Pontella aculeata, a new species of neuston copepods from the eastern part of the Indian Ocean (Crustacea: Calanoida: Pontellidae)

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Heinrich, A.K. 2006. *Pontella aculeata*, a new species of neuston copepods from the eastern part of the Indian Ocean (Crustacea: Calanoida: Pontellidae). *Zoosystematica Rossica*, **14**(2), 2005: 191-196.

Pontella aculeata sp. n. from the eastern part of the Indian Ocean is described and illustrated. It is closely related to *P. novaezelandiae* Farran, 1929. The new species is distinguished from it by the shorter processes of Me5. Right P5 of *P. aculeata* male has in proximal part of Re1 a branching process with two long, slender, and one wide short branches. *P. novaezelandiae* has there one long process and short forked projection at its base. The posterior process on dorsal side of the genital somite in the female of the new species is short, with rounded edges, in *P. novaezelandiae* long and sharp. *P. aculeata* female has right P5 Re with 2 processes in the distal part of the inner edge. *P. novaezelandiae* has one only. *P. aculeata* is smaller than *P. novaezelandiae*.

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The Pontellidae are common in the tropical marine neuston. During the 31st cruise of R/V "Vityaz" in the Indian Ocean, extensive neuston samples were collected. From the eastern part of the Indian Ocean, specimens identified as *Pontella novaezelandiae* Farran (1929) (Voronina, 1962) were found. This species was described from the region near New Zealand. Subsequently it was found in this region only (Bradford-Grieve, 1999). Examination of the specimens from the Indian Ocean showed that they belong to a separate species. It is described below as *P. aculeata* sp. n.

Material and methods

The neuston was sampled with Savilov's pleuston trawl (Savilov, 1963) in the upper 25-30 cm of water layer. The trawl consisted of a frame 100 × 60 cm and a net 1.5 m long made of bolting cloth with 14 meshes per cm, and was towed horizontally. Samples were preserved in 4% sea water solution of formaldehyde. Slides were prepared in glycerin.

Total length of the body was determined as length of prosome and urosome combined. Prosome length was measured in right lateral view from the anterior end of the cephalosome to the dorsalmost junction between prosome and urosome. The length of urosome was measured between this junction and posterior end of the longer caudal ramus.

The material of *P. novaezelandiae* used for comparison: Pacific Ocean, 26th cruise R/V "Vityaz" in January 1958 at st. 3833, 35°24′S, 181°23′E (3 males); st. 3839, 36°53′S, 172°31′E (1 male); st. 3842, 33°16′S, 171°59′E (3 females).

