

## NEW RECORDS OF PINNOTHERID CRABS FROM THE GULF OF CALIFORNIA (BRACHYURA: PINNOTHERIDAE)

Mary K. Wicksten

*Abstract.*—*Pinnotheres margarita* is illustrated for the first time. The range is extended northward in the Gulf of California. *Pinnixa valerii* is reported for the first time from western Mexico. Illustrations are given of *P. valerii* and the closely related species *P. richardsoni*.

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Pinnotherid crabs are commensals with other invertebrates: annelids, echinoderms, mollusks, echinoderms, and ascidians. The species of the western coast of Mexico are poorly known, often reported from single specimens of a given species collected incidentally with other invertebrates.

Recent collecting by Alex Kerstitch, Ernest Iverson, and Michel Hendrickx has resulted in the finding of many pinnotherid crabs. Among the specimens are two species not recorded for more than 45 years—*Pinnotheres margarita* and *Pinnixa valerii*. The new specimens have been deposited at the Allan Hancock Foundation, University of Southern California; and the Estación Mazatlán.

*Pinnotheres margarita* Smith

Fig. 1

*Pinnotheres margarita* Smith, 1869:245.—Smith, 1870:166.—Holmes, 1894:564.—Rathbun, 1918:91-93.—Glassell, 1934:301.—Schmitt, McCain, and Davidson, 1973:56-57.

*Previous records.*—Bay of Panama (type-locality), in pearl oyster (*Pinctada mazatlanica* (Hanley), as *Margaritiphora fimbriata*).—La Paz, Muleje Bay (Gulf of California, Mexico) (Rathbun 1918).

*Material examined.*—Guaymas, Sonora (27°54'N, 110°53'W), 10 m, rocky bottom, commensal in *Pinctada mazatlanica*, 28 June 1981, A. Kerstitch, 1 female.—Punta Chivato, Baja California (27°08'N, 111°54'W), 20 m among rock, sand and algae, commensal in *P. mazatlanica*, 28 June 1980, A. Kerstitch, female, ovigerous.—SE side Bahía Concepción, Baja California (26°43'N, 111°53'W), 18 Aug. 1980, E. Iverson, taken while snorkeling, female.—Isla Carmen, Gulf of California (25°58'N, 111°10'W), 25 m, among rubble and small rocks, 10 July 1980, A. Kerstitch, female.—“Panama,” 1866, F. H. Bradley, female.

*Measurements in millimeters.*—Carapace widths 11.5, 14.1, 10.7, 8.5, and 3.3 respectively; carapace lengths (in same order) 10.6, 12.3, 10.6, 8.2, and 3.1.

*Remarks.*—*Pinnotheres margarita* is one of the largest pinnotherid crabs in the Gulf of California. However, the lack of illustrations has made identification of the species difficult. The holotype, reported to have been deposited at the Peabody Museum of Natural History of Yale University, could not be located there or at the National Museum of Natural History, Smithsonian Institution.



