

**A new genus and species of ghost shrimp  
(Crustacea: Decapoda: Callianassidae) from the  
Atlantic Ocean**

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*Abstract.*—*Necallianassa berylae*, new genus and species, are named from material taken at several locations off the coasts of Georgia and South Carolina in depths ranging from 35 to 75 m. Two eastern Atlantic species, *Callianassa acanthura* Caroli, 1946, and *C. truncata* Giard & Bonnier, 1890, are transferred to *Necallianassa*. Members of this new genus can be distinguished from other members of the Callianassinae by the presence of a lateral spine on the uropodal endopod and one or two lateral spines on the telson.

An undescribed species of callianassid was found by one of us (R.W.H.) in collections made during ecological and baseline studies conducted off the coasts of Georgia and South Carolina. Nearly all of the specimens are broken, and many are fragmentary with legs detached or missing. The holotype and a series of paratypes have been deposited in the National Museum of Natural History, Washington (USNM). Additional paratypes have been deposited in the Museum of the Gulf Coast Research Laboratory, Ocean Springs (GCRL).

The specimens from Georgia were collected by M. B. Gray, Sapelo Island Research Foundation (SRF). The specimens from South Carolina were collected by Texas Instruments South Atlantic Benchmark Program for the Minerals Management Service, U.S. Department of the Interior (TI/MMS).

Abbreviations used in the accounts below include: A1, antennule; A2, antenna; cl, postorbital carapace length; ft, feet; leg., collector or collected by; m, meters; Man, mandible; Max1-2, first and second maxillae; mm, millimeters; Mxp1-3, first to third maxillipeds; P1-5, first to fifth pereopods (P1 is the cheliped, P5 the fourth walking leg); Plp1-5, first to fifth pleopods; tl, total length.

Callianassidae Dana, 1852

Callianassinae Dana, 1852

*Necallianassa*, new genus

*Type species.*—*Necallianassa berylae*, new species, by present designation.

*Included species.*—The type species, from the western Atlantic, and two other species from the eastern Atlantic: *Necallianassa truncata* (Giard & Bonnier, 1890), new combination; and *Necallianassa acanthura* (Caroli, 1946), new combination.

*Diagnosis.*—Size very small to medium, total lengths of adults 15 mm or less to about 50 mm. Carapace with dorsal oval and rostral projection or spine, lacking cardiac prominence and rostral carina. Rostral spine, when present, extending to or beyond cornea. Cornea subterminal, dorsal, small, disc-shaped. A1 peduncle similar to A2 peduncle in size and length. Mxp3 suboperculariform, length of ischium and merus similar to or less than twice width, without exopod; merus not projecting beyond

articulation with carpus; distal 3 segments elongate, much slenderer than basal 2 segments; dactylus slenderer than propodus. Chelipeds unequal, both P1 with meral hook. Second abdominal somite  $\frac{1}{3}$  longer than sixth somite. Male Plp1 uniramous, 2-segmented; male Plp2 absent. Female Plp1 uniramous, Plp2 biramous. Endopods of Plp3–5 with stubby, projecting appendices internae. Telson subrectangular, with median posterior projection and 1 or 2 much larger lateral spines. Uropodal endopod with one strong lateral spine.

*Remarks.*—Members of *Necallianassa* can be distinguished from members of all other genera in the Callianassidae by the presence of one or two lateral spines on the telson and a strong outer spine on the uropodal endopod.

*Etymology.*—From the Latin, the prefix “ne-”, not, and the generic name *Callianassa*. Gender feminine.

