A new species of hermit crab of the family Parapaguridae (Decapoda, Anomura) from French Polynesia

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ABSTRACT
A new deep-water hermit crab species of the family Parapaguridae, Oncopagurus oimos, is described from Moruroa (French Polynesia, Tuamotu Archipelago). The new species is distinguished primarily by its distinctive colour pattern (still visible in alcohol-preserved specimens after one year), and consisting of broad stripes on the left cheliped and ambulatory legs. Other diagnostic characters of the new species are: (1) males lacking first pleopods and having reduced unpaired left second pleopods; (2) slender left cheliped; (3) rounded mesial face of the right chela. The new species is compared to another congeneric species, O. tuamotu Lemaitre, 1994 that also occurs in French Polynesia, as well as to other species of the genus in which males lack first pleopods.

RÉSUMÉ
Une espèce nouvelle de pagure de la famille des Parapaguridae (Decapoda, Anomura) de Polynésie française. Une espèce nouvelle de pagure d'eau profonde, appartenant à la famille des Parapaguridae, Oncopagurus oimos, est décrite de Moruroa (Polynésie française, archipel des Tuamotu). Cette espèce nouvelle se distingue en particulier par la couleur (encore visible après un an de conservation en alcool) des bandes longitudinales sur le chélicé gauche et les pattes ambulatoires. D'autres caractères distinctifs sont : (1) la présence, chez les mâles, d'un seul deuxième pleopode gauche ; (2) le chélicé gauche grêle ; (3) la face mésoine de la pince droite arrondie. Cette nouvelle espèce est comparée à une autre espèce du genre, O. tuamotu Lemaitre, 1994 qui se trouve également en Polynésie française, ainsi qu'aux autres espèces du genre dont les mâles n'ont pas de premiers pleopodes.
Study of parapagurid samples, obtained from French Polynesia since Lemaître's (1994) report on the species of this family from the area, has revealed the existence of an undescribed species. This new species belongs in the recently proposed genus *Oncopagurus* Lemaître, 1996, the species of which are characterized primarily by:

1. Presence of upward curved epistomial spine;
2. Phyllobranch gills;
3. Operculate right chela;
4. Males having poorly to moderately developed first and second pleopods, with first sometimes absent (Lemaître 1996).

In the material examined section, the length of the shield of the specimens is indicated in parenthesis, measured (to the nearest 0.1 mm) from the tip of the rostrum to the midpoint of the posterior region of the shield. The term “semichelate” is used for the fourth pereopod in accordance with the definition provided by McLaughlin (1997). The spelling of the island locality where this new species was found is according to Motteleer (1986). A summary of deep-water collecting activities in French Polynesia, including a list of crustacean species and station data, can be found in Poupin (1996).

**Oncopagurus oimos** n.sp. (Figs 1-3)

**MATERIAL EXAMINED.** — French Polynesia. Tuamotu Archipelago, Moruroa atoll, Marara, stn 499, 21°47.6'S - 138°55.7'W, trapped, 200 m, 5.V.1996: holotype δ (2.8 mm) MNHN-Pg 5505; paratypes, 1 δ (2.4 mm), 1 φ (2.7 mm) MNHN-Pg 5506; 1 δ (2.9 mm) USNM 276085.

**ETYMOLOGY.** — The specific name is from the Greek *oimos*, meaning stripe, used as a noun in apposition, and refers to the distinctive colour pattern of this species.

**DISTRIBUTION.** — Known so far only from Moruroa atoll, on the Tuamotu Archipelago, French Polynesia. Depth: 200 m.

**HABITAT.** — Gastropod shells.

**DESCRIPTION**

Shield (Fig. 1A) as broad as long; dorsal surface evenly calcified, with scattered short setae; anterior margins weakly concave; lateral projections subtriangular, terminating acutely; anterolateral margins sloping; posterior margin broadly rounded. Rostrum broadly rounded, weakly produced, and with short mid-dorsal ridge. Ventrolateral margins of shield each with small spine (not visible in dorsal view, and often only on one side). Anterodistal margin of branchiostegite rounded, unarmed, setose.

Ocular peduncles more than half length of shield, with dorsal row of setae. Cornea weakly dilated. Ocular acicles subtriangular, terminating in strong spine; separated basally by less than basal width of one acicle.

Antennular peduncle long, slender, exceeding distal margin of cornea by entire length of ultimate segment; ventral flagellum with five to six articles. Ultimate segment twice as long as penultimate segment, with scattered setae. Basal segment with strong ventromesial spine; lateral face with distal subrectangular lobe armed with one or two small spines, and strong spine proximally.

