

First occurrence of the genus *Yaldwynopsis* Guinot & Richer de Forges, 1995 in the Atlantic Ocean, Guadeloupe Island, with description of a new species (Crustacea, Decapoda, Brachyura, Homolidae)

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COUVERTURE / *COVER*:

General habitus of *Yaldwynopsis couppeyi* n. sp. Holotype, ovigerous ♀ 37.4 × 33.7 mm, [MNHN-IU-2025-8002](#): dorsal view.

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First occurrence of the genus *Yaldwynopsis* Guinot & Richer de Forges, 1995 in the Atlantic Ocean, Guadeloupe Island, with description of a new species (Crustacea, Decapoda, Brachyura, Homolidae)

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KEY WORDS

Caribbean Sea,
Lesser Antilles,
Pacific Ocean,
inventory,
trap,
deep-species,
identification key,
new species.

ABSTRACT

A homolid crab of the genus *Yaldwynopsis* Guinot & Richer de Forges, 1995, collected using traps at a depth of 310 m off Guadeloupe Island, Lesser Antilles, Caribbean Sea, represents the first record of the genus in the Atlantic Ocean. The specimen, an ovigerous female, is compared with the four known species of the genus, all previously described from the Pacific Ocean. It is identified as a new species (*Y. couppeyi* n. sp.) and formally described in this study. Additionally, a key to all known *Yaldwynopsis* species is provided, along with discussions on geographic distributions and fishing gear selectivity.

RÉSUMÉ

Premier signalement du genre Yaldwynopsis Guinot & Richer de Forges, 1995 dans l'Atlantique (île de la Guadeloupe), avec la description d'une nouvelle espèce (Crustacea, Decapoda, Brachyura, Homolidae).

Un crabe homolidé du genre *Yaldwynopsis* Guinot & Richer de Forges, 1995, récolté à l'aide de casiers à une profondeur de 310 m au large de l'île de la Guadeloupe, dans les Petites Antilles, mer des Caraïbes, représente la première observation de ce genre dans l'océan Atlantique. Le spécimen, une femelle ovigère, est comparé aux quatre espèces connues du genre, toutes décrites précédemment de l'océan Pacifique. Il est reconnu comme une nouvelle espèce (*Y. couppeyi* n. sp.) et décrit formellement dans cette étude. Une clé d'identification des espèces connues de *Yaldwynopsis* est fournie, accompagnée de commentaires sur les distributions géographiques et la sélectivité des engins de pêche.

MOTS CLÉS

Mer des Caraïbes,
Petites Antilles,
océan Pacifique,
inventaire,
casier,
espèce de profondeur,
clé d'identification,
espèce nouvelle.

INTRODUCTION

Trap fishing around Guadeloupe is traditionally carried out by local fishermen targeting fish, cephalopods, echinoderms, and crustaceans. A variety of traps and techniques used are described in Diaz *et al.* (2002). From 1983 onward, fishing surveys using traps have been also organised on board the fishing vessel *Polka*, targeting mostly the benthic crustacean that inhabit in the 100–1000 m depth range. The potential for commercial fisheries of some species, such as the langoustines of the genus *Eunephrops* Smith, 1885, has been assessed. Results of those studies are in Paulmier (1993) and Poupin (1994), together with some additional records in Gervain *et al.* (2002) and Poupin (2018).

More anecdotally, the trap catches are also priced around Guadeloupe by malacologists in search of rare and valuable shells. In March 2025, one of them, Bertrand Couppey, gets also interested with a few amazing crabs that he has acquired for his personal collection. He sent us photos of three species, for determination purposes. Two of Couppey's photos matched crabs of the superfamily Majoidea Samouelle, 1819, *Minyorhyncha crassa* (A. Milne-Edwards, 1878), a first record from the Lesser Antilles, and *Stenocionops coelatus* (A. Milne-Edwards, 1878). The third photo was that of an unusual and very intriguing spiny crab of the family Homolidae De Haan, 1839. It was recognised as a species of *Yaldwynopsis* Guinot & Richer de Forges, 1995, based on characters outlined by Guinot & Richer de Forges (1995: 318), namely the dorsomesial and ventromesial spines on merus, carpus and palm of the cheliped that are typically long and forwardly incurved, forming a kind a 'barbed wire trap' when the chela is folded. Previously, the genus *Yaldwynopsis* was known to include four species from the Pacific region. The specimen in the third photo therefore represents the first record of this genus from the Atlantic Ocean.

Made aware of the novelty of his discovery, B. Couppey kindly accepted to give its homolid specimen to the author for further examination and comparison with others *Yaldwynopsis* species deposited in the collections of the Muséum national d'Histoire naturelle, Paris (MNHN).

Although the general proportions and spine arrangement on the carapace and ambulatory legs of the Guadeloupe specimen are most similar to those of *Yaldwynopsis spinimanus* (Griffin, 1965), subtle differences in the number and configuration of spines, within the range of differences previously used to distinguish Pacific species, argue in favour of its recognition as a new species. This new species is described herein and the type specimen deposited in the MNHN. An updated key to the five recognised species in the genus *Yaldwynopsis* is also provided, with notes on geographical distributions and gear selectivity for deep-sea fauna studies.

MATERIAL AND METHODS

The collected specimen was caught in a 'langoustine' trap, a cylindrical trap 1 m long × 0.5 m diameter (type '*Bourolle*' in Diaz *et al.* 2002: 31, fig. 2). The trap was set for a night

on rocky bottom off Bouillante, Guadeloupe, approximately 16°08'N, 61°48.8'W, 310 m b.s.l.