*Necallianassa berylae*, new species  
Figs. 1–3a, b

*Material.*—South Carolina: 32°00'57"N, 79°31'03"W, depth 43 m, sand, leg. TI/MMS, *G. W. Pierce* sta 9737, sample 0177-2 (3E), box core, Aug 1977: 1 ♂, cl 4.1 mm (holotype, USNM 260881), 1 ♀, cl 3.5 mm (paratype, USNM 260882).—32°00'57"N, 79°31'03"W, depth 43 m, sand, leg. TI/MMS, *G. W. Pierce* sta 9737, sample 0177-5 (3E), box core, 18 Feb 1977: 1 ♂, cl 4.5 mm, 1 damaged ovigerous ♀, cl 3.4 (paratypes, GCRL).—32°00'57"N, 79°31'03"W, depth 43 m, sand, leg. TI/MMS, *G. W. Pierce* sta 9737, sample 0177-6 (3E), box core, 18 Feb 1977: 1 ♀, cl 3.4 mm, 1 fragment (paratypes, USNM 260883).—32°01'04"N, 79°31'05"W, depth 35 m, sand, leg. TI/MMS, *G. W. Pierce II* sta 9737, sample 0787-4 (3E), box core, 22 Feb 1977: 2 ♀♀ (1 broken), cl ca. 3.5 mm and ca. 4.0 mm (paratypes, USNM 260-884).—32°01'04"N, 79°31'05"W, depth 35 m, sand, leg. TI/MMS, *G. W. Pierce II* sta 9737, sample 0787-5 (3E), box core, 25 Aug

1977: 1 ♂, cl 2.5 mm (tl ca. 10.0 mm), 1 ♀, cl ca. 4.5 mm (tl ca. 15 mm) (paratypes, USNM 260885).

Georgia: 31°33'38"N, 79°39'01"W, depth 245 ft (75 m), SRF sta 306, bucket dredge, leg. M. Gray, 6 Aug 1963: 3 ♂♂, cl ca. 1.8 mm, 2.4 mm, and 2.5 mm (paratypes, USNM 260886).—31°33'36"N, 79°40'21"W, depth 213 ft (65 m), SRF sta 307, bucket dredge, leg. M. Gray, 6 Aug 1963: 1 damaged ♀, cl ca. 3.5 mm (paratype, USNM 260887).—31°33'30"N, 79°41'38"W, depth 175 ft (53 m), SRF sta 308, bucket dredge, leg. M. Gray, 6 August 1963: 1 ♂, cl 3.2 mm (tl ca. 12 mm) (paratype, USNM 260888).

*Description.*—Carapace with rostrum acute, sharp, extending approximately  $\frac{3}{4}$  length of visible length of eyestalks; orbital or frontal projections absent. Dorsal oval and cervical groove distinctly defined; suture lines arising in mid-region of branchiostegites, joining dorsally in anterior region of posterior third of carapace; margins of branchiostegites and posterior margin of dorsal carapace fringed with setae, surface of branchiostegites sparsely setose.

Eyestalks (Fig. 1a,b) dorsoventrally flattened, extending nearly to distal margin of first segment of antennular peduncle, over 2 times longer than wide, proximal lateral margins broadly convex to level of cornea then tapering distally to blunt point; cornea relatively well developed, darkly pigmented.

Length of A1 peduncle segment 3 about 2 times that of segment 2. Flagella nearly equal in length; dorsal flagellum with 26–28 setose articles, greatest diameter subdistally between articles 17–19, 8 articles preceding terminal article bearing aesthetascs; ventral flagellum with 20–21 setose articles gradually decreasing in diameter distally.

A2 peduncle over-reaching A1 peduncle, extending distally to about article 5 of ventral antennular flagellum; flagellum with 95–98 articles, extending posteriorly past first abdominal somite.