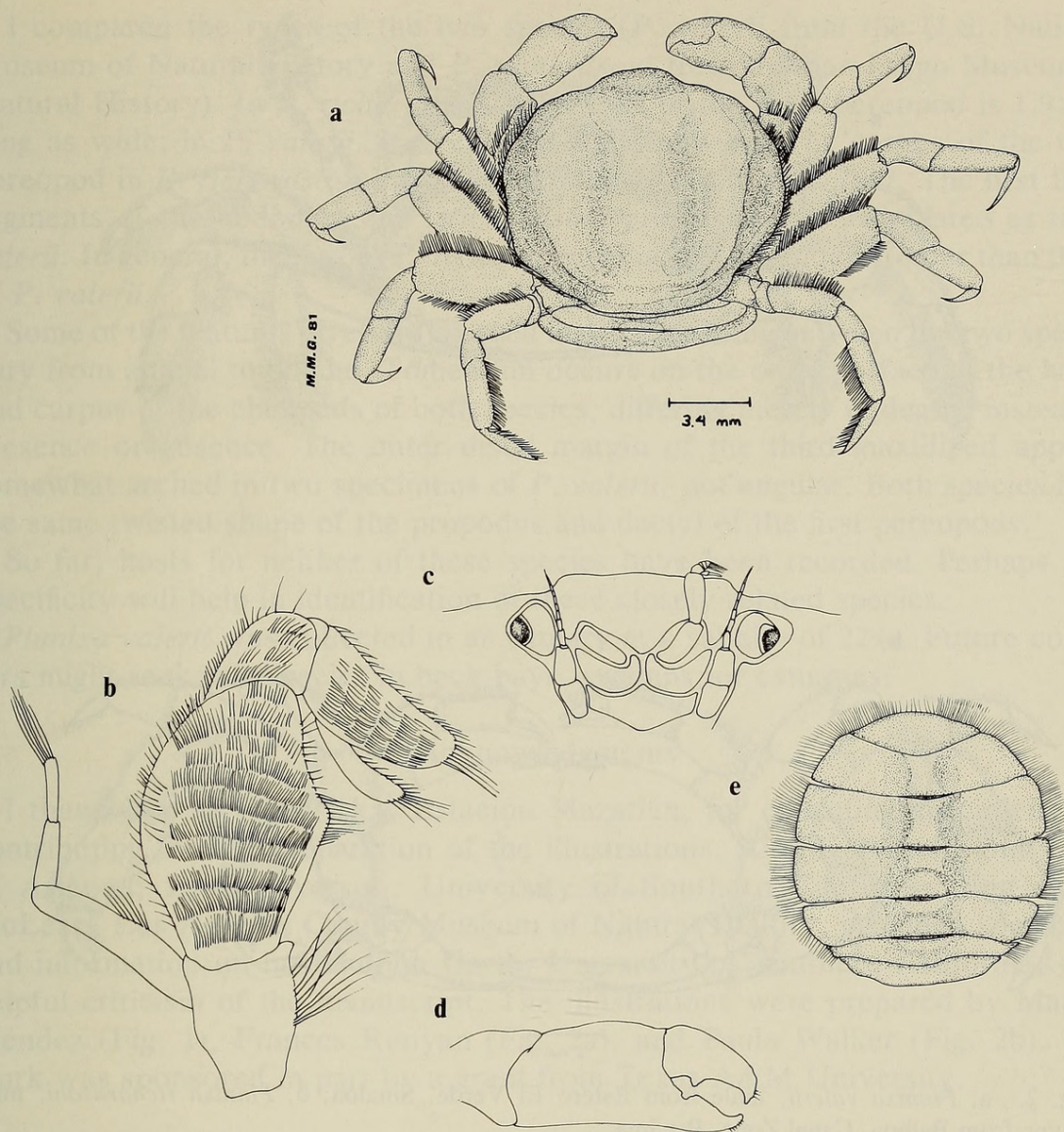


Fig. 1. *Pinnotheres margarita*, female from Punta Chivato, Baja California: a, Dorsal view; b, Third maxilliped; c, Frontal region; d, Chela; e, Abdomen.

A small female, questionably identified as *P. margarita*, was found at the Peabody Museum. I compared this juvenile with the females recently collected. The small crab has much the same shape of carapace, proportions of chelae and walking legs, and outline of third maxilliped as the larger females. It also agrees with the descriptions of Smith (1869, 1870) and Rathbun (1918).

Although type material and previous illustrations are lacking, I believe that the females from the Gulf of California are indeed *P. margarita*. Smith and Rathbun both mentioned the inequality in lengths of the walking legs on the right and left sides in mature females. As described, the females are dull brown ("like a uniform coat of mud"), with short pubescence. The carapace is uneven, with a protuberant cardiac region and marked sutures. Reported size of the holotype (11.8 mm in length of the carapace, 13.4 mm wide) agrees with measurements for the series of crabs from the recent collections. Finally, the host (*Pinctada mazatlanica*) is the same. All of the crabs agree with the previous descriptions.



