RANGE EXTENSIONS FOR SOME CALIFORNIA MARINE ISOPOD CRUSTACEANS

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RANGE EXTENSIONS FOR SOME CALIFORNIA MARINE ISOPOD CRUSTACEANS

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ABSTRACT: New range extensions are given for 22 species of California marine isopods. Brief ecological data and intermediate localities are included. *Dynamenella dianae* and *Excirolana kincaidi* are added to the California fauna. New localities are given for four species previously known only from the type localities.

Numerous collections of marine isopods have been made by the author along the California coast in the past several years. Examination of this and other material has resulted in 22 new range extensions and numerous intermediate localities being recognized. New records were also encountered while curating a portion of the marine isopod collection in the Department of Invertebrate Zoology, California Academy of Sciences (CAS), the Hopkins Marine Station collection (HMS), Pacific Grove, California (recently transferred to the CAS collection), and from materials sent to the author for identification. Several new records were obtained from a collection of iso-

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pods dredged by the R/V Amigo and the R/V Falcon during a benthic survey of the northern sector of Monterey Bay, California. The survey was conducted by the Moss Landing Marine Laboratory (MLML), Elkhorn slough, California, under contract to the Association of Monterey Bay Area Governments and later under the Sea Grant Program. The sublittoral isopod fauna obtained showed a remarkable resemblance to the southern California fauna reported by Menzies and Barnard (1959). Seven species were collected by the survey, two of which, *Austrosignum sp.* and *Tecticeps convexus* have not been reported from southern California. One species *Bathycopea daltonae* has previously been reported from off San Francisco, California (Loyola e Silva, 1971).

The museum records reported herein may represent temporary non-reproducing populations resulting from introductions by man or from unusual environmental conditions such as the occasional intrusion of warm water into central California from the south. Early records of introduced species are reported to provide possible base dates from which times of introduction and subsequent dispersal along the coast may be judged.

Two species, *Dynamenella dianae* and *Excirolana kincaidi* are here added to the California fauna, while four species are reported for the first time outside their type localities.

The specimens upon which the present range extensions are based have been deposited in the collections of the Department of Invertebrate Zoology, California Academy of Sciences or the Moss Landing Marine Laboratory (MLML benthic survey material only).

SUBORDER ANTHURIDEA

FAMILY ANTHURIDAE

Haliophasma geminata Menzies and Barnard

Previous distribution: Southern California coastal shelves and slopes, 9.2 to 512.4 m; Santa Catalina Island, 73.2 to 122.6 m; Santa Rosa Island, 14.6 m (Menzies and Barnard, 1959:19), and San Quintin Bay, Baja California, Mexico (Menzies, 1962:339).

New northern record: Station 1159, SW Rio Del Mar, Monterey Bay, California, 36° 57.1′ N. Lat., 121° 56.2′ W. Long.; 3 May 1972; MLML benthic survey; dredged in 15 m over grey sand.

Collected from other parts of Monterey Bay at depths ranging from 15 to 65 m by the MLML survey. Bottom sediments varied from grey sand (shallowest stations) to mud (deepest stations).

SUBORDER ASELLOTA

FAMILY JANIRIDAE

Iais californica (Richardson)

Previous distribution: Australia, New Zealand, Singapore, and California from Bodega Bay, Tomales Bay, Bolinas Lagoon, and San Francisco Bay (Rotramel, 1972:193–194), and Newport Bay (Anonymous, 1965:203).

New northern record: Near Samoa, Humboldt Bay, California; 29 April 1972; E. Iverson and R. Talmadge; commensal on the sphaeromid isopod *Sphaeroma quoyana* (= *S. pentodon* Richardson, 1904).

Ianiropsis epilittoralis Menzies

Previous distribution: Dillon Beach, Marin Co., California, and Pacific Grove, Monterey Co., California (Menzies, 1952:150–151).

New southern record: 3.2 miles N Arroyo Laguna Creek, San Luis Obispo Co., California; 5 February 1972; E. Iverson; several specimens from green filamentous algae in the high intertidal.

