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## CALLIAX JONESI, N. SP. (DECAPODA: THALASSINIDEA: CALLIANASSIDAE) FROM THE NORTHWESTERN BAHAMAS

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**ABSTRACT** Two specimens of *Calliax jonesi*, n. sp., were collected from fine carbonate sediments in 3 to 5 m of water at Bimini Harbor, Bahamas. Of the species presently assigned to the genus *Calliax* de Saint Laurent, 1973, *C. jonesi* appears to be most closely related to *C. quadracuta* (Biffar, 1970), presently known from the Atlantic coast of Venezuela and the Florida Keys. *Calliax jonesi* is distinguished from *C. quadracuta* by: (1) the absence of a distal spinose process on the dorsal and ventral margins of the carpus of the first pair of chelipeds, (2) the armature and shape of uropods and telson, and (3) the shape of male first pleopod. *Calliax jonesi*, *C. quadracuta*, and at least two undescribed species from the northwestern Atlantic appear to form a closely related species complex which may not be congeneric with the type species, *C. lobata* (de Gaillande & Lagardère, 1966), and other species assigned to *Calliax*.

### INTRODUCTION

Manning and Heard (1986) reported *Callianassa branneri* Rathbun, 1900, now considered synonymous with *C. grandimanus* Gibbes, 1850 (see Manning 1987), and *C. rathbunae* Schmitt, 1935 from the Florida East Coast and Bimini Harbor, Bahamas. In their report they also mentioned the presence of "an undescribed species, closely related to *C. quadracuta* Biffar," in the collection from Bimini. The description of this new species, which is here tentatively placed in the genus *Calliax* de Saint Laurent, 1973, is the subject of the present report.

### *Calliax jonesi*, new species

Figures 1-5

Synonymy: "Undescribed species" Manning and Heard (1986): 347.

### Material examined

**Holotype** - (National Museum of Natural History, USNM 221861), ♂ - carapace length (CL) = 9.8 mm; Bimini Harbor, Bahamas (west side of harbor approximately 100 m north of seaplane ramp), 25°44'N; 079°15' W; depth 3-5 m on carbonate sand-silt substratum; collected with suction pump device (see Manning 1975); 2 October 1980; R. W. Heard, collector.

**Paratype** - (GCRL 1136), ♂ - CL = 9.6 mm; same collection data as holotype.

**Diagnosis** - Rostrum distinct, acute, longer than wide, extending approximately 1/2 length of eye stalks.

Dorsal carapace with dorsal oval and cervical groove indistinct. Chelipeds of first pereopods subequal, dissimilar; carpus of both chelae without dorsodistal or ventrodistal acute processes; propodus of both chelae without dorsodistal acute process; merus unarmed; ischium with ventral margin armed with row of 10-12 spines, increasing in size distally. First male pleopod 2-segmented; terminal segment with a lateral, anteriorly directed, hook-shaped, apical process and a medial, weakly bidentate, subapical process. Endopod of uropod blunt distally. Telson approximately twice as wide as long; proximal half with strong transverse, distally sloping ridge, interrupted medially by distinct notch; posterior margin laterally excavate on each side of midregion.

### Description of male

**Carapace** (Figures 1, 3A, D) - Rostrum acute, extending approximately 1/2 of visible length of eye stalks; lateral projections absent. Dorsal carapace with length less than combined lengths of pleonites 1 and 2; front, dorsal oval, and cervical groove indistinctly defined (Figure 3A); suture lines arising in mid-region of branchiostegites, joining dorsally in anterior region of posterior third of carapace (Figure 3D); margins of branchiostegites and posterior margin of dorsal carapace fringed with setae, surface of branchiostegites sparsely setose, mid-ventrolateral area with network of shallow sinuses (Figure 3D)

**Eye stalks** (Figure 3B) - Dorsoventrally flattened, extending beyond distal margin of first segment of antennular peduncle, over 2 times longer than wide, subdistal margins (at level of visual elements) tapering dorsolaterally to subacute point; visual elements

