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TANAIDACEA (CRUSTACEA: PERACARIDA) OF THE GULF OF MEXICO. IX. GEOGRAPHICAL OCCURRENCE OF *APSEUDES OLIMPIAE* GUŢU, 1986 WITH A REVIEW OF PREVIOUS RECORDS FOR THE GENUS *APSEUDES* IN THE GULF

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Abstract Examination of tanaidacean specimens collected from shelf waters of the eastern Gulf of Mexico (Gulf) revealed the presence of the apseudomorph *Apseudes olimpiae* Guţu, 1986, whose type locality was unknown, but suspected to be Bermuda. It is now determined that the type material actually came from the northeastern Gulf. Although the specific station locality information for the type material has been lost; records indicate that specimens from the Gulf were sent to Romania for study by M. Băcescu and apparently became mixed with material from Bermuda. Based on additional material from the present study, new locality records are established for *A. olimpiae* in shelf waters (19–47 m) off the coasts of Alabama and northwestern Florida. The original illustrations of Guţu (1986) are reproduced to facilitate the identification of *A. olimpiae* and a map of its known distribution is provided. A brief review of previous records for the genus *Apseudes* Leach, 1814 indicates that *A. olimpiae* is currently the only described species of the genus *sensu stricto* known with certainty from Gulf waters. The taxonomic status for Gulf specimens of another species in the *A. intermedius-bermudeus* complex and the "*Apseudes* sp. A" of Flint and Holland (1980) remain unresolved.

Introduction

This report is the 9th in a series of publications on the Tanaidacea of the Gulf (Ogle et al. 1982, Sieg et al. 1982, Sieg and Heard 1983a,b, 1985, 1988, 1989, Meyer and Heard 1989, and Viskcup and Heard 1989). Examination of benthic samples collected in the eastern Gulf during projects sponsored by the Bureau of Land Management (BLM) MAFLA program, US Environmental Protection Agency (EPA), and Chevron USA Production Company, revealed the presence of the apseudomorph tanaidacean *Apseudes olimpiae* Guţu, 1986; sampling stations are presented in Figure 1. The type locality for this species was unknown, but was originally suspected to be the Bermuda Islands (Guţu 1986). The purpose of this report is to correct and provide new information on the geographic distribution for *A. olimpiae*.

Results

Order Tanaidacea
Suborder Apseudomorpha Sieg, 1980
Family Apseudidae Leach, 1814
Apseudes olimpiae Guţu, 1986
Figures 2–4

Material. BLM-MAFLA (1974–1978)—1 spec., Station 2421, 29°37'00.8"N, 84°17'00.2"W, June 1976, 19 m June 1975.—1 spec., Station 2422, 29°29'55.4"N, 84°27'01.4"W, June 1975, 24 m.—6 spec., Station 2423, 29°20'00.4"N, 84°44'02.3"W, 1975, 30 m;—9 spec., Station 2423, September 1977.—6 spec., Station 2424, 29°13'00.7"N, 85°00'01.4"W, 8 June 1975, 28 m.—3 spec. (1 GCRL 2016, 2 USNM-310679), Station 2424, August 1977.—2 spec., Station 2529(34), 29°55'59.0"N, 86°06'28.8"W, July 1976, 39 m.—1 spec., Station 2554, 29°24'00.1"N, 85°42'02.0"W, September 1977, 42 m.—21 spec. (5 GCRL 2015, 6 USNM-310680–310684), Station 39, 29°45'27"N, 86°00'51"W, 6 April 1974, 37 m.—8 spec., Station 40, 29°40'29"N, 86°00'49"W, 4 September 1974, 37 m.—2 spec., Station 50, 28°19'00"N, 84°20'58"W, 15 June 1974, 47 m.—2 spec., Station 62 [off Tampa], 27°50'01"N, 83°30'59"W, 17 June 1974, 34 m.

Chevron Production Company— 3 spec., Station 14, 29°59'23.33"N, 87°29'10.17"W, 25 June 1992, 27 m.—10 spec., Station 15, 30°00'27.16"N, 87°33'17.03"W, 25 June 1992, 29 m.—42 spec., Station 17, 20°02'34.94"N, 87°41'30.91"W, 25 June 1992, 25m.

