

## *Plesionika sanctaecatalinae*: a New Species of Deep-sea Shrimp from the Eastern Pacific (Caridea: Pandalidae)

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*Abstract.*—*Plesionika sanctaecatalinae*: a new species of deep-sea shrimp from the eastern Pacific (Caridea: Pandalidae) by Mary K. Wicksten. *Bull. Southern California Acad. Sci.*, 82(3):138–143, 1983. *Plesionika sanctaecatalinae* n. sp. is the only mesopelagic pandalid shrimp known off southern California. The species ranges from southern California to Peru at depths of 812–3877 m. It resembles *P. gracilis*, but can be distinguished from that species by its fewer dorsal rostral spinules and its 15–18 segments in the carpus of the second pereopod.

During 1960–69, collections of midwater animals were made off southern California and Baja California using an Isaacs-Kidd midwater trawl. Among the specimens taken were some large, bright red pandalid shrimp. These shrimp were placed in the collections of the Allan Hancock Foundation (AHF), University of Southern California.

Many of the shrimp were broken in the trawl. The specimens were preserved in unbuffered 10% formalin, which damaged many of them. When first examined, they were identified as *Plesionika* sp., then as *P. martia semilaevis* Bate (Wicksten 1978). However, closer inspection has revealed them to belong to an undescribed species. An additional specimen was obtained from the Instituto del Mar del Perú. The new shrimp is described herein.

### *Plesionika sanctaecatalinae* new species

Figs. 1–3

*Plesionika* sp.: Ebeling, Ibara, Lavenberg, and Rohlf 1970:12.

*Plesionika martia semilaevis*: Wicksten 1978:85, fig. 1.—Méndez 1981:104, pl. 18, figs. 316–317.

Not *Plesionika semilaevis* Bate, 1888:644, pl. 113, figs. 3a–3b.

*Diagnosis.*—Rostrum longer than scaphocerite, with two minute dorsal spines and 8–12 ventral teeth. Abdominal segments without sharp points or spines, sixth abdominal somite about 2× length of fifth. Second pereopods equal, with 15–18 carpal segments. Third–fifth pereopods extremely long and thread-like.

*Description.*—Rostrum exceeding scaphocerite, with two minute dorsal spines and 8–12 ventral teeth. All ventral teeth on distal half of rostrum, proximal half with fine setae on ventral margin. One–3 spinules on dorsal midline of carapace posterior to rostrum in some individuals.

Carapace with minute punctae. Dorsal midline slightly raised posterior to rostrum for about 0.5–0.6× length of carapace. Small antennal and branchiostegal spines present. Ventral margin curved, posterior margin bluntly angled.

Abdomen lightly punctate. Posterior margin of third somite overhanging fourth somite on dorsal margin in some individuals. Pleura of segments 1–2 rounded,

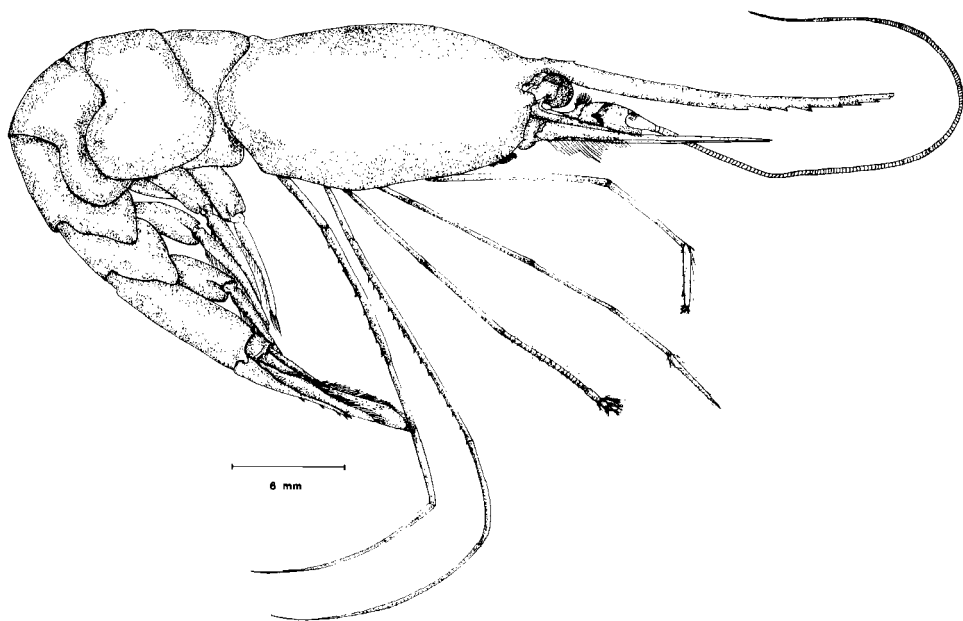


Fig. 1. *Plesionika sanctaecatalinae*, n. sp. Male, carapace length 18.3 mm. 25 miles from Pyramid Head, San Clemente Island, California, 1846–1938 m, *Velero IV* sta. 12390-68. Entire animal in lateral view. Rostrum broken, fifth pereopods missing.

pleuron of third segment subquadrate, pleura of fourth and fifth segments narrowly rounded. Sixth segment about  $2\times$  length of fifth segment, posteroventral angle with minute tooth. Telson shorter than sixth segment and uropods, with three pair small dorsolateral spines and two pair terminal spines.