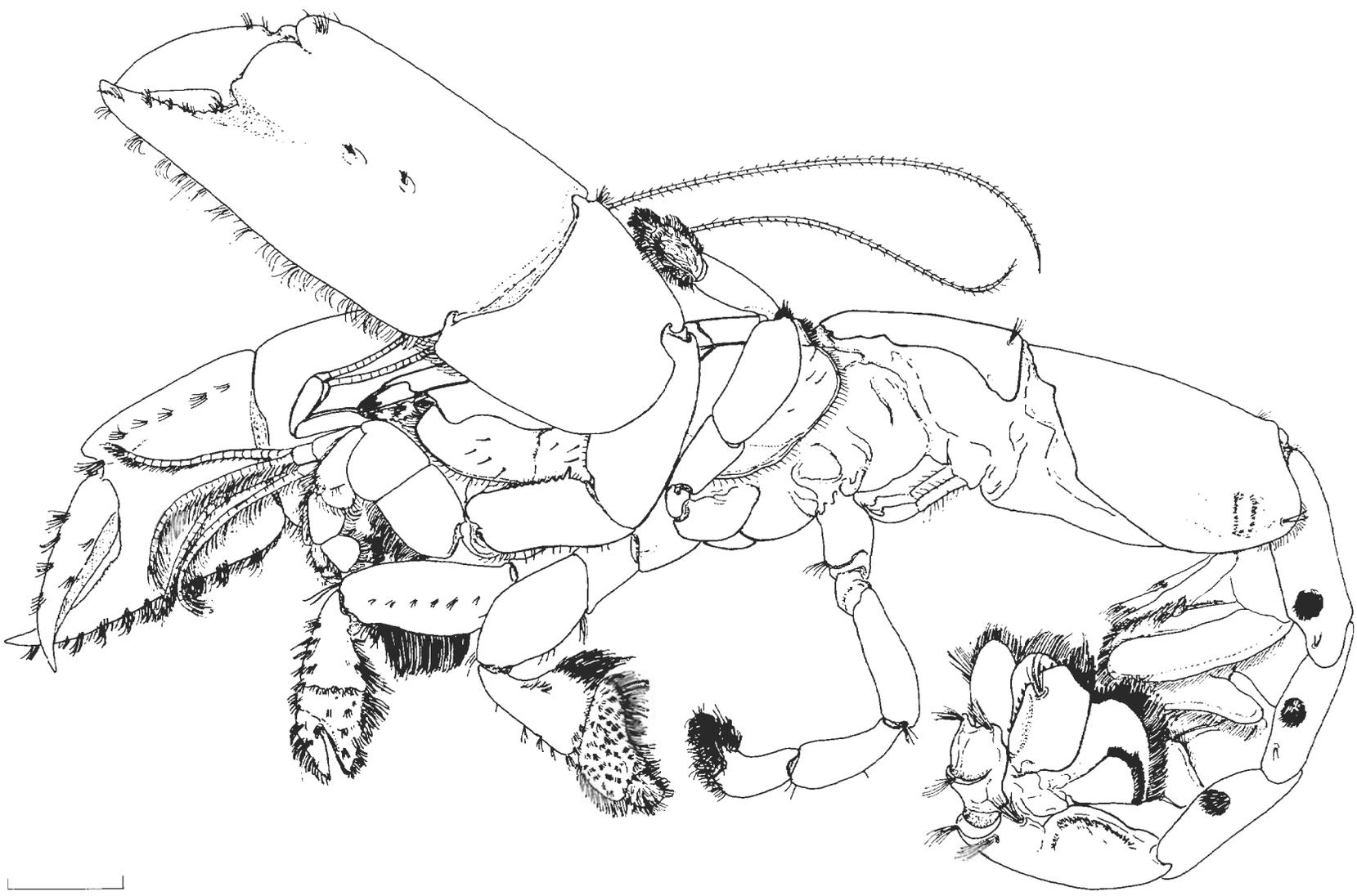


Figure 1. *Calliax jonesi*, n. sp. Lateral view of male holotype. Scale = 3 mm.

relatively well developed, darkly pigmented.