The dry specimen was transferred to ethanol at its receipt. Measurements indicated in the description were made by using a digital caliper to the nearest 0.1 mm. Size of crab specimens are reported as carapace length (cl, excluding rostrum) × carapace width (cw, excluding spines); cl taken from base of the rostrum to posterior edge of carapace, cw is the maximum width taken just behind the anterolateral spines; measures of pereopods were taken along the dorsal edges of each article. Dimension of pleonal somites and telson are reported as median height × basal width (mh × bw). The abbreviations P1–P5 refer to pereopods 1–5, respectively, P1 being the cheliped. The terms 'dorsal', 'ventral', 'mesial', and 'lateral' used for the chelipeds and legs are the same as 'upper/ extensor', 'lower/flexor', 'inner', and 'outer', respectively, as used in others studies (Ahyong *et al.* 2009; Ng & Eldredge 2012).

The morphological terminology follows Guinot & Richer de Forges (1995: fig. 52), also used in Richer de Forges & Ng (2007) and Ng & Eldredge (2012). For the sake of clarity, descriptive text includes in brackets the abbreviations used in the figures for the carapacial spines.

ABBREVIATIONS

Morphology

The terminology and abbreviations for spines, grooves and various parts of the carapace are adapted from those defined by Guinot & Richer de Forges (1995; fig. 52, indicated in parenthesis in the following list).

a	antennal spine (ea);
al	anterolateral spine (ela);
ala	anterolateral accessory spine;
b	buccal spine (eb);
bg	branchial groove (sb);
bw	basal width (pleonal somite);
c	cardiac spine;
cg	cervical groove (sc);
cl	carapace length;
cop	cardiac ovate pit;
cw	carapace width;
dmr	dorsomesial row (of spines);
dr	dorsal row (of spines);
ei	epibranchial inferior;
es	epibranchial superior;
go	gonopore;
h	hepatic spine;
i	intestinal spine;
lh	linea homolica (lh);
lr	lateral row (of spines);
m	metagastric spine;
mb	mesobranchial spine;
mh	median height (pleonal somite);
mr	mesial row (of spines);
pc	postercardiac bump;
pe	proepistomial spine (ep);
pg	protogastric spine (epg);
pl	posterolateral spine (elp);
pr	pseudorostral (p);
r	rostral (r);
sh	subhepatic (esh);
sls	scattered low spines (on posterolateral carapace);
so	supraorbital (es);
sp	spermatheca;



FIG. 1. — General habitus of *Yaldwynopsis couppeyi* n. sp. holotype, ovigerous ♀ 37.4 × 33.7 mm, MNHN-IU-2025-8002, dorsal view. Scale bar: 20 mm.

sp2 median spine on pleonal somite 2;
 sp6 median spinule on somite 6;
 St1-8 thoracic sternites 1 to 8;
 vmr ventromesial row (of spines).

Others abbreviations

C1-C5 coxa 1 to 5;
 Ca carpus;
 Da dactylus;
 Ex exopod of mxp3;
 Is ischium;
 Me merus;
 Mxp3 third maxilliped;
 P1 first pereiopod or cheliped;
 P2-P4 ambulatory pereiopods, 2 to 4;
 P5 fifth pereiopod;
 Pr propodus;
 T telson.

Institutions

MNHN Muséum national d'Histoire naturelle, Paris;
 MVC Museums Victoria Collections, Melbourne.

SYSTEMATICS

Superfamily HOMOLOIDEA De Haan, 1839
 Family HOMOLIDAE De Haan, 1839

Genus *Yaldwynopsis*
 Guinot & Richer de Forges, 1995

Yaldwynopsis Guinot & Richer de Forges, 1995: 435. — Richer de Forges & Ng 2007: 37. — Ng *et al.* 2008: 41. — Ahyong *et al.* 2009: 117. — Ng & Eldredge 2012: 29.

TYPE SPECIES. — *Paromola spinimanus* Griffin, 1965.

TYPE LOCALITY. — New Zealand.

OTHER INCLUDED SPECIES. — *Yaldwynopsis saguili* Richer de Forges & Ng, 2007, from Philippines, Japan and Taiwan; *Y. guinotae* Richer de Forges & Ng, 2007, from French Polynesia; *Y. hawaiiiana* Ng & Eldredge, 2012 from Hawaii.

Yaldwynopsis couppeyi n. sp.
 (Figs 1; 2; 3; 4; 5A, B; 6)

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TYPE MATERIAL. — **Holotype.** Guadeloupe • ovigerous ♀, 37.4 mm (42.9 including rostrum) × 33.7 mm; off Bouillante; approximately 16°08'N, 61°48.8'W; 310 m depth; coll. local fishermen, end of 2024; trap on rocky bottom; donated by Bertrand Couppey; MNHN-IU-2025-8002.

COMPARATIVE MATERIAL

Yaldwynopsis guinotae Richer de Forges & Ng, 2007

Holotype. French Polynesia, Tuamotu, Fangataufa atoll • ♀, 34.0 × 25.0 mm; R/V *Marara*; st. CAS231; 22°12.0'S, 138°45.9'W; trap on outer reef at 270 m; coll. J. Poupin; 21.V.1990; MNHN-IU-2008-11331 (= MNHN B24312)(wrong number citation in the original description).

French Polynesia, Austral Islands, Neilson reef • ♀, c. 35 × 26 mm; R/V *Alis*; BENTHAUS Expedition; st. CAS1916; 27°00'17.9964"S, 146°03'35.9928"W; trap at 180 m; coll. B. Richer de Forges *et al.*; 11.XI.2002; MNHN-IU-2021-9555 (= MNHN-B30903).

