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16 January 1981

PROC. BIOL. SOC. WASH.
93(4), 1980, pp. 1223-1229

A NEW SPECIES OF THE MARINE AMPHIPOD GENUS
GAMMAROPSIS FROM THE SOUTHEASTERN
UNITED STATES (PHOTIDAE)¹

Walter G. Nelson

Abstract.—A new species of the amphipod genus *Gammaropsis*, *G. sutherlandi*, encountered during ecological studies of the amphipods of the estuaries of North Carolina, is described here. The new species appears closely related to *Gammaropsis maculata* (Johnston) 1827.

During ecological investigations of the amphipod crustaceans associated with beds of eelgrass (*Zostera marina*) in the sounds near Beaufort, N.C. (Nelson, 1979a, b), specimens of the marine photid genus *Gammaropsis* were collected. The material proved to be a species new to science and constitutes an addition to the list of amphipod species found in the shallow estuarine waters of North Carolina (Fox and Bynum, 1975; Bynum and Fox, 1977; Nelson, 1979c) as well as to the amphipod fauna of the southeastern United States.

Gammaropsis sutherlandi, new species
Figs. 1-3

Eurystheus maculatus.—Pearse and Williams, 1951.

Eurystheus erythrophthalmus.—Pearse and Williams, 1951.

Eurystheus maculatus.—McClosky, 1970?

Gammaropsis maculata.—Fox and Bynum, 1975?

Gammaropsis maculata.—Fox, 1978?

Description.—*Male.*—8.5 mm. Eye oval, on acutely rounded produced cephalic lobes. Head equals width of 1.5 pereonites. Antenna 1, 42% of total body length, 103% of antenna 2; ratio of articles 1:2:3—1:1.4:.93, ventral margin with long setae; flagellum with 16 articles, 92% of peduncle length; accessory flagellum with 7 articles. Antenna 2, 41% of total body length, ratio of articles 3:4:5—1:2.4:2.2; flagellum 57% of peduncle length, with 13 articles.

Gnathopod 1, article 2 with posterodistal group of setae. Gnathopod 2, ratio of articles 5:6—1:1.7; article 2 with a few medium setae on anterior

¹ Contribution from Harbor Branch Foundation, Inc.

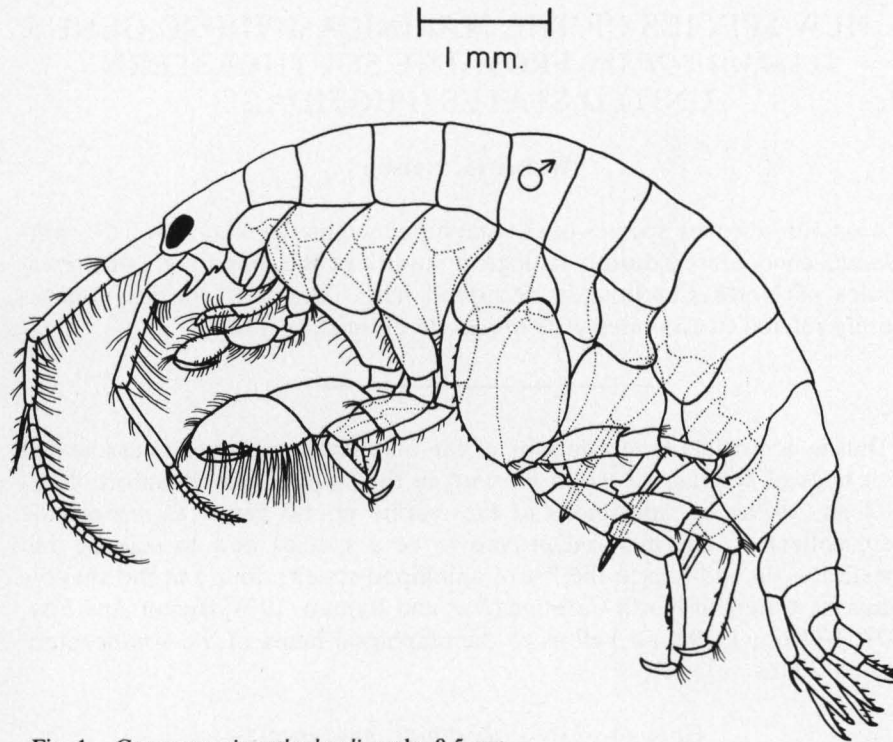


Fig. 1. *Gammaropsis sutherlandi*, male, 8.5 mm.

edge; article 5 with 9–10 clusters of setae on posterior margin; article 6 with 7 clusters of setae on posterior margin behind palm and 7 clusters on palm, 4 rows of setae on anterior margin, palm not defined by angular projection, smooth curve from hind margin into concave palm, 2 small teeth projecting from curve of palm dividing palm roughly into thirds; setae on articles 5 and 6 longer than width of article 6.