Abdomen with first somite strongly con-

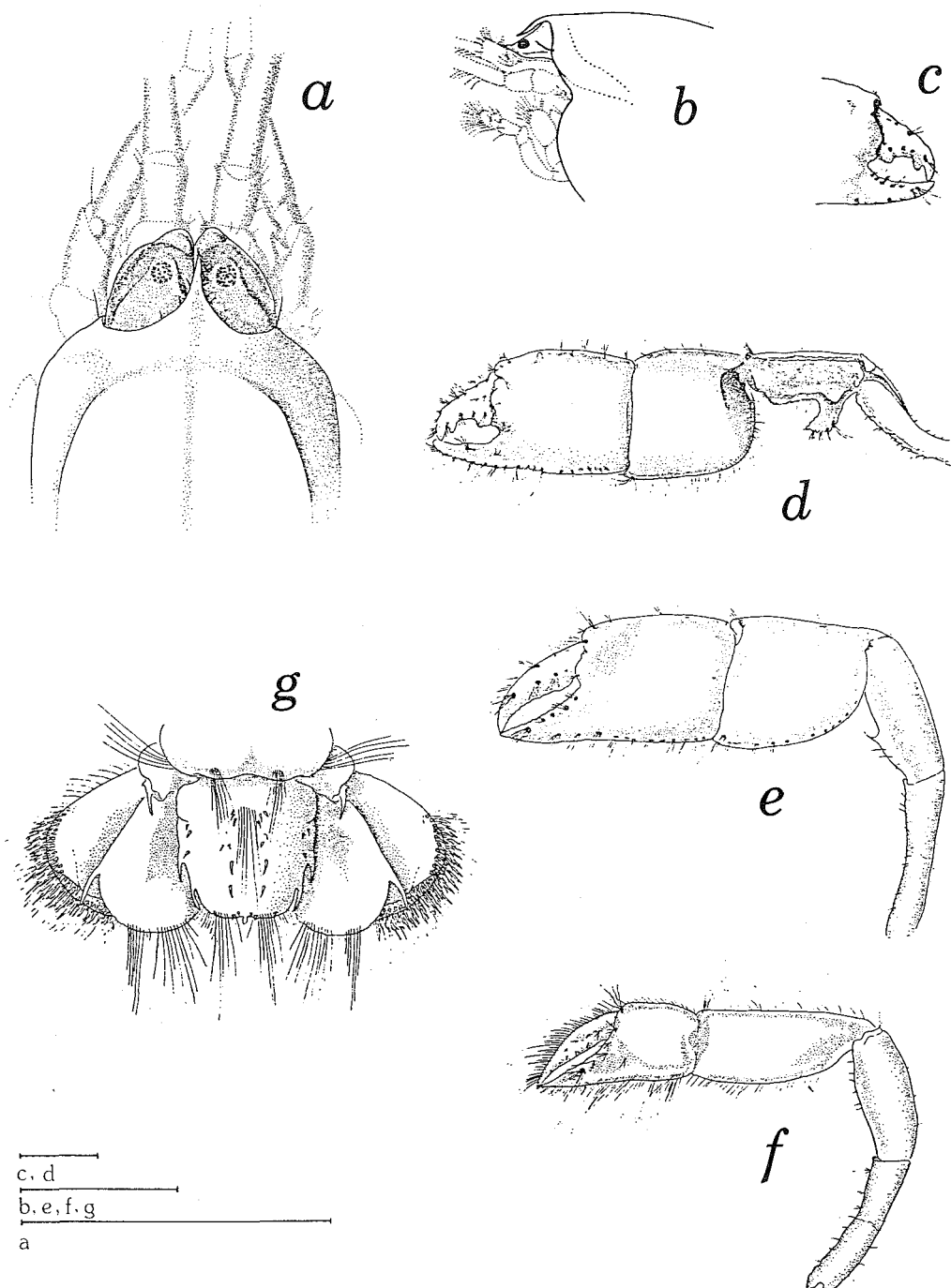


Fig. 1. *Necallianassa berylae*, n. gen., n. sp. *a*, Front, dorsal view; *b*, Front, lateral view; *c*, Fingers of major chela of male; *d*, Major cheliped of male; *e*, Minor P1 of male (same shape as major P1 of female); *f*, Minor P1 of female; *g*, Tailfan. *a-e, g*, male holotype (USNM 260881), cl 4.1 mm; *f*, female paratype (USNM 260884), cl ca. 3.5 mm. Scales = 2 mm.