Yaldwynopsis saguili Richer de Forges & Ng, 2007

Paratype. Philippines, Bohol and Sulu Seas, Balicasag Island • 1 ♀, 26.1 × 21.4 mm; Panglao 2004 Expeditions; st. T38; 9°32'17.9988"N, 123°42'18.0072"E; probably tangle nets around 200 m (indication in station data as 'Pelagic trawl, 80-140 m' is an error, according to B. Richer de Forges (comm. pers. May 2025); 4.VII.2004; MNHN-IU-2013-14509 (= MNHN-B31885).

ETYMOLOGY. — The new species is named (as a noun in apposition) in honor of its donator, Bertrand Couppey. A passionate enthusiast of shellfish, Bertrand Couppey regularly acquired

specimens from fishermen returning from trap-fishing operations in Guadeloupe. Initially focused on shellfish, he soon became captivated by the remarkable diversity and beauty of the accompanying crustaceans, which led him to begin collecting them as well. Through this hobby, he obtained the striking specimen of *Yaldwynopsis* studied in the present work. Upon its identification as a member of *Yaldwynopsis* – a genus previously unrecorded in the Atlantic – he generously donated the specimen to the MNHN collection, enabling further observation and ultimately leading to the description of a new species.

DIAGNOSIS. — Carapace with rostrum acute, tapering distally, subequal in length to pseudorostral, supraorbital, antennal, and proepistomial spines. Four protogastric spines, slightly shorter than rostrum, positioned at corners of square. Main anterolateral spine strong, obliquely pointing forward, followed by four posterolateral spines decreasing in size posteriorly. Subhepatic region with five strong spines; hepatic region with three spines. Buccal spine strong. Cheliped merus, carpus, and propodus with seven longitudinal rows of spines; dorsomesial and ventromesial rows with longest spines, incurved; number of dorsomesial and ventromesial spines being: on merus, 11 (dorsomesial) and 10–11 (ventromesial); on carpus, six (dorsomesial) and five (ventromesial); on propodus, 7–8 (dorsomesial), and nine (ventromesial). Dactylus of chelae with two basal dorsomesial spines, and two smaller accessory spines, mesial, near articulation; fixed finger with two basal ventromesial spines. Ambulatory legs (P2–P4) long, slender, subequal, overreaching tip of chelipeds by approximately half their dactyli. Dorsal margins of meri each with eight spines on P2, nine spines on P3, and eight spines on P4, plus sharp distodorsal tooth on each anterior margin. Ventral margins of meri with 7–11 main spines, larger distally, P2 having 11 spines, clearly more spinose than P3–P4. Dactyli of P2–P4 with 18 or 19 acute mobile spines. P5 slender, situated in dorsal position; merus with dorsal margin unarmed except for a strong distodorsal spine, on anterior margin; ventral margin with four spines; lateral face with a basal spine; dactylus and propodus forming a prominent subchelate structure.

HABITAT. — Rocky and steep substrates, mainly accessible by traps; captured with Majoidea Samouelle, 1819 crabs, *Minyorhyncha crassa* (A. Milne-Edwards, 1878) and *Stenocionops coelatus* (A. Milne-Edwards, 1878).

DISTRIBUTION. — Known only from Guadeloupe Island, 310 m depth. Likely common in deep waters of the Lesser Antilles, but not accessible to standard sampling gear such as dredges or trawls.

DESCRIPTION

Carapace (Figs 1; 2)

Carapace densely spiny, 37.4 (42.9 including rostrum) × 33.7 mm, surfaces covered with short tomentum. Rostrum [r] 5.5 mm long, subequal to longest spines on carapace, with dorsal gutter, posteriorly flanked by two pseudorostral spines [pr] of similar length. Frontal carapace with one proepistomial spine [pe], as long as rostrum, tapering. Buccal cavity with lateral margins smooth, unarmed; anterolateral angle with one strong buccal spine [b], subequal in length to rostrum. Protogastric area with four spines [pg] positioned at corners of square, anterior one slightly shorter. Hepatic area with two long spines [h] and smaller one, posteriorly, near cervical groove. Metagastric area with two small spines [m], disposed in longitudinal line, with bifid apices. Subhepatic area (anterolateral) inflated, bearing five long spines [sh]. Cervical groove [cg] deep, situated at midlength of carapace.

Posterior carapace armed, just behind posterior groove, with: two small median cervical spines [c], set transversally; one mesobranchial spine [mb]; and one long antero lateral spine [al], pointing slightly forward, with smaller accessory spine [ala] laterally at base. Branchial groove well marked armed posteriorly with five epibranchial spines, three superior (laterodorsal) [es] subequal spines, and two inferior (lateroventral) [ei], ventralmost longest. Posterodorsal surface of carapace resembling a ‘human mask’, composed of: two cardiac ovate pits [cop]; a posterocardiac [pc] median bump, bearing two transverse tubercles; and three median tubercles near posterior margin, median one with small intestinal spine [i]. *Linea homolica* [lh] feebly marked laterally. Posterolateral margin of carapace rounded, armed with four posterolateral spines [pl] decreasing in size posteriorly. Posterolateral surface with scattered low spines and tubercles [sls]. Posterior margin of carapace sinuous, tuberculate, posteromedian tubercles slightly spinose.

Eyestalks, antennules and antennae (Fig. 2C)

Eyestalks about twice as long as rostrum; basophtalmite thin, tubular; podophtalmite stouter, subequal in length. Cornea dilated, rounded. Eye not housed in orbital cup. One supraorbital [so] and one antennal spine [a], subequal to rostrum. Antennule (c. 18 mm in length, including flagellae), peduncle subequal to that of antenna; basal article bulbous; second (7.3 mm) and third (5.8 mm) articles tubular, unarmed; two distal flagellae, unequal (longest c. 3.3 mm). Antenna c. 30 mm in length (including flagellum) moderately long, inserted near antennal spine; basal article bulbous, with large urinary pore; second article (3.8 mm) with one distal spine; third article (8.2 mm), unarmed, tubular, overreaching rostral spine by most of its length; terminal article short (1.8 mm); flagellum c. 16 mm in length, overreaching tip of mxp3, when fully extended.

