

tooth on extensor margin; dactyl slightly shorter than extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in narrowly triangular endpiece directed anterolaterally (fig. 58e). A medium-sized species, maximum carapace length in midline about 18 mm.

HABITAT.—Among mangrove roots.

DISTRIBUTION.—Nicaragua to Uruguay (Trinidad).

Genus *Metopaulias*

67. *Metopaulias depressus* Rathbun

FIGURES 57, 58f

Metopaulias depressus Rathbun, 1896, p. 144 [type-locality: Newport, Manchester Parish, Jamaica]; 1918, p. 318, pl. 97: figs. 3, 4.—Laessle, 1961, p. 511.—Hartnoll, 1964, pp. 145–159, 166–168, figs. 1, 2A, D–F, 3–11, table 1.

DIAGNOSIS.—Carapace more or less subquadrate, about nine-tenths as long in midline as wide, *extremely flat except for grooves delimiting mesogastric and cardiac regions and for transversely convex lateral portion of branchial region*, surface polished, obscurely punctate, not

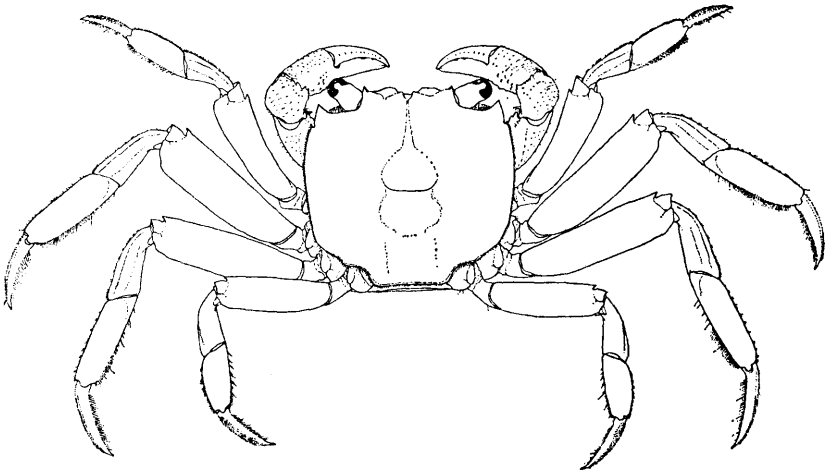


FIGURE 57.—*Metopaulias depressus*, based on male (carapace length 13.8 mm) from Mandeville, Jamaica (W. G. Lynn).

striate; lateral margins mostly subparallel but converging anteriorly, with subrectangular tooth posterior to outer orbital angle, fronto-orbital distance nearly nine-tenths of maximum width of carapace; front distinctly less than half as wide as carapace, abruptly deflexed, margin appearing distinctly quadrilobate in dorsal view, *postfrontal*

lobes sharply produced anteriorly. Eyes well developed but not large, cornea nearly as wide as eyestalk. True ventral margin of orbit distinct only at mesial end, largely replaced by nearly straight hairy granulate ridge accentuated posteriorly by rather deep groove, mesial end of ridge not curving to anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus denticulate on flexor margin; palm sharply tuberculate dorsally; fingers pointed, not spoon tipped, movable finger with few sharp granules on extensor margin. Walking legs long, slender and flat, merus of third pereopod little more than one-fourth as wide as long, with acute subdistal tooth on extensor margin; dactyl slightly shorter than extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in slender distally notched endpiece directed distolaterally (fig. 58f). A medium-sized species, maximum carapace length in midline about 19 mm.

HABITAT.—In rainwater reservoirs at leaf bases of large bromeliads growing at elevations of more than 800 feet.

DISTRIBUTION.—Known only from Jamaica.

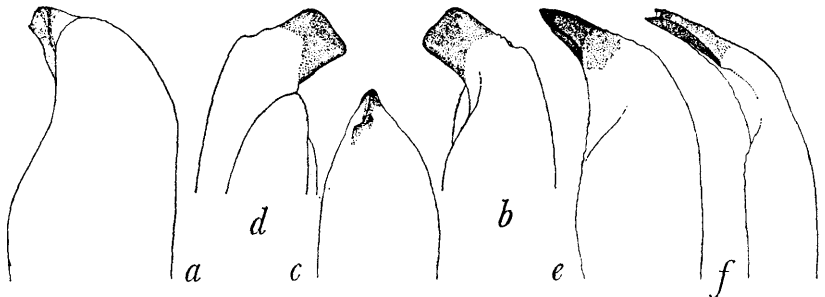


FIGURE 58.—Denuded terminal portions of male right first pleopods: *a*, *Aratus pisonii*, specimen shown in figure 54, posterior view; *b*, *Cyclograpsus integer*, specimen shown in figure 55, posterior view; *c*, same, lateral view; *d*, same, anterior view; *e*, *Metasesarma rubripes*, specimen shown in figure 56, posterior view; *f*, *Metopaulias depressus*, specimen shown in figure 57, posterior view.

Genus *Sesarma*

68. *Sesarma (Holometopus) americanum* De Saussure

FIGURES 62a-f

Sesarma americana De Saussure, 1858, p. 441 [type-locality: Saint Thomas].

Sesarma (Holometopus) tampicense Rathbun, 1914, p. 124, text-fig. 4, pl. 8 [type-locality: Tampico, Mexico]; 1918, p. 307, text-fig. 151, pl. 88.

DIAGNOSIS.—Carapace subquadrate, about nine-tenths as long in midline as wide, moderately convex longitudinally and transversely,

striate laterally, obscurely granulate anteriorly; lateral margins subparallel, without tooth posterior to outer orbital angle, fronto-orbital distance nearly equalling maximum width of carapace; front abruptly deflexed at postfrontal lobes, slightly more than half as wide as carapace, margin with shallow median sinus, faintly quad-ri-lobate in dorsal view. Eyes well developed, cornea slightly wider than eyestalk. True ventral margin of orbit largely replaced by nearly straight hairy granulate ridge accentuated posteriorly by rather deep groove, mesial end of ridge not curving to anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus unarmed, minutely denticulate on flexor margin; palm granulate with low dorsal ridge in proximal half; fingers pointed, very narrowly spoon tipped, movable finger minutely tuberculate on extensor margin. Walking legs flat, not very broad, merus of third pereopod one-third as wide as long, with sharp subdistal tooth on extensor margin; dactyl about four-fifths as long as extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in short blunt endpiece partially recessed in broad end of appendage and directed anteromesially (fig. 62a). A medium-sized species, maximum carapace length in midline about 16 mm.

HABITAT.—Muddy river banks.

DISTRIBUTION.—Saint Thomas and Tampico, Mexico.

REMARKS.—Comparison of the first pleopod of a male syntype of *Sesarma americanum* (figs. 62a-c), very kindly made available to us by Dr. H. Gisin of the Muséum d'Histoire Naturelle in Genève, Switzerland, with that of a male paratype of *S. tampicense* (figs. 62d-f) indicates that the former species is a senior synonym of the latter and probably not a junior synonym of *S. angustipes*, as suggested by Rathbun (1918).

69. *Sesarma (Holometopus) hanseni* Rathbun

Sesarma (Holometopus) hanseni Rathbun, 1897a, p. 92 [type-locality: "West Indies"]; 1918, p. 315, text-fig. 152, pl. 87: fig. 1.

DIAGNOSIS.—Carapace subrectangular, about four-fifths as long as wide, surface smooth, punctate; lateral margins converging slightly posteriorly, without tooth posterior to outer orbital angle, fronto-orbital distance nearly equaling maximum width of carapace; front abruptly deflexed at postfrontal lobes, nearly three-fifths as wide as carapace, margin with very shallow median sinus, faintly quad-ri-lobate in dorsal view. Eyes well developed. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal; palm bearing thin denticulate crest. Walking legs

rather flat and broad, merus of third pereiopod about two-fifths as wide as long. A rather small species, carapace length in midline 13.5 mm.

HABITAT.—Unknown.

DISTRIBUTION.—Known only from the unique type-specimen from the "West Indies."

70. *Sesarma (Holometopus) miersii* Rathbun

FIGURES 59, 62*g-i*

Sesarma (Holometopus) miersii Rathbun, 1897a, p. 91 [type-locality: Great Abaco I., Bahamas]; 1918, p. 303, pl. 84.

DIAGNOSIS.—Carapace subquadrate, about nine-tenths as long in midline as wide, moderately convex longitudinally and transversely, striate laterally, obscurely granulate anteriorly; lateral margins converging very slightly anteriorly, without tooth posterior to outer orbital angle, fronto-orbital distance nearly equaling maximum width of carapace; front abruptly deflexed at postfrontal lobes,

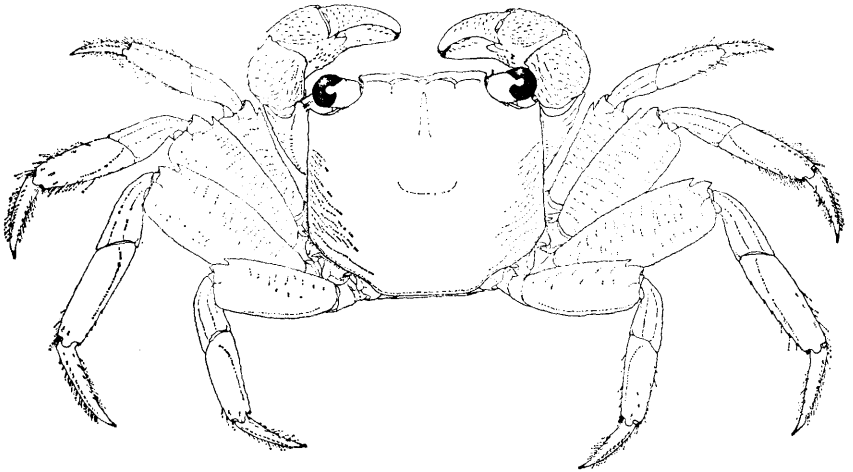


FIGURE 59.—*Sesarma (Holometopus) miersii*, male paratype (carapace length 16.8 mm) from Great Abaco I. (*Albatross*).

slightly more than half as wide as carapace, margin with shallow median sinus in dorsal view. Eyes well developed, cornea slightly wider than eyestalk. True ventral margin of orbit largely replaced by faintly sinuous granulate ridge accentuated posteriorly by rather deep groove, mesial end of ridge not curving to anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus un-

armed, minutely denticulate on flexor margin; palm granulate with low dorsal ridge in proximal half; fingers narrowly rounded, spoon-tipped, movable finger with scattered small tubercles on extensor surface. Walking legs flat, moderately broad, merus of third pereopod nearly two-fifths as wide as long, with sharp subdistal tooth on extensor margin; dactyl about as long as extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in slightly skewed subquadrate endpiece directly distolaterally (fig. 62g). A medium-sized species, maximum carapace length in midline nearly 20 mm.

COLOR IN LIFE.—Carapace of immature male pigmented in shades of brown, tan, and cream. Submarginal band of cream extending across carapace behind postfrontal lobes and continuing onto eyestalks; light band followed posteriorly by rectangular area of dark brown; three pairs of elongate, subtriangular bands radiating from rectangle with apices on rectangle: anterior pair extending horizontally to lateral margin of carapace and bearing cream spot at level of cornea of retracted eye, second extending posterolaterally to margin and fusing posteriorly with massive dark area in posterior half of carapace, third pair extending posteriorly to cardiac region with narrow light area separating them; one pair of white spots laterally between first and second dark bands, a second pair in posterior portion of light area separating second and third dark bands, and third pair in dark area posterior to third bands; posterior portion of carapace with pair of light areas posterolaterally and light spot on median line between them; anterolateral spines cream and lateral border tan with dark brown spots.

Eyestalks brown with cream dorsal longitudinal stripe; cornea black. Cheliped cream to tan basally; merus darker with purple markings; carpus tan with irregular purple markings; propodus purplish tan with yellow-tipped finger; dactyl purplish at base and yellow distally. Basal podomeres of remaining pereopods cream and tan with few brown marks; distal podomeres orange tan with brownish markings, large spots or transverse bands, latter particularly noticeable on propodus; dactyl orange tan with corneous tips.

MATERIAL EXAMINED.—The Dominican collections contain a single immature male (carapace length 10.0 mm).

ECOLOGICAL NOTES.—Our single specimen of *Sesarma miersii* was collected from the low bank on the west side of the large mudflat just south of the Indian River at Portsmouth (pl. 4A). It was crawling on the base of a *Pterocarpus* buttress. Assuming that it was *Sesarma roberti*, but fortunately making color notes, no attempt was made to secure additional specimens at the time that it was collected. Recently, other investigators on Dominica have attempted to secure additional

material of this species but without success. For further notes on this area see ecological discussions of *Goniopsis cruentata* and of *Uca burgersi*.

DISTRIBUTION.—Bahamas to Uruguay (Great Abaco I., Eleuthera I., San Salvador I., Cuba, Isla de Pinos, Dominica, Swan Is.).

Dominica Station: 112 (0–5 ft.).

REMARKS.—Inasmuch as the single specimen collected during the Dominican Survey is immature, the identification is slightly doubtful. The first pleopod is not fully developed, but it bears a closer resemblance to the first pleopod of *Sesarma miersii* than it does to any other West Indian species of the genus.

As shown in figures 62*g* and 62*k*, the male pleopods of *S. miersii* and *S. ricordi* are quite different. Hartnoll (1965, p. 133) is apparently correct, however, in believing that *S. miersii* does not normally occur on Jamaica. Examination of the pair of dried specimens (USNM 41525) identified as that species by Rathbun discloses that they are typical *S. roberti*.

71. *Sesarma (Holometopus) rectum* Randall

FIGURE 62*j*

Sesarma recta Randall, 1840, p. 123 [type-locality: Surinam].

Sesarma mullerii A. Milne-Edwards, 1869, p. 29 [type-locality: Florianópolis, Brazil].

Sesarma (Holometopus) recta.—Tesch, 1917, p. 190.

Sesarma (Holometopus) rectum.—Rathbun, 1918, p. 298, pl. 82.—Holthuis, 1959, p. 243, text-fig. 61, pl. 11: fig. 4.

DIAGNOSIS.—Carapace broadly subquadrate, between four-fifths and nine-tenths as long in midline as wide, moderately convex longitudinally and transversely, striate laterally, obscurely granulate and sparsely setose elsewhere; lateral margins sinuous, converging slightly posteriorly, without tooth but with very slight emargination posterior to outer orbital angle, fronto-orbital distance nearly equaling maximum width of carapace; front abruptly deflexed at rounded postfrontal lobes, nearly three-fifths as wide as carapace, margin with broad deep median sinus in dorsal view. Eyes well developed, cornea slightly wider than eyestalk. True ventral margin of orbit largely replaced by sinuous granulate ridge accentuated posteriorly by deep groove, mesial end of ridge not curving to anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus armed with sharp tooth on flexor margin; palm with rather sharp faintly tuberculate dorsal ridge or carina extending over entire length; fingers narrowly spoon tipped, movable finger armed with 14–16 acute tubercles over nearly entire length of extensor margin. Walking legs very broadly

flattened, merus of third pereopod distinctly more than half as wide as long, with sharp subdistal tooth on extensor margin; dactyl about as long as extensor margin of propodus. Denuded first pleopod of male terminating, in posterior view, in flared proximolaterally rounded distomesially straight endpiece directed distolaterally (fig 62j). A medium-sized species, maximum carapace length in midline about 27 mm.

HABITAT.—Burrows in muddy banks of rivers and ditches.

DISTRIBUTION.—Tobago and Trinidad to Estado de São Paulo, Brazil.

72. *Sesarma (Holometopus) ricordi* H. Milne Edwards

FIGURE 62k

Sesarma Ricordi H. Milne Edwards, 1853, p. 183 [type-locality: Haiti].

Sesarma Guerinii H. Milne Edwards, 1853, p. 183 [type-locality: unknown].

Sesarma miniata De Saussure, 1858, p. 442 [type-locality: Saint Thomas].

Sesarma (Holometopus) ricordi.—Rathbun, 1897a, p. 91; 1918, p. 308, pl. 89.—Holthuis, 1959, p. 246, pl. 11: fig. 3.—Hartnoll, 1965, pp. 113, 115, 131–134, 144, 146, figs. 10A, 11A, c, 12, table 7.

