

Some lithodid crabs (Crustacea: Decapoda: Lithodidae) from the Solomon Islands (SW Pacific Ocean), with the description of a new species*

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SUMMARY: Four species of Lithodid crabs from the Solomon Islands were collected during the Solomon 1 cruise carried out off the Solomon Islands. One new species, *Paralomis mendagnai*, is described and illustrated. Three other species, *Neolithodes nipponensis*, *Paralomis dawsoni* and *P. haigae*, are reported for the first time from these islands. The new species of *Paralomis* closely resembles *P. medipacifica* Takeda, 1974, from Midway Islands (Central Pacific) and is characterised by the dorsal surface of the carapace thickly covered with rounded, more or less prominent granules of different sizes. Both species are easily distinguished by the armature of the scaphocerite and pereiopods. A key to the species of the genus *Paralomis* from the western and central Pacific Ocean is presented.

Key words: Crustacea, Decapoda, Lithodidae, *Neolithodes*, *Paralomis*, new species, Pacific Ocean.

RESUMEN: Se estudia la presencia de cuatro especies de la familia Lithodidae en las Islas Salomón. Una especie, *Paralomis mendagnai* se describe como nueva especie. Las otras especies, *Neolithodes nipponensis*, *Paralomis dawsoni* y *P. haigae*, se citan por primera vez en las Islas Salomón. *P. mendagnai* se caracteriza por la superficie del caparazón y del abdomen, provista de numerosos gránulos de tamaño diferente, pero poco prominentes. La especie más próxima es *P. medipacifica* Takeda, 1974, de las Islas Midway (Pacífico central). Las dos especies se diferencian por la forma y ornamentación del escafocerito y de los pereiópodos. Asimismo, se presenta una clave de las especies del género *Paralomis* del océano Pacífico occidental y central.

Palabras clave: Crustacea, Decapoda, Lithodidae, *Neolithodes*, *Paralomis*, nueva especie, océano Pacífico.

INTRODUCTION

During a recent expedition to the Solomon Islands (September-October 2001, cruise SOLOMON 1), an interesting collection of lithodid crabs was obtained. The lithodid fauna in this area of the Western Pacific Ocean is not well known, although some species have

been reported in adjacent waters (Dawson, 1989; Macpherson, 1990, 2001; de Saint-Laurent and Macpherson, 1997). The study of this material revealed the existence of four species belonging to the genera *Neolithodes* A. Milne Edwards and Bouvier, 1894 and *Paralomis* White, 1856. One of the species of *Paralomis* is new and is described herein. A key to the species of the genus from the western and central Pacific Ocean is also provided.

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The types of the new species, and other specimens are deposited in the collections of the Muséum National d'Histoire naturelle, Paris (MNHN). The measurements given are of carapace length x carapace width, excluding rostrum and lateral spines respectively. The terminology used follows Macpherson (1988, 2001), and de Saint Laurent and Macpherson (1997).

SYSTEMATIC ACCOUNT

Genus *Neolithodes* A. Milne Edwards and Bouvier, 1894

Neolithodes nipponensis Sakai, 1971

Neolithodes nipponensis Sakai, 1971: 7, Figs. 1a-f, pl. 8; 1976, 697, Figs. 378a-f, pl. 244; Ikeda, 1998: 47, pl. 65; Macpherson, 2001: 799; Zaklan, 2002: 785.

Material examined: Solomon Islands. SOLOMON 1, CP 1754, 9°00.1'S, 159°49.0'E, 1169-1203 m, 26.IX.2001, 1 male 132 x 116 mm; CP 1781, 8°31.2'S, 160°37.7'E, 1036-1138 m, 29.IX.2001, 1 ovig. female 93 x 82 mm.

Distribution: The species has previously been cited in Japan, between 200 and 950 m and Fiji Islands at 1058-1091 m. This new material was collected at 1036-1203 m.

