

STUDIES ON WEST INDIAN STENOPODIDAE:
1. *ODONTOZONA STRIATA* NEW SPECIES FROM OFF
THE WESTERN COAST OF CUBA
(CRUSTACEA: DECAPODA: STENOPODIDEA)

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A B S T R A C T

Odontozona striata, a new species of stenopodid shrimp from the western coast of Cuba is described and figured. This is the first species of the genus *Odontozona* recorded from the Western Atlantic. *Odontozona striata* is closely related to *O. sculpticaudata* from the Indo-Pacific but is easily distinguished by differences of the rostrum and spinulation of the body. A key is given for the known species of *Odontozona* along with a table of some morphological characters.

Among unidentified Decapoda Crustacea in the collection of the U.S. National Museum, Washington, D.C., several specimens of previously undescribed stenopodids were found. These specimens will be reported upon in a series of notes.

Of the four known species of *Odontozona*, three are from the Indo-Pacific region and one is from the northwest coast of Africa. A single example of another species was collected by the steamer ALBATROSS in deep waters off the west coast of Cuba. In addition to its geographical location, numerous morphological characters also distinguish this specimen from the other species in the genus and it is here described as new.

Odontozona striata new species

Material examined.—1♀, ovigerous, Gulf of Mexico, West of Cabo San Antonio, Cuba. U.S. Fish Commission Steamer ALBATROSS, 1884, USNM 34924.

Description.—Holotype (female USNM 34924) (Fig. 1). A small stenopodidean shrimp with a slender, compressed body.

The rostrum (Fig. 2A) is slender, elongate, extending beyond the antennular peduncle with the tip slightly curved upward. The dorsal margin bears six strong spines with the distance between the last spine and the apex of the rostrum longer than the spaces between the other dorsal spines. The ventral margin bears six strong spines near the apex and numerous setae near the base. The lateral margins are without spines.

The carapace (Figs. 1, 2B) has a distinct cervical groove and a slightly less distinct postcervical groove. The posterior margin of the cervical groove has a cincture bearing 22 large spinules, while the postcervical groove has a cincture of 10 much smaller spinules. Between these two cinctures, there are scattered small spinules, and two small spinules are found directly behind the postcervical groove cincture. Lateral to the base of the rostrum there is a small spinule and submedian rows of three smaller spinules, while directly behind the orbit there are two large spinules. Slightly above the ventrolateral margins, there are three indistinct longitudinal grooves with two rows of 7-8 small spinules between them (Fig. 1). The antennal, branchiostegal and pterygostomial spines are well developed. The ventrolateral angles of the carapace bear three spinules anteriorly and are fringed with setae posteriorly. The posterior margin of the carapace has a cincture bearing 25 minute spinules.

