

# New species and new occurrences of squat lobsters (Crustacea, Decapoda, Munididae, Eumunididae) from French Polynesia

Enrique Macpherson

Centro de Estudios Avanzados de Blanes (CEAB-CSIC), C. acc. Cala San Francesc s/n, 17300 Blanes, Girona (Spain)  
macpherson@ceab.csic.es

## ABSTRACT

During the cruise TARASOC (September and October 2009) to the Tarava Seamounts, and Tuamotu and Society Archipelagos (French Polynesia), numerous specimens of squat lobsters belonging to the family Munididae (*Agononida* Baba & de Saint Laurent, 1996, *Babamunida* Cabezas *et al.*, 2008, *Bathymunida* Balss, 1914, *Heteronida* Baba & de Saint Laurent, 1996, *Munida* Leach, 1820, *Onconida* Baba & de Saint Laurent, 1996, *Paramunida* Baba, 1988) and the family Eumunididae (*Eumunida* Smith, 1883) were collected. The study of these specimens revealed the presence of 27 species. Three species are described as new: *Bathymunida corniculata* n. sp., *Munida atarapa* n. sp. and *M. rona* n. sp.

## RÉSUMÉ

**Nouvelles espèces et nouvelles occurrences des Galatahées (Crustacea, Decapoda, Munididae, Eumunididae) de Polynésie Française.**

Lors de la campagne TARASOC (Septembre et Octobre 2009) sur les monts sous-marins Tarava, l'Archipel des Tuamotu et des Sociétés (Polynésie Française), de nombreuses galathées appartenant aux familles Munididae (*Agononida* Baba & de Saint Laurent, 1996, *Babamunida* Cabezas *et al.*, 2008, *Bathymunida* Balss, 1914, *Heteronida* Baba & de Saint Laurent, 1996, *Munida* Leach, 1820, *Onconida* Baba & de Saint Laurent, 1996, *Paramunida* Baba, 1988) et Eumunididae (*Eumunida* Smith, 1883), ont été recoltées. La collection étudiée ici comprend 27 espèces. Trois espèces sont décrites comme nouvelles: *Bathymunida corniculata* n. sp., *Munida atarapa* n. sp. and *M. rona* n. sp.

## INTRODUCTION

French Polynesia is an area inhabited by numerous squat lobsters, most of them endemic (Macpherson *et al.* 2010). The number of studies on this group of organisms is still scarce, however some recent cruises have improved our knowledge on this area, *e.g.*, Macpherson & de Saint Laurent (1991), Poupin (1996), Macpherson (2006), as well as on other zones of the Central Pacific, *e.g.*, Hawaii, see Schnabel *et al.* (2009), Castro (2011).

During September and October 2009 the cruise TARASOC, carried out in the Tarava seamounts, and Tuamotu and Society Archipelagos (French Polynesia), numerous representatives of the genera of the family Munididae: *Agononida* Baba & de Saint Laurent, 1996, *Babamunida* Cabezas *et al.*, 2008, *Bathymunida* Balss, 1914, *Heteronida* Baba & de Saint Laurent, 1996, *Munida* Leach, 1820, *Onconida* Baba & de Saint Laurent, 1996, *Paramunida* Baba, 1988 and the family Eumunididae: *Eumunida* Smith, 1883 were collected. The study of these specimens revealed the presence of 27 species. Three species are described as new. The present study also revealed some new locality records for the species that have been known from the western Pacific, *e.g.*, *Munida armilla* Macpherson, 1994, *M. pygmaea* Macpherson, 1996 and *Paramunida antares* Cabezas, Macpherson & Machordom, 2010, among others.

The size of the carapace is indicated as the postorbital carapace length measured along the dorsal midline from the posterior margin of the orbital to the posterior margin of the carapace. The abbreviations used include: Mxp3 = third maxilliped, P1 = first pereopod (cheliped), P2-4 = second to fourth pereopods (first to third walking legs). The types and other specimens are deposited in the collections of the Muséum national d'Histoire naturelle, Paris (MNHN) and Florida Museum of Natural History, Gainesville (UF). Synonymies in each species are restricted to original descriptions and most recent papers.

## STATIONS OF TARASOC AT WHICH SQUAT LOBSTERS WERE COLLECTED AND THE SPECIES OBTAINED AT EACH STATION

[Abbreviations of the gears: **DW**: Warén dredge; **CP**: Beam trawl]

### TARAVA SEAMOUNTS

#### *Seamount SE Tahiti*

**DW 3296** – 21.09.2009, 18°19'S, 148°32'W, 437 m: *Munida aulakodes*.

#### *Mont Punu Taipu*

**DW 3300** – 22.09.2009, 19°19'S, 150°60'W, 670-757 m: *Munida amathea*.

**CP 3303** – 23.09.2009, 19°15'S, 150°56'W, 587-704 m: *Agononida* aff. *incerta*, *A. normani*, *Munida amathea*, *M. armilla*.

**CP 3306** – 23.09.2009, 19°17'S, 150°59'W, no depth recorded: *Agononida* aff. *incerta*, *A. normani*, *Munida rubrovata*.

#### *Mont 'Otaha*

**DW 3327** – 26.09.2009, 18°45'S, 152°16'W, 747-836 m: *Munida amathea*, *M. typhle*.

**DW 3328** – 26.09.2009, 18°46'S, 152°15'W, 788-836 m: *Munida typhle*.

**CP 3329** – 26.09.2009, 18°45'S, 152°16'W, 755-840 m: *Munida pygmaea*, *M. rubella*.

**DW 3330** – 26.09.2009, 18°45'S, 152°16'W, 717-794 m: *Munida amathea*.

#### *Mont 'Ori'o Mata*

**DW 3344** – 28.09.2009, 17°49'S, 154°04'W, 643 m: *Agononida normani*, *Munida amathea*.

### TUAMOTU ARCHIPELAGO

#### *SW Kaukura*

**DW 3355** – 01.10.2009, 15°57'S, 147°08'W, 530-710 m: *Munida armilla*, *M. fasciata*.

DW 3357 – 01.10.2009, 15°57'S, 147°08'W, 480 m: *Agononida aequabilis*, *Munida rona* n. sp., *Eumunida smithii*.

#### Niau

- DW 3363 – 03.10.2009, 16°10'S, 146°23'W, 490-560 m: *Munida fasciata*.  
 DW 3364 – 03.10.2009, 16°07'S, 146°23'W, 550-561 m: *Agononida normani*.  
 DW 3365 – 03.10.2009, 16°07'S, 146°23'W, 707-792 m: *Munida amathea*.  
 DW 3368 – 03.10.2009, 16°08'S, 146°23'W, 96-300 m: *Eumunida smithii*.  
 DW 3369 – 03.10.2009, 16°08'S, 146°24'W, 412-520 m: *Munida fasciata*.

#### Kaukura

- DW 3371 – 04.10.2009, 15°38'S, 146°54'W, 430-450 m: *Munida aulakodes*, *M. fasciata*, *M. rona* n. sp.  
 DW 3372 – 04.10.2009, 15°39'S, 146°55'W, 326-540 m: *Munida leptitis*, *M. rona* n. sp., *Paramunida antares*.  
 CP 3375 – 04.10.2009, 15°39'S, 146°54'W, 460-647 m: *Agononida aff. incerta*.  
 CP 3376 – 04.10.2009, 15°41'S, 146°54'W, 646-737 m: *Agononida aff. incerta*, *A. normani*, *Munida amathea*, *M. antliae*, *M. fasciata*, *Onconida prostrata*.  
 DW 3384 – 05.10.2009, 15°40'S, 146°54'W, 427-440 m: *Munida arae*, *M. rona* n. sp.  
 DW 3385 – 05.10.2009, 15°41'S, 146°54'W, 390-420 m: *Agononida aequabilis*, *Munida leptitis*, *M. rona* n. sp.  
 CP 3386 – 05.10.2009, 15°42'S, 146°54'W, 400-440 m: *Agononida aequabilis*, *Babamunida plexaura*, *Munida arae*, *M. atarapa* n. sp., *M. leptitis*, *Paramunida poorei*.

#### Tikehau

- DW 3387 – 06.10.2009, 14°57'S, 148°16'W, 550-600 m: *Munida amathea*.  
 DW 3389 – 06.10.2009, 14°55'S, 148°15'W, 889 m: *Munida typhle*.

#### Makatea

- DW 3396 – 07.10.2009, 15°50'S, 148°17'W, 313-350 m: *M. rufiantennulata*.  
 DW 3397 – 07.10.2009, 15°50'S, 148°17'W, 600 m: *Munida amathea*, *M. typhle*.

### SOCIETY ARCHIPELAGO

#### Seamount W of Maupiti

- DW 3403 – 12.10.2009, 16°31'S, 152°31'W, 263-440 m: *Bathymunida corniculata* n. sp., *Munida lenticularis*.  
 DW 3405 – 12.10.2009, 16°31'S, 152°31'W, 466-1130 m: *Munida amathea*.  
 DW 3407 – 12.10.2009, 16°32'S, 152°31'W, 445-645 m: *Munida amathea*.

#### Maupiti

- DW 3408 – 12.10.2009, 16°25'S, 152°17'W, 437-536 m: *Munida atarapa* n. sp., *Munida aulakodes*, *M. leptitis*, *M. rubrovata*.

#### Bora Bora

- DW 3413 – 13.10.2009, 16°34'S, 151°46'W, 385-486 m: *Agononida aequabilis*, *Munida arae*, *M. leptitis*, *Paramunida antares*.  
 CP 3415 – 13.10.2009, 16°34'S, 151°47'W, 614-730 m: *Agononida normani*, *Munida amathea*.  
 DW 3418 – 13.10.2009, 16°33'S, 151°48'W, 580-618 m: *Munida amathea*, *M. fasciata*.

#### Huahine

- DW 3420 – 14.10.2009, 16°46'S, 151°04'W, 550 m: *Munida fasciata*.  
 DW 3422 – 14.10.2009, 16°43'S, 151°04'W, 430-620 m: *Munida antliae*, *M. fasciata*.

- DW 3429 – 15.10.2009, 16°43'S, 150°38'W, 493-540 m: *Munida fasciata*, *M. typhle*.  
 DW 3431 – 15.10.2009, 16°40'S, 150°60'W, 340-380 m: *Munida antliae*, *Paramunida poorei*.  
 DW 3433 – 15.10.2009, 16°41'S, 151°03'W, 1013-1158 m: *Munida typhle*.  
 DW 3434 – 15.10.2009, 16°42'S, 151°03'W, 700-785 m: *Munida amathea*.  
 DW 3435 – 15.10.2009, 16°41'S, 151°02'W, 500-612 m: *Munida armilla*, *M. fasciata*.

*Between Raiatea & Tahaa*

- CP 3437 – 16.10.2009, 16°41'S, 151°26'W, 440-560 m: *Agononida aequabilis*, *A. normani*, *Munida thoe*.  
 DW 3440 – 16.10.2009, 16°40'S, 151°25'W, 650-800 m: *Munida amathea*.  
 DW 3443 – 16.10.2009, 16°43'S, 151°26'W, 280 m: *Munida distiza*, *M. fornacis*.

*Raiatea*

- DW 3451 – 18.10.2009, 16°53'S, 151°21'W, 440-490 m: *Agononida normani*.  
 DW 3454 – 18.10.2009, 16°53'S, 151°21'W, 295-310 m: *Munida rufiantennulata*.  
 DW 3455 – 18.10.2009, 16°52'S, 151°20'W, 430-527 m: *Agononida normani*, *Munida armilla*, *M. fasciata*.