Genus *Paralomis* White, 1856

Paralomis dawsoni Macpherson, 2001

Paralomis sp. Macpherson, 1990: 225, Figs. 2c, 4.
Paralomis dawsoni Macpherson, 2001: 802, Fig. 4.

Material examined: Solomon Islands. SOLOMON 1: stn DW 1827, 9°59.1'S, 161°05.8'E, 804-936 m, 4.X.2001, 1 female 62 x 61 mm.

Distribution: From New Caledonia and now Solomon Islands. Depth range: 804-936 m.

Paralomis haigae Eldredge, 1976

Paralomis haigae Eldredge, 1976: 312, Figs. 2a, b; Macpherson, 1990: 223, Figs. 2d, 3a, b; Zaklan, 2002: 790.

Material examined: Solomon Islands. SOLOMON 1: stn DW 1770, 8°19.6'S, 160°38.7'E, 453-542 m, 28.IX.2001, 1 male 86 x 96 mm.

Distribution: Known from Guam, Samoa Islands and New Caledonia, and now from Solomon Islands. Depth range: 400 and 542 m.

Remarks: *Paralomis haigae* is closely related to *P. dofleini* Balss, 1911, from Japan. Although several characters can be used to distinguish these two species, e.g. granulation of the carapace and pereopods (Eldredge, 1976; Macpherson, 1990), this status as a distinct species is still dubious. A

more careful examination of additional specimens of both species from different localities is needed.

Paralomis mendagnai n. sp.

(Figs 1-3)

Type material: Solomon Islands. SOLOMON 1, stn CP 1752, 9°06.9'S, 159°53.2'E, 896-912 m, 25.IX.2001, male holotype, 59 x 60 mm (MNHN-Pg 6408), 2 males 42 x 44 mm, 10 x 10 mm; stn CP 1753, 9°02.7'S, 159°49.4'E, 1001-1012 m, 26.IX.2001, 2 males, 18 x 19 mm, 10 x 10 mm; CP 1858, 9°37.0'S, 160°41.7'E, 435-461 m, 7.X.2001, 1 male, 10 x 11 mm, 1 ovig. female 44 x 46 mm.

Etymology: The name *mendagnai* is given in honour of Alvaro de Mendaña, a Spanish explorer who discovered and named the Solomon Islands in 1568.

Description: Carapace more or less hexagonal, as long as wide. Dorsal carapace surface densely covered with rounded, more or less prominent granules of different size. Granules with minute setae. Regions well-defined, slightly convex. Gastric region somewhat more prominent than other regions, 3-4 large granules on epigastric region, slightly more prominent than others. Cardiac region roughly triangular, as prominent as branchial regions, separated from gastric region by deep transverse furrow. Cardiac region with 4 large granules, arranged in a square-shaped pattern. Branchial regions bearing some large granules each, 1 near gastro-cardiac furrow, 1 in middle of region, and 2 on posterior part, near intestinal region (Fig. 1).

Basal spine of rostrum more or less horizontal, slightly overreaching end of corneae, smooth on ventral side; 2 slightly divergent dorsal spines, upwardly directed, not reaching end of corneae. External orbital spine slightly shorter than eyes (Fig. 2B). Anterolateral spine shorter than external orbital, 1 small spine before cervical groove. Each branchial margin, including posterior margin, bearing 5-7 thick spines and some small spines (small specimens) or spiniform tubercles (large specimens).

Abdomen plates smooth, with numerous granules of various size (Fig. 2A).

Ocular peduncles with one small terminal spine, corneae well pigmented.

Basal segment of antennal peduncle with 1 distomesial spine. Scaphocerite with long, central spine, nearly reaching end of last segment of antennal peduncle, mesial and lateral margins unarmed, dorsal side with few small granules (Fig. 3).

Chelipeds subequal in length, right cheliped stouter than left. Merus armed with some spiniform tubercles and one strong distal spine on dorsal margin. Carpus bearing few spiniform tubercles, and 1



FIG. 1. – *Paralomis mendagnai* n. sp., holotype, male, 59x60 mm (MNHN-Pg 6408). Dorsal view.

