

Crustacea Decapoda : Species of the genera *Munida* Leach, 1820 and *Paramunida* Baba, 1988 (Galatheidae) from the seas around the Wallis and Futuna Islands

Enrique MACPHERSON

Centro de Estudios Avanzados de Blanes (CSIC)
Camí de Santa Bàrbara s/n
17300 Blanes (Girona), Spain.

ABSTRACT

Thirty two species of the genus *Munida* Leach, 1820 and eight species of the genus *Paramunida* Baba, 1988 are reported from the Wallis and Futuna area. Six new species of *Munida* (*M. galaxaura*, *M. masoae*, *M. micula*, *M. miniata*, *M. offella* and *M. spissa*) and four new species of *Paramunida* (*P. amphitrita*, *P. cretata*, *P. labis* and *P. luminata*) are described as new.

RÉSUMÉ

Crustacea Decapoda : Espèces des genres *Munida* Leach, 1820, et *Paramunida* Baba, 1988 (Galatheidae), récoltées autour des îles Wallis et Futuna.

Les espèces des genres *Munida* Leach, 1820 et *Paramunida* Baba, 1988, récoltées dans la zone des îles Wallis et Futuna, sont au nombre de 32 et 8, respectivement. Six espèces de *Munida* (*M. galaxaura*, *M. masoae*, *M. micula*, *M. miniata*, *M. offella* et *M. spissa*) et quatre de *Paramunida* (*P. amphitrita*, *P. cretata*, *P. labis* et *P. luminata*) sont nouvelles. Les espèces récoltées, dans leur ensemble, sont plus proches de celles de la Nouvelle-Calédonie, des Philippines et de l'Indonésie que de celles de la Polynésie française.

INTRODUCTION

During a recent cruise (MUSORSTOM 7) to the Wallis and Futuna area (RICHER DE FORGES & MENOÛ, 1993), an interesting collection of galatheids of the genera *Munida* Leach, 1820 and *Paramunida* Baba, 1988 was taken. The galatheid fauna in this area of the Pacific Ocean is very poorly known. Although early collections of this group from Fiji and the Samoa Islands were assembled during the *Challenger* Expedition (HENDERSON, 1885;

1888), few studies (DANA, 1853; ORTMANN, 1892; BABA & TÜRKAY, 1992; BABA & DE SAINT LAURENT, 1992) have been reported from this area. Five species of the genus *Munida* (*M. militaris* Henderson, 1885; *M. normani*, Henderson, 1885; *M. spinicordata* Henderson, 1885, *M. tuberculata* Henderson, 1885 and *M. magniantennulata* Baba & Türkay, 1992) and two of the genus *Paramunida* [*P. granulata* (Henderson, 1885) and *P. stichas* Macpherson, 1993] have been cited in this region (HENDERSON, 1888; BABA & MACPHERSON, 1991; BABA & TÜRKAY, 1992; BABA & DE SAINT LAURENT, 1992; MACPHERSON, 1993b, 1994). The present material revealed the existence of 32 species of the genus *Munida*, 6 of which are considered here to be new species, and 8 species of the genus *Paramunida*, including 4 new species. Although more taxonomic and biogeographic studies would be desirable, the results of this paper reveal a certain similarity between the species from the Wallis and Futuna area and those from the Western Pacific, e.g., New Caledonia, Indonesia, Philippines (BABA, 1988; MACPHERSON, 1993a, 1994; MACPHERSON & BABA, 1993). In contrast, these species are quite different from those described and cited from French Polynesia (MACPHERSON & DE SAINT LAURENT, 1991).

The types of the new species and other material have been deposited in the collections of the Muséum national d'Histoire naturelle, Paris (MNHN) and the National Museum of Natural History, Washington (USNM). Measurements given are of carapace length, excluding rostrum, and the terminology used mainly follows ZARIQUIEY ALVAREZ (1952) (see also MACPHERSON & DE SAINT LAURENT, 1991). Some morphometric characters (e.g., size and length of articles of chelipeds and walking legs, length of rostral and supraocular spines) exhibit a certain degree of variability between specimens of different size and sex, as well as between specimens of the same size and thus are of limited value. Although they can in some cases be used to distinguish species, in the present paper only those that present a certain constancy (e.g., length and height of articles of walking legs) have been considered in the diagnoses. They must, however, be used with caution, and only in cases in which differences were very large have they been used as species descriptors. As in previous papers (e.g., MACPHERSON, 1994) and in order to avoid repetitious descriptions, only distinctive characters have been included in the text. The colour patterns of the species have been described from colour slides of material.

LIST OF STATIONS

The abbreviations of the gears used are : DW = Waren dredge, CP = Beam trawl, CC = Otter trawl.

MUSORSTOM 7.

- Stn DW 494. — 10.05.1992, 14°18.9'S, 178°03.0'W, 100-110 m : *M. clinata*.
 Stn DW 496. — 10.05.1992, 14°19.6'S, 178°04.3'W, 250-330 m : *M. offella*, *M. tyche*, *P. labis*.
 Stn CP 498. — 10.05.1992, 14°18.9'S, 178°03.1'W, 105-160 m : *M. abelloi*, *M. bellior*, *M. clinata*.
 Stn DW 499. — 10.05.1992, 14°19.6'S, 178°04.6'W, 290-395 m : *P. belone*.
 Stn DW 504. — 11.05.1992, 14°19.6'S, 178°04.5'W, 300-390 m : *M. micula*, *M. notata*.
 Stn CP 505. — 11.05.1992, 14°19.5'S, 178°04.3'W, 245-400 m : *M. offella*, *M. semoni*, *M. tyche*, *P. belone*, *P. labis*.
 Stn CP 508. — 11.05.1992, 14°19.5'S, 178°04.5'W, 245-440 m : *M. offella*, *M. elegantissima*, *M. notata*, *M. runcinata*, *M. semoni*, *M. tyche*, *P. labis*.
 Stn DW 509. — 12.05.1992, 14°14.8'S, 178°11.5'W, 200-240 m : *M. tyche*.
 Stn DW 510. — 12.05.1992, 14°14.5'S, 178°11.5'W, 280-370 m : *M. runcinata*, *M. tyche*, *P. belone*, *P. labis*.
 Stn DW 511. — 12.05.1992, 14°14.0'S, 178°11.5'W, 400-450 m : *P. granulata*.
 Stn DW 512. — 12.05.1992, 14°13.5'S, 178°10.3'W, 210-245 m : *M. galaxaura*, *M. offella*.
 Stn DW 513. — 12.05.1992, 14°13.5'S, 178°10.8'W, 260-300 m : *M. galaxaura*.
 Stn CP 515. — 12.05.1992, 14°13.5'S, 178°10.3'W, 224-252 m : *M. bellior*, *M. guttata*, *M. notata*, *M. tyche*.
 Stn CP 517. — 12.05.1992, 14°13.4'S, 178°10.4'W, 233-235 m : *M. guttata*, *M. notata*, *M. tyche*, *P. amphitrita*.

- Stn DW 519. — 12.05.1992, 14°13.4'S, 178°09.3'W, 500 m : *M. miniata*.
- Stn DW 523. — 13.05.1992, 13°12.0'S, 176°15.6'W, 455-515 m : *M. leviantennata*.
- Stn DW 524. — 13.05.1992, 13°11.8'S, 176°15.6'W, 300 m : *M. runcinata*.
- Stn DW 526. — 13.05.1992, 13°13.4'S, 176°15.5'W, 355-360 m : *M. thoe*.
- Stn DW 527. — 14.05.1992, 13°24.1'S, 176°14.6'W, 540-560 m : *M. incerta*.
- Stn DW 529. — 16.05.1992, 12°31.4'S, 176°39.6'W, 500 m : *M. normani*.
- Stn DW 530. — 16.05.1992, 12°32.7'S, 176°39.3'W, 580-600 m : *M. normani*, *M. psamathe*, *M. tuberculata*.
- Stn CP 531. — 16.05.1992, 12°31.6'S, 176°39.3'W, 580-600 m : *M. normani*.
- Stn DW 538. — 16.05.1992, 12°30.8'S, 176°40.3'W, 275-295 m : *M. leptitis*.
- Stn DW 539. — 17.05.1992, 12°27.3'S, 177°27.3'W, 700 m : *M. militaris*.
- Stn DW 542. — 17.05.1992, 12°26.4'S, 177°28.2'W, 370 m : *M. leptitis*, *M. moliae*.
- Stn CP 544. — 17.05.1992, 12°26.4'S, 177°28.9'W, 580 m : *M. offella*, *M. psamathe*.
- Stn DW 546. — 17.05.1992, 12°26.9'S, 177°29.1'W, 550-552 m : *M. tuberculata*.
- Stn DW 548. — 17.05.1992, 12°23.3'S, 177°24.4'W, 700-740 m : *M. rosula*.
- Stn CP 551. — 18.05.1992, 12°15.3'S, 177°28.1'W, 791-795 m : *M. eminens*, *M. rosula*.
- Stn CP 552. — 18.05.1992, 12°15.7'S, 177°27.8'W, 786-800 m : *M. eminens*, *M. rosula*.
- Stn CC 553. — 18.05.1992, 12°16.8'S, 177°28.1'W, 780-794 m : *M. eminens*, *M. rosula*.
- Stn DW 556. — 19.05.1992, 11°48.7'S, 178°18.0'W, 440 m : *M. miniata*, *M. incerta*, *M. tuberculata*,
P. luminata.
- Stn DW 557. — 19.05.1992, 11°48.1'S, 178°18.2'W, 600-608 m : *M. tuberculata*.
- Stn CP 559. — 19.05.1992, 11°47.8'S, 178°19.1'W, 547-552 m : *M. spissa*, *M. armilla*, *M. incerta*,
M. normani.
- Stn CP 562. — 19.05.1992, 11°48.1'S, 178°22.1'W, 775-777 m : *M. eminens*.
- Stn CP 564. — 20.05.1992, 11°46.1'S, 178°27.4'W, 1015-1020 m : *M. microps*.
- Stn DW 569. — 21.05.1992, 12°30.0'S, 176°51.2'W, 300-305 m : *P. cretata*.
- Stn DW 574. — 21.05.1992, 12°30.9'S, 176°52.3'W, 105 m : *M. incerta*.
- Stn DW 578. — 22.05.1992, 13°08.2'S, 176°15.6'W, 640-730 m : *M. militaris*.
- Stn DW 583. — 22.05.1992, 13°11.1'S, 176°14.2'W, 330-365 m : *M. leptitis*, *P. cretata*.
- Stn DW 586. — 22.05.1992, 13°10.7'S, 176°13.1'W, 510-600 m : *M. spissa*.
- Stn DW 590. — 23.05.1992, 12°31.4'S, 174°18.7'W, 400 m : *M. incerta*, *M. normani*, *P. stichas*.
- Stn DW 591. — 23.05.1992, 12°31.1'S, 174°19.4'W, 320 m : *M. normani*.
- Stn CP 593. — 24.05.1992, 12°30.5'S, 174°19.5'W, 705-711 m : *M. militaris*.
- Stn DW 594. — 24.05.1992, 12°31.0'S, 174°19.9'W, 495-505 m : *M. normani*.
- Stn CP 600. — 24.05.1992, 12°31.8'S, 174°18.2'W, 500 m : *M. miniata*, *M. normani*, *M. tuberculata*.
- Stn DW 601. — 25.05.1992, 13°18.7'S, 176°17.2'W, 350 m : *M. tuberculata*.
- Stn DW 603. — 26.05.1992, 13°21.3'S, 176°07.7'W, 510-520 m : *M. leviantennata*.
- Stn DW 605. — 26.05.1992, 13°21.3'S, 176°08.4'W, 335-340 m : *M. callista*, *M. leptitis*, *M. squamosa*,
P. cretata, *P. pictura*.
- Stn CP 606. — 26.05.1992, 13°21.4'S, 176°08.3'W, 420-430 m : *M. incerta*, *M. moliae*, *M. ocyrhoe*,
M. squamosa, *M. thoe*, *M. tuberculata*, *P. granulata*, *P. stichas*, *P. luminata*.
- Stn CP 607. — 26.05.1992, 13°22.2'S, 176°09.1'W, 400-420 m : *P. granulata*, *P. stichas*.
- Stn CP 609. — 26.05.1992, 13°21.5'S, 176°08.5'W, 430 m : *M. squamosa*, *P. luminata*; *P. stichas*.
- Stn DW 610. — 26.05.1992, 13°21.5'S, 176°08.9'W, 286 m : *M. notata*, *M. runcinata*, *P. pictura*.
- Stn DW 612. — 26.05.1992, 13°21.4'S, 176°08.9'W, 255 m : *M. galaxaura*, *M. notata*, *P. pictura*, *P. labis*.
- Stn DW 618. — 27.05.1992, 14°21.7'S, 178°00.5'W, 420-435 m : *P. luminata*.
- Stn DW 620. — 28.05.1992, 12°34.4'S, 178°11.0'W, 1280 m : *M. militaris*.

Stn DW 625. — 29.05.1992, 11°52.4'S, 179°33.8'W, 425-430 m : *P. stichas*.

Stn CP 627. — 29.05.1992, 11°54.2'S, 179°31.4'W, 597-600 m : *M. militaris*, *M. psamathe*, *M. rosula*.

Stn CP 628. — 29.05.1992, 11°53.4'S, 179°32.0'W, 625-630 m : *M. rosula*.

Stn CP 629. — 29.05.1992, 11°53.7'S, 179°32.3'W, 400-420 m : *M. spissa*, *M. leagora*, *M. moliae*, *M. normani*, *M. thoe*, *P. granulata*, *P. stichas*, *P. luminata*.

Stn CP 631. — 29.05.1992, 11°54.0'S, 179°31.6'W, 600 m : *M. incerta*, *M. militaris*.

Stn CP 632. — 29.05.1992, 11°54.0'S, 179°31.5'W, 595-600 m : *M. masoae*.

Stn DW 636. — 30.05.1992, 13°39.4'S, 179°55.5'W, 650-700 m : *M. eminens*.

SYSTEMATIC ACCOUNT

Munida abelloi Macpherson, 1994

Fig. 11

Munida abelloi Macpherson, 1994 : 438, fig. 1.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 498, 105-160 m : 1 ov. ♀ 5.3 mm (MNHN-Ga 3654).

COLOUR. — Ground colour of carapace and abdominal segments light orange. Rostrum and supraocular spines light orange, with a white spot at base of rostrum. Chelipeds light orange, with a red band on distal part of merus, carpus and palm. Walking legs whitish.

REMARKS. — The species was described from a single specimen from Kiribati (MACPHERSON, 1994). The specimen collected from the Futuna area agrees quite well with the holotype. However, the distomesial spine of the second antennal segment in the Futuna specimen is short, clearly not overreaching the antennal peduncle (exceeding the peduncle in the holotype). Furthermore, the dactyli of the walking legs are 1/2 propodus length in the holotype, whereas it is 2/3 in the Futuna specimen. These differences are, however, small, and it would be interesting to obtain additional specimens from the different localities to confirm the identity of the present material.

DISTRIBUTION. — Previously known from Kiribati (400 m).

Munida armilla Macpherson, 1994

Munida armilla Macpherson, 1994 : 446, figs 6, 65.

MATERIAL EXAMINED. — **Tuscarora Bank**. MUSORSTOM 7 : stn 559, 547-552 m : 1 ♂ 10.6 mm (MNHN-Ga 3655).

DISTRIBUTION. — The species is previously known from New Caledonia, Matthew and Hunter Islands (233-700 m).

Munida bellior Miyake & Baba, 1967

Fig. 12

Munida bellior Miyake & Baba, 1967 : 216, figs 3-4. — BABA, 1988 : 82 (key), 90. — MACPHERSON, 1994 : 450, fig. 66.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 498, 105-160 m : 1 ♀ 4.8 mm (MNHN-Ga 3656). — Stn 515, 224-252 m : 1 ♀ 9.0 mm (MNHN-Ga 3657).

