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NOTES ON MEMBERS OF THE FAMILY
PORCELLANIDAE (CRUSTACEA: ANOMURA)
COLLECTED ON THE EAST COAST OF MEXICO

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In her review of the decapod crustaceans of the Gulf of Mexico, Behre (1954) stated "... examination of our records of the decapod Crustacea of the Gulf of Mexico indicates very clearly large gaps in our knowledge. These gaps are less evident along the northern shore and the Florida Keys than along the eastern part of Mexico and Yucatan." In the subsequent twenty years, little has been accomplished on the family Porcellanidae along the eastern coast of Mexico. Ives (1891) reported 21 decapods from Yucatán and 7 from Veracruz, but his list did not include porcellanids. Hildebrand (1954) listed only 1 porcellanid, *Porcellana sayana*, from catches by shrimp trawls on the brown shrimp grounds of the western Gulf of Mexico. Chavez, Hidalgo and Sevilla (1970) in their study of the lagoonal area of Lobos Reef listed no porcellanids among 22 species of crabs collected. My report will serve only as a preliminary survey to fill in a part of the gap in our knowledge.

DESCRIPTION OF STUDY AREA

Two study areas on the East Coast of Mexico were extensively sampled during late May and June, 1973: Lobos and Enmedio Reefs; a third area, El Moro, was only briefly sampled. Lobos and Enmedio Reefs are emergent, nearshore coral reefs with small associated islands. Lobos, located 120 km southeast of Tampico ($21^{\circ}27'N$, $97^{\circ}13'W$), is one of a cluster of 3 reefs which comprises the northernmost emer-

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gent coral reefs in the western Gulf. It is 9.6 km offshore Cabo Rojo in 28 m of water, is approximately 2930 m long and oriented in a north-south direction (Rigby and McIntire, 1966). It is situated near the boundary between 2 faunal provinces, tropical to the south and warm-temperate to the north (Briggs, 1974:218-221).

Enmedio Reef is located 24 km southeast of Veracruz, ($19^{\circ}06'N$, $95^{\circ}56'W$), 6 km off Anton Lizardo in approximately 25 m of water. It is associated with the Veracruz-Anton Lizardo Reef complex. Enmedio is approximately 1500 m long and 850 m wide at its surface, oriented in a northwest-southeast direction (Tunnell, 1974).

El Moro is an area of lava cliffs which project into the otherwise smooth, continuous sand beaches 80 km north of Veracruz ($19^{\circ}51'N$, $96^{\circ}24'W$). These cliffs offer a unique habitat for many organisms which might otherwise be absent from this area.

MATERIAL AND METHODS

All collections of porcellanids on Lobos (30 May-10 June) and Enmedio (14-22 June) were made during extensive daylight searches using SCUBA, a snorkel and mask, or while wading. On Lobos, the coral boulder ridge and coral spoil islands along a small boat channel which provided suitable habitats for some porcellanids were examined while wading. The lagoon, back reefs, fore reefs, and reef crests were examined using a mask and snorkel. Deeper areas of the reef were superficially sampled using SCUBA. By wading on an exposed reef crest and the coral beach during low tides, samples were taken on Enmedio. The other areas were sampled in the same manner as the corresponding areas on Lobos.

Because of poor diving conditions, El Moro was sampled only by wading in the tide pools and climbing over rock cliffs in the area of the splash zone. In this splash zone sabellarid worms, chiefly *Gunnarea* sp., had built thick mats of tubes composed of sand grains. These tubes were constructed in such a way as to leave a chambered system in which the crabs were found. Five gallons of these tubes were collected and later examined for porcellanids.

The crabs were placed in 10% formalin, labeled as to date and location, and placed in buckets for transport to the laboratory. There they were identified with the aid of papers by Haig (1956 and 1960) and several were verified by Miss Haig.

At least one specimen of each species was placed in the Texas A&I Crustacean Collection (TAIC) and several species unreported from the southwestern Gulf of Mexico were placed in the Allan Hancock Foundation Collection.

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ACCOUNT OF SPECIES

Haig (1956) listed 9 Western Atlantic genera of porcellanids. A subsequent revision (Haig, 1960) enlarged the number to 10 through the creation of *Neopisosoma* and *Clasto-toechus* and the synonymizing of *Pisosoma*. Five of these genera containing 10 species were collected during this investigation. Seven of these species have not previously been reported from the southwestern Gulf of Mexico and another has been reported only from Veracruz.