Epimeron 2 with small tooth on posterodistal corner. Epimeron 3 with strong tooth on posterodistal corner.

Uropod 1, peduncle with distoventral edge produced into upturned spur $\frac{1}{3}$ length of rami; inner ramus slightly longer than outer; peduncle equal to outer ramus in length, outer margin with 8 spines, inner margin with 9 small spines and 1 large distal spine; outer ramus with 6 outer and 4 inner marginal spines; inner ramus with 7 outer and 3 inner marginal spines. Uropod 2, peduncle with 3 spines on outer margin, 1 distal spine on inner margin; inner ramus longer than outer; outer ramus equals length of peduncle; outer ramus with 5 outer and 4 inner marginal spines; inner ramus with 6 outer and 3

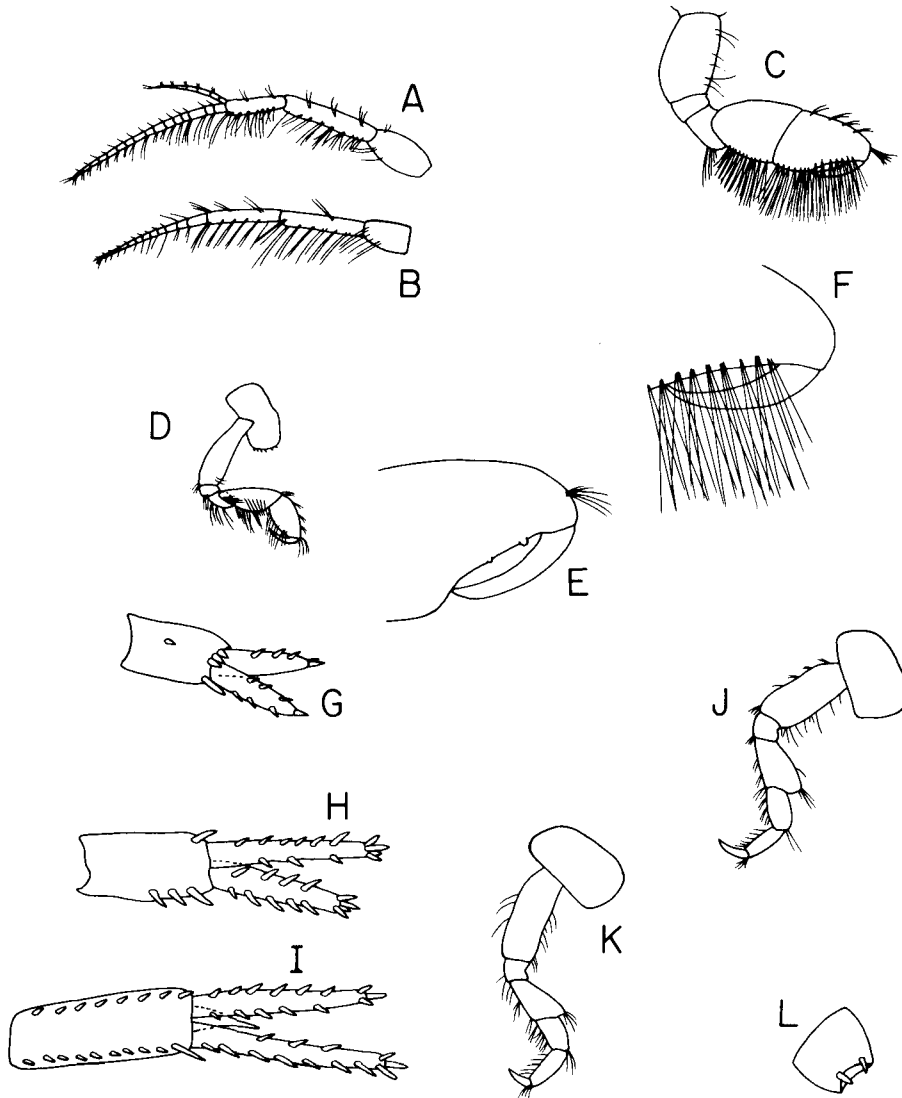