**Antennule** (Figure 1) – Length of peduncle segment 3 about 0.6 times that of 2. Flagella nearly equal in length; dorsal flagellum having 26–28 setose articles, greatest diameter subdistally between articles 17–19, 8 articles preceding terminal article bearing aesthetascs; ventral flagellum having 20–21 setose articles gradually decreasing in diameter distally.

**Antenna** (Figure 1) – Peduncle over-reaching antennular peduncle, extending distally to about article 5 of ventral antennular flagellum; flagellum having 95–98 articles, extending posteriorly past pleonite 1.

**Pleonites** (Figure 1) – First pleonite strongly constricted anteriorly (appearing subtriangular dorsally), pair of small setal tufts near posterodorsal margin. Second pleonite subquadrate, narrowest anteriorly, 1.3 times longer than first pleonite, circular patch of small setae near ventral margin of posterolateral border, a few setae along dorsal and ventral posterior margins. Third pleonite about as long as first pleonite, setation similar to second pleonite except circular patch of setae more centrally located on ventral margin. Fourth and fifth pleonites similar to third pleonite, but slightly shorter. Sixth pleonite broadest anteriorly, approximately same length as first pleonite, more setose than pleonites 1–5; small suture on posterior 1/3 of each lateral margin; mid-dorsal suture or groove opening on posterior margin, extending anterodorsally approximately 1/7 length of somite before closing to form indistinct, mid-dorsal line disappearing on anterior 1/4 of somite; setation as figured (1, 3E).

**Mouthparts** (Figure 2A–D) – Mandible, maxilla 1, and maxilla 2 as figured.

**Maxillipeds** (Figures 2E–F, 4F) – Maxilliped 1, as figured, typical. Maxilliped 2 with greatly reduced, vestigial, podobranch; exopod relatively broad, reaching distal end of article 2 of endopod; endopod, penultimate segment bearing cluster of simple spine-setae of various sizes on inner face of distal 1/2, terminal bearing 8–9 distal and subdistal serrate, spoon tipped, spine-setae of various sizes. Maxilliped 3, lacking exopod, relatively stout; mesial surface of ischium with curved, irregularly spaced, row of 9–10 small teeth; merus approximately 3/4 length of ischium; propodus with large, deep lobe on flexor margin, broadest proximally, nearly as broad as long; dactyl blunt, subquadrate, greatest width in distal half, width 4/5 length.

**Pereopods 1–5** (Figure 4 A–E, G–J) – First pereopods with chelae strongly developed, subequal, but dissimilar, setation as illustrated; ischium of both pereopods similar, relatively short, ventral margin armed with row of 11–12 spines increasing in size distally; merus of both pereopods unarmed; carpus of both pereopods lacking dorsodistal or ventrodistal spine teeth; propodus of both pereopods without dorsodistal spine tooth, dorsodistal margin on smaller chela produced into short blunt process, no such process on larger chela, shallow groove originating distally be-

tween fingers and extending into distal 1/4 of palm on both chelae, inner face of palm with blister-like structure present proximally near proximal margin on larger (left) chela of holotype. Left chela (Figure 4B) larger and more robust than right; fixed finger with subacute tip, proximal 1/2 of cutting edge raised, finely denticulate with 2–3 small notches; movable finger (dactyl) as long as fixed finger, about 1/2 length of palm, having a single rounded tooth on proximal 1/2 of cutting edge. Right chela (Figure 4A) with fixed finger terminally acute having proximal 1/2 of cutting edge finely, but irregularly, denticulate; movable finger as long as fixed finger, about equal in length to palm, cutting edge sharp, beveled, without teeth or fine denticles. Second, third, and fourth pereopods as figured (Figures 1, 3), typical of genus. Fifth pereopod longer and having fewer proximal setae on propodus than fourth; weakly chelate fixed finger or process with rounded finely toothed cutting edge, much shorter than dactyl; dactyl with medial cavity to accommodate fixed process of propodus.

**Pleopods** – First male pleopod (Figure 5A, B) 2-segmented; terminal segment with lateral, anteriorly directed, hook-shaped, apical process and a medial, weakly bidentate, subapical process. Pleopods 2 and 3 as figured (Figure 5C, D); 4–5 similar to 3.