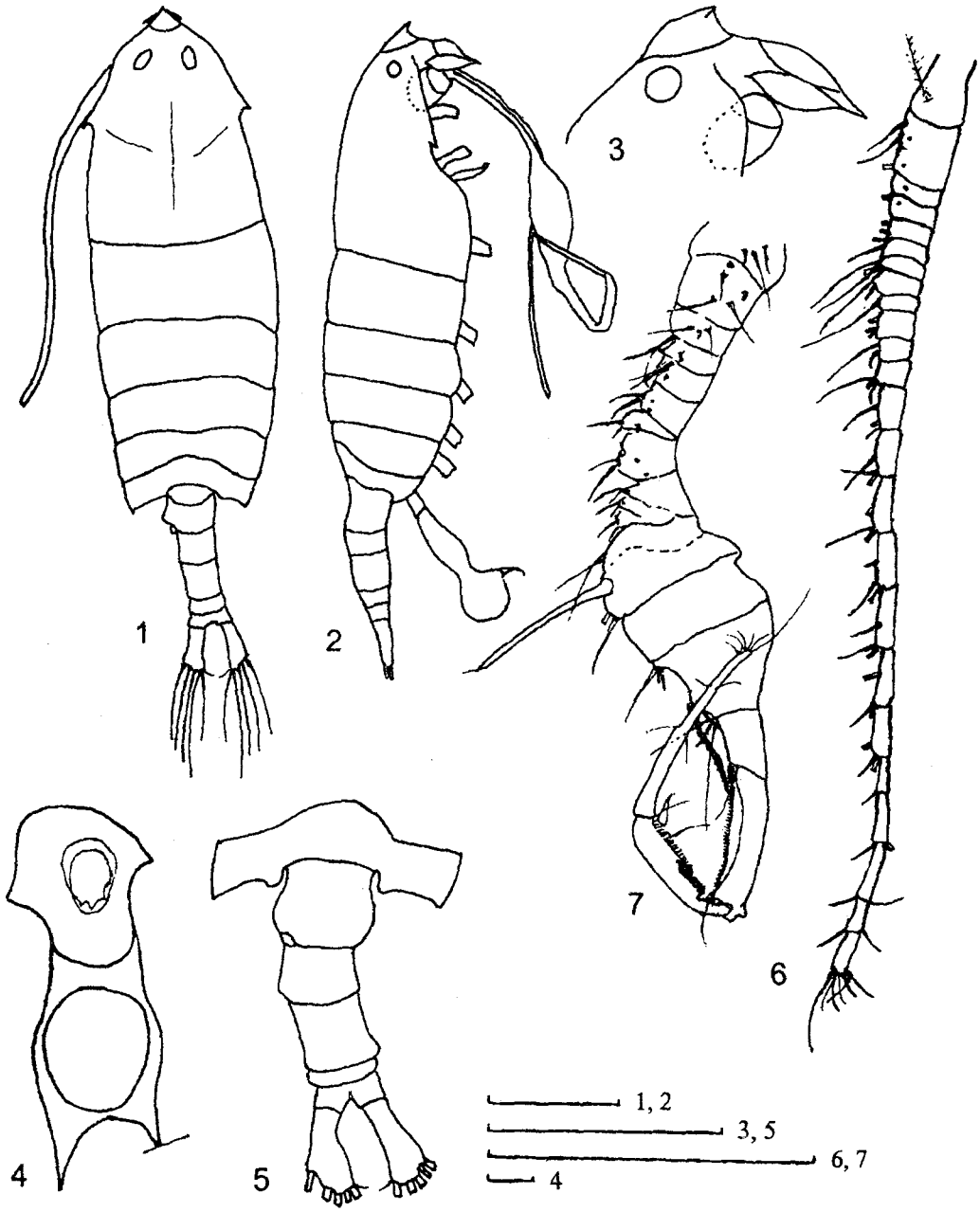
The following abbreviations are used: A1, antennule; A2, antenna; B1, coxa; B2, basis; Ce, cephalosome; CR, caudal rami; Md, mandible; Me1-Me5, 1th-5th metasomal somites; Mx1, maxillule; Mx2, maxilla; Mxp, maxilliped; P1-P5, legs of 1st-5th pairs; Pr, prosome; Re, exopod; Re1-Re3, 1st-3rd exopodal segments; Ri, endopod; Ri-Ri3, 1st-3rd endopodal segments; Ur, urosome; Ur1-Ur5, 1st-5th urosomal somites.

Pontella aculeata sp. n.
(Figs 1-28)

Pontella novaezelandiae (non Farran, 1929): Voronina, 1962: 68, 70-71.

Holotype. Adult ♂, dissected and mounted in glycerin on slides, **Indian Ocean**, st. 4563, 23°52′S, 111°55′E, 1.XII.1959, 31st cruise of R/V "Vityaz", Savilov pleuston trawl, surface haul, deposited in the collection of the Zoological Museum of the Moscow State University, reg. no. Me-1198.

