

**A new species of the genus *Lithodes*  
(Crustacea, Decapoda, Lithodidae)  
from French Polynesia**

by Enrique MACPHERSON

**Abstract.** — *Lithodes megacantha*, a new species from the French Polynesia, in the Central Pacific, is described and illustrated. The species is characterised by the presence of very long spines on the carapace and walking legs. The species is closely related to *L. longispina* Sakai, 1971, from Japan.

**Résumé.** — Une nouvelle espèce de Lithodidae (*Lithodes megacantha*) de la Polynésie française est étudiée. Elle est proche de *L. longispina* Sakai, 1971, du Japon, mais s'en différencie facilement par le plus grand développement des épines des pattes ambulatoires et de la carapace.

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The genus *Lithodes* contains 17 species (DAWSON, 1989), but only two representatives have been described or cited in the central Pacific Ocean: *L. longispina* Sakai from Japan (SAKAI, 1971, 1976, 1987) and Midway Is. (TAKEDA, 1974) and *L. nintokuae* Sakai from the northwest of Midway Is. (SAKAI, 1978) and Hawaii (DAWSON & YALDWYN, 1985).

During the radiobiologic surveys carried out in French Polynesia by the Service Mixte de Contrôle Biologique de l'Armée (S.M.C.B.) on board the vessel "Marara" and with the scientific leadership of J. POUPIN, several specimens of a lithodid crab were collected and sent to the Muséum national d'Histoire naturelle, Paris. Through the courtesy of A. CROSNIER these specimens were kindly offered for study and are described as belonging to a new species.

The type material is deposited in the Muséum national d'Histoire naturelle, Paris (MNHN). Measurements given (LC × MW) refer to the length of the carapace, excluding the rostrum (LC), and the maximum width of the carapace, excluding marginal spines (MW)

***Lithodes megacantha* sp. nov.**

(Figs 1 a, 2 a, b)

**MATERIAL EXAMINED :** French Polynesia, Archipel des Tuamotu (Mururoa) : stn 227, 21°50.5' S, 139°01.2' W, 1000 m, trap, 17.05.1990 : 1 ♀ 69 × 59 mm (MNHN-Pg 4670). Archipel de la Société (Moorea) : stn 259, 17°32.2' S, 149°55.9' W, 1040 m, trap, 18.06.1990 : 1 ♀ ov. 83 × 72 mm (MNHN-Pg 4671). Archipel de la Société (Huanine) : stn 262, 16°49.5' S, 150°56.5' W, 980 m, trap, 19.06.1990 : 2 ♀ 62 × 53 mm, 68 × 58 mm (MNHN-Pg 4672).

**TYPES :** One female (69 × 59 mm) from stn 227 has been selected as holotype (MNHN-Pg 4670). The other specimens are paratypes.

DESCRIPTION (holotype)

Carapace pyriform, slightly longer than broad. Regions well defined. Gastric region convex, more prominent than other regions. Two pairs of very long gastric spines, anterior pair longer than posterior pair and clearly longer than carapace. Cardiac region weakly convex, as prominent as the branchial regions, and separated from the gastric region by a deep transverse furrow. One pair of cardiac spines as long as the anterior pair of gastric spines; two small granules between the spines and the gastro-cardiac furrow. Each branchial region with one spine and three acute granules; the spine weakly longer than cardiac spines, directed slightly laterally and situated at a level between gastro-cardiac furrow and cardiac spines; the acute granules posterior to this spine, the anteriormost being bigger than other two. Intestinal region not clearly separated from other regions, with two long spines, shorter than cardiac spines. Some small, rounded granules scattered on the dorsal surface of the carapace.

Rostrum with a long bifid anterior projection, 0.6 times carapace length, directed sharply upwards in its proximal part, before dorsal spines. Distal part of the rostrum slightly more horizontal than proximal part. Two long dorsal spines. One strong, curved basal spine. Outer orbital spine overreaching the end of the eyes. Anterolateral spine longer than the outer orbital spine. Hepatic spine very long, the longest spine of the carapace and clearly longer than carapace. Each branchial margin with two strong spines: first spine slightly smaller than hepatic spine, situated at the level of the gastro-cardiac furrow; second spine smaller than first, slightly smaller than intestinal spines. Remainder of branchial border bearing 8-9 small spines or acute granules.

Second abdominal segment with two spines on median plate and several acute granules on external edges.

