymology.—*Mokari* is an Australian Aboriginal name for “new”; noun in apposition.

Description of Male.—Body (Fig. 10A, B) length 2.2 times pereonite 2 width; cuticle not highly calcified, lightly setose. Cephalon lightly setose, spines absent. Pereonites 1-4 anterior margins with robust setae, pereonite 5 anterior margin smooth; anterolateral margins of pereonites all rounded except pereonites 3, 4, which have small anterolateral lobes; pereonite 6 ventrally without ornamentation; pereonite 7 (Fig. 12I) ventrally with medial spine. Pleon length 1.3 times proximal width.

Antenna 1 (Fig. 10D) composed of 25 articles; articles 1, 2 ratios similar to female (see below); article 1 with 2 penicillate setae, single simple seta, distally with 2 robust setae; article 2 with single penicillate seta on ventral surface, distal end with 5 penicillate setae, 3 robust setae; article 4 with single penicillate seta; article 5 with single simple seta; from article 6 onwards, each article has single aesthetasc, many articles with additional setae; terminal article with 2 simple setae, an aesthetasc.

Pleopod 1 (Fig. 12B, C) length 12.1 times proximal height, ventral surface with 7 sensillate robust setae, 15 simple setae, distally with 24 simple setae. Pleopod 2 (Fig. 12D) protopod length 3.1 times width, lateral margin with 2 simple setae, 9 plumose setae (most likely plumose setae, only sockets remain), distally with lamellar extension, few fine simple setae, mesial margin with 5 plumose setae; exopod length 0.2 times protopod length, with fine simple setae; stylet length 1.6 times protopod length, hooked up into proximal part of protopod, terminating to a point; sperm duct length 0.7 times stylet length.

Description of Female.—Antenna 1 (Fig. 10F) composed of 10 articles; article 1 length 1.2 times width, surface with 3 penicillate setae, lateral margin with single simple seta, 2 sensillate robust setae, distal margin with 2 sensillate robust setae; article 2 length 2.5 times width, distal rim with 4 sensillate robust setae, single penicillate seta; article 4 with single penicillate seta; article 5 with 4 simple setae; article 6 with 2 simple setae; from article 7, each article has single aesthetasc, many articles with additional setae; terminal article with 2 simple setae, single penicillate seta, single aesthetasc. Antenna 2 (Fig. 10E) damaged; article 1 lateral margin with 3 sensillate robust setae; article 2 length 0.8 times article 1 length, without setae; article 3 length 1.2 times article 1 length, scale with 3 sensillate robust setae, single simple seta, distomesial margin with 2 sensillate robust setae; article 4 length 0.8 times article 1, without ornamentation.

Mandible (Fig. 10G, H) lacinia mobilis reduced, smooth, rounded; spine row with 9 spines (on left mandible, 8 on right); molar with 3 bi-serrate setae; mandibular palp extending beyond incisor, article 1 with 4 simple setae (on left mandible; 3 simple setae on right), article 3 with single long simple seta, single long pectinate seta. Maxilla 1 (Fig. 11B) lateral, mesial margins with fine simple setae; lateral lobe width 1.7 times mesial lobe width, distal margin with few fine simple setae, 5 robust setae, 2 dentate robust setae, 5 pectinate robust setae, mesial lobe distally with many fine simple setae, 2 long pectinate setae. Maxilla 2 (Fig. 11C) lateral lobe margins with fine simple setae, distally with 4 long pectinate setae; middle lobe width equal to lateral lobe width, distally with 4 long pectinate setae; mesial lobe width 2.6 times lateral lobe width, margins, surface with fine simple setae, mesial margin proximally also with 7 long simple setae, distally with 9 blunt simple setae, 4 toothed setae, single long pectinate seta. Maxilliped (Fig. 11A) coxa length 1.1 times width; basis length 2.8 times width, with 2 simple setae; endite with 6 coupling hooks, distally with 3 toothed setae, 7 fan setae, few fine simple setae; palp article 1 with cuticular scales, distolateral margin with single simple seta, surface with single simple seta, distomesial margin with single simple seta; article 2 length 2.8 times article 1 length, lateral margin with cuticular scales, 3 robust setae, surface with single distally pappose seta, 3 simple setae, mesial margin with 5 distally pappose setae; article 3 length 1.3 times article 1 length, lateral margin with single robust seta, surface with 4 distally pappose setae, mesial margin with 14 distally pappose setae; article 4 length 0.8 times article 1 length, mesial margin with 8 distally pappose setae; article 5 length 0.9 times article 1 length, with 4 distally pappose setae, single simple seta; epipod length 1.6 times width, margins with cuticular scales, few scattered simple setae.