EPA—1 spec., Station 2, 30°08.91'N, 87°18.05'W, 25 October 1990, 23 m.—1 spec., Station 3, 30°09.00'N, 87°16.99'W, October 1990, 23m.—1 spec., Station 5, 30°06.50'N, 87°17.94'W, 22 October 1990, 25m.

Diagnosis. Body robust, calcified; length about 5–6 mm. Carapace, including acute rostrum, equal with first 2 free pereonites. Pereonites 3–6 with anteriorly directed

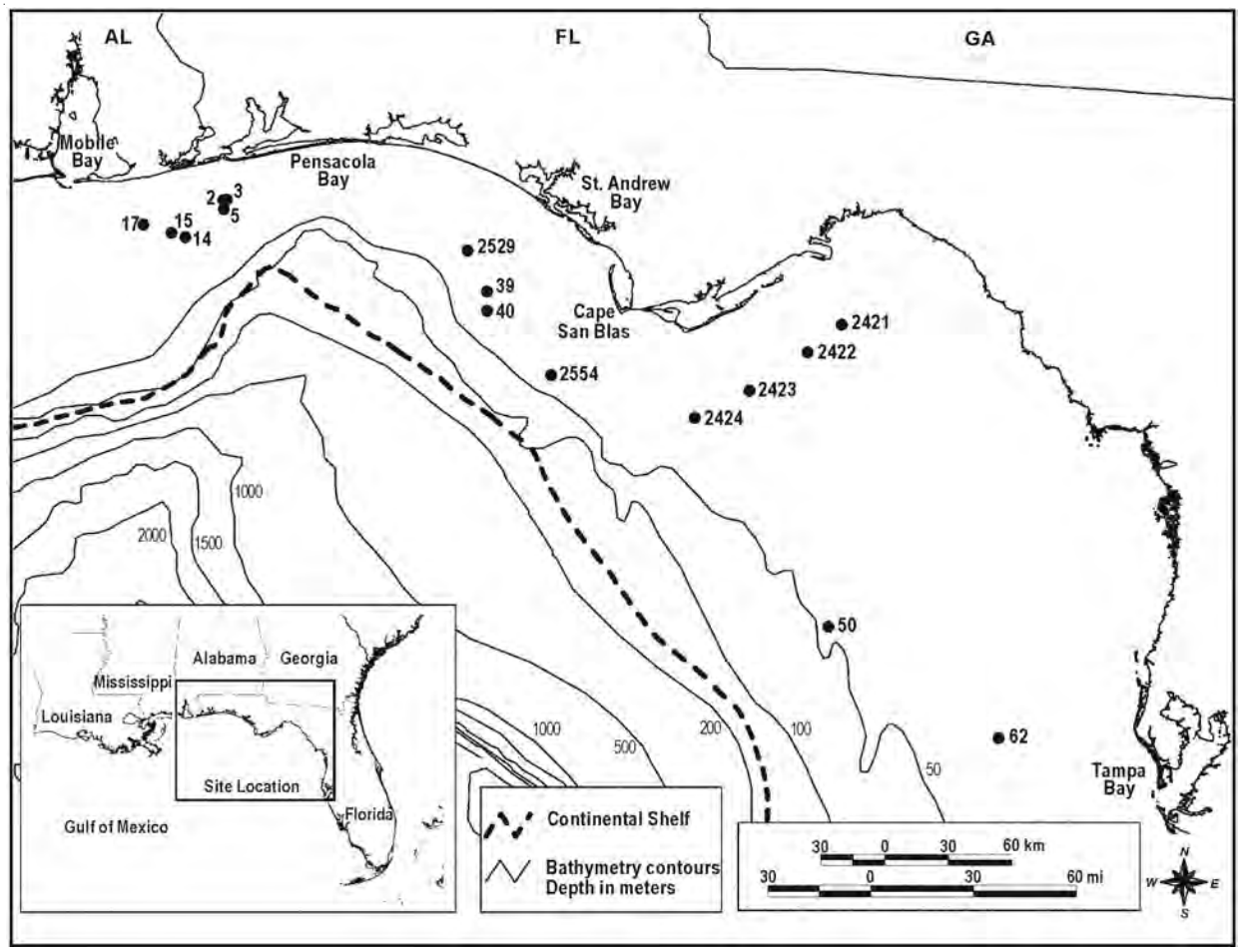

Figure 1. Map of the northeastern Gulf of Mexico indicating station locations where *Apseudes olimpiae* Guţu, 1986 occurred and known specific distribution of *A. olimpiae*.

hook-like lateral spiniform prolongation (Figure 2A). Pereon and pleon with mid-ventral recurved spinous processes on all segments (Figure 2B). Cheliped and pereopod 2 with exopodite (Figure 3C,D and 4A). Pereopods 3–7 relatively cylindrical, slender, with a few long setae, and 0–3 spines on the sternal edges of merus, carpus and propodus (Figure 4B–F). Pleopods, 5 biramous pairs. Chelipeds, sexually dimorphic, males having a carpus with bilobate sternal expansion, a very large propodus, and a tooth on fixed finger and dactyl (Figure 3D).