Third maxilliped (Fig. 3A)

Third maxilliped (length c. 38 mm), reaching almost to distal margin of cheliped merus when fully extended. Ventrolateral and ventromesial margins armed with several long spines. Mesial margins of each article lined with long yellow setae. Coxa with one strong distoventral spine and an additional spine, at base of exopod. Exopod (length 12.4 mm) tubular, reaching proximal third of mxp3 merus; ventral surface with row of low tubercles; flagellum curved. Basis poorly defined, unarmed. Ischium (length 9.6 mm, including basis), armed with irregular row of four ventromesial spines; with straight row of four ventrolateral spines, increasing in size distally; with comblike row of 7–9 spines on mesial margin, obscured by yellow setae in ventral view. Merus (length 10.1 mm) weakly curved; with irregular row of five unequal ventromesial spines; with straight row of five long curved ventrolateral spines. Carpus short (length 3.2 mm), rounded, unarmed. Propodus (length 6.8 mm) with straight row of three long ventrolateral spines. Dactylus (length 8.5 mm) slightly longer than propodus, terminating bluntly, fully covered in long setae, without tubercles or movable spines.



FIG. 3. — *Yaldwynopsis couppeyi* n. sp. holotype, ovigerous ♀ 37.4 × 33.7 mm, MNHN-IU-2025-8002, mxp3 and cheliped: **A**, right mxp3, ventral view, numbers indicate the ventrolateral spines, on each article, and the dotted line the position of the comblike row of spines, on ischium (behind the setae); **B, C**, right cheliped, dorsal (**B**) and ventral (**C**) views, with indication of some rows of spines (**dotted lines**). Abbreviations: **Ca**, carpus; **Da**, dactylus; **dmr**, dorsomesial row; **dr**, dorsal row; **Ex**, exopod; **Is**, ischium; **lr**, lateral row; **Me**, merus; **mr**, mesial row; **Pr**, propodus; **vmr**, ventromesial row. Scales bars: 10 mm.

tromesial rows; one dorsal row with 10 or 11 spines, aligned distally with one strong terminal spine on the anterior margin, at articulation knob; three additional spines present on the distodorsal surface, between dorsomesial and dorsal rows; one lateral row with eight spines; lateroventral surface with two subparallel rows, upper row with six or seven spines aligned with one strong distoventral spine on anterior margin, lower row with five or six spines.

Palm of chela (length 27.7 mm), longer than dactylus (24.0 mm), lateral face covered with scattered long setae; armature consisting of seven main longitudinal rows of spines, continuous with those on the merus and the carpus; dorsomesial and ventromesial rows bearing the longest spines; dorsomesial row with seven or eight spines (one broken), continuing distally with two additional spines at base of dactylus; ventromesial row with nine spines, continuing distally with two additional spines at base of fixed finger; mesial row, between dorsomesial and ventromesial rows reduced to one short proximal spine

and few indistinct tubercles on proximal half of mesial surface; dorsal row with 10 spines, aligned distally with one strong distodorsal spine on anterior margin; an intermediate row of four spines between dorsomesial and dorsal rows; lateral row with 10 or 11 short spines; two lateroventral rows of short spines: upper row (more lateral) with 10 or 11 spines; lower row (more ventral) with 14-16 acute spines; anterior margin with one dorsal spine at articulation, and one ventromesial spine at base of fixed finger; no conspicuous patch present on either the inner or outer face of the palm at base of fixed finger.

Dactylus (length 24 mm; left regenerating) bearing long setae, blade-like, inwardly curved, with smooth cutting edges and terminating in sharply curved claw. Two prominent dorsomesial spines present at base (Fig. 3B), aligned with dorsomesial spines on palm; two additional smaller accessory spines located on mesial face near articulation; fixed finger similar in shape to dactylus, with two ventromesial spines (Fig. 3C) aligned with ventromesial spines of palm.