Pereopod 1 (Fig. 11E) basis length 3.9 times width, inferior margin with 9 sensillate robust setae, superior margin with single sensillate robust seta, 2 penicillate setae, 6 simple setae; ischium length 2.7 times width, inferior margin with 4 simple setae, lateral surface with 5 simple setae, superior margin with 4 long robust setae; merus length 0.9 times width, inferior margin with 9 simple setae,

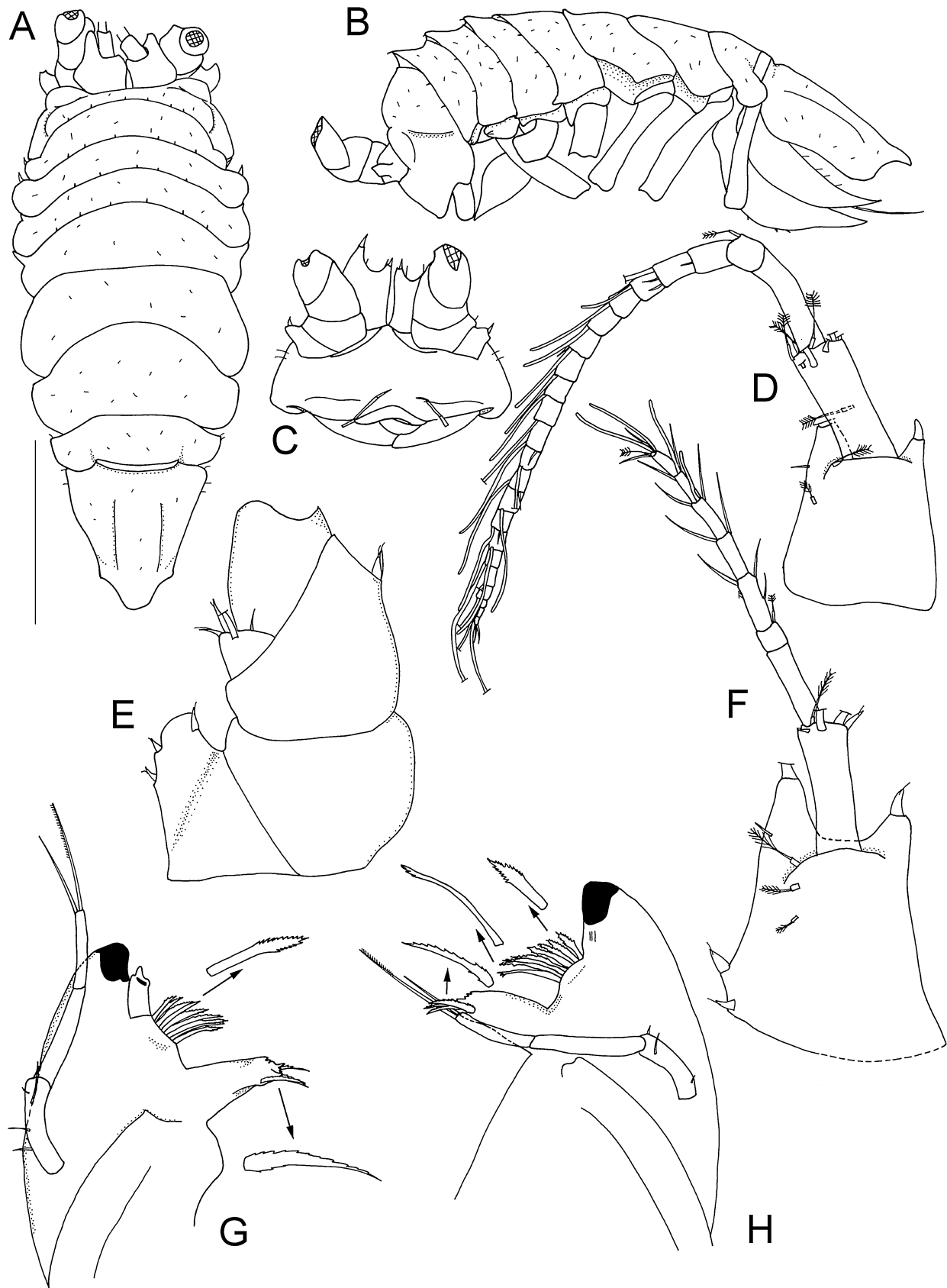


Fig. 10. *Ilyarachna mokari* n. sp. A-C, male holotype, 3.0 mm (NMV J18873); D, male paratype, 3 mm (NMV J54117); E-H, female paratype, 4.0 mm (NMV J18871). A, dorsal view; B, lateral view; C, cephalon; D, left antenna 1; E, left antenna 2; F, left antenna 1; G, left mandible; H, right mandible. Scale bar = 1 mm, for dorsal and lateral views only.