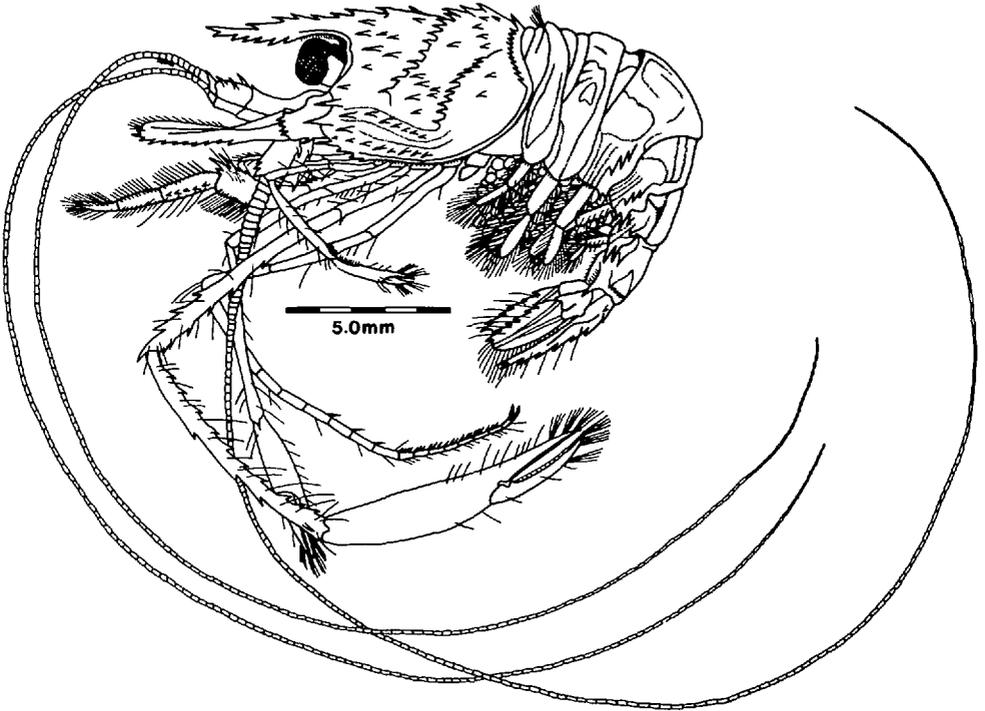


Figure 1. *Odontozona striata* new species, holotype, female.

The first abdominal somite (Fig. 1) has a transverse carina in the posterior half that is angled forward near the bases of the pleura, and bears a dorsal row of setae. The posterior half of the first somite also bears two transverse grooves that meet near the base of the pleuron. The ventral margin of the pleuron is rounded, fringed with short setae, and slightly overlaps the pleuron of the second abdominal somite. The second abdominal somite has an anterior transverse carina which ends near the base of the pleuron. The posterior half of this somite bears a small dorsomedian groove, two small lateral grooves, a semi-ovoidal medial depression, and two transverse grooves. The first of these begins in the medial part of the somite and extends transversely to the base of the pleuron, whereas the other is a shorter groove. The ventral margin of the pleuron is broadly rounded and fringed with short setae. The third abdominal somite has a short transverse carina anteriorly and is broadly triangularly produced in the median part of the posterior margin. The pleuron has the dorsal surface broadly rounded and the posterolateral margin bears two small teeth. There are a few short longitudinal and transverse grooves dorsomedially. Laterally, there are four transverse grooves with the most posterior one being the deepest and bearing three strong teeth. The fourth and fifth somites are without carinae, with the pleura posteriorly directed and having blunt incisions near their bases. The tergite of the fourth somite has two submedian grooves dorsally, while the pleura have a lateral groove extending just above the pleuron base that curves posteriorly into a deep transverse groove bearing three strong teeth, and three more transverse grooves laterally. The posterolateral margin ends in a small tooth and a large tooth. The fifth somite has a longitudinal and an oblique groove that merge in the middle; the pleuron shows two transverse grooves behind which there are two large spinules, the postero-

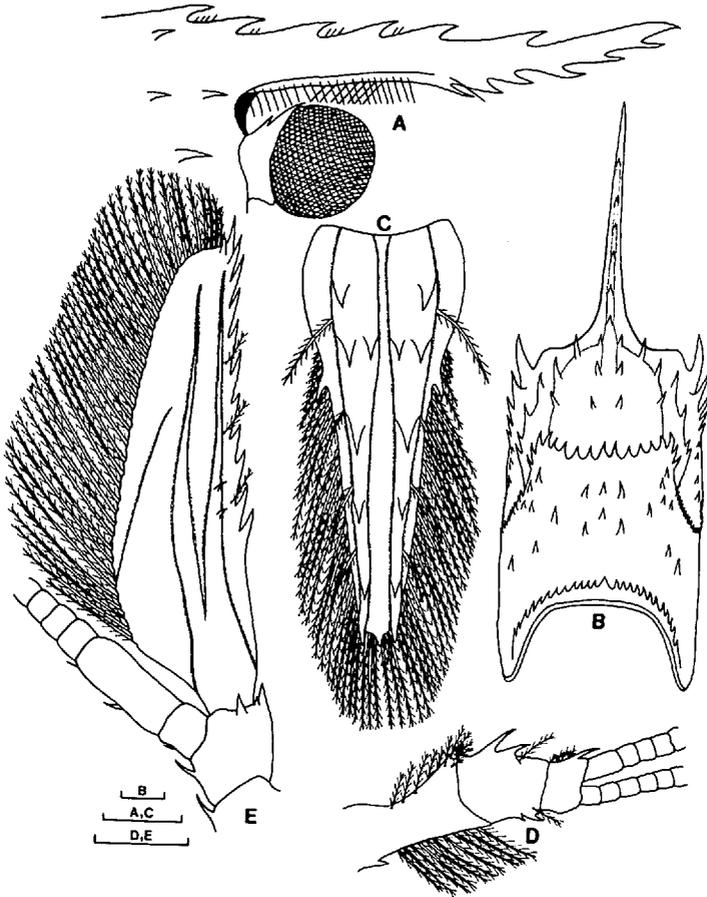


Figure 2. *Odontozona striata* new species, holotype, female: A, lateral view of eyes and rostrum; B, dorsal view of carapace; C, telson; D, antennule, medial view; E, antenna, dorsal view. Scale bars represent 1.0 mm.