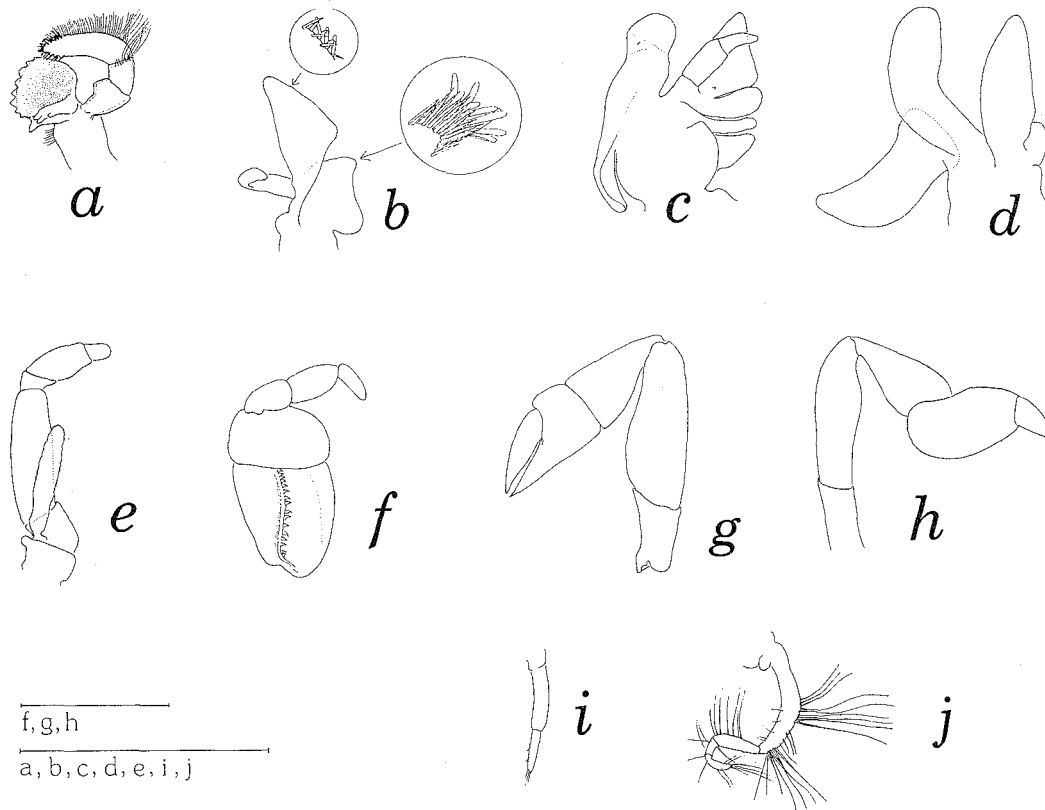


Fig. 2. *Necallianassa berylae*, n. gen., n. sp. *a*, Man; *b*, Max1 (inserts show specialized setae on margin); *c*, Max2; *d*, Mxp1; *e*, Mxp2; *f*, Mxp3; *g*, P2; *h*, P5; *i*, Male Plp1; *j*, Female plp1. *a-e, j*, female paratype (USNM 260884), cl ca. 3.5 mm; *f-h*, female paratype (USNM 260882), *i*, male holotype (USNM 260881), cl 4.1 mm. Scales = 1 mm.

stricted anteriorly (appearing subtriangular dorsally), pair of small setal tufts near posterodorsal margin. Second somite subquadrate, narrowest anteriorly, 1.3 times longer than first, circular patch of small setae near ventral margin of posterolateral border, a few setae along dorsal and ventral posterior margins. Third somite about as long as first, setation similar to that of second except circular patch of setae more centrally located on ventral margin. Fourth and fifth somites similar to third, but slightly shorter. Sixth somite broadest anteriorly, approximately same length as first, more setose than somites 1-5; small suture on posterior  $\frac{1}{3}$  of each lateral margin; mid-dorsal suture or groove opening on posterior margin, extending anterodorsally approximately  $\frac{1}{7}$

length of somite before closing to form indistinct, mid-dorsal line disappearing on anterior  $\frac{1}{4}$  of somite.