*Moorea*

- DW 3460 – 19.10.2009, 17°28'S, 149°50'W, 660-680 m: *Munida leptitis*.  
 DW 3462 – 19.10.2009, 17°27'S, 149°50'W, 1000-1145 m: *Munida typhle*.  
 CP 3464 – 20.10.2009, 17°34'S, 149°54'W, 460 m: *Agononida aequabilis*, *Heteronida clivicola*, *M. fasciata*, *M. rufiantennulata*, *M. rona* n. sp., *Onconida prostrata*, *Paramunida antares*.  
 DW 3465 – 20.10.2009, 17°34'S, 149°54'W, 600-650 m: *Agononida aequabilis*.  
 CP 3468 – 20.10.2009, 17°34'S, 149°54'W, 800-870 m: *Agononida normani*, *Munida amathea*, *M. fasciata*, *M. thoe*, *M. typhle*.  
 DW 3475 – 21.10.2009, 17°28'S, 149°47'W, 670 m: *Munida amathea*.  
 DW 3477 – 21.10.2009, 17°30'S, 149°44'W, 812-860 m: *Munida typhle*.  
 CP 3478 – 22.10.2009, 17°31'S, 149°45'W, 678-810 m: *Munida rubella*.  
 CP 3480 – 22.10.2009, 17°32'S, 149°45'W, 880-900 m: *Munida typhle*.  
 DW 3482 – 22.10.2009, 17°29'S, 149°45'W, 440 m: *Agononida normani*.

*Tahiti*

- DW 3484 – 23.10.2009, 17°47'S, 149°23'W, 300-650 m: *Munida arae*, *M. leptitis*, *Onconida prostrata*.  
 DW 3488 – 23.10.2009, 17°48'S, 149°22'W, 390-790 m: *Munida amathea*.  
 DW 3489 – 23.10.2009, 17°47'S, 149°23'W, 450-720 m: *Munida amathea*.  
 DW 3493 – 24.10.2009, 17°28'S, 149°27'W, 556-565 m: *Munida antliae*.  
 DW 3496 – 24.10.2009, 17°28'S, 149°28'W, 300-905 m: *Munida antliae*, *M. rubella*.  
 DW 3498 – 25.10.2009, 17°43'S, 149°17'W, 347-460 m: *Munida rufiantennulata*.  
 DW 3499 – 25.10.2009, 17°41'S, 149°17'W, 550-700 m: *Munida armilla*.  
 DW 3506 – 26.10.2009, 17°36'S, 149°38'W, 380 m: *Agononida aequabilis*, *Onconida modica*.

SYSTEMATIC PART

Superfamily CHIROSTYLOIDEA Ortmann, 1892

Family EUMUNIDIDAE A. Milne-Edwards & Bouvier, 1900

Eumunidiens A. Milne-Edwards & Bouvier, 1894: 299, 308, 312. — Bouvier, 1896:312. — A. Milne-Edwards & Bouvier, 1897: 8, 116.  
 Eumunididae A. Milne-Edwards & Bouvier, 1900: 364. — Schnabel & Ah Yong, 2010: 58 (new classification).

### *Eumunida smithii* Henderson, 1885

*Eumunida smithii* Henderson, 1885: 413 (type locality: Kei Islands, Indonesia). — Henderson, 1888: 169, pl. 5-fig. 5a, b. — Gordon, 1930: 749 (in part), figs 9a, 10a (not 2 females from Sahul Bank S of Timor = *E. ampliata* de Saint Laurent & Poupin, 1996). — de Saint Laurent & Macpherson, 1990a: 261 (no record). — Komai, 2000: 350 (list). — Baba, 2005: 211 (synonymies). — Baba *et al.*, 2008: 20 (compilation). — Castro, 2011: 13 (list of Hawaiian species). — Puillandre *et al.*, 2011: 331 (molecular analyses and synonymies).

*Eumunida balssi* – Van Dam, 1933: 10.

*Eumunida propior* Baba, 1988: 9, fig. 2 (type locality: SW Luzon, the Philippines).

*Eumunida (Eumunidopsis) karubar* de Saint Laurent & Poupin, 1996: 379, figs 9b-f, 10b (type locality: off Kei Islands).

*Eumunida karubar* – Baba, 2005: 210 (synonymies). — Baba *et al.*, 2008: 18 (compilation).

*Eumunida parva* de Saint Laurent & Macpherson, 1990a: 257, figs 2a, 11a-k, 12b-c (type locality: New Caledonia). — Baba, 2005: 210 (synonymies). — Baba *et al.*, 2008: 19 (compilation); 2009: 23, figs. 18, 19.

*Eumunida (Eumunidopsis) parva* – de Saint Laurent & Poupin, 1996: 376, fig. 9h (re-examination of type material).

*Eumunida (Eumunidopsis) smithii* – de Saint Laurent & Poupin, 1996: 376, figs 9a, g, 10a (re-examination of holotype, and material reported by Van Dam (1933) and Baba (1988)).

[not] *Eumunida smithii* – Balss, 1913: 21 (= *E. dofleini* Gordon, 1930 + *E. balssi* Gordon, 1930 + ?*E. macphersoni* de Saint Laurent & Poupin, 1996). — Parisi, 1917: 6 (= *E. dofleini* Gordon, 1930). — Gordon, 1930: 749 (in part), figs 10b, c (= *E. ampliata* de Saint Laurent & Poupin, 1996). — Van Dam, 1933: 11 (= *E. ampliata* de Saint Laurent & Poupin, 1996). — Baba, 1988: 12 (fig. 3a-d = ?*E. capillata* de Saint Laurent & Macpherson, 1990; fig. 3e = *E. ampliata* de Saint Laurent & Poupin, 1996).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3357, 480 m, 1 female 5.2 mm (MNHN-IU-2010-6175). – stn DW 3368, 96-300 m, 1 ovigerous female 5.1 mm (MNHN-IU-2010-6174).

**DISTRIBUTION** — Previously recorded from Taiwan, Philippines, Indonesia, New Caledonia, Hawaii, at 205-545 m. The specimens in French Polynesia were collected in the Tuamotu Archipelago, at 96-480 m.

**REMARKS** — *Eumunida smithii* was described from one male collected during the CHALLENGER expedition (1874-1876) in the Kei Islands, Indonesia (Henderson 1885). In the last decades, two closely related species were described: *E. parva* de Saint Laurent and Macpherson, 1990 from New Caledonia and *E. karubar* de Saint Laurent and Poupin, 1996 from the Kei Islands. The morphological distinctions among the three species are based on the presence or absence of ventral spines on the P1 merus, on the presence or absence of some ventromesial spines on the P1 palm, and on the length of the ocular peduncles (see de Saint Laurent & Poupin 1996). However, a recent study based on molecular and morphological data for the type (*E. parva* and *E. karubar*) and topotypic (*E. smithii*) material, suggests that the three are identical (Puillandre *et al.* 2011). Therefore, *E. parva* and *E. karubar* should be considered as junior synonyms of *E. smithii*. The morphological differences among the three species are the result of intraspecific variability (Puillandre *et al.* 2011).

Superfamily GALATHEOIDEA Samouelle, 1819

Family MUNIDIDAE Ah Yong, Baba, Macpherson & Poore, 2010

Munididae Ah Yong *et al.*, 2010: 59.

### *Agononida aequabilis* Macpherson, 2006

*Agononida aequabilis* Macpherson, 2006a: 288, fig. 1 (type locality: Society Archipelago, French Polynesia). — Baba *et al.*, 2008: 46 (compilation).  
*Munida* sp. cf. *pilosimanus*. — Poupin, 1996: 24, pl. 11-fig. e.

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3357, 480 m, 1 female 10.3 mm (MNHN-IU-2010-5962). – stn DW 3385, 390-420 m, 2 M 12.3-19.3 mm (MNHN-IU-2010-5968). – stn CP 3386, 400-440 m: 1 female 17.7 mm (MNHN-IU-2010-5963). – stn CP 3437, 440-560 m, 1 female 20.5 mm (MNHN-IU-2010-5969). – Society Archipelago, stn DW 3413, 385-486 m, 1 female 19.8 mm (MNHN-IU-2010-5967). – stn CP 3464, 460 m, 1 M 27.9 mm, 4 ovigerous females 15.0-21.7 mm, 2 females 5.0, 8.1 mm (MNHN-IU-2010-5965 and UF). – stn DW 3465, 600-650 m, 1 M 22.7 mm (MNHN-IU-2010-5966). – stn DW 3506, 380 m, 1 female 11.6 mm (MNHN-IU-2010-5964).

**DISTRIBUTION** — Previously known in the Society Archipelago, 430-500 m. The present material was collected in the Society and Tuamotu Archipelagos, at 380-650 m.

### *Agononida aff. incerta* (Henderson, 1888)

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3303, 587-704 m, 1 male 13.9 mm, 2 females 11.3, 13.1 mm (MNHN-IU-2010-6159). – stn CP 3306, no depth recorded, 1 male 16.3 mm (MNHN-IU-2010-6158). – Tuamotu Archipelago, stn CP 3375, 460-647 m, 1 female 19.4 mm (MNHN-IU-2010-6093). – stn CP 3376, 646-737 m, 8 males 21.3-31.5 mm, 11 females 18.3-29.4 mm (MNHN-IU-2010-6157, 6089, 6090, 6091, 6092, 6094, 6095, 6096).

**REMARKS** — In a recent revision of the *Agononida incerta* complex (Poore & Andreakis, 2012) four new species were described. Molecular tools and some slight morphological characters can differentiate these species. The material collected in French Polynesia belongs to this complex and it is under study by G. C. B. Poore and N. Andreakis.

### *Agononida normani* (Henderson, 1885)

*Munida Normani* Henderson, 1885: 408 (type locality: Fiji).

*Munida normani* – Henderson, 1888: 129, pl. 13-fig. 5.

*Agononida normani* – Baba *et al.*, 2008: 50 (compilation). — Castro, 2011: 15 (list of Hawaii occurrences).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3303, 587-704 m, 4 males 8.8-14.2 mm; 1 ovigerous female 14.6 mm, 15 female 6.3-12.7 mm (MNHN-IU-2010-6169, 6097, 6098, 6099). – stn CP 3306, no depth recorded, 5 ovigerous females 13.5-14.6 mm (MNHN-IU-2010-6210). – stn DW 3344, 643 m, 1 female broken (MNHN-IU-2010-6214). – Tuamotu Archipelago, stn DW 3364, 550-561 m, 1 female 11.8 mm (MNHN-IU-2010-6215). – stn CP 3376, 646-737 m, 32 males 9.5-18.1 mm, 48 females 4.3-18.3 mm (MNHN-IU-2010-6207). – Society Archipelago, stn CP 3415, 614-730 m, 1 male 8.9 mm, 4 females 8.1-12.8 mm (MNHN-IU-2010-6216). – stn CP 3437, 440-560 m, 3 females 14.9-15.5 mm (MNHN-IU-2010-6208). – stn DW 3451, 440-490 m, 1 female 16.0 mm (MNHN-IU-2010-6213). – stn DW 3455, 430-527 m, 1 female 15.3 mm (MNHN-IU-2010-6209). – stn CP 3468, 800-870 m, 1 ovigerous female 16.7 mm, 1 female 16.5 mm ((MNHN-IU-2010-6212 and UF). – stn DW 3482, 440 m, 1 male 17.3 mm (MNHN-IU-2010-6211).

**DISTRIBUTION** — The species has been collected in the East China Sea, Vanuatu, New Caledonia, Fiji, Tonga, Wallis and Futuna area, French Polynesia, and Hawaii, at 320-668 m. The new material from French Polynesia was collected at 430-737 m.

***Babamunida plexaura*** (Macpherson & de Saint Laurent, 1991)

*Munida plexaura* Macpherson & de Saint Laurent, 1991: 396, fig. 7, pl. 1E (type locality: Tuamotu Islands, French Polynesia).

*Babamunida plexaura* – Cabezas *et al.*, 2008: 69. — Baba *et al.*, 2008: 56 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn CP 3386, 400-440 m, 1 ovigerous female 12.9 mm (MNHN-IU-2010-6198).

