

Rediscovery of rare porcellanid crab *Pseudoporcellanella manoliensis* Sankarankutty, 1961, from Palk Bay, Tamil Nadu, India

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Routine field survey in the Palk Bay landings yielded a single ovigerous specimen of *Pseudoporcellanella manoliensis* after a gap of nearly 55 years in Indian coastal waters. Rediscovery of this species in ovigerous condition from the Palk Bay reassures that the population still exist in these ecosystems since its description by Sankarankutty in 1961.

[**Keywords:** *Pseudoporcellanella manoliensis*; Palk Bay; Porcelain crab; Rarity]

Introduction

Rarity is defined as per IUCN for “a taxon which is not presently endangered or vulnerable but can become vulnerable because of small populations usually located in restricted/ scattered over a more extensive range”. In the cases of marine organisms, this condition is not well-defined^{1, 2}. Few specimens may be collected if their habitats are difficult to access or if the species has special and unknown habitat requirements or a very small geographic range. Based on the earlier records, *Pseudoporcellanella manoliensis* Sankarankutty, 1961 appears in the rare species category¹ and has been described in 1961 from the Gulf of Mannar, Manoli Island, Tamil Nadu, India at 6 m depth⁷. Since its original description in 1961, there have been only 16 specimens collected for scientific research from Singapore and Cambodian waters, and a maximum of three specimens has been collected at one time from a single geographic location^{3,4}. This species is considered as vulnerable in the Singapore Red Data Book⁵ and listed as very rare in Thai waters⁶.

Additional records for this species are from Singapore⁸, Peninsular Malaysia, the Gulf of Thailand, the South China Sea³ and coastal waters of Cambodia⁴.

The natural habitat for *P. manoliensis* is sea pens, a group of octocorals found on soft substrates. In Singapore, this species is specifically associated with sea pens of the genus *Scytalium*⁸. Present study consists the new record of *Pseudoporcellanella manoliensis* from Palk Bay, Tamil Nadu, India.

Material and Methods

The specimen was collected during routine analysis of the catch in shrimp trawl at Rameshwaram fish landing centre, Palk Bay coast of Tamilnadu, India on 16 June 2016. The specimen was brought to the laboratory for further examination and identified based on the holotype description given by Sankarankutty (1961). All the Morphometric measurements of the *P. manoliensis* were taken to the nearest 1 mm with digital Vernier calliper (Mitutoyo CD-6CSX); the weight was measured to 0.1 mg accuracy (Shimadzu AY 220).

Morphometrics of the holotype single juvenile specimen collected from the Gulf of Mannar by Sankarankutty (1961) were compared to the present specimen. The present specimen was deposited at the Central Marine Fisheries Research Institute (CMFRI), Mandapam Camp with the accession number MMM-CMFRI-16001.

Results

Order Decapoda Latreille, 1802

Family Porcellanidae Haworth, 1825

Genus *Pseudoporcellanella* Sankarankutty, 1961

Species *Pseudoporcellanella manoliensis* Sankarankutty, 1961

One berried female, 17.09 mm total length 10.78 mm carapace length, 1.3023 g body weight. Accidental host: Shrimp, *Parapenaeopsis hardwickii*, 103 mm Total length, 39 mm carapace length, 8.5326 g body weight. Site of attachment: ventral side of the shrimp on pereopodal somites. Description [Table 1. Female (Figs. 1 & 2)]

Table 1 — Morphometric measurements (in mm) of *Pseudoporcellanella manoliensis*

Parameters	Present specimen		Holotype (Sankarakutty, 1962)	
	Length	Width	Length	Width
Carapace	17.09	10.78	5.60	2.86
Rostrum base width (RW)	2.34			
Orbital spine width (OW)	5.41			
First spine length (SL)	2.28			
Carapace length to the rostrum (CLR)	19.77			
Carapace length to the eye orbit (CLO)	15.28			
Rostrum length (RL)	3.27			
Orbital spine length (OL)	0.78			
Right Chelipeds				
Dactylus	4.59	1.98	1.06	
Propodus	5.58	4.02		
Carpus	2.33	3.05		
Merus	4.10	2.58		
Ishium	1.17	1.97		
Manus	4.74	3.65	2.46	1.00
1st Ambulatory leg				
Dactylus	1.12	0.66		
Propodus	1.74	1.08		
Carpus	1.47	1.54	1.00	0.66
Merus	3.17	2.05	1.00	0.60
Ishium	1.48	1.29		
Abdomen				
Length	14.26			
1 st segment width	8.46			
5 th segment width (AW)	4.99			

