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Alpheus agrogon, a new species of alpheid shrimp (Decapoda: Alpheidae) from Gorgona Island, Pacific coast of Colombia [1]

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Abstract: A new species of alpheid shrimp, *Alpheus agrogon*, is described from Gorgona Island, Pacific coast of Colombia, where it was collected in a tide pool. The new species resembles most closely *A. hyeyoungae* Kim & Abele, and *A. scopulus* Kim & Abele, but can be differentiated by the absence of a rostral carina between the base of rostrum and the posterior margin of eyes, of teeth or spines along the inner inferior margin of merus of first pair of pereopods, and of movable spine on the ischium of third and fourth pereopods.

Key words: *Alpheus agrogon*, new species, Alpheidae, Gorgona Island, Colombia

Several papers describing new species of alpheid shrimps from the Pacific coast of Colombia and its islands have been published (Abele 1975, Christoffersen & Ramos 1988a, 1988b, Wicksten 1988, 1989, Ramos & Prahl 1989). Recently, Lemaitre & Alvarez (1992) compiled the published literature on decapod crustaceans from this coast, and recorded in a checklist nineteen species of snapping shrimp of the genus *Alpheus* from this area, although the reports of *A. heterochaelis* (Prahl 1986, Prahl *et al.* 1984, Kim & Abele 1988, Wicksten & Hendrickx 1992) for the eastern Pacific may be doubtful.

The present study described an odd alpheid shrimp of the genus *Alpheus*, collected in a tide pool on the rocky shore "La Ventana", Gorgona Island, during a field trip of the Marine Ecology Course, Universidad del Valle.

The specimen was examined and compared with the descriptions of species of *Alpheus* currently recognized for the eastern Pacific (Kim & Abele 1988), but did not fit with any of these description. During an author visit to the National Museum of Natural History, Smithsonian Institution, Washington, D.C., type material of selected species of this genus, known from the area, were also examined and compared to the collected specimen. The taxonomic analysis lead to the conclusion that it belongs to an undescribed species.

The terminology of morphological structures is the one used by Kim & Abele (1988). Abbreviations are: cl = carapace length, measured between tip of rostrum and posterior dorsal margin of carapace; USNM = National Museum of Natural History, Smithsonian Institution, Washington, D. C.

Alpheus agrogon new species
(Figs 1-3)

Material examined: Holotype 1 ♀, cl 6.5 mm; La Ventana, Gorgona Island (2°56'10''N, 78°12'05''W) type locality; collector R. Neira, 9 Nov 1989, USNM 259395.

