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Sparisoma tuiupiranga, a new species of parrotfish (Perciformes: Labroidei: Scaridae) from Brazil, with comments on the evolution of the genus

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Abstract

Sparisoma tuiupiranga sp. n. is described from the holotype and six paratypes obtained from two coastal islands of southeastern Brazil (20° S). The species shares with *S. atomarium* (Poey) a number of characteristics, including the single mid-ventral scale posterior to the insertion of the pelvic fins. It differs in respect to numerous other characters, among them heavier body proportions (body depth 42.5–47.0 %SL vs. 33.2–36.5 in *S. atomarium*), longer snout (13.1–14.6 %SL vs. 9.4–10.6), smaller orbit diameter (6.0–7.9 %SL vs. 8.0–10.2), higher gill raker number (17–18 vs. 12–16), darker terminal phase color (both in life and alcohol-preserved), and larger size (to 154.4mm SL vs. about 81). The known distribution extends from about 18° S to 27° S in the western Atlantic. This predominantly scraping species inhabits rocky reefs and associated macroalgae beds. The clade *S. atomarium–S. tuiupiranga* appears to be basal in the phylogeny of *Sparisoma*. The idea that one can partition scarinines and sparisomatines by historical association with different habitats (coral reefs *vs.* seagrass) seems too simplistic.

Key words: *Sparisoma tuiupiranga*, Scaridae, reef fish, Brazil, endemism

Introduction

Randall (1965) based his redescription of *Sparisoma atomarium* (Poey, 1861) on 68 individuals from the greater Caribbean Province (Bermuda, Florida Keys, Bahamas, Jamaica, Puerto Rico, Virgin Islands, Martinique, and off eastern Honduras). All individuals were

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small, with the largest individual 81.4mm SL. Besides the redescription pictures in Randall (1965), published photographic records are available for Bahamas, Cayman, Anguilla, Santa Lucia and Venezuela (Cervigón, 1994; Randall, 1996; Humann & Deloach, 2002). This diminutive scarid species was considered to have a widespread but strongly disjunct distribution in the Western Atlantic (Joyeux et al., 2001; Moura et al., 2001), being absent from the tropical northeastern Brazilian coast. However, the differences between the northern and southern components of the species, obvious in size, and recently supported by genetic data (Giacomo Bernardi, pers. comm.), prompted a close examination of Brazilian specimens and a detailed comparison with northern counterparts.

Materials and methods

Morphometric and meristic methods follow Randall (1965) and Choat & Randall (1986). Color names follow Kornerup & Wanscher (1961). Measurements were done to the nearest 0.1 mm. Preserved color is that after fixation in formalin and storage in ethanol. Vertebrae and procurrent rays numbers were obtained from radiography of the holotype and all paratypes. Institutional abbreviations follow Leviton et al. (1985), except UFPB (Departamento de Sistemática e Ecologia, Universidade Federal da Paraíba), UFES (Departamento de Biologia, Universidade Federal do Espírito Santo), and MBML (Coleção Zoológica, Museu de Biologia Professor Mello Leitão). Diagnosis and description are based on material examined and Randall´s (1965) redescription of *S. atomarium* (Poey, 1861).

Sparisoma tuiupiranga sp. n. is described from the holotype and six paratypes deposited under collection numbers UFES 1821 (1 ex.: holotype: 144.1mm SL; terminal phase male), Brazil, Espírito Santo, Guarapari, Rasa de Fora Island (20°41´ S; 40°22´ W; depth 10 m), collectors J.L. Gasparini & D.A. Jório, 24 January 1998; MBML 936 (1 ex.: 137.0mm SL; terminal phase male), same data as UFES 1821; UFPB 5657 (1 ex.: 154.4mm SL; initial phase adult), Brazil, Espírito Santo, Guarapari, Escalvada Island (20°40´ S; 44°24´ W; depth 16 m), collectors J.L. Gasparini & F. Campagnolli, 12 January 2003; MNRJ 25869 (1 ex.: 137.2mm SL; initial phase adult), same data as UFPB 5657; ZUEC 6217 (1 ex.: 136.1mm SL; terminal phase male), same data as UFES 1821; UFES 1822 (1 ex.: 130.5mm SL; initial phase adult), same data as UFES 1821; MBML 937 (1 ex.: 112.2mm SL; initial phase adult), Brazil, Espírito Santo, Guarapari, Escalvada Island (20°40´ S; 44°24´ W), colletors J.L. Gasparini & D.A. Jório, 08 September 2003.

Sparisoma tuiupiranga new species

(Figures 1–5; Tables 1–2).

Synonyms. *Sparisoma atomarium* Ferreira et al. (1998): 223 (listed); Carvalho-Filho (1999): 189 (listed); Ferreira et al. (2001): 359 (listed); Joyeux et al. (2001): 832 (listed); Moura et al.

(2001): 519 (material examined: MZUSP 46046, 46407, 46432, 46441–46443); *Sparisoma* aff. *atomarium* Gasparini & Floeter (2001): 1646 (listed).

Holotype. Rasa de Fora Island (20°41´ S; 40°22´ W), Guarapari, Espírito Santo, Brazil.

Paratypes. Rasa de Fora Island (20°41´ S; 40°22´ W) and Escalvada Island (20°40´ S; 44°24´ W), Guarapari, Espírito Santo, Brazil.

X-rays. Holotype and all paratypes, on two plates.