lateral margin ends in two large teeth. The sixth somite has a short transverse carina anteriorly and the pleuron ends in a sharp posterolateral tooth. There is a large tooth anteriorly and near the posterior margin there is a lateral row of 10 spinules.

The telson (Fig. 2C) is elongate and lance-shaped, with a median groove flanked by two longitudinal carinae. These carinae are provided with six strong, posteriorly directed spines with four long plumose setae between them. There is a pair of smaller inner spines on the carinae, level with the second pair of spines from the base; there are no spinules elsewhere on the telson surface. The anterior part of the lateral margin has a carina, which in the posterior half becomes indistinct (see Fig. 1); this carina bears a strong spine near the base. The telson lateral margin bears a spine approximately one-third down its length and is provided with 56 long plumose setae along the posterior two-thirds. The posterior margin is rounded with a strong median spinule and with the last two spines of the longitudinal carinae overlapping.

The eyes (Fig. 2A) have the cornea about as long as the peduncle, with the cornea having distinct facets and pigment. The ophthalmic peduncle dorsally

bears some spinules, those placed on the separation line between cornea and peduncle being strongest.

The antennular peduncle (Fig. 2D) is short, extending to the middle of the scaphocerite. The basal segment is slightly longer than the second segment and the third is much shorter than both. On the inner border of the basal segment there are 10 long plumose setae located distal to a minute stylocerite. The scale at the anterolateral angle is without spines, but has a row of five short plumose setae, and five more setae are found proximal to these. The second segment has two small spines and a short seta on its mesial margin and two large spines and a seta located mesially on its lateral margin. The distal segment dorsally bears a spine and a few short setae. The upper flagellum is slightly stronger at the base than the lower flagellum and has some ventral setae at the eighth to tenth segments.

The antenna (Fig. 2E) has a strong distal segment on its peduncle bearing four spines, while the middle segment has a single spine. The scaphocerite is well developed and reaches by more than half its length beyond the tip of the rostrum. The outer margin is convex proximally, slightly concave distally, with 10 teeth along its length, excluding the apical tooth and a small subapical tooth. The inner margin is convex and fringed with 42 long plumose setae. The dorsal surface bears two longitudinal ridges that merge near the base; the outer ridge has two minute spinules near midlength. The antennal flagellum is well developed, extending far beyond the tip of the telson.

The mandible (Fig. 3A) is robust, with short fused molar and incisor processes. The molar surface has a few irregular teeth and the incisor bears six stout teeth. The palp is strong and three-segmented. The proximal segment is without setae and the middle segment bears four lateral setae and groups of smaller setae distally and medially. The distal segment is broad and is densely covered with setae laterally, medially and distally.

The maxillule (Fig. 3B) has a slender undivided endopodite bearing 13 plumose setae laterally and distally. The proximal endite is moderately broad, truncate distally with about 12 plumose setae medially. The distal endite is similarly broad, rounded distally with short plumose setae along the lateral border and longer setae along the distal margin.

The maxilla (Fig. 3C) has the following setation on the four inner lobes: 31 on the proximal lobe of the coxal endite; 10 on the distal lobe; 12 on the proximal lobe of the basal endite; and 19 on the distal lobe. The endopodite is long and slender, with 14 lateral and 9 distal, plumose setae. The scaphognathite is long and narrow with 102 plumose setae along its margin.

The first maxilliped (Fig. 3D) bears a three-segmented endopodite. The proximal segment is long, bearing eight long plumose setae laterally and eight shorter simple setae mesially. The middle segment has 11 long plumose setae laterally, while the distal segment is slender, tapering and without setae. The basipodite is large, rounded anteriorly with a straight medial border bearing a dense fringe of long setae. The coxopodite is bilobed with each lobe bearing numerous short setae. The exopodite is well developed, bearing 25 long plumose setae laterally and distally. There is a large epipod present with slender anterior and posterior lobes.