**Uropods** (Figures 1, 3E) – Endopod of uropod about 1.8 times longer than wide, extending well beyond telson, distal margin nearly straight with dense cluster of setae, inner margin bearing row of small, short, widely separated setae. Exopod broad, suboval not extending as far posteriorly as endopod; upper plate well developed, armed with dense setae distolaterally and cluster of 8–9 stout spine setae on distomedial margin; suture distinct; lower plate with distal margin densely setose, distomedial margin with row of 13–15 stout spine setae increasing in size medially.

**Telson** (Figures 1, 3E) – Approximately twice as wide as long; anterior half with strong, transverse, posteriorly sloping ridge, interrupted medially by distinct notch; shallow medial depression extending and expanding posteriorly from notch to posterior margin; posterior margin laterally excavate or weakly trilobed; setation as illustrated.

**Female** – Unknown.

#### *Etymology*

This species is named for Dr. Jim Jones, Director, Mississippi-Alabama Sea Grant Consortium, in recognition of his many contributions to the study and understanding of the marine environment.

#### REMARKS

In addition to *C. jonesi*, six species are presently assigned to the genus *Calliax* (see de Saint Laurent

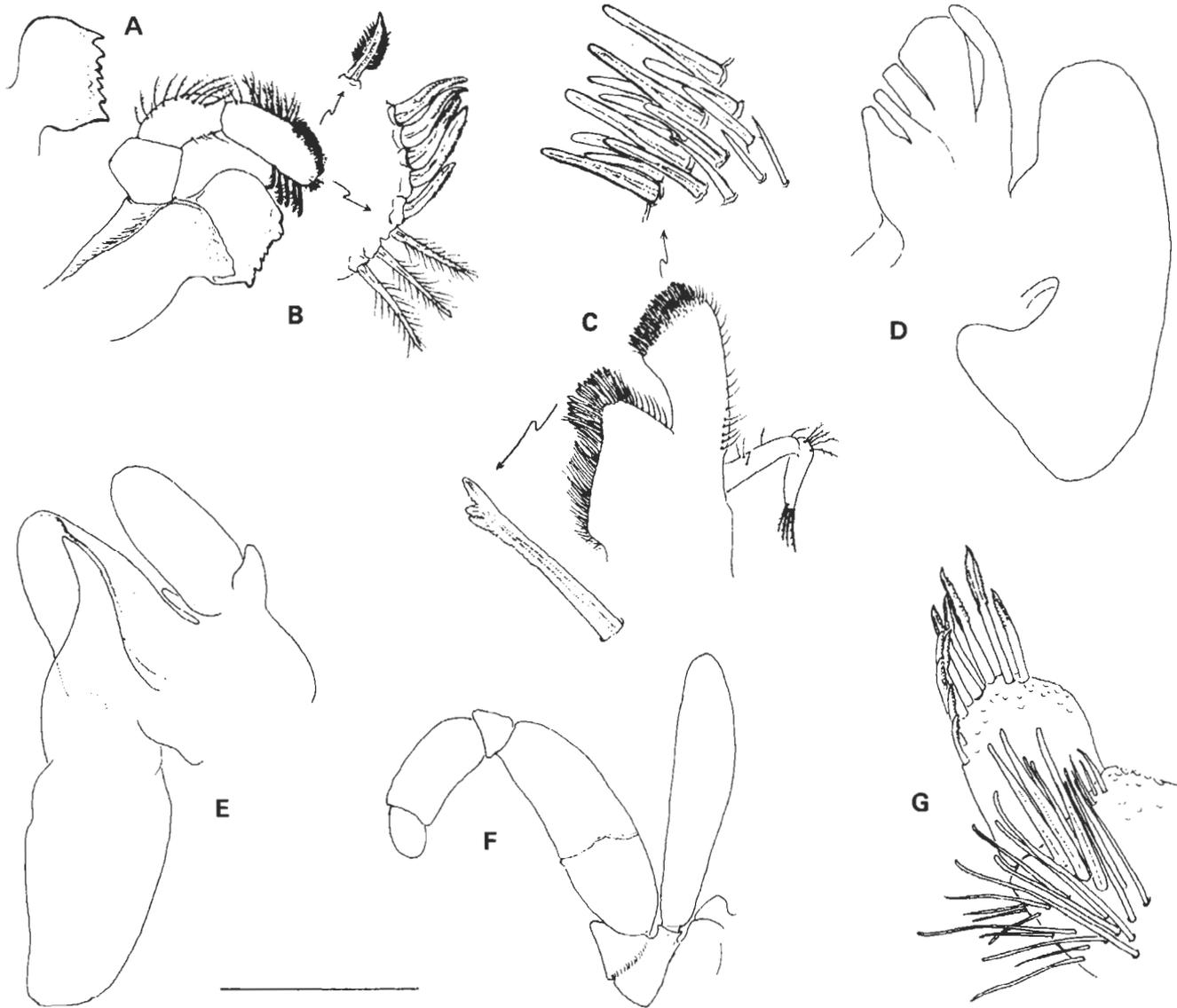


Figure 2. *Calliax jonesi*, n. sp. (setation omitted on D-F). (A) right mandible of paratype, lateral aspect; (B) left mandible of holotype with palp, medial aspect; (C) maxilla 1; (D) maxilla 2, (E) maxilliped 1; (F) maxilliped 2; (G) medial aspect of endopod of maxilliped 2 showing serrate, spoon tipped, spine-setae on terminal segment and simple spine-setae on penultimate segment, plumose setae omitted. Scale = 1.0 mm for A-F; 0.4 mm for G.

