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(Crustacea, Decapoda) from Suruga Bay, Japan

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Reprinted from the  
Bulletin of the Biogeographical Society of Japan  
Vol. 39, Nos. 1-8  
December 20, 1984

## Additional Material of *Paralomis cristata* Takeda et Ohta (Crustacea, Decapoda) from Suruga Bay, Japan

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(Received September 30, 1984)

**Abstract.** A male and a female of a stone crab, *Paralomis cristata* Takeda et Ohta are newly recorded from off Shimizu, Suruga Bay, 700–750 m deep. This species, which has originally been described only on a unique male from off Osaki, Suruga Bay, is the most characteristic in the cristate borders of the chelipeds and ambulatory legs. The genus *Paralomis* comprises 31 species, most of them being deep-sea inhabitants, with the restricted distributions. Their geographical and bathymetrical ranges are discussed.

### Introduction

When Takeda and Ohta (1979) described a new stone crab, *Paralomis cristata*, from Suruga Bay, the junior authors were also just about to publish new description of this same stone crab from Suruga Bay under the same name. It was an unfortunate concurrence for the junior authors who had to waive the priority on the new species, but the surprising coincidence between the published and manuscript names indicates that the species in question is the most characteristic in the cristate borders of the chelipeds and ambulatory legs.

The original description of *P. cristata* has been based only on the male holotype from off Osaki, the west coast of the Izu Peninsula, Suruga Bay, ca. 750 m deep. The holotype is 98.0 mm and 95.5 mm in length and breadth of carapace, respectively, being at present deposited in the National Science Museum, Tokyo. The additional male and female specimens from Shimizu used in the junior authors' manuscript are 92 and 87 mm (male), 90 and 88 mm (female) in breadth and length of carapace, and the following notes are supplement to the original description.

### Family Lithodidae

Genus *Paralomis* White, 1846

*Paralomis cristata* Takeda et Ohta, 1979

(Fig. 1)

Takeda and Ohta, 1979, p. 195, pls. 1–3.

**Material examined.** Suruga Bay, off Osaki, ca. 750 m deep; 1 ♂ (holotype), infested by a sacculinid parasite, NSMT-Cr 6051; Feb. 1979;

M. Igarashi leg.

Suruga Bay, off Shimizu, 700–750 m deep; 1 ♂, 1 ♀ in the collection of the Shizuoka Prefectural Fisheries Experiment Station; Apr. 26, 1979, and Feb. 22, 1978.

**Diagnosis.** Carapace rather pentagonal in outline and thickly covered with vesiculous small granules; regions distinct, with convex gastric and cardiac regions; gastric region with an anterior median, conical tubercle and a pair of posterior, smaller tubercles; gastro-cardiac transverse furrow deep, with a deep depression like a scar at each end; cardiac region rounded and convex so as to be higher than gastric region.

Anterolateral margin of carapace with some small, triangular thin teeth; posterolateral margin with a broad smooth crest. Front with a lower compressed, median tooth and two upper depressed, lateral teeth; upper teeth separated by a V-shaped notch and lower tooth blade-like in lateral view, but spiniform in dorsal view. Eye-stalk with spinules of variable sizes, a median distal one of which is the most prominent. Antennal acicle depressed and armed with some strong spines on both sides.

Chelipeds heavy; inner margin of merus with an acuminate saw-tooth at its distal end; carpus flattened on its upper surface and strongly crested, with some notches, on inner distal and outer borders; upper border of palm rather thin and armed with some serrated small teeth.