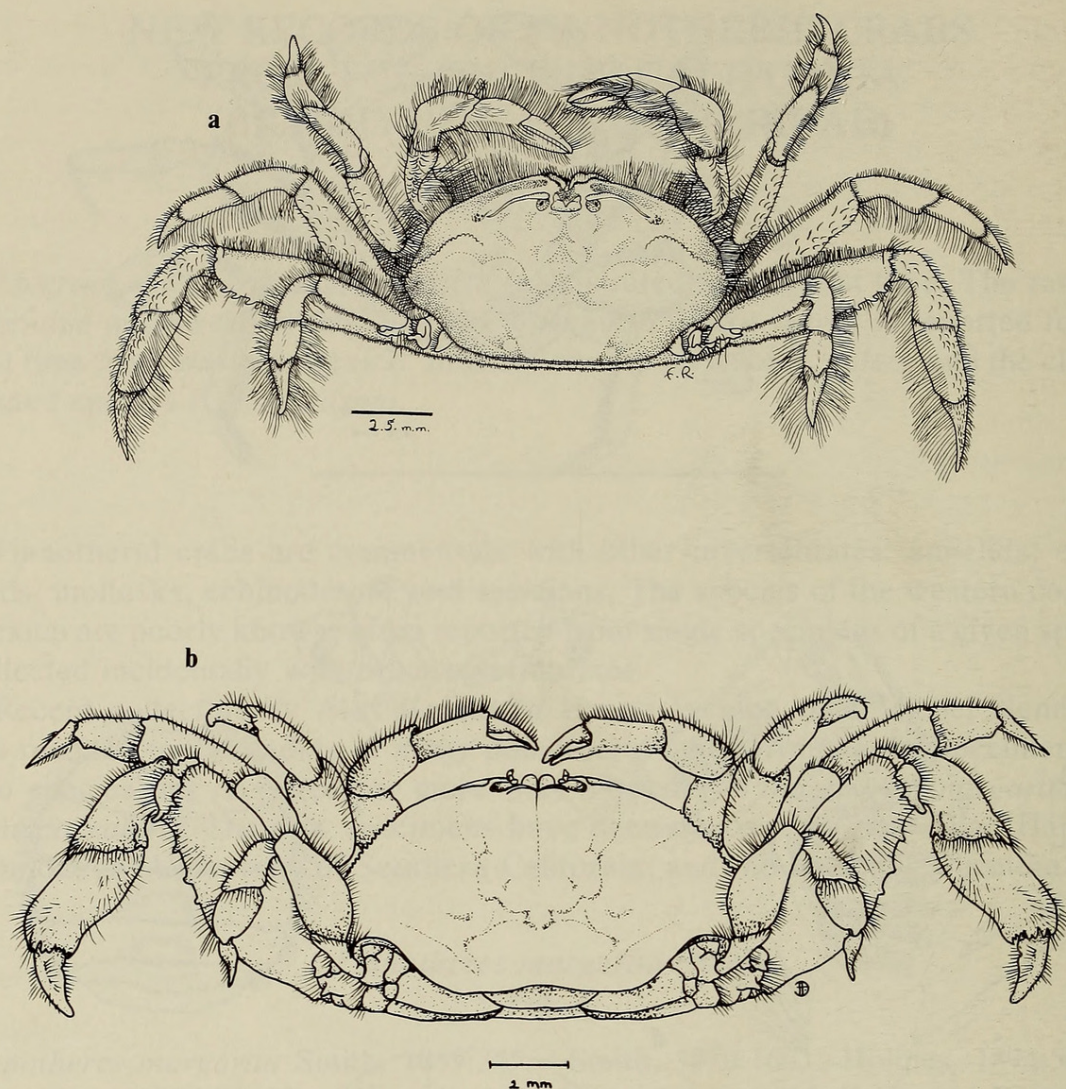


Fig. 2. a, *Pinnixa valerii*, male from Estero El Verde, Sinaloa; b, *Pinnixa richardsoni*, male holotype from Balboa, Canal Zone, Panama.

*Pinnixa valerii* Rathbun

Fig. 2a

*Pinnixa valerii* Rathbun, 1931:262–263, figs. 1–2.—Schmitt, McCain, and Davidson, 1973:124.

*Previous record*.—Isla San Lucas, west coast of Costa Rica (type-locality), 15 Jan. 1930, 1 male holotype, 1 female paratype (Rathbun 1931).

*Material examined*.—Estero El Verde, Sinaloa (23°25'30"N, 106°33'30"W), 1 m, among *Ruppia* sp., dredged, 11 Dec. 1979, M. E. Hendrickx and party.

*Measurements in millimeters*.—Carapace width 9.3, carapace length 5.8 (specimen from Allan Hancock Foundation).

*Comments*.—*Pinnixa valerii* is related closely to *Pinnixa richardsoni* Glassell, 1936 (type-locality Balboa, Canal Zone, Panama). Both have laterally compressed chelae with thick tufts of setae along the ridges of the palm and fingers. The dactyls of the first pereopods appear twisted in dorsal aspect. *Pinnixa valerii* has been illustrated previously only by photographs (Rathbun 1931, figs. 1 and 2). Only the third maxilliped of *P. richardsoni* has been figured (Glassell 1936, pl. 21, fig. 3).



I compared the types of the two species (*P. valerii* from the U.S. National Museum of Natural History and *P. richardsoni* from the San Diego Museum of Natural History). In *P. richardsoni*, the merus of the third pereopod is  $1.9\times$  as long as wide; in *P. valerii*, it is  $2.7\times$  as long as wide. The carpus of the third pereopod in *P. richardsoni* bears a tubercle, absent in *P. valerii*. The first three segments of the abdomen of *P. richardsoni* are fused, not articulated as in *P. valerii*. In general, the legs of *P. richardsoni* (Fig. 2b) are much stouter than those of *P. valerii*.

Some of the features given by Glassell in distinguishing between the two species vary from animal to animal. Tomentum occurs on the outer surface of the hands and carpus of the chelipeds of both species, differing merely in degree instead of presence or absence. The outer distal margin of the third maxilliped appears somewhat arched in two specimens of *P. valerii*, not angular. Both species have the same twisted shape of the propodus and dactyl of the first pereopods.

So far, hosts for neither of these species have been recorded. Perhaps host specificity will help in identification of these closely related species.

*Pinnixa valerii* was collected in an estuary at a salinity of 22‰. Future collectors might seek this species in back bays, swamps, or estuaries.

#### Acknowledgments

I thank Michel Hendrickx, Estación Mazatlán, for collecting specimens and contributing toward preparation of the illustrations. Alex Kerstitch, University of Arizona; Ernest Iverson, University of Southern California; and James McLean, Los Angeles County Museum of Natural History, provided specimens and information on hosts. John Garth, University of Southern California, gave helpful criticism of the manuscript. The illustrations were prepared by Matilde Méndez (Fig. 1), Frances Runyan (Fig. 2a), and Paula Walker (Fig. 2b). This work was sponsored in part by a grant from Texas A&M University.

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Department of Biology, Texas A&M University, College Station, Texas 77843.



Wicksten, Mary K. 1982. "New Records Of Pinnotherid Crabs From The Gulf Of California Brachyura Pinnotheridae." *Proceedings of the Biological Society of Washington* 95, 354–357.

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