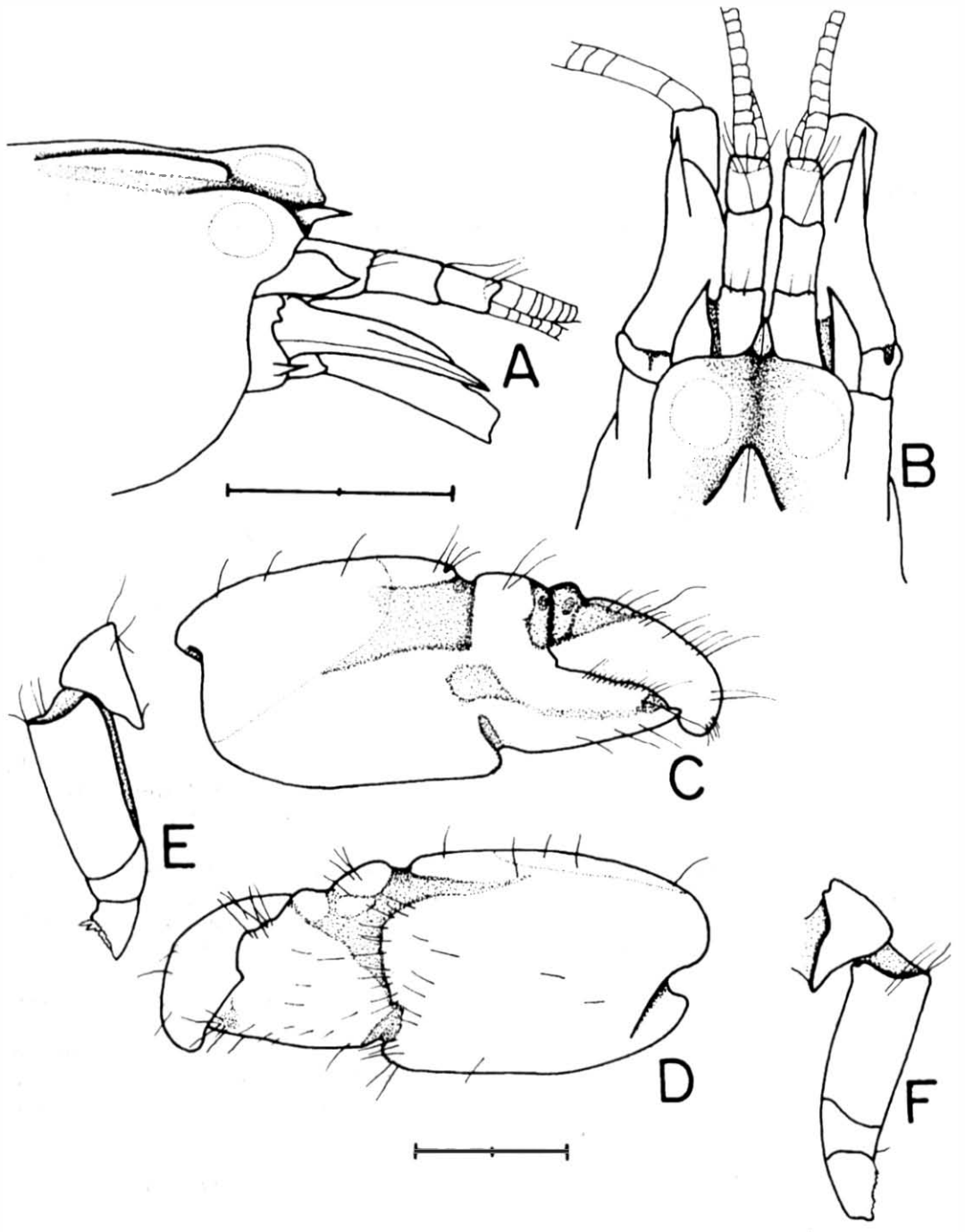

Fig. 1. *Alpheus agrogon* new species, holotype female, cl 6.5 mm, (USNM 259395), Gorgona Island: A, anterior region of the carapace and cephalic appendages, dorsolateral view; B, same, dorsal view, C, major chela, outer face; D, same, inner face; E, carpus, merus and ischium of major cheliped, outer face; F, same, inner face. (Scales = 2 mm).

Description: Rostrum short, acute, triangular, overreaching middle of visible part of first antennular segment (Figs 1 A-B). Rostral carina present, linear dorsally, interrupted between the rostral base where it is replaced by a deep, flattened depression, rising again posteriorly to form a subtriangular area which fades away in midgastric region.

Ocular hoods unarmed, strongly inflated dorsally; anterior margin almost straight. Orbitorostral groove deep and wide, extending between the eyes from the rostral base, occupying the empty space left by the missing portion of rostral carina and continuing beyond the posterior edge of the ocular hoods, where it splits in two due to the rising of the rostral carina (Fig. 1B). Carapace smooth, laterally compressed, pterygostomial margin rounded; ventral margin convex between coxae of first to fourth pereopod; posterior margin rounded ventrally, with pronounced cardiac notch (Fig. 3).

Antennular segments slender, with distal margins bearing a few setae, second segment about 1.7 times as long as broad, slightly longer than third segment and visible part of the first segment, the latest two almost equal. Stylocerite dorsally flattened, with distal margin tapering, tip acute, reaching to distal margin of first antennular segment (Fig. 1B).