Ambulatory legs long and depressed, and crested and cut into serrated teeth on both borders of meri, carpi and propodi; each of upper and lower

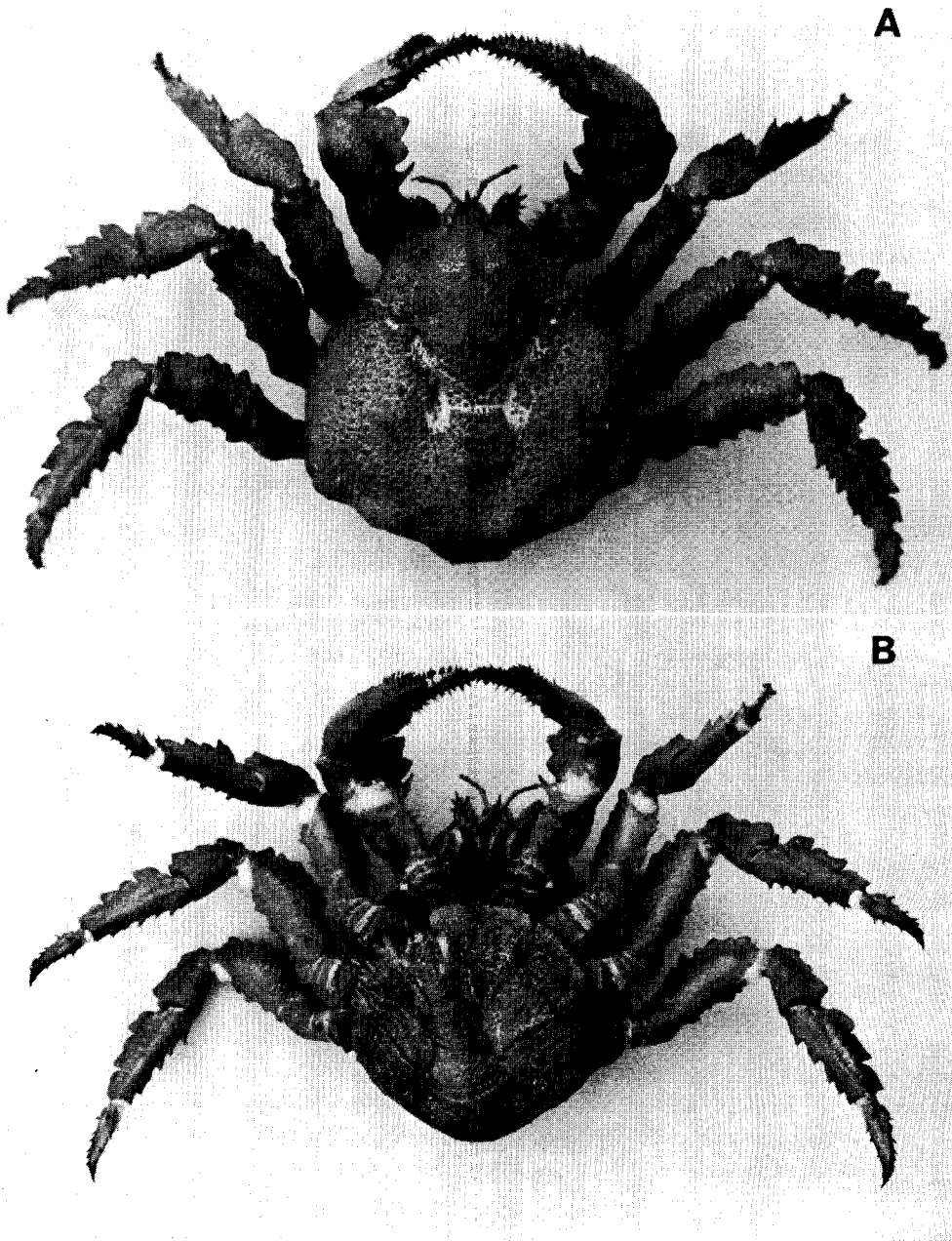


Fig. 1. *Paralomis cristata* Takeda et Ohta, ♀ in dorsal (A) and ventral (B) views. Breadth of carapace, 9 cm.

borders of merus with several teeth of variable shapes and sizes; upper border of carpus cut into three; upper border of propodus with three broad teeth, each of which is shallowly subdivided; teeth of lower border of propodus rather spiniform.

