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AMPHIPODS OF THE FAMILY AMPELISCIDAE (GAMMARIDEA).

IV. INFRASPECIFIC VARIATION IN *AMPELISCA AGASSIZI*

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ABSTRACT Considerable variation noted in *Ampelisca agassizi* is herein described. The variations in the shape of the basis of pereopod 7 and the carina of urosomite 1 are most obvious. No relationship was found with the atypical specimens and their age, associated sediment or location.

One of the most abundant and geographically widespread species of the family Ampeliscidae in the western Atlantic and eastern Pacific Ocean is *Ampelisca agassizi* (Judd 1896). In the western Atlantic this species is recorded from southern Nova Scotia to the Caribbean Sea in depths to 450 m (Barnard 1954b, Mills 1967, Bousfield 1973). Population densities of 15,000/m² have been reported by Dickinson et al. (1980) in the Middle Atlantic Bight region. In the eastern Pacific Ocean, representatives of this species have been collected from Queen Charlotte Islands, British Columbia, to Ecuador in depths to 300 m (Dickinson 1982).

Ampelisca agassizi was described from the waters off of the state of Rhode Island in the United States, from pelagic males gathered in a plankton tow and it was originally placed within the genus *Byblis*. Since that work, this species has been described under the names *Ampelisca compressa* Holmes, 1908, from females in the Atlantic and *A. vera* Barnard, 1954, in the Pacific. Mills (1967:645) first designated *A. vera* a junior synonym of *A. agassizi* and noted that "Pacific Coast specimens agree in remarkable detail with those from the Atlantic Coast as J. L. Barnard [1960] has stated and as I have been able to confirm." Recent examinations of representatives of these disjunct populations by Dickinson (1982:6) led that author to write he has "been unable to find a morphological basis for separating the populations on either side of the Isthmus of Panama."

Many *Ampelisca* Kroyer, 1842, species have been reported with transpanamic distributions. A detailed comparison of some of these nominal species has shown the Atlantic and Pacific populations to represent distinct taxa. *Ampelisca bicarinata* Goeke and Heard, 1983, has been separated from the Pacific *A. cristoides* Barnard, 1954, (Barnard 1954a), and *A. parapacifica* Goeke and Heard, 1984, has been shown to be discrete and is separated from *A. pacifica* Holmes, 1908. Atlantic populations of additional "transpanamic" species are yet to be elevated to the species rank (Goeke and Heard, unpublished data).

Variation within the genus *Ampelisca* has been considered a problem by workers in the past. Reid (1951:197) stated

"there appears to be a great range of real minor variations which is very strange considering the great constancy of characteristics in many species in other genera." However, Barnard (1960:6) states that he has "identified nearly 10,000 specimens of the 23 species in southern California and is impressed with the ease with which they may be distinguished." He further notes that part of the confusion of workers in the past centered around gerontic males and females. The extreme sexual dimorphism of pelagic males may be disconcerting if not recognized. We agree with Barnard (1960) and note that the western Atlantic taxa are well defined. Much of the confusion arises from suites of closely related species, some of them common but as yet undescribed.

The shape of the seventh leg and the dorsal carina of urosomite 1 are of paramount importance in the systematics of this genus, and minor variation is often attributable to the stage of development of the specimens (e.g., *A. excavata*, Gray and Barnard, 1970). Intraspecific differences noted in *A. agassizi* are not attributable to either developmental stage or location. It is not unusual to examine a group of specimens from a single collection and observe broad variation. For the purpose of this study, material is illustrated from the western, northwestern and southeastern Gulf of Mexico and from off the Atlantic coast of South Carolina.

Pereopod 7 is normally diagnosed for *A. agassizi* as being broad distally. Specimens are often found where the basis is distally rounded (Figure 1K) and not the transversely rounded form figured by Mills (1967:Figure 3J) and Bousfield (1973:Figure 38). This atypical form of leg 7 often makes it difficult to identify the specimen with the use of currently available artificial taxonomic keys. Material which displayed this leg shape came from both the Gulf of Mexico and the East Coast. No relationship was noted with leg shape and developmental stage of the specimens or with sediment.