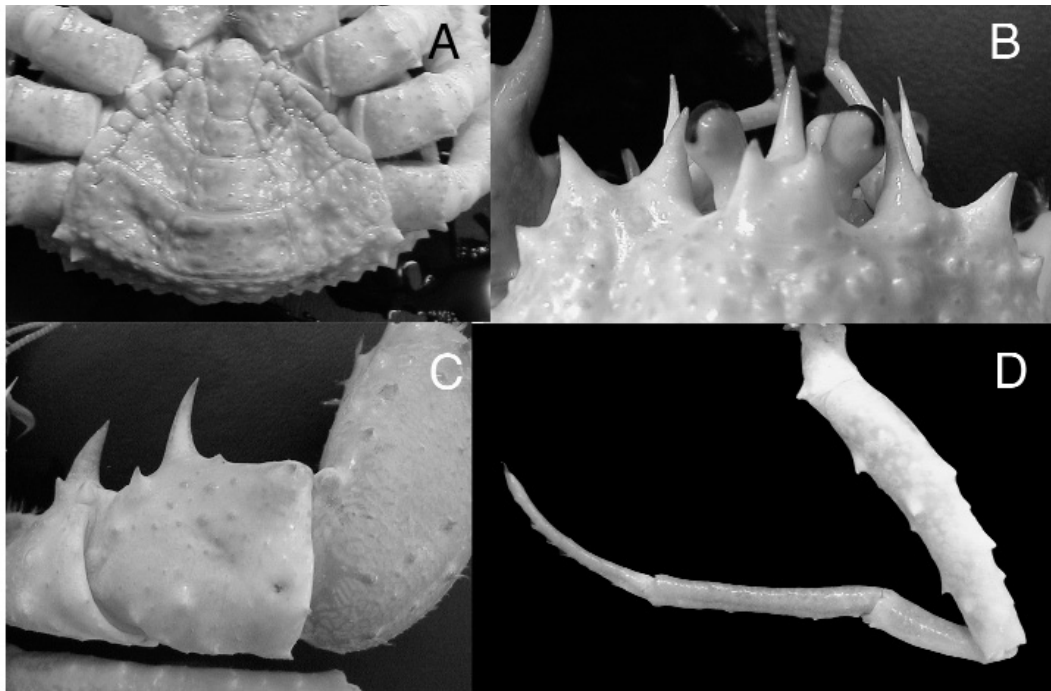


FIG. 2. – *Paralomis mendagnai* n. sp., holotype, male, 59x60 mm (MNHN-Pg 6408)). A, abdomen ; B, anterior part of carapace, dorsal view; C, merus, carpus and part of chela of right cheliped ; D, third right ambulatory leg.

strong median spine on dorsal border. Palm bearing several rows of small tubercles and few spines on dorsal sides. Dactylus and propodal extension with tufts of hairs (Fig. 2C).

Walking legs moderately long. First and second walking legs slightly longer than third. Third walking leg in males more than 2 times carapace length, less than 2 times in females; with some acute gran-

