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Amphipods of the Family Ampeliscidae (Gammaridea) V. *Ampelisca hawaiiensis*, new species[1]

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ABSTRACT: A proposed new species of the benthic amphipod genus *Ampelisca* is described from fine coral sand off Hawaii. *Ampelisca hawaiiensis*, new species, is most closely related to *Ampelisca schellenbergi* from the western Atlantic and *A. fageri* from the eastern Pacific. Morphological characters useful in separating the proposed new taxon are the first coxal plate; legs 3, 4, and 7; and uropods 2 and 3.

THE SPECIES *Ampelisca schellenbergi* Shoemaker, 1933, was originally described from the Gulf of Mexico and has been reported since from both the eastern Pacific and Hawaii (Barnard 1954, 1967, 1970, 1971). Recently, the eastern Pacific records have been reevaluated, and *A. fageri* Dickinson, 1982, was described as closely related to *A. schellenbergi*. Dickinson (1982) also noted that the Hawaiian records of *A. schellenbergi* are suspect, and pointed out that the Gulf of Mexico and Hawaiian populations of *A. schellenbergi* are more closely related to each other than to *A. fageri*. A reexamination of the Hawaiian record based on the *Albatross* material (see Barnard 1967 for collection details) has convinced this author of the distinct nature of the Hawaiian population. It is given full specific rank as most closely related to *A. schellenbergi*.

Ampelisca hawaiiensis, new species

Figures 1, 2

Ampelisca schellenbergi Barnard 1967:8, fig. 1a–m; 1970:16; 1971:22, fig. 5.

MATERIAL EXAMINED: Holotype: USNM 111280, 1 ♀, *Albatross St. 3809*, Honolulu Light, 28° N, 2′ E, Hawaii, 93–229 m, fine coral sand with black specks, 27 March 1902. Paratypes: USNM 111281, 85 ♂♂ and ♀♀, same collection data.

DESCRIPTION (FEMALE): Head with lower margin oblique, head length equal to first three body segments, lower corneal lens on margin below base of antenna I, upper corneal lens above and behind base of antenna I. Antenna I peduncular segments 1 and 2 inflated, ratio of length of peduncular segments 1–3 is 100:110:75, segments with few scattered setae, flagellum of 16 segments with aesthestacs on flagellar articles 2 and 3, antenna I reaches just to end of peduncular segment 5 of antenna II; antenna II peduncular segments 4 and 5 with few scattered setae, ratio of lengths is 100 : 75, flagellum with 40 short articles, some setae elongate, about 4 articles long, antenna II longer than body.

Upper lip, lower lip, and maxilla 2 without diagnostic features. Mandibular palp segment 2 is slightly curved, heavily setose medially; palp segment 3 is $\frac{2}{3}$ length of segment 2 with long medial setae; molar process and lacinia mobilis with 5 teeth, 11 gill rakers. Maxilla 1 inner plate with 2 apical setae; palp segment 2 with 4 apical spines and 6 distal facial setal spines. Maxilliped inner plate rectangular, with 2 setal spines and 1 chisel spine distally with submarginal plumose setae; outer plate extends $\frac{1}{2}$ length of palp article 3, with 12 chisel-shaped spines and 3 plumose setae distally; palp article 3 clavate with long setae.

Coxae 1, 2, and 3 with posteroventral slit. Pereopod 1: basis elongate, distally inflated, short setae on anterior margin and long