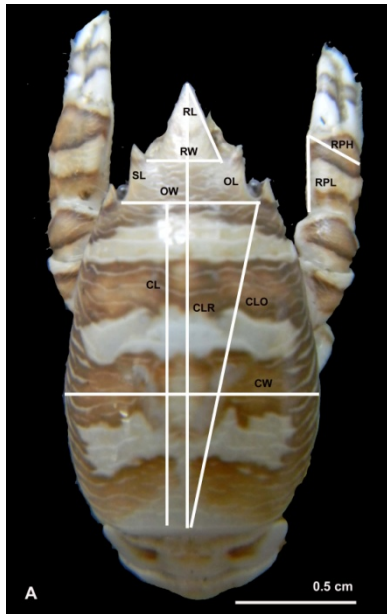


Fig.1 A & B) — Dorsal view of *Pseudoporcellanella manoliensis* ♀ [CW- Carapace width, CL- Length of carapace,RW- Rostrum base width,RL- Rostrum length, OW- Orbital spine width, SL- First spine length, CLR- Carapace length to the rostrum, CLO- Carapace length to the eye orbit, OL- Orbital spine length, RPL- Right propodus length, RPH- Right propodus height]

B) Ventral view of ovigerous ♀ *Pseudoporcellanella manoliensis* [AL- abdominal length. AW- abdominal width] (© M. Rajkumar).

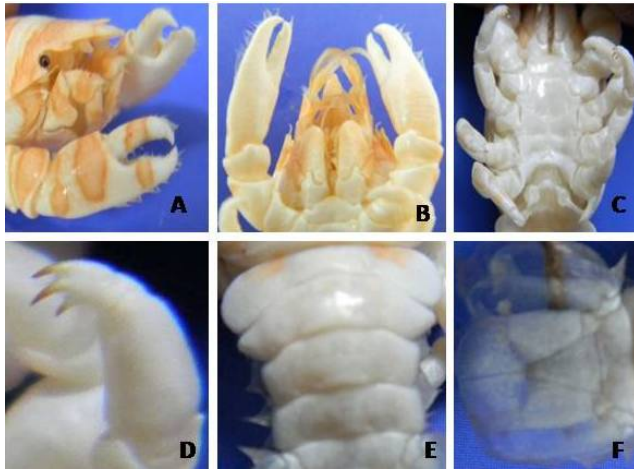


Fig. 2 — Parts of *Pseudoporcellanella manoliensis* A) frontal lateral view, B) frontal ventral view, C) ventral view of body segment, D) ambulatory leg, E) dorsal view of abdomen, F) telson (© M. Rajkumar).

Carapace distinctly longer than broad, surfaces smooth with distinct transverse striae on carapace. Antero- and postero-lateral margins not demarcated; lateral margins rounded, gently convex; external orbital angle strong, acutely triangular and directed forward. Frontal margin distinctly trilobite, all lobes triangular, straight, and directed forward. Lateral (inner supra-orbital) lobes faintly keeled to half-length. Posterior part of carapace demarcated with inconspicuous grooves. Eyes partly visible from dorsal view, cornea well developed ocular peduncle short. Antenna short, lodged in groove between carapace and pterygostomial region. Third maxilliped narrow, inner margin with long stiff hairs, merus shorter than ishium; inner margin of ishium auriculiform along distal part, with well-developed sharp spine on outer distal angle, which is directed outward. Merus narrow, proximal inner margin with truncate auriculiform structure.

Chelipeds short, stout and subequal. Surface of chelipeds slightly rugose and convex. Ventral margin of palm and pollex. Carpus is a short and slightly broader than long. Merus is longer than the carpus. The manus is flattened and is the largest segment in the cheliped, its length along the upper border is same as that of dactylus.

Ventral border of the manus has a fringe of bipinnate hairs from the proximal end to the tip of the fixed finger and increasing towards the tip. The distal part of dactylus lined with plumose hairs and concentrated at the tip. Proximal teeth present on cutting edge of dactylus.

Ambulatory legs stout and sub-equal. Merus short, surfaces rounded, margins unarmed. Its longer than propodus. Propodus has no spinule at the distal end of the ventral side. Dactylus short strongly hooked with three spinules, middle spinule the largest, proximal the smallest.

Abdomen 6-segmented, broad, covering almost entire sternum. Telson divided in 7 elements, median plate acutely triangular with thoracic pleopods.

Discussion

Pseudoporcellanella manoliensis is a rare species known from only a few records globally. The present study reports the first specimen collected from the Palk Bay, India. Other than this, two specimens were collected on the west coast of Peninsular Malaysia³ and the remainings were collected in the Gulf of Thailand and western part of the South China Sea.

Jensen et al.⁴ opined that the Gulf of Thailand may be the species main distribution area. However, the present record of a ovigerous female from Palk Bay corroborates that *P. manoliensis* has distribution range from Gulf of Mannar to South China Sea, with active breeding population in Gulf of Mannar and Palk Bay region too. The rediscovery of this species after five decades indicate that this species has established populations in the Gulf of Mannar and Palk Bay ecosystems.

Conclusions

P. manoliensis is a cryptic species living on sea pens. In the present study, we reported the occurrence of *P. manoliensis* from Palk Bay for the first time.

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