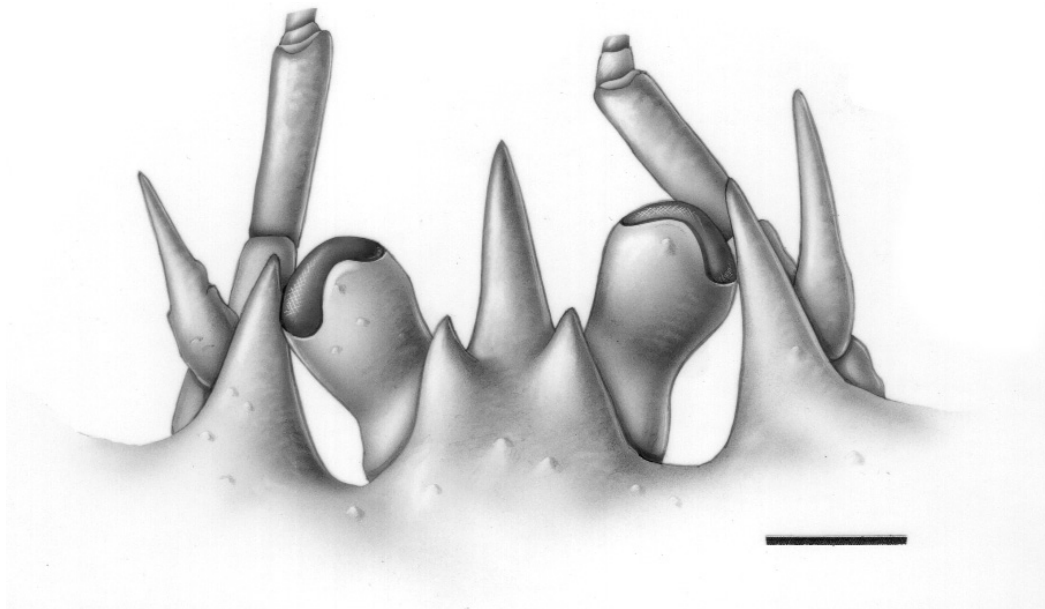


FIG. 3. – *Paralomis mendagnai* n. sp., holotype, male, 59x60 mm (MNHN-Pg 6408). Anterior portion of carapace, including rostrum, eyes and antennal scaphocerite, dorsal view. Scale bar: 5 mm.

ules on terminal border of coxa; merus 0.75 carapace length in males and 0.5 in females, about 2 times longer than carpus and 1.3-1.5 times longer than propodus, with row of 5-8 small spines along dorsal border, few small spines on posterior and ventral sides. Carpus with 3 or 4 small spines along dorsal margin, dorsal side with 1 small distal spine. Propodus as long as dactylus, with 4-6 small spines along dorsal margin and 3 or 4 spinules along ventral margins. Dactylus slightly curved, unarmed in adult specimens and with small movable spinules along ventral margin in juveniles; with some scattered tuft of setae (Fig. 2D).

Remarks: *Paralomis mendagnai* belongs to the group of species with the dorsal surface of the carapace thickly covered with rounded, more or less prominent granules of different sizes. Among the species of the genus, *P. medipacifica* Takeda, 1974, from the Central Pacific, NW off Midway Islands (Takeda, 1974) is the most similar to the new species. This resemblance lies mainly in the overall carapace shape and armature; however, they differ as follows:

- The chelipeds have more than one strong spine on the dorsal border of merus and carpus in *P. medipacifica*, whereas these articles are armed with only one strong spine in the new species. The walking legs have more spines and tubercles in *P. medipacifica* than in the new species; the dactylus has a row of well developed spinules along the ventral margin

in adult specimens of *P. medipacifica*, whereas in the adult specimens of the new species this margin is unarmed.

- The scaphocerite is formed by a single, long central spine in *P. mendagnai*, whereas it is bifurcate in *P. medipacifica*.

Distribution: Solomon Islands, 435-912 m.

KEY TO SPECIES OF *PARALOMIS* FROM THE WESTERN AND CENTRAL PACIFIC OCEAN

The genus *Paralomis* in the Western and Central Pacific Ocean comprises 22 species (see Dawson, 1989; Macpherson, 2001; Zaklan, 2002 and references cited therein). As previously mentioned, the distinctness of *P. dofleini* and *P. haigae* needs evaluation. *Paralomis heterotuberculata* from the East China Sea and described by Yumao *et al.* (1984) is considered a junior synonym of *P. truncatispinosa* from the same area and described by Takeda and Miyake (1980). The species described originally by Sakai (1980) as *Lopholithodes odawari* is here included in *Paralomis*.