REMARKS. — The specimens examined are morphologically quite similar to the material collected from the Loyalty and Chesterfield Islands. However the colour of the specimens caught in Futuna is uniformly orange. This colour pattern is quite different from that observed in the Loyalty Islands (MACPHERSON, 1994, fig. 66). The differences in colour pattern of the specimens obtained from different localities (see also MIYAKE & BABA, 1967) suggests the existence of various species or forms and recommends a revision of the species, as has previously been pointed out (MACPHERSON, 1994). Such a revision, together with the study of the closely related species *Munida elegantissima* de Man, 1902, would help clarify the taxonomic status of the two species of the genus *Munida* with epipods on the first to third pereopods.

DISTRIBUTION. — *Munida bellior* has previously been cited in Sagami Bay (Japan), the Philippines, Loyalty Islands and Chesterfield Islands, between 80 and 330 m.

Munida callista Macpherson, 1994

Munida callista Macpherson, 1994 : 454, figs 10, 67.

MATERIAL EXAMINED. — **Wallis Islands**. MUSORSTOM 7 : stn 605, 335-340 m : 1 ♀ 4.8 mm (MNHN-Ga 3658).

DISTRIBUTION. — Previously known from New Caledonia and Chesterfield Islands, between 400 and 590 m.

Munida clinata Macpherson, 1994

Fig. 13

Munida clinata Macpherson, 1994 : 457, fig. 11.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 494, 100-110 m : 2 ♂ 4.3 and 7.0 mm (MNHN-Ga 3659). — Stn 498, 105-160 m : 6 ♂ 5.3 to 6.1 mm; 13 ov. ♀ 5.2 to 7.3 mm; 1 ♀ 5.2 mm; 1 juv. 2.4 mm (MNHN-Ga 3660).

COLOUR. — Ground colour of carapace and abdominal segments light orange. Rostrum and supraocular spines orange, a white spot at base of rostrum. Gastric region mostly red; branchial and cardiac areas with some red spots. Anterior parts of abdominal segments with red spots. Chelipeds and walking legs with transverse red and orange bands.

DISTRIBUTION. — *Munida clinata* was described from specimens collected in Philippines, New Caledonia and Chesterfield Islands, between 28 and 245 m.

Munida elegantissima de Man, 1902

Munida elegantissima - BABA, 1988 : 82 (key), 94 (references); 1989 : 131. — MACPHERSON, 1994 : 465.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 508, 245-440 m : 1 ♂ 8.2 mm (MNHN-Ga 3661).

REMARKS. — As mentioned in the Remarks section under *Munida bellior* Miyake & Baba, 1967 (see above), the specimens of both species from the different localities need to be revised in order to clarify their taxonomic status.

DISTRIBUTION. — *Munida elegantissima* has previously been cited from the Eastern Indian Ocean, Malay Archipelago, Indonesia, Philippines, Japan, Western and Eastern Australia, New Caledonia and Bellona Islands, between 20 and 200 m (MACPHERSON, 1994).

Munida eminens Baba, 1988

Munida eminens Baba, 1988 : 82 (key), 95, fig. 35; 1994 : 11. — MACPHERSON, 1994 : 456, fig. 72.

MATERIAL EXAMINED. — **Combe Bank.** MUSORSTOM 7 : stn 551, 791-795 m : 1 ♀ 5.8 mm (MNHN-Ga 3662). — Stn 552, 786-800 m : 1 ♂ 11.1 mm; 3 ♀ 8.0 to 9.3 mm (MNHN-Ga 3663). — Stn 553, 780-794 m : 1 ♂ 16.3 mm (MNHN-Ga 3665).

Tuscarora Bank. MUSORSTOM 7 : stn 562, 775-777 m : 3 ♂ 12.5 to 16.0 mm; 1 ♀ 19.0 mm (USNM).

Rotumah Bank. MUSORSTOM 7 : stn 636, 650-700 m : 1 ov. ♀ 14.7 mm (MNHN-Ga 3664).

REMARKS. — The specimens examined have 2-3 branchiocardiac spines (3 in the types) and, as in the material examined by MACPHERSON (1994), the second cardiac spine is absent (present in the types). The other specific characters agree with the original description.

DISTRIBUTION. — *Munida eminens* has previously been collected in Philippines, Indonesia, Eastern Australia, New Caledonia, and Loyalty and Chesterfield Islands, between 564 and 970 m.

Munida galaxaura sp. nov.

Fig. 1

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 512, 260-300 m : 1 ♂ 8.2 mm (USNM). — Stn 513, 210-245 m : 1 ov. ♀ 5.3 mm (MNHN-Ga 3643).

Wallis Islands. MUSORSTOM 7 : stn 612, 255 m : 1 ♀ 5.0 mm (MNHN-Ga 3644).

TYPES. — The ovigerous female of 5.3 mm from the stn 513 (MNHN-Ga 3643) has been selected as holotype, the other specimens are paratypes.

ETYMOLOGY. — The name refers to one of the Oceanids of Greek mythology (*Galaxaura*).

DESCRIPTION. — Carapace with secondary striae. Intestinal region with one median scale. External orbital spine well developed, situated at anterolateral angle. Branchial margins with 5 small spines. Fourth thoracic sternite with few short arcuate striae; fifth to seventh without striae. Abdominal segments unarmed. Second and third segments each with 2-3 transverse striae. Males with two gonopods on first and second abdominal segments. Eye large, maximum corneal diameter about 1/2 length of anterior border of carapace between bases of external orbital spines. Basal segment of antennule (distal spines excluded) ending at same level of cornea, distal spines subequal. First segment of antennal peduncle with distomesial spine reaching end of second segment; distomesial spine of second segment barely exceeding antennal peduncle. Extensor margin of merus of third maxilliped with small distal spine. Distomesial spine of cheliped merus well developed, though clearly not reaching midpoint of carpus. Fixed and movable fingers of cheliped with a row of spines along lateral and mesial borders, respectively. First walking leg about 2 times carapace length. Dactyli of walking legs about 2/3 propodus length, with spinules along ventral margin, terminal fourth unarmed.

REMARKS. — The new species resembles *Munida spilota* Macpherson, 1994, from New Caledonia and Matthew and Hunter Islands (MACPHERSON, 1994). Both species have five spines on lateral margins of carapace behind cervical groove, front margins transverse, eyes large, abdominal segments without spines along anterior ridge of second tergite, lateral portions of posterior thoracic sternites without granules, distal spines on basal antennular segment subequal and extensor margin of merus of third maxilliped with distal spine.

However, the two species can be distinguished by small but constant differences :

- In the new species, the distomesial spine on the first segment of the antennal peduncle reaches the end of the second segment and the distomesial spine on the second segment slightly overreaches the antennal peduncle. However, in *M. spilota*, these spines are clearly longer, the distomesial spines on the first and second segments clearly overreaching the second segment and the antennal peduncle, respectively.

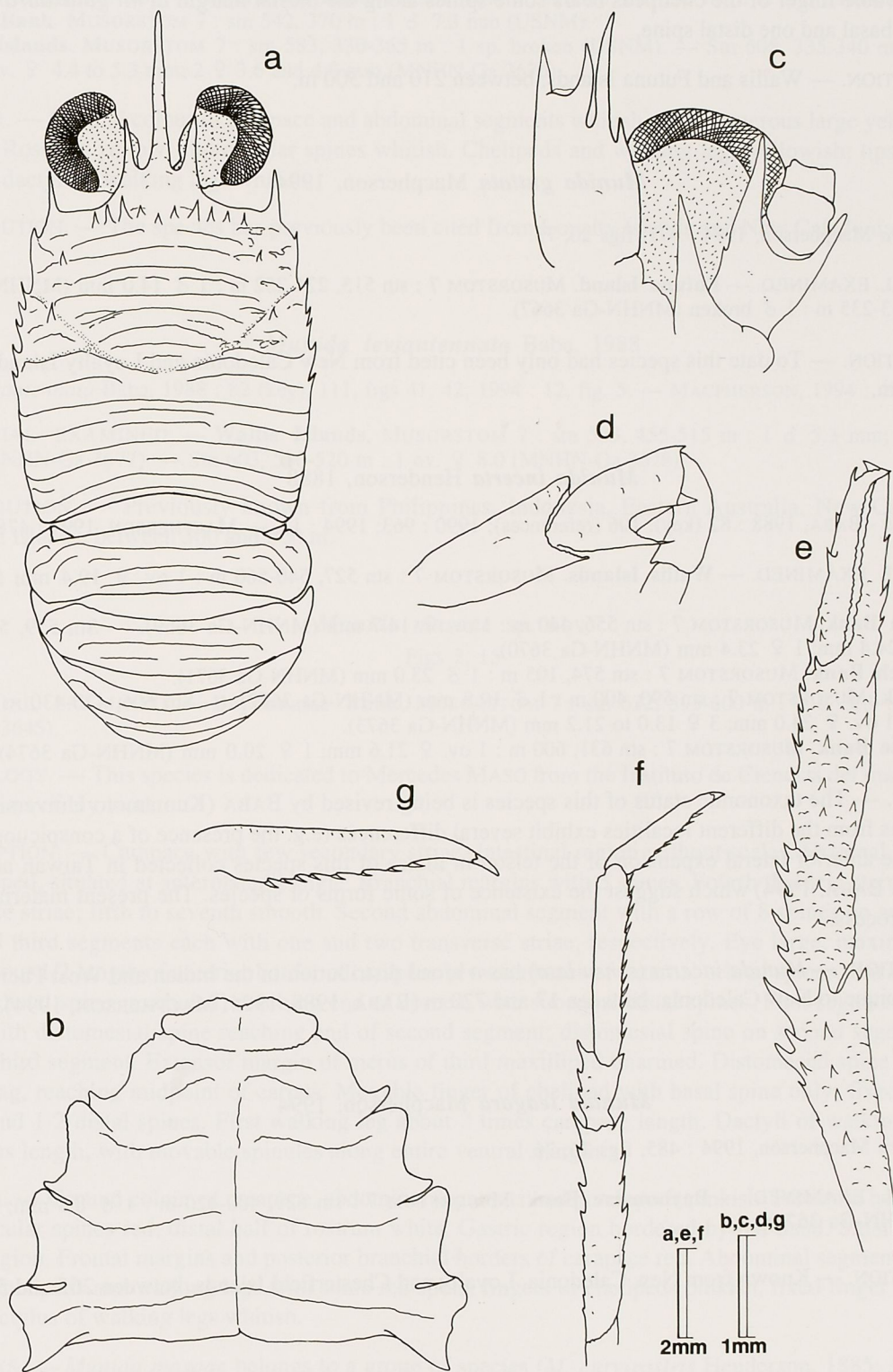


FIG. 1. — *Munida galaxaura* sp. nov., ov. ♀ 5.3 mm, holotype from Stn 512 : a, carapace, dorsal view; b, sternal plastron; c, ventral view of cephalic region, showing antennule and antennal peduncles; d, right third maxilliped, lateral view; e, right cheliped, dorsal view; f, right first walking leg, lateral view; g, dactylus of right first walking leg, lateral view.

- The movable finger of the chelipeds bears some spines along the mesial margin in *M. galaxaura*. *M. spilota* has only one basal and one distal spine.

DISTRIBUTION. — Wallis and Futuna Islands, between 210 and 300 m.

Munida guttata Macpherson, 1994

Munida guttata Macpherson, 1994 : 471, figs 20, 73.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 515, 224-252 m : 1 ♂ 14.0 mm (MNHN-Ga 3666). — Stn 517, 233-235 m : 1 ♂ broken (MNHN-Ga 3667).

DISTRIBUTION. — To date this species had only been cited from New Caledonia and Loyalty Islands, between 170 and 320 m.

Munida incerta Henderson, 1888

Munida incerta - BABA, 1988 : 82 (key), 106 (references); 1990 : 963; 1994 : 12. — MACPHERSON, 1994 : 478, fig. 74.

MATERIAL EXAMINED. — **Wallis Islands**. MUSORSTOM 7 : stn 527, 540-560 m : 1 ov. ♀ 19.4 mm (MNHN-Ga 3668).

Tuscarora Bank. MUSORSTOM 7 : stn 556, 440 m : 1 ov. ♀ 14.7 mm (MNHN-Ga 3669). — Stn 559, 547-552 m : 2 ♂ 22.3 and 24.4 mm; 1 ♀ 23.4 mm (MNHN-Ga 3670).

Waterwitch Bank. MUSORSTOM 7 : stn 574, 105 m : 1 ♂ 23.0 mm (MNHN-Ga 3671).

Field Bank. MUSORSTOM 7 : stn 590, 400 m : 1 ♂ 19.8 mm (MNHN-Ga 3672). — Stn 606, 420-430 m : 2 ♂ 11.0 and 17.0 mm; 1 ov. ♀ 24.0 mm; 3 ♀ 13.0 to 21.2 mm (MNHN-Ga 3673).

Bayonnaise Bank. MUSORSTOM 7 : stn 631, 600 m : 1 ov. ♀ 21.6 mm; 1 ♀ 20.0 mm (MNHN-Ga 3674).

REMARKS. — The taxonomic status of this species is being revised by BABA (Kumamoto University, Japan). The specimens from the different localities exhibit several differences (e.g. the presence of a conspicuous outward process on the anterior lateral expansion of the telson in males of this species collected in Taiwan and Eastern Australia, see BABA, 1994) which suggest the existence of some forms or species. The present material does not exhibit this process.

DISTRIBUTION. — *Munida incerta* (*sensu lato*) has a broad distribution in the Indian and West Pacific oceans, from Mozambique to New Caledonia, between 17 and 720 m (BABA, 1988, 1994; MACPHERSON, 1994).

Munida leagora Macpherson, 1994

Munida leagora Macpherson, 1994 : 485, figs 26, 76.

MATERIAL EXAMINED. — **Bayonnaise Bank**. MUSORSTOM 7 : stn 629, 400-420 m : 1 ♂ 8.8 mm; 5 ♀ 8.0 to 14.0 mm (MNHN-Ga 3675).

DISTRIBUTION. — Known from New Caledonia, Loyalty and Chesterfield Islands, between 265 and 580 m.

Munida leptitis Macpherson, 1994

Fig. 14

Munida leptitis Macpherson, 1994 : 487, fig. 27.

MATERIAL EXAMINED. — **Waterwitch Bank**. MUSORSTOM 7 : stn 538, 275-295 m : 1 ♂ 5.3 mm (USNM).

Combe Bank. MUSORSTOM 7 : stn 542, 370 m : 1 ♂ 7.3 mm (USNM).

Wallis Islands. MUSORSTOM 7 : stn 583, 330-365 m : 1 sp. broken (USNM). — Stn 605, 335-340 m : 7 ♂ 3.1 to 6.1 mm; 3 ov. ♀ 4.4 to 5.3 mm; 2 ♀ 3.6 and 4.0 mm (MNHN-Ga 3676).

COLOUR. — Ground colour of carapace and abdominal segments whitish, with numerous large yellowish spots and bands. Rostrum yellow, supraocular spines whitish. Chelipeds and walking legs yellowish; tips of cheliped fingers and dactyli of walking legs whitish.

DISTRIBUTION. — The species has previously been cited from Loyalty Islands and New Caledonia, between 21 and 440 m.

Munida leviantennata Baba, 1988

Munida leviantennata Baba, 1988 : 82 (key), 111, figs 41, 42; 1994 : 12, fig. 5. — MACPHERSON, 1994 : 491.

MATERIAL EXAMINED. — **Wallis Islands**. MUSORSTOM 7 : stn 523, 455-515 m : 1 ♂ 5.3 mm; 2 ♀ 8.6 and 10.0 mm (MNHN-Ga 3677). — Stn 603, 510-520 m : 1 ov. ♀ 8.0 (MNHN-Ga 3678).

DISTRIBUTION. — Previously known from Philippines, Indonesia, Eastern Australia, New Caledonia and Chesterfield Islands, between 300 and 660 m.

Munida masoae sp. nov.