The second maxilliped (Fig. 3E) has a seven-jointed endopodite with the first three segments fused. The coxa is indistinct, laterally bearing a small epipod and also bearing a well developed unsegmented exopodite with 31 plumose setae distally. The basis and ischium are slightly separated, densely covered mesially with setae and a few sharp spines. The merus is flattened with a slightly convex outer border bearing three short setae, while the inner border is concave proxi-

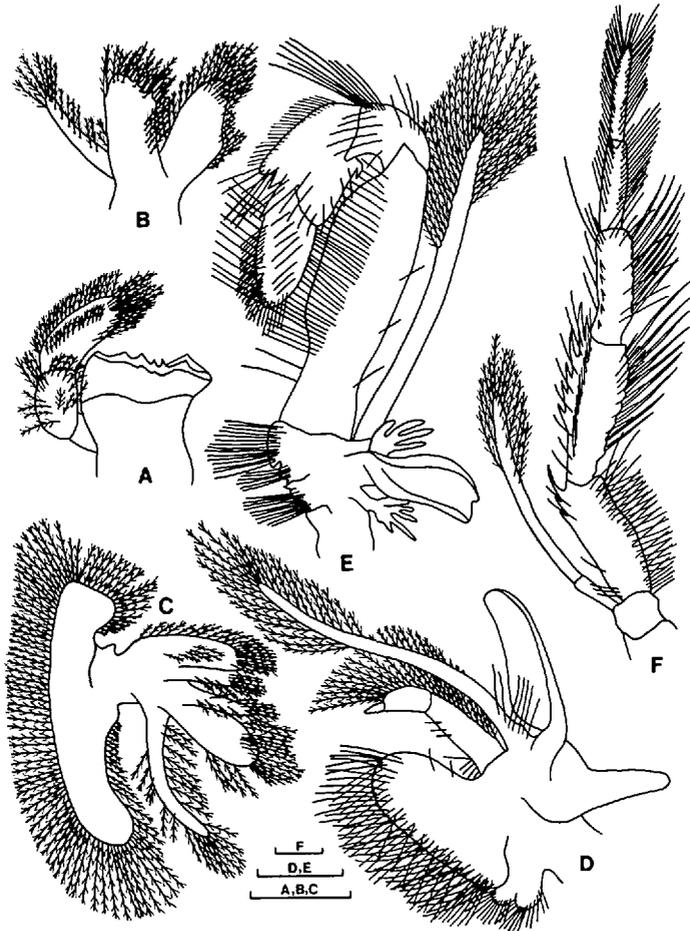


Figure 3. *Odontozona striata* new species, holotype, female: A, lateral view, right mandible; B, maxillule; C, maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped. Scale bars represent 1.0 mm.

mally, becoming straight distally, with many long simple setae. The carpus is short with a few short setae laterally and distally and numerous longer simple setae at the disto-dorsal angle. The propodus is densely setose on its dorsal margin, while its ventral margin has four short setae and a stout, hooklike tooth proximally. There are two large spines near the disto-dorsal angle, with a few short distal setae. The dactylus is suboval with a dense fringe of short setae along its upper distal margin and eight setae mesially.

The third maxilliped (Fig. 3F) is strongly developed and composed of seven segments. The coxa laterally bears a small epipod (not shown in Fig. 3F) and the basis laterally bears a well developed, two-segmented exopodite with 17 plumose setae on its distal half. The outer margin of the ischium has four short setae proximally, two short setae and three large spines distally, while the inner margin is covered by a dense fringe of long setae. The merus bears six large spines and eight setae on its outer margin, while its inner margin has eight long setae covered by a dense row of shorter setae. There is also a dense dorsal row of setae on the merus. The carpus has a dorsolateral row of five large spinules, six long setae on