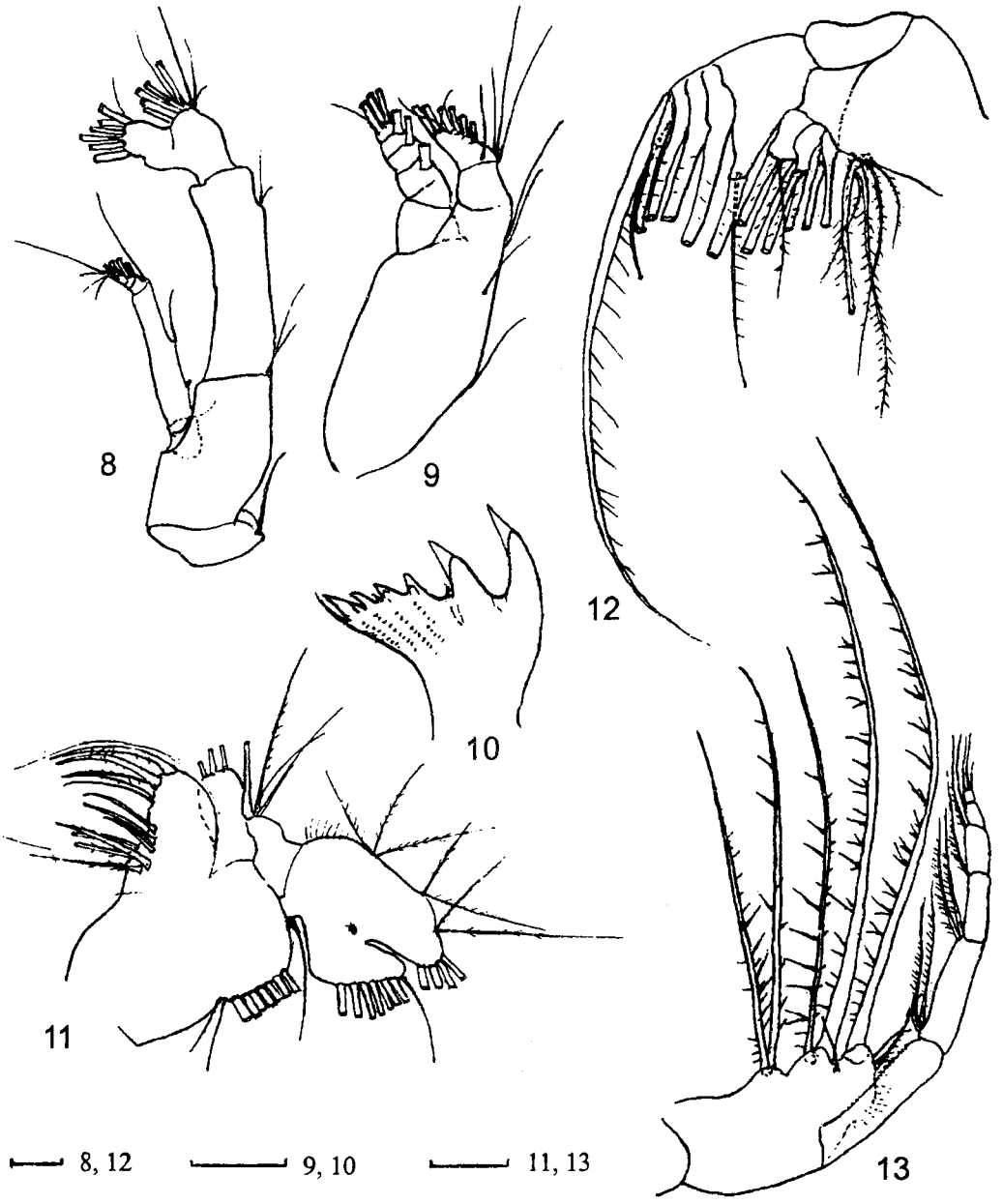
Paratypes, all from the same cruise in the same depository: 2 ♂, 9 ♀, from the same sample as holotype including 1 ♀, allotype, dissected and mounted in glycerin on slides (reg. no. Me-1199), the rest intact (reg. no. Me-1200); 1 ♂, 1 ♀, st. 4559, 22°33′S, 106°32′E, 29.IX.1959; 1 ♂, st. 4564, 23°57′S, 112°14′E, 2.XII.1959.



Figs 1-7. *Pontella aculeata* sp. n., male, holotype. **1**, dorsal view; **2**, right lateral view; **3**, cephalosome, right lateral view; **4**, rostrum and tooth of crest; **5**, Me5 and Ur, dorsal view; **6, 7**, left and right A1, correspondingly. Scales: 1-3, 5-7: 1 mm; 4: 0.1 mm.

Description. Male, holotype (Figs 1-19). Total length 4.52 mm. Pr/Ur 2.5. Ce and Me1, Me4 and Me5 separated. Ur consisting of 5 somites; Ce with lateral hooks and crest ending in a tooth. Rostrum bifurcate. Rostral, dorsal and ventral lenses well developed. Posterior corners of Me5 with short lateral points. Ur1 extended on the left side. Each of Ur4 and Ur5 considerably shorter than each of Ur1-Ur3. CR 2.3 times as long as its maximum width. Proximal parts of CR narrowed.