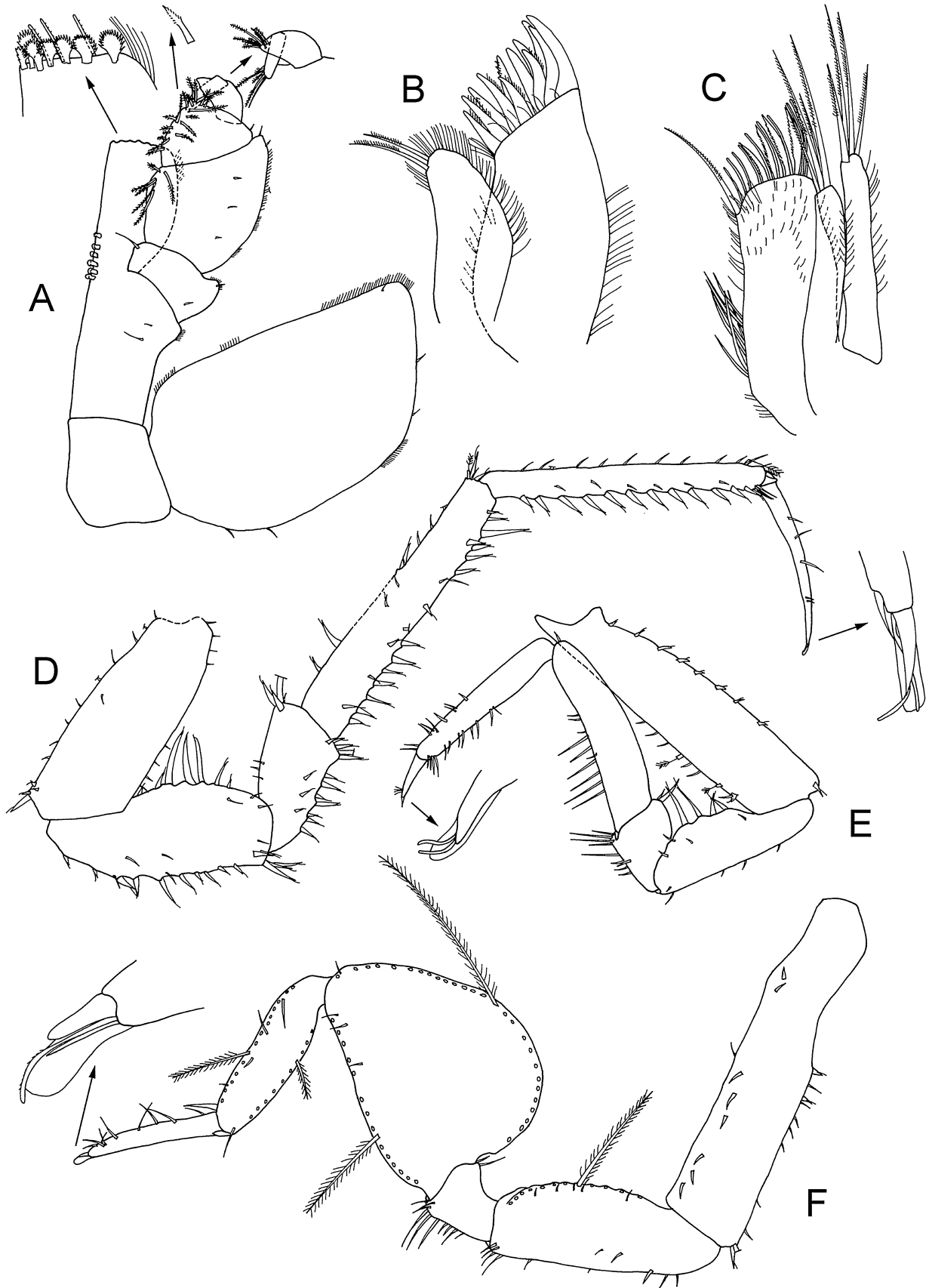


Fig. 11. *Ilyarachna mokari* n. sp. All figures from female paratype, 4.0 mm (NMV J18871). A, left maxilliped; B, left maxilla 1; C, left maxilla 2; D, right pereopod 2; E, left pereopod 1; F, right pereopod 5.