Antennal peduncle (Fig. 1B) exceeding distal margin of cornea by about one third length of fifth segment. Flagellum long, exceeding extended right cheliped and ambulatory legs, articles with setae less than one to two flagellar articles in length (Fig. 1C). Fifth segment unarmed, but with scattered setae. Fourth segment with strong spine on dorsolateral distal angle. Third segment with strong ventromesial distal spine. Second segment with dorsolateral distal angle produced, terminating in strong, simple spine; mesial margin with spine on dorsolateral distal angle. First segment with unarmed lateral face; ventromesial angle produced, with three to four small spines laterally. Antennal acicle slightly curved outward (in dorsal view), at most slightly exceeding distal margin of cornea, terminating in strong spine; mesial margin with row of eight to thirteen spines, setose.

Mandible (Fig. 2A) with three-segmented palp. Maxillule (Fig. 2B) with external lobe of endopod weakly developed, internal lobe with long terminal seta. Maxilla (Fig. 2C) with endopod exceeding distal margin of scaphognathite. First maxilliped (Fig. 2D) with endopod exceeding exopod in distal extension. Second maxilliped (Fig. 2E) with exopod about seven times as long as broad. Third maxilliped (Fig. 2F) with distal two segments each twice as long as wide; crista
New parapagurid from French Polynesia
dentata with about twelve corneous-tipped teeth; coxa and basis each with one tooth mesially. Sternite of third maxillipeds with small spine on each side of midline. Chelipeds markedly dissimilar. Right cheliped (Fig. 1D-F) massive, with sparse setation. Fingers curved ventromesially, each terminating in corneous claw; cutting edges with irregularly-sized calcareous teeth. Dactyl approximately as long as mesial margin of palm, and set at strongly

![Image of O. olmos n.sp., Marara, stn 499, Moruroa atoll: A-H, holotype ♂ (2.8 mm) (MNHN-Pg 5505); I, paratype ♂ (2.9 mm) (USNM 276085). A, shield and cephalic appendages; B, right antennal peduncle (lateral view); C, proximal portion of flagellum of same; D, right cheliped (dorsal view); E, right chela of same (ventral view); F, merus and carpus of same (mesial view); G, left cheliped; H, left second pleopod (arrow) and portion of pleuron (lateral view); I, left second pleopod (lateral view). Stippled areas on shield (A), merus and carpus of right cheliped (F), and left cheliped (G) indicate reddish colour pattern. Scales bars: A, D-G, 1 mm; B, C, H, I, 0.5 mm.](image-url)
oblique angle to longitudinal axis of palm; mesial
margin broadly curved, well defined by row of
spines (corneous-tipped on distal half); dorsal
face with scattered small spines proximally; ven-
tral face smooth; ventromesial face concave.
Fixed finger broad at base; lateral margin well
defined by row of spines (corneous-tipped on
distal half); dorsal face with scattered small
spines or tubercles; ventral face smooth. Palm
broader than long; lateral margin broadly roun-
ded, well delimited by row of blunt to sharp
spines; dorsomesial margin marked by row of
small spines; dorsodistal margin with row of
spines. Carpus with lateral margin well delimi-
ted by row of spines; dorsal face with numerous
small spines; dorsodistal margin with row of
spines; ventromesial margin with row of spines.
Merus with dorsal row of small spines; ventromesial
margin with row of small spines on ventromesial
row of setae. Ischium with ventromesial row of
small spines. Coxa with one or two small spines
on ventromesial and ventrolateral margins, and
ventromesial row of setae. Left cheliped (Fig. 1G) slender, with chela as
long as carpus; well calcified. Fingers terminating
in small corneous claws; dorsal and ventral sur-
faces unarmed except for scattered tufts of setae;
cutting edge of dactyl and fixed finger each with
row of minute corneous teeth. Dactyl subequal
to palm in length. Palm unarmed or at most with
inconspicuous tubercle on dorsomesial angle, and
scattered setae; ventral face smooth except for
scattered setae. Carpus with strong dorsodis-
tal spine; dorsal margin with moderate setation;
ventral face smooth. Merus with setae on dorsal
margin; ventrolateral distal margin with row of
spines; ventral face smooth. Ischium unarmed,
with setose ventral face. Coxa with one spine on
ventromesial and ventrolateral distal margins, and
ventromesial row of setae. Ambulatory legs (Fig. 3A-C) similar from right
to left, reaching approximately to, or just
beyond, tip of extended right cheliped. Dactyl
slightly less than twice as long as propodus, ter-
minalizing in sharp corneous claw; with dorsal and
dorsomesial rows of setae, and ventromesial row
of about ten to fourteen corneous spines; lateral
and mesial faces with shallow, longitudinal sulcus
on proximal half (deeper on mesial face). Propodus with row of setae on dorsal and ventral
margins. Carpus with small dorsodistal spine and
setae dorsally and ventrally. Merus unarmed,
with setae on dorsal and ventral margins. Ischium and coxa unarmed. Anterior lobe of
terminate of third pereopods setose, subsemicircu-
ar, armed with simple terminal spine.
Fourth pereopod (Fig. 3E) semichelate. Dactyl
terminating in sharp corneous claw; with ventro-
lateral row of small corneous spinules. Propodus
longer than dorsoventral width, rasp formed of
one row of rounded scales. Carpus with long
setae on dorsal margin. Merus with rows of long
setae on dorsal and ventral margins.
Fifth pereopod (Fig. 3F) chelate. Propodal rasp
extending to mid-length of segment.
Uropods and telson (Fig. 3G-I) markedly asym-
metrical. Telson lacking transverse suture; dorsal
surface with scattered setae; terminal margin
with shallow median cleft separating left and
right lobes, each with several marginal corneous
spines. Male lacking first pleopods; with unpaired redu-
ced second left pleopod (Fig. 1H, I) consisting of
minute bud or very short segment with few ter-
mital setae. Female lacking vestigial second right
pleopod.