Eye large, rounded and pigmented, without ocellus. Cornea not reaching end of first segment of antennular peduncle.

First segment of antennular peduncle the longest. Stylocerite longer than cornea of eye, with strong, blunt lateral hook at base. Second and third segments about equal in length. All segments with long, fine setae. Flagella long and slender.

Basicerite of second antenna with sharp point on lateral margin. Carpcerite reaching first segment of antennular peduncle. Scaphocerite  $6.5\times$  as long as wide, with lateral spine exceeding blade; mesial margins fringed with setae. Flagellum at least as long as body of shrimp, but usually broken when collected.

Mandible with 6–8 incisor teeth; molar process with teeth and ridges, palp with three segments. First maxilla with narrow proximal endite, broad distal endite and bilobed palp. Second maxilla with lower endite reduced, upper endite well developed and incised; palp and scaphocerite well developed. First maxilliped with endites of basis and coxa distinctly separated, palp well developed, exopod large, with distinct flagellum and caridean lobe, epipod large and bilobed. Second maxilliped with well developed exopod, epipod and podobranch. Third maxilliped exceeding scaphocerite, with exopod and epipod, its distal segment slightly shorter than penultimate segment, penultimate segment shorter than antepenultimate segment.

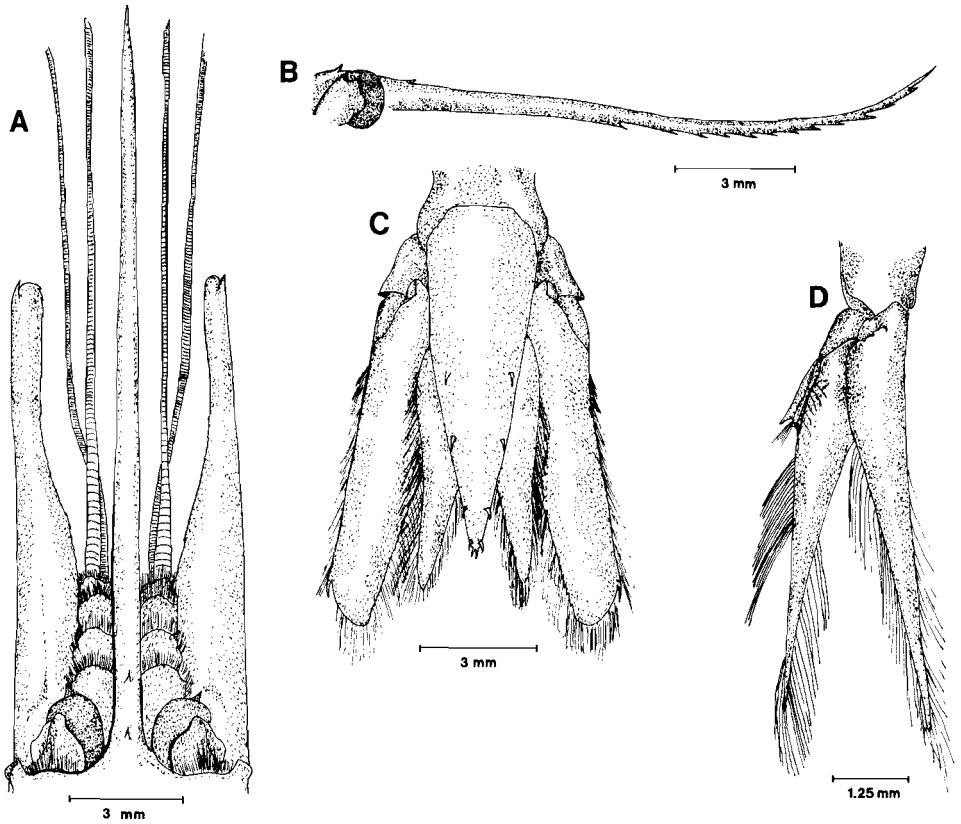


Fig. 2. *Plesionika sanctaecatalinae*. Male, carapace length 14.6 mm, 19.25 miles from Pyramid Head, San Clemente Island, 1680–1865 m, *Velero IV* sta. 11703-67. A, rostrum and frontal region in dorsal view; B, rostrum in lateral view; C, tail fan; D, second pleopod.