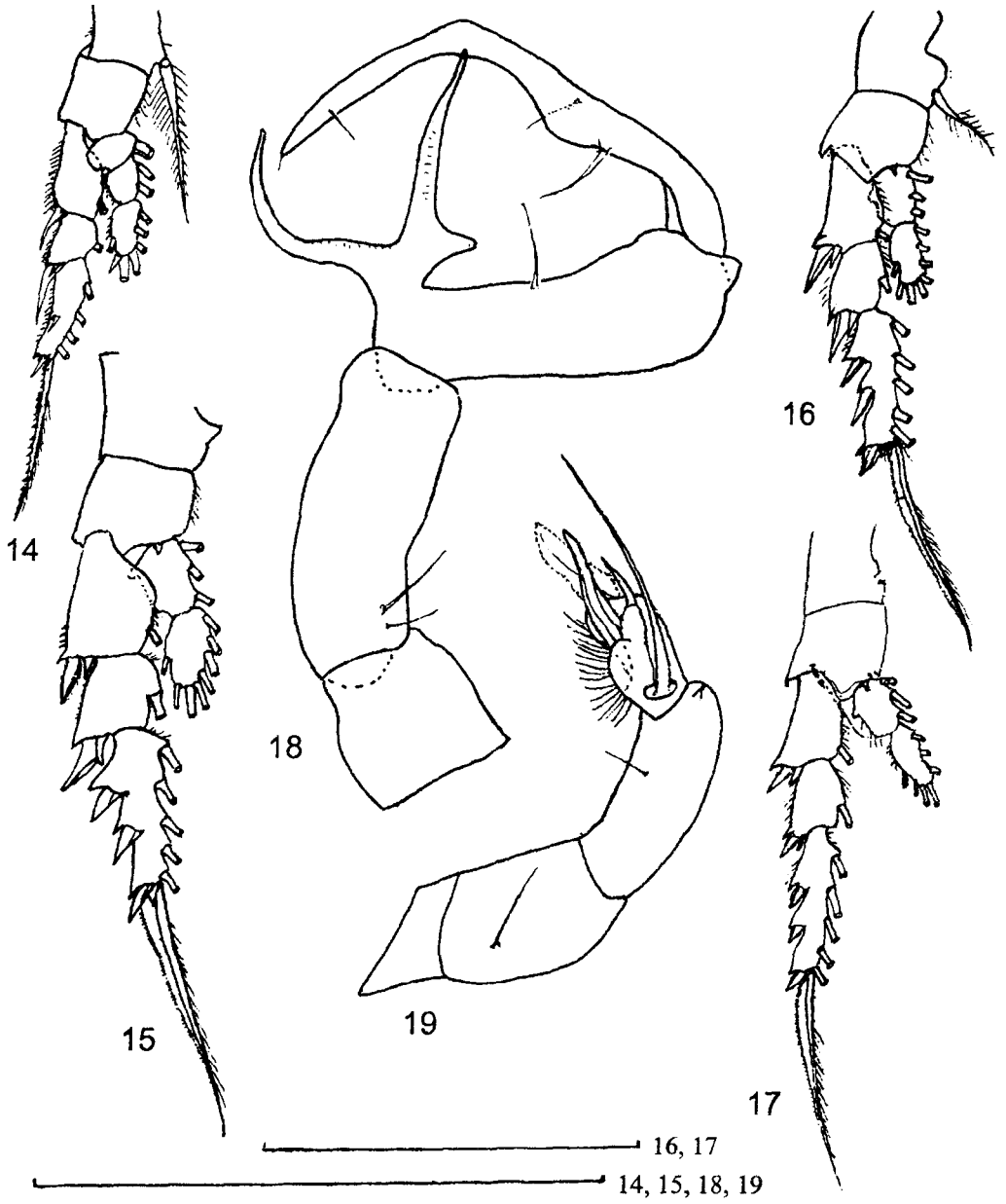
Left A1 24-segmented, reaching proximal part of Me3. Right A1 geniculate, with middle part



Figs 8-13. *Pontella aculeata* sp. n., male, holotype. **8,** A2; **9,** Md palp; **10,** Md blade; **11,** Mx1; **12,** Mx2; **13,** Mxp. Scales: 0.1 mm.

swollen. Segmentation and toothed ridges as in Fig. 7. A2, Md, Mx1, Mx2, Mxp and swimming legs P1-P4 as in Figs 8-17, respectively, similar in structure to such appendages of *P. novaezelandiae* (Farran, 1929; Bradford-Grieve, 1999).