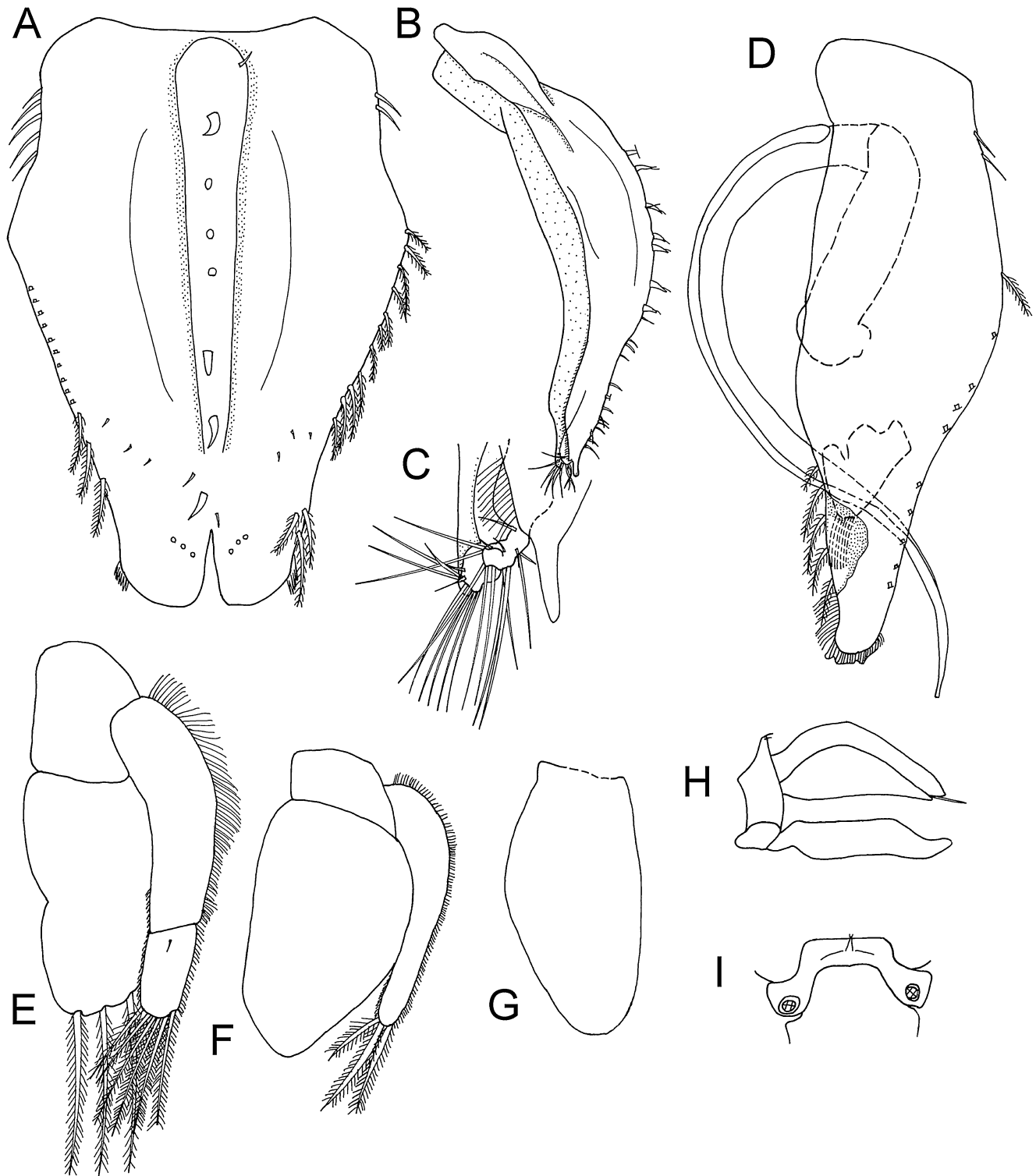


Fig. 12. *Ilyarachna mokari* n. sp. A, E-G, female paratype, 4.0 mm (NMV J18871); B-D, male paratype, 3.0 mm (NMV J54117); H, I, male holotype, 3.0 mm (NMV J18873). A, operculum; B, lateral view of pleopod 1; C, distal part of pleopod 1; D, left pleopod 2; E, left pleopod 3; F, right pleopod 4; G, right pleopod 5; H, lateral view of pereonite 7 and pleon; I, ventral view of pereonite 7.

distosuperior margin with single simple seta, single robust seta; carpus length 4.1 times width, inferior margin with 10 simple setae, distosuperior margin with single simple seta; propodus length 6.1 times width, inferior margin with 12 simple setae, superior margin with 9 simple setae; dactylus

length 3.1 times proximal width, superior margin with 4 small simple setae.

Pereopod 2 (Fig. 11D) basis length 2.4 times width, inferior margin with 9 simple setae, 4 sensillate robust setae, lateral surface with single simple seta, superior margin with

8 simple setae; ischium length 2.1 times width, inferior margin with 2 simple setae, 13 sensillate robust setae, lateral surface with 2 distal sensillate robust setae, 6 simple setae, superior margin with 7 sensillate robust setae; merus length 1.5 times width, inferior margin with 11 sensillate robust setae, lateral surface with 4 sensillate robust setae, superior margin with 3 simple setae, distosuperior corner with 3 sensillate robust setae, single simple seta; carpus length 5.8 times width, inferior margin with 14 sensillate robust setae, lateral surface with 8 sensillate robust setae, single simple seta, superior margin with 4 sensillate robust setae, 3 simple setae, distosuperior corner with 2 sensillate robust setae, single penicillate seta, single simple seta; propodus length 9.4 times width, inferior margin with 12 sensillate robust setae, 3 distal simple setae, lateral surface with 6 simple setae, superior margin with 13 simple setae, distosuperior corner with single penicillate seta; dactylus length 9.7 times proximal width, with 5 simple setae.

Pereopod 5 (Fig. 11F) basis length 4.6 times width, inferior margin with 2 sensillate robust setae, 2 robust setae, 7 simple setae, lateral surface with 8 robust setae, superior margin with single simple seta; ischium length 2.5 times width, inferior margin with 8 simple setae, single robust seta, lateral surface with 7 simple setae; merus length equals width, inferior margin with 10 simple setae, distosuperior margin with 2 simple setae; carpus length 1.3 times width, lateral surface with 3 simple setae, distosuperior margin with single simple seta; propodus length 3.2 times width, distoinferior margin with single sub-marginal simple seta, lateral surface with 4 simple setae, distosuperior margin with single robust seta; dactylus length 6.3 times proximal width, with 9 simple setae.

Operculum (Fig. 12A) length 1.8 times proximal width, medial keel with row of robust setae, proximally with single simple seta, distally surface with few scattered setae, medial excision, veined lamellar extension, margins anterolaterally with simple setae, laterally with numerous plumose setae. Pleopod 3 (Fig. 12E) exopod length 1.3 times endopod length, distally with 6 long plumose setae, single simple seta; endopod length 1.9 times width, with 3 long plumose setae. Pleopod 4 (Fig. 12F) exopod with 3 terminal long plumose setae; endopod length 1.7 times width. Pleopod 5 (Fig. 12G) length 1.9 times width.