**DISTRIBUTION** — French Polynesia, Tuamotu, Society and Marquesas Islands, at 110-540 m.

***Bathymunida corniculata*** n. sp.

Figure 1

**TYPE MATERIAL** — Holotype, French Polynesia, Society Archipelago, TARASOC, stn DW 3403, 263-440 m, female 2.6 mm (MNHN-IU-2009-620).

**MATERIAL EXAMINED** — The type material (see above).

**DISTRIBUTION** — French Polynesia (Society Archipelago), between 263 and 440 m.

**DESCRIPTION** — *Carapace*: 1.2 times as wide as long; dorsal surface with weak, relatively sparse striae, each stria with some short setae. Gastric and cardiac regions somewhat elevated in profile, each with sharp, anteriorly directed, moderate-sized median spine. Two pairs of protogastric spines, mesial pair stronger than lateral. Mesial part of branchial region longitudinally elevated, anteriorly with sharp postcervical spine. Front margin concave. Anterolateral spine well-developed, not overreaching supraocular spines. Branchial margin with 3 spines, second spine strongest. Rostrum 1.6 times wider than long, 0.3 times as long as carapace, dorsally concave and laterally elevated; rostral spine short clearly not reaching end of cornea, horizontal, longer than supraocular spines, without dorsal carina; rostral and supraocular spines separated by concave margin.

*Sternum*: sternal plastron 0.6 times as long as broad, successively broadened posteriorly. Sternite 3 having anterior margin transverse, with two strong, anteriorly directed, sharp processes. Sternite 4 surface slightly depressed medially, with two short striae, width twice that of sternite 3; anterior margin of sternite 4 contiguous with entire posterior margin of sternite 3.

*Abdomen*: somites 2-3 each with 4 spines on anterior ridge, median 2 slightly more prominent than lateral ones; somite 4 unarmed.

*Eyes*: well developed, depressed, eyelash moderately long, covering proximal dorsal part of corneal surface.

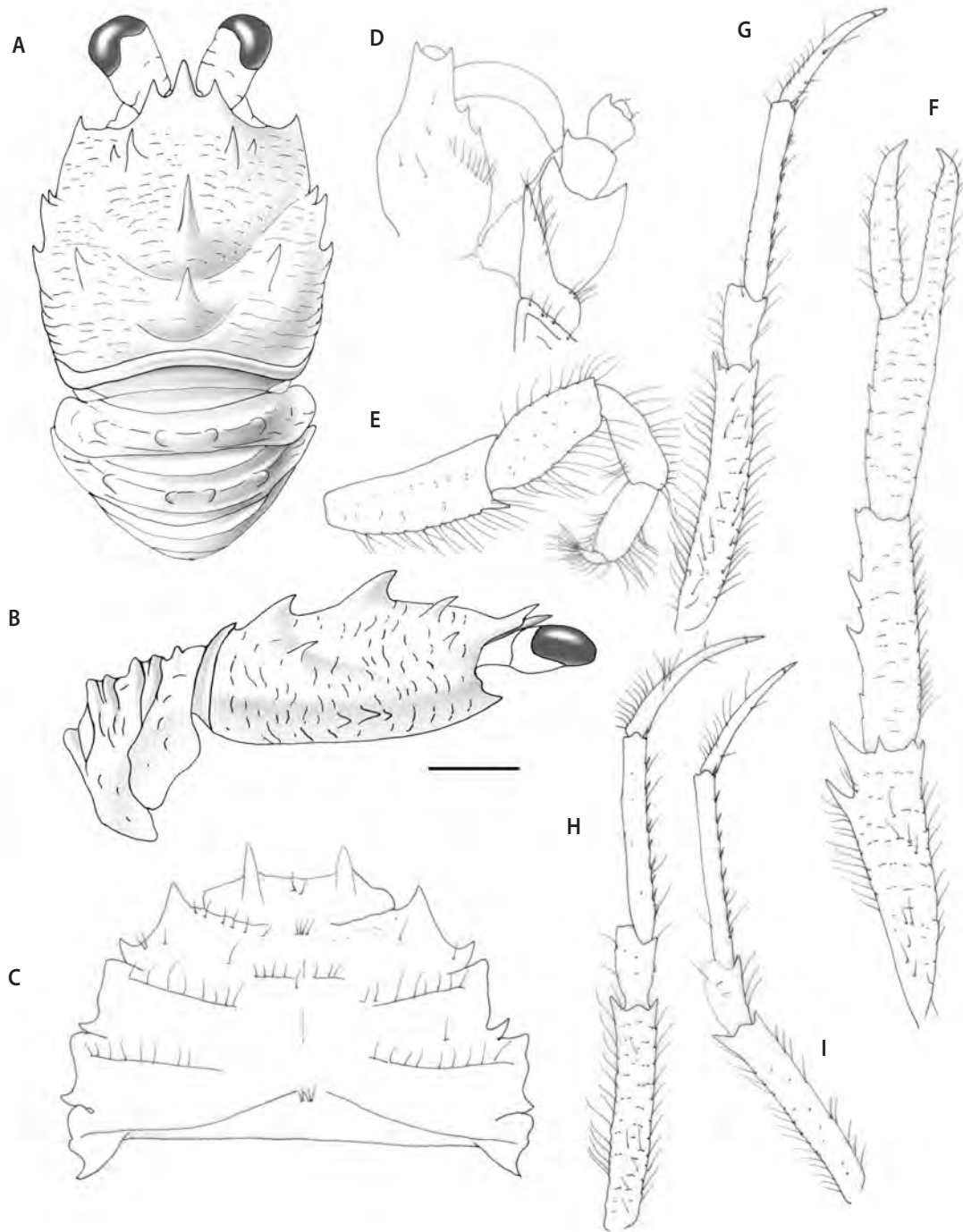
*Antennule*: basal article reaching end of cornea, with 2 small blunt subequal distal spines, lateral border with two small spines.

*Antenna*: article 1 with strong distomesial spine reaching end of article 2; article 2 distally wide, dorsally carinate, with distomesial and distolateral spines terminating in midlength of article 3; articles 3 and 4 each with small distomesial spine.

*Mxp3*: ischium 1.5 times as long as merus, flexor margin each with distal spine; merus unarmed.

*P1*: subcylindrical, moderately long and slender, 3.6 times as long as carapace, surface squamate, with some long plumose non-iridescent setae more numerous along mesial margin of articles. Merus 1.1 times as long as carpus, mesial and dorsal sides with some strong distal spines. Carpus 4.2 times as long as wide and 1.3 times length of palm, mesial margin with 2 or 3 spines. Palm slightly longer than fingers, with mesial row of small spines. Fingers unarmed.





**FIGURE 1**

*Bathymunida corniculata* n. sp., holotype female (2.6 mm) MNHN-IU-2009-620, Society Archipelago, French Polynesia, TARASOC stn DW 3403, 263-440 m. **A**, carapace and abdomen, dorsal view. **B**, carapace and abdomen, lateral view. **C**, sternal plastron. **D**, cephalic region, showing antennular and antennal peduncles, ventral view. **E**, right Mxp3, lateral view. **F**, right P1, dorsal view. **G**, right P2, lateral view. **H**, right P3, lateral view. **I**, right P4, lateral view. Scale bars 1 mm for A, B, F-H, I; 0.5 mm for C-E.



P2-4: moderately slender, surface squamate, with some long plumose non-iridescent setae along extensor and flexor margin of articles. P2 2.8 times as long as carapace, clearly overreaching end of corneae by mero-carpal articulation. Meri successively shorter posteriorly, each of extensor and flexor margins with distal spine. P2 merus about 6 times as long as wide, 1.4 times as long as propodus; extensor margin of carpus bluntly produced, flexor margin with distal spine; propodus 1.3 times as long as dactylus, with 9 movable spinules along flexor margin; dactylus slightly curving, somewhat more so on P3, flexor margin unarmed. P3 similar to P2, reaching tip of rostrum end by mero-carpal articulation, merus 0.8 length that of P2. P4 reaching level of anterolateral spine of carapace by mero-carpal articulation; merus 0.8 length that of P2.

**REMARKS** — *Bathymunida corniculata* n. sp. belongs to the group of species with rostral and supraocular spines separated by a concave margin, supraocular spines shorter than the rostral spine, and carapace with weak, relatively sparse striae. The new species is closely related to *B. sibogae* Van Dam, 1938, from New Caledonia, Chesterfield Islands, Indonesia and Japan (Baba & de Saint Laurent 1996, Baba 2005) and *B. avatea* Macpherson & Baba, 2006, from Tonga and French Polynesia (Macpherson & Baba, 2006). However, the new species is easily distinguished from these two species by (1) the presence of two strong, anteriorly directed, sharp processes on sternite 3; (2) abdominal somite 4 unarmed; (3) the presence of two pairs of well-developed protogastric spines; (4) antennal article 1 with strong distomesial projection in *B. corniculata*, whereas this projection is clearly shorter in *B. sibogae*; and (5) distal part of antennal article 2 clearly wider than proximal part, whereas both parts are more widely similar in *B. sibogae*.

**ETYMOLOGY** — From the Latin, *cornus*, horn, in reference to the strong processes on the sternum.

#### *Heteronida clivicola* Macpherson & Baba, 2006

*Heteronida clivicola* Macpherson & Baba, 2006: 451, figs 5, 6 (type locality: Austral Archipelago, French Polynesia). — Baba *et al.*, 2008: 82 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Society Archipelago, stn CP 3464, 460 m, 1 ovigerous female 3.8 mm (MNHN-IU-2010-6221).

**DISTRIBUTION** — Only known from French Polynesia, 323-700 m.

#### *Munida amathea* Macpherson & de Saint Laurent, 1991

*Munida amathea* Macpherson & de Saint Laurent, 1991: 389, fig. 5 (type locality: Tuamotu Islands, French Polynesia). — Baba *et al.*, 2008: 85 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn DW 3300, 670-757 m, 1 ovigerous female 17.4 mm, 1 female 12.4 mm (MNHN-IU-2010-5669). — stn CP 3303, 587-704 m, 3 females 5.7-9.3 mm (MNHN-IU-2010-5680). — stn DW 3327, 747-836 m, 1 female 19.4 mm (MNHN-IU-2010-5673). — stn DW 3330, 717-794 m, 1 female 8.0 mm (MNHN-IU-2010-5676). — stn DW 3344, 643 m, 1 ovigerous female 20.7 mm (MNHN-IU-2010-5667). — Tuamotu Archipelago, stn DW 3365, 707-792 m, 1 ovigerous female 18.8 mm (MNHN-IU-2010-5671). — stn CP 3376, 646-737 m, 2 males 17.5, 19.1 mm, 2 ovigerous female 16.5, 18.2 mm, 2 females 8.0, 10.8 mm (MNHN-IU-2010-5682). — stn DW 3387, 550-600 m, 1 male 12.0 mm. (MNHN-IU-2010-5681). — stn DW 3397, 600 m, 2 males 7.3, 12.2 mm, 1 female 9.0 mm (MNHN-IU-2010-5675). — Society Archipelago, stn CP 3415, 614-730 m, 1 male 7.8 mm (MNHN-IU-2010-5679). — stn DW 3405, 466-1130 m, 2 females 4.4, 4.8 mm (MNHN-IU-2010-5678). — stn DW 3407, 445-645 m, 1 male 15.8 mm (MNHN-IU-2010-5666). — stn DW 3418, 580-618 m, 1 male 14.5 mm (MNHN-IU-2010-5668). — stn DW 3434, 700-785 m, 1 male 13.8 mm, 1 female 7.9 mm (MNHN-IU-2010-5672). — stn DW 3440, 650-800 m, 1 male 17.1 mm (MNHN-IU-2010-5665). — stn CP 3468, 800-870 m, 3 males 10.5-18.4 mm, 2 ovigerous females 9.2, 20.0 mm, 1 female 10.0 mm (MNHN-IU-2010-5670).

and UF). – stn DW 3475, 670 m, 1 male 22.8 mm (MNHN-IU-2010-5683). – stn DW 3488, 390-790 m, 1 female 10.8 mm. – stn DW 3489, 450-720 m, 1 male 13.6 mm (MNHN-IU-2010-5677).