Pachycheles Stimpson, 1858

Two species of this genus were collected, both from El Moro.

Pachycheles ackleianus A. Milne Edwards, 1880

Material examined: TAIC-380. El Moro. 1 ♂.

Measurements: Male: length 3.1 mm, width 3.8 mm.

Remarks: This species is known to occur in coral heads and sponges (Haig, 1956) and to a depth of 68 m (Schmitt, 1935). This individual was collected above the water level in the lower splash zone. In addition to previous records from the West Indies, Florida, and Jolbos Islands (Haig, 1956), Gore (1974) reported the species from the southwestern Caribbean and Pernambuco, Brazil.

Pachycheles monilifer (Dana, 1852)

Material examined: TAIC-379. El Moro. 1 ♂.

Measurements: Male: length 6.45 mm, width 6.55 mm.

Remarks: To my knowledge this is the first published record of the species in the southwestern Gulf of Mexico. Two individuals have been collected in Florida; there is a single record from Isla Contoy, Mexico, several from the Virgin Islands, Venezuela and Brazil (Haig, 1962), and one from Trinidad (Gore, 1974). This species has been taken in the littoral zone and to depths of 33 m (Haig, 1956).

Porcellana Lamarck, 1801

One species of this genus was collected.

Porcellana sayana (Leach, 1820)

Material examined: TAIC-429 (2). Enmedio Reef. 1 ♂, 1 (juv). TAIC-434. Enmedio Reef. 1 ♀ (ov).

Measurements: Male: length 7.7 mm, width 7.3 mm; ovigerous female: length 8.9 mm, width 8.2 mm; juvenile: length 4.3 mm, width 3.95 mm.

Remarks: One individual was taken from under coral rubble of the partly exposed lee reef crest during low tide. A second individual was taken from under a coral head in the lagoon in approximately 1.5 m of water. All were free living; however, Hildebrand (1954) found specimens attached to the decorator crab *Stenocionops furcata*, and *P. sayana* is known to be commensal with hermit crabs (Gore, 1974). This species occurs from Cape Hatteras, North Carolina to Florida, around the Gulf of Mexico and the Caribbean, south to Estado Rio Grande do Sul, Brazil (Gore, 1974). *Porcellana sayana* is known from shallow water to depths of 92 m and perhaps 713 m [?] (Gore, 1974).

Clastotoechus Haig, 1960

This genus contains three species; one of the two that occur in the western Atlantic is represented in this collection.

Clastotoechus nodosus (Streets, 1872)

Material examined: TAIC-381 (14). El Moro. 5♂♂, 9♀♀ (8 ov).

Measurements: Males: length 3.45 to 6.55 mm, width 3.0 to 6.15 mm; non-ovigerous female: length 4.8 mm, width 4.65 mm; ovigerous females: length 3.4 to 6.65 mm, width 3.1 to 6.3 mm.

Remarks: Previously known from St. Martin and Curaçao, Lesser Antilles, and Venezuela (Haig, 1956), its occurrence at El Moro, Mexico, extends its known range northward. Haig (1956) reported it from the littoral, among stones, and noted that it appeared to be an exceptionally small species, 2.6 mm♀, 2.5 mm♂. The individuals collected from El Moro are somewhat larger than those in previous reports.

Neopisosoma Haig, 1960

There are five species in this genus, with two, *N. angustifrons* (Benedict, 1901) and *N. curacaoense* (Schmitt, 1924), occurring in the western Atlantic.

Neopisosoma angustifrons (Benedict, 1901)

Material examined: TAIC-433 (18). El Moro. 2♂♂, 16♀♀ (10 ov).

Measurements: Males: length 2.25 and 2.45 mm, width 2.7 and 2.7 mm; non-ovigerous females: length 4.85 to 6.0 mm, width 5.0 to 6.7 mm; ovigerous females: length 2.25 to 6.15 mm, width 2.6 to 7.4 mm.

Remarks: This was the most abundant species found at El Moro. It has been previously recorded from islands off the coast of Venezuela and the Lesser Antilles (Haig, 1956). Its range is now extended to El Moro, Mexico. The color of the El Moro specimens ranged from light cream to a grayish blue. Both chelipeds vary in the number, 4 to 5, and shape of the carpal teeth. The shape may be bifurcate or simple. Usually the first 2 teeth are bifurcate and the last 2 teeth spinous.