FAMILY MUNNIDAE

Munna halei Menzies

Previous distribution: Tomales Point, Marin Co., California (Menzies, 1952:134).

New southern record: El Capitan Beach, San Luis Obispo Co., California; 28 December 1971; E. Iverson; numerous specimens from among the spines of the purple sea urchin, *Strongylocentrotus purpuratus*, taken among rocks and debris in the mid-tide zone.

SUBORDER FLABELLIFERA

FAMILY CIROLANIDAE

Excirolana kincaidi (Hatch)

Previous distribution: San Juan Island, Washington (George and Stromberg, 1968:252) to Coos Bay, Oregon (Hatch, 1947:208).

New southern record: Torrance Beach, Los Angeles Co., California; 13 September 1972; E. Iverson; screened from fine wet sand just below the maximum reach of the waves near the high tide mark. The related isopod *E. linguifrons* (Richardson, 1899) was also collected from the same habitat.

Further records: Intermediate localities in California include Drakes Beach (20 July 1969, G. L. Rotramel), and mouth of Bolinas Lagoon, Marin Co. (19 December 1972, John Chapman; Aquatic Park Marina, San Francisco Bay (25 May 1972, D. Behrens); and Princeton Harbor, Half Moon Bay, San Mateo Co. (5 July 1971, E. Iverson and D. Behrens).

FAMILY CYMOTHOIDAE

Lironeca californica (Schioedte and Meinert)

Previous distribution: Alaska (Hatch, 1947:211) to San Pedro, Los Angeles Co., California (Richardson, 1905a:260).

New southern record: Entrada Point, San Quintin Bay, Baja California, Mexico; 23 March 1949; R. R. Harry *et al.*; parasitic on the gills of the Dwarf Surfperch, *Micrometrus minimus*.

Remarks: *Lironeca californica* previously has been reported parasitizing three other species of fish. This is the second member of the family Embiotocidae to be infected.

FAMILY SPHAEROMIDAE

Dynamenella dianae (Menzies)

Previous distribution: San Quintin Bay, Baja California, Mexico; Mayaquez Bay, Puerto Rico, and Eniwetok Atoll, Marshall Islands (Glynn, 1970:20).

New northern record: Ventura Yacht Harbor, Ventura Co., California; 20 September 1972; E. Iverson; from fouling on floats and under rocks used as shoring.

Further records: Additional new localities in southern California include Marina Del Rey Harbor (16 September 1972, E. Iverson) and Redondo Beach, Los Angeles Co. (14 September 1972, E. Iverson); Oceanside Harbor (19 September 1972, E. Iverson), and San Diego Bay, San Diego Co. (19 September 1972, E. Iverson).

Exosphaeroma inornata Dow

Previous distribution: Palos Verdes, Los Angeles Co., California (Dow, 1958:93).

New northern record: Bune Point, Humboldt Bay, California, 29 April 1972; E. Iverson; from algae covered rocks.

Further records: A eurytopic species from many additional localities in California between Horseshoe Cove, Bodega Bay to near Arroyo Laguna creek, San Luis Obispo Co.

Exosphaeroma octoncum (Richardson)

Previous distribution: Monterey Bay, California (Richardson, 1899:836).

New northern record: Tomales Head, Marin Co., California; 1 July 1969; D. Beach and B. Roth; one specimen from the CAS collection.

Gnorimosphaeroma lutea (Menzies)

Previous distribution: Popov Island, Alaska (Menzies, 1954:14) to Oso Flaco Lake, San Luis Obispo Co., California (Eriksen, 1968:5).

New southern record: El Capitan Beach, San Luis Obispo Co., California; 28 December 1971; E. Iverson; one specimen near the mouth of a small stream, under marine algae cast ashore.

Gnorimosphaeroma noblei Menzies

Previous distribution: Upper region of Tomales Bay, California (Menzies, 1954:21–22), and Urup Island, Kurile Islands, Sea of Okhotsk (Kussakin, 1972:156).