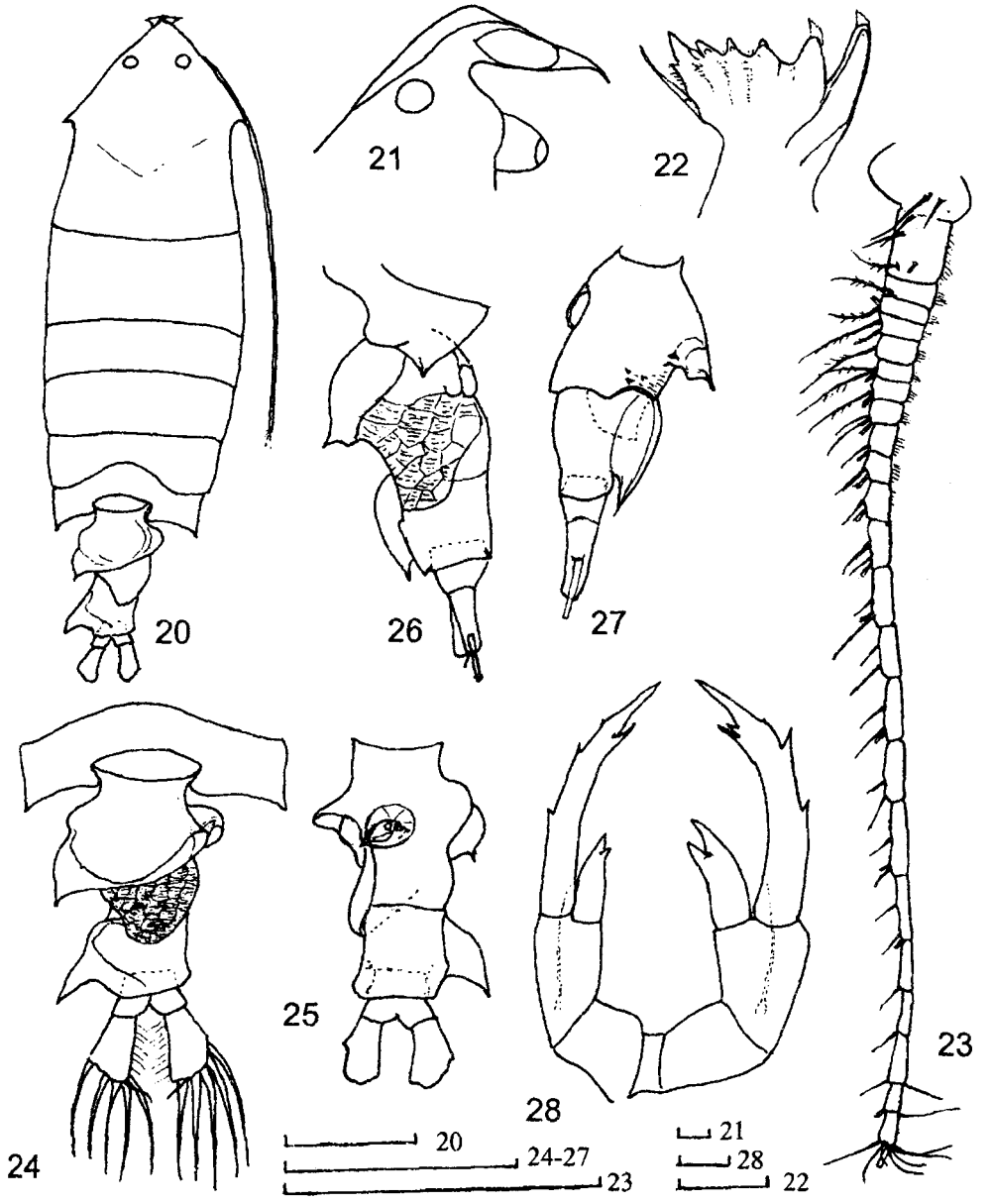
P5 asymmetrical, without endopods. Right P5 B1 without setae, B2 with 2 setae. 2-segmented exopod forming chela. Re1 in proximal part with branching process: 2 slender long branches and 1 short and wide. Outer margin of Re1 with a seta at the middle. Distal segment Re elongate, curved, with 3 setae, and with small flagellum at