Scaphocerite about 2.5 times as long as broad; lateral margin concave. Lateral tooth overreaching distal end of third antennular segment, but no reaching the distal end of carpocerite. Inner blade or squamous portion shorter than lateral tooth, reaching the distal end of third antennular segment (Fig. 1B).

Carpocerite overreaching distal end of antennular peduncle by 0.7-0.8 times the length of third antennular segment. Basicerite with lateral tooth small and acute (Fig. 1A).

Distal segment of third maxilliped about 3.3 times as long as broad and 2.5 times as long as penultimate segment, bearing long setae distally; superior margin with a few scattered setae, and inferior margin with several tufts of short setae. Exopod slightly overreaching distal end of antepenultimate segment, with short setae at distal end (Fig. 2E).

Major chela of first pereopods bearing short setae on inner and outer faces, compressed laterally and about 2.4 times as long as broad (Figs 1 C-D). Fingers occupying distal third of chela, much narrower than palm. Tip of movable finger (dactylus) round, overreaching the tip of immovable finger. Palm rather broad. Superior outer palmar depression well defined, rectangular, extending to oblique suture or *linea impressa*. Superior transverse groove deep, U-shaped; proximal shoulder with no overhanging groove. Immovable finger with shallow longitudinal depression along median part of outer face; depression extending posteriorly to region between superior and inferior palmar depressions. Superior inner palmar depression irregular, extending up posteriorly toward superior margin, just past middle of palm; extending anteriorly to dactylar articulation and continuing downward to join inferior palmar depression, forming a bossy area demarcated with numerous short setae. Inferior transverse groove deep, directed upward; proximal shoulder heavy, produced anteriorly, with numerous small tubercles. Inferior outer palmar depression narrow, extending obliquely upward to 0.25 times in width of palm. Inferior inner palmar depression V-shaped, extending upward to 0.25 times in width of palm; posterior margin well delimited, with several setae, but anterior margin ill defined. Merus about 2.2 times as long as broad, without teeth or spines on margins (Figs 1 E-F).

Minor chela of first pereopods about 3.5 times as long as broad, with some scatttered setae, specially on inner face (Figs 2 A-B). Fingers with acute tip, about 0.5 length of chela and almost as broad as palm. Palm smooth, without groove. A distinctive, triangular tooth on dactylar articulation of inner face and obtuse tooth on outer face. Merus about 2.0 times as long as broad, without teeth or spines on margins (Figs 2 C-D).

Second pereopod with first segment of carpus 1.5 times as long as second; second segment about 2.2 times as long as third or fourth and 1.5 times as long as fifth; third and fourth segments subequal in size and length (Fig. 3).

Dactylus of third pereopod simple, conical, about 0.3 times as long as propodus. Propodus about 1.2 times as long as carpus, bearing 6-7 spines of different sizes along the inferior margin, and a pair of spines at the distal end. Merus about 2.0 times as long as carpus, about 4.0 times as long as broad, bearing 6-8 setae on superior margin. Ischium without movable spine (Fig. 3).