**DISTRIBUTION** — French Polynesia, Tubuai, Society and Gambier Islands, Tuamotu Archipelago, between 212-1200 m. The present material was caught in the Tarava seamounts, and the Tuamotu and Society archipelagos, at 390-1130 m.

---

***Munida antliae*** Macpherson, 2006

*Munida antliae* Macpherson, 2006a: 298, fig. 5 (type locality: Austral Archipelago, French Polynesia). — Baba *et al.*, 2008: 86 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn CP 3376, 646-737 m, 3 males 3.7-5.0 mm, 5 ovigerous females 4.5-4.7 mm, 2 female 3.9, 4.3 mm (MNHN-IU-2010-6237). – Society Archipelago, stn DW 3422, 430-620 m, 1 male 5.4 mm (MNHN-IU-2010-6240). – stn DW 3431, 340-380 m, 1 male 6.1 mm (MNHN-IU-2010-6238). – stn DW 3493, 556-565 m, 1 male 4.3 mm (MNHN-IU-2010-6241). – stn DW 3496, 300-905 m, 1 ovigerous female 4.4 mm (MNHN-IU-2010-6239).

**DISTRIBUTION** — French Polynesia, Society Archipelago, 470-1200 m. The specimens from TARASOC cruise were collected in the Tuamotu and Society archipelagos, between 300 and 905 m.

---

***Munida arae*** Macpherson, 2006

*Munida arae* Macpherson, 2006a: 302, fig. 7 (type locality: Austral Archipelago, French Polynesia). — Baba *et al.*, 2008: 87 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3384, 427-440 m, 1 ovigerous female 9.7 mm (MNHN-IU-2010-6226). – stn CP 3386, 400-440 m, 24 males 10.2-19.3 mm, 16 ovigerous females 10.0-15.0 mm, 4 females 9.8-15.3 mm (MNHN-IU-2010-6225). – Society Archipelago, stn DW 3413, 385-486 m, 1 male 6.5 mm, 1 female 8.7 mm (MNHN-IU-2010-6228). – stn DW 3484, 300-650 m, 1 male 7.1 mm, 1 ovigerous female 5.6 mm, 1 F 7.4 mm (MNHN-IU-2010-6227).

**DISTRIBUTION** — Only known from French Polynesia, Society Archipelago, 250-302 m. The present specimens from the Tuamotu and Society archipelagos was collected at 300 and 650 m.

---

***Munida armilla*** Macpherson, 1994

*Munida armilla* Macpherson, 1994: 446, figs 6, 65 (type locality: New Caledonia). — Baba *et al.*, 2008: 87 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3303, 587-704 m, 1 female 13.6 mm (MNHN-IU-2010-6232). – Tuamotu Archipelago, stn DW 3355, 530-710 m, 1 male 13.3 mm (MNHN-IU-2010-6233). – Society Archipelago, stn DW 3435, 500-612 m, 1 female 7.7 mm (MNHN-IU-2010-6236). – stn DW 3455, 430-527 m, 2 ovigerous females 12.3, 12.5 mm (MNHN-IU-2010-6234). – stn DW 3499, 550-700 m, 1 ovigerous female 9.3 mm (MNHN-IU-2010-6235).

**DISTRIBUTION** — New Caledonia, Matthew-Hunter Islands, Wallis and Futuna area, Tonga, at 233-700 m. This new material extends the distribution range of the species to French Polynesia (Tarava seamounts, Tuamotu and Society Archipelagos, between 400 and 710 m).

***Munida atarapa* n. sp.**

Figure 2

**TYPE MATERIAL** — Holotype, French Polynesia, Tuamotu Archipelago, TARASOC, stn DW 3386, 400-440 m, male 18.3 mm (MNHN-IU-2009-621). Paratypes, French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3372, 326-540 m, 1 male 8.0 mm (MNHN-IU-2009-622). – Society Archipelago, stn DW 3408, 437-553 m, 1 male 6.5 mm (MNHN-IU-2009-623).

**MATERIAL EXAMINED** — The type material (see above).

**DISTRIBUTION** — French Polynesia (Tuamotu and Society archipelagos), 326-553 m.

**DESCRIPTION** — *Carapace*: 1.2 times longer than wide. Dorsal surface gently convex transversely; main transverse ridges interrupted or entire; only few secondary transverse striae present between main ridges; most ridges and striae with dense short, non-iridescent setae. Gastric region slightly elevated, with 5 pairs of epigastric spines, spine posterior to base of supraocular spine strongest. Parahepatic spine on each side. Small hepatic spine on each side (only in paratypes). Cervical groove distinct. Lateral part of posterior branchial region with 10 or 11 (holotype) or 6 (paratype) transverse ridges or striae (excluding posterior transverse ridge), mostly interrupted on branchiocardiac area. Intestinal region with short stria on median part. Frontal margins somewhat oblique. Lateral margins feebly convex in dorsal view. Anterolateral spine moderately long, nearly reaching sinus between rostral and supraocular spines. Hepatic margin with 1 spine (about 0.3 that of anterolateral spine). Two small spines between anterolateral and second lateral spine. Branchial margins each with 5 spines, anteriormost spine larger than other spines. Rostrum spiniform, 0.5 times as long as carapace, nearly horizontal in lateral view; dorsal carina obsolete. Supraocular spines moderately long and slender, slightly divergent in dorsal view and very slightly ascending in lateral view, reaching midlength of rostrum in holotype (not reaching in paratypes). Orbit with 1 spine mesial to base of antennal peduncle; ventral margin produced in triangular denticulate projection in holotype (ending in spine in paratypes). Pterygostomial flap with sharp point anteriorly, lateral face moderately rugose with irregular transverse or obliquely transverse ridges or striae. Epistomal ridge sinuous, ending at excretory pore of basal segment of antennal peduncle; mesial protuberance produced.

*Sternum*: 0.8 times as long as broad, successively broadened posteriorly. Sternite 3 about 3.3 times wider than long, slightly narrower than and contiguous with anterior margin of sternite 4; anterior margin minutely granulate, bilobed with distinct median notch. Sternite 4, with few transverse striae, 3 times wider than long, 2.7 times longer than sternite 3. Sternites 5-7 nearly smooth. Transverse ridges nearly smooth, with row of short setae.

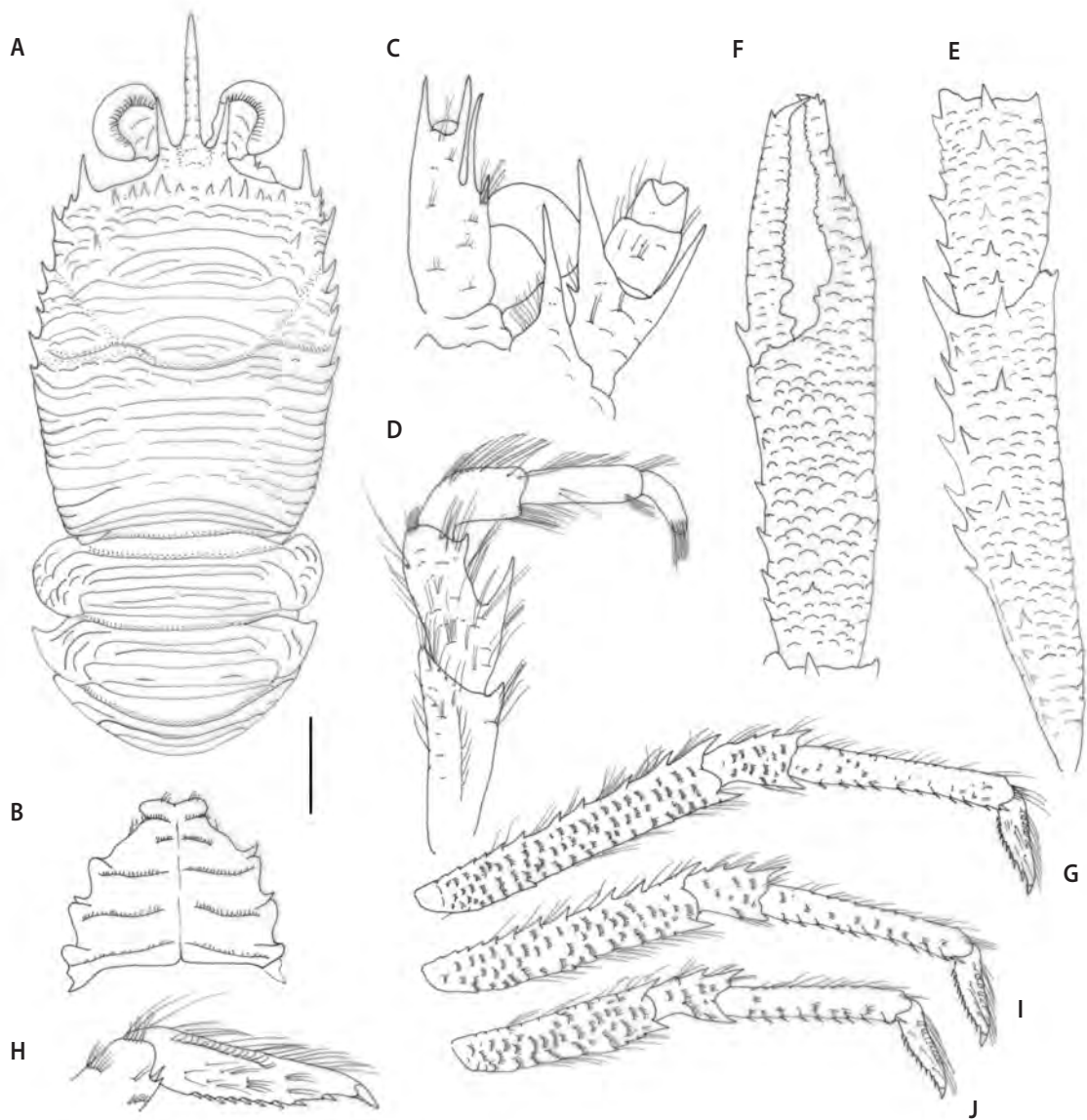
*Abdomen*: somites 2 and 3 with anterior ridge unarmed, followed by 3-5 uninterrupted or medially interrupted striae. Somites 4 and 5 with 2 and 2-4 uninterrupted striae, respectively. Somite 6 with 2 arcuate ridges and some short arcuate striae, posterior margin transverse.

*Eyes*: cornea dilated and somewhat flattened dorsoventrally, corneal width much greater than between sinus formed by rostral and supraocular spine and 0.3 distance between bases of anterolateral spines of carapace. Eyestalk slightly narrowed proximally, with 2 setiferous striae on dorsal surface; eyelash long, covering dorsal part of corneal surface.

*Antennule*: basal article moderately stout, reaching corneal margin, length excluding distal spines about 2.4 times width; distal spines moderately long and slender, subequal; ventral surface with several short transverse striae. Two lateral spines, proximal short, located midlength of basal article, second reaching (paratypes) or not overreaching (holotype) distal spines. Statocyst lobe not inflated.

*Antenna*: article 1 with long distomesial spine reaching (holotype) or nearly reaching (paratypes) distal margin of article 3. Article 2 with some short striae on ventral surface; distomesial spine reaching distal margin of article 4, distolateral spine exceeding end of article 3, small mesial spine at base of distomesial spine. Articles 3 and 4 unarmed.

*Mxp3*: ischium 1.8 times merus length; flexor margin with strong distal spine. Merus with 2 greatly unequal spines on flexor margin, distal spine moderately small, proximal spine strong; extensor margin unarmed. Carpus faintly rugose on extensor surface. Propodus as long as carpus (measured along extensor margin, not expanded). Dactylus much shorter than propodus.