Figs 2, 15

MATERIAL EXAMINED. — **Bayonnaise Bank**. MUSORSTOM 7 : stn 632, 595-600 m : 1 ♀ 9.3 mm, holotype (MNHN-Ga 3645).

ETYMOLOGY. — This species is dedicated to Mercedes MASO from the Instituto de Ciencias del mar, Barcelona, for her support of my work.

DESCRIPTION. — Carapace with few secondary striae. Intestinal region without scales. External orbital spine well developed, situated at anterolateral angle. Branchial margins with 5 spines. Fourth thoracic sternite with few short arcuate striae; fifth to seventh smooth. Second abdominal segment with a row of 8 spines on anterior ridge. Second and third segments each with one and two transverse striae, respectively. Eye large, maximum corneal diameter about 1/2 length of anterior border of carapace between bases of external orbital spines. Basal segment of antennule (distal spines excluded) reaching end of cornea, with subequal distal spines. First segment of antennal peduncle with distomesial spine reaching end of second segment; distomesial spine on second segment slightly exceeding third segment. Extensor margin of merus of third maxilliped unarmed. Distomesial spine on merus of cheliped long, reaching midpoint of carpus. Movable finger of cheliped with basal spine only; fixed finger with one basal and 1-2 distal spines. First walking leg about 2 times carapace length. Dactyli of walking legs about 2/3 propodus length, with movable spinules along entire ventral margin.

COLOUR. — Ground colour of carapace, abdominal segments and pereopods pinkish. Proximal half of rostrum and supraocular spines red; distal half of rostrum white. Gastric region bordered by red band. Small red spot on intestinal region. Frontal margins and posterior branchial borders of carapace red. Abdominal segments with some red spots. Chelipeds and walking legs with some red spots; fingers of chelipeds pinkish, fixed finger with a distal red spot; dactylus of walking legs whitish.

REMARKS. — *Munida masoae* belongs to a group of species (*M. curvirostris* Henderson, 1885; *M. rhodonia* Macpherson, 1994 and *M. rosula* Macpherson, 1994, from Western Pacific and Indian ocean waters, see BABA, 1994 & MACPHERSON, 1993a, 1994 for references and distributions) which shares the following features : five spines on lateral margins of carapace behind cervical groove, eyes large, abdominal segments with spines along

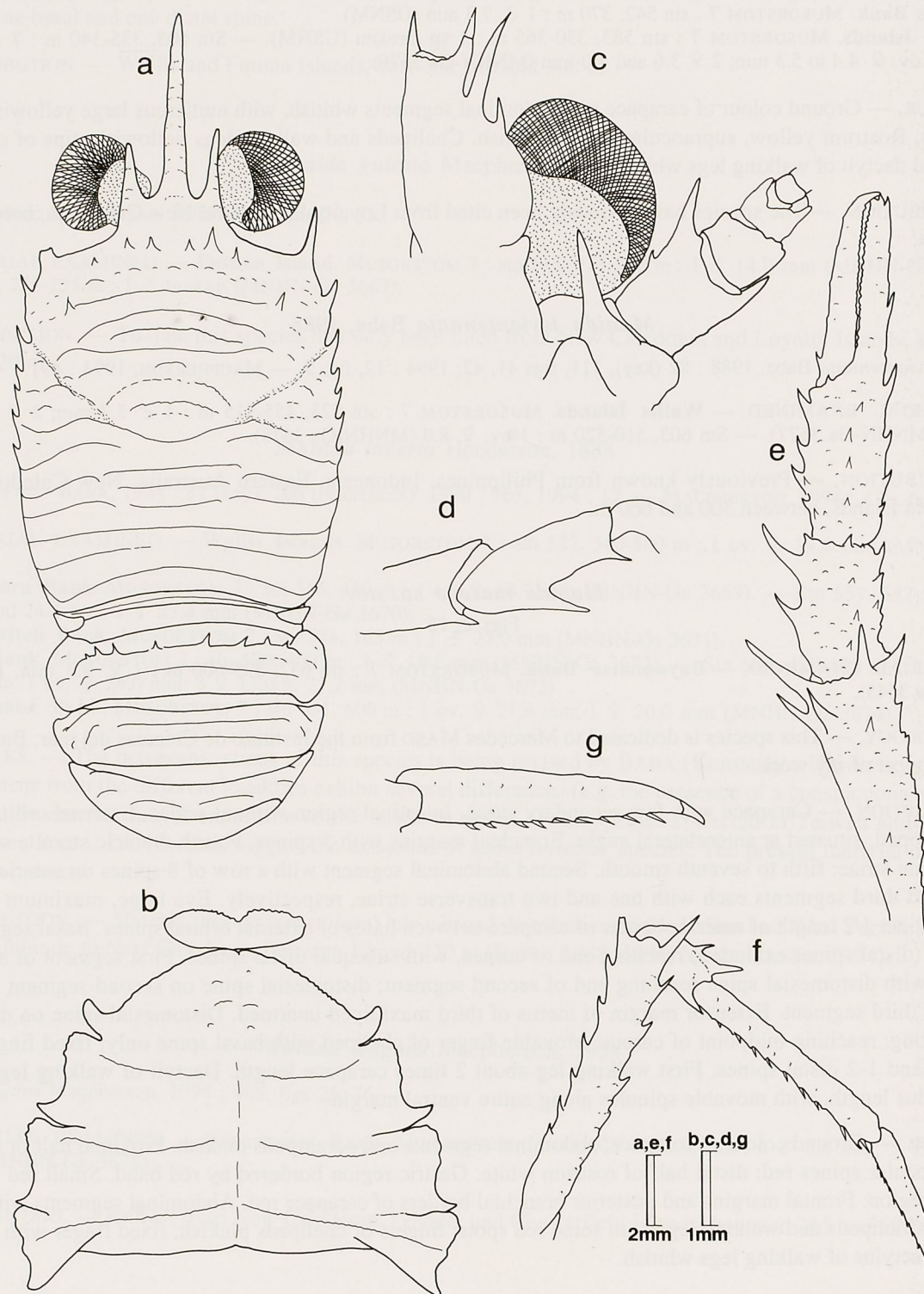


FIG. 2. — *Munida masoae* sp. nov., ♀ 9.3 mm, holotype from Stn 632 : **a**, carapace, dorsal view; **b**, sternal plastron; **c**, ventral view of cephalic region, showing antennule and antennal peduncles; **d**, right third maxilliped, lateral view; **e**, right cheliped, dorsal view; **f**, right first walking leg, lateral view; **g**, dactylus of right first walking leg, lateral view.

anterior ridge of second tergite, lateral parts of posterior thoracic sternites without granules, distal spines on basal antennular segment subequal, dactyli of walking legs with spines along entire ventral margin and fingers of cheliped usually with subterminal spines only.

M. curvirostris and *M. rhodonia* (see also *M. spissa* sp. nov.) are easily distinguished from *M. rosula* and *M. masoae* by the presence of scales on the intestinal region and some transverse, secondary striae on the second and third abdominal segments. In *M. rosula* and *M. masoae* the intestinal scales are absent and the second and third abdominal segments have only one transverse stria. These differences are constant in all the specimens examined.

M. masoae and *M. rosula* are readily distinguishable by their colour patterns: the ground colour of the carapace and abdominal segments is pink without red bands and spots, the rostrum and supraocular spines are white, and the pereiopods have no red spots in *Munida rosula* (MACPHERSON, 1994, fig. 82). In the new species (fig. 15) the proximal half of the rostrum and the supraocular spines are red, and there are numerous red bands and spots on the carapace, abdominal segments and pereiopods.

Furthermore, in the new species, the fixed fingers of the chelipeds have one spine near the base of the lateral border. This spine is usually absent in *M. rosula*.

DISTRIBUTION. — Bayonnaise Bank, between 595 and 600 m.

Munida microps Alcock, 1894

Munida microps - BABA, 1988 : 84 (key), 122 (references and synonymies); 1994 : 13. — MACPHERSON, 1994 : 496, fig. 32.

MATERIAL EXAMINED. — **Tuscarora Bank**. MUSORSTOM 7: stn 564, 1015-1020 m : 1 ♂ 8.0 mm (MNHN-Ga 3679).

REMARKS. — The specimen collected on the Tuscarora Bank agrees with the material from the Philippines, New Caledonia and Chesterfield Islands, although, as MACPHERSON (1994) pointed out, they are slightly different from the specimens caught in other areas (e.g., Maldives Islands).

DISTRIBUTION. — *Munida microps* has previously been cited in the Arabian Sea, Maldives Islands, Sulawesi, Philippines, Indonesia, Eastern Australia, New Caledonia and Chesterfield Islands, between 686 and 1 240 m.

Munida micula sp. nov.

Fig. 3

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 504, 300-390 m : 1 ♂ 4.4 mm, holotype (MNHN-Ga 3646).

ETYMOLOGY. — From the Latin *mica*, bit, grain, in reference to the small size of the species.

DESCRIPTION. — Carapace with few secondary striae. Intestinal region without scales. External orbital spine short, situated at anterolateral angle. Branchial margins with 5 small spines. Fourth thoracic sternite with few short arcuate striae; fifth to seventh smooth. Abdominal segments unarmed. Second and third segments each with two transverse striae. Two gonopods on first and second abdominal segments. Eye large, maximum corneal diameter about 1/2 length of anterior border of carapace between bases of external orbital spines. Basal segment of antennule (distal spines excluded) exceeding cornea, distomesial spine shorter than distolateral. First segment of antennal peduncle with distomesial spine reaching end of second segment; distomesial spine on second segment slightly overreaching third segment. Extensor border of merus of third maxilliped without distal spine. Distomesial spine on meri of chelipeds well developed, though clearly not reaching midpoint of carpus. Fixed and movable fingers of chelipeds with a row of spines along lateral and mesial borders, respectively. First walking leg less than 2 times carapace length. Dactyli of walking legs slightly shorter than propodi, with spinules along entire ventral margin.

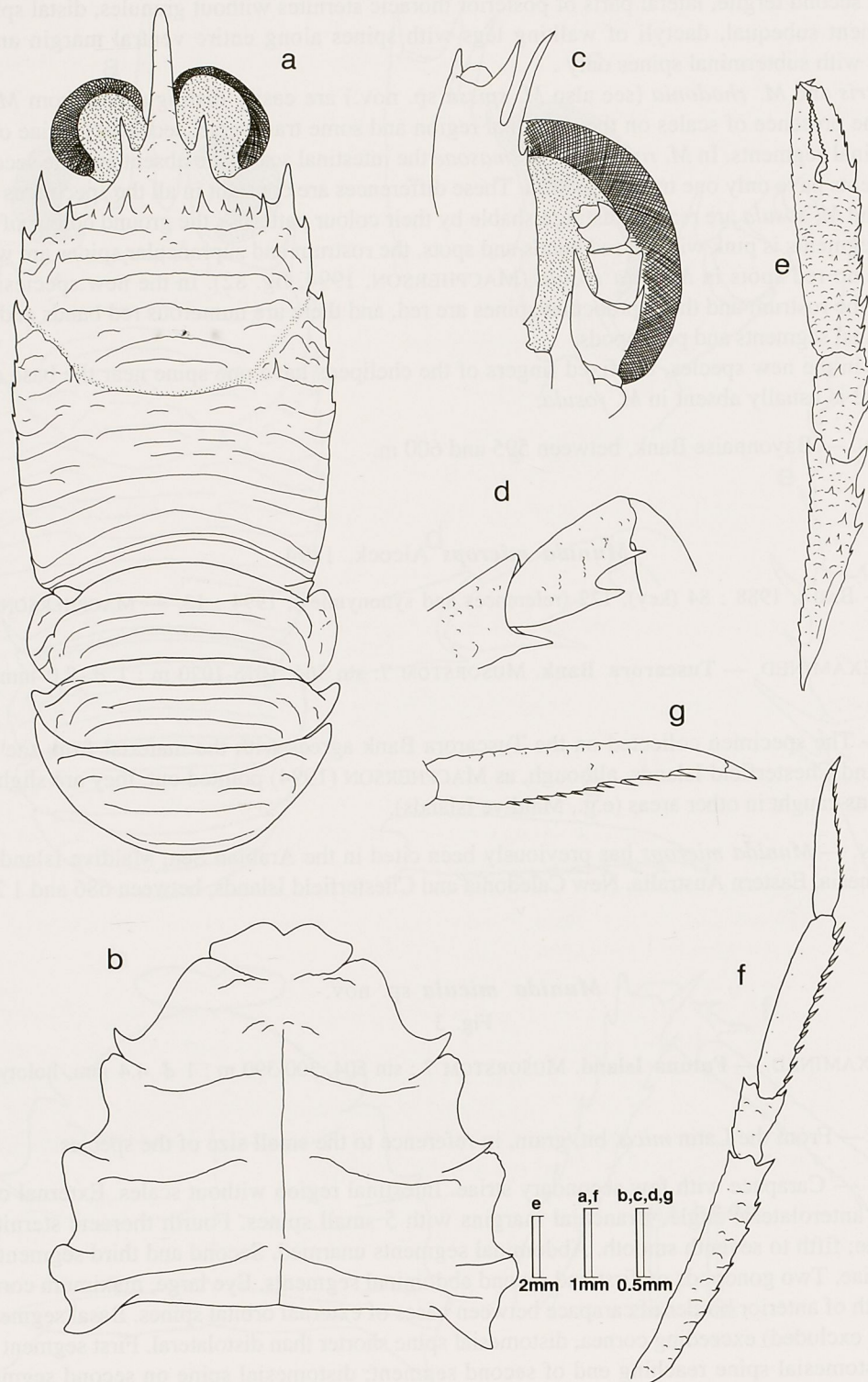


FIG. 3. — *Munida micula* sp. nov., ♂ 4.4 mm, holotype from Stn 504 : **a**, carapace, dorsal view; **b**, sternal plastron; **c**, ventral view of cephalic region, showing antennule and antennal peduncles; **d**, right third maxilliped, lateral view; **e**, left cheliped, dorsal view; **f**, right first walking leg, lateral view; **g**, dactylus of right first walking leg, lateral view.

REMARKS. — The new species is closely related to *Munida stia* Macpherson, 1994 from New Caledonia and Chesterfield Islands (MACPHERSON, 1994). Both species belong to the group of species with five spines on lateral margins of carapace behind cervical groove, eyes large, abdominal segments unarmed, lateral parts of posterior thoracic sternites without granules, rostrum shorter than remaining carapace, distomesial spine on basal antennular segment shorter than distolateral, walking legs relatively short and fixed fingers of chelipeds with spines along lateral border. However, they differ in several features :

- The extensor border of the merus of the third maxilliped is unarmed in the new species, whereas in *M. stia* there is a distal spine.

- The dactyli of the walking legs have spines along the entire ventral border in *M. micula*, whereas they are unarmed on the terminal third in *M. stia*. Furthermore, the dactyli are longer and less curved in the new species than in *M. stia*. In the latter species the dactyli are 2/3 propodus length, while in the new species the dactyli are only slightly shorter than the propodi.

DISTRIBUTION. — Futuna Island, between 300 and 390 m.

Munida militaris Henderson, 1885

Fig. 16

Munida militaris - BABA & MACPHERSON, 1991 : 539, fig. 1. — MACPHERSON, 1994 : 496.

MATERIAL EXAMINED. — **Combe Bank.** MUSORSTOM 7 : stn 539, 700 m : 1 ♂ 15.5 mm (MNHN-Ga 3680). — Stn 620, 1280 m : 1 ov. ♀ 14.0 mm (MNHN-Ga 3681).

Wallis Islands. MUSORSTOM 7 : stn 578, 640-730 m : 1 ♂ 15.5 (MNHN-Ga 3682).

Field Bank. MUSORSTOM 7 : stn 593, 705-711 m : 1 ♂ 17.3 mm (USNM).

Bayonnaise Bank. MUSORSTOM 7 : stn 627, 597-600 m : 1 ♀ 6.7 mm (USNM). — Stn 631, 600 m : 1 ♂ 6.8 mm (MNHN-Ga 3683).