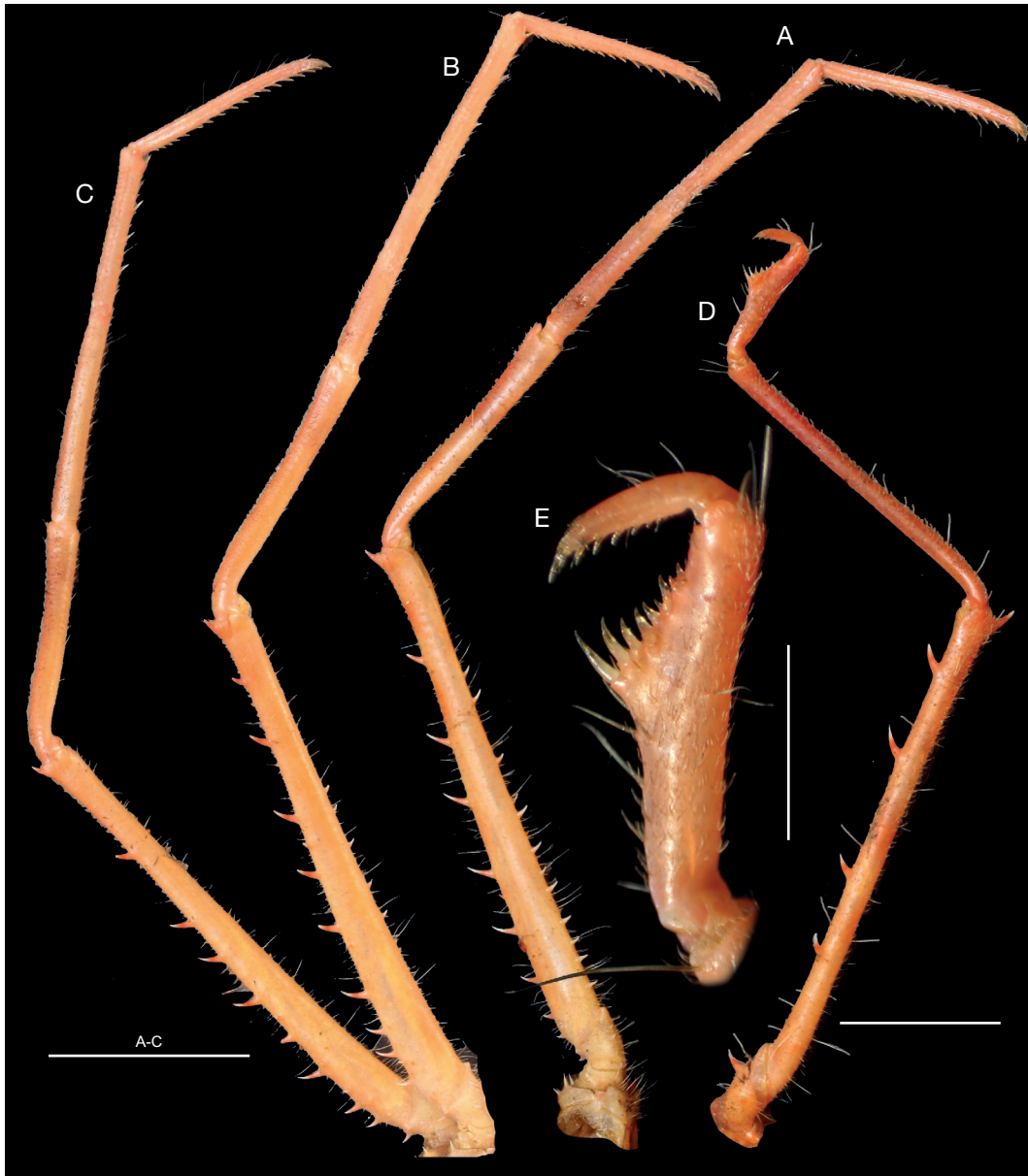


FIG. 4. — *Yaldwynopsis couppeyi* n. sp. holotype, ovigerous ♀ 37.4 × 33.7 mm, MNHN-IU-2025-8002, left ambulatory legs: **A-C**, P2 to P4, mesial view; **D**, P5 lateral (dorsal) view; **E**, P5 subchela. Scales bars: A-C, 20 mm, D, 10 mm, E, 4 mm.

Ambulatory legs (Figs 1; 4A-E)

Ambulatory legs extremely long and slender, with all articles very thin. P2 and P4 subequal in length (140.8 mm and 140.6 mm, respectively), with P3 slightly longer (143.4 mm), extending beyond cheliped tip by distal two-thirds of dactylus. P5 distinctly reduced (length 67.4 mm), very thin, inserted dorsally.

P2-P4 coxae bearing two dorsomesial spines of unequal size on each anterior margin. Ischia with one single mediodorsal spine on each anterior margin; ischium of P2 additionally with a longitudinal row of two spines on ventral margin, absent on P3 and P4. Meri of P2-P4 subequal in length (53.4-53.9 mm) with scattered long setae; dorsal margins with eight (P2, P4) or nine (P3) strong spines, aligned with

one prominent dorsodistal spine on the anterior margin; ventral margins with 11 (P2), eight (P3), 7-10 (P4) spines, larger distally; on proximal third presence of additional rows of spinules on mesial and lateral faces. Carpi approximately half the length of the meri, subcylindrical, unarmed, and densely covered with short setae. Propodi about 0.6 times length of meri, also densely setose, slightly compressed mesio-laterally, armed distoventrally with three acute mobile spines, distalmost spine located on anterior margin with an accessory mesial spinule. Dactyli approximately 0.4 times meri length, covered with scattered long setae, conspicuously flattened, with longitudinal furrows on mesial and lateral faces. Ventral margins armed with 18 or 19 acute mobile spines, terminating in one strongly incurved distal claw.