Uropods missing.

Remarks.—*Ilyarachna mokari* n. sp. is distinguished from congeners by having a smooth cephalon, pereonites 1-4 anterior margins with robust setae, pereonite 5 without lateral indentation, pereonite 7 with ventral ornamentation, male antenna 1 long, of about 25 articles, article 3 two-thirds length of article 2; and pereopod 1 basis inferior margin with row of evenly spaced robust setae.

Ilyarachna mokari n. sp. is most similar to *Ilyarachna flindersensis* n. sp. and for further discussion, refer to the remarks for *I. flindersensis* n. sp.

Distribution.—South of Point Hicks, Victoria, Australia, at depths of 800-1277 m.

Ilyarachna quorna n. sp.

Figs. 13-15

Material Examined.—Holotype. Female (4.4 mm), 76 km south of Point Hicks, Victoria, Australia, stn SLOPE 69, from 38°29.33'-26.81'S to 149°19.98'-20.78'E, 26 October 1988, WHOI epibenthic sled, 1840-1750 m, RV *Franklin*, sandy mud, fine shell (NMV J18862). Paratypes. 1 male (4.0 mm, dissected) 1 female, type locality (NMV J54114).

Etymology.—*Quorna* is an Australian Aboriginal word for “deep”; noun in apposition.

Description of Female.—Body (Fig. 13A, B) length 2.9 times pereonite 2 width; cuticle not highly calcified, lightly setose. Cephalon lightly setose, dorsally with 4 spines. Pereonites 1-4 anterior margins with robust setae; pereonite 5 anterior margin smooth, laterally with small indentation; anterolateral margins of pereonites all rounded except pereonites 3, 4, 6, 7, which have small lobes; pereonites 6, 7 ventrally each with medial spine. Pleon length 1.4 times proximal width, with scattered simple setae.

Antenna 1 (Fig. 13G) composed of 9 articles; length 1.4 times width, article 1 lateral margin with 4 penicillate setae, 4 simple setae, surface with 3 simple setae, mesial margin with 2 simple setae, distal margin with 4 penicillate setae, 4 sensillate robust setae; article 2 length 2.9 times width, with single broken seta, single penicillate seta, distally with 2 penicillate setae, single sensillate robust seta; article 3 with single simple seta; article 4 with 2 penicillate setae; article 5 with single simple seta; article 6 with 2 simple setae; from article 7 onwards, each article has single aesthetasc, many with additional setae; terminal article with 2 simple setae, single aesthetasc.

Operculum (Fig. 15A) length 2.5 times proximal width, distally with medial excision, veined lamellar extension, medial keel provided with row of robust setae, distal surface with numerous scattered simple setae, margins anterolaterally with 30 simple setae, laterally with numerous plumose setae.

Description of Male.—Antenna 1 (Fig. 13F) damaged; article 1 length 1.4 times width, mesial margin with 2 robust setae, surface with single penicillate seta, 2 robust setae, lateral margin with 5 simple setae, single robust seta, each distal corner with single sensillate robust seta, single penicillate seta; article 2 length 1.8 times width, inferior margin with single robust seta, surface with single simple seta, superior margin with single penicillate seta, distal margin with single penicillate seta. Antenna 2 (Fig. 13E) damaged, article 1 lateral margin with single robust seta, single simple seta; article 2 length 0.9 times article 1 length, distolateral margin with single simple seta; article 3 length 1.3 times article 1 length, scale with 3 robust setae; article 4 length 0.7 times article 1 length, without ornamentation.

Mandible (Fig. 13H, I) lacinia mobilis reduced, truncate, with 2 small cusps; spine row with 9 spines; molar large, with 3 bi-serrate setae; mandibular palp extending beyond incisor, article 1 with 5 simple setae (on left, 6 on right), cuticular scales, article 3 with 6 pectinate setae (on left mandible; right mandible with 7 pectinate setae), cuticular scales. Maxilla 1 (Fig. 14A) lateral, mesial margins with fine simple setae; lateral lobe width 1.6 times mesial lobe