Fig. 2. *Gammaropsis sutherlandi*, male, 8.5 mm: A, Antenna 1; B, Antenna 2; C, Gnathopod 2; D, Gnathopod 1; E, Detail of palm, gnathopod 2, setae removed; F, Detail of palm, gnathopod 2, setae present; G, Uropod 3; H, Uropod 2; I, Uropod 1; J, Pereopod 3; K, Pereopod 4; L, Telson.

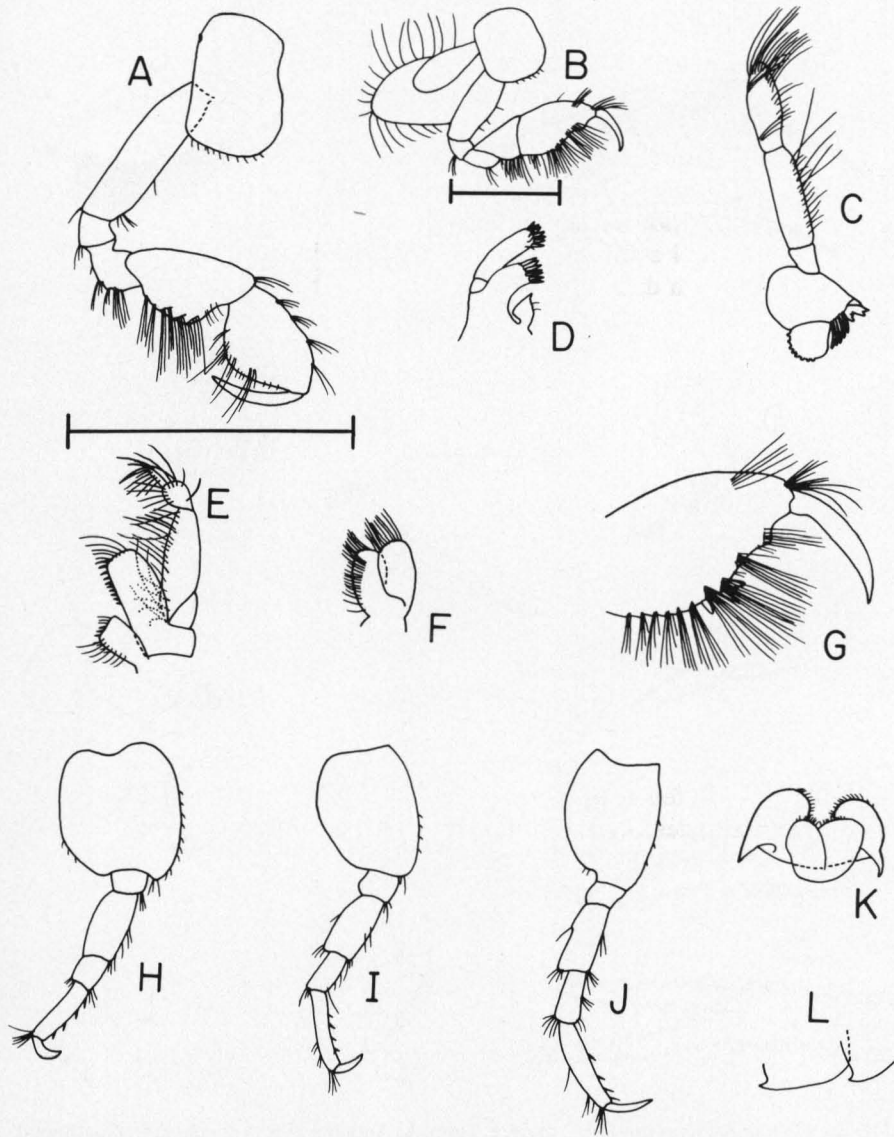


Fig. 3. *Gammaropsis sutherlandi*, female, 8.5 mm: A, Gnathopod 1, scale = 1 mm; B, Gnathopod 2, scale = 1 mm; C, Mandible; D, Maxilla 1; E, Maxilliped; F, Maxilla 2; G, Detail of palm, gnathopod 2; H, Pereopod 5; I, Pereopod 6; J, Pereopod 7; K, Lower lip, male 8.5 mm; L, Epimera 2 and 3.

inner marginal spines. Uropod 3, peduncle with 1 small dorsomedial spine and 3 flattened dorsomedial spines at junction with rami, 1 large distal spine on inner margin; outer ramus with 3 outer and 0 inner marginal spines; inner ramus with 3 inner and 3 outer marginal spines. Telson moderately incised with stout medial spines.