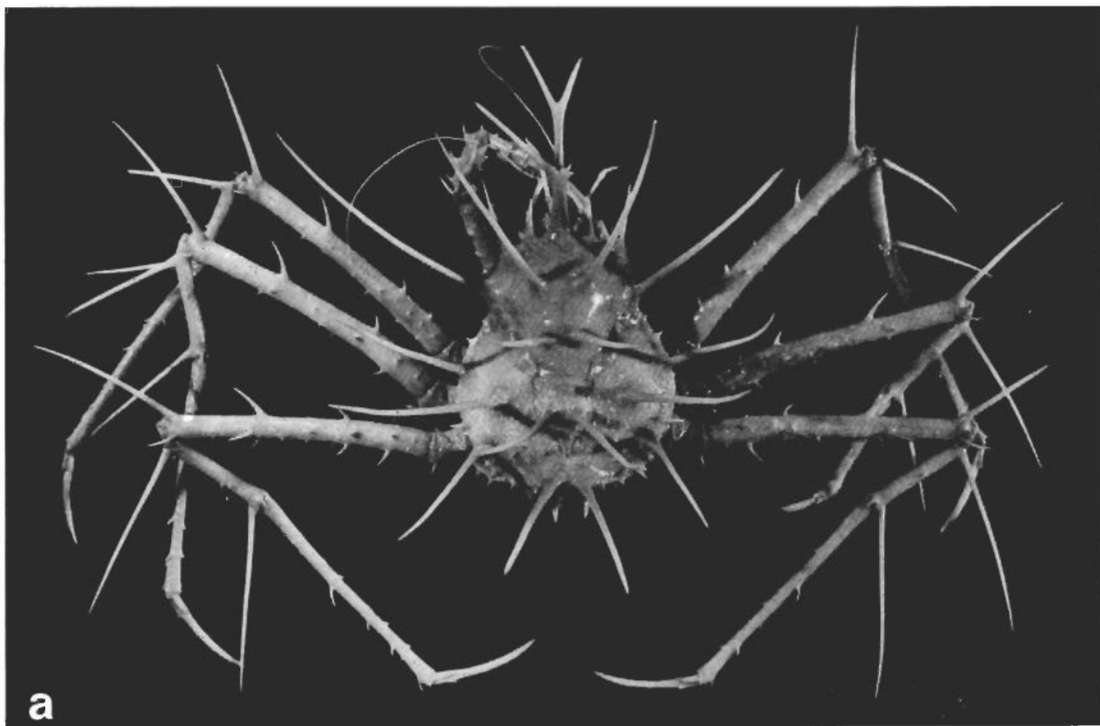
Eyestalks smooth, without granules.

Basal segment of antennal peduncle with one small spine on outer border.

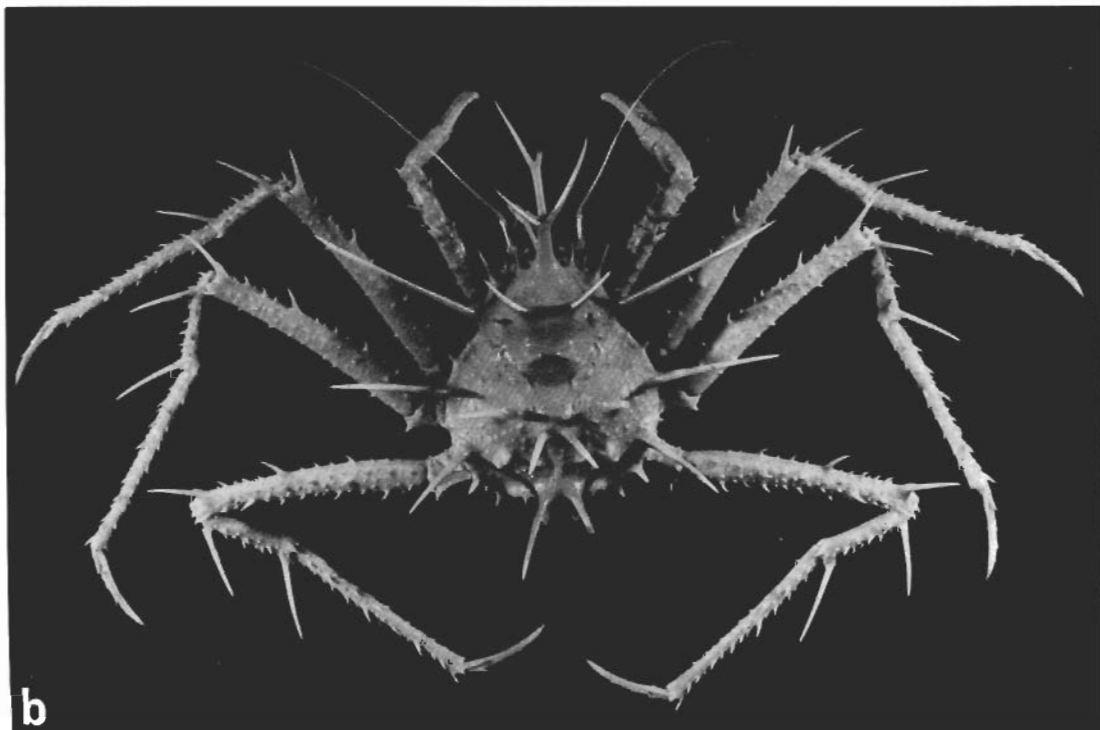
Right cheliped regenerating. Left cheliped with merus armed with several spines, stronger on dorsal and terminal borders. Carpus with three dorsal spines, proximal spine longer than others. Several spines scattered on outer and ventral surfaces. Hand with acute granules scattered on dorsal and lateral borders. Several tufts of hairs on fingers.