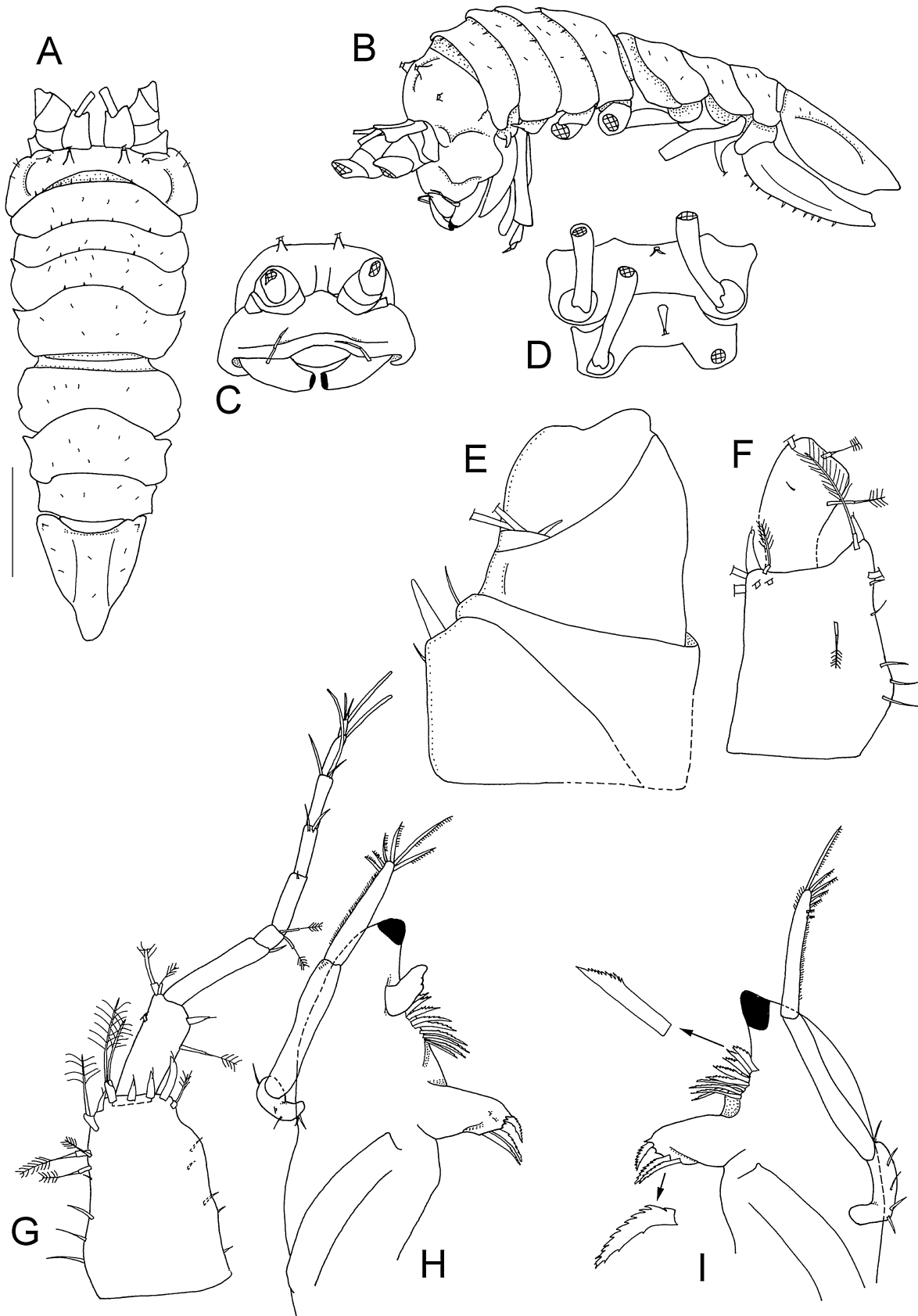


Fig. 13. *Ilyarachna quorna* n. sp. A-D, G, female holotype, 4.4 mm (NMV J18862); E, F, H, I, male paratype, 4.0 mm (NMV J54114). A, dorsal view; B, lateral view; C, cephalon; D, ventral view of pereonites 6 and 7; E, left antenna 2; F, right antenna 1; G, left antenna 1; H, left mandible; I, right mandible. Scale bar = 1 mm, for dorsal and lateral views only.