Mouthparts (Fig. 2*a-f*) with Man, Max1, and Max2 as figured (Fig. 2*a-c*). Max1 with distinctive "golden", club-shaped setae on distolateral margin (Fig. 2*b*, enlargements).

Mxp1 (Fig. 2*d*) as figured. Mxp2 (Fig. 2*e*) with greatly reduced, vestigial, podobranch; endopod with article 2 distinctly longer than combined length of articles 3-5; exopod extending approximately  $\frac{3}{4}$  length of endopodal article 2. Mxp3 (Fig. 2*f*) lacking exopod, endopod with ischium and merus stout, carpus, propodus, and dactylus relatively much narrower and attenuated; mesial surface of ischium with row of 14-

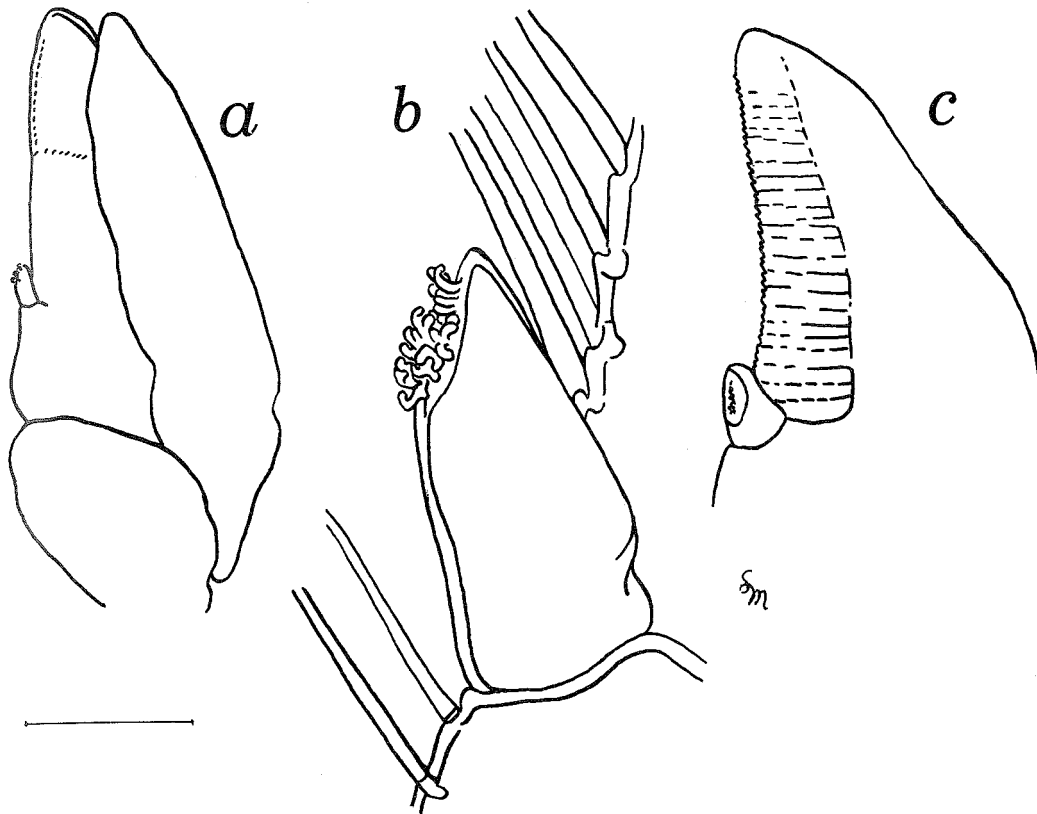


Fig. 3. *Necallianassa berylae*, n. gen. n. sp., *a*, Endopod of Plp3; *b*, Appendix interna, enlarged; *c*, Endopod of Plp3. *a*, *b*, male holotype of *N. berylae* (USNM 260881), cl 4.1 mm; *c*, *Necallianassa acanthura* (Caroli, 1946), new combination, holotype, National Natuurhistorisch Museum, Leiden. Scale = 0.5 mm (*a*, *c*), 0.05 mm (*b*).