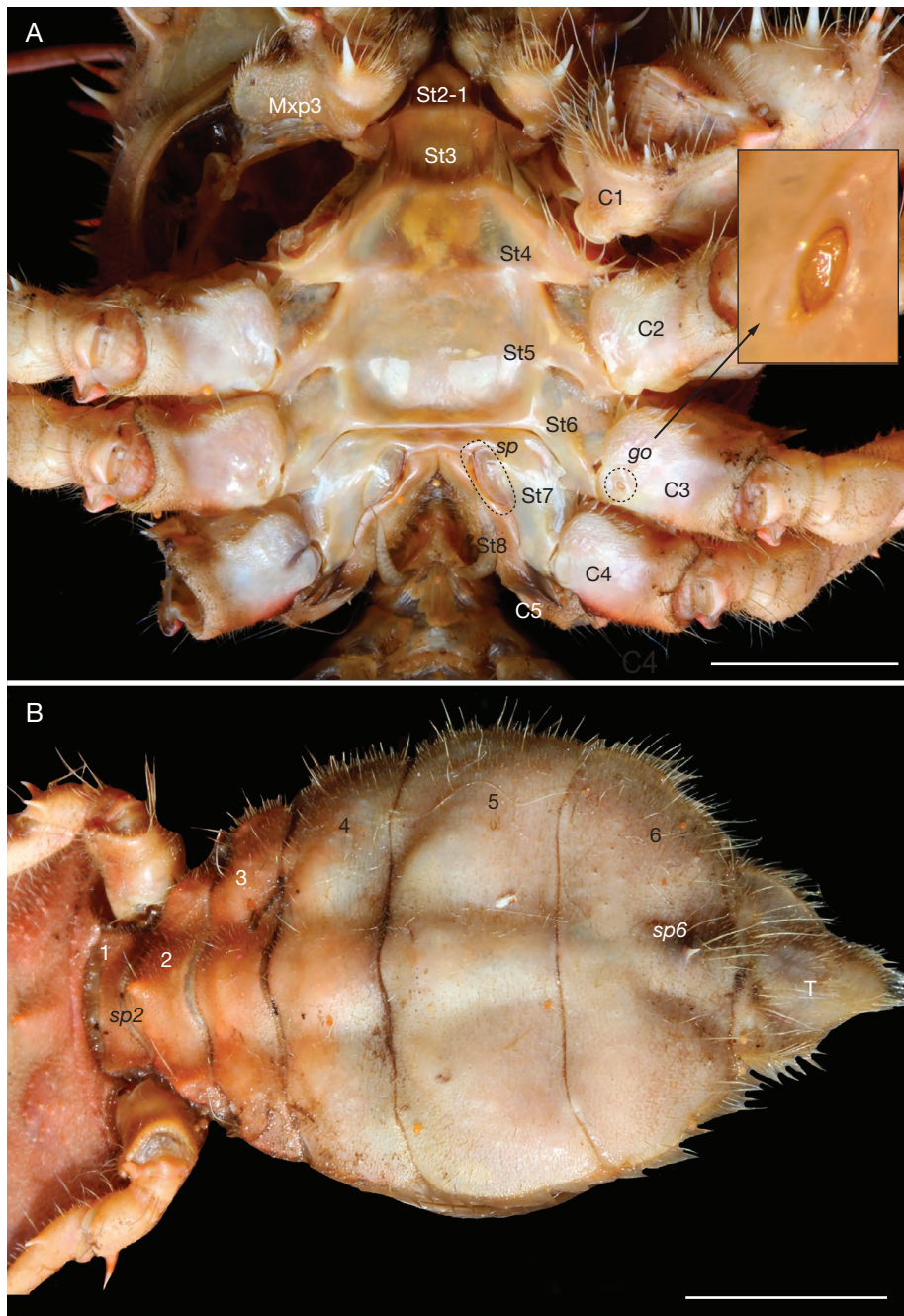


FIG. 5. — *Yaldwynopsis coupeyi* n. sp. holotype, ovigerous ♀ 37.4 × 33.7 mm, MNHN-IU-2025-8002, **A**, thoracic sternum; **B**, female pleon; numbers 1-6, for somites. Abbreviations: **C1-C5**, coxae of P1-P5; **St1-8**, sternites 1-8; female genital openings; **go**, gonopore (enlarged in the rectangle); **sp**, spermatheca; **sp2**, spine on somite 2; **sp6**, spine on somite 6; **T**, telson; Scale bars: 10 mm.

P5 slender, approximately half length of P2-P4, inserted dorsally, densely setose, with short and scattered long setae. Coxa unarmed. Ischium bearing two distal spines. Merus (length 33.7 mm) subcylindrical; dorsal margin unarmed except for one strong distal spine on anterior margin; ventral margin with four main spines; lateral face with one basal spine implanted before insertion of basal-most spine on ventral margin. Carpus (length 21.8 mm) about 0.65 times length of merus, subcylindrical, unarmed. Propodus and dactylus forming a prominent subchelate structure (Fig. 4D-E); pro-

podus distoventral margin armed with two subparallel rows of 5-7 sharp spines; dactylus with seven or eight mobile spines along ventral margin, increasing in size distally.

Thoracic sternum and spermatheca (Fig. 5A)

Thoracic sternum with sternites 1 and 2 fused, resulting in only seven visible sternites. Sternites 4-6 the largest and subequal in size (median height × width at base c. 4 × 12 mm). Female genital openings typical of the Homoloidea, as described by Guinot (1979: 174). Gonopores [go] located at base of

coxae 3, forming a circular orifice (diameter *c.* 0.6 mm) surrounded by a thickened rim. Spermathecae [sp] situated on sternite 7, near junction with sternite 8, elliptical in shape (*c.* 3.3 × 1.6 mm). No locking mechanism.

Female pleon (Fig. 5B)

Female pleon (length fully extended *c.* 44 mm) ovate, totally covering sternal surface, margins with setae. Telson subtriangular 10 × 10 mm (mh × bw), with rounded tip. Somite 6 8.6 × 19 mm (mh × bw) with one median acute spinule on distal half [sp6]. Somite 5 8.6 × 20.2 mm (mh × bw) where the pleon reaches its maximum width (22.3 mm at mid-height). Somites 4-2 progressively decreasing in size; somite 2 with one blunt median tubercle [sp2]. Somite 1 smallest (mh × bw 2 × 8 mm), subrectangular. Eggs diameter *c.* 0.4 mm.

Coloration (in freshly preserved specimen)

Carapace, chelipeds and legs light orange; dactyli black. Rostrum and main spines of the carapace deep red. Basal article of antennule and antenna deep red; antennal flagellum red. Eystalks cream, cornea black. The longest spines on the cheliped, arranged in dorsomesial and ventromesial rows, white distally, pale orange proximally, each with red ring medially. Eggs deep red.