and Le Loeuff 1979, de Saint Laurent and Manning 1982). These include *C. novaebritanniae* (Borradaile, 1900); *C. aequimana* (Baker, 1907); *C. quadracuta*, *C. sakaii* de Saint Laurent, 1979; *C. punica* de Saint Laurent and Manning, 1982; and the type species, *C. lobata* (de Gaillande and Lagardère, 1966). *Calliax novaebritanniae*, *C. punica* and *C. sakaii* are distinguished from *C. jonesi* by the presence of an exopod on maxilliped 3. Of the remaining species, all of which lack an exopod on the third maxilliped, *C. jonesi* appears to be most closely related to *C. quadracuta*, known from the Atlantic coasts of Venezuela and South Florida (Biffar 1970, 1971). *Calliax jonesi* is distinguished from *C. quadracuta* by: (1) carpus of the second pair of chelipeds lacking acute distal pro-

cesses or spines on dorsal and ventral margins, (2) armature and shape of uropods and telson, and (3) shape and setation of male first pleopod. The strongly developed transverse telsonic ridge, unarmed merus of the larger first cheliped, and the "typically" developed smaller first cheliped of *C. jonesi* distinguish it from the type species, *C. lobata* which is known from the Mediterranean. *Callianassa aequimana* Baker, 1907 (sensu Poore and Griffin 1979), an Australian species, differs from *C. jonesi* in several characters including the reduced spination of the merus of the first chelipeds and the spination and shape of the uropods and telson.

*Calliax jonesi*, *C. quadracuta*, and at least two undescribed species from the northwestern Atlantic