First pereopod as long as third maxilliped, minutely chelate. Propodus about equal in length to dactyl, carpus  $2.5\times$  length of propodus, merus  $2\times$  length of propodus, ischium about  $0.3\times$  length of merus, all segments with scattered long setae. Epipod present.

Second pereopods about equal in length. Dactyl about equal in length to palm of chela, fingers of chela with tufts of setae. Thick tuft of setae at propodal-carpal articulation. Carpus with 15–18 segments, the most distal segment the longest; distal segments more distinct than proximal segments. Merus about  $0.75\times$  length of carpus. Ischium about equal to merus. Epipod present.

Third–fifth pereopods broken in all specimens. Propodus and dactyl long, thread-like, exceeding length of carapace but broken in all specimens. Carpus about equal to  $0.5\times$  merus. Third merus with 10–14 ventral spines, fourth merus with 6–11 spines, fifth merus with 4–7 spines; spines usually occurring singly but occasionally in pairs. Ischium much shorter than merus, without terminal spine. Epipods lacking from third–fifth pereopods.

Endopod of first pleopod short and oval in female, blunt and paddle-shaped in male. Second pleopod with appendix interna; in males, also with appendix mas-

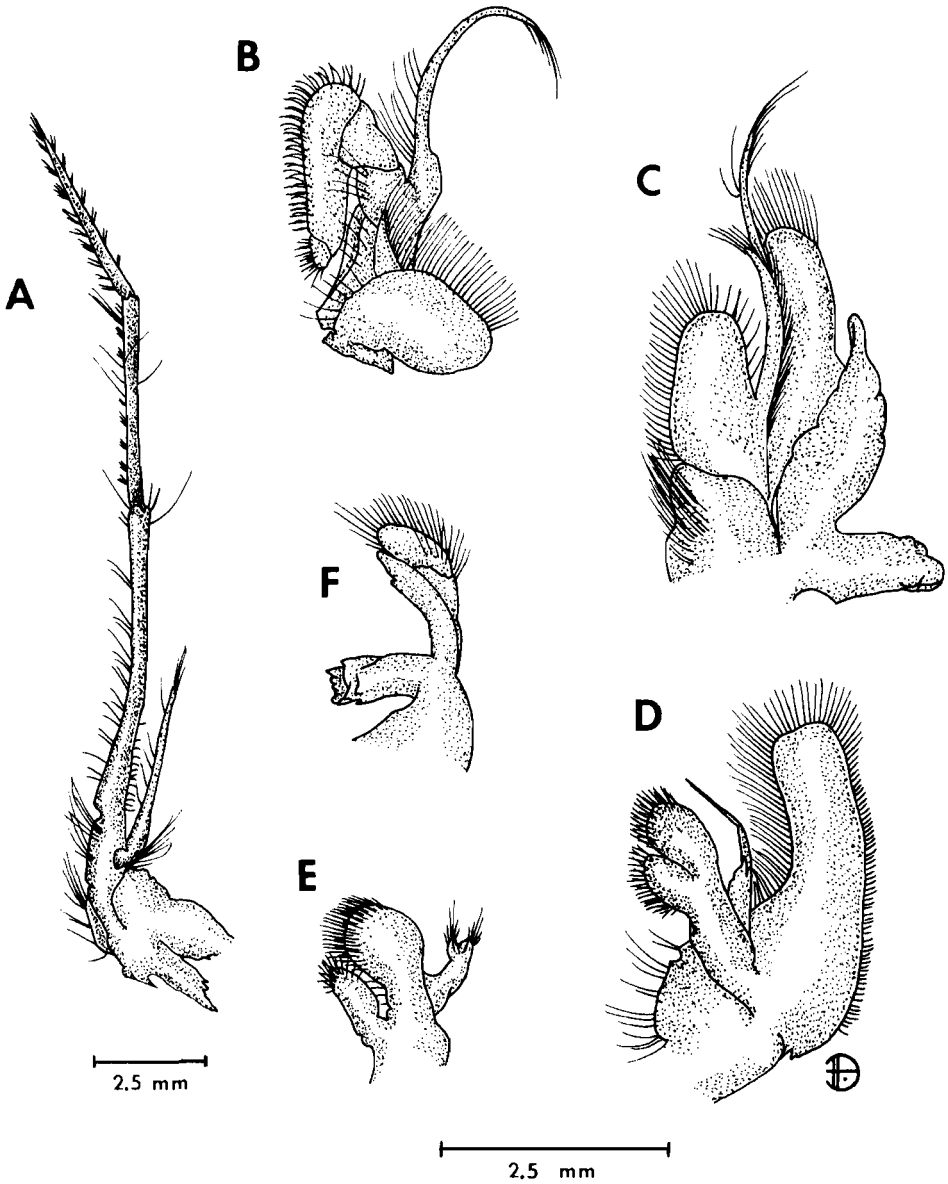


Fig. 3. *Plesionika sanctaecatalinae*. Broken specimen collected 5.7 miles from Ship Rock, Santa Catalina Island, 846–864 m, *Velero IV* sta. 7299-61. A, third maxilliped; B, second maxilliped; C, first maxilliped; D, second maxilla; E, first maxilla; F, mandible.