DIAGNOSIS.—Carapace subquadrate, nearly as long in midline as wide, moderately convex longitudinally and transversely, sparsely striate laterally, smooth elsewhere; lateral margins slightly sinuous, nearly subparallel, without tooth posterior to outer orbital angle, fronto-orbital distance very nearly equaling maximum width of carapace; front abruptly deflexed at postfrontal lobes, broadening distally, more than half as wide as carapace, margin shallowly bilobed in dorsal view. Eyes well developed, cornea wider than eyestalk. True ventral margin of orbit largely replaced by slightly sinuous granulate ridge accentuated posteriorly by well-defined groove, mesial end of ridge not reaching anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus produced into shallow denticulate lobe on flexor margin; palm with few obscure oblique granulate dorsal striae; fingers pointed, narrowly spoon tipped, extensor surface of movable finger nearly smooth. Walking legs flattened, long and slender, merus of third pereopod about one-third as wide as long, with sharp subdistal tooth on extensor margin; dactyl about as long as extensor margin of propodus. Denuded first pleopod of male terminating, in posterior view, in short bluntly triangular endpiece skewed slightly laterally (fig. 62k). A medium-sized species, maximum carapace length in midline slightly more than 20 mm.

HABITAT.—Among rocks and debris along tide line and up to 50 yards inland.

DISTRIBUTION.—Bermudas and southern Florida to Rio de Janeiro, Brazil (Bermudas, Andros I., Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint Croix, Martinique, Trinidad, Curaçao, Isla de Providencia).

73. *Sesarma (Holometopus) roberti* H. Milne Edwards

FIGURES 60, 62l-n

Sesarma roberti H. Milne Edwards, 1853, p. 182 [type-locality: "Gorée" (probably erroneous)].

Sesarma americana.—Pocock, 1889, p. 7 [not *S. americanum* De Saussure, 1858].

Sesarma bromeliarum Rathbun, 1896b, p. 143 [type-locality: Rio Cobre, Parish of Saint Catherine, Jamaica].

Sesarma (Holometopus) roberti.—Rathbun, 1900a, p. 279; 1918, p. 312, pl. 91.—Monod, 1956, p. 443, fig. 602-604.

Sesarma (Holometopus) angustipes.—Rathbun, 1918, p. 311, pl. 90.—Hartnoll, 1965, pp. 113, 115, 131-133, 144, 146, figs. 10B, 11B, D, 15A, B, table 6 [probably not *S. angustipes* Dana, 1852].

DIAGNOSIS.—Carapace subquadrate, usually very nearly as long in midline as wide, moderately convex anteriorly and laterally, flattened and uneven on cardiac and intestinal regions, striate laterally, granulate elsewhere especially anteriorly; lateral margins converging slightly anteriorly, without tooth posterior to outer orbital angle, fronto-orbital distance less than maximum width of carapace; front abruptly deflexed at postfrontal lobes, about half as wide as carapace, margin with pronounced median sinus in dorsal view. Eyes well developed, cornea wider than eyestalk. True ventral margin of orbit largely replaced by hairy granulate slightly convex ridge accentuated posteriorly by deep groove, mesial end of ridge not reaching anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus denticulate on flexor margin; palm with rather sharp granules arranged in oblique rows dorsally; fingers narrowly spoon tipped, extensor surface of movable finger nearly smooth. Walking legs long and flattened, merus of third pereopod slightly more than one-third as wide as long, with sharp subdistal tooth on extensor margin; dactyl about nine-tenths as long as extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in rather broad flattened endpiece incised distally into broad V (fig. 62l). A medium-sized species, maximum carapace length in midline about 27 mm.

COLOR IN LIFE.—Ground color of carapace tan to dark brown with cream to straw markings: hepatic and protogastric regions with one to four small subcircular cream spots, and protogastric region with larger spot adjacent to posteromesial margin; branchial regions with four or five spots, often smaller than those on hepatic

and protogastric regions; mesogastric region often with pair of small spots forming transverse row with large posteromesial spots in protogastric region. Grooves delimiting mesogastric portion of carapace pale, particularly along posterior margin. Anterolateral and, to more marked degree, posterolateral portions of branchial region with series of subparallel, very thin, light lines directed parallel to posterolateral margin of carapace, lines short anteriorly but increasing in length posteriorly. Front dark brown to black.

Eyestalks dark red; cornea chartreuse, often with dark brown spot posterodorsally. Third maxillipeds cream with dark brown to buff fringes of setae. Chelipeds darker above than below; merus magenta fading ventrally to pinkish cream; carpus reddish purple above fading to pinkish mauve below; propodus purple on palm with grada-

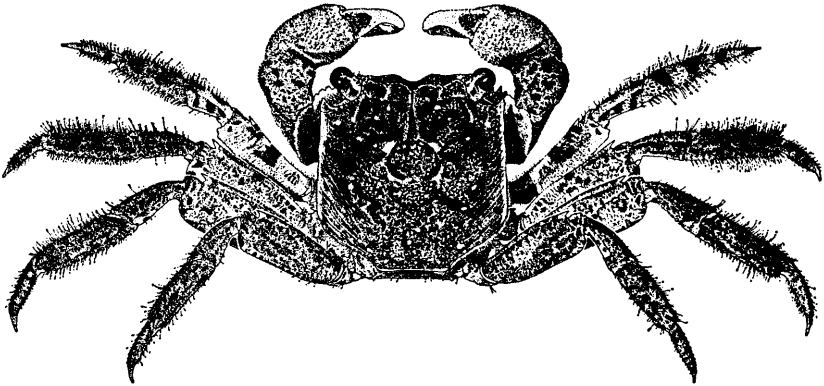


FIGURE 60.—*Sesarma (Holometopus) roberti*, male (carapace length 26.6 mm) from Dominica Station 11.

tion along base of immovable finger to orange, lower surface diluted with cream or white; dactyl mostly orange with bright red triangular spot at base of mesial surface. Pereiopods dark grayish brown above, bluish gray below; merus and carpus with irregular and variable darker brown and tan splotches; tip of dactyl yellowish straw; setae dark red. Sternum, basal podomeres of legs, and abdomen pinkish cream with reticulate pattern of bluish gray; sternal plate between chelipeds with mauve suffusion; margin of telson orange.

The females of this species seem to have a more regularly banded pattern on the walking legs than do the males, and even the chelipeds bear conspicuous bands and irregular markings.

MATERIAL EXAMINED.—The Dominican collections contain 68 males (carapace lengths 3.2–26.8 mm), 59 females (cl 4.5–24.3 mm), including 9 with eggs (cl 17.2–23.0 mm), and 6 juveniles (cl 1.2–3.0

mm). Associated with the smallest specimen, which may represent the first crab instar, were 10 megalops (cl 1.1 mm), apparently belonging to this species. Vestigial first pleopods were noted in males ranging in carapace length from 3.2 to 3.8 mm. Females with a carapace length of about 11 mm have the abdomen broadly rounded but not quite fully developed.

ECOLOGICAL NOTES.—This is one of the commonest semiterrestrial crabs on Dominica, occurring in seepage areas and along streams to an elevation of about 1,000 feet, but it is much more frequently seen at lower elevations. Along small streams (pl. 1) such as Mannel's Gutter, it crawls over the surface of exposed rocks both in the stream and along the banks; if pursued, it retreats into the water as readily as it seeks concealment under stones. The orange and purple chelae and the green eyes make it conspicuous in any of the surroundings where it has been observed.

Large numbers of this crab occur between the upper bridge across the Layou River and the warm spring, some 100 yards upstream, along the foot of the adjacent cliff. In this area there are several seepages along the face of the cliff, and in some places larger elements of the rubble from the cliff have partially blocked the current along the shore. In these seepage areas and among the rubble, this crab occurs in numbers. During light rains, dozens of them have been seen moving along the almost vertical surface of the cement retaining wall at the west end of the bridge, and on several occasions crabs escaped being captured by scaling the wall of the cliff. While individuals have not been seen in the direct sunlight, they are by no means strictly nocturnal for they are active in slightly shady areas at noon on the brightest day.

In contrast to the restrictions that appear to limit the range of this crab on Jamaica (Hartnoll, 1965) to the vicinity of brackish water, on Dominica *S. roberti* is equally as abundant in and along the shores of freshwater streams for some distance inland. Numbers of ovigerous females were observed at least a mile and a half upstream from the mouth of the Layou River. Even though this is one of the few streams on the island in which an estuarine habitat exists at any time, it is unlikely that brackish conditions ever extend more than 200 yards upstream from the mouth, even temporarily during the highest tides.

DISTRIBUTION.—West Indies, Veracruz, Mexico, to San Juan del Norte, Nicaragua; Venezuela (Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint Croix, Dominica, Martinique, Saint Lucia I., Barbados, Trinidad). It seems very unlikely, as pointed out by Monod (1956), that *S. roberti* occurs in West Africa, especially on Gorée Island, the indicated type-locality of the species.

Dominica Stations: 1, 2, 4, 6, 11, 13-18, 24, 30, 33, 36-38, 42, 54-56, 59, 61-64, 68, 83, 88, 95, 100, 102, 126-128 (0-400 ft.—one record of 2,500 ft.).

REMARKS.—Comparison of the first pleopods from a male syntype of *S. roberti* with those from the male used by Rathbun (1918) to illustrate *S. angustipes* leaves no doubt that the specimens assigned by her to these two species are conspecific, as suggested by Hartnoll (1965, p. 133). We are not convinced, however, that *S. roberti* is a junior synonym of *S. angustipes* Dana, 1852, from "South America." Dana noted that his species has the "frontal margin very slightly excavate at middle," and his figure indicates a median sinus that is far less pronounced than the frontal indentation in *S. roberti*. Until specimens with the distinctive pleopodal and frontal characters of the Caribbean species are found on the northeastern and eastern coast of South America (Dana's material presumably came from near Rio de Janeiro), it seems best to consider the two species distinct. Unfortunately, Rathbun (1897) did not indicate why she doubted that the specimens from Montevideo tentatively determined by Miers (1881a) as *S. angustipes* belonged to Dana's species and therefore required a new name, *S. miersii*. It seems to us that the widely ranging *S. miersii* fits Dana's description at least as well as does *S. roberti*.

Ovigerous specimens were taken on Dominica in all months in which females were collected: January, February, March, and December. The megalops stages and probable first instar were collected on March 5.

74. *Sesarma* (*Sesarma*) *bidentatum* Benedict

FIGURE 62o

Sesarma bidentata Benedict, 1892, p. 77 [type-locality: Jamaica].

Sesarma (*Sesarma*) *bidentata*.—Rathbun, 1897a, p. 89.

Sesarma (*Sesarma*) *bidentatum*.—Rathbun, 1918, p. 295, pl. 80.

Sesarma bidentatum.—Hartnoll, 1964, p. 159, figs. 12A-C, 13, 14A.

DIAGNOSIS.—Carapace subrectangular, between four-fifths and nine-tenths as long in midline as wide, somewhat convex near lateral margins, more or less flattened on posterior gastric region and on cardiac region, obscurely striate laterally, rather smooth and irregularly punctate elsewhere; lateral margins converging anteriorly, with low blunt tooth posterior to outer orbital angle, fronto-orbital distance slightly more than four-fifths of maximum width of carapace; front abruptly deflexed at postfrontal lobes, less than half as wide as carapace, margin with pronounced broad median sinus in dorsal view. Eyes well developed, cornea slightly narrower than eyestalk. True ventral margin of orbit largely replaced by hairy granulate nearly straight ridge accentuated posteriorly by distinct groove, mesial end

of ridge not reaching anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus denticulate on flexor margin; palm with low crenulate dorsal ridge extending over entire length; fingers narrowly spoon tipped, extensor surface of movable finger bearing sharp tubercles. Walking legs moderately long and flattened, merus of third pereopod slightly more than one-third as wide as long, with small acute subdistal tooth on extensor margin; dactyl slightly but distinctly longer than extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in subrectangular end-piece directed distally and slightly laterally (fig. 62o). A medium-sized species, maximum carapace length in midline about 25 mm.

HABITAT.—In or near upper reaches of freshwater streams, under stones or in very shallow burrows.

DISTRIBUTION.—Known only from Jamaica, usually at altitudes of more than 1,000 feet.

75. *Sesarma* (*Sesarma*) *curacaoense* De Man

FIGURES 61, 62p

Sesarma curacaoensis De Man, 1892, p. 257, pl. 10: figs. 6–6b [type-locality: Curaçao].

Sesarma (*Sesarma*) *curacaoense*.—Rathbun, 1918, p. 293, pl. 78: figs. 1–2; pl. 160: fig. 3.

DIAGNOSIS.—Carapace subrectangular, about four-fifths as long in midline as wide, moderately convex especially anteriorly and laterally, rather indistinctly striate laterally, smooth with patches of scurflike pubescence elsewhere; lateral margins distinctly concave, widest at level of very broadly acute tooth posterior to outer orbital angle, fronto-orbital distance slightly less than maximum width of carapace; front curving ventrally gradually and rather regularly, not abruptly deflexed, less than three-fifths as wide as carapace, margin with broad shallow median sinus in dorsal view, postfrontal lobes nearly obliterated. Eyes well developed, cornea about as wide as eyestalk. True ventral margin of orbit largely replaced by hairy granulate, faintly sinuous ridge accentuated posteriorly by deep, well-defined groove, mesial end of ridge curving posteriorly rather obscurely toward anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus produced into shallow, minutely denticulate lobe on flexor margin; palm with rather prominent crenulate dorsal ridge extending over entire length; fingers very narrowly and acutely spoon tipped, movable finger with row of five to nine horny tubercles on extensor margin. Walking legs rather broad and flattened, merus of third pereopod fully two-fifths as wide as long, with sharp sub-

distal tooth on extensor margin; dactyl about as long as extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in elongate subrectangular or trapezoidal endpiece directed distolaterally (fig. 62*p*). A rather small species, maximum carapace length in midline about 15 mm.

HABITAT.—Among mangroves and on muddy banks of rivers and ditches.

DISTRIBUTION.—Southern Florida to Estado da Bahia, Brazil (Cuba, Jamaica, Puerto Rico, Curaçao).

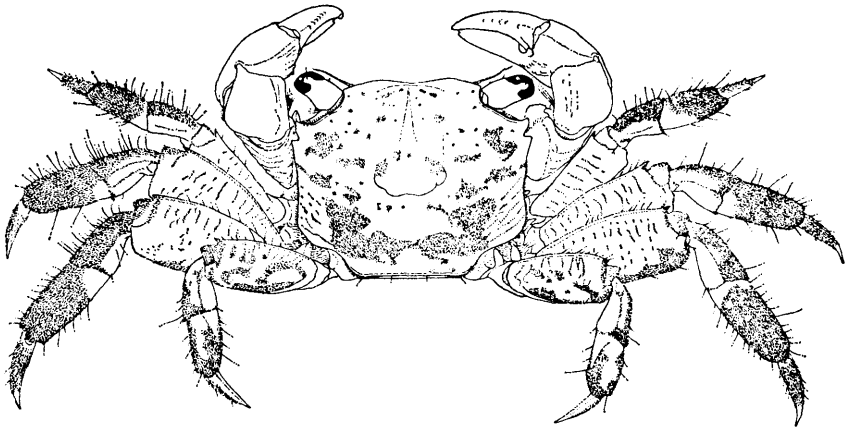


FIGURE 61.—*Sesarma (Sesarma) curacaoense*, male (carapace length 10.4 mm) from Bogue Islands, Jamaica (C. B. Wilson).

76. *Sesarma (Sesarma) jarvisi* Rathbun

FIGURE 62*q*

Sesarma (Sesarma) jarvisi Rathbun, 1914, p. 124, pl. 7 [type-locality: Mount Diablo, Parish of Saint Ann, Jamaica]; 1918, p. 296, pl. 81.

Sesarma jarvisi.—Hartnoll, 1964, p. 164.