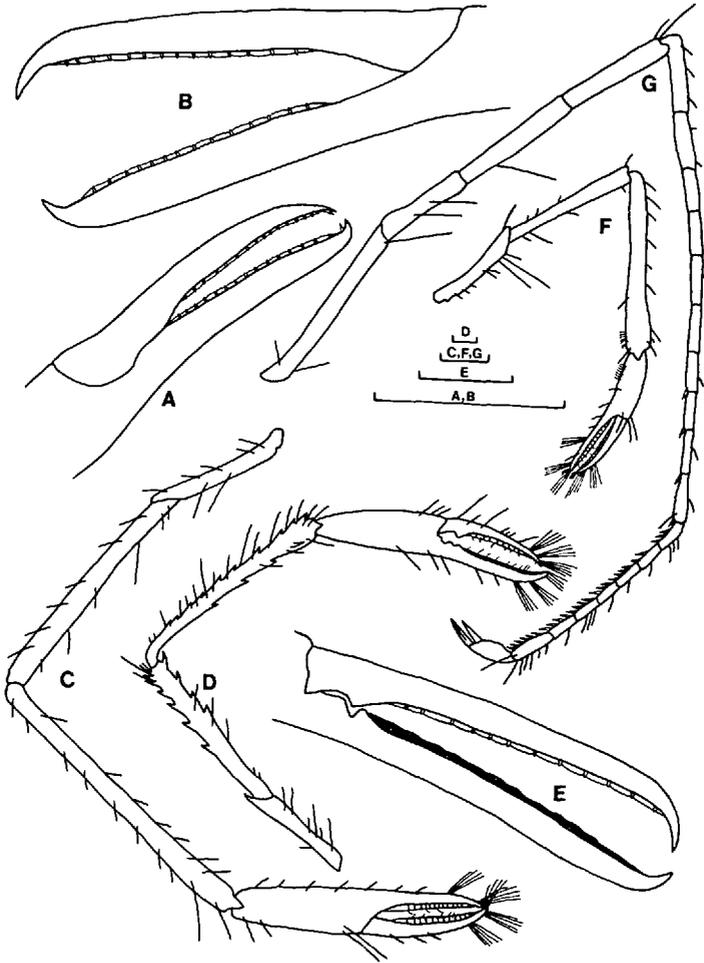


Figure 4. *Odontozona striata* new species, holotype, female: A, chela of first pereiopod; B, chela of second pereiopod; C, second pereiopod; D, third pereiopod; E, chela of third pereiopod; F, first pereiopod; G, fourth pereiopod. Scale bars represent 1.0 mm.

its outer margin and 13 long setae on its inner margin. The propodus and dactylus are without spines or spinules but bear dense rows of long setae on their margins.

The first pereiopod (Fig. 4A,F) is small and slender; when stretched, it reaches slightly past the scaphocerite; its segments are unarmed. The dactylus is about half as long as the propodus. The fingers are slightly compressed and have slightly hooked tips. The cutting edges are provided with 15 small, stout, peg-like teeth separated by rectangular chitinous lamellae; near the tips each has a small, spike-like tooth. The fingers and disto-ventral extremity of the palm bear small tufts of long setae. Both the carpus and propodus are provided with a setiferous organ at the ventral surface, the carpus in the distal part and the propodus in the proximal part. The merus and carpus are of about the same length; the ischium is shorter, but all bear a few simple short and long setae. The basis and coxa are short, with some setae; the coxa has a small epipod.

The second pereiopod (Figs. 4B,C) is similar to the first, but longer and stronger. There are neither spinules on the segments nor setiferous organs present. The

tips of the fingers are strongly hooked and bear small tufts of long setae. The cutting edges are composed of 14 small, stout, peg-like teeth separated by rectangular chitinous lamellae. The carpus is the longest segment and the merus is slightly longer than the ischium. All have numerous long and short simple setae. The basis and coxa are short, bearing a few setae, and the coxa has a small epipod.

The third pereopod (Figs. 4D,E) is the largest and strongest, longer than the entire body. The dactylus has a large, sharp triangular tooth, proximally, which fits between two dorsal proximal teeth of the propodus. The fingers are elongate with sharp hooked crossing tips, having small tufts of long setae. The dactylus cutting edge also bears 12 small, stout, peg-like teeth separated by rectangular chitinous lamellae that opposes a thick chitinous ridge on the propodus. The propodus, carpus, and merus are about of equal length but the ischium is shorter. The carpus narrows proximally, and its dorsal margin has a row of 10 spines and numerous setae; the ventral margin has three spines and there is a small lateral spine distally. The merus has 6 spines dorsally and 4 ventrally. The ischium is glabrous except for a spine at the disto-dorsal angle. The basis and coxa are short and fragile, unarmed except for a few short setae and a small epipod laterally on the coxa.