COLOUR. — Ground colour of carapace, second and third abdominal segments and pereopods orange; striae on carapace and abdomen reddish. Rostrum and supraocular spines reddish. Proximal half of cheliped fingers light orange, distal half reddish. Dactylus of walking legs whitish.

DISTRIBUTION. — The species is known from Indonesia, New Caledonia and Fiji, between 183 and 720 m. The depth range of the present material is between 600 and 1 280 m.

Munida miniata sp. nov.

Figs 4, 17

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 519, 500 m : 1 ♀ 20.0 mm (MNHN-Ga 3684).

Tuscarora Bank. MUSORSTOM 7 : stn 556, 440 m : 1 ♀ 8.5 mm (USNM).

Field Bank. MUSORSTOM 7 : stn 600, 500 m : 1 ♀ 8.9 mm (MNHN-Ga 3647).

TYPES. — The female of 8.9 mm from stn 600 (MNHN-Ga 3647) has been selected as holotype, the other specimens are paratypes.

ETYMOLOGY. — From the Latin, *miniatus*, red, in reference to the red colour of the rostrum.

DESCRIPTION. — Carapace with numerous secondary striae. Intestinal region with numerous scales. External orbital spine well developed, situated at anterolateral angle. Branchial margins with 5 small spines. Fourth thoracic sternite with numerous short arcuate striae; fifth to seventh smooth. Second abdominal segment with a row of 8 spines on anterior ridge. Second to fourth segments each with numerous transverse striae. Eye large, maximum corneal diameter about 1/2 length of anterior border of carapace between bases of external orbital spines. Basal

segment of antennule (distal spines excluded) reaching end of cornea, with distomesial spine slightly shorter than distolateral. First segment of antennal peduncle with distomesial spine not reaching end of second segment; distomesial spine on second segment exceeding third segment. Extensor margin of merus of third maxilliped unarmed. Distomesial spine on merus of cheliped long, reaching or overreaching midpoint of carpus. Movable fingers of cheliped with basal spine only; fixed fingers with one basal and 1-2 distal spines. First walking leg about 2 times carapace length. Dactyli of walking legs about 2/3 propodus length, with movable spinules along entire ventral margin.

COLOUR. — Ground colour of carapace, abdominal segments and pereopods uniformly orange. Rostrum dark red; supraocular spines white. Dactyli of walking legs whitish.

REMARKS. — This new species is close to *Munida militaris* Henderson, 1885 from Indonesia, Fiji and New Caledonia (BABA & MACPHERSON, 1991; MACPHERSON, 1994) in having five spines on lateral margins of carapace behind cervical groove, eyes large, abdominal segments with spines along anterior ridge of second tergite, lateral parts of posterior thoracic sternites without granules and distomesial spine on basal antennular segment shorter than distolateral. The new species differs from *M. militaris* in the following respects :

- The carapace and abdominal segments have more secondary striae and scales in the new species than in *M. militaris*. The intestinal region has numerous scales in *M. miniata*, whereas they are absent in *M. militaris*. Furthermore, the second abdominal segment bears 3-5 secondary striae in the new species, whereas these striae are absent in *M. militaris*.

- The colour patterns of these two species are very different (see Figs 16 and 17).

DISTRIBUTION. — Futuna Island, Tuscarora and Field Banks, between 440 and 500 m.

Munida moliae Macpherson, 1994

Fig. 18

Munida moliae Macpherson, 1994 : 499, fig. 33.

MATERIAL EXAMINED. — **Combe Bank**. MUSORSTOM 7 : stn 542, 372 m : 1 ♂ 19.0 mm (MNHN-Ga 3686).

Wallis Islands. MUSORSTOM 7 : stn 606, 420-430 m : 5 ♀ 6.4 to 13.0 mm (MNHN-Ga 3687). — Stn 629, 400-420 m : 1 ♀ 8.6 mm (MNHN-Ga 3688).

COLOUR. — Ground colour of carapace orange, slightly darker in hepatic, mesogastric and branchial regions. Abdominal segments whitish, with large orange spots along anterior and posterior margins of segments. Rostrum red and supraocular spines orange, tip of rostrum white. Chelipeds and walking legs whitish, with some transverse orange bands; base and tip of fingers of cheliped white; dactylus of walking legs whitish.

REMARKS. — The specimens examined agree quite well with the type material, although the spines on the antennal peduncle are longer than in the types.

DISTRIBUTION. — The species has previously been only cited in New Caledonia and Loyalty Islands, between 335 and 575 m.

Munida normani Henderson, 1885

Fig. 20

Munida Normani Henderson, 1885 : 408.

Munida normani - HENDERSON, 1888 : 129, pl. 13, fig. 5. — BABA, 1988 : 83 (key). — MACPHERSON, 1994 : 500.

MATERIAL EXAMINED. — **Waterwitch Bank**. MUSORSTOM 7 : stn 529, 500 m : 1 ov. ♀ 15.6 mm (MNHN-Ga 3689). — Stn 530, 580-600 m : 1 ♂ 14.2 mm (MNHN-Ga 3690). — Stn 531, 580-600 m : 2 ♂ 14.1 and 14.5 mm (MNHN-Ga 3691).

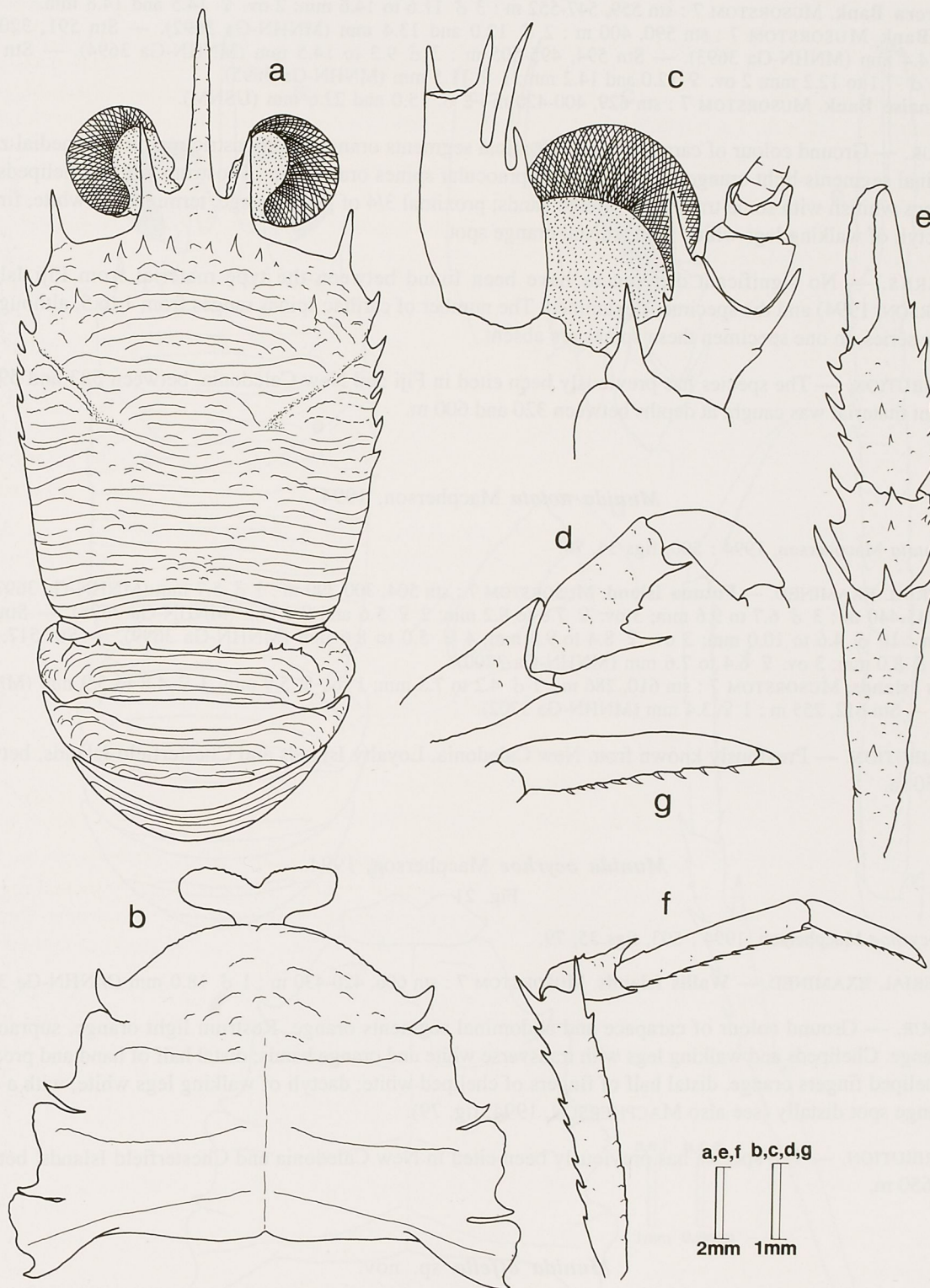


FIG. 4. — *Munida miniata* sp. nov., ♀ 8.9 mm, holotype from Stn 600 : **a**, carapace, dorsal view; **b**, sternal plastron; **c**, ventral view of cephalic region, showing antennule and antennal peduncles; **d**, right third maxilliped, lateral view; **e**, right cheliped, dorsal view; **f**, right first walking leg, lateral view; **g**, dactylus of right first walking leg, lateral view.

Tuscarora Bank. MUSORSTOM 7 : stn 559, 547-552 m : 3 ♂ 11.6 to 14.6 mm; 2 ov. ♀ 14.5 and 14.8 mm.

Field Bank. MUSORSTOM 7 : stn 590, 400 m : 2 ♂ 12.0 and 13.4 mm (MNHN-Ga 3692). — Stn 591, 320 m : 1 ov. ♀ 14.4 mm (MNHN-Ga 3693). — Stn 594, 495-505 m : 3 ♂ 9.3 to 14.5 mm (MNHN-Ga 3694). — Stn 600, 500 m : 3 ♂ 7.1 to 12.2 mm; 2 ov. ♀ 12.0 and 14.2 mm; 1 ♀ 11.5 mm (MNHN-Ga 3695).

Bayonnaise Bank. MUSORSTOM 7 : stn 629, 400-420 m : 2 ♂ 15.0 and 22.6 mm (USNM).

COLOUR. — Ground colour of carapace and abdominal segments orange; protogastric region and medial zones of abdominal segments light orange. Rostrum and supraocular spines orange, tip of rostrum white. Chelipeds and walking legs whitish with some transverse orange bands; proximal 3/4 of palm orange, terminal 1/4 white, fingers white; dactyli of walking legs white, with a distal orange spot.

REMARKS. — No significant differences have been found between the type material from Fiji Islands (MACPHERSON, 1994) and the specimens examined. The number of cardiac spines ranges from 1 to 5, although, as in the type series, in one specimen these spines are absent.

DISTRIBUTION. — The species has previously been cited in Fiji and New Caledonia, between 583 and 590 m. The present material was caught at depths between 320 and 600 m.

Munida notata Macpherson, 1994

Munida notata Macpherson, 1994 : 500, figs 34, 78.

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 504, 300-390 m : 1 ♂ 5.7 mm (MNHN-Ga 3697). — Stn 508, 245-440 m : 3 ♂ 6.7 to 9.6 mm; 3 ov. ♀ 7.8 to 8.2 mm; 2 ♀ 5.6 and 7.4 mm (MNHN-Ga 3698). — Stn 515, 224-252 m : 10 ♂ 4.6 to 10.0 mm; 3 ov. ♀ 8.4 to 9.3 mm; 4 ♀ 5.0 to 8.6 mm (MNHN-Ga 3699). — Stn 517, 233-235 m : 1 ♂ 8.0 mm; 3 ov. ♀ 6.4 to 7.6 mm (MNHN-Ga 3700).

Wallis Islands. MUSORSTOM 7 : stn 610, 286 m : 7 ♂ 4.2 to 7.3 mm; 1 ov. ♀ 5.9 mm; 3 ♀ 4.8 to 5.9 mm (MNHN-Ga 3701). — Stn 612, 255 m : 1 ♀ 3.4 mm (MNHN-Ga 3702).

DISTRIBUTION. — Previously known from New Caledonia, Loyalty Islands and Chesterfield Islands, between 59 and 850 m.

Munida ocyrhoe Macpherson, 1994

Fig. 21

Munida ocyrhoe Macpherson, 1994 : 503, figs 35, 79.

MATERIAL EXAMINED. — **Wallis Islands.** MUSORSTOM 7 : stn 606, 420-430 m : 1 ♂ 18.0 mm (MNHN-Ga 3703).

COLOUR. — Ground colour of carapace and abdominal segments orange. Rostrum light orange, supraocular spines orange. Chelipeds and walking legs with transverse white and orange bands; distal half of hand and proximal half of cheliped fingers orange, distal half of fingers of cheliped white; dactyli of walking legs white, with a distal small orange spot distally (see also MACPHERSON, 1994, fig. 79).

DISTRIBUTION. — The species has previously been cited in New Caledonia and Chesterfield Islands, between 470 and 650 m.

Munida offella sp. nov.

Fig. 5

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 496, 250-330 m : 1 ♂ 4.1 mm (USNM). — Stn 505, 245-400 m : 7 ♂ 4.5 to 5.1 mm; 4 ov. ♀ 4.0 to 4.5 mm (MNHN-Ga 3704). — Stn 508, 245-440 m : 1 ♂ 5.4 mm; 1 ov. ♀ 4.6 mm (MNHN-Ga 3648, 3705). — Stn 512, 210-245 m : 1 ov. ♀ 4.2 mm (USNM).

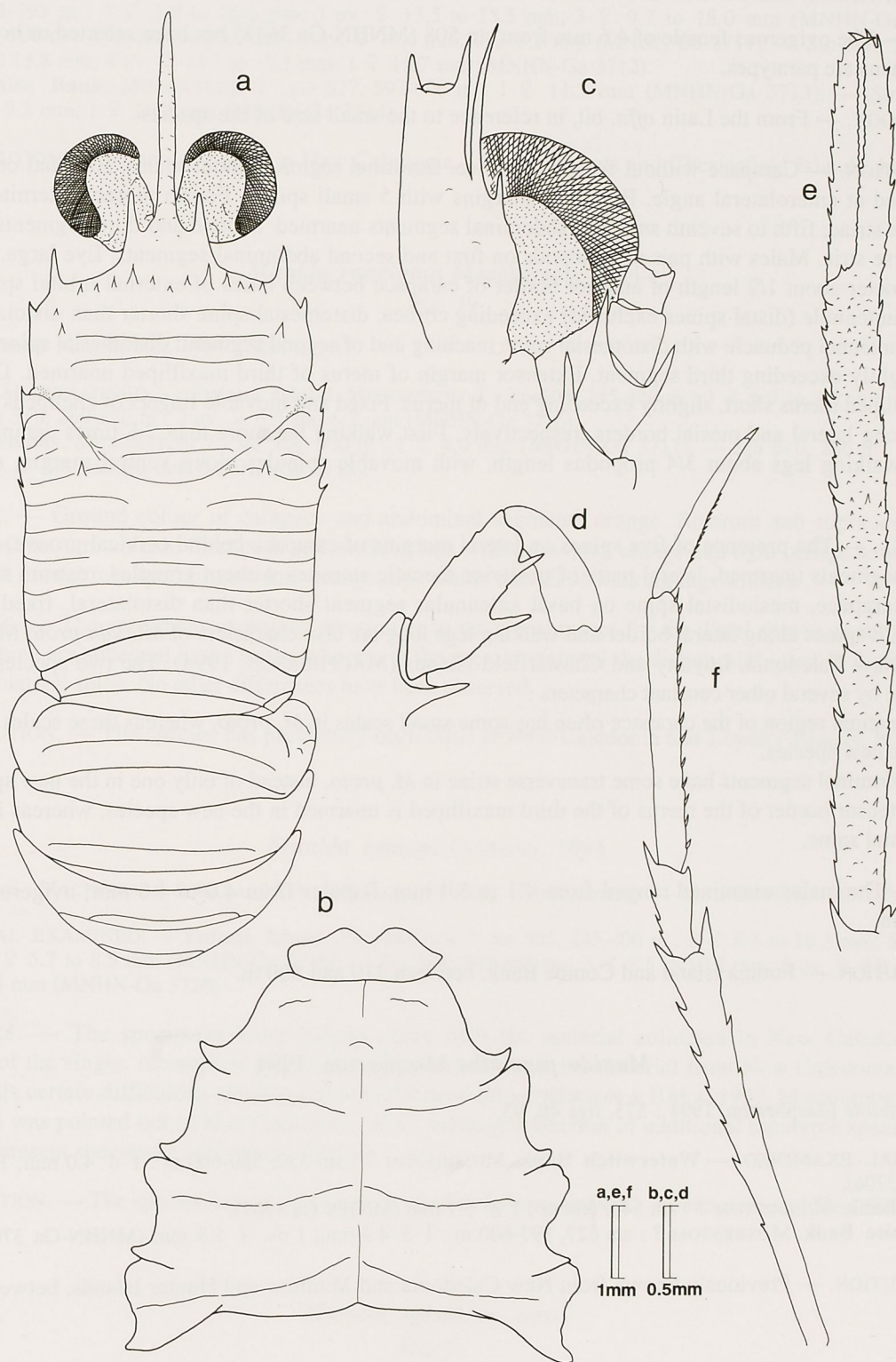


FIG. 5. — *Munida offella* sp. nov., ov. ♀ 4.6 mm, holotype from Stn 508 : a, carapace, dorsal view; b, sternal plastron; c, ventral view of cephalic region, showing antennule and antennal peduncles; d, right third maxilliped, lateral view; e, right cheliped, dorsal view; f, right first walking leg, lateral view.