DIAGNOSIS.—Carapace subquadrate, about nine-tenths as long in midline as wide, slightly convex longitudinally, sloping ventrally on branchial regions, depressed on hepatic regions, irregularly striate laterally, punctate elsewhere with very small tuberclelike patches of minute setae; lateral margins slightly sinuous, subparallel, converging slightly anterior to blunt tooth posterior to outer orbital angle, fronto-orbital distance less than maximum width of carapace, slightly greater than length in midline; front abruptly deflexed at postfrontal lobes, about two-fifths as wide as carapace, margin with pronounced median sinus in dorsal view. Eyes well developed, cornea about as wide as eyestalk. True ventral margin of orbit largely replaced by

nearly straight hairy granulate ridge accentuated posteriorly by deep groove, mesial end of ridge not reaching anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, exposing mandibles. Chelipeds subequal, carpus not produced,

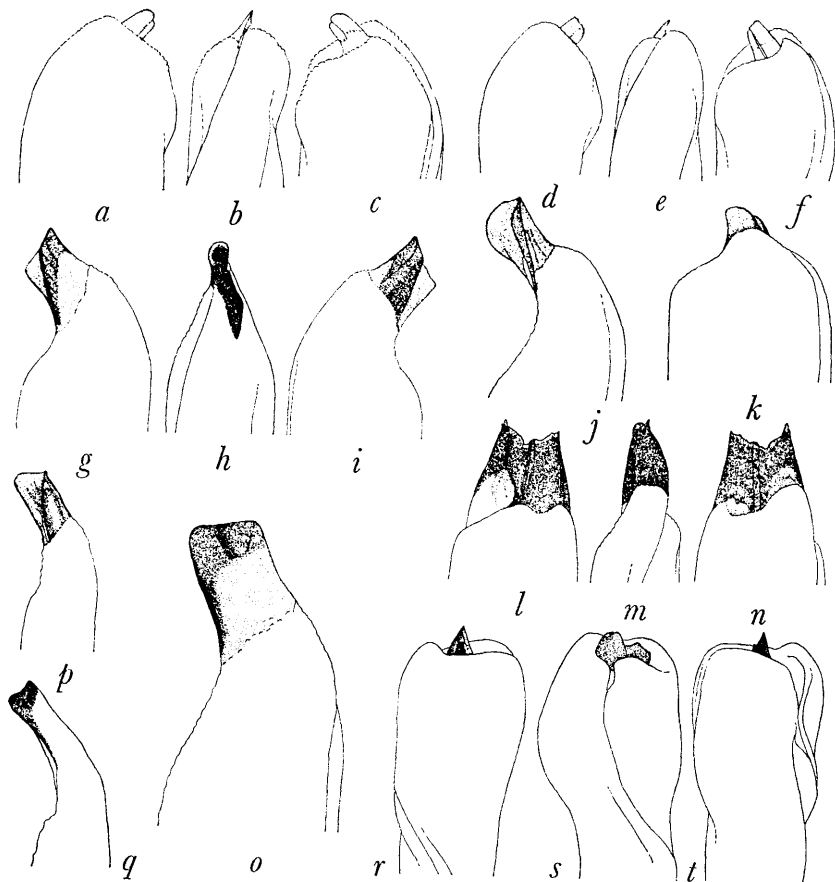


FIGURE 62.—Denuded terminal portions of male right first pleopods: *a*, *Sesarma (Holo-*
metopus) americanum, syntype from Saint Thomas, posterior view; *b*, same, lateral view;
c, same, anterior view; *d*, paratype of *S. (H.) tampicense* from Tampico, Mexico (E.
Palmer), posterior view; *e*, same, lateral view; *f*, same, anterior view; *g*, *S. (H.) miersii*,
specimen shown in figure 59, posterior view; *h*, same, lateral view; *i*, same, anterior view;
j, *S. (H.) rectum* (carapace length 20.6 mm) from Trinidad (*Albatross*), posterior view;
k, *S. (H.) ricordi* (cl 15.9 mm) from Bahia Honda, Cuba (*Tomas Barrera*),
posterior view; *l*, *S. (H.) roberti*, specimen shown in figure 60, posterior view; *m*, same,
lateral view; *n*, same, anterior view; *o*, *Sesarma (Sesarma) bidentatum* (cl 23.6 mm) from
near Troy, Jamaica (W. Harris), posterior view; *p*, *S. (S.) curacaoense*, specimen shown in
figure 61, posterior view; *q*, *S. (S.) jarvisi* (cl 9.7 mm) from Jamaica (C. R. Orcutt),
posterior view; *r*, *Plagusia depressa* (cl 30.9 mm) from Dominica station 113, posterior
view; *s*, same, lateral view; *t*, same, anterior view.

irregularly denticulate on flexor margin; palm with distinct crenulate dorsal ridge extending over entire length; fingers pointed, very obscurely spoon tipped, movable finger with row of eight or nine small acute tubercles on extensor margin. Walking legs long and flattened, merus of third pereopod about one-third as wide as long, with sharp subdistal tooth on extensor margin; *dactyl long, at least one-third again as long as extensor margin of propodus*. Denuded first pleopod of male terminating in posterior view in rather long endpiece with subparallel margins and sinuously truncate tip directed distolaterally (fig. 62*q*). A rather small species, maximum carapace length in midline probably little more than 15 mm.

HABITAT.—Unknown, probably at least partially terrestrial at higher elevations.

DISTRIBUTION.—Known only from Jamaica.

77. *Sesarma* (*Sesarma*) *verleyi* Rathbun

Sesarma (*Sesarma*) *verleyi* Rathbun, 1914, p. 123, pl. 6 [type-locality: Mulgrave Parish of Saint Elizabeth, Jamaica]; 1918, p. 288, pl. 76.

Sesarma verleyi.—Hartnoll, 1964, p. 164, fig. 14*b*.

DIAGNOSIS.—Carapace trapezoidal, nearly nine-tenths as long in midline as wide, rather strongly convex longitudinally, especially anteriorly, slightly convex transversely except on posterior branchial regions, striate laterally, sparsely and finely granulate elsewhere; lateral margins converging rather strongly anteriorly, with small blunt upstanding tooth posterior to outer orbital angle, fronto-orbital distance less than three-fourths of maximum width of carapace; front abruptly deflexed at postfrontal lobes, less than two-fifths as wide as carapace, margin with pronounced median sinus in dorsal view. *Eyes reduced, cornea distinctly narrower than eyestalk*. True ventral margin of orbit largely replaced by nearly straight hairy granulate ridge accentuated posteriorly by rather deep groove, mesial end of ridge not reaching anterolateral angle of mouth area. Third maxillipeds with oblique hairy ridge on merus, gaping widely, esposing mandibles. Chelipeds subequal, carpus not produced, armed with few denticles on flexor margin; palm with scattered tubercles arranged dorsally in oblique rows; fingers very sharp pointed, not spoon tipped, movable finger with row of about dozen obscure tubercles on extensor margin. Walking legs very long and flattened, merus of third pereopod less than one-fourth as wide as long, with broadly acute subdistal tooth on extensor margin; *dactyl about as long as extensor margin of propodus*. A medium-sized species, maximum carapace length in midline about 21 mm.

HABITAT.—Subterranean fresh water.

DISTRIBUTION.—Known only from Jamaica.

Subfamily PLAGUSIINAE

Genus *Plagusia*78. *Plagusia depressa* (Fabricius)FIGURES 62*r-t*, 63

Cancer depressus Fabricius, 1775, p. 406 [type-locality: "in mari mediterraneo"].

Cancer squamosus Herbst, 1790, p. 260, pl. 20: fig. 113 [type-locality: "Ostindien"].

Grapsus depressus.—Bosc, 1801-02, p. 203.

Plagusia depressus.—Say, 1817, p. 100.

Plagusia sayi De Kay, 1844, p. 16 [type-locality: Gulf Stream].

Plagusia squamosa.—Latreille, 1825a, p. 145.

Plagusia gracilis De Saussure, 1858, p. 449 [type-locality: Cuba].

Plagusia depressa.—Rathbun, 1918, p. 332, pl. 101.—Monod, 1956, p. 455, figs. 614-617.

DIAGNOSIS.—Carapace subcircular, about nine-tenths as long in midline as wide, convex longitudinally and especially transversely, sparsely and irregularly tuberculate, partially covered with *short plumose hairs forming scalelike pattern around tubercles and elsewhere*; lateral margins converging strongly anteriorly, *armed with three sharp teeth posterior to outer orbital angle*, fronto-orbital distance about three-fifths of maximum width of carapace; *front divided into three lobes by very deep notches or slits, exposing antennules even when retracted*, median lobe curving sharply ventrally in midline. Eyes comparatively small, cornea slightly narrower than eyestalk. Ventral margin of orbit sharply produced, *armed with two large triangular teeth at mesial end, slanting obliquely to anterolateral angle of mouth area*. Third maxillipeds without hairy ridge on merus, *not gaping widely, not exposing mandibles*. Chelipeds subequal, carpus armed with triangular tooth on flexor margin; *palm with three longitudinal rows of blunt teeth separated by setose furrows*; fingers blunt, spoon tipped or hooflike, spiny rows on palm continued on proximal portion of movable finger. Walking legs somewhat flattened but robust, merus of third pereopod between two-fifths and one-half as wide as long, with sharp upstanding subdistal tooth on extensor margin; dactyl between one-half and three-fifths as long as extensor margin of propodus. Denuded first pleopod of male terminating in posterior view in small triangular chitinous endpicee partially embedded in swollen end of appendage (fig. 62*r*). A rather large species, maximum carapace length in midline nearly 60 mm.

COLOR IN LIFE.—Carapace olive tan with brown to black tubercles and dark brown or black areas dorsally. Mesogastric region largely dark with median olive stripe and with pair of horns extending anterolaterally across protogastric region toward orbits and recurving posterior to them; small dark spot immediately mesial to anterior-

most anterolateral spine; branchial region with four pairs of spots decreasing in size posteriorly, anterior one much larger than those posterior to it and extending onto bases of second and third anterolateral spines; cardiac region with small triangular spot, its apex directed posteriorly; cardiac-intestinal area with pair of large dark patches immediately lateral to narrow median olive stripe.

Eyestalks pale olive with dark brown to black cornea. Third maxillipeds white. Chelae with white basal podomeres; merus pinkish with purple blotch above and purple band distally; carpus pink with purple area at center of upper surface and latter with purple toward margins;

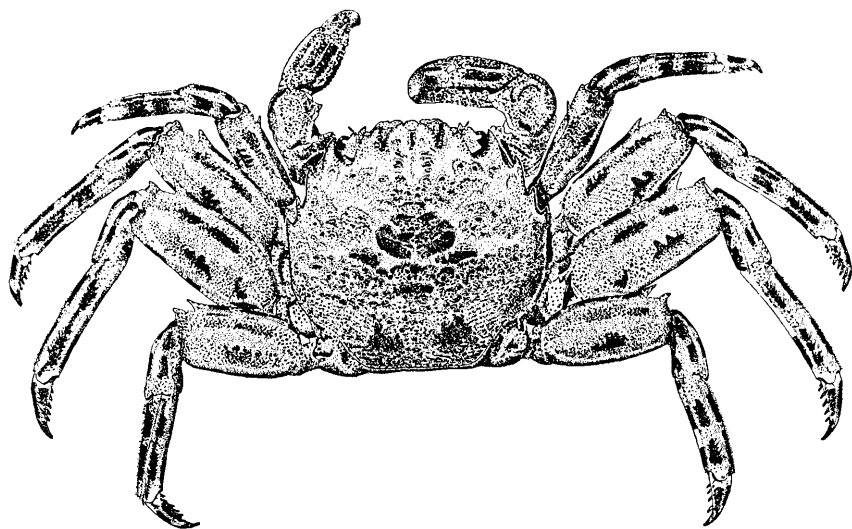


FIGURE 63.—*Plagusia depressa*, male (carapace length 44.7 mm) from Curaçao (*Albatross*) (color pattern from male, cl 30.9 mm, from Dominica station 113).

chela pink with purple stripes along upper surface of palm; both fingers pink basally with purple band near base and pale pink to white distally. Basal podomeres of second through fifth pereopods white below, olive cream above with purple lines and spots; merus olive with purple spots and narrow bands on anterior margin, broader purple band along anterior half and one or two spots in posterior half, distal margins of second and third with purple spots, and posterior margins of posterior three with stripes and dots of purple; carpus olive with two series of longitudinal purple stripes alternating with purple dots on upper surface; propodus of second and third similar to carpus, those of fourth and fifth olive with two broad transverse purple bands and purple dots between bands along extensor border; dactyls white to olive with broad transverse purple band and corneous tips. Sternum and abdomen

white; latter with narrow purple bands at articulations of basal three segments and at base of telson.

MATERIAL EXAMINED.—The Dominican collections contain only 1 male (carapace length 30.9 mm) and 2 females (cl 19.6 and 28.5 mm), the larger of which is ovigerous. The smaller female has the abdomen rounded but not fully formed.

ECOLOGICAL NOTES.—*Plagusia depressa* is a marine crab that is frequently found clinging to rocks at tide level. It was observed at only one locality on Dominica. At the mouth of the Indian River at Portsmouth, a concrete retaining wall has been built to help preserve the depth of the channel. On the south wall, cracks have developed along the water line, and this crab has apparently found a congenial niche in these fissures that presumably lead back into interstices among the rock fill. The three specimens were collected from the surface of the shady wall, where they were in company with *Grapsus grapsus*, which showed no preference for shade. When pursued, most *Plagusia* sought refuge in the fissures and did not reappear.

DISTRIBUTION.—North Carolina to Estado de Pernambuco, Brazil (Bermudas, Great Abaco I., Eleuthera I., New Providence I., Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint Croix, Dominica, Martinique, Barbados, Trinidad, Curaçao); eastern Atlantic from Mauritania to northern Angola.

Dominica Station: 113.

REMARKS.—All three Dominican specimens were taken at the same time, on March 9, 1966. On the day following, not an individual of the species could be found, and subsequent visits by other collectors also proved futile.

Family GECARCINIDAE

Key to the Species

1. Dactyls of walking legs armed with four rows of spines 2
 Dactyls of walking legs armed with six rows of spines 3
2. Fronto-orbital distance nearly or more than two-thirds of carapace width in adults; third maxillipeds with exopod and palp well developed and exposed to view *Cardisoma guanhumi* (p. 195)
 Fronto-orbital distance about half of carapace width in adults; third maxillipeds with exopod and palp reduced and concealed from view.
 Gecarcinus lateralis (p. 198)
3. Merus of third maxilliped with notch on mesial margin leading inward to closed fissure *Gecarcinus lagostoma* (p. 197)
 Merus of third maxilliped without marginal notch or fissure.
 Gecarcinus ruricola (p. 200)

Genus *Cardisoma*79. *Cardisoma guanhumi* Latreille

FIGURES 64, 67a-c

Cardisoma guanhumi Latreille, 1852d, p. 685 [type-locality: Brazil].—Rathbun, 1918, p. 341. pls. 106–107.—Herreid, 1967, p. 39.

Ocypoda gigantea Fremenville, 1835, p. 221 [type-locality: Antilles].

Cardisoma quadrata Saussure, 1858, p. 438, pl. 2: fig. 13 [type-locality: Haiti].

Cardisoma diurnum Gill, 1859, p. 42 [type-localities: Barbados, Grenada, and Saint Thomas].

Cardisoma guanhumi.—Bright, 1966, p. 191, fig. 41.

DIAGNOSIS.—Fronto-orbital distance about two-thirds of maximum carapace width in adult males, nearly three-fourths in females. Third maxillipeds with exopod visible, hairy; merus emarginate distally, not covering epistome or antennular cavities, with coarse palp. Dactyls of walking legs with four rows of spines. A very large species, maximum carapace length in midline about 90 mm.

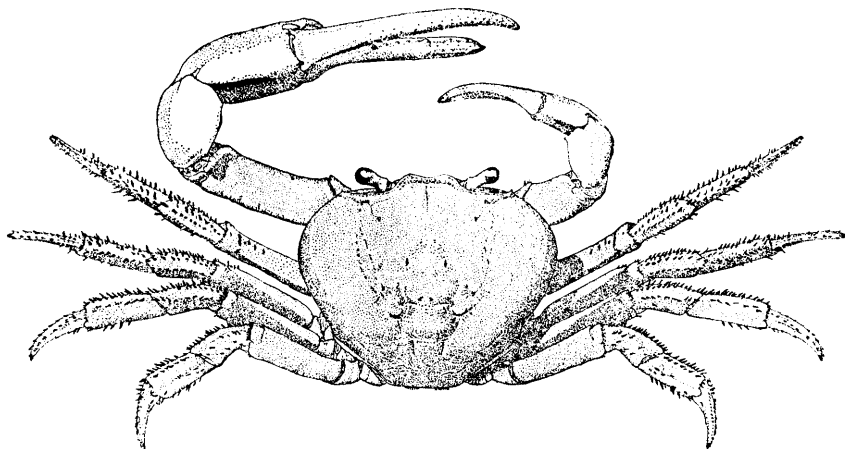


FIGURE 64.—*Cardisoma guanhumi*, male (carapace length 84.0 mm) from Dominica station 6.

COLOR IN LIFE.—The larger representatives of this species are nearly concolorous except for the stiff black hairs on the legs. Individuals may be pale blue, lavender, or gray, with only the front and antennular peduncles darker than the remainder of the body. The apodemal pits on the dorsal surface of the carapace are always apparent as white or cream spots, and the spines and tips of the dactyls of the walking legs are corneous tan or brown.

Quite the reverse is true of the smaller crabs. Very young ones are uniformly tan, but they soon develop a highly intricate pattern of tan, pink, and blue spots on the carapace, and bands and spots of white and tan on the pereiopods.

Crabs of intermediate size are the most colorful, as follows:

Central portion of carapace brownish purple with greenish-yellow transverse band posterior to frontal region and with scarlet front. Lateral border of branchial region cream with purple blush changing posteriorly to orange and to pink on intestinal region. Lateral wall of carapace white with pink blush posteriorly. Orbital, gastric, and mesial portions of branchial regions showing cream spots. Eyestalks reddish orange above, cream below. Third maxillipeds cream.