**FIGURE 2**

*Muniida atarapa* n. sp., holotype male (18.3 mm) MNHN-IU-2009-621, Tuamotu Archipelago, French Polynesia, TARASOC stn DW 3386, 400-440 m. **A**, carapace and abdomen, dorsal view. **B**, sternal plastron. **C**, cephalic region, showing antennular and antennal peduncles, ventral view. **D**, right *Mxp3*, lateral view. **E**, right P1 merus and carpus, dorsal view. **F**, right P1 palm and fingers, dorsal view. **G**, right P2, lateral view. **H**, dactylus of right P2, lateral view. **I**, right P3, lateral view. **J**, right P4, lateral view. Scale bars 5 mm for A, B, E-G, I, J; 5 mm for C, D, H.

*P1*: squamous, similar, subequal in length, 3.5 (paratypes)-3.6 (holotype) times longer than carapace, mesial surface of merus to palm with mixture of short plumose setae and stiff iridescent setae, striae with short non-iridescent setae. Merus gradually narrowing proximally; dorsal and mesial surfaces with row of spines increasing in size distally, distomesial spine diverging, far falling short of midlength of carpus; lateral surface with small spine at ventrodistal angle. Carpus 0.6-0.7 times shorter than palm, 1.6-2.0 times longer than wide; dorsal and mesial surfaces with row of well-developed spines. Palm slightly widened distally, 2.0-2.5 times longer than wide; lateral and dorsal surfaces with several scattered small spines and 1 spine at articulation to movable finger; mesial surface with row of spines. Fixed finger terminating in sharp claw, with 2 small subdistal spines and row of spines on lateral margin; cutting edge with row of acute or subacute denticles, some of them slightly larger than others. Movable finger 0.8-0.9 as long as palm, terminating in sharp, curved claw crossing tip of fixed finger; lateral margin with 1 proximal and 1 subterminal spines; cutting edge with row of sharp denticles of different size along entire length.

*P2-4*: moderately long and slender, squamous, decreasing in length posteriorly. *P2* about 2.0-2.1 times longer than carapace, reaching level of tip of rostrum in holotype (reaching end of cornea in paratypes) by mero-carpal articulation; merus 0.9 times as long as carapace, about 5.5 times longer than high, extensor margin with setal row consisting of short setulose setae and iridescent setae, and row of spines, distal spine strongest, flexor margin with 1 strong distolateral spine; carpus about 0.3-0.4 length of propodus, with 3 or 4 spines on extensor margin, decreasing in size proximally, flexor margin distally produced in strong spine; propodus 0.7 times as long as merus and 5-6 times as long as high, unarmed on extensor margin, flexor margin with row of 11 movable spines, ultimate spine basally supported by fixed spine; dactylus 0.5 times as long as propodus, 4.0 times longer than high (measured at base), bearing sparse short to long stiff setae and row of curled setae on lateral face parallel to extensor margin, flexor margin faintly sinuous, with 9 or 10 slender corneous spines increasing in length distally along entire length; subterminal spinule closely appressed to unguis. *P3* similar to *P2*, exceeding anterolateral angle of carapace by mero-carpal articulation; merus 0.9 as long as that of *P2*, bearing row of spines increasing in size distally on extensor margin and strong spine on flexor margin; carpus with 1 prominent distal spine and 3 smaller spines on extensor margin, flexor distal margin produced in strong spine; propodus with 11 movable spines on flexor margin; dactylus with 9 or 10 corneous spines and 1 subterminal spinule on flexor margin. *P4* reaching or overreaching lateral end of cervical groove of carapace by mero-carpal articulation; merus 0.6-0.7 as long as that of *P2*, extensor and flexor margins armed with distal spine only; carpus with 1 prominent distal spine and 2 smaller spines on extensor margin, flexor distal margin produced in strong spine; propodus similar to those of *P2* and *P3*, bearing 9 or 10 movable spines on flexor margin; dactylus with 9 corneous spines and 1 subterminal spinule on flexor margin.

**REMARKS** — *Munida atarapa* n. sp. belongs to the group of species with five spines on the branchial margin of the carapace, abdominal somite 2 unarmed, subequal distal spines of the antennular basal article, and the *Mxp* 3 merus unarmed on the extensor margin. The new species is closely related to *M. leagora* Macpherson, 1994 from New Caledonia, Loyalty Islands, Chesterfield Islands, Vanuatu, Wallis and Futuna area, Fiji and Tonga, and *M. pseliophora* Macpherson, 1994 from Loyalty Islands and Chesterfield Islands (Baba *et al.* 2008).

The new species is easily distinguished from the *M. leagora* and *M. pseliophora* by the length of the distomesial spine of the antennal article 2. This spine clearly overreaches the antennal peduncle in *M. leagora* and *M. pseliophora*, whereas the spine terminates at the end of the peduncle in the new species. Furthermore, the *P2-4* dactyli have the flexor margin unarmed on the distal fourth in *M. leagora*, whereas the entire margin is armed in the new species. *Munida atarapa* n. sp. is distinguished from *M. pseliophora* by having shorter *P2-4* dactyli: length of dactyli is half that of propodi in *M. atarapa*, and two-thirds the length in *M. pseliophora*.

**ETYMOLOGY** — The name *Atarapa* is one of the goddesses of the dawn in the Polynesian mythology. The name is considered as a substantive in apposition.

---

***Munida aulakodes* Macpherson, 2006**

---

*Munida aulakodes* Macpherson, 2006b: 673, fig. 2 (New Caledonia). — Baba *et al.*, 2008: 88 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn DW 3296, 437 m, 1 male 8.0 mm, 1 ovigerous female 6.4 mm (MNHN-IU-2010-6223). – Tuamotu Archipelago, stn DW 3371, 430-450 m, 1 male 6.7 mm (MNHN-IU-2010-6224). – Society Archipelago, stn DW 3408, 437-536 m, 1 male 6.4 mm, 2 females 4.2, 5.4 mm (MNHN-IU-2010-6222).

**DISTRIBUTION** — Previously known from New Caledonia, at 370-586 m. The new material extends the distribution range of the species to French Polynesia (Tarava seamounts, Tuamotu and Society Archipelagos), at 430 and 536 m.

---

***Munida distiza* Macpherson, 1994**

---

*Munida distiza* Macpherson, 1994: 459, figs 14, 68, 69 (type locality: New Caledonia). — Baba *et al.*, 2008: 93 (compilation).  
[not] *Munida distiza* Baba *et al.*, 2009: 159, figs. 138-139 (= *M. macphersoni* Cabezas, Lin & Chan, 2011).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Society Archipelago, stn DW 3443, 280 m, 1 female 6.9 mm (MNHN-IU-2010-6176).

**DISTRIBUTION** — Philippines, New Caledonia, Loyalty Islands, Matthew & Hunter Islands, French Polynesia (Tuamotu and Society Archipelagos), at 150-540 m. Present material is from Society Archipelago, at 280 m.

---

***Munida fasciata* Macpherson, 2006**

---

*Munida fasciata* Macpherson, 2006a: 311, fig. 11 (type locality: Austral Archipelago, French Polynesia). — Baba *et al.*, 2008: 95 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3355 530-710 m, 1 male 4.0 mm (MNHN-IU-2010-6189). – stn DW 3363, 490-560 m, 1 ovigerous female 4.1 mm (MNHN-IU-2010-6180). – stn DW 3369, 412-520 m, 1 male 3.5 mm, 1 ovigerous female 5.1 mm (MNHN-IU-2010-6186). – stn DW 3371, 430-450 m, 1 male 4.7 mm (MNHN-IU-2010-6183). – stn CP 3376, 646-737 m, 30 males 3.6-4.4 mm, 3 ovigerous females 3.8-4.0 mm, 17 females 3.6-5.5 mm (MNHN-IU-2010-6187). – Society Archipelago, stn DW 3418, 580-618 m, 1 ovigerous female 4.9 mm (MNHN-IU-2010-6185). – stn DW 3420, 550 m, 1 male 3.5 mm (MNHN-IU-2010-6184). – stn DW 3422, 430-620 m, 2 males 3.2-5.3 mm (MNHN-IU-2010-6190). – stn DW 3429, 493-540 m, 1 ovigerous female 3.8 mm (MNHN-IU-2010-6181). – stn DW 3435, 500-612 m, 3 ovigerous females 4.4-4.8 mm (MNHN-IU-2010-6182). – stn DW 3455, 430-527 m, 1 ovigerous female 4.7 mm, 1 female 3.6 mm (MNHN-IU-2010-6188). – stn CP 3464, 460 m, 9 males 4.1-5.4 mm, 5 ovigerous females 3.5-4.8 mm, 8 females 2.8-4.5 mm (MNHN-IU-2010-6178). – stn CP 3468, 800-870 m, 2 males 3.6 mm (one damaged), 1 female 4.5 mm (MNHN-IU-2010-6179).

**DISTRIBUTION** — French Polynesia, Society Archipelago, 200-1200 m. The present material is from French Polynesia, Tuamotu and Society archipelagos, at 412-870 m.

---

***Munida fornacis* Macpherson, 2006**

---

*Munida fornacis* Macpherson, 2006a: 313, fig. 12 (type locality: Austral Archipelago, French Polynesia). — Baba *et al.*, 2008: 96 (compilation).



**MATERIAL EXAMINED** — French Polynesia. TARASOC: Society Archipelago, stn DW 3443, 280 m, 1 male 3.6 mm (MNHN-IU-2010-6197).

**DISTRIBUTION** — Previously known from French Polynesia, Austral Archipelago, 150 m. Present specimen from Society Archipelago, 280 m.

---

***Munida lenticularis*** Macpherson & de Saint Laurent, 1991

*Munida lenticularis* Macpherson & de Saint Laurent, 1991: 399, fig. 8, pl. 1F (type locality: Tuamotu Islands, French Polynesia). — Baba *et al.*, 2008: 104 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Society Archipelago, stn DW 3403, 263-440 m, 2 ovigerous females 5.6, 9.7 mm (MNHN-IU-2010-6196).

**DISTRIBUTION** — French Polynesia, Tuamotu Archipelago at 200-290 m (Macpherson & de Saint Laurent 1991; Poupin 1996), and Society Archipelago, between 263-440 m (present records).

---

***Munida leptitis*** Macpherson, 1994

*Munida leptitis* Macpherson, 1994: 487, fig. 27 (type locality: Loyalty Islands). — Baba *et al.*, 2008: 104 (compilation) ; 2009: 171, figs. 151-152.

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3372, 326-540 m, 2 males 9.0, 11.3 mm (MNHN-IU-2010-5817). – stn DW 3385, 390-420 m, 2 males 4.0, 5.5 mm, 1 ovigerous female 5.4 mm (MNHN-IU-2010-5822). – stn CP 3386, 400-440 m, 3 males 6.0-6.6 mm, 6 ovigerous females 4.0-6.2 mm, 2 females 5.2-5.7 mm (MNHN-IU-2010-5818). – Society Archipelago, stn DW 3408, 437-536 m, 2 ovigerous females 5.0, 5.8 mm (MNHN-IU-2010-5824). – stn DW 3413, 385-486 m, 1 male 4.5 mm, 5 ovigerous females 4.5-5.0 mm (MNHN-IU-2010-5816). – stn DW 3460, 660-680 m, 1 female 3.0 mm (MNHN-IU-2010-5823). – stn DW 3484, 300-650 m, 2 males 4.1, 5.2 mm, 1 ovigerous female 3.3 mm, 1 female 3.8 mm (MNHN-IU-2010-5820).