Combe Bank. MUSORSTOM 7 : stn 544, 580 m : 1 ♂ 5.3 mm (USNM).

TYPES. — The ovigerous female of 4.6 mm from stn 508 (MNHN-Ga 3648) has been selected as holotype, the other specimens are paratypes.

ETYMOLOGY. — From the Latin *offa*, bit, in reference to the small size of the species.

DESCRIPTION. — Carapace without secondary striae. Intestinal region without scales. External orbital spine short, situated at anterolateral angle. Branchial margins with 5 small spines. Fourth thoracic sternite with few short arcuate striae; fifth to seventh smooth. Abdominal segments unarmed. Second and third segments each with one transverse stria. Males with pair of gonopods on first and second abdominal segments. Eye large, maximum corneal diameter about 1/2 length of anterior border of carapace between bases of external orbital spines. Basal segment of antennule (distal spines excluded) exceeding cornea, distomesial spine shorter than distolateral. First segment of antennal peduncle with distomesial spine reaching end of second segment; distomesial spine on second segment slightly exceeding third segment. Extensor margin of merus of third maxilliped unarmed. Distomesial spine on cheliped merus short, slightly exceeding end of merus. Fixed and movable fingers of chelipeds with a row of spines along lateral and mesial borders, respectively. First walking leg more than 2.5 times carapace length. Dactyli of walking legs about 3/4 propodus length, with movable spinules along ventral margin, distal third unarmed.

REMARKS. — The presence of five spines on lateral margins of carapace behind cervical groove, eyes large, abdominal segments unarmed, lateral parts of posterior thoracic sternites without granules, rostrum shorter than remaining carapace, mesiodistal spine on basal antennular segment shorter than distolateral, fixed fingers of chelipeds with spines along lateral border and walking legs long are also characters of *Munida proto* Macpherson, 1994 from New Caledonia, Loyalty and Chesterfield Islands (MACPHERSON, 1994). The two species are easily differentiable by several other constant characters :

- The intestinal region of the carapace often has some small scales in *M. proto*, whereas these scales are always absent in the new species.
- The abdominal segments have some transverse striae in *M. proto*, instead of only one in the new species.
- The extensor border of the merus of the third maxilliped is unarmed in the new species, whereas in *M. proto* there is a distal spine.

SIZE. — The males examined ranged from 4.1 to 5.4 mm, females from 4.0 to 4.6 mm; ovigerous females from 4.0 mm.

DISTRIBUTION. — Futuna Island and Combe Bank, between 210 and 500 m.

Munida psamathe Macpherson, 1994

Munida psamathe Macpherson, 1994 : 573, figs 40, 93.

MATERIAL EXAMINED. — **Waterwitch Bank.** MUSORSTOM 7 : stn 530, 580-600 m : 1 ♂ 4.0 mm; 1 ♀ 3.2 mm (MNHN-Ga 3706).

Combe Bank. MUSORSTOM 7 : stn 544, 580 m : 1 ♂ 5.7 mm (MNHN-Ga 3707).

Bayonnaise Bank. MUSORSTOM 7 : stn 627, 597-600 m : 1 ♂ 4.3 mm; 1 ov. ♀ 5.3 mm (MNHN-Ga 3708).

DISTRIBUTION. — Previously known from New Caledonia and Matthew and Hunter Islands, between 500 and 700 m.

Munida rosula Macpherson, 1994

Munida rosula Macpherson, 1994 : 521, figs 45, 82.

MATERIAL EXAMINED. — **Combe Bank.** MUSORSTOM 7 : stn 548, 700-740 m : 1 ♂ 9.3 mm (MNHN-Ga 3709). — Stn 551, 791-795 m : 7 ♂ 7.0 to 16.6 mm; 3 ov. ♀ 13.5 to 15.5 mm; 3 ♀ 9.7 to 18.0 mm (MNHN-Ga 3710). — Stn 552, 786-800 m : 4 ♂ 14.6 to 16.2 mm; 1 ov. ♀ 16.6 mm; 1 ♀ 8.3 mm (MNHN-Ga 3711). — Stn 553, 780-794 m : 2 ♂ 13.4 and 13.8 mm; 4 ov. ♀ 14.3 to 17.5 mm; 1 ♀ 15.7 mm (MNHN-Ga 3712).

Bayonnaise Bank. MUSORSTOM 7 : stn 627, 597-600 m : 1 ♀ 11.3 mm (MNHN-Ga 3713). — Stn 628, 625-650 m : 1 ♂ 9.3 mm; 1 ♀ 10.9 mm (MNHN-Ga 3714).

DISTRIBUTION. — Previously cited in New Caledonia, Loyalty Islands and Chesterfield Islands, between 465 and 860 m.

Munida runcinata Macpherson, 1994

Fig. 19

Munida runcinata Macpherson, 1994 : 525, fig. 47.

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 508, 245-440 m : 3 ♂ 6.9 to 8.2 mm (MNHN-Ga 3715). — Stn 510, 280-370 m : 2 ov. ♀ 6.0 and 6.7 mm (MNHN-Ga 3716).

Wallis Islands. MUSORSTOM 7 : stn 524, 300 m : 1 ♀ 4.0 mm (MNHN-Ga 3717). — Stn 610, 286 m : 4 ♂ 4.6 to 8.0 mm; 2 ov. ♀ 6.0 and 8.0 mm (MNHN-Ga 3718).

COLOUR. — Ground colour of carapace and abdominal segments orange. Rostrum and supraocular spines orange, tip of rostrum whitish. Chelipeds and walking legs with transverse orange and light orange bands; hand of cheliped light orange, cheliped fingers dark orange, tips white; dactyli of walking legs whitish.

REMARKS. — The specimens examined are similar to the types except for the distal spines on the antennular peduncle, which are subequal in the types, whereas in the present material the distomesial spine is slightly smaller than the distolateral spine. No other differences have been observed.

DISTRIBUTION. — The species has previously been cited in New Caledonia and Loyalty Islands, between 320 and 500 m.

Munida semoni Ortmann, 1894

Munida semoni - MACPHERSON & BABA, 1993 : 386 (key), 411, fig. 17 (references). — MACPHERSON, 1994 : 530.

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7: stn 505, 245-400 m : 3 ♂ 8.5 to 10.2 mm; 5 ov. ♀ 8.0 to 8.6 mm; 4 ♀ 5.7 to 8.5 mm (MNHN-Ga 3719). — Stn 508, 245-440 m : 3 ♂ 8.5 to 10.2 mm; 5 ov. ♀ 8.0 to 8.6 mm; 4 ♀ 5.7 to 8.5 mm (MNHN-Ga 3720).

REMARKS. — The specimens from Futuna agree with the material collected in New Caledonia. Still, comparison of the single, incomplete preserved type specimen with the material from New Caledonia and from Futuna reveals certain difficulties attaching to identification (MACPHERSON & BABA, 1993; MACPHERSON, 1994). Therefore, as was pointed out in MACPHERSON (1994), pending collection of additional topotypic specimens, the status of the present specimens will remain unclear.

DISTRIBUTION. — The species has previously been cited in Indonesia (depth unrecorded) and New Caledonia, at 335 m.

Munida spissa sp. nov.

Fig. 6

MATERIAL EXAMINED. — **Tuscarora Bank.** MUSORSTOM 7 : stn 559, 547-552 m : 11 ♂ 9.3 to 14.3 mm; 3 ov. ♀ 17.0 to 17.3 mm; 8 ♀ 10.0 to 16.0 mm (MNHN-Ga 3649, 3721).

Wallis Islands. MUSORSTOM 7 : stn 586, 510-600 m : 1 ♀ 7.7 mm (MNHN-Ga 3722).

Bayonnaise Bank. MUSORSTOM 7 : stn 629, 400-420 m : 4 ♂ 7.2 to 18.3 mm; 1 ov. ♀ 17.7 mm; 1 ♀ 12.4 mm (USNM).

TYPES. — The ovigerous female of 17.3 mm from stn 559 (MNHN- Ga 3649) has been selected as holotype, the other specimens are paratypes.

ETYMOLOGY. — From the Latin *spissus*, thick, in reference to the shape of the species.

DESCRIPTION. — Carapace with numerous secondary striae. Intestinal region with scales. External orbital spine well developed, situated at anterolateral angle. Branchial margins with 5 small spines. Fourth and fifth thoracic sternites with numerous short arcuate striae; sixth and seventh smooth. Second abdominal tergite with a row of 6-8 spines on anterior ridge. Second to fourth segments each with numerous transverse striae. Males with two pairs of gonopods. Eye moderately large, maximum corneal diameter about 1/3 length of anterior border of carapace between bases of external orbital spines. Basal segment of antennule (distal spines excluded) slightly exceeding cornea, with subequal distal spines. First segment of antennal peduncle with distomesial spine not reaching end of second segment; distomesial spine on second segment exceeding third segment. Extensor margin of merus of third maxilliped unarmed. Distomesial spine on merus of cheliped strong, though not reaching midpoint of carpus. Movable fingers of chelipeds with basal spine only; fixed fingers with one distal spine (not shown in fig. 6e). First walking leg slightly less than 2 times carapace length. Dactyli of walking legs about 2/3 propodus length, with movable spinules along entire ventral margin.

REMARKS. — *Munida spissa* is closely related to *M. rhodonia* Macpherson, 1994 from New Caledonia, Loyalty and Chesterfield Islands (MACPHERSON, 1994) and *M. curvirostris* Henderson, 1885 from the Indo-West Pacific (MACPHERSON, 1993a; BABA, 1994). These species are linked by the following characters : five spines on lateral margins of carapace behind cervical groove, eyes large, abdominal segments with spines along anterior ridge of second tergite, lateral parts of posterior thoracic sternites without granules, rostrum spiniform, distal spines on basal antennular segment subequal, fingers of cheliped usually with subterminal spines only and dactyli of walking legs with spines along entire ventral margin. *M. spissa* and *M. rhodonia* are distinguished by :

- The fourth and fifth thoracic sternites have numerous short arcuate striae in the new species, whereas these striae are practically absent in *M. rhodonia*. When specimens of similar sizes of the two species are compared, this difference is quite conspicuous.

- The distomesial spine on the merus of cheliped reaches the midpoint of the carpus in *M. rhodonia*. This spine is short and never reaches that level in the new species.

- The palms of the chelipeds have some well developed dorsal spines in the new species, whereas these spines are very small or absent in *M. rhodonia*.

- The dactyli of the walking legs are less curved in the new species than in *M. rhodonia*.

M. curvirostris differs from the new species in the following respects :

- The secondary striae on the carapace and abdominal segments are more numerous in the new species than in *M. curvirostris*.

- The new species has numerous arcuate striae on the thoracic sternites; these striae are practically absent in *M. curvirostris*.

- The rostrum is longer and more curved in *M. curvirostris* than in *M. spissa*.

- The chelipeds and walking legs are more slender in *M. curvirostris* than in *M. spissa*.

SIZE. — The males examined ranged between 7.2 and 18.3 mm, females between 7.7 and 17.7 mm; ovigerous females from 17.0 mm.

DISTRIBUTION. — Wallis Islands, Tuscarora and Bayonnaise Banks, between 400 and 600 m.

Munida squamosa Henderson, 1885

Munida squamosa - MACPHERSON, 1993a : 425, fig. 1h-l; 1994 : 537, fig. 96 (references). — BABA, 1994 : 16.

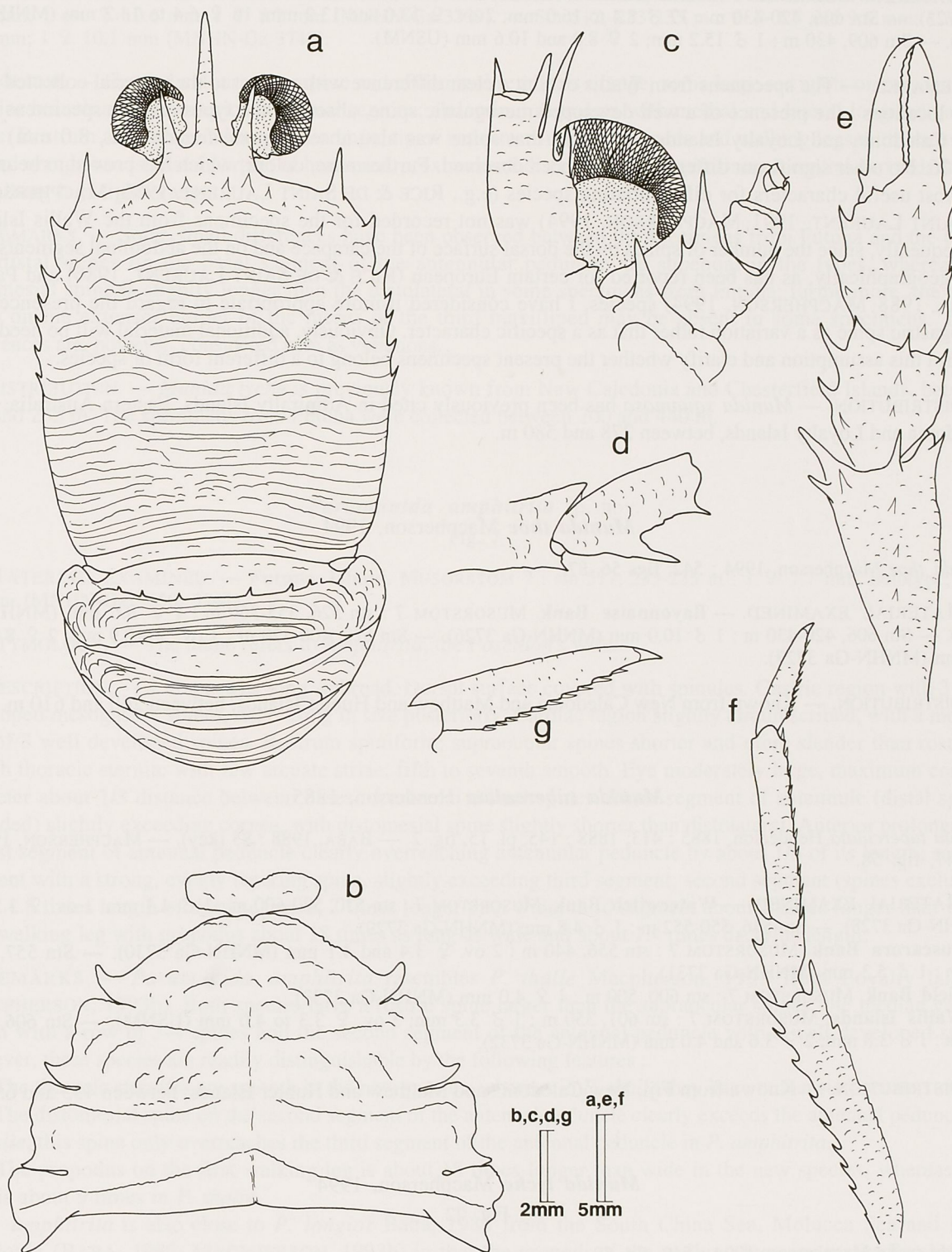


FIG. 6. — *Munida spissa* sp. nov., ov. ♀ 17.3 mm, holotype from Stn 559 : a, carapace, dorsal view; b, sternal plastron; c, ventral view of cephalic region, showing antennule and antennal peduncles; d, right third maxilliped, lateral view; e, right cheliped, dorsal view; f, right first walking leg, lateral view; g, dactylus of right first walking leg, lateral view.