Basal podomeres of cheliped cream; merus orange buff, carpus cream with purple blush, and chela mostly cream except for diffuse reddish purple on flexor surface of palm and at base of movable finger. Tips of fingers corneous (tan).

Second through fifth pereopods progressively less brightly colored on extensor margins; second pereopod pale pinkish gray; coxae of remaining pereopods pale pink; distal podomeres, except dactyl, bright pinkish orange; dactyl yellow.

Sternum and abdomen cream, latter with pink blush on anterior somites.

MATERIAL EXAMINED.—The Dominican collections contain 28 males (carapace lengths 6.2–89.7 mm), 15 females (cl 8.0–63.3 mm), and 2 juveniles (cl 3.8–5.0 mm). Barely discernible vestigial first pleopods are present in the smallest male.

ECOLOGICAL NOTES.—*Cardisoma guanhumi* is perhaps the crab most often seen on Dominica. In almost any of the low-lying coastal areas, hundreds of the pink or orange juveniles may be seen during the day near the mouths of their burrows. Apparently during the day they seldom wander more than a few feet away from their burrows, and most were observed less than a foot away. They usually can be approached to within a distance of 15–20 feet and occasionally as close as 10 feet, but, if the observer moves closer, the crabs make a speedy retreat into their holes. Only once were two crabs seen to disappear into the same excavation. The burrows of these pinkish-colored crabs are constructed among those of the bluish or white members of the same species; inasmuch as the adults are apparently all white or bluish, presumably the lighter colored ones are older individuals.

The adults, although less frequently seen, are apparently as gregarious as are the young. In a poorly drained coconut and banana plantation near the mouth of the Layou River, holes almost a foot in diameter are not uncommon, although the majority of them are half that size. At times, these large crabs climb to the mouths of their burrows, where they remain motionless for long periods of time. If a person approaches such a crab, it retreats below the surface but often stops above the water table; a closer approach, however, causes the crab to plunge quickly into the water. A few individuals were caught

in the upper part of the burrow before they could get into the water, but most of our *Cardisoma* were caught when they were seen crossing the road at night. Only during the wetter seasons, however, do they seem to move distances from their burrows. Several attempts to collect the large crabs at night resulted largely in failure for they reacted precisely in the same manner at night as during the day.

After having been informed by the several men who lived in the area that this crab could be taken easily in numbers at night, the second author employed the services of two of the men, and we reached the coconut plantation at the mouth of the Layou at about 9:00 P.M. Fewer than a dozen crabs were seen above the ground during the following two hours. In the same area, hundreds are evident during the day. Many crabs were just below the surface of the ground in the mouths of their burrows, but as soon as a light was trained on them, they dropped into the water. One crab, perched on the side of a water-filled ditch, simply dropped into the water as soon as the beam of light reached it.

By no means are these crabs confined to the burrows; many of them have been seen in pools of water in drainage ditches, and on one occasion a dozen or so large individuals were seen perched on braces under a temporary bridge over the Woodford Hill River at about 10:30 A.M. They were in full sunlight, but, when approached, all of them dropped into the milky-blue water.

DISTRIBUTION.—Bermudas, southern Florida, and Texas to Estado do São Paulo, Brazil (Bermudas, Andros I., Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint John, Saint Croix, Montserrat, Dominica, Barbados, Trinidad, Islas Los Roques, Curaçao, Isla de Providencia, Isla de Utila).

Dominica Stations: 6, 30, 38, 83, 97, 111, 112, 129 (0–25 ft.).

Genus *Gecarcinus*

80. *Gecarcinus lagostoma* H. Milne Edwards

FIGURE 67d

Gecarcinus lagostoma H. Milne Edwards, 1837, p. 27 [type-locality: "Australasie" (probably in error)].—Rathbun, 1918, p. 361, text-fig. 164, pls. 125, 126.—Monod, 1956, p. 461, fig. 619.

DIAGNOSIS.—Fronto-orbital distance less than half of maximum carapace width in adults. Third maxillipeds with exopod hidden beneath ischium; merus rounded distally, covering epistome and most of antennular cavities, with V-shaped notch leading to closed fissure on mesial margin; end of reduced palp usually protruding near notch. Dactyls of walking legs with six rows of spines. A large species, maximum carapace length in midline about 70 mm.

HABITAT.—Terrestrial.

DISTRIBUTION.—Trinidad, Ilha Fernando de Noronha, Ascension I., Cameroon, and islands in the Gulf of Guinea.

81. *Gecarcinus lateralis* (Fremenville)

FIGURES 65, 67e-g

Ocypoda lateralis Fremenville, 1835, p. 224 [type-localities: Martinique, Guadeloupe, Marie Galante, La Désirade, Îles des Saintes].

Gecarcinus lateralis.—Guérin-Méneville, 1829-44, pl. 5: fig. 1.—Pocock, 1889, p. 6.—Rathbun, 1918, p. 355, pls. 119, 120.

Gecarcinus depressus De Saussure, 1858, p. 439, pl. 2: fig. 14 [type-locality: Republic of Haiti].

Geocarcinus lateralis.—Vélez, 1967, p. 43.

DIAGNOSIS.—Fronto-orbital distance about half of maximum carapace width in adults. Third maxillipeds with exopod hidden beneath ischium; merus emarginate distally, covering only part of epistome and none of antennular cavities, reduced palp concealed beneath merus. Dactyls of walking legs with four rows of spines. A medium-sized species, maximum carapace length in midline about 45 mm.

COLOR IN LIFE.—Carapace with large central area of black extending from front posteriorly and posterolaterally to posterior fifth with pair of small white or cream spots along cervical groove between branchial and protogastric regions, smaller pale pair in posterior portion of mesogastric-protogastric groove, and conspicuous pair in anterolateral portion of cardiac region. Small irregular cream area with white center immediately posterior to lateral portion of each orbit; anterolateral areas scarlet purple bearing red oblique lines, and fading posteriorly along lateral area to scarlet and finally to orange; irregular band of latter extending across posterior portion of carapace.

Eyestalks reddish purple with black cornea. Third maxillipeds with ischium bearing longitudinal oblique purple band; merus with large purple central area surrounded by white or pinkish cream.

Chelipeds with pale, almost white proximal podomeres; merus pale basally with light area dorsally becoming pale lavender distally, mesial and lateral surfaces reddish purple with lower surface yellowish tan, gradually becoming lavender distally; carpus reddish purple above with anastomosing and branching hairlines of lighter red, lower surface lavender to mauve; chela mauve along outer articulation and dactylar area to distal fourth, proximal half of distal fourth cream, distal half corneous brown.

Proximal podomeres of walking legs white to cream; merus yellowish tan becoming orange distally; carpus and propodus yellowish tan; dactyl cream with corneous tip; merus through propodus with fine lines of reddish purple.

Sternum and abdomen white to cream.

In young animals the scarlet border on the dorsal portion of the carapace extends mesially into the black central area at the level of the posterior pair of light spots, and the anteromedian portion of the posterior orange area characteristic of the adult is replaced by a yellow cupid's bow-shaped area abutting the black.

MATERIAL EXAMINED.—The Dominican collections contain 24 males (carapace lengths 9.0–38.8 mm), 23 females (cl 10.1–33.8 mm), and 1 juvenile (cl 5.8 mm). The smallest males, sometimes to a carapace length of 11 mm, have the first pleopods vestigial.

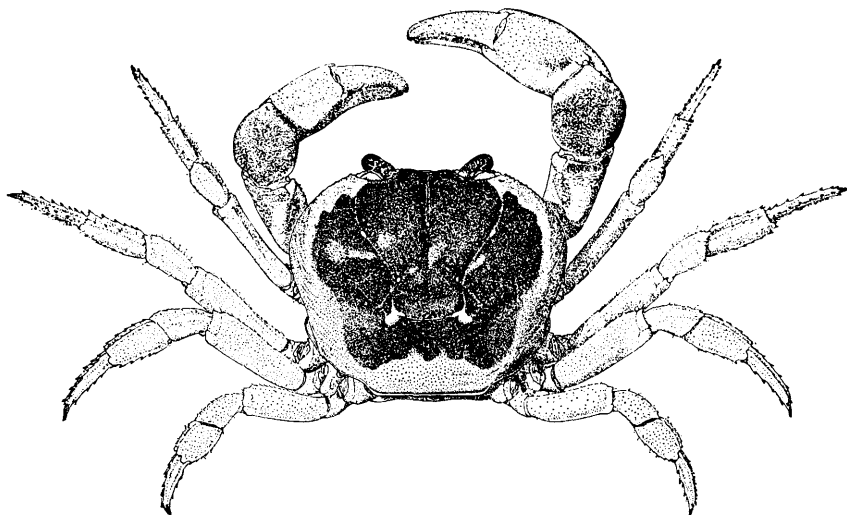


FIGURE 65.—*Gecarcinus lateralis*, male (carapace length 37.3 mm) from Dominica station 97.

ECOLOGICAL NOTES.—Apparently no distinction is made between the two species of *Gecarcinus* by the population on Dominica although they are perhaps used to a greater extent as food than any other crustaceans on the Island. Our own data on the two are extremely fragmentary. Except for the observation that these land crabs occur at higher elevations than does *Cardisoma*, little can be said about the adults except that on nights following rains they wander over land and at such times are sought after along roadways and particularly in roadside ditches where the vegetation has been cleared. They occur high up on the Cabrits and at elevations of approximately 1,000 feet south of Clarke Hall. They get well up into Antrim Valley and occur in the area around Scotts Head.

Along the foot of the northern slope of Tarou Cliffs, immediately south of the mouth of the Layou River, the young individuals of

Gecarcinus lateralis construct shallow burrows, mostly less than 2 feet, many no more than 1 foot, in depth. Here, some 10 feet above the flat land where *Cardisoma guanhumi* is so abundant, these juvenile crabs dig into the talus slope, usually under the shelter of the larger stones. Of the 23 specimens dug from their burrows in this locality, 17 were *G. lateralis* and 6 were young *Cardisoma guanhumi*. No young individuals of *G. ruricola* were found there, but two evenings later a male of this species was found crawling in precisely the same area. A single juvenile female crab (cl 9 mm), possibly *G. ruricola*, was dug from a shallow burrow in the coconut grove some 200 yards from the foot of Tarou Cliffs.

DISTRIBUTION.—Bermudas and southern Florida to French Guiana (Bermudas, Green Turtle Cay, Great Abaco I., Andros I., Green Cay, Cuba, Jamaica, Hispaniola, Isla Mona, Puerto Rico, Saint Thomas, Saint Croix, Montserrat, Guadeloupe, Dominica, Saint Lucia I., Barbados, La Orchila, Islas Los Roques, Bonaire, Curaçao, Aruba, Swan Is.).

Dominica Stations: 6, 50, 97, 98, 116 (0–350 ft.).

REMARKS.—In females from Dominica, the abdomen attains about half of its maximum width at a carapace length of slightly more than 15 mm and is fully formed at about 25 mm.

32. *Gecarcinus ruricola* (Linnaeus)

FIGURES 66, 67h–j

Cancer ruricola Linnaeus, 1758, p. 626 [type-locality: America].

Ocypode tourlourou Latreille, 1802, p. 36 [type-locality: Dominican Republic].

Gecarcinus ruricola.—Leach, 1815, p. 322.—Pocock, 1889, p. 7.—Verrill, 1892, p. 353.—Rathbun, 1918, p. 352, pls. 117, 118.

Ocypoda rubra Freminville, 1835, p. 22 [type-locality: Antilles].

Gecarcinus agricola Reichenbach, 1836, p. 230.

Geocarcinus ruricola.—Vélez, 1967, p. 44.

DIAGNOSIS.—Fronto-orbital distance not more than two-fifths of maximum carapace width in adults. Third maxillipeds with exopod hidden beneath ischium; merus rounded distally, covering epistome and most of antennular cavities, margin entire, without distinct emargination or notch; reduced palp concealed beneath merus. Dactyls of walking legs with six rows of spines. A large species, maximum carapace length in midline about 70 mm.

COLOR IN LIFE.—Dorsal surface of carapace rich purple with reddish overtones. Pair of conspicuous pale bluish-gray spots posterolaterally with poorly delimited greenish-orange area lateral and somewhat anterolateral to bluish-gray spots. Posterior and posterolateral ridges of carapace reddish orange. Lower anterior and lateral portions of carapace pale blue intensifying dorsally to purple. Promi-

ment purple splotch in blue pterygostomian region. Orbit cream in area hidden by retracted eye; lower portion of orbit pale orange, blending through open area with scarlet; outer orbital tooth orange yellow.

Dorsal and anterior portions of eyestalk purple; posterior and ventral portions lavender to cream; cornea black.

Third maxillipeds yellow at base becoming tan toward distal margin of ischium and reddish purple mesiodistally, with distolateral area purple; merus reddish purple proximomesially, otherwise purple.

Cheliped with coxa, basis and proximal portion of ischium blue with yellow and orange areas; distal portion of ischium purple;

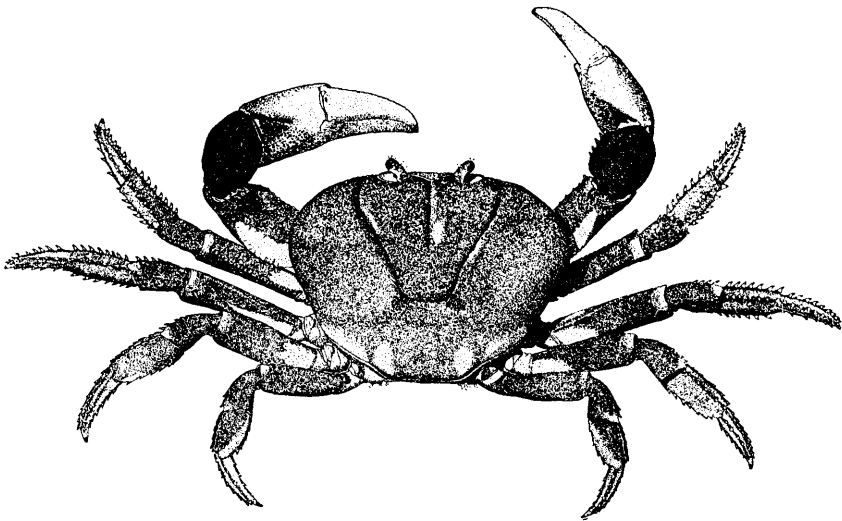


FIGURE 66.—*Gecarcinus ruricola*, male (carapace length 67.0 mm) from Dominica station 6.

merus lavender below and with distally tapering yellow stripe above, remainder of podomere purple; carpus dark purple above, reddish purple below; chela purple proximally merging with yellow to form purplish-tan palm; fingers tan to yellow with cream tubercles.

Remaining pereiopods light orange to yellow basally with merus yellowish orange proximally and distally but largely purple; carpus dark purple with yellowish-orange band distally; propodus purplish red; dactyl orange with reddish-purple ridges; flexor surfaces of podomeres paler shades of colors on extensor surface. Spines (spurs) purple at base with narrow red band followed by broader yellow one; tips corneous.

Sternum cream with corneous orange laterally and blue suffusion mesially; abdomen bluish lavender with irregular purplish markings.

MATERIAL EXAMINED.—The Dominican collections contain 3 males (carapace lengths 55.2–68.8 mm) and 6 females (cl 9.0–68.8 mm).

ECOLOGICAL NOTES.—See under *Gecarcinus lateralis*.

DISTRIBUTION.—Southern Florida, West Indies, Nicaragua (Andros I., San Salvador I., Rum Cay, Cuba, Jamaica, Navassa I., Hispaniola, Puerto Rico, Saint Croix, Saba, Montserrat, Dominica, Barbados, Curaçao, Isla de Providencia, Swan Is.).

Dominica Stations: 6, 38, 82, 93 (0–200 ft.).