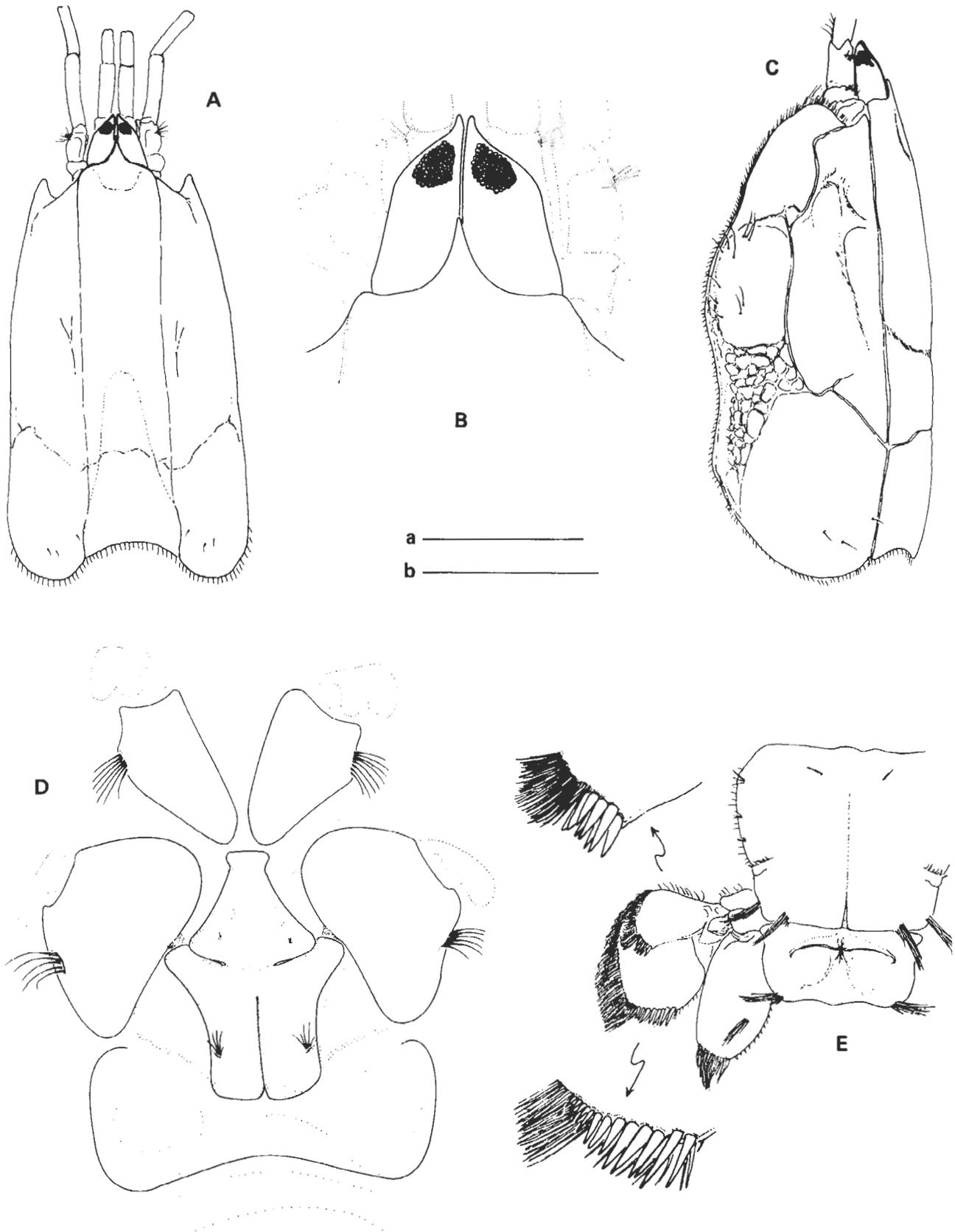


Figure 3. *Callixa jonesi*, n. sp. A-B, D-E paratype; C holotype. (A) carapace, dorsal aspect; (B) eye stalks and rostrum; (C) carapace, lateral aspect; (D) mid-sternal plate; (E) dorsal view of pleonite 6, telson, and uropods. Scale a = 4.0 mm (A), 2.0 mm (B, D); b = 4.0 mm (C, E).