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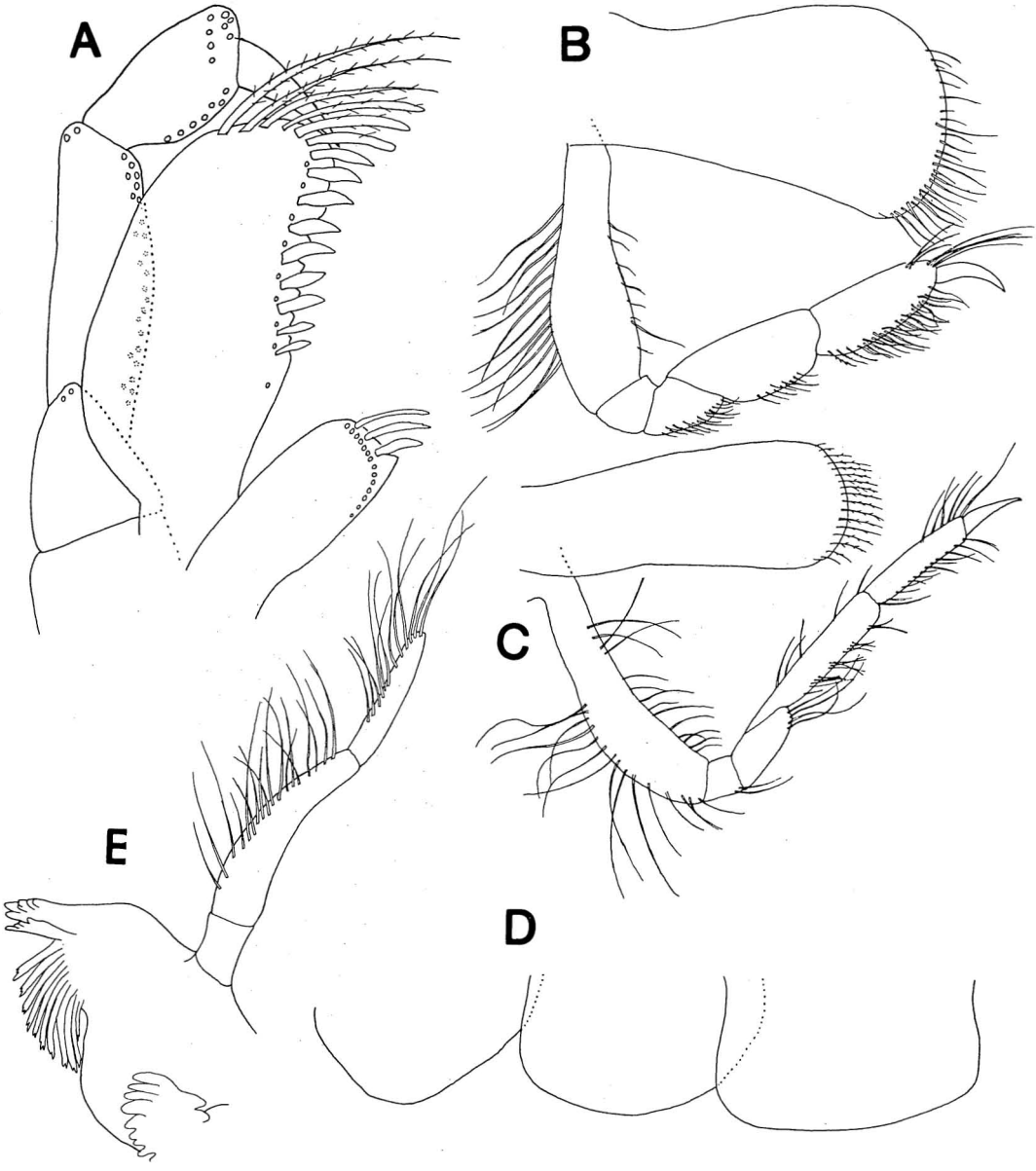

FIGURE 1. *Ampelisca hawaiiensis*: *A*, maxilliped; *B*, pereopod 1; *C*, pereopod 2; *D*, epimeral plates 1–3; *E*, mandible.

simple setae along posterior margin; ischium subquadrate with 5 distal setae on ventral margin; merus subquadrate, length 1.5 times width with numerous setae along ventral margin; carpus length 2.5 times width with stout comb and plumose setae ventrally; propodus inflated proximally with stout serrate and simple setae; dactyl short, curved. Pereopod 2: basis elongate, little inflated distally with long proximal setae anteriorly and long distal setae posteriorly; ischium subquadrate; merus elongate, length 2.5 times width with distal ventral setae; carpus elongate, length 6 times width, ventral margin with comb and simple setae laterally and ventrally; propodus linear, length 3 times width, with rows of comb and