Petrolisthes Stimpson, 1858

Five species of the genus were collected.

Petrolisthes cessacii (A. Milne Edwards, 1878)

Material examined: TAIC-373 (2). Lobos Reef. 1♂, 1♀ (ov). TAIC-374. Enmedio Reef. 1♀ (ov). TAIC-375. El Moro. 1♀ (ov).

Measurements: Male: length 13.7 mm, width 12.0 mm; ovigerous females: length 11.8 to 16.45 mm, width 11.95 to 16.55 mm.

Remarks: These are new records from the western Gulf of Mexico extending the known range to the north by 570 km. These individuals were taken from the splash zone at El Moro, from under coral rubble on the back reef crest on Lobos Reef, and from under coral rubble on Enmedio Reef in water depth of approximately 3 m. Gore (1974)

gave an account of some of the confusion in the literature concerning *P. cessacii* and *P. marginatus*. He pointed out that although *P. cessacii* from the western Atlantic was not actually reported in publication until 1970 it has probably been recorded in the literature since 1890 but incorrectly identified. Its distribution is now given as West Africa, Ascension Island, Brazil, Tobago Island, Trinidad, and the vicinity of Old Providence Island (Gore, 1974).

Petrolisthes politus (Gray, 1831)

Material examined: TAIC-376. Lobos Reef. 1 ♂. TAIC-377 (2). Lobos Reef. 1 ♂, 1 ♀ (ov). TAIC-378 (11). Enmedio Reef. 4 ♂ ♂, 7 ♀ ♀ (ov).

Measurements: Males: length 8.3 to 13.1 mm, width 8.4 to 14.1 mm; ovigerous females: length 7.0 to 9.95 mm, width 7.3 to 14.1 mm.

Remarks: All individuals were collected on the reef crest where coral rubble was abundant. Schmitt (1935) reported this species to a depth of 201 m. It has been reported previously from the Florida Keys, throughout the West Indies, to Panama and Veracruz, Mexico (Haig, 1956).

Petrolisthes jugosus (Streets, 1872)

Material examined: TAIC-430. Enmedio Reef. 3 ♂ ♂.

Measurements: Males: length 2.35 to 3.1 mm, width 2.45 to 3.2 mm.

Remarks: All specimens were collected from water less than 3 m deep under coral rubble. *Petrolisthes jugosus* has been reported previously from Florida, West Indies, Panama, and Venezuela (Haig, 1956) in the littoral zone, under stones and associated with *Zoanthus sociatus* and corals including *Maeandra*.

Petrolisthes quadratus Benedict, 1901

Material examined: TAIC-372 (17). Lobos Reef. 8 ♂ ♂, 9 ♀ ♀ (ov).

Measurements: Males: length 4.8 to 6.7 mm, width 5.0 to 6.55 mm; females: length 4.3 to 6.15 mm, width 4.5 to 6.6 mm.

Remarks: The individuals were taken from tide pools on a coral boulder ridge and tide pools on a coral spoil island at the edge of a dredged channel. *P. quadratus* was previously known from only a few Caribbean localities (Haig, 1962). It has been reported from the littoral zone (Haig, 1956) and from algae along the shore and rock pools (Haig, 1962; Chace and Hobbs, 1969).

Petrolisthes galathinus (Bosc, 1801 or 1802)

Material examined: TAIC-370 (15). Enmedio Reef. 8 ♂ ♂, 7 ♀ ♀ (3 ov). TAIC-371 (4). Lobos Reef. 2 ♂ ♂, 2 ♀ ♀ (ov).

Measurements: Males: length 6.05 to 11.4 mm, width 5.8 to 11.7

mm; non-ovigerous females: lengths 3.85 to 12.9 mm, width 3.4 to 13.0 mm; ovigerous females: length 6.65 to 8.65 mm, width 5.3 to 8.3 mm.

Remarks: Considerable color variation exists between the individuals collected during this study, other specimens examined from the Texas A&I Collection and the color description given by Williams (1965). In the preserved specimens from both Lobos and Enmedio Reefs, the carapace and lower surface are maroon with intervening areas of light pale blue to very light yellow. Williams (1965) reported the coloration in life as grayish brown without markings, which is in agreement with specimens collected in South Texas. The extensive range of *P. galathinus* includes the western Atlantic from Cape Hatteras, North Carolina, to Brazil, intertidally to depths of 49 m (Haig, 1962).

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