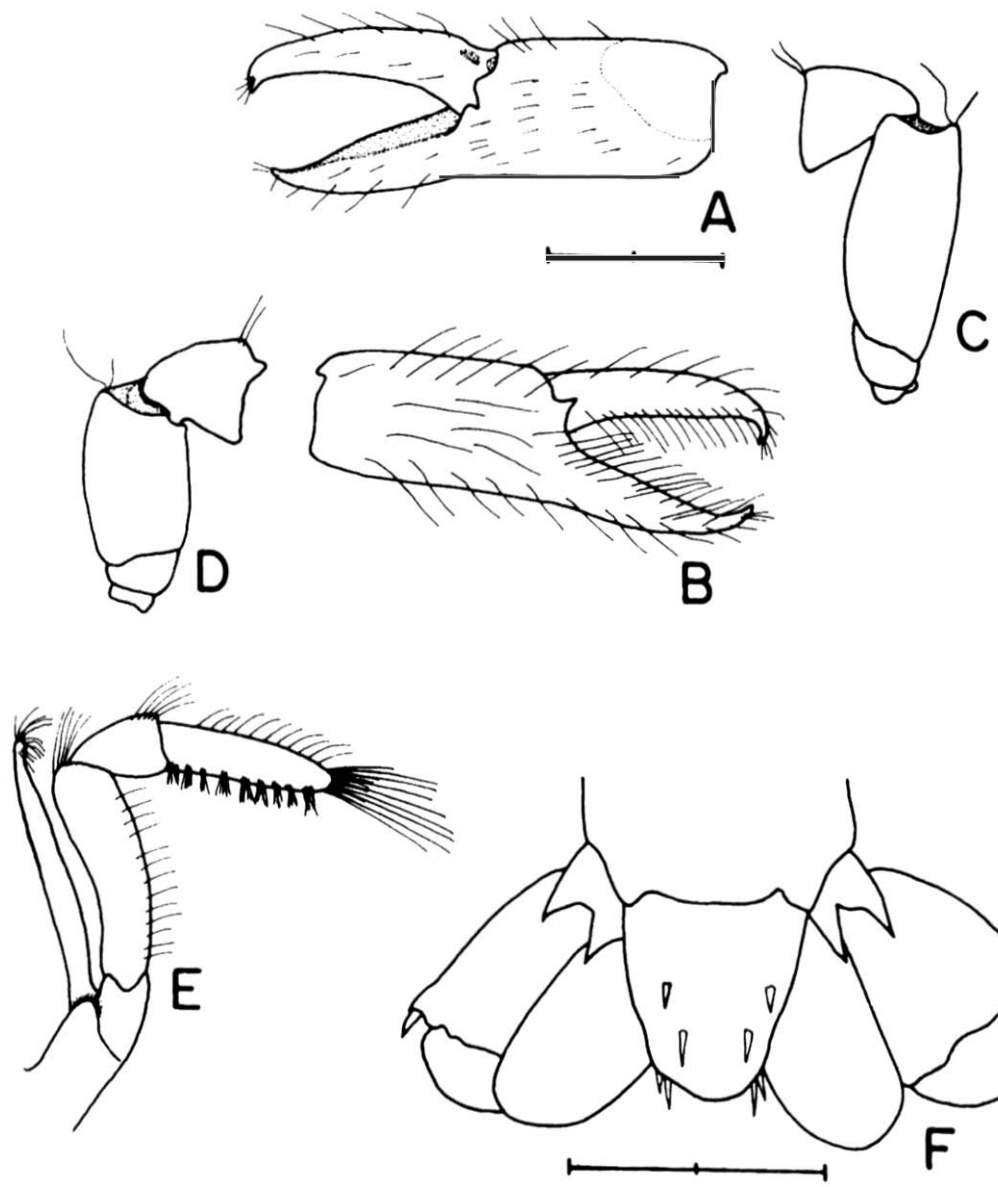

Fig. 2. *Alpheus agrogon* new species: A, minor chela, outer face; B, same, inner face; C, carpus, merus and ischium of minor cheliped, outer face; D, same, inner face; E, third maxilliped; F, telson and uropods, dorsal view. (Scales = 2 mm).

Fourth pereopod similar to third pereopod. Ischium without spine.

Fifth pereopod much narrower than third or fourth pereopods; propodus with 4-5 small spines and transversal tuft of short setae on inferior distal margin. Ischium without spine.