REMARKS

The specimen from Guadeloupe conforms to all key diagnostic characters of the genus *Yaldwynopsis* as outlined in Guinot & Richer de Forges (1995: 318) and Ahyong *et al.* (2009: 75), including: 1) carapace (dorsal and lateral surfaces) and appendages densely covered with spines; 2) rostrum, and pseudorostral spines simple, acute; 3) pseudorostral spines as long as rostrum; 4) eyes elongated, free, not enclosed in orbital cup; 5) third maxilliped (mxp3) pediform; 6) palm of cheliped lacking a conspicuous patch on inner and outer surfaces near base of the fixed finger; 7) ambulatory legs (P2-P4) long, slender, subequal; 8) fifth pereopod (P5) merus slender, more than 16 times as long as wide, shorter (length 33.5 mm) than carapace length including rostrum (length cl + rostrum 42.9 mm), not reaching to level of orbit.

In addition to these features, the presence of conspicuous dorsomesial and ventromesial rows of long spines on the merus, carpus, and palm of the cheliped are characteristic of *Yaldwynopsis* species.

DISCUSSION

COMPARISON WITH THE OTHERS SPECIES

Yaldwynopsis couppeyi n. sp. and its congeners *Y. guinotae* Richer de Forges & Ng, 2000, *Y. hawaiiiana* Ng & Eldredge, 2012, *Y. saguili* Richer de Forges & Ng, 2000, and *Y. spinimanus* (Griffin, 1965), all share a number of characters as follows. A spiny carapace with similar arrangement of the main spines (see Ng & Eldredge 2012, fig. 1). Spiny chelipeds, including long spines along dorsomesial and ventromesial margins of meri, carpi and palms. P2-P4 elongate, with rows of spines on dorsal margins of the meri. P5 short, implanted dorsally on the carapace, with one row of spines on merus ventral margin and propodus terminating in a subchelate structure.

Yaldwynopsis couppeyi n. sp. can, however, be readily distinguished from other congeners by a few subtle differences in the number and arrangement of spines on the carapace, chelipeds, and pereopods (P2-P5). *Yaldwynopsis couppeyi* n. sp. differs from the two central Pacific species, *Y. guinotae* and *Y. hawaiiiana*, by the absence of spines on the upper margin of the P5 merus, whereas the latter two species each bear two spines on this margin. It also differs from *Y. saguili* in having nine spines on the dorsal margin of the merus of P3 (excluding the distodorsal spine), compared to only six spines in *Y. saguili*. Separation from *Y. spinimanus* is more challenging, as the two species share a very similar armature of the carapace and appendages. Nonetheless, the following differences were observed between these two species:

– In the new species the two metagastric spines of the carapace are subequal, with bifid apices, while in *Y. spinimanus* there is only one acute anterior metagastric spine, the posterior metagastric spine being reduced to a set of three or four low indistinct tubercles.

KEY TO THE SPECIES OF *YALDWYNOPSIS* GUINOT & RICHER DE FORGES, 1995

1. P5 merus dorsal margin with 2 spines, in addition to distodorsal spine 2
— P5 merus dorsal margin smooth, unarmed, except for distodorsal spine 3
2. Palm dorsomesial margin with 6 spines *Y. hawaiiiana* Ng & Eldredge, 2012
— Palm dorsomesial margin with 10 spines *Y. guinotae* Richer de Forges & Ng, 2007
3. P3 merus with a row of six spines along dorsal margin (excluding distodorsal spine)
..... *Y. saguili* Richer de Forges & Ng, 2007
— P3 merus with eight or more dorsal spines (excluding distodorsal spine) 4
4. P4 merus dorsal margin with seven spines (excluding distodorsal spine); P5 merus lateral surface unarmed; segment 6 of telson with two spines *Y. spinimanus* (Griffin, 1965)
— P4 merus dorsal margin with eight spines (excluding distodorsal spine); P5 merus lateral surface with one basal spine; segment 6 of telson with one spine *Y. couppeyi* n. sp.