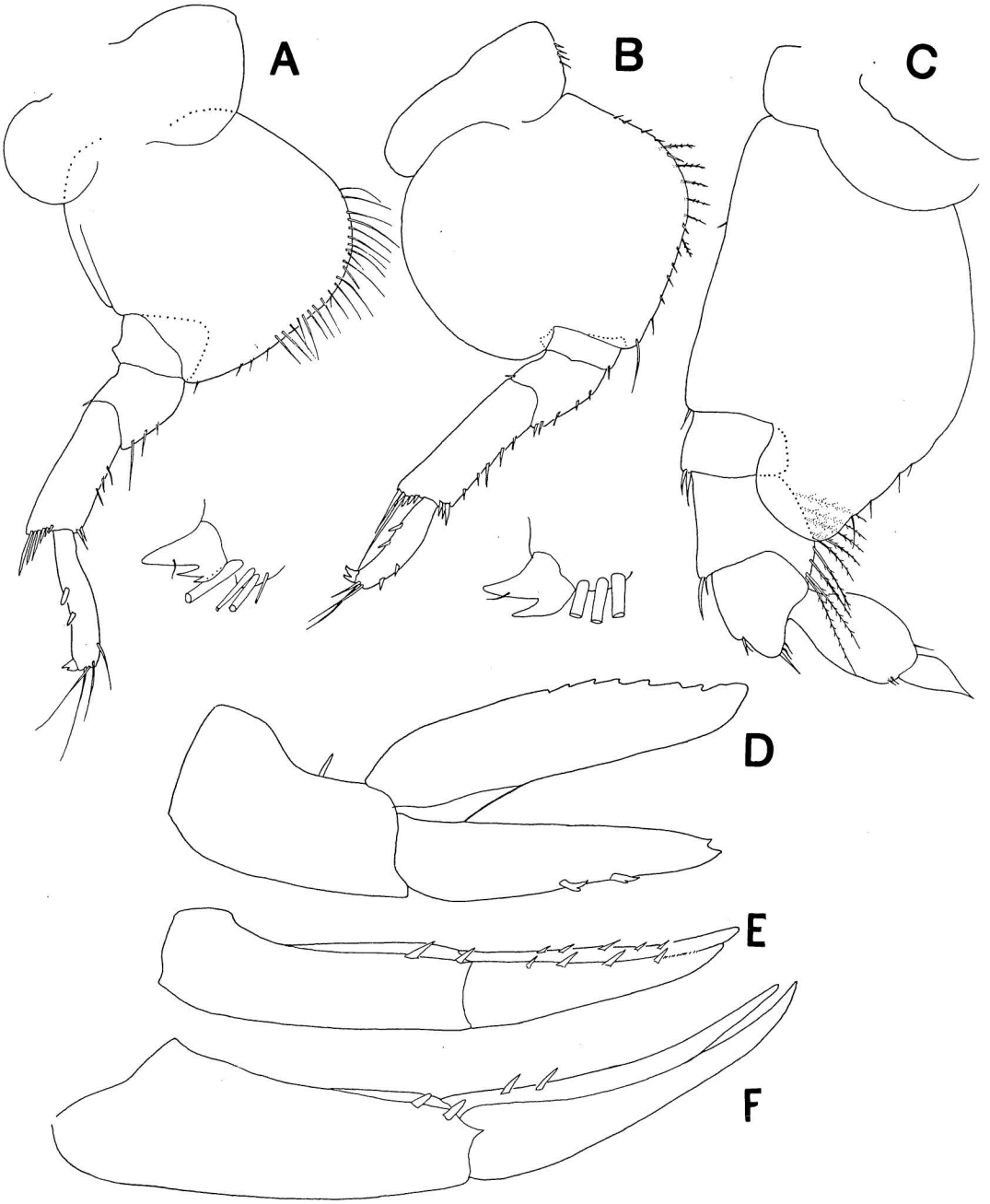

FIGURE 2. *Ampelisca hawaiiensis*: *A*, pereopod 5 and detail of dactyl; *B*, pereopod 6 and detail of dactyl; *C*, pereopod 7; *D*, uropod 3; *E*, uropod 2; *F*, uropod 1.

simple setae laterally and ventrally; dactyl short, $\frac{1}{3}$ length of propodus. Pereopods 3 and 4 very similar; basis expanded with long setae posteriorly and short spinules anteriorly; ischium subquadrate, ventral margin of pereopod 3 bare, ventral margin of pereopod 4 with plumose setae; merus inflated, ventral margin of pereopod 3 with long plumose setae in distal third, dorsal margin with few distal plumose setae, dorsal and ventral margins of pereopod 4 lined with plumose setae; carpus subquadrate with ventral plumose setae; propodus proximally inflated with brush of simple setae on distal dorsal margin; dactyl straight, as long as propodus and carpus combined. Pereopod 5: posterior lobe of coxa rounded, bare, anterior lobe with straight anterior margin, bare; anterior lobe of basis with long plumose setae submarginally at angle, entire margin with scattered spinules, posterior lobe nearly straight, bare secondary distal lobe submarginal; ischium geniculate with distal spinules, subquadrate; merus geniculate, anterior margin with spinules; carpus elongate, anterior margin with distal spine, posterior margin with 7 distal spines, longest $\frac{2}{3}$ length of propodus, sets of 2 and 3 spines inset along posterior margin, posterodistal region scabrous; propodus curved, posterior margin with 2 spines, anterior margin bare, terminally with 4 long simple setae; dactyl subterminal on propodus, 3 accessory teeth, main fang scabrous distally. Pereopod 6: anterior margin of coxa not lobate, spinulose, posterior lobe with ventral setae; basis anterior margin rounded with plumose setae at angle, spinules along entire margin, posterior margin gently rounded, bare; ischium very short; merus geniculate with 1 or 2 distal spinules on margins; carpus anterior margin with 5 spines, 4 anterodistal spines, posterior submarginal spines in sets of 2 and 3, posterodistal cluster of 6 spines with longest equal to propodus, posterodistal region scabrous; propodus with 2 anterodistal spines, 2 posterior marginal spines, 3 long terminal spines; dactyl with 2 accessory teeth. Pereopod 7: posterior lobe of coxa with few long setae; basis with 3 anterodistal spines, straight posterior lobe extending to middle of merus, posterodistal half oblique with few crenulations at inset setae, anterodistal margin strongly convex; merus with well-developed posterior lobe lined with plumose setae, lobe extends to posterodistal edge of carpus; carpus anterior lobe deeply notched by 3 spinules, distal margin with 2 spinules; propodus constricted basally, with few distal spinules; dactyl short, acuminate, little over $\frac{1}{2}$ length of propodus.