REMARKS AND DISCUSSION

Based on our examination of 138 specimens of *A. olimpiae* from the NE Gulf, new locality records are established for the species in shelf waters (19–47 m) from off Tampa Bay, Florida, northwestwards to off Mobile, Alabama. The collection data indicate that *A. olimpiae* appears to prefer sand substrata and may be confined zoogeographically to shelf habitats of the northeastern Gulf (Figure 1). Although we have examined many collections of apseudomorph tanaidaceans from other parts of the Gulf and adjacent regions, *A. olimpiae* has not been found in any of them.

Apseudes olimpiae is immediately distinguished from other shallow water Gulf apseudomorphs by having pereonites 3–6 distinctly bilobed with the 2 anterior lobes armed with an anterolateral hook-like spinose process (Figure 2A). The illustrations (Figures 2–4) from Guţu (1986) are included to illustrate the characters of *A. olimpae* and to facilitate its identification in Gulf waters.

We believe that Bermuda, the type locality originally postulated for *A. olimpiae* by Guţu (1986), was incorrect. Based on circumstantial evidence, the type series may have actually come from the eastern Gulf (off Tampa?) and may have been collected in 1977 during an extensive benthic baseline study sponsored by the BLM. Although the specific information on the station locality for the type material was lost, our records indicate that during 1978 apseudomorph specimens were sent with 2 species of cumaceans (later described as *Campylaspis*