The fourth pair of pereopods (Fig. 4G) is long and slender. The dactylus is biunguiculate with the unguis long, slender and straight, while the accessory spine is slightly shorter but stouter. The propodus is subdivided into seven segments and bears 26 movable spines on its ventral margin and 16 short setae on its dorsal margin. The carpus is slender, straight, subdivided into 10 smaller segments, with the four distal ones each bearing a spine on its disto-ventral angle. The merus is slender and elongate, subdivided into three segments with a few long setae on its margins. The ischium, basis and coxa are short and glabrous with a few short setae and a small epipod on the coxa. The fifth pair of pereopods is missing from this specimen.

The first pleopod (Fig. 5A) is uniramous and the second to fifth (Fig. 5B–E) are biramous, all lacking any appendices. The first pleopod is the smallest, with the exopodite equal in length to the basipodite. The dorsal margin of the basipodite is covered with numerous short plumose setae and the ventral margin has many longer plumose setae. The exopodite has 30 long plumose marginal setae. The second and third pleopods are the largest, both having unequal rami. The ventral margin of the basipodite bears a deep furrow on these pleopods; these furrows and the pleopods themselves are bordered by rows of long plumose setae. The dorsal margin and the margins of both rami have numerous long plumose setae. The fourth and fifth pleopods have equal rami with long plumose marginal setae. The ventral margin of the basipodite of the fourth pleopod has six spines and a row of long plumose setae, and there is a medial spine at the end of the basipodite. The ventral margin of the basipodite of the fifth pleopod has three spines and a few plumose setae.

The uropods (Fig. 5F) are well developed, about as long as the telson. The basal segment is strong with three small teeth at the disto-dorsal angle. The outer margin of the exopodite bears five acute teeth, six long plumose setae and two smaller plumose setae before ending in a large acute tooth. The dorsal surface bears two longitudinal carinae, without spinules. The basal half of the outer margin of the endopodite bears two teeth and a long plumose seta. The dorsal surface has an inner ridge with four hairs but no spinules. The unarmed margins of the exopodite and endopodite are respectively provided with 26 and 40 long plumose setae.

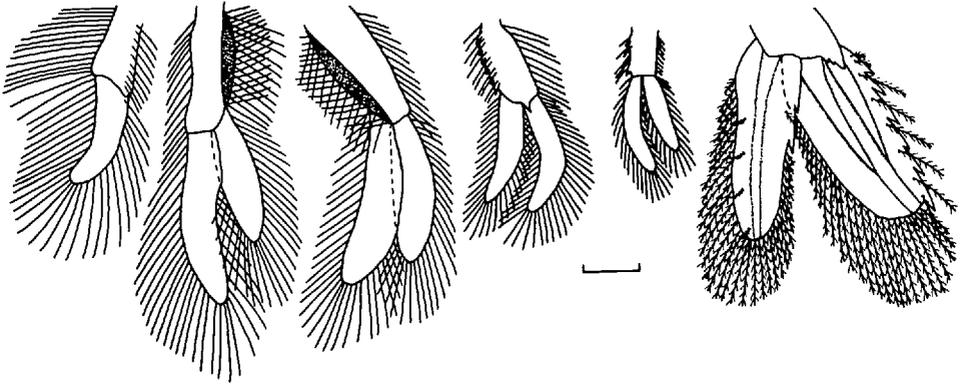


Figure 5. *Odontozona striata* new species, holotype, female: A, first pleopod; B, second pleopod; C, third pleopod; D, fourth pleopod; E, fifth pleopod; F, uropods. Scale bar represents 1.0 mm.

The eggs are rather numerous, about 0.4–0.5 mm long and 0.3 mm broad. The branchial formula is:

	Maxillipeds			Pereiopods				
	I	II	III	I	II	III	IV	V
Pleurobranchs	—	1	1	1	1	1	1	1
Arthrobranchs	—	1	2	2	2	2	2	—
Podobranchs	—	1	—	—	—	—	—	—
Epipods	1	1	1	1	1	1	1	—
Exopods	1	1	1	—	—	—	—	—

Measurements (in mm).—Postorbital carapace length, 5.2. Rostral carapace length, 9:3. Total length, approx. 26.4. Length of third pereiopod, approx. 28.5.