Epimeral plates 1–3 rounded, bare except for few plumose setae on anterior edge of plate 1; pleosome without carinae; urosomite 1 rounded posterodorsally, urosomite 2–3 rounded anterodorsally with low longitudinal furrow and low collar posterolaterally. Uropod 1 peduncle slightly curved, nearly devoid of spines, inner ramus with 2 spines in proximal half, uropod 1 slightly shorter than 2; uropod 2 peduncle longer than rami, peduncle outer margin with 2 distal spines, outer ramus with 4 spines, inner ramus with 5 spines; uropod 3 peduncle with dorsal spine, outer ramus lanceolate with 2 ventral spinules, apex deeply notched, inner ramus with serrate dorsodistal margin, somewhat expanded proximally. Telson broadest medially, cleft over 1/2 length with 2 or 3 spines dorsally and single spines in notch at apex of each lobe.

ADULT MALE: Unknown.

ETYMOLOGY: The specific name is derived from the Hawaiian Islands, from which the material was collected.

VARIATION: Length of antenna I ranging from just beyond end of article 4 of antenna II to the full length of article 5; length of antenna II varying from 3/4 body length in females to slightly longer in young males. This variation was first noted by Barnard (1967:8).

REMARKS: *Ampelisca hawaiiensis* is separated from *A. fageri* by the relatively longer antenna I, more massive pereopod 4, broader and more setose basis of pereopod 7, and the presence of 2 apical chisel-shaped teeth on the inner plate of the maxilliped of *A. fageri*. Characters given by Dickinson (1982) (i.e., uropod 3, coxa 1) to separate *A. fageri* from *A. schellenbergi* also have value in distinguishing *A. fageri* from *A. hawaiiensis*.

Ampelisca hawaiiensis is most closely related to *A. schellenbergi* Shoemaker, 1933.

Barnard (1967:10) listed two discrepancies between the Hawaiian populations and the Caribbean material used by Shoemaker (1933) in his original description. He noted that for the Atlantic populations, the posterior margin of article 2 of the seventh leg is more densely setose and the shape in uropod 3 is more uniform. Additional characters of value in separating these two taxa are the more massive pereopods 3 and 4 in *A. schellenbergi*, posterior margin of merus of pereopod 3 setose $\frac{1}{2}$ length ($\frac{1}{3}$ in *A. hawaiiensis*), gills larger and not as strongly pleated in *A. schellenbergi*, antenna II with fewer articles in *A. schellenbergi*, and more lightly spinose inner ramus of uropod 2 on *A. schellenbergi*.

In the western Atlantic, *Ampelisca schellenbergi* Shoemaker, 1933, is known from Caledonia Bay, Panama, to South Carolina at depths to at least 50 m. Individuals assigned to this species are also known from the eastern Pacific, and Dickinson (1982:14) states that *A. schellenbergi* "is not found north of Central America." Some of the previous eastern Pacific records of *A. schellenbergi* have been assigned to the closely related *A. fageri* Dickinson, 1982, which ranges from the north central coast of British Columbia to the Gulf of California, usually in waters less than 40 m (Dickinson 1982). Eastern Pacific and western Atlantic specimens of *A. schellenbergi* have been examined by this author and I have found no consistent morphological characters of value to separate these populations.

The single collection of *Ampelisca hawaiiensis* suggests a more restricted geographical range than that for *A. schellenbergi*. Ecological data gathered by the *Albatross* for *A. hawaiiensis* shows a similar niche for *A. hawaiiensis* and *A. schellenbergi*. The very close morphology and similar ecology of the two species suggests little selective pressure since their geographic isolation. However, more notable ecological and morphological differences exist between *A. fageri* and these other two species. The more temperate species *A. fageri* is most frequently collected on substrata of mixed sand and boulders (Dickinson 1982) whereas the other two species are usually collected in coral rubble.

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