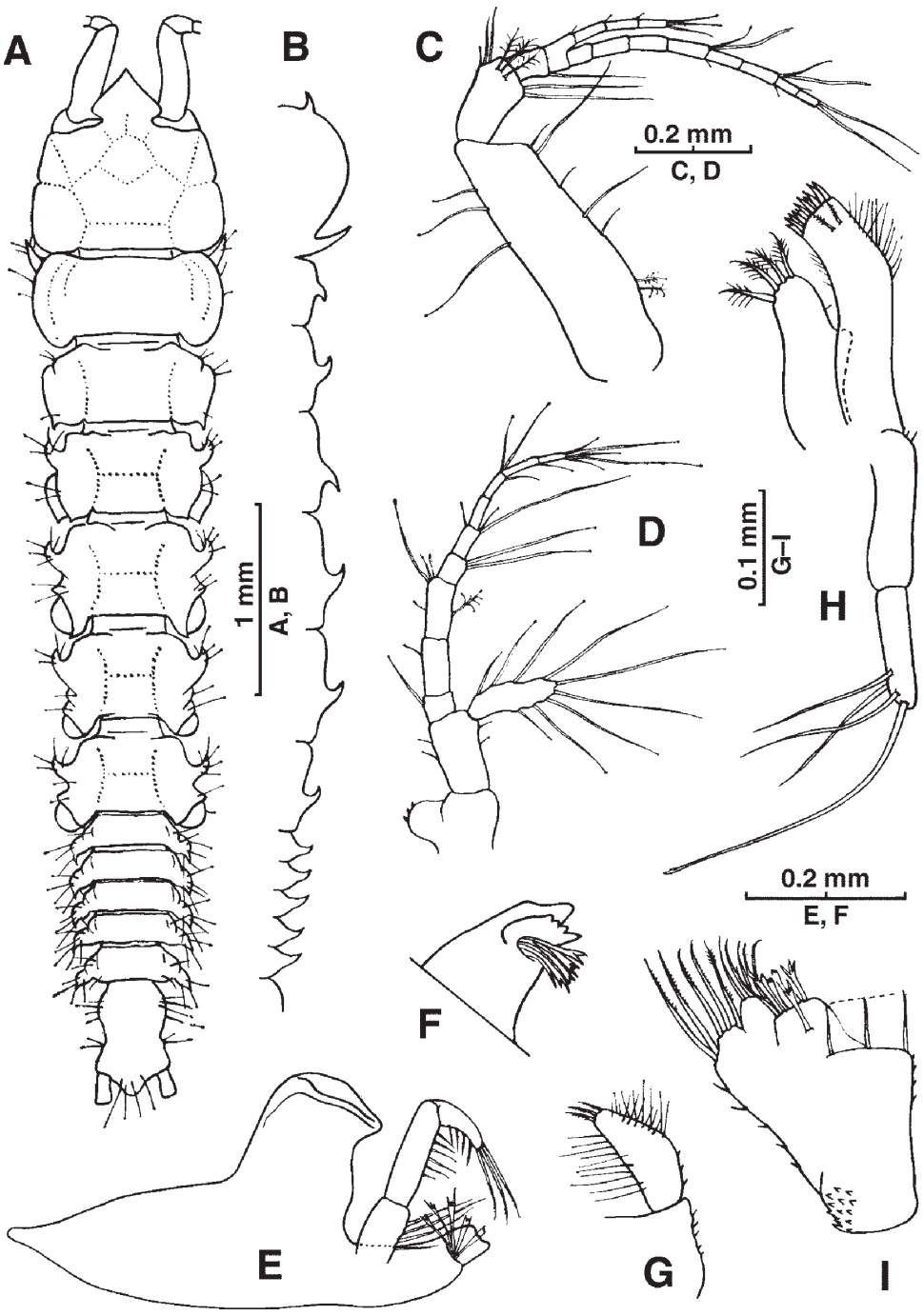

Figure 2. ***Apseudes olimpiae*** **Guţu, 1986. Female: A, body dorsal view; B, lateral aspect of body, showing mid-ventral spinous processes; C, antennule; D, antenna; E, right mandible; F, distal end of left mandible; G, labium; H, maxillule; I, maxilla.**

heardi Muradian, 1979 and *Heteroleucon heardi* Băcescu, 1979) from the laboratory of R. Heard to M. Băcescu in Romania. These type specimens of *A. olimpiae* were apparently misplaced and became mixed with material from Bermuda, which was being studied by the late M. Băcescu. After careful examination of the tanaidacean holdings in Muséum d'Histoire naturelle "Grigore Antipa, Guţu (personal communication, July 2000) discovered a vial with fragments of *A. olimpiae* accompanied by a small label with "Tampa" written on it. Whether or not these fragments are part of the BLM material that was collected offshore from Tampa (e.g., Station 62) could not be determined with certainty, but the label does add further circumstantial evidence that the type material came from the eastern Gulf.