**DISTRIBUTION** — Taiwan, Indonesia, Vanuatu, Loyalty Islands, New Caledonia, Wallis and Futuna islands, Fiji, Tonga, and French Polynesia (Society Archipelago), between 21 and 1200 m (Baba *et al.* 2008, 2009). The present material is from Tuamotu and Society archipelagos, at 300-680 m.

**REMARKS** — *Munida leptitis* was described from one small female (holotype) caught at 21 m and one male paratype collected at 440 m, from the Loyalty Islands and New Caledonia, respectively (Macpherson 1994). The species was found later in the Wallis and Futuna area, Indonesia, Vanuatu, Fiji, Tonga and French Polynesia, between 206 and 1200 m (Baba *et al.* 2008, 2009). This wide depth range, as well as some slight morphological differences among specimens from different areas, suggests the possibility of several closely related species. Therefore, a revision of the material from the different areas, including morphological and molecular analyses, is strongly recommended.

---

***Munida pygmaea*** Macpherson, 1996

*Munida pygmaea* Macpherson, 1996b: 426, fig. 2 (type locality: New Caledonia). — Baba *et al.*, 2008: 115 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3329, 755-840 m, 5 males 6.7-15.4 mm, 1 female 10.9 mm (MNHN-IU-2010-6191).

**DISTRIBUTION** — New Caledonia, Fiji and Tonga, 220-824 m (Macpherson 2004). The present material extends the geographic range to Central Pacific, at 755-840 m.

*Munida rona* n. sp.

Figure 3

**TYPE MATERIAL** — Holotype, French Polynesia, Society Archipelago, TARASOC, stn CP 3464, 460 m, ovigerous female 10.5 mm (MNHN-IU-2009-624). Paratypes, French Polynesia. TARASOC: Society Archipelago, stn CP 3464, 460 m, 1 male 6.2 mm (MNHN-IU-2009-625). — Tuamotu Archipelago, stn DW 3357, 480 m, 1 female 8.4 mm (MNHN-IU-2009-626). — stn DW 3371, 430-450 m, 1 male 7.0 mm (MNHN-IU-2009-627). — stn DW 3372, 326-540 m, 2 ovigerous females 4.2-4.8 mm (MNHN-IU-2009-628). — stn DW 3384, 427-440 m, 1 male 5.4 mm, 1 female 7.8 mm (MNHN-IU-2009-629). — stn DW 3385, 390-420 m, 1 male 5.3 mm (MNHN-IU-2009-630).

**MATERIAL EXAMINED** — The type material (see above).

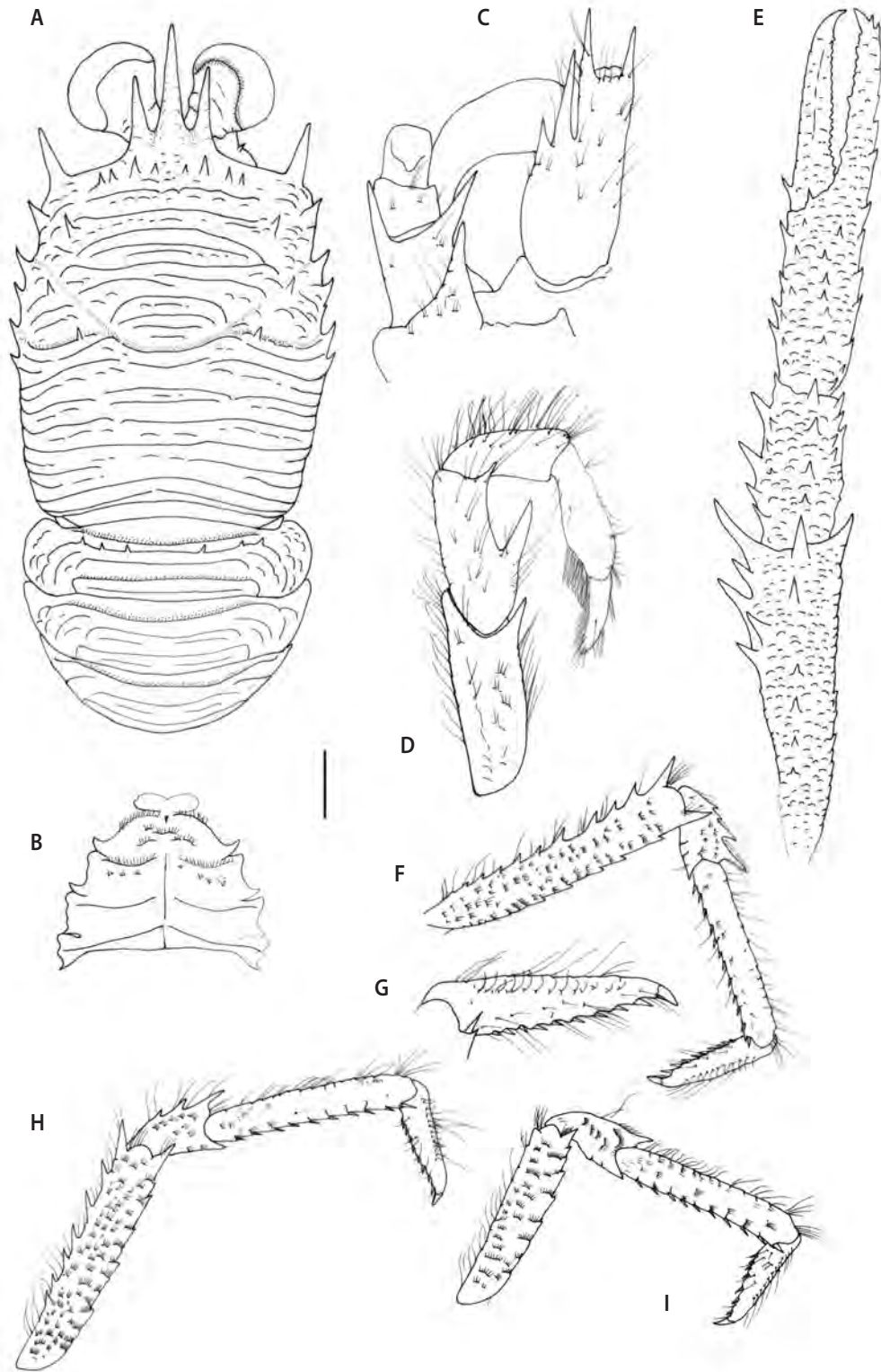
**DISTRIBUTION** — French Polynesia (Tuamotu and Society Archipelagos), 326-540 m.

**DESCRIPTION** — *Carapace*: 1.1 times longer than wide. Dorsal surface gently convex transversely; few secondary transverse striae between main ridges; most ridges and striae with dense short, non-iridescent setae. Gastric region slightly elevated, with 4 pairs of epigastric spines, spine posterior to base of supraocular spine strongest. Cervical groove distinct. Parahepatic, branchial dorsal and postcervical spines on each side. Anterior part of branchial region with some striae; lateral part of posterior branchial region with 9 or 10 transverse ridges or striae (excluding posterior transverse ridge) in large specimens, 6 or 7 in small specimens. Intestinal region with short arcuate stria on median part. Frontal margins slightly oblique. Lateral margins feebly convex in dorsal view. Anterolateral spine long, reaching sinus between rostral and supraocular spines. Hepatic margin with 1 spine 0.3 as long as anterolateral spine. Branchial margins each with 4 moderately small spines, anteriormost spine larger than other spines (one additional minute spine between third and fourth spines on right side of holotype). Rostrum 0.4 times as long as carapace, spiniform, directed forward, faintly sinuous in lateral view; dorsal carina not particularly delimited. Supraocular spines relatively long and slender, nearly parallel in dorsal view and very slightly ascending in lateral view, usually exceeding midlength of rostrum (not reaching in some specimens). Orbit with 1 tiny spine; ventral margin strongly produced. Pterygostomial flap acute anteriorly, lateral face moderately rugose with irregular transverse or obliquely transverse striae. Epistomal ridge sinuous, ending in point slightly anterior to excretory pore of basal segment of antennal peduncle; mesial protuberance distinct.

*Sternum*: 0.8 times as long as broad, successively broadened posteriorly. Sternite 3 about 3.1 times wider than long, broader than anterior margin of sternite 4, narrowly separated from sternite 4; anterior margin slightly bilobed with shallow median notch. Sternites 4 and 5 with few short striae. Sternites 6 and 7 smooth. Sternite 7 with deep median groove. Transverse ridges nearly smooth, with row of short setae.

**FIGURE 3**

*Munida rona* n. sp., holotype ovigerous female (10.5 mm) MNHN-IU-2009-624, Society Archipelago, French Polynesia, TARASOC stn CP 3464, 460 m. **A**, carapace and abdomen, dorsal view. **B**, sternal plastron. **C**, cephalic region, showing antennular and antennal peduncles, ventral view. **D**, right Mxp3, lateral view. **E**, right P1, dorsal view. **F**, right P2, lateral view. **G**, dactylus of right P2, lateral view. **H**, right P3, lateral view. **I**, right P4, lateral view. Scale bars 2 mm for A, B, E, F, H, I; 1 mm for C, D, G.



*Abdomen*: somite 2 with anterior ridge armed with 6 spines, with 3 or 4 main transverse uninterrupted striae. Somite 3 with anterior ridge unarmed, with 4 transverse uninterrupted or medially interrupted striae. Somites 4 and 5 each with 3-5 transverse striae. Somite 6 with 2 arcuate ridges sometimes medially interrupted, and some secondary striae laterally.

*Eyes*: cornea strongly dilated, corneal width much greater than sinus formed by rostral and supraocular spine and about 0.4 distance between bases of anterolateral spines of carapace. Eyestalk narrowed proximally, with 2 setiferous striae on dorsal surface; eyelash long, covering dorsal part of corneal surface.

*Antennule*: Basal segment moderately stout, reaching corneal margin, length excluding distal spines about twice width; ventral surface with few short squamiform striae; distal spines moderately long and slender, distomesial slightly longer than distolateral; 2 lateral spines present, distal spine usually overreaching distolateral spines (not in holotype), proximal spine short, located distal to midlength of basal segment; statocyst lobe slightly inflated.

*Antenna*: article 1 with moderately long distomesial spine reaching distal margin of article 2. Article 2 with distomesial spine overreaching distal margin of article 3; distolateral spine reaching end of article 3. Articles 3 and 4 unarmed.

*Mxp3*: ischium 1.7 times longer than merus, flexor margin with moderately strong distal spine; lateral surface with interrupted median ridge and squamiform striae. Merus with 2 greatly unequal spines on flexor margin, proximal spine strong; extensor margin unarmed. Propodus as long as carpus, not expanded. Dactylus much shorter than propodus.

*P1*: squamous, 2.5-3.1 times longer than carapace, surfaces covered with short plumose setae, mesial faces with some long iridescent setae, striae with dense short non-iridescent setae. Merus gradually narrowing proximally; dorsal and mesial surfaces with row of spines increasing in size distally, distomesial spine strong, reaching proximal third of carpus; ventrolateral distal angle with well developed spine. Carpus as long as palm, 1.8-2.0 times longer than wide; dorsal surface with 4 spines on midline; dorsomesial margin with row of spines; lateral surface with some spines. Palm 2.2 times longer than wide; dorsal surface with median row of spines, 1 spine at articulation to dactylus; dorsomesial margin with 2 rows of spines; dorsolateral margin with row of spines continuing along entire lateral margin of fixed finger. Fixed finger nearly straight, with 2 small subdistal spines; cutting edge with row of minute, acute or subacute denticles. Movable finger 0.8-0.9 as long as palm, terminating in sharp, curved claw crossing tip of fixed finger; mesial margin with 1 proximal spines; cutting edge with row of minute, subacute to blunt denticles along entire length.