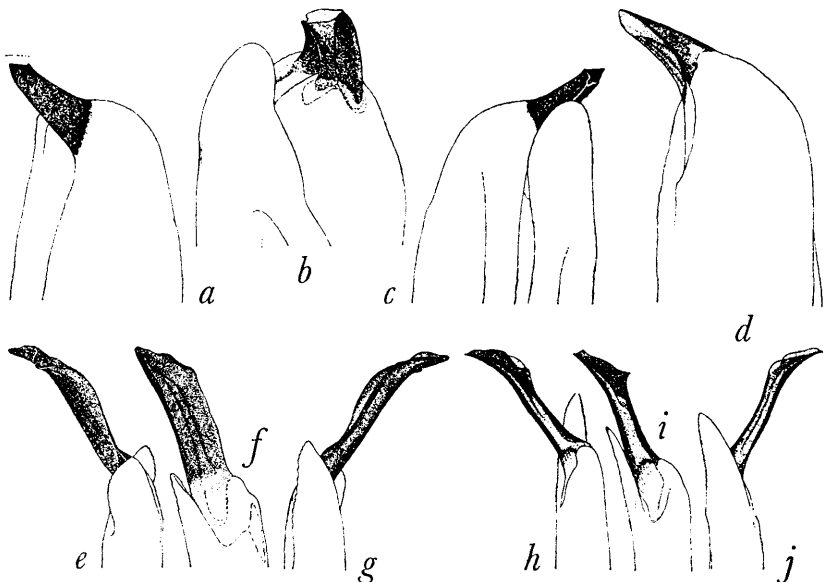


FIGURE 67.—Denuded terminal portions of male right first pleopods: *a*, *Cardisoma guanhumi*, specimen shown in figure 64, posterior view; *b*, same, lateral view; *c*, same, anterior view; *d*, *Gecarcinus lagostoma* (carapace length 48.0 mm) from Trinidad (R. Welles, Jr.), posterior view; *e*, *G. lateralis*, specimen shown in figure 65, posterior view; *f*, same, lateral view; *g*, same, anterior view; *h*, *G. ruricola*, specimen shown in figure 66, posterior view; *i*, same, lateral view; *j*, same, anterior view.

Family OCYPODIDAE

Subfamily Ocypodinae

Key to the Species

1. Fronto-orbital distance barely two-thirds of maximum carapace width; no specialized hair-fringed ventral opening between coxae of third and fourth pereiopods ***Ucides cordatus*** (p. 219)
- Fronto-orbital distance at least nine-tenths of maximum carapace width; specialized hair-fringed opening between coxae of third and fourth pereiopods 2

2. Carapace nearly subquadrate in adults, more than four-fifths as long as wide; cornea greatly swollen, occupying much more than half of extensor surface of distal segment of eyestalk; chelipeds unequal in both sexes.

Ocypode quadrata (p. 204)

Carapace broader, seldom more than two-thirds as long as wide; cornea occupying less than half of extensor surface of distal segment of eyestalk; one cheliped greatly enlarged in males, both chelipeds small and subequal in females 3

3. Front, measured between posterodistal angles of basal segments of eyestalks with eyes retracted, less than one-fourth of fronto-orbital distance 4

Front, measured between posterodistal angles of basal segments of eyestalks with eyes retracted, distinctly more than one-fourth of fronto-orbital distance 5

4. Front very narrow, constricted at base, spatuliform, less than one-tenth of fronto-orbital distance; cornea occupying no more than one-seventh of extensor surface of distal segment of eyestalk; fingers of major chela of male very broad and compressed *Uca major* (p. 213)

Front widening toward base, not spatuliform, more than one-fifth of fronto-orbital distance; cornea occupying about one-third of extensor surface of distal segment of eyestalk; fingers of major chela of male slender, not markedly compressed *Uca thayeri* (p. 216)

5. Lateral margin of carapace forming rather distinct angle with posterolateral margin 6

Lateral margin of carapace not forming distinct angle with posterolateral margin 7

6. Front less than one-third of fronto-orbital distance; cornea occupying about one-third of extensor surface of distal segment of eyestalk.

Uca cumulanta (p. 211)

Front more than one-third of fronto-orbital distance; cornea occupying about two-fifths of extensor surface of distal segment of eyestalk.

Uca speciosa (p. 215)

7. Carapace very convex, semicircular longitudinally in midline; front distinctly less than one-third of fronto-orbital distance; lateral margins converging strongly posteriorly from outer orbital angles *Uca leptodactyla* (p. 212)

Carapace moderately convex, not semicylindrical; front at least one-third of fronto-orbital distance; lateral margins usually diverging immediately posterior to outer orbital angles 8

8. Males with irregular pattern of scurflike pubescence on carapace; cornea occupying less than one-third of extensor surface of distal segment of eyestalk; females without pubescence on carpus and propodus of second, third, and fourth pereopods *Uca vocator* (p. 217)

Carapace without pubescence in either sex; cornea occupying more than one-third of extensor surface of distal segment of eyestalk; pubescence on extensor margins of carpus and propodus of second, third, and fourth pereopods in both sexes 9

9. Cornea occupying about two-fifths of extensor surface of distal segment of eyestalk; denuded first pleopod of male terminating in posterior view in tip with very broad lateral lobe and inconspicuous mesial one (fig. 71b).

Uca burgersi (p. 207)

Cornea occupying less than two-fifths of extensor surface of distal segment of eyestalk; denuded first pleopod of male terminating in posterior view in two distal projections, lateral one only slightly broader than mesial (fig. 73a).

Uca rapax (p. 214)

NOTE: Not included in preceding key is *Uca maracoani* (Latreille, 1802-1803), which is confined chiefly to the South American mainland from Venezuela to Rio de Janeiro. Crane (1958) records this species from Cocorite Swamp on the Trinidad coast of the Gulf of Paria, only a few miles from the shores of Venezuela.

Genus *Ocypode*

83. *Ocypode quadrata* (Fabricius)

FIGURES 68, 69

Cancer quadratus Fabricius, 1787, p. 315 [type-locality: Jamaica].—Hemming, 1954, pp. 297-327.

Ocypode quadrata.—Fabricius, 1798, p. 347.—Chace, 1956, p. 159.—Holthuis 1959, p. 259, pl. 9: fig. 3.

Ocypoda albicans Bose, 1801-02, p. 196 [type-locality: "la Caroline"].

Ocypode albicans.—Latreille, 1802, p. 48.—Rathbun, 1918, p. 367, pls. 127, 128.

Ocypode arenarius Say, 1817, p. 69 [type-locality: United States].

Monolepis inermis Say, 1817, p. 157 [type-locality: eastern shore of Maryland].

Ocypoda arenaria.—H. Milne Edwards, 1837, p. 44, pl. 19: figs. 13, 14.

DIAGNOSIS.—*Carapace subrectangular, nearly nine-tenths as long as wide in adults*, strongly convex longitudinally, nearly semicircular in midline, surface granular, without pubescence; fronto-orbital distance slightly less than maximum carapace width in adults; front very narrow, subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, about one-fourth of fronto-orbital distance; lateral marginal ridges converging slightly in posterior two-thirds. *Cornea markedly swollen, occupying considerably more than half of extensor surface of distal segment of eyestalk*. Chelipeds distinctly dissimilar and unequal in both sexes; fingers of major chela shorter than palm, spinose. Second, third, and fourth pereopods bearing rather long, silky, erect hairs, especially numerous on extensor and flexor margins of carpus and propodus. Hair-fringed ventral opening present between coxae of third and fourth pereopods. *Denuded first pleopod of male terminating, in posterior view, in sharply recurved blunt tip directed proximolaterally* (fig. 69a). A fairly large species, maximum carapace length in midline about 45 mm.

COLOR IN LIFE.—There are apparently two color phases of *Ocypode quadrata* on Dominica. The familiar off-white phase frequents the beaches on which there is light-colored sand, but on the black beaches a brown phase exists. A male of the latter was transferred first to a white background and allowed to remain on it for three days in anticipation of its altering its dark color. When it failed to change its coloration or pattern, a blue background was substituted but with the same result. In view of the positive indication of color change obtained by Green (1964) from his study of light and dark populations of *Ocypode ceratophthalma* in Hawaii, it is very possible that more extensive investigation of *O. quadrata* might yield similar results.

The light phase is almost concolorous and varies from bluish white to yellowish cream.

The coloration of the dark phase is as follows: Carapace brown with cream to pale tan stripes and spots. Front with pair of posteriorly diverging submarginal bands paralleling lateral margins; anterior border of carapace with narrow band except for brown anterolateral angles; anterior extension of mesogastric region with slender, median, broken longitudinal stripe expanding in posterior portion of area to form triangular spot; lateral portions of cervical groove marked by light band narrowing posteriorly and turning anteromesially toward triangle in posterior gastric region; pair of light spots immediately posterolateral to base of front; cardiac region with narrow median

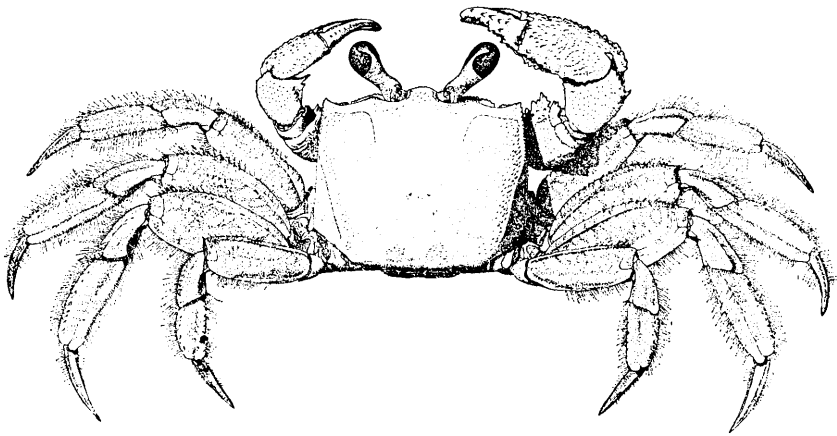


FIGURE 68.—*Ocypode quadrata*, male (carapace length 30.2 mm) from Dominica station 97

longitudinal stripe similar to that in protogastric region, narrow transverse light band anteriorly, and ornate symmetrically arranged white pattern posterior to band. Branchial region with one or two small spots anteriorly; mesial portion with longitudinal stripe originating on light anterior border, extending seven-eighths length of carapace, and bearing short horizontal branches on both sides; branchial region with narrow, more lateral stripe forked anteriorly, and, posteriorly, curving mesially and finally anteromesially around posterior end of median stripe, terminating, however, before reaching cervical groove. Lateral wall of carapace pale tan.

Eyestalks brown with black cornea. Third maxillipeds mostly white but distal podomeres brown. Chelipeds with light basal segments; merus with brown upper and lower portions; carpus brown with light elongate spots proximally; palm bluish lavender above fading to

pale lavender below; both fingers white except for bluish lavender on upper proximal portion of dactyl. Basal segments of walking legs gray to brown with dark brown longitudinal stripes and variable pattern of light spots.

MATERIAL EXAMINED.—The Dominican collections contain 13 males (carapace lengths 8.5–32.0 mm), 14 females (cl 8.8–28.1 mm), and 12 juveniles (cl 5.0–9.3 mm). In the smallest identifiable male, the pleopods are very short and vestigial, but no pleopods were detectable in one slightly larger specimen. Egg membranes were still attached to the pleopods of the largest female, collected in March.

ECOLOGICAL NOTES.—Neither the habits nor habitat of *Ocypode quadrata* on Dominica differ from those observed elsewhere in its range. The members of this species seem to be confined to sandy

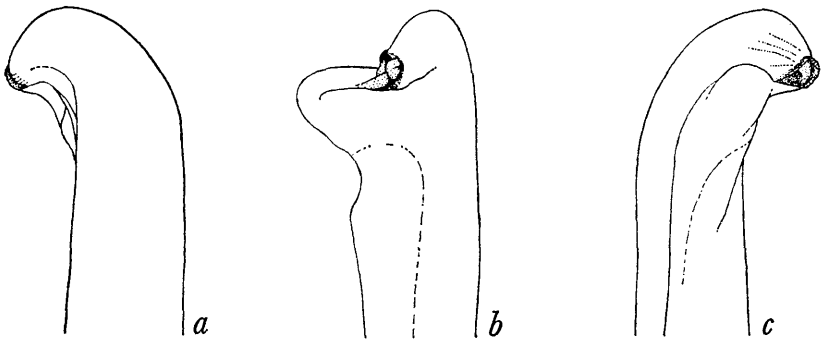


FIGURE 69.—Denuded terminal portion of right first pleopod of male *Ocypode quadrata* shown in figure 68: *a*, posterior view; *b*, lateral view; *c*, anterior view.

beaches, where they construct burrows of two types. One is vertical or slightly sloping downward to depths of two feet, and the other is U-shaped. In some of the latter, apparently unfinished ones, one of the arms of the U does not reach the surface, and even in those that do, the opening is so small that the crab cannot emerge through it without enlarging it. This is accomplished quickly, for a number of animals escaped capture when they retreated through the secondary aperture while the collector was digging toward them through the primary opening.

On a few occasions when a crab wandered some distance from its burrow and was blocked from returning to it, the crab sought refuge in the burrow of another crab. This invasion of another individual's burrow, however, probably was a measure of last resort, for all of those individuals that were pursued made every effort to get back to their own burrows.

How sand is brought to near the surface was not observed, but frequent observations were made of sand being thrust out of the mouths of burrows with such force that it traveled three or four feet down the beach.

The discovery of a very small juvenile of *Ocypode* in a tributary of the Layou River near Clarke Hall can only be regarded as unusual; it seems very unlikely that it could have wandered that far from the coast independently.

DISTRIBUTION.—Rhode Island to Estado de Santa Catarina, Brazil (Bermudas, Eleuthera I., New Providence I., Green Cay, San Salvador I., Cuba, Jamaica, Hispaniola, Isla Mona, Puerto Rico, Saint Thomas, Saint Croix, Dominica, Saint Lucia I., Barbados, Isla de Margarita, Islas de Los Roques, Aruba, Isla de Providencia, Swan Is.).

Dominica Stations: 1, 6, 36, 57, 67, 97, 102, 104, 107 (0–5 ft.).

Genus *Uca*

84. *Uca burgersi* Holthuis

FIGURES 70, 71a–d

Gelasimus affinis Streets, 1872, p. 131 [type-locality: Saint Martin; not *Gelasimus affinis* Guérin-Méneville, 1829].

Uca affinis.—Holthuis, 1959, pp. 265, 266.

Uca burgersi Holthuis, 1967, p. 51 [type-locality: coconut grove on southwest coast of Curaçao].

DIAGNOSIS.—Carapace very roughly trapezoidal, almost hexagonal, slightly more than two-thirds as long as wide, strongly convex but not semicylindrical longitudinally, surface smooth but slightly uneven with few isolated stiff setae anterolaterally; fronto-orbital distance nearly or quite representing maximum carapace width; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, distinctly more than one-third of fronto-orbital distance; lateral marginal ridges curving regularly into strongly convergent, sinuous posterior portions. Cornea moderately swollen, occupying about two-fifths of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male distinctly longer than palm, slender, widely gaping, not unusually compressed. Second, third, and fourth pereopods pubescent on extensor margins of carpus and propodus in both sexes. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in truncate tip directed somewhat laterally, *lateral lobe much the wider* (fig. 71b). A rather small species, maximum carapace length in midline about 15 mm.

COLOR IN LIFE.—Carapace with front and anterolateral borders of carapace cream tan. Two pairs of chocolate-colored arcs abutting cream area: mesial pair posterior to antennules and lateral pair extending from level of base of eyestalk almost to lateral margin of carapace; row of four chocolate dots present behind and slightly lateral to mesial pair of arcs in field of lavender gray. Posterior portion of carapace straw colored, separated from anterior lighter area by

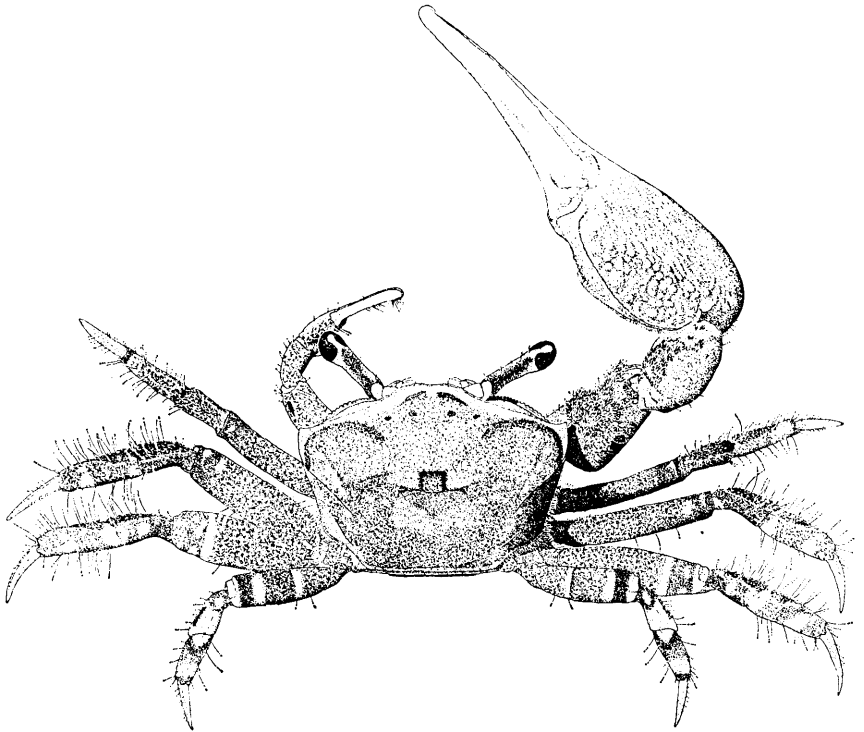


FIGURE 70.—*Uca burgersi*, male (carapace length 9.0 mm) from Dominica station 37.

transverse, laterally pointed band of chocolate; light lavender rectangle immediately anterior to band interrupted by median tan square bordered in black anteriorly and laterally. Area posterior to chocolate band pale with cream spots. Branchial area with pair of oblique rows of white spots; lateral wall of carapace lavender cream.