New northeastern Pacific northern and southern records: Near Samoa, Humboldt Bay, California; 29 April 1972; E. Iverson and R. Talmage; numerous specimens from the mud overhang of small channels crossing a *Salicornia* flat and under marine algae at the edge of the flat; and Palos Verdes, Los Angeles Co., California; 13 September 1972; E. Iverson; under rocks in tide pools of the middle tide zone on the semi-protected outer coast.

Sphaeroma quoyana Milne-Edwards

Previous distribution: Australia, Tasmania, New Zealand, and in northeastern Pacific bays: in California: Bodega Bay, Tomales Bay, Bolinas Lagoon, San Francisco Bay (Rotramel, 1972:193–194), San Pedro, Los Angeles Harbor (Johnson and Snook, 1927:287), Newport Bay (Menzies, 1962:340), San Diego Bay (Johnson and Snook, 1927:287), and in Mexico: San Quintin Bay, Baja California (Menzies, 1962:340).

New northern record: Near Samoa, Humboldt Bay, California; 29 April 1972; E. Iverson and R. Talmadge; numerous specimens burrowing in the mud banks of the small channels running through the *Salicornia* flat. One dried lot of *S. quoyana* was found in the HMS collection from Humboldt Bay (1931, G. MacGinitie collector). The commensal *Iais californica* is present in both the 1931 and 1972 collections.

Further records: Morro Bay, San Luis Obispo Co., California (24 September 1972, J. Carlton).

Remarks: *Sphaeroma quoyana* (as *S. pentodon* Richardson, 1904) has been reported twice from Alaska, first, under questionable circumstances, by Atwood and Johnson (1924:26) and again by Johnson and Snook (1927:288). These records probably resulted from Richardson including the original description of *S. pentodon* in the reports of the Harriman Alaska Expedition (1904:214–215). Her description was based on ten specimens collected by Ritter and party at Sausalito, San Francisco Bay. Although several authors have studied the fauna of the upper northeastern Pacific, additional records are not available. Thus the Alaskan records are probably not valid.

Tecticeps convexus Richardson

Previous distribution: Monterey Bay, California (Richardson, 1899:838).

New northern and southern record: 0.5 miles SW

Crescent City Whistle Buoy, California; 13 August 1940; collector unknown; 24 specimens trawled from 31 m; and near Point Conception, Santa Barbara Co., California; 14–17 July 1916; Carl L. Hubbs; both lots are from the CAS collection.

Further records: Additional intermediate localities in California include: 1.5 miles SW off the Mad River (9 August 1940; collector unknown); Horseshoe Cove, Bodega Head (7 August 1971); J. Carlton); off Doran Beach, Bodega Bay (29 March 1967, A. Kuris and J. Ackeman), and Drakes Bay, Marin Co., (2 March 1936; L. Hertein).

SUBORDER GNATHIIDEA

FAMILY GNATHIIDAE

Gnathia crenulatifrons Mond

Previous distribution: Southern California coastal shelves and slopes, Santa Catalina Island and basin at depths from 9.2 to 1259 m (Menzies and Barnard, 1959:29).

New northern record: Station 1152, south of Point Santa Cruz, Monterey Bay, California; 36° 54.8′ N. Lat., 122° 1.0′ W. Long.; 20 August 1971; MLML benthic survey; dredged in 37 m over grey sand.

SUBORDER VALVIFERA

FAMILY ARCTURIDAE

Idarcturus allelomorohus Menzies and Barnard

Previous distribution: Point Conception to Laguna Beach, California, and Cortes Bank, SW San Clemente Island, California, at depths from 12.8 to 91.5 m (Menzies and Barnard, 1959:23).

New northern record: Station 1153, SW Soquel Point, Monterey Bay, California; 36° 56.7′ N. Lat., 121° 59.2′ W. Long.; 21 August 1971; MLML benthic survey; dredged in 35 m over grey sand.

FAMILY IDOTEIDAE

Edotea sublittoralis Menzies and Barnard

Previous distribution: Southern California coastal shelves from Point Conception to the Mexican border at depths from 13.7 to 64 m (Menzies and Barnard, 1959:22).