culina. Eggs small and numerous. Uropods slender, outer branch exceeding inner; small tooth on distolateral margin of outer branch; movable spine mesial to this tooth; both branches fringed with setae.

*Holotype*.—Male, postorbital carapace length (CL) in millimeters 19.0; 7.3 miles, 17° true from Long Point Light, Santa Catalina Island, California (33°33'29"N, 118°20'42"W–33°30'12"N, 118°17'28"W), 886 m, 29 June 1960, *Velero IV* station 7059-60, AHF type number 6053.

*Paratypes*.—Male, CL 13.2, off Santa Catalina Island (33°38'03"N, 118°32'39"W–33°25'48"N, 118°16'48"W), 846–864 m, 24 Feb. 1961, *Velero IV* sta. 7299-61, U.S. National Museum of Natural History (Smithsonian Institution). Male, CL 15.7, off Santa Catalina Island (33°26'54"N, 118°18'04"W–33°33'12"N, 118°27'24"W), 857–882 m, 28–29 June 1961, *Velero IV* sta. 7373-61, California Academy of Sciences. Female, ovigerous, CL 14.3, off Cortez Bank (31°57'30"N, 120°20'00"W–31°42'00"N, 120°16'00"W), 3822–3877 m, 25 August 1965, *Velero IV* sta. 10661-65, Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands. Male, CL 14.4, off coast of Perú (between 12° and 18°S), depth not recorded, drag sample, 1972, cruise 7201, Instituto del Mar del Perú. Also 57 specimens from 34 stations: off Ship Rock, Santa Catalina Island (about 33°N, 118°W) to off North Point, Guadalupe Island, México (about 29°N, 118°W); also off Santa Barbara Island, San Clemente Island, and Cortez Bank, California; and off Cabo Punta Banda and Islas Todos Santos, Baja California, México; 812–3877 m, AHF. Further data on all specimens is available in the records of the Allan Hancock Foundation.

*Size distribution*.—Males: 5–10 mm CL: 1; 10–15 mm: 10; 15–20 mm: 10.—Females: 5–10 mm: 10; 10–15 mm: 16; 15–20 mm: 9. (Sex of 6 specimens not determined due to breakage).

*Depth distribution*.—500–1000 m: 17; 1000–1500 m: 20; 1500–2000 m: 10; 2000–2500 m: 5; 2500–3000 m: 1; 3000–3500 m: 6; 3500–4000 m: 2. (The average depth is recorded for specimens taken at stations sampled over a great range of depths. Depth was not recorded for the specimens from Perú).

*Etymology*.—The species is named after Santa Catalina Island, California, off which many specimens were collected.

*Remarks*.—*Plesionika sanctaecatalinae* closely resembles *P. gracilis* Borradaile, 1917. In *P. gracilis*, the rostrum has two strong teeth on a crest over the eye and eight spinules. *Plesionika sanctaecatalinae* has two weak spines and 1–3 spinules. The eyestalk of *P. gracilis* bears a distinct ocellus. There are nine segments in the carpus of the second pereopod in *P. gracilis* instead of 15–18, as in *P. sanctaecatalinae*. *Plesionika gracilis* inhabits the western Indian Ocean, not the eastern Pacific.

Little is known about the natural history of *P. sanctaecatalinae*. Ebeling *et al.* (1970) included it in their numerical analysis of ecological groupings of midwater animals of the San Pedro Basin. The shrimp was associated with “rare, lower mesopelagic species of mixed origins.” The animal is colored red in life (J. C. Yaldwyn unpublished data). A juvenile pandalid, carapace length 3.9 mm, taken at station 10975 (off Cortez Bank, 3230–3729 m), may be this species.

*Plesionika sanctaecatalinae* is the only mesopelagic pandalid known from California. *Plesionika mexicana* Chace rarely occurs at lesser depths on the bottom off southern California, ranging south to Perú. *Plesionika beebei* Chace has been collected off México and Perú; *P. trispinus* Squires and Barragan has been taken off Colombia and northern Perú. A key to the eastern Pacific species of *Plesionika* and illustrations of the species are available in the book by Méndez (1981).

#### Acknowledgments

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