The variation of the carina of urosomite 1 is not as critical as that noted for the seventh leg because it is often considered a secondary character. The dorsal elevation of the carina varies considerably in height and prominence. The degree of variation in the carina of urosomite 1 is well illustrated by a compilation of figures attributed to *Ampelisca*

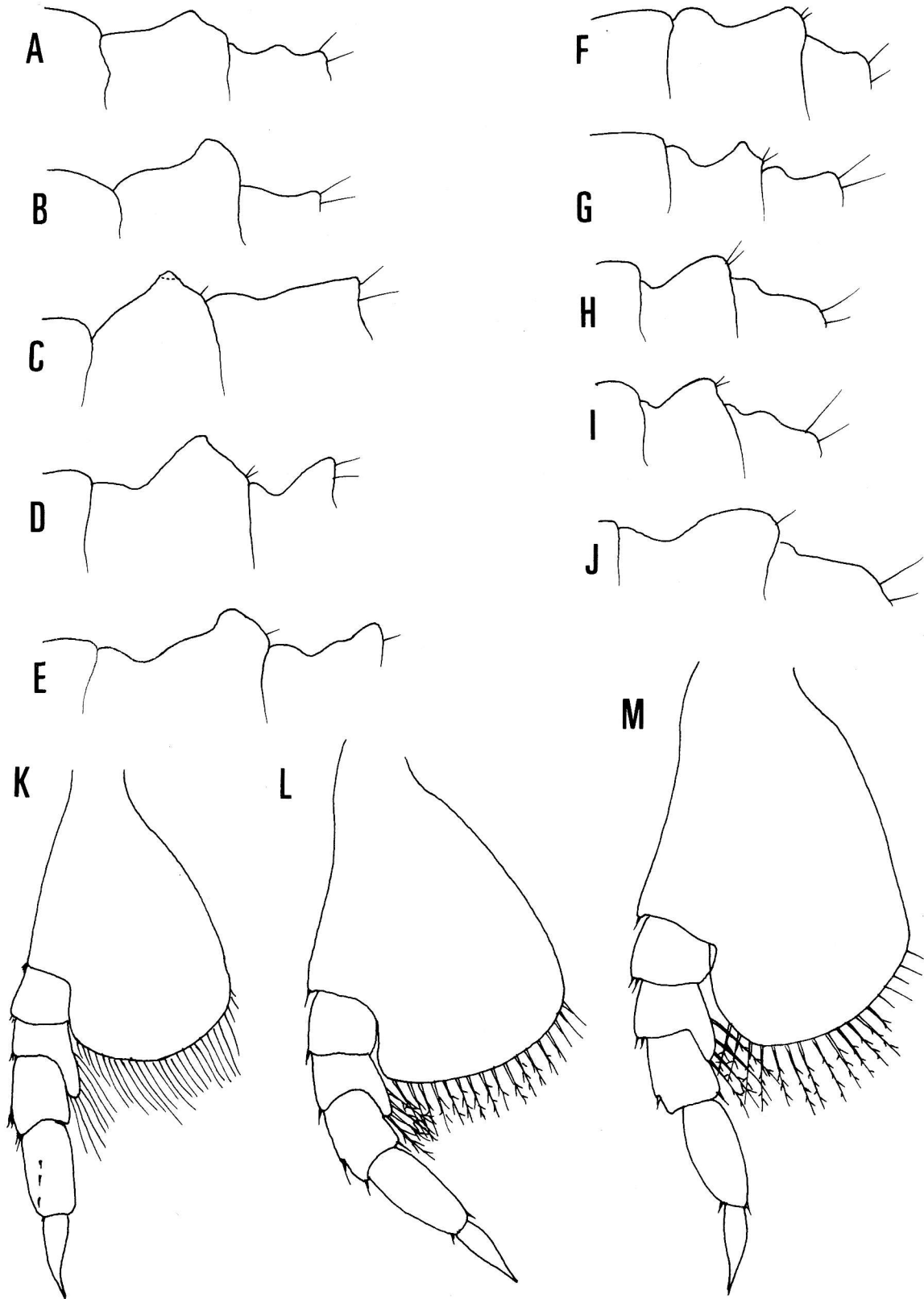


Figure 1. *Ampelisca agassizi*; A. from Dickinson (1982): British Colombia; B. from Barnard (1954a): California; C. from Barnard (1954a): California; D. from Barnard (1954b): Caribbean; E. from Barnard (1954b): Caribbean; F. from Mobile Bay specimen; G. from Mobile Bay specimen; H. from Louisiana specimen with atypical leg; I. from Louisiana specimen with atypical leg; J. from Bousfield (1973): New England; K. from Barnard (1954a): California; L. from Louisiana specimen; M. from Louisiana specimen with atypical leg.

agassizi from the Pacific and Atlantic (Figure 1A–J). These have been gathered from various sources and represent a very broad geographic range. None of the Atlantic material examined by these authors has any indication of a second elevation on the fused urosomite 2–3 as shown by Dickinson (1982:Figure 1) for material from British Columbia. No

relationship with the stage of development, sediment or leg shape and form of carina was indicated.

The atypical specimens examined by us were also checked for variation in other important taxonomic characters. No significant variation was noted in antennal features, structure of mouthparts or pereopods 1–6.

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