MATERIAL EXAMINED. — **Wallis Islands.** MUSORSTOM 7 : stn 605, 335-340 m : 2 ♂ 12.2 and 13.4 mm (MNHN-Ga 3723). — Stn 606, 420-430 m : 17 ♂ 8.4 to 16.0 mm; 2 ov. ♀ 13.0 and 13.2 mm; 16 ♀ 6.4 to 14.2 mm (MNHN-Ga 3724). — Stn 609, 430 m : 1 ♂ 15.2 mm; 2 ♀ 8.0 and 10.6 mm (USNM).

REMARKS. — The specimens from Wallis exhibit a clear difference with respect to the material collected from other localities : the presence of a well developed mesogastric spine, absent in the types and the specimens from New Caledonia and Loyalty Islands. However, that spine was also absent in one female (CL, 8.0 mm) from Stn 606. No other significant differences have been observed. Furthermore, colour, which has proved to be one of the most useful characters for differentiating species (e.g., RICE & DE SAINT LAURENT, 1986; MACPHERSON & DE SAINT LAURENT, 1991; MACPHERSON, 1994) was not recorded for the specimens from the Wallis Islands. Consequently, since the number of spines on the dorsal surface of the carapace and on the abdominal segments may vary geographically, as has been reported for certain European (RICE & DE SAINT LAURENT, 1986) and Pacific (BABA, 1988; MACPHERSON, 1994) species, I have considered it more appropriate to regard the presence of a mesogastric spine as a variation rather than as a specific character. Obviously, additional material will be needed to confirm this assumption and clarify whether the present specimens belong to a different form or species.

DISTRIBUTION. — *Munida squamosa* has been previously cited in Admiralty Islands, Eastern Australia, New Caledonia and Loyalty Islands, between 278 and 580 m.

Munida thoe Macpherson, 1994

Munida thoe Macpherson, 1994 : 542, figs 56, 87.

MATERIAL EXAMINED. — **Bayonnaise Bank.** MUSORSTOM 7 : stn 526, 355-360 m : 1 ♀ 8.6 mm (MNHN-Ga 3725). — Stn 606, 420-430 m : 1 ♂ 10.0 mm (MNHN-Ga 3726). — Stn 629, 400-420 m : 1 ov. ♀ 10.9 mm; 2 ♀ 8.0 and 9.6 mm (MNHN-Ga 3727).

DISTRIBUTION. — Known from New Caledonia and Matthew and Hunter Islands, between 260 and 610 m.

Munida tuberculata Henderson, 1885

Munida tuberculata Henderson, 1885 : 413; 1888 : 145, pl. 15, fig. 2. — BABA, 1988 : 83 (key). — MACPHERSON, 1994 : 547, fig. 58.

MATERIAL EXAMINED. — **Waterwitch Bank.** MUSORSTOM 7 : stn 530, 580-600 m : 1 ♂ 4.1 mm; 1 ov. ♀ 3.2 mm (MNHN-Ga 3728). — Stn 546, 550-552 m : 1 ♂ 4.8 mm (MNHN-Ga 3729).

Tuscarora Bank. MUSORSTOM 7 : stn 556, 440 m : 2 ov. ♀ 3.4 and 4.1 mm (MNHN-Ga 3730). — Stn 557, 600-608 m : 1 ♂ 5.3 mm (MNHN-Ga 3731).

Field Bank. MUSORSTOM 7 : stn 600, 500 m : 1 ♀ 4.0 mm (MNHN-Ga 3733).

Wallis Islands. MUSORSTOM 7 : stn 601, 350 m : 1 ♂ 3.3 mm; 3 ov. ♀ 3.3 to 4.0 mm (USNM). — Stn 606, 420-430 m : 1 ♂ 3.8 mm; 2 ♀ 3.6 and 4.0 mm (MNHN-Ga 3732).

DISTRIBUTION. — Known from Fiji, New Caledonia and Matthew and Hunter Islands, between 435 and 650 m.

Munida tyche Macpherson, 1994

Fig. 22

Munida tyche Macpherson, 1994 : 549, fig. 59.

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 496, 250-330 m : 1 ♂ 10.6 mm (MNHN-Ga 3734). — Stn 505, 245-400 m : 2 ♂ 6.7 and 8.6 mm; 1 ov. ♀ 7.4 mm (MNHN-Ga 3735). — Stn 508, 245-440 m : 6 ♂ 5.7 to 10.8 mm; 2 ov. ♀ 8.5 and 10.4 mm; 2 ♀ 7.7 and 8.6 mm (MNHN-Ga 3736). — Stn 509, 200-240 m : 1 ♂ 10.9 mm

(MNHN-Ga 3737). — Stn 510, 280-370 m : 1 ♂ 8.0 mm (MNHN-Ga 3738). — Stn 515, 224-252 m : 6 ♂ 6.7 to 11.2 mm; 1 ov. ♀ 10.6 mm; 1 ♀ 8.2 mm (MNHN-Ga 3739). — Stn 517, 233-235 m : 2 ♂ 6.7 and 9.6 mm; 1 ov. ♀ 12.0 mm; 1 ♀ 10.1 mm (MNHN-Ga 3740).

COLOUR. — Ground colour of carapace and abdominal segments orange; some large red spots on mesogastric, anterior branchial and posterior branchial regions; abdominal segments with medial and lateral longitudinal red bands. Rostrum and supraocular spines orange, tip of rostrum whitish. Chelipeds and walking legs with transverse red and orange bands; distal portion of hands red, proximal and distal areas of fingers orange, central part red; dactyli of walking legs light orange.

REMARKS. — Some small differences have been observed between the specimens from Futuna and the types. The distal spines on the basal segment of the antennular peduncle are subequal in the types, whereas the distomesial spine is slightly longer than the distolateral in some specimens from Futuna; furthermore, the distal spine on the extensor border of the merus of the third maxilliped may be absent in some specimens. These differences are, however, considered here as variations.

DISTRIBUTION. — *Munida tyche* is previously known from New Caledonia and Chesterfield Islands, between 127 and 235 m. The specimens from Futuna were collected between 200 and 440 m.

Paramunida amphitrita sp. nov.

Fig. 7

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 517, 233-235 m : 1 ♀ 7.7 mm, holotype; 1 ♀ 8.9 mm (MNHN-Ga 3650, 3741).

ETYMOLOGY. — The name refers to *Amphitrita*, the *Poseidon's* wife.

DESCRIPTION. — Carapace as long as broad. Dorsal surface covered with spinules. Gastric region with 3 well developed mesogastric spines, decreasing in size posteriorly. Cardiac region slightly circumscribed, with a median row of 3 well developed spines. Rostrum spiniform; supraocular spines shorter and more slender than rostrum. Fourth thoracic sternite with few arcuate striae; fifth to seventh smooth. Eye moderately large, maximum corneal diameter about 1/3 distance between bases of external orbital spines. Basal segment of antennule (distal spines excluded) slightly exceeding cornea, with distomesial spine slightly shorter than distolateral. Anterior prolongation of first segment of antennal peduncle clearly overreaching antennular peduncle by about 1/3 of its length; second segment with a strong, evenly tapering spine, slightly exceeding third segment; second segment (spines excluded) about 1.8 times length of third segment, 2 times longer than wide; third segment about 2 times longer than wide. First walking leg with propodus about 18 times as long as wide and about 1.4 times dactylus length.

REMARKS. — *Paramunida amphitrita* resembles *P. thalie* Macpherson, 1993 from Loyalty Islands (MACPHERSON, 1993b). Both species have a rostral spine larger than the supraocular spines, the median gastric region with a row of 3-4 spines and the second segment of the antennal peduncle with a well developed spine. However, these species are readily distinguishable by the following features :

- The thoracic sternites are smooth in the new species, whereas in *P. thalie* they have numerous arcuate striae.
- The distomesial spine on the second segment of the antennal peduncle clearly exceeds the antennal peduncle in *P. thalie*; this spine only overreaches the third segment of the antennal peduncle in *P. amphitrita*.
- The propodus on the first walking leg is about 18 times longer than wide in the new species, whereas this ratio is about 9 times in *P. thalie*.

P. amphitrita is also close to *P. longior* Baba, 1988 from the South China Sea, Molucca Sea and New Caledonia (BABA, 1988; MACPHERSON, 1993b) in that the propodi of the walking legs are markedly slender. However, both species can easily be distinguished by the presence of a median row of well developed spines on the gastric region in *P. amphitrita* absent in *P. longior*.

DISTRIBUTION. — Futuna Island, between 233 and 235 m.

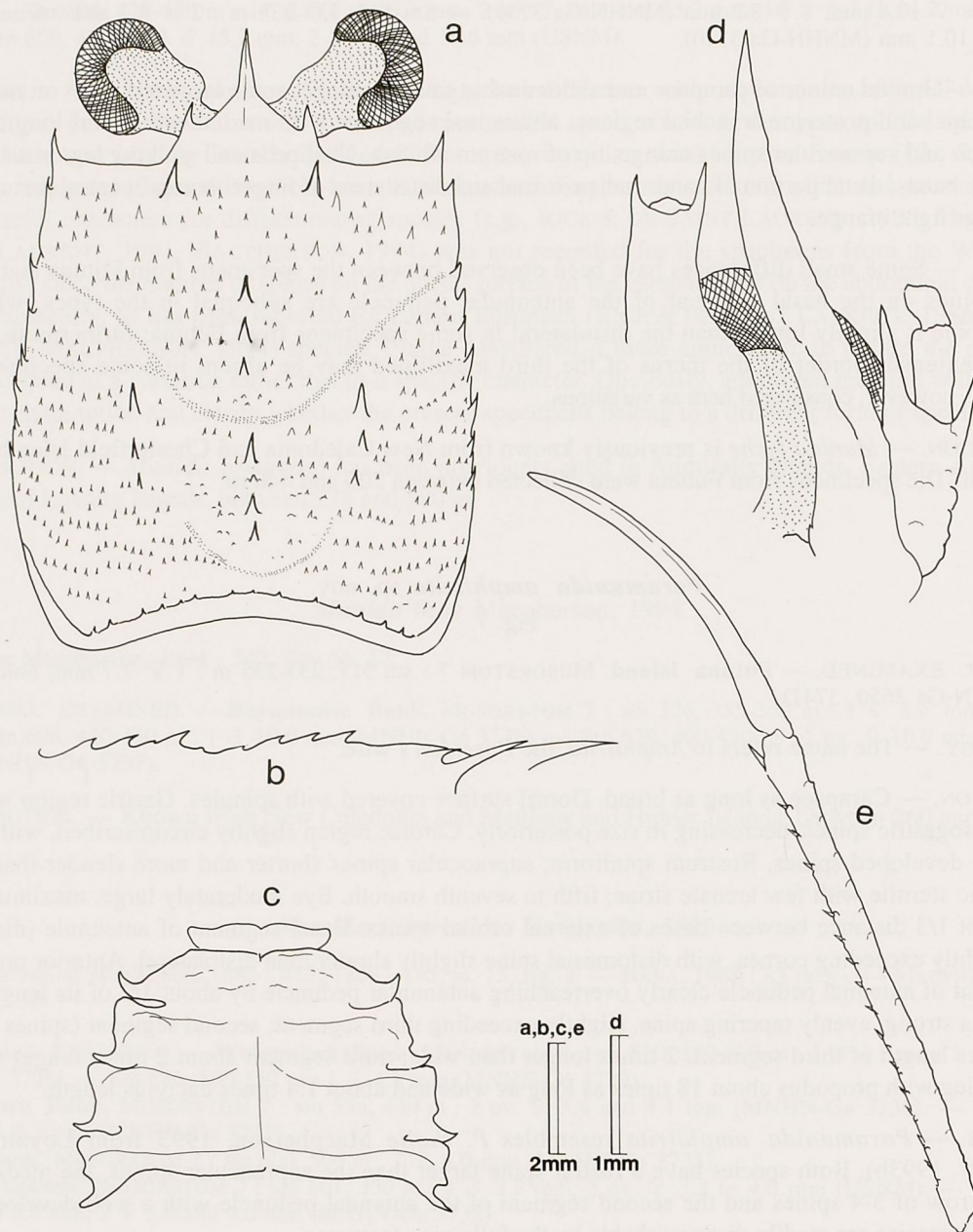


FIG. 7. — *Paramunida amphitrita* sp. nov., ♀ 7.7 mm, holotype from Stn 517 : **a**, carapace, dorsal view; **b**, upper margin of carapace and rostrum, lateral view; **c**, sternal plastron; **d**, ventral view of cephalic region, showing antennule and antennal peduncles; **e**, left walking leg, lateral view.

Paramunida belone Macpherson, 1993

Paramunida belone Macpherson, 1993b : 448, figs 1, 12.

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 499, 290-395 m : 1 ♀ 6.7 mm (USNM). — Stn 505, 245-400 m : 8 ♂ 9.3 to 12.9 mm; 7 ov. ♀ 8.0 to 10.9 mm; 4 ♀ 8.4 to 9.3 mm (MNHN-Ga 3743). — Stn 510, 280-370 m : 2 ♂ 8.0 and 8.6 mm; 4 ov. ♀ 10.0 to 10.2 mm; 1 ♀ 8.0 mm (MNHN-Ga 3742).

DISTRIBUTION. — The species has previously been recorded in Loyalty Islands, between 250 and 437 m.

Paramunida cretata sp. nov.

Figs 8, 23

MATERIAL EXAMINED. — **Waterwitch Bank.** MUSORSTOM 7 : stn 569, 300-305 m : 1 ov. ♀ 11.5 mm; 4 ♀ 7.4 to 10.5 mm (MNHN-Ga 3651, 3744).

Wallis Islands. MUSORSTOM 7 : stn 583, 330-365 m : 2 ♂ 10.0 and 11.4 mm (USNM). — Stn 605, 335-340 m : 1 ♀ 6.0 mm (MNHN-Ga 3745).

TYPES. — The ovigerous female of 11.5 mm from stn 569 (MNHN-Ga 3651) has been selected as holotype; the other specimens are paratypes.

ETYMOLOGY. — From the Latin *cretatus*, marked with chalk, in reference to the white band on the carapace.

DESCRIPTION. — Carapace as long as broad. Dorsal surface covered with spinules. Cardiac and gastric regions moderately convex. Gastric region with 3-4 well developed mesogastric spines, first stronger than the others. Cardiac region slightly circumscribed, with a median row of 2-4 (mostly 3) well developed spines, first and second stronger than the others. Rostrum spiniform; supraocular spines shorter and more slender than rostrum. Fourth to sixth thoracic sternites with few arcuate striae. Eye large, maximum corneal diameter about 1/3 distance between bases of external orbital spines. Basal segment of antennule (distal spines excluded) exceeding cornea, with distomesial spine shorter than distolateral. Anterior prolongation of first segment of antennal peduncle overreaching antennular peduncle by about 1/3 of its length; second segment with spine evenly tapering to a sharp tip and slightly exceeding third segment; second segment (spines excluded) about 1.4 times length of third segment and slightly longer than wide; third segment as long as wide. First walking leg with propodus about 10 times as long as wide, and about 1.5 times dactylus length.