Colour pattern (Figs 1A, F, G; 3A, B)
No observations of colour in life were made of this
species. However, after approximately one year in
alcohol, a distinctive reddish colour pattern was
still visible in the specimens. The shield has two
small reddish spots (Fig. 1A) on the anterior half,
one just behind each lateral projection. On both
chelipeds (Fig. 1E, G), the dorsodistal portions of
the meri are reddish. The carpus of the right cheli-
ped has a reddish area on the proximal portion of
the lateral and mesial faces. The carpus of the left
cheliped has a distinctive broad reddish stripe on
the dorsolateral and mesial faces; the dorsomesial
margin of the palm is light reddish; the dactyl is
reddish. The ambulatory legs (Fig. 3A, B) have a
reddish colour dorsodistally on the meri; the carpi
each have a reddish stripe on the lateral and mesial
faces, and the stripes of the carpi continue on the
Fig. 2. — *Oncopagurus oimos* n.sp., *Marara* stn 499, Monuroa atoll, paratype ♂ (2.4 mm) (MNHN-Pg 5506). Left mouthparts (internal view): A, mandible; B, maxillule; C, maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped. Scale bars: 0.5 mm.
meri but only on the lateral faces; the dactyls have reddish dorsal faces.

REMARKS
This new species is the fifth in the genus *Oncopagurus* in which males lack first gonopods. The other four are *O. haigae* de Saint Laurent, 1972 (Eastern Pacific); *O. orientalis* de Saint Laurent, 1972 (Indo-Pacific); *O. tuamotu* Lemaître, 1994 (known only from the Tuamotu Archipelago); and *O. cidaris* Lemaître, 1996 (known only from Australia). The males of these

![Figure 3](image-url)

**Fig. 3** — *Oncopagurus aimos* n.sp., *Marara*, stn 499, Moruroa atoll: holotype ♂ (2.8 mm) (MNHN-Pg 5505). A, left second pereopod (lateral view); B, left third pereopod (lateral view); C, dactyl of same (mesial view); D, sternite of third pereopods (ventral view); E, left fourth pereopod (lateral view); F, propodus and dactyl of left fifth pereopod (lateral view); G, exopod of left uropod (dorsal view); H, telson (dorsal view); I, exopod of right uropod (dorsal view). Stippled areas on second (A) and third (B) pereopods indicate reddish colour pattern. Scale bars: A-D, 1 mm; E-I, 0.5 mm.
four species have paired asymmetrical second gonopods; however, Lemaitre (1996, 1997) has documented intra-specific variation in males of *O. orientalis* and *O. cidaris*, where the second right gonopod is occasionally lacking. The three known males of *O. oimos* n.sp. have only reduced, simple unpaired left second pleopods. The segmentation of the male second pleopods in these five species differs. The second pleopods are unsegmented in *O. oimos* n.sp., *O. haigae* and *O. orientalis*; they are two-segmented in *O. tuamotu*; and one- or two-segmented in *O. cidaris*. Of all known species of *Oncopagurus*, *O. oimos* n.sp. is the only one in which females have only unpaired left second pleopods; females of all other species have vestigial right second pleopods as well.

The distinctive colour pattern of *O. oimos* n.sp., can be used to distinguish it from *O. tuamotu*, the only other congeneric species known from French Polynesia. The new species has broad stripes on the left cheliped and ambulatory legs (Figs 1G, 3A, B), whereas *O. tuamotu* has red bands on the cheliped and walking legs (see Lemaitre 1994: 411, fig. 281). In addition to the previously mentioned differences in pleopod conditions, other characters can also be used to distinguish *O. oimos* n.sp. from *O. tuamotu*. The mesial face of the right palm is rounded in the new species, with a weak irregular dorsomesial row of spines, whereas the mesial face is expanded distally, and there is a distinct dorsomesial and ventromesial rows of spines in *O. tuamotu*. The left chela is noticeably more slender, as long as the carpus, and the fingers are set nearly parallel to the longitudinal axis of the palm in the new species; the chela is shorter than the carpus, and the fingers are set obliquely (pointing ventrolaterally) to the longitudinal axis of the palm in *O. tuamotu*.

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**REFERENCES**


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