New northern record: West of Daly City, San Francisco Co., California; 9 September 1972; John Chapman; near a sewer outfall at a depth of 9.8 m.

Further records: Several specimens were collected in the northern sector of Monterey Bay, California by the MLML benthic survey in 12 to 35 m over a sandy substrate.

Idotea (*Idotea*) *rufescens* (Fee)

Previous distribution: Gabriola Pass, Departure Bay, Vancouver Island (Fee, 1926:18) to Marin Co., California (Menzies, 1950:170).

New southern record: South of Carmel, Monterey Co., California; 8 January 1967; D. Wabbler; one specimen from the CAS collection.

Remarks: This specimen, an ovigerous female, agrees with the diagnosis given by Menzies (1950: 170) except for the apex of the frontal process, which is notched. Similar variation is known from one other eastern Pacific idoteid, *I.* (*Pentidotea*) *aculeata*.

Idotea (*Pentidotea*) *montereyensis* (Maloney)

Previous distribution: Seabech, Kitsap Co., Washington (Hatch, 1947:219) to Estero Bay, San Luis Obispo Co., California (Menzies, 1950:187).

New northern and southern records: Boundary Bay, British Columbia; July 1916; F. W. Weymouth; one specimen from the CAS collection; and Pismo Beach, San Luis Obispo Co., California; 23 October 1970; E. Iverson; one specimen from drifting brown algae in the surf.

Idotea (*Pentidotea*) *resecata* Stimpson

Previous distribution: Karta Bay, southeast Alaska (Richardson, 1905b:216) to Los Coronados Islands, SW San Diego, California (Miller, 1968:20).

New southern record: At sea in the mouth of the Gulf of California between 23° 12′ N. Lat., 106° 29′ W. Long., and 23° 3′ N. Lat., 109° 31′ W. Long.; 3 August 1932; Crocker Galapagos Expedition; one specimen from the CAS collection.

Remarks: In California, *I.* (*P.*) *resecata* is commonly found in the intertidal zone among rocks and algae; subtidally it is found on the eelgrass *Zostera* and in the *Macrocystis* canopy offshore. It is not known if the present specimen was associated with drifting algae.

Idotea (*Pentidotea*) *schmitti* (Menzies)

Previous distribution: Bering Sea to Monterey Bay, California (Menzies, 1950:171).

New southern record: Punta Banda, Baja del Norte, Mexico; 30 December 1971; D. Conners; one large male from the CAS collection.

Further records: Additional intermediate localities in California include Point Sal (1915, collector unknown) and near Point Conception, Santa Barbara Co. (14–15 July 1916, Carl L. Hubbs). Both lots are from the CAS collection.

Idotea (*Pentidotea*) *stenops* (Benedict)

Previous distribution: Coos Bay, Oregon (Hatch, 1947:217) to San Simeon Bay, San Luis Obispo Co., California (Miller, 1968:21).

New southern record: Near Point Conception, Santa Barbara Co., California; 2–3 June and 14–17 July 1916; Carl L. Hubbs; two specimens from the CAS collection.

Synidotea magnifica Menzies and Barnard

Previous distribution: Southern California coastal shelves: Point Conception to Oceanside at depths from 54.9 to 91.5 m (Menzies and Barnard, 1959:26).

New northern record: 6.5 miles, 159° true from Point San Luis Light, San Luis Obispo Bay, California, 35° 3.4′ N. Lat., 120° 43.0′ W. Long.; 12 September 1938; Crocker-Stanford Expedition; dredged in 36.6 m over fine green mud. One specimen from the CAS collection.

After the acceptance of this paper, I received a copy of the Moss Landing Marine Laboratories benthic survey report (Hodgson, A. T. and J. W. Nybakken, 1973. A Quantitative Survey of the Benthic Infauna of Northern Monterey Bay, California. Moss Landing Marine Laboratories Technical Publication 73-8, 241 pp.). The range extensions for *Haliophasma geminata*, *Gnathia crenulatifrons*, and *Idarcturus allelomorohus* are duplicated here.

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