COLOUR. — Carapace and abdominal segments with numerous white and yellow bands and spots, a large transverse white band on gastric and anterior branchial regions. Rostrum and supraocular spines white. Chelipeds broken off on specimen photographed. Walking legs with white bands, distal half of dactyli of walking legs white.

REMARKS. — The new species is closely related to *Paramunida luminata* sp. nov. from Wallis Island, Tuscarora, Alofi and Bayonnaise Banks and to *P. pictura* Macpherson, 1993 from New Caledonia, Chesterfield, Loyalty, Matthew and Hunter Islands (MACPHERSON, 1993b) and Wallis Islands (see below). These species are characterized by a rostral spine larger than the supraocular spines, the median gastric region with a row of 3-4 spines, the thoracic sternites with few striae and the distomesial spine on the second antennal segment evenly tapering to a sharp tip.

P. cretata differs from *P. pictura* in the following features :

- The rostrum is spiniform in the new species, more triangular in *P. pictura*.
- The anterior prolongation of the first segment of the antennal peduncle in the new species is clearly longer than in *P. pictura*. This prolongation overreaches the antennular peduncle by about 1/3 of its length in *P. cretata*, whereas it barely overreaches the peduncle in *P. pictura*.
- The second segment of the antennal peduncle is clearly more slender and longer in *P. pictura* than in *P. cretata*.
- *P. cretata* has a large transverse band on the gastric and anterior branchial regions. This band is absent in *P. pictura*.

The relationships between *P. cretata* and *P. luminata* are discussed in the Remarks section under this latter species (see below).

DISTRIBUTION. — Wallis Islands and Waterwitch Bank, between 300 and 365 m.

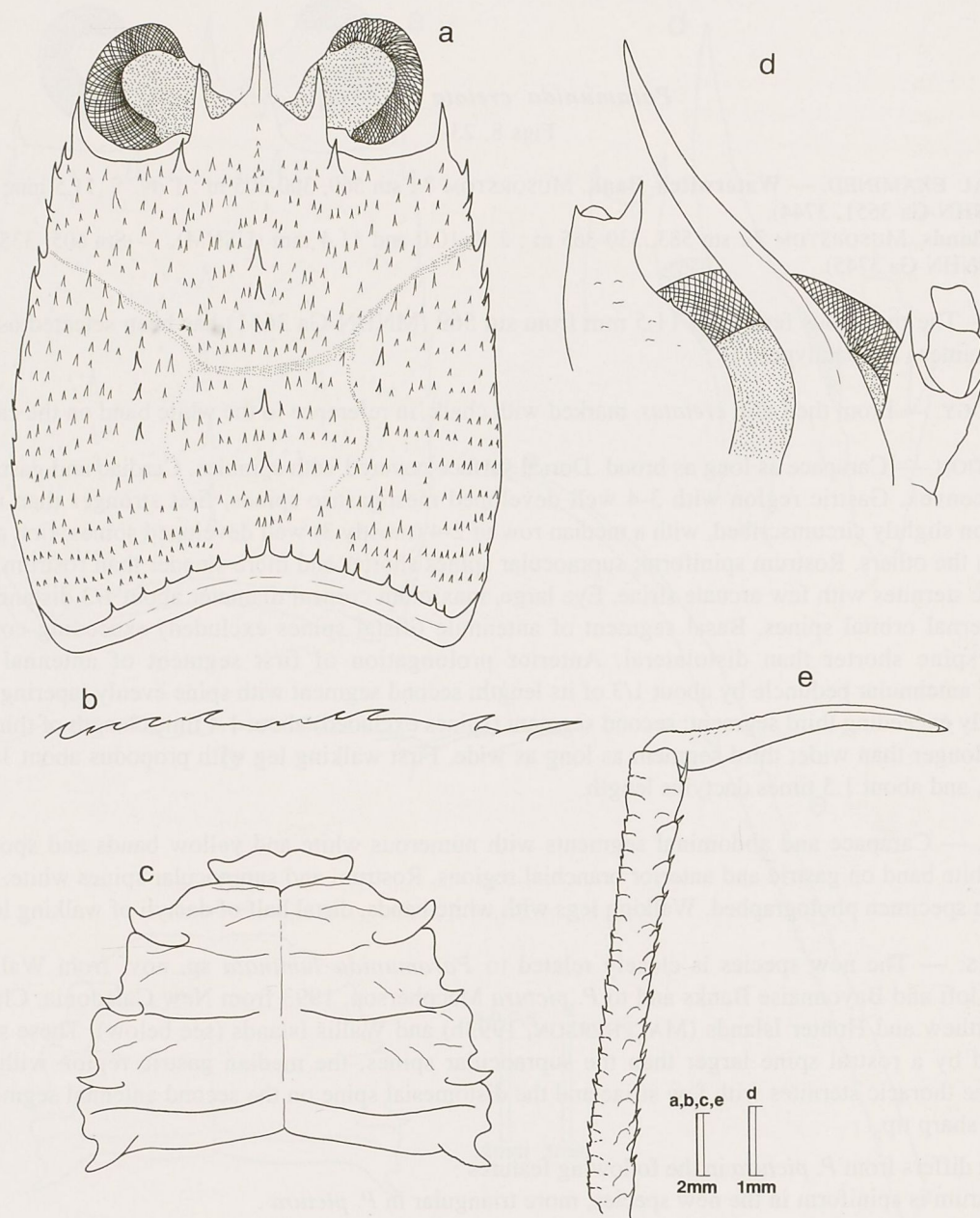


FIG. 8. — *Paramunida cretata* sp. nov., ov. ♀ 11.5 mm, holotype from Stn 569 : **a**, carapace, dorsal view; **b**, upper margin of carapace and rostrum, lateral view; **c**, sternal plastron; **d**, ventral view of cephalic region, showing antennule and antennal peduncles; **e**, right walking leg, lateral view.

Paramunida granulata (Henderson, 1885)

Munida granulata Henderson, 1885 : 409.

Paramunida granulata - MACPHERSON, 1993b : 452, figs 3, 13 (references).

MATERIAL EXAMINED. — **Futuna Island**. MUSORSTOM 7 : stn 511, 400-450 m : 1 ov. ♀ 11.3 mm (MNHN-Ga 3746).

Wallis Islands. MUSORSTOM 7 : stn 606, 420-430 m : 4 ♂ 10.0 to 12.0 mm; 33 ov. ♀ 9.0 to 12.2 mm (MNHN-Ga 3747). — Stn 607, 400-420 m : 1 ♂ 10.5 mm; 2 ov. ♀ 10.4 and 11.0 mm (MNHN-Ga 3748).

Bayonnaise Bank. MUSORSTOM 7 : stn 629, 400-420 m : 1 ♂ 12.3 mm; 3 ov. ♀ 10.7 to 11.5 mm (MNHN-Ga 3749).

DISTRIBUTION. — The species has previously been recorded in New Caledonia, Loyalty Islands, Fiji and Indonesia, between 439 and 650 m.

Paramunida labis sp. nov.

Figs 9, 24

MATERIAL EXAMINED. — **Futuna Island.** MUSORSTOM 7 : stn 496, 250-330 m : 1 ♂ 7.4 mm (MNHN-Ga 3750). — Stn 505, 245-400 m : 1 ♂ 5.6 mm; 3 ov. ♀ 8.0 to 8.2 mm; 2 ♀ 5.4 and 6.7 mm (MNHN-Ga 3652, 3751). — Stn 508, 245-440 m : 1 ♂ 6.7 mm; 5 ov. ♀ 6.1 to 8.0 mm; 3 ♀ 7.2 to 8.0 mm (USNM). — Stn 510, 280-370 m : 1 ♀ 5.3 mm (MNHN-Ga 3752).

Wallis Islands. MUSORSTOM 7 : stn 612, 255 m : 1 ♂ 7.0 mm; 4 ♀ 4.1 to 5.6 mm (MNHN-Ga 3753).

TYPES. — The ovigerous female of 6.9 mm from stn 505 (MNHN-Ga 3652) has been selected as holotype; the other specimens are paratypes.

ETYMOLOGY. — From the Latin *labes*, spot, in reference to the colour pattern.

DESCRIPTION. — Carapace as long as broad. Dorsal surface covered with spinules. Gastric region with 3 well developed mesogastric spines. Cardiac region slightly circumscribed, with a median row of 3 well developed spines, first slightly stronger than the others. Rostrum spiniform; supraocular spines clearly shorter and more slender than rostrum. Fourth thoracic sternite with few arcuate striae; fifth to seventh smooth. Eye large, maximum corneal diameter about 1/3 distance between bases of external orbital spines. Basal segment of antennule (distal spines excluded) exceeding cornea, with distomesial spine shorter than distolateral. Anterior prolongation of first segment of antennal peduncle clearly overreaching antennular peduncle by about 1/3 of its length; second segment with spine slightly exceeding third segment, distally indented to form a spine-like process; second segment (spines excluded) about 2 times length of third segment and about 3 times longer than wide; third segment slightly longer than wide. First walking leg with propodus about 10 times as long as wide and slightly longer than dactylus.

COLOUR. — Carapace, abdominal segments, chelipeds and walking legs with numerous, small white and yellow spots; gastric region reddish, with a large medial white spot. Rostrum and supraocular spines whitish, with yellow spots. Chelipeds with a reddish band on articulation of merus-carpus, carpus-propodus and palm-fingers; fingers whitish with red spots. Dactyli of walking legs whitish.

REMARKS. — *Paramunida labis* is closely related to *P. stichas* Macpherson, 1993 from Japan, Philippines, Indonesia, Fiji, New Caledonia and Matthew and Hunter Islands (see also below). The species are characterized by a rostral spine larger than the supraocular spines, median gastric region with a row of 3-4 spines, thoracic sternites with few striae and distomesial spine on the second antennal segment not evenly tapering, distally indented to form a spine-like process. They differ in several characters :

- The anterior prolongation of the first segment of the antennal peduncle in *P. labis* is clearly longer than in *P. stichas*. In the new species this prolongation overreaches the antennular peduncle by about 1/3 of its length, whereas this prolongation barely overreaches the peduncle in *P. stichas*.

- The distomesial spine on the second segment of the antennal peduncle exceeds the antennal peduncle in *P. stichas*, whereas this spine only reaches the third segment of the peduncle in the new species.

- The colour patterns of the two species are different. *P. stichas* has a longitudinal red band on each side of the carapace (MACPHERSON, 1993b, fig. 15) that is absent in the new species. Furthermore, the large median white spot on the gastric region present in the new species is absent in *P. stichas*.

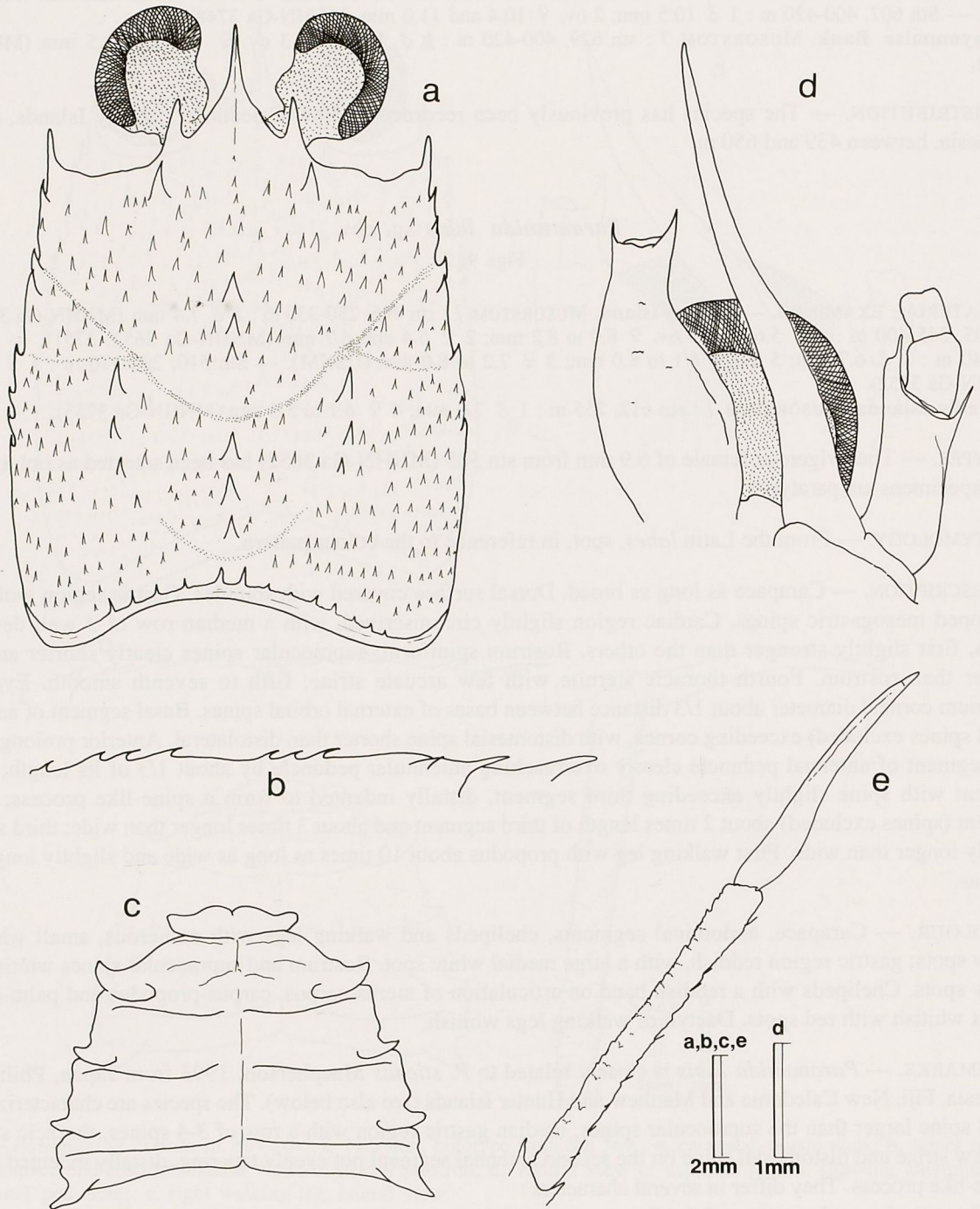


FIG. 9. — *Paramunida labis* sp. nov., ov. ♀ 6.9 mm, holotype from Stn 505 : **a**, carapace, dorsal view; **b**, upper margin of carapace and rostrum, lateral view; **c**, sternal plastron; **d**, ventral view of cephalic region, showing antennule and antennal peduncles; **e**, right walking leg, lateral view.

SIZE. — Males examined ranged from 5.6 to 7.4 mm; females from 4.1 to 8.2 mm. Ovigerous females from 6.1 mm.

DISTRIBUTION. — Wallis and Futuna Islands, between 245 and 440 m.

Paramunida luminata sp. nov.

Figs 10, 25

MATERIAL EXAMINED. — **Tuscarora Bank.** MUSORSTOM 7 : stn 556, 440 m : 1 ♂ 13.2 mm (MNHN-Ga 3754).

Wallis Islands. MUSORSTOM 7 : stn 606, 420-430 m : 14 ♂ 8.2 to 12.9 mm; 5 ov. ♀ 10.6 to 11.3 mm; 10 ♀ 6.7 to 11.2 mm (MNHN-Ga 3653, 3755). — Stn 609, 430 m : 2 ♂ 12.0 and 12.4 mm; 1 ♀ 7.4 mm (USNM).

Alofi Bank. MUSORSTOM 7 : stn 618, 420-435 m : 1 ♀ 10.0 mm; 1 juv. 6.4 mm (MNHN-Ga 3756).