Eyestalks with brown longitudinal stripe dorsally; cornea black.

Major chela with basal segments pinkish cream; merus straw colored with chocolate spot dorsally and patch of green pubescence mesio-distally; carpus pale orange with straw markings and green patch mesially resembling that on merus; palm pale orange with straw mark-

ings and green patch on side opposing merus; both fingers white. Small chela mostly straw colored; merus with longitudinal chocolate stripe; fingers and lateral three-fourths of palm pinkish cream.

Second through fourth pereopods straw with dark brown spots and bands above and gray below; dactyls pinkish tan. Merus of second and third pereopods with one or two distal white spots, that of fourth with distal white band and one or two spots, that of fifth with three transverse white bands; carpus of second and third pereopods dark brown above, straw laterally, that of fourth and fifth dark proximally and lighter distally, each with light spot; propodus of all legs with dark brown and white spots.

Sternum gray; abdomen tan to brown with lighter median stripe.

There is considerable variation in the coloration and pattern in this crab but the basic patterns described above are evident in most, except in those that apparently have not molted for a long time.

MATERIAL EXAMINED.—The Dominican collections contain 59 males (carapace lengths 4.2–11.0 mm) and 22 females (cl 6.0–12.4 mm), including 3 with eggs (cl 6.8–8.2 mm).

ECOLOGICAL NOTES.—Nowhere on Dominica were fiddler crabs found to be abundant except in the large mudflat south of the Indian River at Portsmouth (pl. 4A). Here two of the species, *Uca burgersi* and *U. vocator*, can be numbered by the thousands, and it was here also that the single specimen of a possible third species referred to below was found. In an area bounded by *Pterocarpus* and coconuts with dense growths of the arum *Montrichardia arborescens* and clumps of the fern *Acrostichum daneaefolium*, these crabs abound, along with *Ucides cordatus*, *Goniopsis cruentata*, and occasional individuals of *Callinectes bocourti*. The area has no direct connection with the Caribbean and probably receives salt water only during exceptionally high tides. The so-called mud flat might better be described as a large grassy marsh with the water table practically at the surface and with a deep deposit of organic debris. The soil is soft and can be dug readily without the aid of a tool. Within 25 feet from the shore one becomes mired in mud to a depth of almost two feet.

In some portions of the marsh, burrows of fiddler crabs were so close together that a person could scarcely avoid covering one or two entrances with each step. Along the western shore of the marsh, in a small area not yet invaded by *Montrichardia*, there were between 60 and 100 burrows per 100 square feet. In this area, the ground was so soft and so riddled with burrows that each step of the observer resulted in a collapse of several tunnels and a scurrying of the crabs from their mouths.

The burrows of the females were consistently without chimneys; however, those of the males of *Uca vocator* were marked by neat

chimneys as high as six inches. In contrast, burrows of the males of *U. burgersi*, even those in which recent excavations had been made, had no chimneys and the mud seemed simply to have been discarded in a haphazard fashion.

Since the observer was not aware that a third species of the genus *Uca* had been obtained until he returned to Washington, nothing can be said about its burrows except that they must have been alongside those of the other two species.

Uca burgersi was also found in small muddy areas near the mouths of the Salisbury, Mero, and Layou Rivers, and along an unnamed, seldom-flowing stream immediately north of Mero. None of these

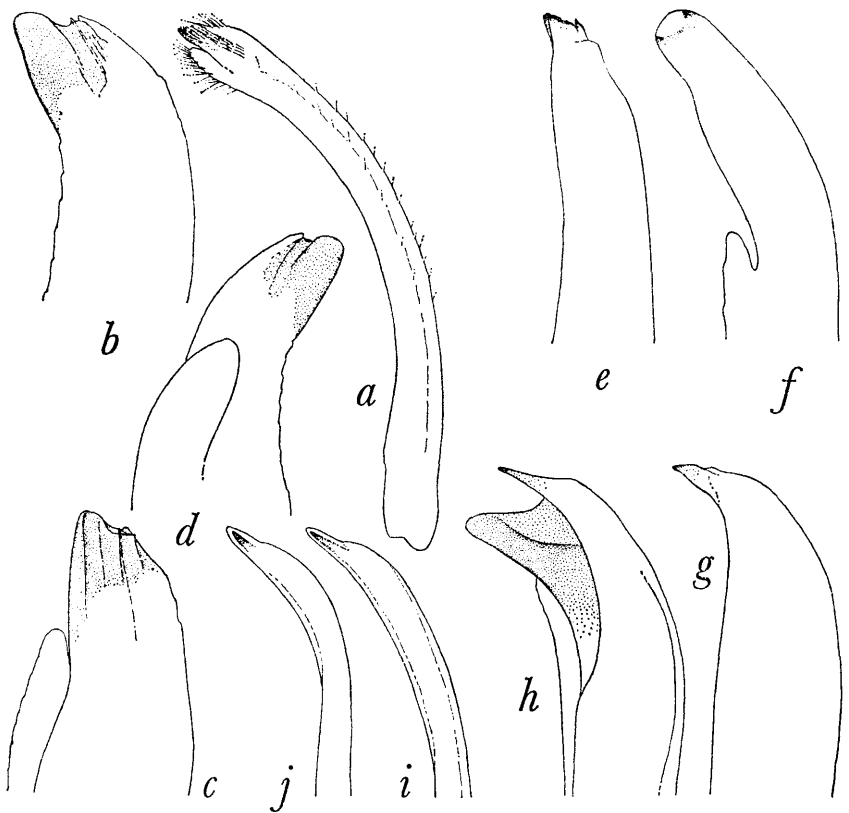


FIGURE 71.—Male right first pleopods: *a*, *Uca burgersi* (carapace length 9.7 mm) from Dominica station 112, pleopod in lateral view; *b*, denuded terminal portion of same, posterior view; *c*, same, lateral view; *d*, same, anterior view; *e*, *U. cumulanta* (cl 10.7 mm) from Curaçao (C. J. van der Horst), denuded terminal portion, posterior view; *f*, same, lateral view; *g*, *U. leptodactyla* (cl 6.5 mm) from Bimini (J. H. Welsh), denuded terminal portion, posterior view; *h*, same, lateral view; *i*, *U. major*, specimen shown in figure 72, denuded terminal portion, posterior view; *j*, same, lateral view.

populations are large, and at the mouth of the Layou and along the Salisbury Rivers they are comparatively rare.

DISTRIBUTION.—West Indies (Bimini Is., Rum Cay, Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint Croix, Anguilla, Saint Martin, Barbuda, Nevis, Antigua I., Guadeloupe, Dominica, Barbados, Tobago, Islas de Aves, Bonaire, Curaçao, Aruba, Swan Is.).

Dominica Stations: 6, 36–38, 112 (0–5 ft.).

REMARKS.—Dominican specimens of *U. burgersi* have a slightly different appearance from paratypes of the species from Curaçao, with which they have been compared, because the orbits of the former slope posterolaterally more strongly than they do in the latter. The male pleopods, however, seem to be practically identical in the two populations.

All of the specimens, including the three ovigerous females, were collected in February and March.

A third species of *Uca* may occur on Dominica at station 112. A single male with an unusual (perhaps regenerated) major chela and with pleopods that differ from those of all other American species was found among the specimens of *U. burgersi* and *U. vocator* collected there in 1966. In this specimen, the orbits are intermediate in slope between those of the other two species.

85. *Uca cumulanta* Crane

FIGURES 71e, f

Uca cumulanta Crane, 1943, p. 42, text-figs. 1g–i, pl. 1: figs. 3, 4 [type-locality: Pedernales, Venezuela].

Uca (Minuca) cumulanta.—Holthuis, 1959, p. 274, text-fig. 68a, pl. 14: fig. 3; pl. 15: fig. 4.

DIAGNOSIS.—Carapace roughly trapezoidal, about two-thirds as long as wide, strongly convex but not semicylindrical longitudinally, surface smooth and polished, without pubescence; fronto-orbital distance representing maximum carapace width; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, slightly less than one-third of fronto-orbital distance; lateral marginal ridges usually forming rather distinct obtuse angles and converging strongly posteriorly. Cornea moderately swollen, occupying about one-third of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male distinctly longer than palm, slender, widely gaping, not unusually compressed. Walking legs almost completely devoid of pubescence. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in obliquely truncate tip with very

small sharp spine at distomesial angle (fig. 71e). A small- to medium-sized species, maximum carapace length in midline about 18 mm.

HABITAT.—Mud flats.

DISTRIBUTION.—Curaçao, Venezuela, Surinam.

REMARKS.—The two lots of specimens from Curaçao reported as *Uca speciosa* by Rathbun (1918, p. 409; 1924, p. 19) prove to be *U. cumulanta*; the species had not been recorded previously from any of the West Indian islands.

86. *Uca leptodactyla* Rathbun

FIGURES 71g, h

Uca leptodactyla Rathbun, in Rankin, 1898, p. 227 [type-locality: Nassau, New Providence I., Bahamas].—Rathbun, 1918, p. 420 pl. 156.

Gelasimus leptodactylus (Guérin ms).—Rathbun, in Rankin, 1898 p. 227.

DIAGNOSIS.—Carapace broadly pentagonal, less than two-thirds as long as wide, practically semicylindrical longitudinally in midline, surface smooth and polished, without pubescence; fronto-orbital distance representing maximum carapace width; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, slightly less than one-third of fronto-orbital distance; lateral marginal ridges strongly and slightly sinuously converging posteriorly from outer orbital angles. Cornea moderately swollen, occupying about one-third of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male much longer than palm, slender, widely gaping, not unusually compressed. Walking legs almost completely devoid of pubescence. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in beaklike tip directed laterally (fig. 71g). A small species, maximum carapace length in midline about 7 mm.

HABITAT.—Tidal mud flats.

DISTRIBUTION.—Western Florida to Estado de Santa Catarina, Brazil (Green Turtle Cay, Bimini Is., New Providence I., Cuba, Jamaica, Puerto Rico, Saint Croix).

REMARKS.—It seems obvious that the selection of the specific name of this species was intended as adoption of Guerin's manuscript name, a noun in apposition to the generic name, which therefore should have been spelled "*leptodactylus*." There is no absolute proof from the original description, however, that this was the intention, and we have therefore followed the advice of L. B. Holthuis to use the original spelling of the name. This decision was influenced further by the fact that Rathbun used this spelling in 1918, even though another species in the same genus was spelled "*stenodactylus*" in that publication.

87. *Uca major* (Herbst)FIGURES 71*i*, *j*, 72

Cancer vocans major Herbst, 1782, p. 83, pl. 1: fig. 11 [type-locality: Brazil (probably erroneous from lectotype selection of Seba figure by Holthuis, 1962)].

Ocypoda heterochelos Lamareck, 1801, p. 150 [type-locality: Brazil (see above)].

Uca una Leach, 1814, p. 430 [type-locality: Brazil (see above)].

Gelasimus platydactylus H. Milne Edwards, 1837, p. 51 [type-locality: Cayenne, French Guiana].

Gelasimus grangeri Desbonne in Schramm, 1867, p. 45 [type-locality: Guadeloupe].

Uca heterochelos.—Rathbun, 1918, p. 381, pl. 131: figs. 1, 2.

Uca major.—Holthuis, 1962, pp. 240, 246.

DIAGNOSIS.—Carapace broadly subrectangular or trapezoidal, less than three-fifths as long as wide, strongly convex but not semicylindrical longitudinally, surface smooth and polished, without pubescence; fronto-orbital distance representing maximum carapace width; front very narrow, subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, less than one-tenth

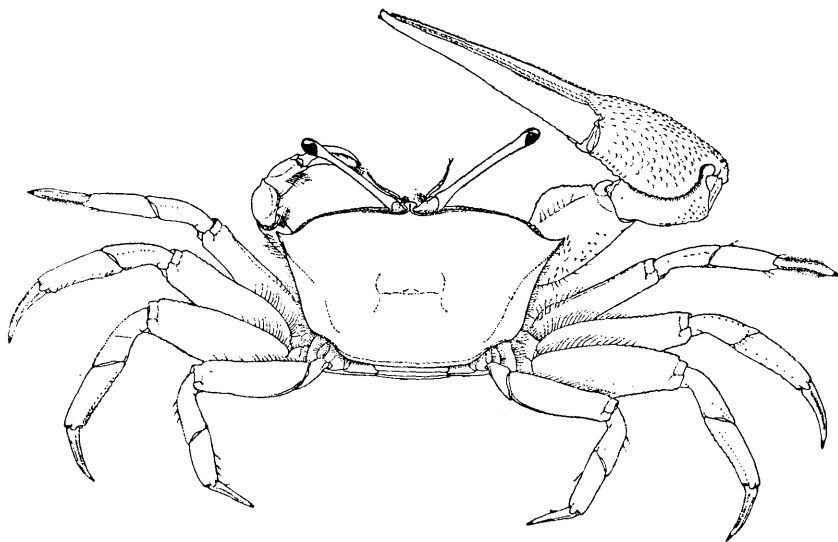


FIGURE 72.—*Uca major*, male (carapace length 17.0 mm) from San Salvador (*Albatross*).

of fronto-orbital distance; lateral marginal ridges absent. Cornea rather restricted, occupying at most one-seventh of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male much longer than palm, unusually broad and compressed, moderately gaping. Walking legs almost completely devoid of pubescence except on fifth pereopods of female. Hair-fringed ventral opening present

between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in tapered tip directed distolaterally (fig. 71*i*). A medium-sized species, maximum carapace length in midline about 20 mm.

HABITAT.—Mangrove swamps.

DISTRIBUTION.—Bahamas and Mexico to French Guiana (Bimini Is., San Salvador I., Cuba, Jamaica, Puerto Rico, Saint Croix, Guadeloupe).

REMARKS.—Inasmuch as many of the localities cited by Seba (1761) have proved to be erroneous, it is unlikely that the specimen figured by him as "*Cancer Uka una, Brasiliensis*," and selected by Holthuis (1962) as the lectotype of this species, came from Brazil. The species has not been recorded since from any locality south of Cayenne, French Guiana. As the identity of the species is not in question at the present time, there seems to be no justification for designating a neotype, apparently the only means by which the type-locality can now be corrected.

88. *Uca rapax* (Smith)

FIGURES 73*a, b*

Gelasimus rapax Smith, 1870; p. 134, pl. 2: fig. 2; pl. 4: fig. 3 [type-locality: Colon, Panama].

Uca pugnaz rapax.—Rathbun, 1901, p. 7, 1918, p. 397, pl. 140.

Uca rapax.—Tashian and Vernberg, 1958, p. 89, pl. 1: figs. 3, 4.

Uca (Minuca) rapax.—Holthuis, 1959, p. 266, text-figs. 64*d-f*, 65, pl. 14: figs. 4-6; pl. 15: fig. 3.

DIAGNOSIS.—Carapace broadly subtrapezoidal, about two-thirds as long as wide, strongly convex but not semicylindrical longitudinally, surface smooth and polished, without pubescence; fronto-orbital distance slightly less than maximum carapace width; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, about one-third of fronto-orbital distance; lateral margins diverging slightly posteriorly from outer orbital angles, curving rather regularly into strongly convergent posterolateral ridges. Cornea moderately swollen, occupying between one-third and two-fifths of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male much longer than palm, slender, widely gaping, not unusually compressed. Second, third, and fourth pereopods pubescent on extensor margins of carpus and propodus. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in two blunt distal projections directed

distolaterally (fig. 73*a*). A medium-sized species, maximum carapace length in midline about 20 mm.

HABITAT.—Mangrove swamps and mud flats near coasts and river mouths.

DISTRIBUTION.—Northeastern Florida and Gulf of Mexico to Estado de Santa Catarina, Brazil (Bimini Is., Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Saint Croix, Antigua I., Guadeloupe, Trinidad, Islas de Los Roques, Bonaire, Curaçao, Isle de Providencia).