Abdominal pleura of first through fourth anterior somites broadly rounded (Fig. 3); pleuron of fifth somite elongate on posterior ventral margin, with fringe of short setae; sixth abdominal somite produced into narrowly rounded triangular lobe dorsal to insertion of uropod, and ventral margin acute posteroventrally. Telson (Fig. 2F) about 1.8 times as long as broad at distal end, armed with two pairs of stout dorsal spines; without a median

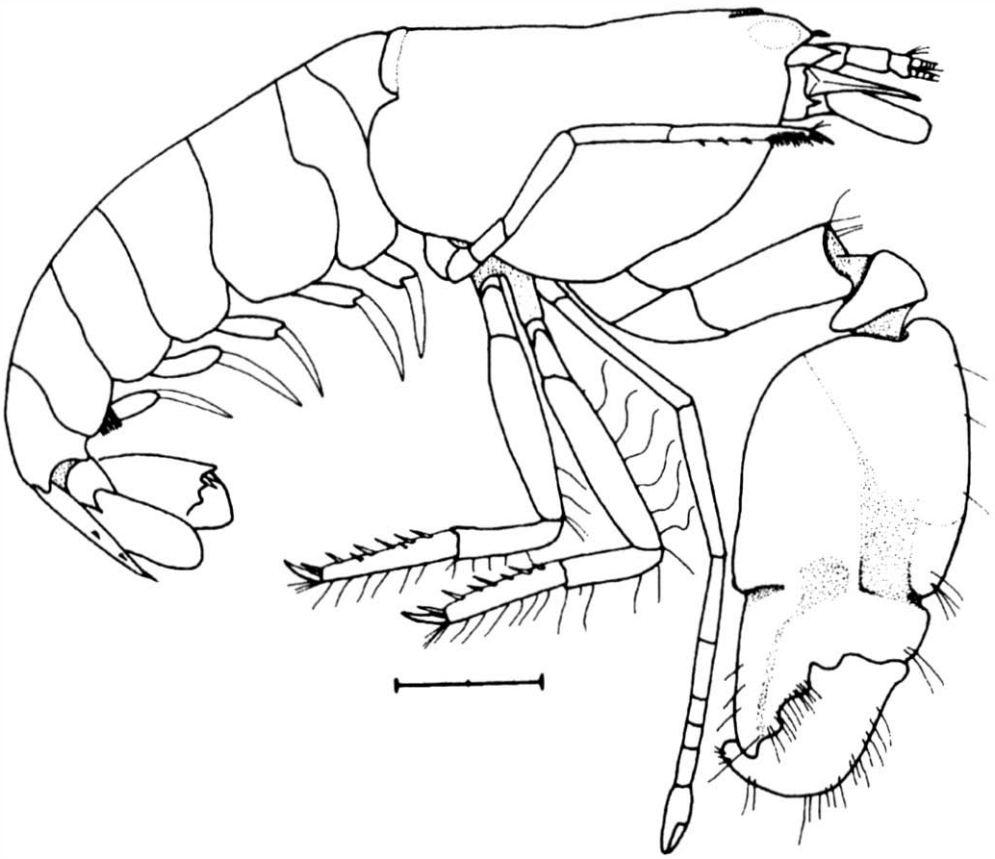

Fig. 3. *Alpheus agrogon* new species: Body in lateral view. (Scale = 2 mm).

longitudinal depression on dorsal surface. Posterior margin convex, armed with a pair of spines at each lateral end; inner spine larger than outer one.

Left uropodal exopod with a stout movable spine flanked laterally by an acute inmovable tooth and internally by a rounded triangular lobe. Right uropodal exopod singular with two stout movable spines; transverse suture forming three irregular convex lobes (Fig. 2F).

Habitat: Intertidal, in rocky pool with coralline sand.

Distribution: Known only from the type locality: Gorgona Island, Colombia.

Remarks: Of the 43 valid species of the genus *Alpheus* cited from the eastern Pacific by Kim & Abele (1988), only two most closely resemble *A. agrogon* n. sp.: *A. hyeyoungae* Kim & Abele 1988, and *A. scopulus* Kim & Abele 1988. These can be differenciated from the new species by the following characters: In both species the rostral carina is not interrupted between the eyes; in *A. hyeyoungae*, the inner inferior margin of merus of first pair of pereopods is armed with an acute tooth at distal end; in *A. scopulus*, the inner inferior margin of merus of major first pereopod present several movables spines, and there is a strong tooth at distal end, while the minor cheliped only has an acute tooth at distal end of merus; in both species the ischium of third and fourth pereopod is armed with a movable

spine; in *A. agrogon* n. sp., the inner inferior margin of the merus of first pair of pereopods is rounded, without teeth or spines, and the ischium of third and fourth pereopods is smooth, without movable spine.