Female.—8.5 mm. Gnathopod 1, like male except article 5 lacks medial line of setae. Gnathopod 2, much less massive than in male; article 2 with a few setae on anterior margin; article 6, 2 times length of article 5, palm oblique with 2 small acute projections and 1 spine inserted medially near first projection, palm defined only by presence of second spine—not by an angular projection.

Material examined.—Types: Holotype male, 7.7 mm, Frying Pan Shoal, 5 Mar. 1935, USNM 173231. Allotype female, 6.7 mm, Frying Pan Shoal, 5 Mar. 1935, USNM 173232. Paratype series, Beaufort, N.C., USNM 173233, including paratype male, 8.5 mm, and paratype female, 8.5 mm, figured herein. Duke University Marine Laboratory, Beaufort, N.C. from fouling tiles, 14 Apr. 1974, 1 ovigerous female, 1 immature; 19 Mar. 1975, 2 females, 1 male; 20 May 1975, 1 female, 1 immature. Shackleford Jetty, Bogue Sound, N.C. from algae, 20 Jan. 1976, 1 ovigerous female; 17 Mar. 1976, 1 male, 1 immature. Material from Duke University Marine Laboratory Reference Museum collections, from dredge samples collected by R.V. *Eastward* off the coast of N.C., 19 Apr. 1965, 1 female, 34°34.5'N, 76°25.5'W, 20 m; *Eastward* station 17069, 1 male, 2 females; *Eastward* station 3645, 13 Jan. 1966, 1 male.

Material from USNM collections: From North Carolina.—Off Bogue Inlet, 19 July 1915, 2 females, 2 immatures, No. 8286; Shackleford Banks, 12 Sept. 1928, 5 females, USNM 102997; Frying Pan Shoal, 5 Mar. 1935, 2 males, 5 females, 1 immature, USNM 133318; Frying Pan Shoal, 2 Apr. 1935, 1 ovigerous female, USNM 134066; Black Rocks off New River, 19 June 1949, 4 males, 5 females, USNM 183351; Black Rocks off New River, 19 June 1949, 1 female, USNM 183864. From South Carolina.—*Albatross* Sta. 20037, 12 Dec. 1919, 1 ovigerous female, USNM 64746; east of Cape Romain, 1 July 1935, 3 females, USNM 135202; off Little River Inlet, 17 Aug. 1949, 3 males, 2 females, USNM 183864. From Dry Tortugas, Florida.—Tortugas, 1 female, Sta. No. 33-31; south of Tortugas, 31 July 1930, 1 male, 11 females, Sta. No. 38-30; south of Tortugas, 23 July 1932, 1 male, Sta. No. 59-32; Tortugas (Haul 210 by W. L. Schmitt), 10 June 1925, (2 lots) 1 female and 1 male, 2 females and 3 immatures, USNM 93400; Loggerhead Key, 7 Aug. 1931, 5 males, 3 females, 3 immatures, USNM 115488; Miscellaneous, probably Tortugas, 17 June 1932, 2 ovigerous females, Sta. No. 3-32; south of Tortugas, 4 Aug. 1931, 1 female; *Fish Hawk* Sta. No. 8499, 5 males, 19 females; *Fish Hawk* Sta. No. 8895, 1 ovigerous female.

Distribution.—Cape Hatteras, south side, south to the Dry Tortugas of Florida, in depths from shallow subtidal to 300 m.

Relationships.—*Gammaropsis sutherlandi* appears to be closely related to *Gammaropsis maculata* (Johnston) 1827 but is distinct from it in several features. The comparisons below are based on *G. maculata* (= *G. erythopthalma* figured by Sars, 1894, pl. 198) material from Norway in the collection of the Zoological Museum of the University of Oslo. The confused synonymy of *G. maculata* has been discussed by Krapp-Schickel and Myers (1979). The flagellum of antenna 1 is equal to 70–80% of the length of the peduncle in *G. maculata* and 92% in *G. sutherlandi*, with the flagellum being composed of 13–14 articles in males of *G. maculata* and 16–18 in *G. sutherlandi*.

