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Range Extensions of Four Species of Crangonid Shrimps in the Eastern Pacific Ocean (Decapoda: Crangonidae)

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Members of the family Crangonidae, often called sand shrimp or blacktailed shrimp, are common inhabitants of sandy, muddy, or mixed bottoms. Recent identification of specimens at the Allan Hancock Foundation has provided a good series of shrimp of this family. New records of four species have been found outside their recorded ranges. *Sclerocrangon alata* is reported for the first time from California. The range of *Neocrangon zacae* is extended south from Baja California to Colombia. *Crangon munitellus* has been found in Baja California. *Crangon lomae* is reported for the first time since the description of the species in 1921.

Sclerocrangon alata Rathbun, 1902

Sclerocrangon alata Rathbun 1902:891–892.—Rathbun 1904:134–135, fig. 72, pl. III, fig. 2.

Previous records.—Bering Sea to Puget Sound, Washington, 11–168 m. Type locality: Admiralty Inlet, Puget Sound, Washington, 74 m, *Albatross* station 2865 (Rathbun 1902).

Material.—Pacific Grove, California, depth not recorded, 20 August 1937, Burch station 3710, 1 specimen. Friday Harbor, Washington, at surface, 27 August 1949, John L. Mohr, 1 specimen.

Remarks.—There is one previous record of a specimen of the genus *Sclerocrangon* in "California." Ross and Owen (1835) recorded a specimen of *Sclerocrangon boreas* (Phipps). I have been unable to locate the original material on which this record was based. Holmes (1900) and Rathbun (1904) mentioned *S. boreas* from California on the basis of this one record.

S. boreas is a circumpolar species, known from Arctic Siberia, Alaska south to the Strait of Georgia, the Canadian and Alaskan Arctic, eastern Canada south to Cape Cod, Greenland, Iceland, and northern Europe (Rathbun 1919). *S. alata* was not recognized as a species distinct from *S. boreas* until 1902. It seems likely that the shrimp taken by Ross and Owen was *S. alata* rather than *S. boreas*.

Members of the genus *Sclerocrangon* are broad, heavy shrimps distinguished by the presence of second pereiopods, dactyls of the fourth and fifth pereiopods not broad and flattened, and the absence of an arthrobranch from the third maxillipeds (Holthuis 1955). *S. alata* has a carapace nearly as long as wide. The blade of its antennal scale does not exceed the spine. Unlike *S. boreas, S. alata* tends to be small, about 26–38 mm in total length (Rathbun 1904).

The species of *Sclerocrangon* are most common in Arctic or boreal waters. *S. alata* may be a rare visitor to Monterey Bay rather than a resident species.

Crangon lomae (Schmitt, 1921)

Crago lomae Schmitt 1921:100–101, pl. 12, figs. 3 and 4.

Previous records.—Type locality: off Point Loma, California, 929–999 m, *Albatross* station 4334. Off Point Loma, California, 1159–1182 m, *Albatross* station 4353 (Schmitt 1921).

Material.—California: 7.3 miles, 46° true from Point Bennett, San Miguel Island (33°56′N, 120°33′W to 33°56′N, 120°31′W), 830–1126 m, rock dredge, 29 April 1976, *Velero IV* station 24889, one male, total length 31.8 mm.

Remarks.—*C. lomae* is one of the deepest species of its family in California, exceeded in depth range only by *Pontophilus occidentalis* Faxon.

Crangon munitellus Walker, 1898

Crangon munitellus Walker 1898:275, pl. 16, fig. 1.—Holmes 1900:176.
C. munitella.—Rathbun 1904:132.—Carlton and Kuris 1975:404.—Word and Charwat 1976:81–82.
C. munitella.—Schmitt 1921:101–102, fig. 70.

Previous records.—Type locality: Puget Sound, Washington (Walker 1898).—San Francisco Bay to Santa Catalina Island, California, 6.5–74 m (Schmitt 1921).