Bayonnaise Bank. MUSORSTOM 7 : stn 629, 400-420 m : 3 ♂ 11.8 to 12.6 mm; 2 ♀ 10.1 and 12.3 mm (MNHN-Ga 3757).

TYPES. — The male of 12.2 mm from stn 606 (MNHN-Ga 3653) has been selected as holotype; the other specimens are paratypes.

ETYMOLOGY. — From the Latin *luminatus*, full of light, in reference to the colour pattern.

DESCRIPTION. — Carapace as long as broad. Dorsal surface covered with small spines and spinules. Gastric region with 3 well developed mesogastric spines, second spine slightly smaller than the others. Cardiac region slightly circumscribed, with a median row of 3 well developed spines, decreasing in size posteriorly. Rostrum triangular; supraocular spines clearly shorter and more slender than rostrum. Fourth thoracic sternite with few arcuate striae; fifth to seventh smooth. Eye large, maximum corneal diameter about 1/3 distance between bases of external orbital spines. Basal segment of antennule (distal spines excluded) exceeding cornea, with distomesial spine shorter than distolateral. Anterior prolongation of first segment of antennal peduncle overreaching antennular peduncle by about 1/3 of its length; second segment with a short spine evenly tapering to a sharp tip that reaches the end of third segment; second segment (spines excluded) about 1.5 times length of third segment, 1.5 times longer than wide; third segment about 2 times longer than wide. First walking leg with propodus about 9 times as long as wide and about 1.5 times dactylus length.

COLOUR. — Ground colour of carapace and abdominal segments whitish, with numerous yellowish bands and spots. Rostrum and supraocular spines yellowish. Chelipeds and walking legs whitish, with some red bands; fingers of cheliped whitish, proximal portion of dactyli on walking legs reddish.

REMARKS. — Rostral spine larger than the supraocular spines, median gastric region with a row of 3-4 spines, thoracic sternites with few striae and the distomesial spine on the second antennal segment evenly tapering to a sharp tip link the new species to *Paramunida pictura* Macpherson, 1993 from New Caledonia, Chesterfield, Loyalty, Matthew and Hunter Islands (MACPHERSON, 1993b) and Wallis Islands (see below) and to *P. cretata* sp. nov. from Wallis Islands and Waterwitch Bank.

The new species differs from *P. pictura* in the following respects :

- The anterior prolongation of the first segment of the antennal peduncle overreaches the antennular peduncle by about 1/3 of its length in *P. luminata*; whereas this prolongation barely exceeds the peduncle in *P. pictura*.
- In the new species the second segment of the antennal peduncle is quite short and never overreaches the midpoint of the anterior prolongation of the first segment of the antennal peduncle. In *P. pictura* this segment is quite slender and overreaches the midpoint of the anterior prolongation.

P. luminata and *P. cretata* are distinguishable by several characters :

- The rostrum is triangular in *P. luminata*, spiniform in *P. cretata*.
- The distomesial spine on the second segment of the antennal peduncle is short in *P. luminata*, never exceeding the third segment of the peduncle; this spine exceeds the third segment in *P. cretata*.
- The colour pattern of both species is different (see Figs 23 and 25).

SIZE. — The males examined ranged from 8.2 to 13.2 mm, the females from 6.7 to 12.3 mm; ovigerous females from 10.6 mm.

DISTRIBUTION. — Wallis Islands, Tuscarora, Alofi and Bayonnaise Banks, between 400 and 440 m.

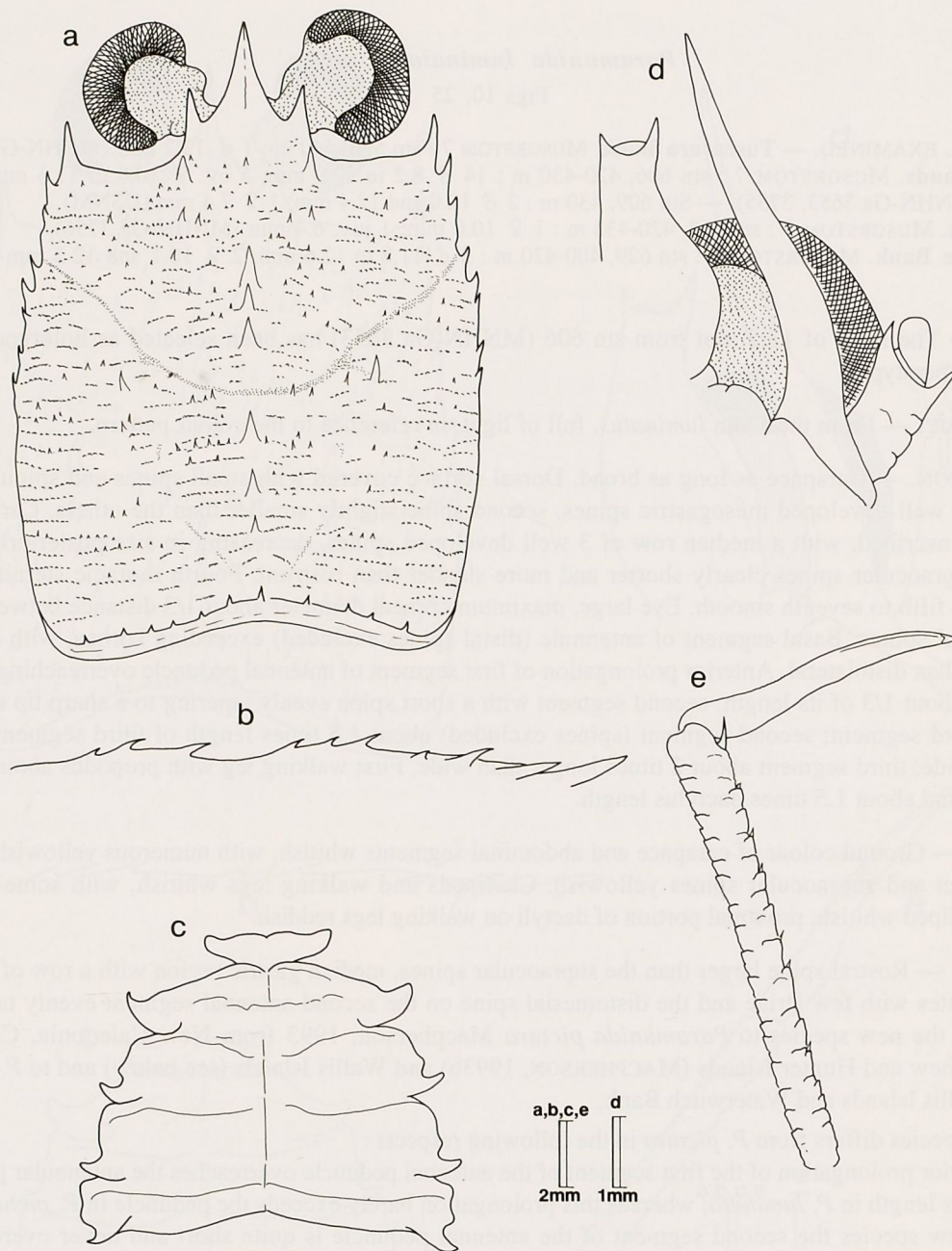


FIG. 10. — *Paramunida luminata* sp. nov., ♂ 12.2 mm, holotype from Stn 606 : **a**, carapace, dorsal view; **b**, upper margin of carapace and rostrum, lateral view; **c**, sternal plastron; **d**, ventral view of cephalic region, showing antennule and antennal peduncles; **e**, right walking leg, lateral view.

Paramunida pictura Macpherson, 1993

Paramunida pictura Macpherson, 1993b : 454, figs 4, 14.

MATERIAL EXAMINED. — **Wallis Islands.** MUSORSTOM 7 : stn 605, 335-340 m : 1 ♀ 7.7 mm (MNHN-Ga 3758). — Stn 610, 286 m : 2 ov. ♀ 7.5 and 7.7 mm; 2 ♀ 6.9 and 7.0 mm (MNHN-Ga 3759). — Stn 612, 255 m : 1 ♂ 7.2 mm; 2 ♀ 6.0 and 8.0 mm (MNHN-Ga 3760).

DISTRIBUTION. — *Paramunida pictura* was previously known from New Caledonia, Chesterfield, Loyalty, Matthew and Hunter Islands, between 205 and 600 m.

Paramunida stichas Macpherson, 1993

Paramunida stichas Macpherson, 1993b : 465, figs 9, 15.

MATERIAL EXAMINED. — **Field Bank.** MUSORSTOM 7 : stn 590, 400 m : 1 ♀ 10.8 mm (MNHN-Ga 3761).

Wallis Islands. MUSORSTOM 7 : stn 606, 420-430 m : 13 ♂ 6.7 to 12.2 mm; 10 ov. ♀ 8.2 to 12.2 mm; 11 ♀ 5.6 to 10.0 mm (USNM). — Stn 607, 400-420 m : 1 ♀ 9.5 mm (MNHN-Ga 3762). — Stn 609, 430 m : 2 ♀ 7.8 and 8.2 mm (MNHN-Ga 3763).

Bayonnaise Bank. MUSORSTOM 7 : stn 625, 425-430 m : 1 ♂ 8.8 mm (MNHN-Ga 3764). — Stn 629, 400-420 m : 16 ♂ 9.0 to 11.6 mm; 4 ov. ♀ 11.2 to 11.5 mm; 7 ♀ 9.2 to 12.7 mm (MNHN-Ga 3765).

DISTRIBUTION. — The species has previously been cited from Philippines, Japan, New Caledonia, Fiji and Indonesia, between 210 and 590 m.

ACKNOWLEDGEMENTS

I am very grateful to A. CROSNIER and B. RICHER DE FORGES of ORSTOM for their continuous support and help and for making this interesting collection available to me. I thank K. BABA of Kumamoto University and M. DE SAINT LAURENT of Muséum national d'Histoire naturelle for their support and useful comments and R. SACKS for revising the manuscript. Most species have been illustrated by C. MONEGAL, and J. L. MENOUE of ORSTOM took the colour photographs.

REFERENCES

- BABA, K., 1988. — Chirostyliid and Galatheid Crustaceans (Decapoda: Anomura) of the "Albatross" Philippine Expedition, 1907-1910. *Researches Crust.*, Special Number 2, V + 203 pp.
- BABA, K., 1989. — Anomuran Crustacean obtained by dredging from Oshima Strait, Amami-Oshima of the Ryukyu Islands. *Mem. natn. Sci. Mus., Tokyo*, **22** : 127-134.
- BABA, K., 1990. — Chirostyliid and Galatheid Crustaceans of Madagascar (Decapoda, Anomura). *Bull. Mus. natn. Hist. nat., Paris*, (4) **11**, sect. A, (4) : 921-975.
- BABA, K., 1994. — Deep-sea galatheid crustaceans (Anomura: Galatheididae) collected by the 'Cidaris I' expedition off central Queensland, Australia. *Mem. Queensland Mus.*, **35** : 1-21.
- BABA, K., & MACPHERSON, E., 1991. — Reexamination of the type material of *Munida militaris* Henderson, 1885 (Crustacea: Decapoda: Galatheididae), with the selection of a lectotype. *Proc. biol. Soc. Wash.*, **104** (3) : 538-544.
- HENDERSON, J. R., 1885. — Diagnoses of the new species of Galatheididae collected during the "Challenger" Expedition. *Ann. Mag. Nat. Hist.*, (5) **16** : 407-421.
- HENDERSON, J. R., 1888. — Report on the Anomura Collected by H.M.S. Challenger During the Years 1873-76. *Rep. scient. Res. Voy. Challenger, Zoology*, **27**, VI + 221 pp., 21 pls.
- MACPHERSON, E., 1993a. — Crustacea Decapoda : Species of the genus *Munida* Leach, 1820 (Galatheididae) collected during the MUSORSTOM and CORINDON cruises in the Philippines and Indonesia. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Vol. 10. *Mém. Mus. natn. Hist. nat.*, **156** : 421-442.
- MACPHERSON, E., 1993b. — Crustacea Decapoda : Species of the genus *Paramunida* Baba, 1988 (Galatheididae) from the Philippines, Indonesia and New Caledonia. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Vol. 10. *Mém. Mus. natn. Hist. nat.*, **156** : 443-473.

- MACPHERSON, E., 1994. — Crustacea Decapoda : Studies on the genus *Munida* Leach, 1820 (Galatheidae) in New Caledonian and adjacent waters with descriptions of 56 new species. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Vol. 12. *Mém. Mus. natn. Hist. nat.*, **161**: 421-569.
- MACPHERSON, E., & BABA, K., 1993. — Crustacea Decapoda : *Munida japonica* Stimpson, 1858, and related species (Galatheidae). In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, vol. 10. *Mém. Mus. natn. Hist. nat.*, **156** : 381-420.
- MACPHERSON, E., & DE SAINT LAURENT, M., 1991. — Galatheid crustaceans of the genus *Munida* from French Polynesia. *Bull. Mus. natn. Hist. nat., Paris*, (4), **13**, sect. A, (3-4) : 373-422.
- MIYAKE, S., & BABA, K., 1967. — New and rare species of the family Galatheidae (Crustacea, Anomura) from the Sagami Bay in the collection of the Biological Laboratory, Imperial Household, Japan. *J. Fac. Agr. Kyushu Univ.*, **14** (2) : 213-224.
- RICE, A. I., & DE SAINT LAURENT, M., 1986. — The nomenclature and diagnostic characters of four north-eastern Atlantic species of the genus *Munida* Leach : *M. rugosa* (Fabricius), *M. tenuimana* G.O. Sars, *M. intermedia* A. Milne Edwards and Bouvier, and *M. sarsi* Huus (Crustacea Decapoda Galatheidae). *J. Nat. Hist.*, **30** : 143-163.
- RICHER DE FORGES, B., & MENOU, J. L., 1993. — La campagne MUSORSTOM 7 dans la zone économique des îles Wallis et Futuna. Compte rendu et liste des stations. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, vol. 10. *Mém. Mus. natn. Hist. nat.*, **156** : 9-25.
- ZARIQUIEY ALVAREZ, R., 1952. — Estudio de las especies europeas del gen. *Munida* Leach 1818. *Eos*, **28** : 143-231.

FIGURES 11-19

- FIG. 11. — *Munida abelloi* Macpherson, 1994, ov. ♀, 5.3 mm, Stn 498.
- FIG. 12. — *Munida bellior* Miyake & Baba, 1967, ♀ 9.0 mm, Stn 515.
- FIG. 13. — *Munida clinata* Macpherson, 1994, ♂, 7.0 mm, Stn 494.
- FIG. 14. — *Munida leptitis* Macpherson, 1994, ♂, 5.9 mm, Stn 605.
- FIG. 15. — *Munida masoae* sp. nov., ♀, 9.3 mm, holotype, Stn 632.
- FIG. 16. — *Munida militaris* Henderson, 1885, ♂, 15.5 mm, Stn 578.
- FIG. 17. — *Munida miniata* sp. nov., ♀, 8.9 mm, holotype, Stn 600.
- FIG. 18. — *Munida moliae* Macpherson, 1994, ♀, 9.0 mm, Stn 606.
- FIG. 19. — *Munida runcinata* Macpherson, 1994, ov. ♀, 8.0 mm, Stn 610.





FIGURES 20-25

- FIG. 20. — *Munida normani* Henderson, 1885, ♂, 12.0 mm, Stn 594.
FIG. 21. — *Munida ocyrhoe* Macpherson, 1994, ♀, 18.0 mm, Stn 606.
FIG. 22. — *Munida tyche* Macpherson, 1994, ♂, 11.2 mm, Stn 515.
FIG. 23. — *Paramunida cretata* sp. nov., ov. ♀, 11.5 mm, holotype, Stn 569.
FIG. 24. — *Paramunida labis* sp. nov., ov. ♀ 6.9 mm, holotype, Stn 505.
FIG. 25. — *Paramunida luminata* sp. nov., ♂, 12.2 mm, Stn 606.