*P2-4*: moderately long and slender, squamiform, decreasing in length posteriorly; extensor margins of articles with sparse long and short plumose iridescent setae. P2 about 2.0 times longer than carapace, overreaching corneae by mero-carpal articulation; merus 0.8-0.9 times as long as carapace, 6.0-6.5 times longer than high, and 1.5 times longer than propodus, extensor margin with row of 9-11 spines increasing in size distally, flexor margin with strong distal spine preceded by several small spines; carpus 0.4-0.5 length of propodus, extensor margin with 4 spines increasing in size distally, flexor distal margin produced in strong spine; propodus about 5.0-6.0 times longer than high, unarmed on extensor margin, flexor margin with row of 10-12 movable spines, ultimate spine basally supported by fixed spine; dactylus 0.7-0.8 times as long as propodus, 4.0-4.3 times longer than high (measured at base), slightly curved in distal part, bearing sparse short to long stiff setae on extensor margin and row of curled setae on lateral face nearly parallel to extensor margin, flexor margin slightly sinuous, with 8 or 9 small corneous spines increasing in length distally along entire length; minute subterminal spinule closely appressed to unguis. P3 similar to P2, overreaching anterolateral angle of carapace by mero-carpal articulation; merus 0.9 as long as that of P2. P4 reaching to lateral end of cervical groove of carapace by mero-carpal articulation; merus 0.7 length that of P2, extensor margin unarmed except for tiny distal spine, flexor margin with relatively small distal spine preceded by 2 or 3 small spines; carpus with prominent dorsodistal and ventrodistal spines.

**REMARKS** — *Munida rona* n. sp. appears closest to *M. keiensis* Baba, 2005 known from the Kei islands, Indonesia. Shared key characters include: carapace bearing four spines on branchial margin; thoracic sternum with some short striae on sternites 4 and 5, abdomen with spines along anterior ridge of somite 2, eyes large, and distolateral spine on basal segment of antennular peduncle slightly longer than distomesial spine, and extensor margin of Mxp3 unarmed. However, the P2-4 are clearly more slender in *M. keiensis* than in the new species. In *M. keiensis* the P2 propodus is ca 7.5 times

longer than high, whereas it is 5-6 times in the new species. In *M. rona* n. sp., the P2 dactylus is about 4.0-4.3 times longer than high, whereas it is 5.5 times longer than high in *M. keiensis*.

**ETYMOLOGY** — The name *Rona* is the moon goddess in the Polynesian mythology. The name is considered as a substantive noun in apposition.

***Munida rubella*** Macpherson & de Saint Laurent, 1991

---

*Munida rubella* Macpherson & de Saint Laurent, 1991: 392, fig. 6, pl. 1D (type locality: Tuamotu Islands, French Polynesia). — Baba *et al.*, 2008: 117 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3329, 755-840 m, 1 male 24.7 mm, 1 ovigerous female 17.6 mm, 2 females 8.0, 12.4 mm (MNHN-IU-2010-6229). – Society Archipelago, stn CP 3478, 678-810 m, 1 ovigerous female 21.4 mm (MNHN-IU-2010-6230). – stn DW 3496, 300-905 m, 1 male 14.9 mm, 1 female 17.3 mm (MNHN-IU-2010-6231).

**DISTRIBUTION** — French Polynesia, Tuamotu and Society Archipelagos, 500-700 m. The present specimens were collected in Tarava seamounts and Society Archipelago, at 300-905 m.

***Munida rubrovata*** Macpherson & de Saint Laurent, 1991

---

*Munida rubrovata* Macpherson & de Saint Laurent, 1991: 385, fig. 4, pl. 1C (type locality: Tubuai Islands, French Polynesia). — Baba *et al.*, 2008: 117 (compilation).

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn CP 3306, no depth recorded, 1 male 13.6 mm (MNHN-IU-2010-6243). – Society Archipelago, stn DW 3408, 437-536 m, 1 male 14.0 mm, 1 ovigerous female 9.5 mm (MNHN-IU-2010-6242).

**DISTRIBUTION** — French Polynesia, Tuamotu and Society Archipelagos, 270-1000 m. The new material has been collected in the Society Archipelago, at 437-560 m.

***Munida rufiantennulata*** Baba, 1969

---

*Munida rufiantennulata* Baba, 1969: 23, fig. 7 (type locality: Kyushu, Japan). — Baba *et al.*, 2008: 117 (compilation); 2009: 188, figs. 169-170. — Komai, 2012: 38, figs. 15, 16.

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3396, 313-350 m, 1 ovigerous female 6.3 mm (MNHN-IU-2010-6192). – Society Archipelago, stn CP 3464, 460 m, 1 ovigerous female 5.5 mm (MNHN-IU-2010-6194). – stn DW 3454, 295-310 m, 1 male 7.3 mm (MNHN-IU-2010-6195). – stn DW 3498, 347-460 m, 2 males 4.6, 6.9 mm (MNHN-IU-2010-6193).

**DISTRIBUTION** — Japan, Taiwan, Philippines, Indonesia (Kei Islands), Vanuatu, New Caledonia, Loyalty Islands, Matthew & Hunter Islands, Chesterfield Islands, Fiji, Tonga, between 213 and 836 m. The present material was collected in French Polynesia (Tuamotu and Society archipelagos), between 295 and 460 m.

**REMARKS** — *Munida rufiantennulata* is closely related to *M. polynoe* Macpherson & de Saint Laurent, 1991 and *M. kapala* Ahyong & Poore, 2004. These species have three spines on the branchial margins of the carapace, spines on the second abdominal somite, and carinae on the lateral parts of posterior sternites. Komai (2012) noticed that the number of the branchial spines is consistent with the variation in the presence or absence of lateral carinae on thoracic sternite 5, e.g., the 3-spined species bears lateral carinae on the fifth sternite, whereas the 4-spined species lacks those lateral carinae on sternite 5 (but see *M. pulchra* Macpherson & de Saint Laurent, 1991). The specimens examined have three branchial marginal spines on each side. However, the carinae on the fifth sternite are very short and not easily discernible in several specimens. The specimens from French Polynesia agree quite well with the holotype description and other remarks and illustrations made by different authors. Nevertheless, as Komai (2012) pointed out the specific status of the three- and four-spined forms is not fully established at present, and a more complete study of the different species is strongly recommended.

***Munida thoe*** Macpherson, 1994

---

*Munida thoe* Macpherson, 1994: 542, figs 56, 87 (type locality: New Caledonia). — Baba *et al.*, 2008: 126 (compilation) ; 2009: 196, figs. 177-178.

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Society Archipelago, stn CP 3437, 440-560 m, 1 male 15.9 mm (MNHN-IU-2010-6177). – stn DW 3468, 800-870 m, 1 female 13.2 mm (UF).

**DISTRIBUTION** — Previously known from Taiwan, New Caledonia, Matthew & Hunter Islands, and Wallis and Futuna Islands, at 260-610 m. The new material extends the distribution range to the Central Pacific (Society Archipelago), at 440-870 m.

***Munida typhle*** Macpherson, 1994

---

*Munida typhle* Macpherson, 1994: 549, fig. 60 (type locality: New Caledonia). — Baba *et al.*, 2008: 126 (compilation) ; 2009: 200, figs. 181-182.

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tarava seamounts, stn DW 3327, 747-836 m, 1 female 8.0 mm (MNHN-IU-2010-5961). – stn DW 3328, 788-836 m: 1 M 8.2 mm, 1 female 7.4 mm (MNHN-IU-2010-5957). – Tuamotu Archipelago, stn DW 3389, 889 m: 1 damaged female (MNHN-IU-2010-5955). – stn DW 3397, 600 m: 2 females 8.2, 9.4 mm (MNHN-IU-2010-5826). – Society Archipelago, stn CP 3429, 493-540 m, 2 males 6.9, 10.5 mm, 1 female 9.1 mm (MNHN-IU-2010-5956). – stn DW 3433, 1013-1158 m, 1 male 6.6 mm (MNHN-IU-2010-5960). – stn DW 3462, 1000-1145 m, 2 males 10.9-11.0 mm (MNHN-IU-2010-5827 and UF). – stn CP 3468, 800-870 m, 1 female 8.4 mm (MNHN-IU-2010-5825). – stn CP 3480, 880-900 m, 1 female 9.4 mm (MNHN-IU-2010-5959). – stn DW 3477, 812-860 m, 1 male 8.7 mm (MNHN-IU-2010-5958).

**DISTRIBUTION** — Previously known from Taiwan, New Caledonia, Vanuatu, French Polynesia (Marquesas Islands), 500-1470 m. The present specimens have been collected in French Polynesia (Tarava seamounts, Tuamotu and Society archipelagos), between 600 and 1300 m.

***Onconida prostrata*** Baba & de Saint Laurent, 1996

---

*Onconida prostrata* Baba & de Saint Laurent, 1996: 488, figs 28, 34b (type locality: Field Banc, SW Pacific). — Baba, 2005: 300 (key, synonymies) ; 2008: 171 (compilation).



**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn CP 3376, 646-737 m, 8 males 2.4-5.3 mm, 2 ovigerous females 5.6, 5.7 mm, 16 females 3.6-5.7 mm (MNHN-IU-2010-6217). – Society Archipelago, stn CP 3464, 460 m, 7 males 5.1-6.7 mm, 4 ovigerous females 5.8-6.0 mm, 6 females 3.8-6.5 mm (MNHN-IU-2010-6218). – stn DW 3484, 300-650 m, 1 ovigerous female 5.9 mm (MNHN-IU-2010-6220). – stn DW 3506, 380 m, 1 ovigerous female 6.4 mm (MNHN-IU-2010-6219).

**DISTRIBUTION** — Field Banc, SW Pacific, 469-505 m. The present specimens are from French Polynesia (Society and Tuamotu Archipelagos), at 380-737 m.

*Paramunida antares* Cabezas, Macpherson & Machordom, 2010

*Paramunida antares* Cabezas *et al.*, 2010: 11, figs. 2, 12C (type locality: New Caledonia).

*Paramunida luminata* Machordom & Macpherson, 2004: 262 (table). [not Macpherson, 1996]

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn DW 3372, 326-540 m, 1 male 13.0 mm (MNHN-IU-2010-6201). – Society Archipelago, stn DW 3413, 385-486 m, 2 females 5.2, 7.1 mm (MNHN-IU-2010-6202). – stn CP 3464, 460 m, 2 males 10.0, 12.9 mm (MNHN-IU-2010-6203 and UF).

**DISTRIBUTION** — Previously known from New Caledonia, at 382-582 m. The new material extends the distribution range to the Central Pacific (Tuamotu and Society archipelagos), at 326-540 m.

*Paramunida poorei* Cabezas, Macpherson & Machordom, 2010

*Paramunida poorei* Cabezas *et al.*, 2010: 37, figs. 9, 14G (type locality: Society Austral Islands, French Polynesia).

*Paramunida pictura* Macpherson 2006: 325. [not Macpherson, 1993]

**MATERIAL EXAMINED** — French Polynesia. TARASOC: Tuamotu Archipelago, stn CP 3386, 400-440 m, 6 males 8.0-12.2 mm, 4 ovigerous females 8.9-13.9 mm, 4 females 9.8-10.1 mm (MNHN-IU-2010-6200). – Society Archipelago, stn DW 3431, 340-380 m, 1 male 10.6 mm (MNHN-IU-2010-6199).

**DISTRIBUTION** — Only known from French Polynesia (Society Archipelago), 200-500 m. The present material is from Tuamotu and Society archipelagos, at 340-440 m.

#### ACKNOWLEDGEMENTS

I am greatly indebted to S. Samadi, M.C. Boiselier, P. Bouchet, and A. Crosnier of the Muséum national d'Histoire naturelle, Paris for placing at my disposal these interesting specimens. Thanks are also due to K. Baba of the Kumamoto University for improvements to the manuscript.