Abdomen thickly covered with small verrucose granules of variable sizes in both sexes; in male abdomen, marginal plates of third to fifth segments markedly subdivided, with longitudinally oblong terminal segment; female abdomen twisted

Table 1. List of known species of *Paralomis* in chronological order, with geographical and bathymetrical range.

<i>P. hystrix</i> (de Haan, 1849)	From Tokyo Bay to Tosa Bay, 300–600 m.
<i>P. granulosa</i> (Jacquinot, 1852) (= <i>P. verrucosa</i> (Dana))	From Chiloe I. through Magellan Str. to off Lio de Janeiro, sublittoral to 100 m.
<i>P. aculeata</i> Henderson, 1888	Off Prince Edward I., 560 m.
<i>P. formosa</i> Henderson, 1888	Off Rio Plata, 1080 m.
<i>P. aspera</i> Faxon, 1893	Off Pacific coast of Panama, 1250 m.
<i>P. longipes</i> Faxon, 1893	Off California, 1385 m.
<i>P. multispina</i> (Benedict, 1895)	From Bering Sea to San Diego, and to Sagami Bay, 600–1575 m.
<i>P. papillata</i> (Benedict, 1895)	Off Lower California.
<i>P. verrilli</i> (Benedict, 1895)	From Bering Sea to Cortez Bank, and to Enshu-nada Sea, 850–3290 m.
<i>P. indica</i> Alcock et Anderson, 1899	Off Travancore coast, 775 m.
<i>P. investigatoris</i> Alcock et Anderson, 1899	Off Travancore coast, 775 m.
<i>P. bouvieri</i> Hansen, 1908	South of Iceland, 1325–1430 m.
<i>P. spectabilis</i> Hansen, 1908	South of Iceland, off Scott I. and off South Georgia I., 190–1920 m.
<i>P. dofleini</i> Balss, 1911	From Sendai Bay to Enshu-nada Sea, 470–780 m.
<i>P. japonica</i> Balss, 1911	From Sagami Bay to Enshu-nada Sea.
<i>P. cubensis</i> Chace, 1939	East of Havana, 430–540 m.
<i>P. zealandica</i> Dawson et Yaldwyn, 1971	Chatham Rise, 640 m.
<i>P. longidactyla</i> Birstein et Vinogradov, 1972	East of Montevideo.
<i>P. spinosissima</i> Birstein et Vinogradov, 1972	Off South Georgia I., 215–640 m.
<i>P. medipacifica</i> Takeda, 1974	Far off Midway, 695–820 m.
<i>P. inca</i> Haig, 1974	Off Peru, 620–744 m.
<i>P. seagranti</i> Eldredge, 1976	Off Guam, 250 m.
<i>P. haigae</i> Eldredge, 1976	Off Guam, 400–730 m.
<i>P. pacifica</i> Sakai, 1978	North of Nintoku Seamount, 800 m.
<i>P. cristata</i> Takeda et Ohta, 1979	Suruga Bay, 700–750 m.
<i>P. truncatispinosa</i> Takeda et Miyake, 1980	East China Sea, 642–840 m.
<i>P. hystrixoides</i> Sakai, 1980	From Sagami Bay to Enshu-nada Sea, 750–800 m.
<i>P. roeleveldae</i> Kensley, 1980	East of Port Elizabeth, 625–900 m.
<i>P. chilensis</i> Andrade, 1980	Chile.
<i>P. africana</i> Macpherson, 1982	Off Namibia, 570–615 m.
<i>P. shinkaimaruae</i> Takeda, 1984	Bromley Plateau, 668 m.

as usual, with a fringe of small tubercles on outer larger plates, and with each plate of inner smaller margin deeply notched distally.

*Remarks.* The additional specimens quite well agree with the holotype female. In reality it is almost impossible to enumerate the differences. In the female recorded at present the carapace may be seemingly rounded due to the obtuser anterolateral granules and the smooth anterior part of the branchial region. This minor discrepancy is without doubt referred to the individual, and the difference in the sex is only the shape of the abdomen. It is decidedly pointed out that the formation of the chelipeds is quite

same in both sexes.