Walking legs long, slender and subcylindrical. Third pereopods longer than second and fourth.

Fourth pereopods three times longer than carapace length. Basis-ischium bearing one short disto-dorsal spine. Merus longer than carapace length, about 9 times longer than broad and twice carpus length, a row of four spines on dorsal border, proximal very small, distal spine the longest; few spines of different sizes scattered on lateral surface and ventral margin. Dorsal border of carpus with two very long spines, one proximal, the other distal, similar in size and longer than carpus length; these spines are as long as terminal spine of dorsal margin of merus; three additional small spines on lateral and dorsal borders. Propodus about 12 times as long as broad, slightly shorter than merus length. A row of small spines on both dorsal and ventral margins. Several small spines scattered on lateral surface. Mesial surfaces of merus, carpus and propodus smooth. Dactylus about 0.5 times propodus length, weakly curved and slightly compressed, with a row of 4 or 5 small spinules along the dorsal border and some spines on proximal portion of lateral and mesial surfaces.



**a**



**b**

FIG. 1. — Dorsal view : a, *Lithodes megacantha* sp. nov., holotype, ♀, 69 × 59 mm, French Polynesia (MNHN-Pg 4670); b, *Lithodes longispina* Sakai, 1971, ♀, 50 × 47 mm, Tokushima, Japan (MNHN-Pg 4446).

*Colour* : Transparencies provided by J. POUPIN showed the body and walking legs as uniform bright red all over.

#### VARIATIONS

The size of the specimens examined ranges between 62 and 83 mm carapace length. The only difference was observed in the size of the spines which are relatively smaller in the largest female (83 × 72 mm). The number and position of the main spines remain constant.

#### REMARKS

Among the species of the genus, *Lithodes longispina* Sakai is the closest relative of the new species. Examination of several specimens of *L. longispina* from Japan deposited in the Muséum national d'Histoire naturelle, Paris (see MACPHERSON, 1990, and figs 1 b, 2 c, d), showed two species differ in the following aspects :

— lateral surface of the walking legs covered with many small spines in *L. longispina*; these spines are almost absent in the new species;

— spines of the carapace and main spines of the merus and carpus of the walking legs very long in the new species, but clearly smaller in *L. longispina*. Comparison between similar-sized specimens of the two species clearly showed this difference.

The second species recorded from the central Pacific Ocean, *L. nintokuae* Sakai, is easily distinguishable from the new species by the absence of long spines on the carapace and walking legs (SAKAI, 1971, 1976; DAWSON & YALDWYN, 1985).

**ETYMOLOGY** : From the greek *mega*, large, and *acantha*, spine, in reference to the long spines of the carapace. The name *megacantha* is considered as a substantive in apposition.

#### Acknowledgements

I am grateful to J. POUPIN, scientific leader of the "Marara" cruises, and A. CROSNIER (ORSTOM) for offering me the opportunity and facilities to study this interesting species. I also thank R. DUCOUSO, head of the SMCB, for financial support for the illustrations of this paper. Thanks are also extended to J. REBIÈRE, from the Muséum national d'Histoire naturelle, for the photographs.