#### REFERENCES

- 
- AHYONG S. T., BABA K., MACPHERSON E. & POORE G. C. B. 2010 — A new classification of the Galatheoidea (Crustacea: Decapoda: Anomura). *Zootaxa* 2676: 57-68.
- AHYONG S. T. & POORE G. C. B. 2004 — Deep-water Galatheidae (Crustacea: Decapoda: Anomura) from southern and eastern Australia. *Zootaxa* 472: 3-76.

- BABA K. 1969 — Four new genera with their representatives and six new species of the Galatheidae in the collection of the Zoological Laboratory, Kyushu University, with redefinition of the genus *Galathea*. *Ohmu* 2: 1-32.
- BABA K. 1988 — Chirostyliid and galatheid crustaceans (Decapoda: Anomura) of the "Albatross" Philippine Expedition, 1907-1910. *Researches on Crustacea, Special Number 2*: 1-203.
- BABA K. 2005 — Deep-sea chirostyliid and galatheid crustaceans (Decapoda: Anomura) from the Indo-West Pacific, with a list of species. *Galathea Report* 20: 1-317.
- BABA K. & SAINT LAURENT M. DE 1996 — Crustacea Decapoda: Revision of the genus *Bathymunida* Balss, 1914, and description of six new related genera (Galatheidae), in CROSNIER A. (ed.), *Résultats des Campagnes MUSORSTOM Vol 15. Mémoires du Muséum national d'Histoire naturelle*: 168: 433-502.
- BABA K., MACPHERSON E., POORE G. C. B., AHYONG S.T., BERMUDEZ A., CABEZAS P., LIN C.-W., NIZINSKI M., RODRIGUES C., & SCHNABEL K. E. 2008 — Catalogue of squat lobsters of the world (Crustacea: Decapoda: Anomura – families Chirostyliidae, Galatheidae and Kiwaidae). *Zootaxa* 1905: 1-220.
- BABA K., MACPHERSON E., LIN C.-W., & CHAN T.-Y. 2009 — *Crustacean Fauna of Taiwan: Squat lobsters (Chirostyliidae and Galatheidae)*. National Taiwan Ocean University, Keelung, 311 p.
- BALSS H. 1913 — Ostasiatische Decapoden I. Die Galatheiden und Paguriden. In: Doflein, F. (ed.), *Beitraege zur Naturgeschichte Ostasiens. Abhandlungen der Mathematisch-Physikalischen Klasse der Königlich Bayerischen Akademie der Wissenschaften* 2: 1-85.
- BALSS H. 1914 — Ueber einige interessante Decapoden der "Pola"-Expeditionen in das Rote Meer. *Sitzungsberichte der Mathematisch-Naturwissenschaftlichen Klasse der Kaiserlichen Akademie der Wissenschaften in Wien* 1914: 133-139.
- BOUVIER E. L. 1896 — Sur la famille des Chirostyliidae, Ortmann, et sur la classification des Galatheida [Crust.]. *Bulletin de la Société Entomologique de France* 65: 307-312.
- CABEZAS P., MACPHERSON E. & MACHORDOM A. 2008 — A new genus of squat lobster (Decapoda: Anomura: Galatheidae) from the South West Pacific and Indian Ocean inferred from morphological and molecular evidence. *Journal of Crustacean Biology* 28: 68-75.
- CABEZAS P., MACPHERSON E. & MACHORDOM A. 2010 — Taxonomic revision of the genus *Paramunida* Baba, 1988 (Crustacea: Decapoda: Galatheidae): a morphological and molecular approach. *Zootaxa* 2712: 1-60.
- CABEZAS P., LIN C.-W. & CHAN T.-Y. 2011 — Two new species of the deep-sea squat lobster genus *Munida* Leach, 1820 (Crustacea: Decapoda: Munididae) from Taiwan: morphological and molecular evidence. *Zootaxa* 3036: 26-38.
- CASTRO P. 2011 — Catalogue of the anomuran and brachyuran crabs (Crustacea: Decapoda: Anomura, Brachyura) of the Hawaiian Islands. *Zootaxa* 2947: 1-154.
- GORDON I. 1930 — On the species of the galatheid genus, *Eumunida* (Crustacea, Decapoda). *Proceedings of the General Meetings for Scientific Business of the Zoological Society of London* 1929: 741-753.
- HENDERSON J. R. 1885 — Diagnoses of new species of Galatheidae collected during the "Challenger" expedition. *Annals and Magazine of Natural History* series 5(16): 407-421.
- HENDERSON J. R. 1888 — Report on the Anomura collected by H.M.S. *Challenger* during the years 1873-76. *Report on the Scientific Results of the Voyage of H.M.S. Challenger during the years 1873-76. Zoology* 27: 1-221.
- KOMAI T. 2000 — A check list of Thalassinidea and Anomura (Crustacea: Decapoda) from the South China Sea. *Raffles Bulletin of Zoology*, suppl. 8: 343-376.
- KOMAI T. 2012 — Squat Lobsters of the Genus *Munida* Leach, 1820 (Crustacea: Decapoda: Anomura: Munididae) from the Sagami Sea and Izu Islands, Central Japan. *Bulletin of the National Science Museum*, Tokyo series A 12: 1-69.
- MACPHERSON E. 1993 — Crustacea Decapoda: species of the genus *Paramunida* Baba, 1988 (Galatheidae) from the Philippines, Indonesia and New Caledonia, in CROSNIER A. (ed.), *Résultats des Campagnes MUSORSTOM Vol. 10. Mémoires du Muséum national d'Histoire naturelle*: 156: 443-473.
- MACPHERSON E. 1994 — Crustacea Decapoda: Studies on the genus *Munida* Leach, 1820 (Galatheidae) in New Caledonia and adjacent waters with descriptions of 56 new species, in CROSNIER A. (ed.), *Résultats des Campagnes MUSORSTOM Vol. 12. Mémoires du Muséum national d'Histoire naturelle* 161: 421-569.
- MACPHERSON E. 1996a — Crustacea Decapoda: species of the genera *Munida* Leach, 1820 and *Paramunida* Baba, 1988 (Galatheidae) from the seas around the Wallis and Futuna Islands, in CROSNIER A. (ed.), *Résultats des Campagnes MUSORSTOM Vol 15. Mémoires du Muséum national d'Histoire naturelle*: 168: 387-421.
- MACPHERSON E. 1996b — Crustacea Decapoda: new records of species of the genera *Munida* Leach, 1820 and *Paramunida* Baba, 1988 (Galatheidae) from New Caledonia, with the descriptions of three new species, in CROSNIER A. (ed.), *Résultats des Campagnes MUSORSTOM Vol. 15. Mémoires du Muséum national d'Histoire naturelle*: 168: 423-431.
- MACPHERSON E. 2004 — Species of the genus *Munida* Leach, 1820 and related genera from Fiji and Tonga (Crustacea: Decapoda: Galatheidae), in MARSHALL B. A. & RICHER DE FORGES B. (eds), *Tropical Deep-Sea Benthos Vol. 23. Mémoires du Muséum national d'Histoire naturelle*: 191: 231-292.
- MACPHERSON E. 2006a — Galatheidae (Crustacea, Decapoda) from the Austral Islands, Central Pacific, in RICHER DE FORGES B. & JUSTINE J. L. (eds), *Tropical Deep-Sea Benthos Vol. 24. Mémoires du Muséum national d'Histoire naturelle*: 193: 285-333.
- MACPHERSON E. 2006b — New species and new occurrence of Galatheoidea (Crustacea, Decapoda) from New Caledonia. *Zoosystema* 28: 669-681.
- MACPHERSON E. & BABA K. 2006 — New species and records of small galatheids (Crustacea, Decapoda, Galatheidae) from the southwest and central Pacific Ocean. *Zoosystema* 28: 443-456.
- MACPHERSON E., RICHER DE FORGES B., SCHNABEL K., SAMADI S., BOISELIER M. C. & GARCIA-RUBIES A. 2010 — Biogeography of the deep-sea galatheid squat lobsters of the Pacific Ocean. *Deep-sea Research I* 57: 228-238.
- MACPHERSON E. & SAINT LAURENT M. DE 1991 — Galatheid crustaceans of the genus *Munida* Leach, 1818, from French Polynesia. *Bulletin du Muséum national d'Histoire naturelle* series 4e(A) 13: 373-422.
- MILNE-EDWARDS A. & BOUVIER E. L. 1894 — Considerations générales sur la famille des Galatheides. *Annales des Sciences Naturelles, Zoologie* series 7(16): 191-327.
- MILNE-EDWARDS A. & BOUVIER E. L. 1897 — Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877-78), in the Caribbean Sea (1878-79), and along the Atlantic coast of the United States (1880), by the U. S. Coast Survey steamer "Blake," Lieut.-Com. C. D. Sigsbee, U.S.N., and Commander J. R. Bartlett, U.S.N., commanding. XXXV: Description des Crustacés de la Famille des Galathéidés recueillis pendant l'expédition. *Memoirs of the Museum of Comparative Zoology at Harvard College* 19: 5-141.

- MILNE-EDWARDS A. & BOUVIER E. L. 1900 — Crustacés décapodes. Première partie. Brachyures et Anomoures, in MILNE-EDWARDS A. (ed.), *Expéditions scientifiques du Travailleur et du Talisman pendant les années 1880, 1881, 1882, 1883*. Masson, Paris: 1-396.
- PARISI B. 1917 — I Decapoda giapponesi des Museo di Milano. V. Galatheidea e Reptantia. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale, Milano* 56: 1-24.
- POORE G. C. B. & ANDREAKIS N. 2012 — The *Agononida incerta* complex unravelled (Crustacea: Decapoda: Anomura: Munididae). *Zootaxa* 3492: 1-29.
- POUPIN J. 1996 — *Atlas des crustacés marins profonds de Polynésie Française Récoltes du navire Marara (1986/1996)*. Service Mixte de Surveillance Radiologique et Biologique, Monlhéry, 59 p., 20 pls.
- PULLANDRE N., MACPHERSON E., LAMBOURDIERE J., CRUAUD C., BOISSELIER-DUBAYLE M. C., & SAMADI S. 2011 — Barcoding type-specimens helps to reliably link species names to molecular taxonomic units in *Eumunida* Smith, 1883 (Decapoda, Eumunididae). *Invertebrate Systematics* 25: 322-333.
- SAINT LAURENT M. DE & MACPHERSON E. 1990 — Crustacea Decapoda: Le genre *Eumunida* Smith, 1883 (Chirostyliidae) dans les eaux néo-caledoniennes, in CROSNIER A. (ed.), Résultats des Campagnes MUSORSTOM Vol. 6. *Mémoires du Museum national d'Histoire naturelle* 145: 227-288.
- SAINT LAURENT M. DE & POUPIN J. 1996 — Crustacea, Anomura: Les espèces indo-ouest pacifiques du genre *Eumunida* Smith, 1880 (Chirostyliidae) Description de six espèces nouvelles, in CROSNIER A. (ed.), Résultats des Campagnes MUSORSTOM Vol. 15. *Mémoires du Museum national d'Histoire naturelle* 168: 337-385.
- SCHNABEL K. E. & AHYONG S. T. 2010 — A new classification of the Chirostyloidea (Crustacea: Decapoda: Anomura). *Zootaxa* 2687: 56-64.
- SCHNABEL K. E., MARTIN J. W. & MOFFITT R. B. 2009 — Additions to the decapod crustacean fauna of the Hawaiian Islands, III. A new species of the genus *Babamunida* (Crustacea: Galatheidae) from Hawaii based on morphological and molecular evidence. *Zootaxa* 2130: 21-30.
- SMITH S. I. 1883 — Preliminary report on the Brachyura and Anomura dredged in deep water off the south coast of New England by the United States Fish Commission in 1880, 1881, and 1882. *Proceedings of the United States National Museum* 6: 1-57.
- VAN DAM A. J. 1933 — Die Chirostyliidae der Siboga-expedition. Decapoda VIII: Galatheidea: Chirostyliidae. *Siboga-Expédition* 39a(7): 1-46.