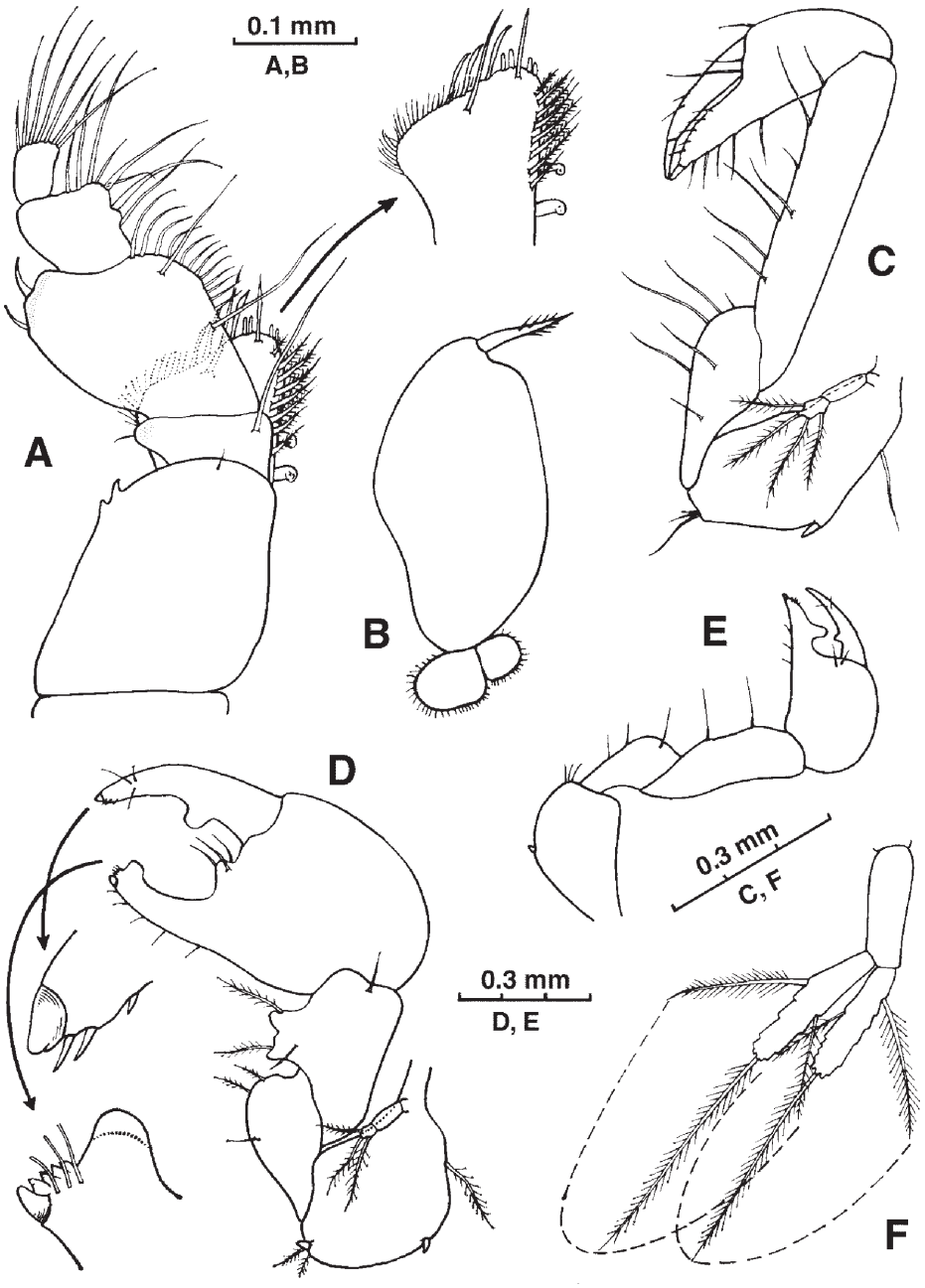

Figure 3. ***Apseudes olimpiae*** **Guţu, 1986. Female: A, maxilliped; B, epignath; C, cheliped. Male: D, adult cheliped; E, subadult cheliped, F, pleopod 1.**

Since the types are deposited in the collections of the Muséum d'Histoire naturelle "Grigore Antipa," Bucharest, we have deposited a series of specimens in the National Museum of Natural History (Smithsonian Institution) and in the Museum of the Gulf Coast Research Laboratory.

Taxonomic status of other species of "*Apseudes*" reported from the Gulf.

There are 3 previously published names or records of nominal species of *Apseudes* Leach, 1814 (*A. propinquus* Richardson, 1902; *A. spinosus* Sars,1858, and *Apseudes alicii* King, 1966 *nomem nudum*) from waters of the Gulf (Ogle et al. 1982). There are also unpublished records in the Gulf for a small species of *Apseudes* in the "*intermedius-bermudeus* complex."

Apseudes propinquus has been previously reported from the Gulf and Bermudan waters (Richardson 1902, 1905, Guţu 1984, and Guţu and Iliffe 1985). Despite the presence of an anteriorly directed coxal spine on the first free pereonite, an important character for the genus *Apseudes*, Guţu and Iliffe (1985) considered this species

