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AN INTERESTING ADDITION TO THE FLORIDIAN DECAPOD CRUSTACEAN FAUNA.

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The capture of two specimens at Key West in 1914 by Mr. Louis L. Mowbray and more recent investigations by the Biological Laboratory of the Miami Aquarium Association have added to our knowledge of the wonderfully rich crustacean fauna of Florida a third species of edible crawfish or spiny lobster, the magnificent *Panulirus laevicauda* (Latreille), hitherto known only from the type locality, "the shores of Brazil," French Guiana, one or two stations along the east coast of Central America, and more rarely from the Isle of Pines and southern Cuba.

According to Moreira, this species is more abundant in Brazil than either *Panulirus argus*, the common edible crawfish of Florida, or *P. guttatus*, the "guinea crawfish," and is commonly sold in the markets of that country. These *Panulirus* are industrially the most important crustaceans of tropical American waters, hence it is especially gratifying to learn that *Panulirus laevicauda* which is economically predominant in Brazil, is also native to Florida and consequently available for artificial propagation should it become desirable to supplement the natural supply of crawfish.

The layman can readily distinguish *P. laevicauda* from its American allies by: 1, its distinctive exquisitely rich moss green and maroon coloration; 2, the short proximal joint of the antennules; 3, the shape of the epistome, particularly the anterior margin of the latter; 4, the fact that its abdominal segments are smooth dorsally, not having a transverse groove.

The following description of the species is given in order to

record certain data not included in the earlier literature where this species was several times confused with other species, and with the hope that other workers may become interested in the species and further the knowledge of its North American distribution.

Panulirus laevicauda Latreille.

Carapace about as long as the abdominal segments including the anterior third of the caudal fan; covered with stout spines, the more prominent of which are arranged in ten more or less regular longitudinal rows; spaces between the major spines are almost completely covered with lesser spines which are broader basally, sharp-tipped and ringed with a circle of close-set plumose setae; all the spines are directed upward and forward. The side plates of the carapace are more freely articulate than in *P. argus* or *P. guttatus*.

Orbital spines compressed laterally, but less so than those of *Panulirus argus* or *P. guttatus*, deeper dorso-ventrally, and slightly more elevated than in *argus or guttatus*. Eyes prominent, shining black. Anterior to the frontal horns there are four long equal and equally spaced green spines, between the latter near the base of the second pair are several weak spines clothed with setae. There is a convex ridge extending from the base of the orbital spines to the extreme frontal margin, this is much more prominent than in *argus* or *guttatus*.

The antennae have the basal article short on the outer dorsal surface, produced and tapering to an acute point on the inner dorsal surface, also on the inner ventral surface; there is a very strong spine on the inner dorsal angle of this joint, another about half as strong on the outer dorsal angle, below the latter are two very minute spines. The inner posterior dorsal part of the basal joint is produced into a convex-concave triarticulate scale, that slides over forming the animal's sound-producing organ. The second joint of the antennae is about one and one half times as long as the first and less oblique distally, but with a strong spine on the inner distal margin preceded by two less strong; there is another strong spine in the median dorsal area of the margin with two lesser spines just preceding it, and another weaker spine on the outer lateral margin; there are several small spines on the outer lateral and ventral surfaces; the third article is almost as long as the second, almost evenly produced distally, with a series of three strong subequal spines on the inner lateroventral margin, another strong spine on the median dorsal area of the margin, another similar spine on the outer lateral margin, there are seven or eight lesser spines scattered over the surface of third article; the flagellum is about twice as long as the body and consists of slender uniformly tapering rings; the flagellum is set with somewhat regularly placed rings of small spines at intervals and fringed along the proximal part on the inner ventral margin with fine close-set setae.

The antennules have the basal joint extending a trifle beyond the tip of the second peduncular joint of the antennae, the second article is two-thirds

as long as the first and extends to the distal end of the peduncle of the antennae; the third article is a trifle shorter and slenderer than the second; the inner flagellum is longer and stouter than the outer; and is about a third as long as the flagellum of the antennae; the outer flagellum of the antennules is a little more than half as long as the inner.