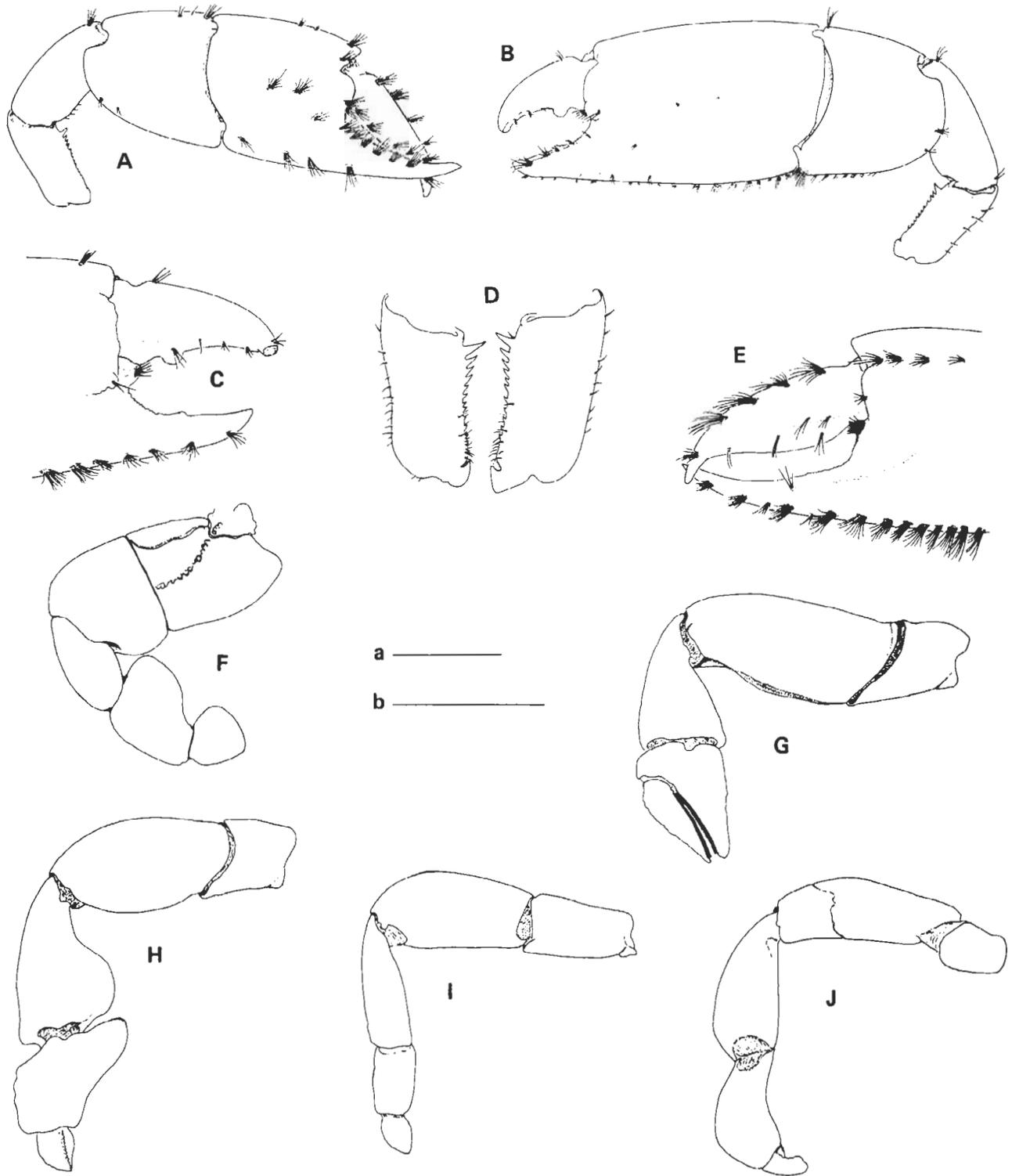


Figure 4. *Calliax jonesi*, n. sp. First pereopods A-E: (A) smaller cheliped, lateral view; (B) larger cheliped, lateral view; (C) larger cheliped, medial view of dactyl and distal part of propodus; (D) ishium of right and left chelipeds; (E) smaller cheliped, medial view of dactyl and distal part of propodus. (F) maxilliped 3, medial view (setae omitted); (G-J) pereopods 2-5, respectively. Scales: a = 4.0 mm (A, B), 2.0 mm (F-J); b = 4.0 mm (C-E).