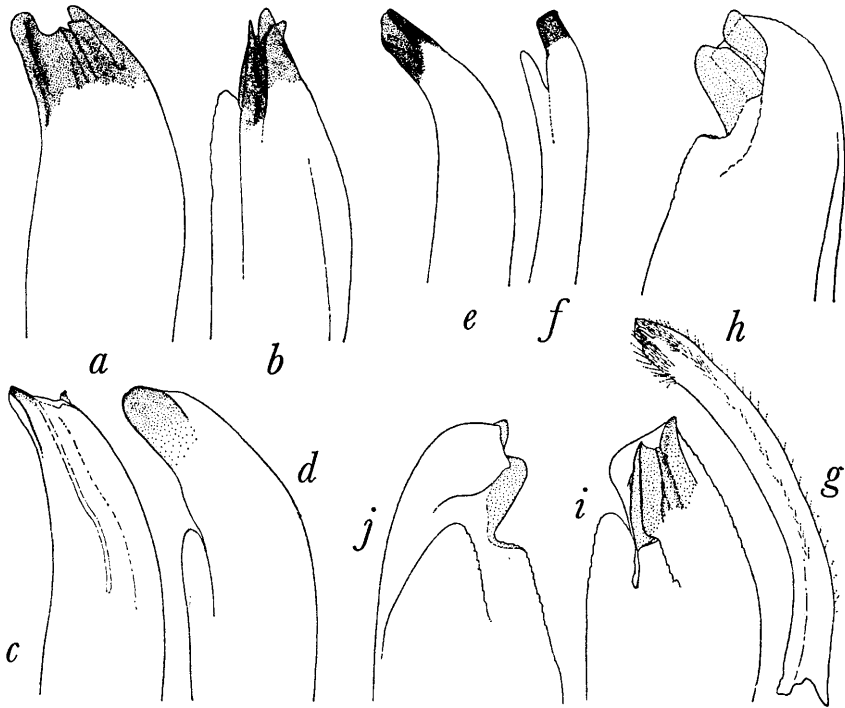


FIGURE 73.—Male right first pleopods: *a*, *Uca rapax* (carapace length 16.8 mm) from Kingston Harbor, Jamaica (R. P. Bigelow), denuded terminal portion, posterior view; *b*, same, lateral view; *c*, *U. speciosa* (cl 9.0 mm) from Varadero, Cuba (J. F. Milera), denuded terminal portion, posterior view; *d*, same, lateral view; *e*, *U. thayeri* (cl 15.0 mm), syntype from Paraiba State, Brazil (Branner-Agassiz Expedition), denuded terminal portion, posterior view; *f*, same, lateral view; *g*, *U. vocator*, specimen shown in figure 74, pleopod in lateral view; *h*, denuded terminal portion of same, posterior view; *i*, same, lateral view; *j*, same, anterior view.

89. *Uca speciosa* (Ives)

FIGURES 73*c*, *d*

Gelasimus speciosus Ives, 1891, p. 179, pl. 5: figs. 5, 6 [type-locality: "Port of Silam" (possibly Dzilam de Bravo), Estado de Yucatan, Mexico].

Uca speciosa.—Rathbun, 1918, p. 408, pl. 145.

DIAGNOSIS.—Carapace broadly subtrapezoidal, about two-thirds as long as wide, only moderately convex longitudinally, surface uneven but relatively smooth and bare; fronto-orbital distance representing maximum carapace width; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, slightly more than one-third of fronto-orbital distance; lateral margins converging posteriorly from outer orbital angles, posterolateral ridges forming distinct angle with lateral margins, strongly convergent, convex anteriorly. Cornea considerably swollen, occupying nearly two-fifths of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male more than twice as long as palm, slender, widely gaping, not unusually compressed. Second, third, and fourth pereopods pubescent on extensor margins of carpus and propodus. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in obliquely truncate tip with very small, sharp spine at distomesial angle (fig. 73c). A small species, maximum carapace length in midline about 10 mm.

HABITAT.—Very wet mud.

DISTRIBUTION.—Southern and western Florida, Yucatan Peninsula, Cuba, Jamaica.

REMARKS.—The male from Kingston Harbor, Jamaica, reported as *Uca spinicarpa* by Rathbun (1918) proves to be *U. speciosa*, whereas the two lots from Curaçao recorded as *U. speciosa* by the same author (1918 and 1924) are *U. cumulanta*.

90. *Uca thayeri* Rathbun

FIGURES 73e, f

Uca thayeri Rathbun, 1900b, p. 134, pl. 8: figs. 1, 2 [type-locality: mouth of Rio Paraíba, Estado da Paraíba, Brazil]; 1918, p. 406, text-fig. 169, pl. 144.

Uca (Minuca) thayeri.—Holthuis, 1959, p. 275, text-figs. 68b-c, pl. 16.

DIAGNOSIS.—Carapace subtrapezoidal, slightly less than two-thirds as long as wide, moderately convex longitudinally, surface uneven and at least partially covered with scurflike pubescence; fronto-orbital distance nearly or quite equalling maximum carapace width; front widening toward base, very obscurely constricted between bases of eyestalks, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, slightly more than one-fifth of fronto-orbital distance; lateral marginal ridge converging strongly in regular curve posteriorly from outer orbital angles or just posterior thereto. Cornea considerably swollen occupying about one-third of extensor surface of distal segment of eyestalk. Chelipeds greatly

dissimilar and unequal in males, small and subequal in females; fingers of major chela of male about twice as long as palm, slender, widely gaping, not unusually compressed. Walking legs pubescent, especially on extensor margins of merus, carpus, and propodus. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating, in posterior view, in obliquely truncate tip directed distolaterally (fig. 73e). A medium-sized species, maximum carapace length in midline about 18 mm.

HABITAT.—Mud flats.

DISTRIBUTION.—Northeastern Florida to Rio de Janeiro, Brazil (Cuba, Jamaica, Puerto Rico, Guadeloupe, Curaçao).

91. *Uca vocator* (Herbst)

FIGURES 73g-j, 74

Cancer vocator Herbst, 1804, p. 1, pl. 59: fig. 1 [type-locality: "Amerika" (restricted by neotype selection of Holthuis, 1959, to bank of Suriname River at Leonsberg, Surinam)].—Holthuis, 1959, p. 273.

Uca murifecenta Crane, 1943, p. 38, text figs. 1D-F, pl. 1: figs. 1, 2 [type-locality: near mouth of Río San Juan, Venezuela].

Uca (Minuca) vocator.—Holthuis, 1959, p. 269, text-figs. 66, 67, pl. 14: fig. 1; pl. 15: fig. 1.

DIAGNOSIS.—Carapace subtrapezoidal, nearly two-thirds as long as wide, moderately convex longitudinally, surface rather smooth, partially covered with pattern of small irregular patches of scurflike pubescence especially on lateral regions in males; fronto-orbital distance slightly less than maximum carapace width; front widening toward base, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, about one-third of fronto-orbital distance; lateral margins diverging posteriorly from outer orbital angles, curving regularly into strongly convergent posterolateral ridges. Cornea moderately swollen, occupying slightly less than one-third of extensor surface of distal segment of eyestalk. Chelipeds greatly dissimilar and unequal in males, small and subequal in females; fingers of major chela of male distinctly longer than palm, slender, widely gaping, not unusually compressed. Walking legs of males pubescent, especially on extensor margins of merus, carpus, and propodus; those of females bare on carpus and propodus except for scattered setae. Hair-fringed ventral opening present between coxae of third and fourth pereopods. Denuded first pleopod of male terminating in posterior view, in broadly truncate, centrally emarginate tip curving distolaterally (fig. 73h). A medium sized species, maximum carapace length in midline about 22 mm.

COLOR IN LIFE.—Carapace with anterior and upper lateral borders lavender cream; remainder mauve with pale lavender and darker purplish-brown areas; mesogastric region with light band across posterior border extending anteriorly along sutures between it and branchial regions, central portion with prominent purplish-brown concavoconvex spot; cardiac region also with submedian light oval spot; posterior intestinal region with broad median light area; branchial region with many small light irregular spots.

Eyestalks tan, cornea dark brown.

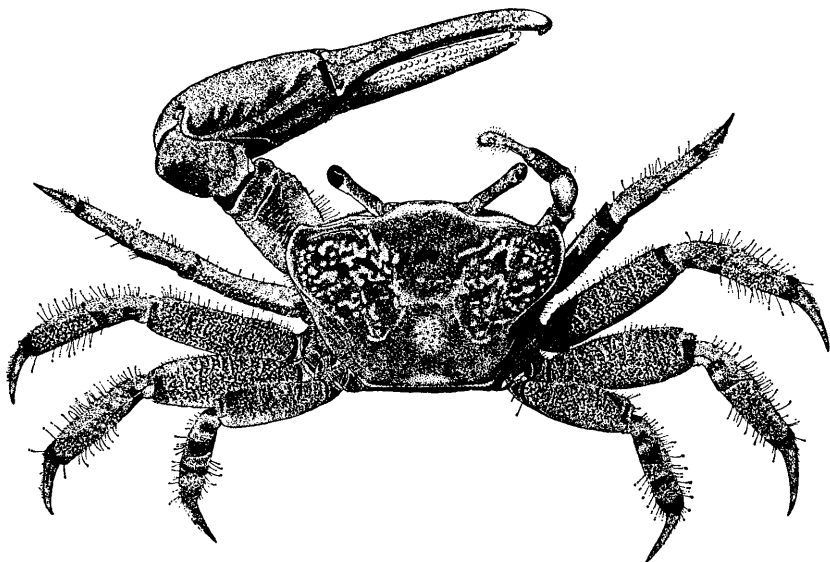


FIGURE 74.—*Uca vocator*, male (carapace length 15.8 mm) from Dominica station 112.

Major cheliped of male with cream basal podomeres; proximal portion of merus cream with orange suffusion becoming orange tan distally; carpus orange tan above and fading ventrally to orange cream; chela orange tan along inner margin of palm fading ventrally on both surfaces to orange cream, finger white; dactyl orange tan above except fading near tip to white, other surfaces white. Minor cheliped with cream basal podomeres; proximal portion of merus cream with orange suffusion, increasingly more tan distally with brown stripe along upper distal margin; upper surface of carpus brown proximally and distally, orange tan between; chela as in major cheliped except fingers not so white.

Second through fifth pereiopods yellowish tan with darker tan reticulations except for orange-tan dactyls. Proximal podomeres orange cream with few brown markings; merus with upper distal

portion brown; carpus and propodus with dark brown markings proximally and distally, especially those of second and third pereiopods.

As is true for *U. burgersi*, considerable variations occur in the coloration of the carapace of this species. Many of the specimens available to us show almost no trace of a color pattern except for the light marginal area; the remainder is rusty brown and black with a few light gray areas in worn portions.

MATERIAL EXAMINED.—The Dominican collections contain 98 males (carapace lengths 5.4–18.3 mm) and 65 females (cl 4.8–18.6 mm).

ECOLOGICAL NOTES.—This species is known from a single locality on Dominica, the large mudflat south of the Indian River at Portsmouth. The description of the locality and of the burrows of this crab are recounted under "Ecological notes" for *Uca burgersi*.

DISTRIBUTION.—British Honduras to Surinam (Dominica, Tobago, Trinidad).

Dominica Station: 112 (0–5 ft.).

REMARKS.—As suggested by Holthuis (1959), the specimen from Belize, British Honduras, used to illustrate *Uca mordax* by Rathbun (1918, pl. 134: figs. 3, 4) is apparently *U. vocator*. It is about half again as large as the holotype of *U. murifecenta*, but the form of the first pleopod differs from Crane's figures only as might be expected in an older individual.

Genus *Ucides*

92. *Ucides cordatus* (Linnaeus)

FIGURES 75, 76

Cancer cordatus Linnaeus, 1763, p. 414 [type-locality: Surinam].

Cancer Uca Linnaeus, 1767, p. 1041 [type-locality: America].

Ocypode cordata.—Latreille, 1802–1803, p. 37, pl. 46: fig. 3.

Ocypode fossor Latreille, 1802–1803, p. 38 [type-locality: Cayenne, French Guiana].

Ocypode Uca.—Latreille, 1806, p. 31.

Gecarcinus uca.—Lamarek, 1818, p. 251.

Gecarcinus fossor.—Desmarest, 1825, p. 114.

Uca uca.—Latreille, 1831, p. 338.

Ocypode (Uca) uca.—De Haan, 1835, p. 29, pl. c.

Uca lavis H. Milne Edwards, 1837, p. 22 [type-locality: Antilles].

Uca cordata.—White, 1847, p. 31.

Uca pilosipes Gill, 1859, p. 43 [type-locality: St. Thomas].

Uca laevis.—Kappeler, 1881, p. 143.

Ucides cordatus.—Rathbun, 1897c, p. 25; 1918, p. 347, text-fig. 158, pls. 110–113, pl. 159: figs. 3, 4.—Holthuis, 1959, p. 250, fig. 63.

Oedipleura cordata.—Ortmann, 1897, p. 336.

DIAGNOSIS.—*Carapace transversely subelliptical*, slightly less than four-fifths as long as wide, strongly convex longitudinally, nearly

subcylindrical in midline, surface microscopically granular, appearing smooth, without pubescence dorsally; *fronto-orbital distance not more than two-thirds of maximum carapace width in adult males*; front widening toward base, not subspatulate, width between posterodistal angles of basal segments of eyestalks, with eyes retracted, about two-fifths of fronto-orbital distance; lateral marginal ridges regularly curved, converging posteriorly. Cornea slightly swollen, occupying slightly less than half of extensor surface of eyestalk. Chelipeds usually somewhat dissimilar and distinctly unequal in both sexes (atypically subequal in figured specimen); fingers of major chela slightly longer than palm, spinose on extensor margin. *Second, third,*

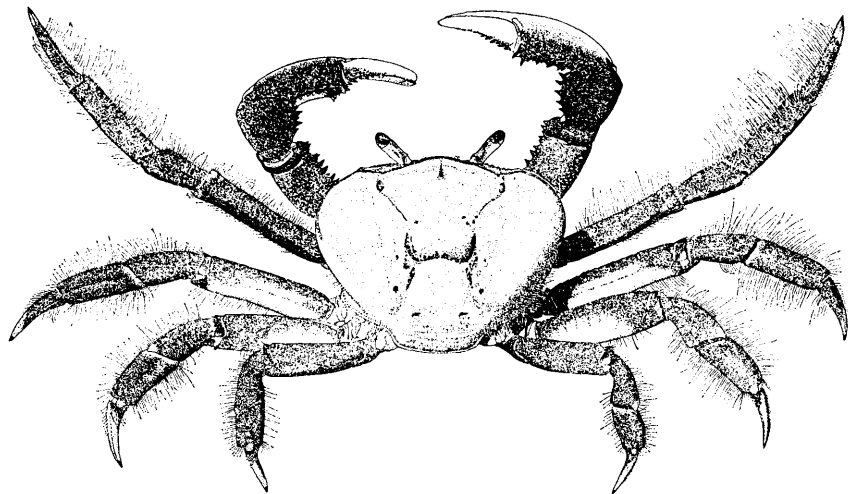


FIGURE 75.—*Ucides cordatus*, male (carapace length 46.2 mm) from Dominica station 112.

and fourth pereopods of males bearing very long silky hairs, especially numerous on flexor margins of carpus and propodus and on extensor margins of carpus and propodus of third and fourth pereopods; walking legs of females without conspicuous hairs. Fringe of hairs on opposable surfaces of coxae of third and fourth pereopods reduced, no more prominent than hairiness between coxae of second and third pereopods. Denuded first pleopod of male terminating, in posterior view, in somewhat truncate tip inclined slightly mesially, with narrow chitinous process on lateral surface proximal to tip (fig. 76a). A large species, maximum carapace length in midline about 70 mm.

COLOR IN LIFE.—Carapace mostly grayish blue with posterolateral portions of branchial region white; fronto-orbital region margined with dark orange; anterior projection of mesogastric region with single purple spot and pair of them in lateral protogastric regions;

pair of purple stripes extending along juncture of posterolateral margins of metagastric and urogastric regions; cardiac region with pair of lateral purple stripes; branchial region with two pairs of purple spots, one near junction of cardiac and metagastric regions and other posterolateral to cardiac region; intestinal region with pair of purple spots on anterior margin lateral to midline. Lateral wall of carapace white. Eyestalks pale blue basally merging with more distal purple band; distal portion white below, cream above, with reddish-brown irregular longitudinal stripe filling projection into black fasceted area. Third maxillipeds white.

Chelipeds with white basal segments; ischium increasingly pinkish purple distally; merus and carpus pinkish purple, latter royal purple above, former with royal purple tubercles and similarly colored distal band; chela royal purple in upper dactylar quarter fading through blue to white; both fingers white except for upper proximal purple area on dactyl. Articular membranes distal to end of merus partially scarlet.

Second through fifth pereopods with coxa and basis white, ischium lavender and distal podomeres mostly purple above and white below; light area along posterior surfaces of merus on third and fourth legs; fringes of long gray setae on all four pereopods, especially conspicuous on second. Sternum and abdomen white; latter with few pale blue markings.