The posterodistal corner of article 2 of gnathopod 1 possesses a group of setae in males of *G. sutherlandi* and lacks it in *G. maculata*. On gnathopod 2, setae are found on the anterior margin of article 2 of both males and females of *G. sutherlandi* and are lacking in *G. maculata*. Article 5 of male gnathopod 2 possesses 6 groups of setae in *G. maculata* and 9–10 in *G. sutherlandi*. Article 6 of male gnathopod 2 possesses 9 groups of setae on the posterior margin in *G. maculata* and 14 in *G. sutherlandi*. The palm of male gnathopod 2 is defined by a small distally pointing angular projection in *G. maculata* and is not defined by any angular projection in *G. sutherlandi*. The setae on articles 5 and 6 of male gnathopod 2 are less than the width of article 6 in *G. maculata* and equal to or greater than the width of article 6 in *G. sutherlandi*. Both species possess 2 toothlike projections on the palm. Although the degree of development of these teeth varies in *G. sutherlandi*, maximum development is considerably less than that for *G. maculata*, although Krapp-Schickel and Myers (1979) suggest the palmar teeth of *G. maculata* become obsolete in old males.

Etymology.—This species is named for Dr. John P. Sutherland in honor of his contributions to the study of marine fouling communities and the field of marine ecology.

Ecology.—This species appears quite generalized in its epifaunal habitat. It has been collected from the shallow subtidal from algae on rock jetties, from the fouling community, and rarely, from eelgrass (*Zostera marina*) beds in the estuary near Beaufort, N.C. It has also been collected from such substrates as stones, the backs of spider crabs, ceramic fouling plates, and was also common in the stomach contents of sea bass taken from approximately 15 m depth on an artificial reef structure off Wilmington, N.C. In the region of Beaufort, N.C. available data indicate a breeding season of from at least January through July, and this species may well breed year round.

Acknowledgments

I would like to thank the following for providing material for this study: Dr. J. L. Barnard, USNM; Dr. Wim Vader, University of Trømso; Dr. M. E. Christiansen, University of Oslo; Dr. W. Kirby-Smith, Duke University. Dr. E. L. Bousfield has provided information and encouragement throughout this study, and both he and Dr. J. L. Barnard kindly reviewed the manuscript. M. A. Nelson inked the plates. Preparation of the manuscript was made possible by a Harbor Branch Institution Postdoctoral Fellowship.

Literature Cited

- Bynum, K. H., and R. S. Fox. 1977. New and noteworthy amphipod crustaceans from North Carolina, U.S.A.—*Chesapeake Sci.* 18:1–33.
- Fox, R.S. 1978. Amphipoda. In R. Zingmark, Ed., An annotated checklist of the biota of the coastal zone of South Carolina.—University of South Carolina Press, Columbia, 364 pp.
- and K. H. Bynum. 1975. The amphipod crustaceans of North Carolina estuarine waters.—*Chesapeake Sci.* 16:233–237.
- Krapp-Schickel, G., and A. A. Myers. 1979. The Mediterranean species of *Gammaropsis* Liljeborg (Crustacea, Amphipoda).—*Boll. Mus. Civ. St. Nat. Verona* 6:441–467.
- McClosky, L. R. 1970. The dynamics of the community associated with a marine scleractinian coral.—*Int. Rev. Ges. Hydrobiol.* 55:13–81.
- Nelson, W. G. 1979a. Experimental studies of selective predation on amphipods: Consequences for amphipod distribution and abundance.—*J. Exp. Mar. Biol. Ecol.* 38:225–245.
- . 1979b. The analysis of structural pattern in an eelgrass (*Zostera marina*) amphipod community.—*J. Exp. Mar. Biol. Ecol.* 39:231–264.
- . 1979c. Additions to the amphipod crustaceans of North Carolina. —*Estuaries* 2:65.
- Pearse, A.S., and L. G. Williams. 1951. The biota of the reef off the Carolinas.—*J. Elisha Mitch. Sci. Soc.* 67:133–161.

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