16 small teeth along distoproximal axis; merus distinctly wider than long, approximately  $\frac{2}{3}$  length of ischium, as broad or broader than distal end of ischium; carpus, propodus, and dactylus, and dactylus less than combined length of ischium and merus.

Chelipeds (P1) distinctly unequal (Fig. 1*d*, *f*). Major cheliped with distinct gap between fixed and movable fingers; ischium relatively narrow with weakly crenulate ventral margin; merus bearing strongly developed hook-like process on proximal ventral margin, approximately twice as long as deep (excluding hook-like process); carpus subquadrate, nearly as deep as long, approximately as long as merus; propodus (excluding fixed finger) approximately  $\frac{4}{5}$  as

deep as long, fixed finger lacking teeth; dactylus (movable finger) armed with distinct subdistal tooth and larger oblique proximal tooth, length slightly more than  $\frac{1}{2}$  length of propodal palm. Minor cheliped smaller and more weakly developed than major chela; merus unarmed, twice as long as deep; carpus attenuated, twice as long as deep; propodus with palm as long as deep, fixed finger lacking teeth, longer than palm; dactylus longer than palm of propodus, lacking teeth.

P2 as illustrated (Fig. 2*g*), chelae equal. Carpus  $\frac{2}{5}$  length of merus; fingers longer than palm.

P3 with merus longer than carpus; carpus  $\frac{2}{5}$  length of merus; propodus and carpus approximately equal in length.

Male Plp1 (Fig. 2*i*) composed of 2 articles; terminal article simple, straight, and distinctly shorter than proximal article. First pleopod of female (Fig. 2*j*) uniramous, 4-segmented.

Uropods (Fig. 1*g*) with spine-like process on distal margin of peduncle; exopod broad, rounded with indistinct suture, upper and lower plates poorly developed, distal margins densely setose with numerous small submarginal spines; endopod broadly rounded with prominent spine-like process on distolateral margin, two clusters of long setae on distal margin.

Telson (Fig. 1*g*) not extending beyond uropods; approximately as wide as long with 2 distinct pairs of posteriorly directed spine-like processes on lateral margins; spination and setation as figured.

Female similar to male except in development of the first pair of chelipeds and in that Plp1 is uniramous, Plp2 biramous. Major P1 in female resembling minor P1 of male, with meral hook. Minor P1 in female lacking meral hook.

*Etymology*.—Named in honor of Beryl Marie Story in recognition of her exceptional talents and many past contributions to the senior author's research.

*Remarks*.—*Necallianassa berylae* can be distinguished from its two eastern Atlantic congeners, *N. acanthura* and *N. truncata*, as follows: its size is much smaller, tl about 15 mm versus about 50 mm; the rostral projection, extending beyond the cornea, is much longer and sharper (compare Fig. 1*a* with Figs. 2 and 3 in de Saint Laurent & Bozic 1976); the ischium-merus of the Mxp3 is slenderer (compare Fig. 2*f* with Figs. 10 and 11 in de Saint Laurent & Bozic 1976); and there is a strong subdistal tooth on the dactylus of the major chela (compare Fig. 1*c, d* with Figs. 18*a* and 19 in de Saint Laurent and Bozic 1976). *Necallianassa truncata* resembles *N. berylae* in having two lateral spines on the telson, but they and the outer spine on the uropodal endo-

pod are much smaller than the spines of the telson and uropod of *N. berylae*. *Necallianassa acanthura*, like *N. berylae*, has two large lateral spines on the telson and a large outer spine on the uropodal endopod.

#### Acknowledgments

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