Recently, *Paralomis shinkaimaruae* Takeda was described from the southwestern Atlantic as thirty-first species for the genus. Most of the known species are the deep-sea inhabitants and known by few records, being distributed to the restricted area. Table 1 is the list of the known species in chronological order. As a matter of convenience they were rearranged to know the general geographical distributions as follows.

#### Pacific Ocean

Northern *multispina*; *verrilli*  
Western Continent—*cristata*; *dofleini*;  
*hystrix*; *hystrixoides*; *japonica*;

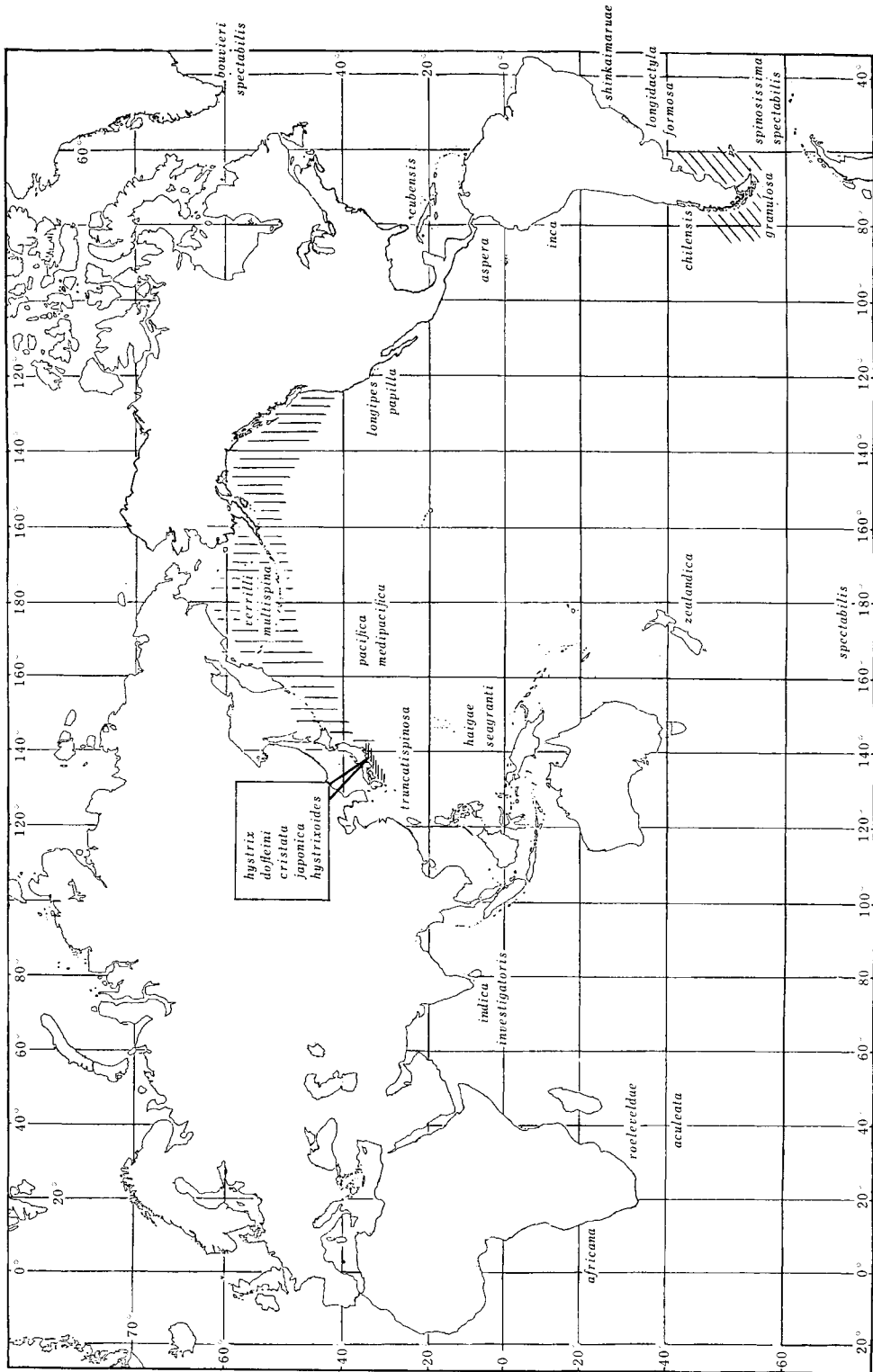


Fig. 2. A map showing the geographical distributions of 31 known species of *Paralomis*.

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	<i>truncatispinosa</i>   Seamount— <i>haigae</i> ; <i>medipacifica</i> ; <i>pacifica</i> ; <i>seagranti</i>
Eastern	<i>aspera</i> ; <i>chilensis</i> ; <i>inca</i> ; <i>longipes</i> ; <i>papillata</i> ; [ <i>granulosa</i> ]
Southern Indian Ocean	<i>zealandica</i> ; [ <i>spectabilis</i> ]
Northern	<i>indica</i> ; <i>investigatoris</i>
Southwestern Atlantic Ocean	<i>aculeata</i> ; <i>roeeleveldae</i>
Northern	<i>bouvieri</i> ; <i>spectabilis</i>
Western	<i>cubensis</i>
Southwestern	<i>formosa</i> ; <i>granulosa</i> ; <i>longi-</i> <i>dactyla</i> ; <i>shinkaimaruae</i> ; <i>spinosissima</i> ; [ <i>spectabilis</i> ]
Eastern	<i>africana</i>

It is apparent that the genus *Paralomis* is found worldwide, ranging from the northern Pacific and Atlantic Oceans southward to Antarctic waters, and from the sublittoral bottom in *P. granulosa* down to 3,290 m deep in *P. verrilli*. Most of the species are the deep-sea inhabitants, with the restricted distributions, except for *P. spectabilis* which