Material.—BAJA CALIFORNIA, MEXICO: 3.75 miles NNW of Punta Eugenia (27°54′45″N, 115°06′0″W to 27°54′20″N, 115°06′35″W), 37 m, 5 March 1949, *Velero IV* station 1702, 3 specimens. Between Melpomene Cove and Inner Guadalupe Island (28°52′N, 118°19′W), 9–28 m, 18 December 1949, *Velero IV* station 1914, 4 specimens. Melpomene Cove, Guadalupe Island (28°55′23″N, 118°18′38″W to 28°51′0″N, 118°17′30″W), 92–94 m, 19 December 1949, *Velero IV* station 1920, 2 specimens. 1.25 miles from Sandstone Point, Guadalupe Island (28°54′08″N, 118°15′36″W to 28°53′57″N, 118°15′41″W), 46–55 m, 20 December 1949, *Velero IV* station 1924, 2 specimens. 2 miles, 142° true to Thurloe Head (27°35′45″N, 114°49′15″W), 37 m, 7 December 1967, *Velero IV* station 11842, 1 ovigerous female. CALIFORNIA, U.S.A.: 62 specimens from 29 other stations: Santa Rosa, Santa Cruz, Anacapa, Santa Catalina, and San Clemente Islands; Port Hueneme, Redondo Beach, Point Vicente, White's Point to Portuguese Bend, Newport Inlet, and Corona del Mar, 0–185 m, 1926–1962.

Remarks.—The records suggest that *C. munitellus* prefers shallow sublittoral bottoms of clean sand or sand mixed with rock and shell. Kuris and Carlton (1977) related the squat body forms of *C. handi* and *Lissocrangon stylirostris* to habitat specialization, in which their shape allows rapid escape response over short distances. *C. munitellus,* a short, broad shrimp, may have adapted in a similar fashion to its environment.

Neocrangon zacae (Chace, 1937)

Crago zacae Chace, 1937:136–138, fig. 9.
Crangon zacae.—Word and Charwat 1976:93–94.
Neocrangon zacae.—Kuris and Carlton 1977:554.

Previous records.—Type locality: east of Cedros Island, Mexico (28°13′N, 115°07′W), 81 m, mud bottom, 27 March 1936, *Zaca* station 125 (Chace, 1937). Monterey Bay to Dana Point, California (Chace 1937; Word and Charwat 1976).

Material.—North of Gorgona Island, Colombia (3°01′25″N, 78°10′W), 18–37 m, mud and rock bottom, 24 February 1938, *Velero III* station 851-38, 1 damaged specimen. Sulphur Bay, Clarion Island, Mexico (18°20′45″N, 114°44′15″W), 9.2 m, among coralline algae, 16 March 1939, *Velero III* station 915-39, 1 male and 1 ovigerous female.

Remarks.—*N. zacae* is distinguished from the closely related *N. communis* (Rathbun) by the lack of carinae on its fifth abdominal segment, the dactyl of the first pereiopod closing more longitudinally than horizontally, and the smaller size of the adults in the former species. These differences may be difficult to detect in damaged or poorly preserved specimens. Chace (1937) suggested that *N. zacae* might be a southern subspecies of *N. communis*.

In the collections of the Allan Hancock Foundation, there are about 700 specimens identified as *N. zacae* from 105 stations in southern California and Baja California, Mexico. These were taken in 1938–1977 at depths from the shore to 572 m. At 75 of the 105 stations, the specimens were collected at depths of 185 m or less. *N. communis* was taken at 34 stations at 21–230 m. One hundred eighty-eight specimens were collected in 1917–1976. At 23 stations, the species was taken at 92–277 m. The records suggest that *N. communis* prefers somewhat greater depths than *N. zacae*, although both occur over a wide range of depths in southern California.

N. zacae is the only member of the family Crangonidae recorded so far from the continental shelf of the Panamic zoogeographic province, the region of coast from northern Peru to southern Baja California. *Pontophilus occidentalis* occurs in bathyal depths in the region.

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