#### REFERENCES

- DAWSON, E. W., 1989. — King crabs of the world (Crustacea : Lithodidae) and their fisheries. A comprehensive bibliography. *N. Z. ocean. Inst. Misc. Publ.*, **101**, 338 p.
- DAWSON, E. W., & J. C. YALDWYN, 1985. — *Lithodes nintokuae* Sakai : A deep-water king crab (Crustacea, Anomura, Lithodidae) newly recorded from Hawaii. *Pacif. Sci.*, **39** : 16-23, figs 1-4.
- MACPHERSON, E., 1990. — Crustacea Decapoda : On some species of Lithodidae from the Western Pacific. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Vol. 6. *Mém. Mus. natn. Hist. nat.*, Paris, (4), **145** : 217-226, figs 1-4.

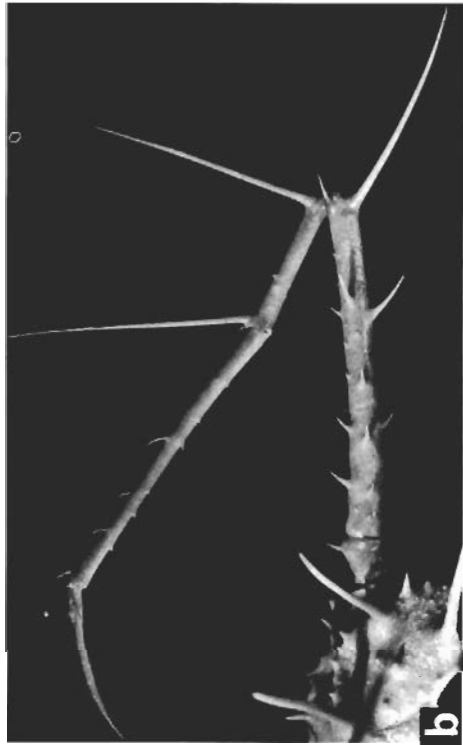
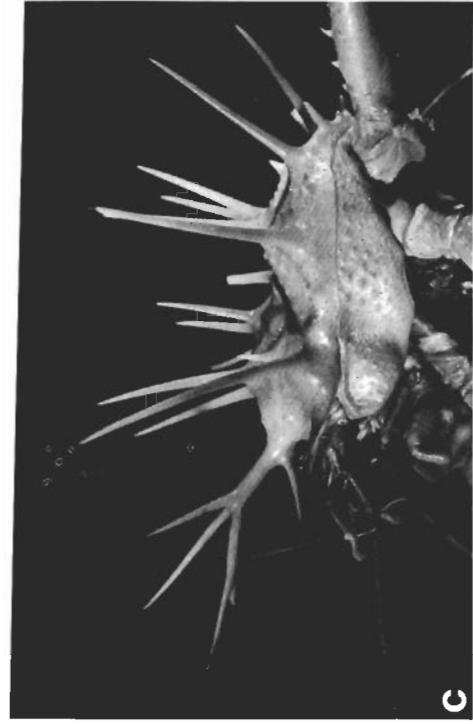


FIG. 2. — *Lithodes megacantha* sp. nov., holotype, ♀, 69 × 59 mm, French Polynesia (MNHN-Pg 4670) : a, carapace, lateral view; b, fourth left pereiopod. *Lithodes longispina* Sakai, 1971, ♀, 50 × 47 mm, Tokushima, Japan (MNHN-Pg 4446) : c, carapace, lateral view; d, fourth left pereiopod.

- SAKAI, K., 1987. — Biogeographical records of five species of the family Lithodidae from the abyssal valley off Gamoda-Misaki, Tokushima, Japan. *Res. Crust.*, **16** : 19-24, fig. 1, pls 1-3.
- SAKAI, T., 1971. — Illustrations of 15 species of crabs of the family Lithodidae, two of which are new to science. *Res. Crust.*, **4-5** : 1-49, figs 1-3, pls 1-21, maps 1-3.
- 1976. — Crabs of Japan and adjacent seas. Tokyo, Kodansha Ltd., 3 vol. : i-xxix, 1-773, figs 1-379 (English); 1-461 (Japanese); 1-16, pls 1-251 (plates).
- 1978. — Decapod Crustacea from the Emperor Seamount Chain. *Res. Crust.*, **8** (Supl.) : 1-39, figs 1-24, pls 1-4.
- TAKEDA, M., 1974. — On three species of the Lithodidae (Crustacea, Anomura) from the Central Pacific. *Bull. natn. Sci. Mus. Tokyo*, **17** : 205-214, pls 1-3.