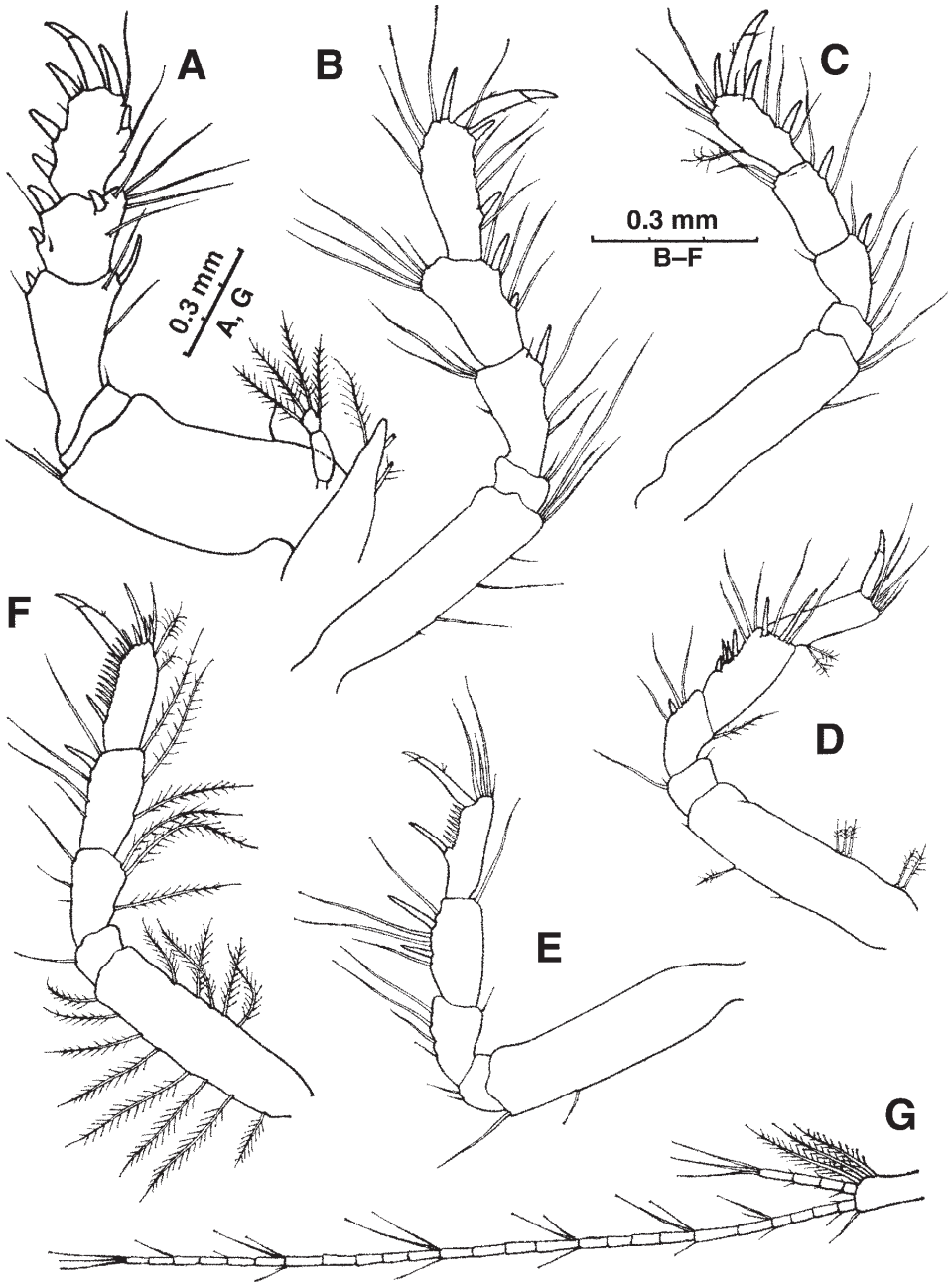

Figure 4. *Apseudes olimpiae* Guţu, 1986. Female: A–F, pereopods 2–7; G, uropod.

as having closer affinities to the metapseudid genus *Calozodion* Gardiner, 1983 than to *Apseudes sensu stricto*. We follow Guţu and Iliffe in considering this enigmatic species a member of the family Metapseudidae and tentatively assign it to the genus *Calozodion* sensu lato.

We have examined the material reported by Dawson (1966) as *Apseudes spinosus* from shelf waters off Louisiana. This species was originally described from waters off Norway (Sars 1899) and reliable records for this species are from the Northeast Atlantic (Sieg 1983). Dawson's material, which was deposited in the Museum of the Gulf Coast Research Laboratory (GCRL 2813), is represented by a single adult female. Upon examination, we found the specimen to represent an undescribed species of *Apseudes sensu lato*.