About 220-250 described species of the genus *Alpheus* (Chace 1988, Kim & Abele 1988) are known worldwide, and the interrupted rostral carina of *A. agrogon* n. sp., seems to be unique among these species.

Etymology: The name of the new species corresponds to an anagram from Gorgona, the island where the holotype was collected.

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RESUMEN

Se describe una nueva especie de camarón alfeido, *Alpheus agrogon* n. sp., de Isla Gorgona, costa del Pacífico de Colombia, recolectada en un charco intermareal. La nueva especie está estrechamente relacionada con *A. hyeyoungae* Kim & Abele y *A. scopulus* Kim & Abele, pero se puede diferenciar de ellas por la ausencia de carina rostral entre la base del rostro y el margen posterior de los ojos, la carencia de dientes o espinas a lo largo del margen inferior interno del mero del primer par de pereópodos y por no tener espina movible sobre el isquio del tercero y cuarto pereópodo.

REFERENCES

Abele, L. G. 1975. The Macruran decapod Crustacea of Malpelo Island. Smithson. Contr. Zool. 176: 69-85.

Chace, F. A. Jr. 1988. The caridean shrimps (Crustacea: Decapoda) of the *Albatross* Philippine expedition, 1907–1910, part 5: Family Alpheidae. Smithson. Contr. Zool. 466: 1-99.

Christoffersen, M. L. & G. E. Ramos. "1987" [1988a]. A new snapping shrimp (Caridea, Alpheidae) from the Pacific coast of Colombia. Rev. Biol. Trop. 35: 333-338.

Christoffersen, M. L. & G. E. Ramos. 1988b. A new species of *Alpheus* (Crustacea, Caridea) from the Pacific coast of Colombia. Rev. Nordest. Biol. 6: 61-65.

Kim, W. & L. G. Abele. 1988. The snapping shrimp genus *Alpheus* from the eastern Pacific (Decapoda: Caridea: Alpheidae). Smithson. Contrib. Zool. 454: 1-119.

Lemaitre, R. & Alvarez, R. L. 1992. Crustáceos decápodos del Pacífico colombiano: lista de especies y consideraciones zoogeográficas. An Inst. Invest. Mar. Punta Betín 21: 33-76.

Prahl, H. von. 1986. Crustáceos decápodos asociados a diferentes habitats en la Ensenada de Utría, Chocó, Colombia. Universidad de Antioquia, Actual. Biol. 15: 95-99.

Prahl, H. von, C. Caicedo, & R. Ríos. 1984. Camarones palaemónidos (Crustacea: Palaemonidae) de agua dulce y salobre del Departamento del Valle del Cauca. Cespedesia 13: 45-58.

Ramos, G. E. & H. von Prahl. 1989. *Alpheus utriensis*, new species (Caridea: Alpheidae) from Utria Sound, Pacific coast of Colombia. J. Crust. Biol. 9: 477-481.

Wicksten, M. K. 1988. A new species of snapping shrimp from the Pacific coast of Colombia (Decapoda, Caridea, Alpheidae). Crustaceana 54: 1-4.

Wicksten, M. K. 1989. *Synalpheus arostris* and *Philocheras lapillus*, two new species of caridean shrimp from the tropical eastern Pacific. Proc. Biol. Soc. Wash. 102: 78-83.

Wicksten, M. K. & M. E. Hendrickx. 1992. Checklist of penaeoid and caridean shrimps (Decapoda: Penaeoidea, Caridea) from the eastern Tropical Pacific. Proc. San Diego Soc. Nat. Hist. 9: 1-11.