Coloration.—The color of the preserved specimen is a pale brownish yellow, the color in the living animal is unknown.

Type-locality.—Gulf of Mexico, West of Cabo San Antonio, Cuba.

Etymology.—The name “striata” is taken from the Latin for grooved, in reference to the sculpturing of the abdominal segments.

Remarks.—The new species, *Odontozona striata*, follows the definition of *Odontozona* Holthuis as given by him in 1946. It is closely related to the Indo-Pacific *O. sculpticaudata* Holthuis especially in the ornate abdomen, but can be separated by the following key modified from Holthuis (1946):

KEY TO THE KNOWN SPECIES OF ODONTOZONA

- 1a. Posterior half of carapace behind cervical groove cincture of spinules, with transverse rows or scattered spinules. Carapace not swollen 2
- 1b. Posterior half of carapace behind cervical groove cincture of spinules smooth. Carapace swollen..... *Odontozona spongicola* (Alcock and Anderson, 1899)
- 2a. Abdomen without grooves. Rostrum dorsally with 8–9, ventrally with 1–3 teeth. Carapace with some distinct rows of spinules behind cervical groove, not densely covered with many rows of spinules..... *Odontozona ensifera* (Dana, 1852)
- 2b. Abdomen ornate with transverse and longitudinal grooves. 3.
- 3a. Rostrum dorsally with 5, ventrally with 2 teeth. Carapace densely covered with spinules, arranged in transverse rows..... *Odontozona sculpticaudata* Holthuis, 1946

Table 1. Comparison of some morphological characters within the genus *Odontozona*

	<i>O. striata</i>	<i>O. ensifera</i>	<i>O. sculpticaudata</i>	<i>O. spongicola</i>	<i>O. edwardsi</i>
Spinules on cervical groove cincture	22	14	20	22	?
Spinules on postcervical groove cincture	10	70	80	0	?
Teeth on outer margin of scaphocerite	12	7-9	7	6	?
Spinules on upper surface of scaphocerite	2	0	6	0	?
Pleura of abdominal somites	grooved & toothed	toothed	grooved & toothed	smooth	?
Teeth on outer margin of uropodal exopodite	6	7-9	6	7	?
Eye cornea	pigmented	pigmented	pigmented	unpigmented	unpigmented
Segments on carpus of 4th & 5th pereopods	10	8-9	several indistinct	3	4
Segments on propodus of 4th & 5th pereopods	7	5-6	several indistinct	2	5
Movable spines on propodus of 4th & 5th pereopods	26	12-16	0	0	?
Vertical distribution	?	2-89 m	70 m	787-911 m	640-1,105 m

3b. Rostrum dorsally and ventrally with six teeth, and numerous ventral setae near base. Carapace sparingly covered with spinules, but with a cincture of spinules on the posterior margin..... *Odontozona striata* n. sp.

In addition to the features in the key, the new species differs from the other members of the genus in a number of other characters shown in Table 1. The fifth species of this genus, *O. edwardsi* (Bouvier, 1908), is not included in the key, because too little is known of its characteristics. The only characteristics given by Bouvier (1908a) and Milne Edwards and Bouvier (1909) are shown in Table 1. Bouvier (1908b) lists six specimens collected on the TALISMAN in 1883: 2 from Morocco; 2 from Cap Mojador; and 2 types from Les Pilonés, Sudan. *Odontozona spongicola* has been collected from the Andaman Sea (Alcock and Anderson, 1899) and from the Travancore Coast of India (Alcock, 1901). *Odontozona sculpticaudata* was originally described from a specimen taken from Sape Strait, east of Soembawa, Malay Archipelago (Holthuis, 1946) but McNeill (1968) mentions another specimen taken from the Low Isles, Northeast Australia. *Odontozona ensifera* has been taken from the Fiji Islands (Dana, 1852), North Celebes and the northern Moluccas (Holthuis, 1946), and I have examined a specimen from Saparua, Hairbay, Indonesia (USNM 315621). The new species is the first record of the genus for the Western Atlantic. Three specimens of yet another new Western Atlantic species of *Odontozona* were recently collected from the Florida Keys (Dr. Robert H. Gore, personal communication). This species differs from *O. striata* by having non-sculptured abdominal somites, a smaller rostrum, fewer spines on the carapace, and a differently armed and shaped telson, and will be described by Gore in a forthcoming publication.

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