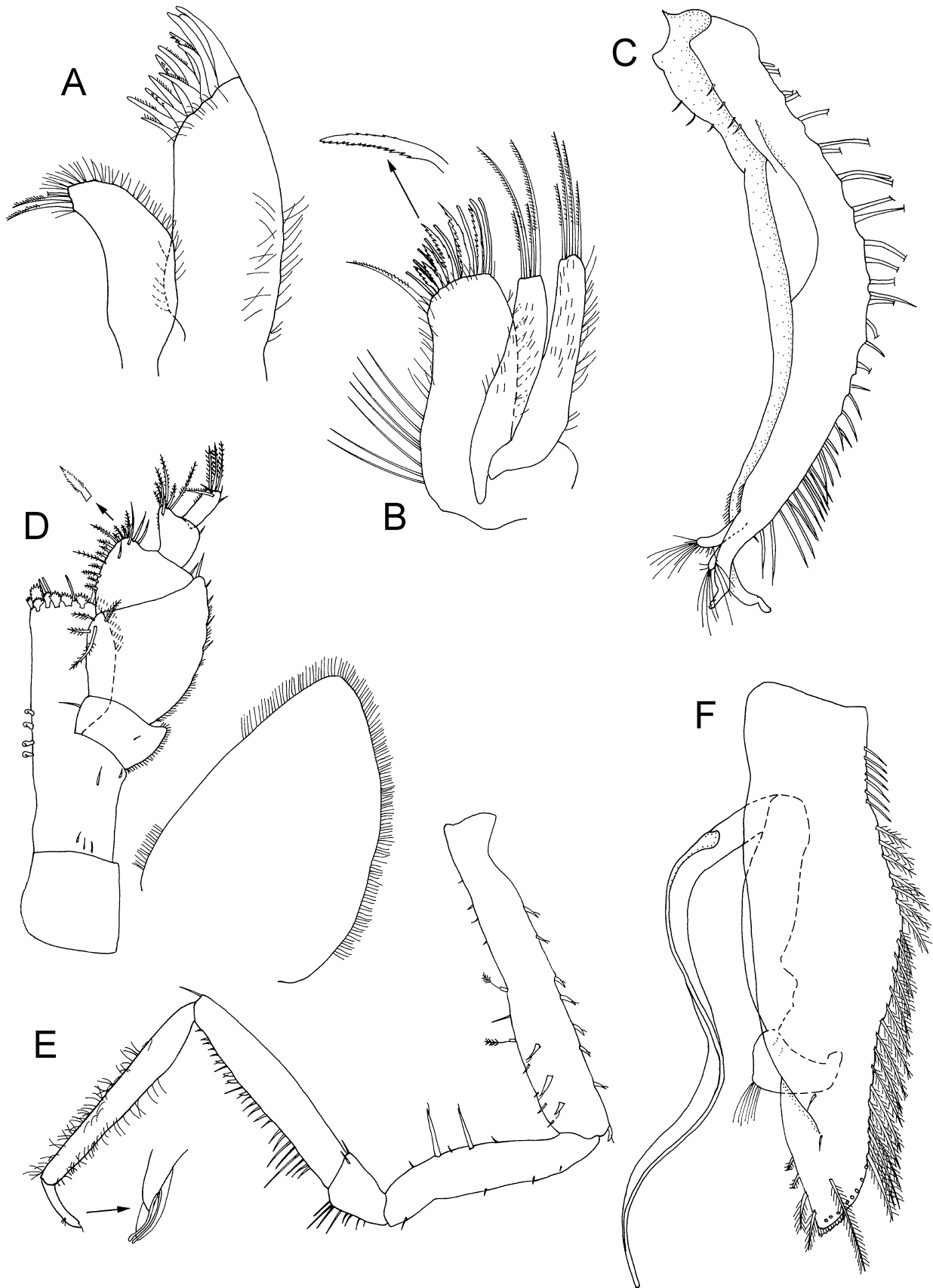


Fig. 14. *Ilyarachna quorna* n. sp. All figures from male paratype, 4 mm (NMV J54114). A, left maxilla 1; B, left maxilla 2; C, lateral view of pleopod 1; D, left maxilliped; E, right pereopod 1; F, left pleopod 2.