1. Dorsal carapace surface entirely covered with spines or spiniform tubercles..... 2
- Dorsal carapace surface not entirely covered with spines, instead bearing numerous granules and, at most, a few scattered spines 5
2. Dorsal carapace surface without spines, covered

- with acute tubercles of uniform size *Paralomis zaelandica*
Dawson and Yaldwyn, 1974
- Dorsal carapace surface with spines 3
 - 3. Dorsal carapace surface with short spines. Gastric region with one central spine more developed than other spines *P. multispina* (Benedict, 1895)
 - Dorsal carapace surface with well developed spines. Gastric region with spines of similar size 4
 - 4. Merus of walking legs more than 3 times longer than high. Anterior side of merus with spines *P. hystrixoides* Sakai, 1980
 - Merus of walking legs about 2 times longer than high. Anterior side of merus without spines *P. hystrix* (de Haan, 1846)
 - 5. Gastric region with one strong central spine or thick process 6
 - Gastric region without central spine or process 10
 - 6. Dorsal carapace surface with prominent protuberances on posterior half..... *P. odawari* (Sakai, 1980)
 - Dorsal carapace surface without prominent protuberances 7
 - 7. Dorsal carapace surface covered by clustered granules *P. japonica* Balss, 1911
 - Dorsal carapace surface covered by simple granules..... 8
 - 8. Dorsal carapace surface with few small granules. Dorsal and ventral margins of walking legs each with row of short spines *P. birsteini* Macpherson, 1988
 - Dorsal carapace surface covered by numerous small granules. Dorsal and ventral margins of walking legs each with row of well-developed and curved spines 9
 - 9. Dactylus of walking legs as long or longer than propodus *P. verrilli* (Benedict, 1895)
 - Dactylus of walking legs clearly shorter than propodus *P. arae* Macpherson, 2001
 - 10. Dorsal surface of carapace with some large rounded protuberances, each with a median spine and thickly covered with spinulous tubercles *P. ochthodes* Macpherson, 1988
 - Dorsal surface of carapace without large rounded protuberances and not thickly covered with spinulous tubercles 11
 - 11. Carapace with very long spines on lateral borders, truncated spines on dorsal surface. *P. truncatispinosa* Takeda and Miyake, 1980

- Carapace without long spines on lateral borders and truncated spines on dorsal surface 12
- 12. Lateral borders of carapace without spines... 13
- Lateral borders of carapace with spines 14
- 13. Granules of carapace, abdomen and pereopods prominent and acute *P. dofleini* Balss, 1911
- Granules of carapace, abdomen and pereopods not prominent and acute *P. haigae* Eldredge, 1976
- 14. Lateral margins of carapace with numerous long setae..... *P. seagranti* Eldredge, 1976
- Lateral margins of carapace without long setae 15
- 15. Branchial regions of carapace, and dorsal and ventral side of walking legs with crested borders *P. cristata* Takeda and Ohta, 1979
- Branchial regions of carapace, and dorsal and ventral side of walking legs without crested borders..... 16
- 16. Posterior border of branchial region of carapace with some strong spines 17
- Posterior border of branchial region of carapace unarmed or with some small spines 19
- 17. Antennal acicle composed of single spine. Ventral border of dactylus of walking legs unarmed in adult specimens *P. mendagnai* n. sp.
- Antennal acicle bifurcate or with several spines on lateral margins. Ventral border of dactylus of walking legs with spinules in adult specimens..... 18
- 18. Antennal acicle bifurcate..... *P. medipacifica* Takeda, 1974
- Antennal acicle with median spine and 2 spines on lateral border..... *P. kyushupalauensis* Takeda, 1985
- 19. Dorsal carapace surface smooth, or covered with minute granules 20
- Dorsal carapace surface covered by numerous granules of different size 21
- 20. Dorsal carapace surface smooth, sparsely covered by tufts of erect setae..... *P. hirtella* de Saint-Laurent and Macpherson, 1997
- Dorsal carapace surface covered by minute granules, without tufts of setae..... *P. jamsteci* Takeda and Hashimoto, 1990
- 21. Walking legs covered with numerous granules of different size *P. dawsoni* Macpherson, 2001
- Walking legs covered with few small granules ... *P. pacifica* Sakai, 1978

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