The epistome is shield-shaped, produced to a decided spine at the apex between the base of the antennules, there is another spine on each side at the outer margin of the antennules; the space between these spines is deeply roundly excavate, the anterolateral margin of the epistome slopes abruptly diagonally from these spines to the outer lateral angle of the base of the antennae.

The exopodites of the first pair of maxillipeds are normal with brushes. The second maxillipeds have the exopodite well developed, multiarticulate, with brushes. The third maxillipeds have the exopodites very poorly developed.

The sternal plastron is decidedly shorter and broader than those of *P. argus* and *P. guttatus*, anteriorly it terminates in a blunt rounded nodule; the sterna corresponding to the first pair of appendages is roughly triangular, and bears a deep groove in the median line; the sterna corresponding to the second, third, and fourth pairs of limbs are similar in shape but graduatingly increase in width posteriorly, the fourth being widest. The sutures between all the sterna are distinct, those of the second to fourth sterna inclusive extend inward slightly more than half the distance to the median line, that of the fifth sterna extends farther in, almost to the median line, its apex is distinctly punctate.

The first pair of legs are stout, the second are longer and slenderer, the third are the longest, the fourth are about the same as the second, the fifth are the shortest and weakest, all have the dactyl stout, acute and furnished with bristles on the first, second, and third legs, and with slender spines interspersed with bristles on the fourth and fifth legs.

The first abdominal somite is short, decidedly grooved; the second and third somites are the longest, subequal; the fourth somite is about four-fifths as long as the third; the fifth somite is about four-fifths as long as the fourth; the posterior of each somite is fringed with short close-set setae. The lateral angles of the somites are produced into acute teeth directed posteriorly; that of the first segment is most acute, those of the second and third are broader, of the fourth and fifth more curved, of the sixth broadly curved, less acute; the post lateral margins of all the somites are finely serrate just above the apical tooth, while in *P. argus* there is a single spine, and also the same in *P. guttatus* but slightly differently placed. Pleopoda are wanting on the first abdominal segment, those of the second segment consist of a single broad, ovate, membraneous lamina; the pleopoda of the third segment are about one and one-half times as long as those of the second and narrower; those of the fourth segment are slightly longer than those of the third, while those of the fifth segment are smaller and more acuminate.

Color.—The carapace is maroon, the spines of the carapace are green with a purplish maroon base except those on the lateral margin which are set in a light creamy buff base. Orbital spines purple mottled with light

creamy buff, the convex ridge below the orbital spines is yellow anteriorly shading into deep orange posteriorly.

The antennal peduncle is maroon mottled sparsely with creamy buff. The spines have the basal half deeper maroon than elsewhere, ringed medially with cream, the distal half green. The flagellum is lighter purple streaked ventrally and dorsally with a median longitudinal darker line.

The antennules are maroon with a creamy buff mottling at the distal end of each peduncular joint.

The legs have the first four joints maroon with a slight greenish cast, longitudinally striated with narrow creamy lines slightly tinted with ochre, the fifth and sixth joints are a rich moss green longitudinally striated with narrow creamy lines.

The first abdominal somite has the anterior part green mottled with whitish dots, the posterior part maroon, finely punctate, the second to fifth somites inclusive are maroon in the median area, shading into deeper maroon posteriorly, the lateral parts are green, the entire surface is finely punctate; a row of minute white dots parallel the posterior of each somite. The sides of the somites are maroon-greenish; there is an enlarged white spot on the median lateral region at the terminal of the epimeral groove, below these are many spots of creamy buff including the tips of the segments. The telson has the basal part to the anterior third of the caudal fan green spotted with creamy buff; the posterior third of the fan is a similar green, the interspace being lighter green, the caudal fan is margined with bright yellow. All the pleopoda are green dotted with a few creamy spots and bordered with a bright yellow margin.

Seven specimens and three cast shells are in the collections of the Biological Laboratory of the Miami Aquarium Association and were captured in the vicinity of Biscayne Bay, Florida. In size the *Panulirus laevicauda* (Latreille) taken in Florida waters average about the same as the *Panulirus argus*.