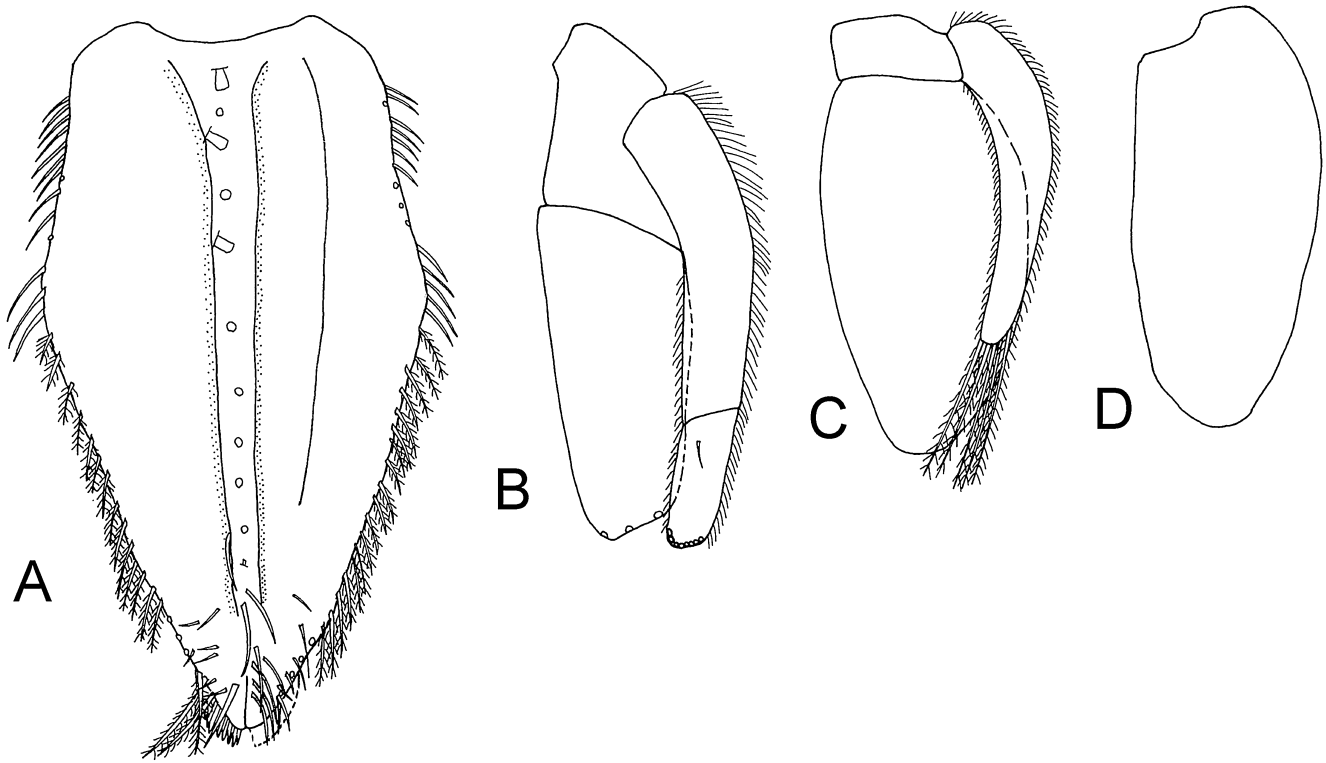


Fig. 15. *Ilyarachna quorna* n. sp. A, female holotype, 4.4 mm (NMV J18862); B-D, male paratype, 4 mm (NMV J54114). A, operculum; B, left pleopod 3; C, left pleopod 4; D, left pleopod 5.

width, distal margin with few fine simple setae, 3 robust setae, 3 dentate robust setae, 6 pectinate robust setae, mesial lobe distally with single simple seta, many fine simple setae, 2 long pectinate setae. Maxilla 2 (Fig. 14B) lateral lobe margins with fine simple setae, distally with 4 long pectinate setae; middle lobe width equal to lateral lobe width, distally with 4 long pectinate setae; mesial lobe width 2.3 times as wide as lateral lobe width, margins, surface with fine simple setae, mesial margin proximally also with 7 long simple setae, distally with 9 blunt simple setae, 6 bi-serrate setae, single long pectinate seta. Maxilliped (Fig. 14D) coxa length equals width; basis length 2.8 times width, with 5 simple setae; endite with 4 coupling hooks, distally with 3 blunt simple setae, 7 fan setae, many fine simple setae; palp article 1 with cuticular scales, surface with single simple seta, distomesial margin with single simple seta; article 2 length 2.6 times as article 1 length, with lateral margin with cuticular scales, 5 simple setae, surface with single distally pappose seta, mesial margin with 3 distally pappose setae; article 3 length 1.3 times article 1 length, lateral margin with single simple seta surface with 3 simple setae, mesial margin with 13 distally pappose setae, single simple seta; article 4 length 0.8 times article 1 length, lateral margin with single simple seta, inferior margin with 7 distally pappose setae; article 5 length 0.8 times article 1 length, with 2 simple setae, single pectinate seta, 4 distally pappose setae; epipod length 1.4 times width, margins with many cuticular scales.

Pereopod 1 (Fig. 14E) basis length 5.9 times width, inferior margin with 8 sensillate robust setae, lateral surface with 3 sensillate robust setae, superior margin with 9

simple setae, 2 penicillate setae; ischium length 4.6 times width, inferior margin with 4 simple setae, superior margin with 3 simple setae, 2 long sensillate robust setae; merus length 1.4 times width, inferior margin with 8 simple setae, distosuperior margin with 2 simple setae; carpus length 4.9 times width, inferior margin with 4 sensillate robust setae, 20 simple setae, distosuperior margin with single simple seta; propodus length 7.8 times width, inferior, superior margins with numerous simple setae; dactylus length 2.1 times proximal width, superior margin with 3 simple setae.

Pleopod 1 (Fig. 14C) length 11.1 times proximal height, lateral margins with simple setae, ventral surface with 40 robust setae, distally with 25 simple setae. Pleopod 2 (Fig. 14F) protopod length 3.5 times width, lateral margin with 7 simple setae, row of plumose setae, surface with 2 simple setae, single plumose seta, distally with lamellar extension, mesial margin with 4 plumose setae; exopod length 0.2 times protopod length, with fine simple setae; stylet length 1.5 times protopod length, hooking up into proximal half of protopod; sperm duct length 0.7 times stylet length. Pleopod 3 (Fig. 15B) exopod length 1.4 times endopod length, distally with 8 plumose setae (counted from sockets), single simple seta; endopod length 2.2 times width, with 3 plumose setae (counted from sockets). Pleopod 4 (Fig. 15C) exopod with 5 terminal long plumose setae; endopod length 1.8 times width. Pleopod 5 (Fig. 15D) length 2.3 times width.

Remarks.—*Ilyarachna quorna* n. sp. is distinguished from congeners by having two pairs of dorsal spines on the cephalon, mandibular palp article 3 distally with multiple

pectinate setae, pereopod 1 basis inferior margin with an evenly spread row of robust setae, male pleopod 1 ventral surface with many elongated setae, and male pleopod 2 stylet elongated and hooks up into proximal half.

Ilyarachna quorna n. sp. shares several characters with other Southern Hemisphere *Ilyarachna* species, namely the robust setae on its anterior margins on pereonites 1-4 and the stylet of the male pleopod 2 being elongated and hooking up into the proximal half of the protopod. These related species include *I. mokari* n. sp. and *I. flindersensis* n. sp. described herein, but also, *Ilyarachna kermadecensis* Wolff, 1962 and *Ilyarachna nordenstami* Wolff, 1962, but it can easily be distinguished from these other species by the dorsal spines on the cephalon, the small anterolateral lobes on pereonites 6 and 7, and the unique setal patterns on pereopod 1.

Distribution.—Known only from the type locality, 76 km south of Point Hicks, Victoria, Australia, at depths of 1750-1840 m.

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