Smaller individuals possess a more intricately pencilled blue area on the dorsal surface of the carapace; the shade of blue is highly variable, and sometimes almost green.

MATERIAL EXAMINED.—The Dominican collections contain 23 males (carapace lengths 16.2–56.6 mm), 13 females (cl 10.4–45.8 mm), and 3 juveniles (cl 4.8–6.3 mm). The abdomen is very narrow in the smallest female but is fully developed at a carapace length of about 25 mm.

ECOLOGICAL NOTES.—Almost certainly, this crab is far more abundant on Dominica than our two locality records indicate. It was first encountered in a low, poorly drained area near the mouth of the Layou River, among coconut trees and bananas, the same area in which *Cardisoma guanhumi* is also abundant. In the large mudflat just south of Portsmouth (pl. 4A), it occurs in much larger numbers.

In the Portsmouth locality, it burrows from along the shore, a few feet above the water table, out to at least 100 feet into the flat, probably entirely across it and around its entire margin. Here the burrows are interspersed between those of *Uca* and *Goniopsis*, and just below those of adult *Cardisoma*, which are abundant on the land side of the buttress roots of *Pterocarpus*. In a 100-square-foot area, eight of these crabs were seen at the mouths or within a few feet of

their burrows, and since there were other similar burrows within the area, it is probable that there were no fewer than 20 of these crabs within it. In the same plot there were from 60 to 100 burrows of at least two species of *Uca*.

In the Layou locality, several burrows were carefully excavated, and it was found that there is at least one, frequently two, horizontal passages from 3 to 12 inches long, and, descending from one of them, an almost vertical passage approximately two feet deep that always penetrates the water table. The excavated soil piled around the open mouths was never arranged in the form of a neat chimney. Possibly the lack of chimneys is due to the frequent rains on Dominica, which would erode them quickly.

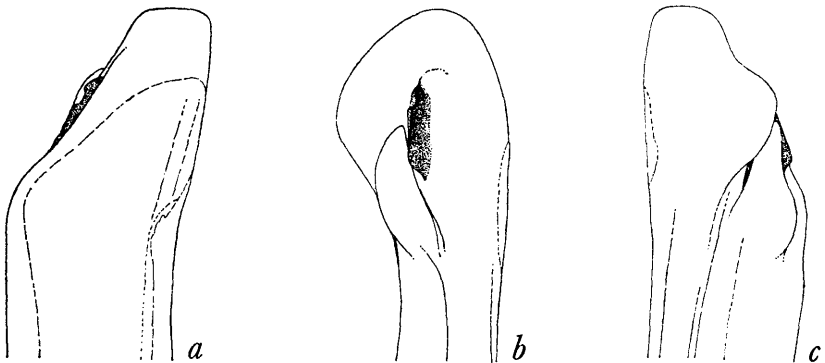


FIGURE 76.—Denuded terminal portion of right first pleopod of male *Ucides cordatus* shown in figure 75: *a*, posterior view; *b*, lateral view; *c*, anterior view.

Ucides cordatus is almost certainly the second most sluggish crab occurring in terrestrial and freshwater habitats on Dominica. Only the hermit crab, *Coenobitus clypeata*, moves more slowly. In comparison with the fiddlers, *Goniopsis*, and *Cardisoma*, it is almost lethargic; even so, individuals are not easily collected for seldom do they wander more than a foot from the mouths of their burrows, and at that distance, they have ample time to make their retreat before the observer can approach them. A small amount of formalin splashed directly on them or poured into their burrows will cause them to come to the surface, where they can be caught.

Whereas this crab is usually associated with brackish water, it is doubtful in either of the localities mentioned above that salt water reaches the areas except during severe storms.

DISTRIBUTION.—Southern Florida to Rio de Janeiro, Brazil (Cuba, Jamaica, Hispaniola, Puerto Rico, Saint Thomas, Antigua I., Dominica).

Dominica Stations: 6, 112 (0-5 ft.).

REMARKS.—The genus currently known as *Ucides* has consistently been assigned to the family Gecarcinidae since the "Gecarciniens" was proposed by H. Milne Edwards in 1837. It seems to us, however, that it should be transferred to the family Ocypodidae. The typical gecarcinid genera (*Cardisoma*, *Epigrapsus*, *Gecarcinus*, and *Gecarcoidea*) form a reasonably homogeneous group of species characterized by gaping third maxillipeds and spinose dactyls of the walking legs. In *Ucides*, on the other hand, the maxillipeds do not gape noticeably and they rather closely resemble those of at least some of the genera of the Ocypodidae; the walking legs in the males bear innumerable fine stiff hairs, somewhat like the shorter ones in *Ocypode*, and the dactyls are unarmed and resemble those of *Ocypode* and other ocypodids; the dactyl of the fifth pereopod even shows a tendency to recurve as it does in some genera of the Macrophthalminae. The first male pleopods, although seemingly of greater specific than generic or familial significance in the grapsoid crabs, are certainly as similar between *Ucides* and *Ocypode* as they are between the former and the gecarcinid genera. The only important character that remains to relate *Ucides* to the typical genera of the Gecarcinidae is the broadly oval, laterally inflated carapace. Dorothy E. Bliss has confirmed our impression that the "profile" of the carapace of semiterrestrial crabs is markedly dependent upon physiological adjustment to environmental factors, and we, therefore, believe that the ocypodid characters mentioned above are considerably more important systematically than is the shape of the carapace.

Although *Ucides* cannot be incorporated into any of the three generally recognized subfamilies of the Ocypodidae as currently defined, the two species in the genus, which occur on the Atlantic and Pacific coasts of the Americas, do not seem to be sufficiently distinct to justify the establishment of a fourth subfamily at this time. The genus certainly displays closer affinity to the genera usually included in the Ocypodinae, particularly to *Heloeccius*, than it does to those included in the Macrophthalminae or the Mictyrinae. The only character, aside from the swollen carapace, that might exclude *Ucides* from the Ocypodinae is the lack of the conspicuous brush of hairs between the coxae of the third and fourth pereopods. Although this has heretofore been a convenient diagnostic character of the subfamily, it hardly seems to be sufficiently important to outweigh other considerations.

Glossary of Terms

See figure 4 (p. 49) for illustrations of morphological characters

- Abdomen** (Abd). The "tail" or that part of the body posterior to the cephalo-thorax, consisting of six body segments or somites and the telson.
- Antenna**, pl. -nae. The more lateral of the two paired flagellate appendages projecting anteriorly from the anterior end of the body.
- Antennal peduncle** (antPd). The basal segments of the antenna, from which the flagellum arises.
- Antennal region** (Ant). The area on the lateral surface of the carapace of shrimps posterior to and encompassing the antennal spine.
- Antennal scale** (antSc). The laterally rigid lamellate exopod of the antenna of shrimps and crayfishes.
- Antennal spine** (antSp). A short spine usually present on or near the anterior margin of the carapace of shrimps just ventral to the orbit.
- Antennular peduncle** (antrPd). The basal segments of the antennule, from which the flagella arise.
- Antennule**. The more mesial of the two paired flagellate appendages projecting from the anterior end of the body.
- Apodemal pit** (Apd). Any of several often unpigmented depressions on the carapace of many crabs indicating the origin of an invaginated element that forms part of the internal thoracic skeleton.
- Appendix interna**, pl. -dices -nae (Api). A slender rodlike lappet on the mesial margin of the endopod of the second through fifth pleopods of shrimps; it is provided with terminal hooked setae by which the two pleopods of a pair may be joined mesially.
- Appendix masculina**, pl. -dices -nae (Apm). A lappet inserted between the appendix interna and the mesial margin of the second pleopod of most male shrimps. The presence or absence of an appendix masculina is the easiest way to distinguish males and females in most caridean shrimps, and in some families, such as the Atyidae, it is greatly enlarged, dwarfing the superimposed appendix interna, and it offers important taxonomic characters.
- Areola**. See "Cardiac region."
- Articular knob** (artK). A swelling or irregularity in the integument at a joint, as on either side of a chela at the base of the movable finger or between the abdominal somites at the juncture of the terga and pleura.
- Articular membrane** (artM). The uncalcified integument at a joint, permitting movement of the exoskeleton, as between the podomeres of a pereopod.
- Basis**, pl. -ses (Bs). The second segment from the proximal end of a typically 7-segmented appendage.
- Branchial lobe** (brL). A boss located at the anteromesial angle of the mesobranchial region on the carapace of certain crabs.
- Branchial region** (Br). The portion of the carapace overlying the branchial cavity, in the true crabs comprising the epibranchial, mesobranchial, and meta-branchial regions and the branchial lobe.
- Branchiostegal spine** (brSp). A short spine on or near the anterior margin of the carapace of some shrimps ventral to the antennal spine and dorsal to the anterolateral angle of the carapace.

- Carapace** (Car). The "head shield" covering the cephalothoracic somites of the body.
- Cardiac region** (Card). The dorsomedian area on the carapace bounded anteriorly by the gastric region, laterally by the branchial regions, and (in the crabs) posteriorly by the intestinal region. This area is often very narrow in the crayfishes and is commonly called the areola.
- Carpus**, pl. carpi (Crp). The fifth segment from the proximal end of a typically 7-segmented appendage.
- Cephalothorax**. The fused anterior part of the body bearing all of the appendages except the pleopods and uropods.
- Cervical groove** (cvg). A groove or series of grooves sometimes present on the carapace; it is mesially transverse, laterally oblique, and separates the gastric and hepatic regions from the cardiac and branchial regions.
- Chela**, pl. chelae. A pincer formed by the two distal podomeres of a pereopod in which the movable finger or dactyl opposes a fixed finger formed by a distal extension of the propodus.
- Cheliped**. A pereopod bearing a chela.
- Congener**. A species belonging to the same genus as another.
- Cornea** (Crn). The faceted portion of the eye.
- Coxa**, pl. coxae (Cx). The first or proximal segment of a typically 7-segmented appendage.
- Dactyl** (Det). The seventh or terminal segment of a typically 7-segmented appendage.
- Endopod** (End). The mesial branch of a bifurcate appendage, especially one arising from the protopodite of the pleopod of shrimps.
- Epibranchial region** (epBr). The anterior part of the branchial region on the carapace of crabs.
- Epigastric lobe** (epGst). A paired anterior boss on the gastric region of the carapace of crabs.
- Epigean**. Living on the surface of the earth, as opposed to spelean.
- Epistome** (Epst). The transverse plate anterior to the mouth area in crayfishes and crabs.
- Exopod** (Exp). The lateral branch of a bifurcate appendage arising from the basis or from the protopodite.
- Extensor margin**. The outer or longer margin of a flexed appendage.
- Eyestalk** (Eyst). The peduncle or unfaceted portion of the eye supporting the cornea.
- Finger** (Fgr). One of the terminal elements forming the pincers of a chela, the movable finger being the dactyl and the immovable finger the terminal extension of the propodus.
- First form male**. The breeding form of male crayfishes in which one of the terminal projections of the first pleopod is corneous, as opposed to the second form male in which this projection is not corneous.
- Flagellum**, pl. -la (Flg). The multiarticulate, usually whiplike terminal portion of an antennule or antenna.
- Flexor margin**. The inner or shorter margin of a flexed appendage.
- Front** (Ft). The margin of that portion of the carapace of crabs lying between the orbits; often used interchangeably with frontal region.
- Frontal region** (Ftl). The anterior area of the carapace lying between the orbits and bounded posteriorly by the gastric region.
- Fronto-orbital distance**. The interval between the outer orbital angles of crabs.

- Gastric region** (Gst). The principal mesial area on the carapace lying anterior to the cervical groove and bounded posteriorly by the cardiac region, laterally by the branchial and hepatic regions, and anteriorly by the frontal and orbital regions; in the true crabs, it comprises the unpaired mesogastric and metagastric regions, the urogastric lobe, the paired protogastric regions, and the epigastric lobes.
- Hepatic region** (Hep). Paired anterolateral areas on the carapace bounded posteriorly by the branchial region, mesially by the gastric region, and anteriorly by the orbital or (in the shrimps) antennal region.
- Hepatic spine** (hepSp). A lateral spine situated near the anterior margin of the hepatic region on the carapace of certain shrimps; it probably represents the branchiostegal spine displaced posteriorly from the anterior margin of the carapace.
- Intestinal region** (Int). The most posterior of the mesial areas on the carapace of crabs, bounded anteriorly by the cardiac region and laterally by the branchial regions.
- Ischium**, pl. -chia (Isc). The third segment from the proximal end of a typically 7-segmented appendage.
- Lateral wall**. The subvertical portion of the carapace of crablike decapods extending ventrally from the lateral margin.
- Lentic**. Pertaining to standing water, as in lakes, ponds, and swamps.
- Lotic**. Pertaining to running water, as in rivers and smaller streams.
- Mandible** (Md). One of the heavily calcified jaws lying anterior to (beneath, in ventral view) the other mouth parts but visible in certain crabs.
- Maxilliped** (Mxpd). One of a pair of three sets of cephalothoracic appendages arising posterior to the primary mouth parts. The most prominent set, the third or outer maxillipeds, are, in the shrimps, slender elongate appendages resembling the pereopods and, in the crabs, broadened and flattened structures that close to form a more or less complete operculum over the other mouth parts.
- Merus**, pl. meri (Mer). The fourth segment from the proximal end of a typically 7-segmented appendage.
- Mesobranchial region** (msBr). The intermediate portion of the branchial region on the carapace of crabs.
- Mesogastric region** (msGst). The central portion of the gastric region on the carapace of crabs.
- Metabranchial region** (mtBr). The posterior portion of the branchial region on the carapace of crabs.
- Metagastric region** (mtGst). The posteromesial portion of the gastric region on the carapace of crabs.
- Orbit** (Orb). The eye socket or excavation in the anterior margin of the carapace in which the eye is lodged.
- Orbital region** (Orbl). The paired areas on the carapace adjacent to the orbits.
- Palm** (Pim). The portion of a chela proximal to the fingers.
- Palp** (Plp). The two or three distal segments of the third maxilliped of crabs distal to the merus.
- Pereopod** (Prpd). One of the five posterior paired appendages or legs attached to the cephalothorax.
- Petasma** (Ptm). A complex genital structure attached to the mesial margins of the protopodites of the first pair of pleopods in male penaeidean shrimps.

- Pleopod** (Plpd). One of the paired appendages typically arising from each of the first five abdominal somites. In the shrimps, they are primarily swimming organs; in the true crabs, they are modified for attachment of the eggs in females and as sexual appendages (two anterior pairs) or absent (three posterior pairs) in males.
- Pleuron**, pl. -ra (Plrn). One of the paired lateral flaps on each side of the first five abdominal somites in shrimps and crayfishes.
- Podomere**. Any one of the segments of an appendage, such as a segment of a pereopod or maxilliped.
- Pre-anal carina**. A rigid keel protruding from the ventral midline of the sixth abdominal somite between the insertions of the uropods in certain shrimps.
- Propodus**, pl. -di (Prop). The sixth or penultimate segment of a typically 7-segmented appendage.
- Protogastric region** (prGst). A paired anterolateral area on the gastric region of of the carapace of crabs.
- Protopodite** (Prtp). The fused proximal segments (coxa and basis) of an appendage, such as a pleopod, usually bearing an endopod and an exopod.
- Pterygostomial region** (Ptrg). The paired anterolateral area on the lateroventral surface of the carapace of crabs on each side of the mouth area.
- Rostrum**, pl. -tra (R). The "head spine" or anterior projection of the cephalothorax between the eyes of shrimps or crayfishes.
- Somite**. A body segment, especially of the abdomen.
- Spelean**. Living in subterranean habitats.
- Sternite** (Stn). One of the five transverse fused plates of the sternum indicating the basic segmentation of the cephalothorax.
- Sternum**, pl. -na. The ventral surface of the cephalothorax between the coxae of the pereopods.
- Stylocerite** (Stlc). A spine arising from the lateral margin of the first segment of the antennular peduncle in shrimps.
- Taxon**, pl. taxa. Any taxonomic unit such as an order, family, genus, or species.
- Telson** (Tel). The terminal segment of the abdomen.
- Tergum**, pl. terga (Terg). The dorsal portion of each of the first five abdominal somites between the pleura.
- Thelycum**, pl. -ca. A specialized genital modification of the three posterior sternites in female penaeidean shrimps.
- Troglobitic**. Pertaining to obligate inhabitants of caves and underground water systems.
- Urogastric lobe** (urGst). A very short transverse area bordering the posterior margin of the metagastric region on the carapace of crabs.
- Uropod** (Urpd). A paired biramous appendage attached to the sixth abdominal somite in all but the true crabs and usually combining with the telson to form a tail fan.
- Walking leg** (L). Any nonchelate pereopod.
- Xeric**. Arid, lacking in moisture.

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