The *nomem nudum* "*Apseudes alicii* King, 1966" was introduced into the published literature by Subrahmanyam et al. (1976) via an unpublished checklist to the fauna of the Appalachee Bay (Menzel 1971). Subrahmanyam et al. (1976) reported "*Apseudes* sp." from tidal marshes near St. Marks, Florida and then suggested in a note added to the proof that this species

was "probably *Apseudes allicii* King." Ogle (1977) referred to this species as "*Apseudes* n. sp. being described from Florida"; however, Sieg et al. (1982) reviewed the status of the species in question and determined that it represented a northern Gulf population of *Halmyrapsuedes bahamensis* Băcescu and Guţu, 1974. Ogle (1977) examined "type" material of "*Apseudes alicii*" deposited by King in the National Museum of Natural History and discovered that it was not an apseudid, but an undescribed species of *Kalliapseudes* Stebbing, 1910. Ogle further noted that since "*A. alicii*" had no published description, this species name should be considered a *nomum nudum* (see Sieg 1983:117).

Apseudes intermedius sensu Hansen, 1895, which was originally described from St. Vincent Island in the Lesser Antilles (Hansen 1895) has been collected from several locations in the Gulf, Florida Keys, and on the Bahama Banks (R. Heard and T. Hansknecht, personal observations). Băcescu (1980) designated 2 new subspecies, *A. intermedius mediterraneus* from the Mediterranean and *A. i. brasiliensis* from Brazil, and in the same publication described a very similar species, *Apseudes bermudeus* Băcescu, 1980, from a marine cave on the Bermuda Islands. *Apseudes bermudeus* and *A. intermedius* differ only slightly, and there remains the possibility, especially with availability of material from the Bahama Banks and Florida Keys for study, that they may be found to represent clinal variants of the same species. This possibility will be the subject of a future study utilizing molecular as well as classical taxonomic techniques.

The generic and specific status of "*Apseudes* sp. A." reported from shelf waters of the northwestern Gulf by Flint and Holland (1980) remain unresolved.

In conclusion, *A. olimpiae* appears to be endemic to the shelf waters of the northeastern Gulf. At present, it is the only described species of the genus *Apseudes sensu stricto* that is known with certainty from the Gulf region.

The tanaidacean fauna of the Gulf and Caribbean still remains poorly known and understood. Within the shelf waters of the Gulf there still remain many undescribed taxa, including species within the apseudomorph families Apseudidae, Parapseudidae Guţu,1981; Kalliapseudidae Lang, 1956; Metapseudidae Lang, 1970; and Sphyrapidae Guţu, 1980 (R. Heard, T. Hansknecht, M. Guţu, personal observations). The Gulf deep water apseudomorph tanaidaceans, remain largely unknown (Pequegnat et al. 1990) with only 2 species, *Atlantapseudes lindae* Meyer and Heard, 1989 and *Pseudosphyrapus siegi* Viskcup and Heard, 1989, currently described from the region.

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Addendum

Since this paper was accepted for publication, additional records of *A. olimpiae* in North Atlantic waters have become available. A total of 17 specimens were collected as part of a NOAA /BVA project on Grays Reef (GR) off the coast of Georgia.

Material.—2 spec., Station GR-2, 31°24.762'N, 80°53.256'W, 03 April 2000, 19.3 m.—2 spec., Station GR-3, 31°25.15' N, 80°52.018'W, 03 April 00, 19.4 m.—6 spec., Station GR-4, 31°24.644'N, 80°51.518'W, 03 April 00, 20.8 m.— 2 spec., Station GR-5, 31°24.923'N, 8050.288'W, 03 April 00, 21.1 m.—3 spec., Station GR-10, 31°24.348'N, 80°49.970'W, 06 April 00, 19.0 m.—2 spec., Station GR-14, 31°22.971'N, 80°51.509'W, 06 April 00, 19.3 m.

Although this additional material comes from off the US East Coast, we still believe that the type locality for *A. olimpiae* is the northeast Gulf. Based on the real and circumstantial information presented above, the presence of *A. olimpiae* on a carbonate reef off Georgia does not necessarily preclude this assumption. Because tanaidaceans lack planktonic larvae, and because there are no records of *A. olimpiae* from the South Florida Shelf in similar depths and habitat types (R. Heard and T. Hansknecht, personal observations), the presence of this species in both the Atlantic and Gulf may reflect the geological continuity of the Continental shelves during periods of high sea level in the late Oligocene. During such periods the Atlantic and Gulf populations of *A. olimpiae* may have originally evolved together in shelf waters, possibly in association with carbonate substrata, and then later became disjunct during the emergence of the Florida peninsula. Carbonate outcrops similar to Grays Reef occur in shelf waters up the East Coast to North Carolina suggesting the possibility that *A. olimpiae* might occur as far north as latitude 35°.