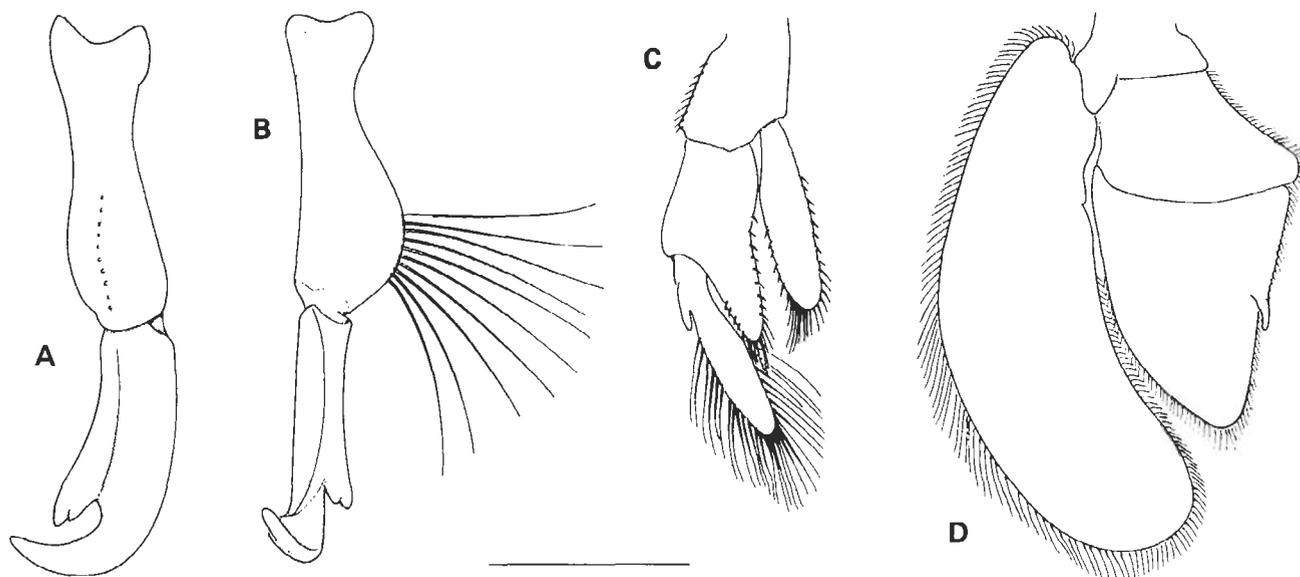


Figure 5. *Calliax jonesi*, n. sp., male pleopods 1-3. (A) right pleopod 1, medial aspect, setae omitted; (B) same, anterior aspect; (C) left pleopod 2, posterior aspect; (D) left pleopod 3, posterior aspect. Scale = 1.0 mm for A, B; 2.0 mm for C, D.

appear to form a closely related species complex. Although they fit de Saint Laurent's (1973) generic diagnosis for *Calliax*, the northwestern Atlantic species differ from the type species by having the first pereopods with typically developed minor chela and the telson with a strongly developed transverse ridge. Except for *C. aequimana*, the western Atlantic species differ from the remaining species of *Calliax* by lacking an exopod on the third maxilliped. It is possible that the Australian species, *C. aequimana*, which also has a strongly developed transverse ridge on the telson, may be more closely related to the currently known species from the western Atlantic than to the Mediterranean and other Pacific species assigned to the genus. *Calliax aequimana* as described by Poore and Griffin (1979) appears to be a highly variable species or possibly a complex of two species.

At this time it is difficult to determine which characters or combinations of characters are of generic or specific importance within the genus *Calliax*. The type species, *C. lobata* is distinguished from all other members of the genus by its "atypically" developed minor first chela. This character, in conjunction with the absence of an exopod on the third maxilliped, the morphology of the telson, and the presence of spines on the merus, distinguishes *C. lobata* from all other species currently assigned to the genus. A detailed morphologic and systematic study of the genus *Calliax* is needed to determine if the genus, as now constituted, represents a single highly variable genus or two or more genera. The characters or combinations of characters that may be of generic importance in re-

viewing the taxonomic status of *Calliax* include the: (1) presence or absence of spines on the merus of the first chelipeds, (2) presence or absence of a transverse ridge on the telson, (3) presence or absence of a podobranch on maxilliped 2, (4) presence or absence of an exopod on maxilliped 3, (5) morphology of the male first pleopod, and (6) armature of the uropods. Other less striking characters such as the spine types found on the mouth parts and maxillipeds may also be of importance.

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