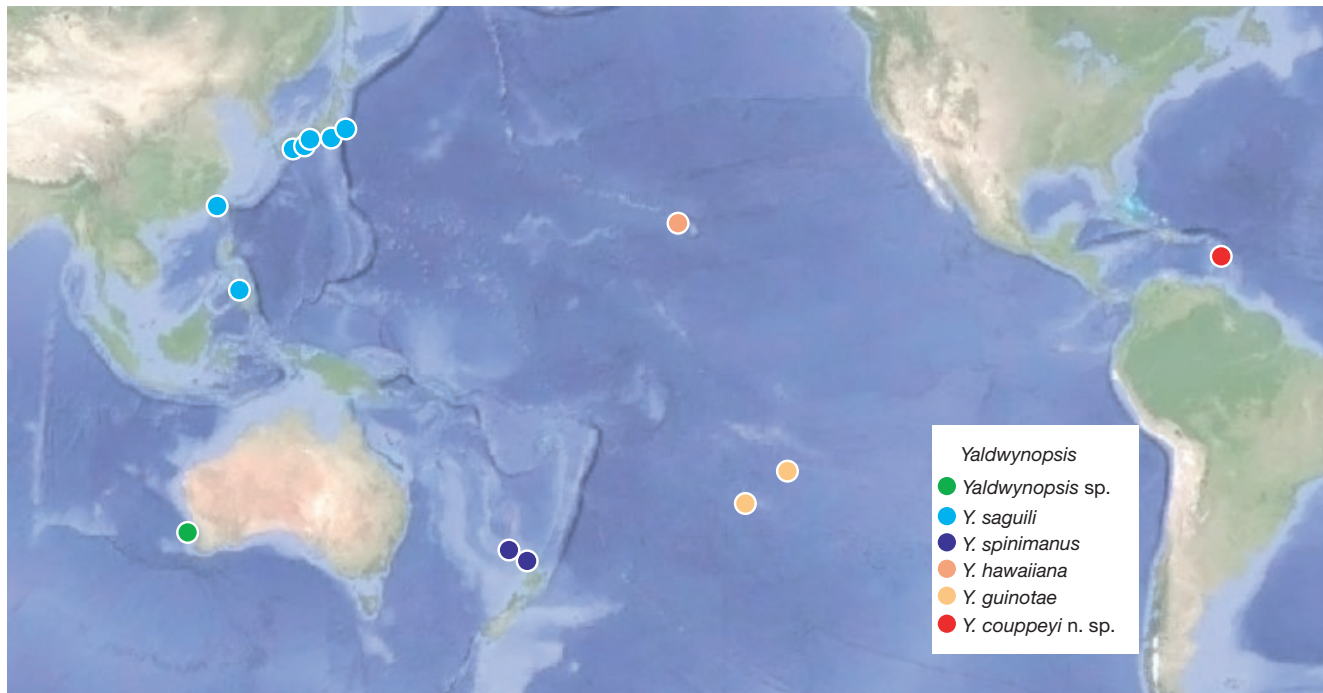


FIG. 6. — Global distribution of *Yaldwynopsis* Guinot & Richer de Forges, 1995 crabs inferred from specimens examined in published literature (*Yaldwynopsis* sp.; *Y. saguili* Richer de Forges & Ng, 2007; *Y. spinimanus* (Griffin, 1965); *Y. hawaiiiana* Ng & Eldredge, 2012; *Y. guinotae* Richer de Forges & Ng, 2007; *Y. couppeyi* n. sp.).

– In the new species the mxp3 has five spines on the ventrolateral margin of the merus, while there are only four in *Y. spinimanus* (see Griffin 1965, fig. 6).

– In the new species the dactylus of the chelae has two prominent dorsomesial spines at its base (aligned with the dorsomesial spines on the palm), plus two additional smaller accessory spines on its mesial face, near the articulation. In *Y. spinimanus* only the two dorsomesial spines are present, without accessory spines.

– In the new species there are eight spines on the dorsal margin of P4 merus, versus only seven spines in *Y. spinimanus*.

– In the new species the proximal part of P5 merus is armed on its lateral face with an acute spine, implanted before the basal-most spine on ventral margin, while this spine is absent in *Y. spinimanus*.

– In the new species the pleon has a single median acute spine on distal half of somite 6, while there are two spines in *Y. spinimanus*.

All these differences are comparable to those already used to distinguish the Pacific species and it is clear that this Atlantic specimen represents a new species. This conclusion is further supported by the significant geographic separation between this new species and those previously known (Fig. 6). However, intraspecific variation still remains difficult to assess due to the limited number of specimens examined for most species, typically only one or two, with the exception of *Y. saguili*, for which at least 15 specimens have been reported in previous studies (Richer & Ng 2007; Ah Yong *et al.* 2009; Ng & Eldredge 2012). Pending new collections that would allow for a more accurate identification of species-level diagnostic characters within the genus *Yaldwynopsis*,

the above key may be used to distinguish the five currently recognised species.

WORLD DISTRIBUTION OF *YALDWYNOPSIS* SPECIES

The geographic distribution of the species currently recognised in the genus *Yaldwynopsis* is shown in Figure 6. The map also includes the undetermined specimen from southwestern Australia, reported by Poore *et al.* (2008) as being a “probable new species”. This Australian specimen represents the only known record of *Yaldwynopsis* from the Indian Ocean. It was collected off Perth (-31.624200, 115.004000), at a depth of 205–210 m, and is housed in the Museum Victoria Collections (MVC 2025).

This Australian record, along with the new occurrence reported herein from the Atlantic Ocean, suggests that *Yaldwynopsis* species may have a wide distribution across the world’s oceans but are rarely collected due to their preference for benthic habitats that are difficult to sample with trawl or dredges, the most commonly used sampling gears.

DEEP-SEA DECAPOD DIVERSITY AND GEAR SELECTIVITY AROUND GUADELOUPE ISLAND

The discovery that a large-sized crab specimen such as the type of *Yaldwynopsis couppeyi* n. sp. in the Lesser Antilles represents an undescribed species, is unexpected, given the extensive deep-sea sampling previously conducted in the region. Over 239 species of Decapoda have already been recorded in Lesser Antilles from depths greater than 100 m (Poupin 2018: table 7), based on thousands of deep-sea sampling stations surveyed there throughout the past century (see historical overview in Poupin 2018: 41).

Around Guadeloupe Island alone, the most recent large-scale sampling campaign in deep-waters (50–900 m) was conducted during the KARUBENTHOS 2015 Expedition, using dredges and trawls. This effort yielded 190 species of Decapoda (Poupin & Corbari 2016) and did not include any *Yaldwynopsis* species, nor several other taxa previously reported from the area collected with traps. Trap collected species did include the lobsters *Eunephrops manningi* Holthuis, 1974, and *Nephropides caribaeus* Manning, 1969; the lithodid crabs *Paralomis cubensis* Chace, 1939, and *P. pectinata* Macpherson, 1988; and the homolid crab *Lamoha noar* (Williams, 1974).

This suggests that some species inhabiting steep or rocky substrates are primarily vulnerable to traps and have been poorly sampled by conventional methods such as dredges or trawls. All other known species of *Yaldwynopsis* have likewise been collected using selective fishing gear: crayfish pots for *Y. spinimanus*; tangle nets and gill nets for *Y. saguili*; and shrimp and crab traps for *Y. guinotae* and *Y. hawaiiiana*. *Yaldwynopsis* specimen from Western Australia was collected using a Sherman sled, a robust epibenthic sampling device specifically designed for rugged seamount and reef habitats.

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