Figs 14-19. *Pontella aculeata* sp. n., male, holotype. **14,** P1; **15,** P2; **16,** P3; **17,** P4; **18,** right P5; **19,** left P5. Scales: 1 mm.

apex. Left P5: B1 forming part of transverse plate, without setae; B2 with a seta; Re1 with small seta and short spine. Terminal segment of Re with long, thick outer seta at its base, with thin spine and wide flat process at middle, with semitransparent serrate plate behind the process. Inner margin of segment with bunches of thin setae.

Female, allotype (Figs 20-28). Total length 4.95 mm, Pr/Ur 2.8. Ce and Me1, M4 and Me5 separated. Ur consisting of 3 somites. Ce with lateral hooks and small crest without tooth. Rostrum bifurcate, with long and slightly bent ends. Rostral lenses weakly developed, dorsal and ventral lenses well developed. Posterior corners of Me5 slightly asymmetrical, with sharp straight processes; right process wider. Genital somite swollen at both sides, with 2 dorsal processes. Anterior process sharp and directed dorsally, pos-



Figs 20-28. *Pontella aculeata* sp. n., female, allotype. **20,** dorsal view; **21,** cephalosome, right lateral view; **22,** Md blade; **23,** A1; **24,** Me5 and Ur, dorsal view; **25,** Ur, ventral view; **26,** Ur, right lateral side view; **27,** Ur, left lateral side view; **28,** P5. Scales: 20, 23-27:1mm; 21, 22, 28: 0.1 mm.

terior one directed backward and covering partly Ur2. Its posterior margin rounded. Cuticula on dorsal and right sides with reticulation. Genital opening in the right part of ventral side. Ur2 on its left side with large, sharp, wing-shaped process. Ur3 the shortest, without processes. Symmetrical CR 1.6 times as long as their largest width.

A1 24-segmented, reaching distal part of Me3. Mouth parts and P1-P4 as in male. P5 asymmetrical, right P5 larger. B1 without setae, B2 with 1 seta. On both legs, outer edges of Re with 2 sharp processes and 1 small spine. Inner edge of left Re in distal part with 1 process and 1 small spine; right Re in the same place with 2 processes. Ends of both Re sharp. Ri with bifid apex.

Etymology. The species name (Latin "aculeata", sharp) suggests the sharp processes on the body.

Comparison. Pontella aculeata sp. n. is closely related to *P. novaezelandiae* Farran (Farran, 1929; Bradford-Grieve, 1999) and differs in the following characters. Both male and female have Me5 with small lateral posterior projections not reaching the middle of Ur1. These projections in *P. novaezelandiae* are large and extend nearly to the end of Ur1 in the male, and beyond the middle of Ur1 in the female. In male of *P. aculeata,* the right P5 has in the proximal part of Re1 a process branching into 2 long, slender and 1 short wide branches. *P. novaezelandiae* has in the proximal part of Re1 a long, slender, curved process, and a short, sharp, forked projection at its base. The female of the new species is distinguished by the shape of posterior process on the dorsal side of Ur1. It is short and with rounded edges. In *P. novaezelandiae,* Ur1 has a longer, sharp posterior process. The female of *P. aculeata* has the right P5 Re with 2 processes in the distal part of the inner edge, whereas *P. novaezelandiae* has one process only.

No intermediate forms between the species were found.

P. aculeata is smaller than *P. novaezelandiae.* Male total length 4.34-4.60 mm; Pr/Ur 2.5-2.7. Female total length 4.87-5.00 mm; Pr/Ur 2.4-2.8. Male total length of *P. novaezelandiae* 4.90-5.40 mm, female total length 5.95-6.20 mm (Farran, 1929; Bradford-Grieve, 1999).

Distribution. P. aculeata sp. n. was recorded only in the Eastern Indian Ocean at the stations near 22°-24°S, 106°-112°E. Probably, it is a neritic species. *P. novaezelandiae* Farran has never been found in this region.

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Received 30 October 2005