is known from the northern Atlantic and also from the Antarctic and Subantarctic, and *P. multispina* and *P. verrilli* which are distributed in the northern North Pacific on both the American and Japanese coasts. The distribution pattern of *P. granulosa* is also characteristic, being known from both coasts of southern South America. This species may be included in a group designated as the Subantarctic element together with *P. aculeata*, *P. spectabilis*, *P. spinosissima*, the main habitat of which is the vicinity of lat. 50°S.

It can also be decidedly said that the *Paralomis* species are continental or associated with the seamounts, and abundant in the northwestern Pacific. There is no record from oceanic islands waters of the Pacific, and from Malaysian and Australian waters. In general the investigation and collection of benthic animals inhabiting offshore submarine banks are extremely difficult, but there may be the additional species or the range extension in these virgin waters. The submarine banks of the Indian Ocean also await almost certainly such kind of investigation.

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A Stone Crab, *Paralomis cristata*, from Suruga Bay

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#### 駿河湾産ヒラアシエゾイバラガニの新記録標本

武田正倫・平本紀久雄・鈴木雄策

ヒラアシエゾイバラガニは Takeda & Ohta (1978) により、駿河湾産の雄 1 個体に基づいて記載されたが、ほぼ時を同じくして平本・鈴木も駿河湾産の雌雄各 1 個体を得て、新種として発表するための原稿を作成した。本報文は、この未発表の原稿をまとめなおして、原記載を補うようにしたものである。また、エゾイバラガニ属 *Paralomis* の既知種をすべてあげ、分布特性を論じた。属全体としては分布が広いが、各種は一般に深海性で、分布が狭く、その上、大陸縁辺か海山上にすむ。エゾイバラガニ *P. multispina* とゴカクエゾイバラガニ *P. verrilli* が北太平洋北部の沿岸域に、*P. granulosa* が南米大陸南端部の東西両岸に、*P. spectabilis* が北大西洋北部と南極海域に分布するのが特異である。

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