Additional non-type specimens. (7 lots; 12 specimens: 26.6-137.9mm SL) : MZUSP 46046 (1 ex.: 73.7mm SL), Brazil, São Paulo, Alcatrazes Archipelago (24°06' S, 45°42' W), collector R.L. Moura, 25-27 February 1994; MZUSP 46407 (1 ex.: 137.9mm SL), same data as MZUSP 46046; MZUSP 46432 (1 ex.: 115.1mm SL), same locality and collector as MZUSP 46046, 27 April 1993; MZUSP 46441 (1 ex.: 63.1mm SL), Brazil, São Paulo, Laje de Santos Marine State Park (24°19' S, 46°11' W), collector R.L. Moura, 10 February 1992; MZUSP 46443 (1 ex.: 77.4mm SL), same data as MZUSP 46441; MZUSP 47496 (4 exs.: 62.6–80.9mm SL), Brazil, Rio de Janeiro, Arraial do Cabo (23°00'S, 41°50'W), collector C.E.L. Ferreira, 23 March 1993. UFES 1823 (3 exs.: 26.6–45.6mm SL) Brazil, Rio de Janeiro, Arraial do Cabo, Cabo Frio Island (23°00'S, 41°18'W), collector C.E.L. Ferreira, January 2003.

Comparative material: *Sparisoma atomarium* (Poey, 1861) (8 lots, 61 specimens): UF 13850 (4 exs.: 18.8-38.2mm SL), Bahama Islands, Long Island, collectors C.R. Carter & P.C. Heemstra, 26 August 1966; UF 217197 (29 exs.: 20.1–77.0mm SL), Caribbean Sea, Nicaragua (15º46´ N, 81º37´ W), Collector R/V Oregon personnel, 08 June 1964; UF 218836 (1 ex.: 22.5mm SL), USA, Florida, Florida Keys (24º50´36´´ N, 80º36´42´´ W), collectors W.A. Starck, J.D. Starck, A.R. Emery & E. Maynard, 24 July 1965; UF 219088 (7 exs.: 24.9-53.7mm SL), USA, Florida, Florida Keys (24º49´39´´ N, 80º38´48´´ W), collectors W.A. Starck & J.D. Starck, 04 June 1965; UF 222607 (1 ex.: 41.9mm SL), USA, Florida, Florida Keys (24º59´ N, 80º23´ W); collector R/V Gerda, 04 June 1965; UF 227038 (17 exs.; 19.9-70.9mm SL), Mexico, Quintana Roo (21º10´ N; 86º18´ W), collector R/V Pillsbury, 23 May 1967; UF 228404 (1 ex.: 32.8mm SL), USA, Florida, Florida Keys (25º28´33´´ N; 80º06´03´´ W), collectors P.L. Colin & R. Levingston, 18 December 1969; UF 231176 (1 ex.: 77.0mm SL), Caribbean Sea, Jamaica, collector P.L. Colin, 13 July 1972.

Diagnosis. A species of *Sparisoma* with a single midventral scale posterior to the origin of pelvic fins; robust body, the depth 2.12-2.34 in standard length; snout length 2.47-2.65 in head length; orbit diameter 4.47-6.03 in head length; maximum known length 154.4 mm SL; 17-18 gill rakers. Midventral scale count, body proportions, gill raker number and color pattern discriminate the new species from all western Atlantic congeners.

The presence of only one midventral scale posterior to the origin of the pelvic fins separates *Sparisoma tuiupiranga* sp. n. from *S. amplum* (Ranzani, 1842), *S. frondosum* (Agassiz, 1831), *S. axillare* (Steindachner, 1878) and *S. radians* (Valenciennes, 1840). Scale and fin counts do not differentiate *S. tuiupiranga* sp. n. from *S. atomarium* (Poey, 1861). *Spar-*

isoma tuiupiranga sp. n. is distinguished from *S. atomarium* by its larger size (to 154.4 mm SL vs. 81.4 mm SL for *S. atomarium*; Randall, 1965 & 1996), general robustness, body proportions and gill rakers count (Table 1).

TABLE 1. Ranges for non-overlapping body proportions and gill rakers count differentiating *Sparisoma tuiupiranga* sp. n. from *S. atomarium* (Poey, 1861). All proportions for *S. atomarium* are from Randall, 1965, text and Table 2, p. 9). See headings of Table 2 (present study) for details on measurements. %o : thousandths of standard length; * : computed from Randall (1965; Table 2, p. 9).

	S. tuiupiranga	***S. atomarium***
Proportions (%oSL)		
Body Depth	425 – 470	332 – 365
Body Width	182 – 196	143 – 157
Snout Length	131 – 146	94 – 106
Orbit Diameter	60 – 79	80 – 102
Post Orbital Length of Head	177 – 190	154 – 165
Eye to Corner of Mouth	85 – 102	65 – 78
Depth of Caudal Peduncle	125 – 140	116 – 124
Length of Caudal peduncle	159 – 175	116 – 139
Length of Dorsal Fin Base	607 – 650	573 – 585
Proportions (in standard length)		
Body Depth	2.12 – 2.34	2.7 – 3.0
Body Width	5.07 – 5.60	6.3 – 7.0
Depth of Caudal Peduncle	7.10 – 7.96	8.0 – 8.6 *
Length of Caudal Peduncle	5.68 – 6.27	7.1 – 8-6 *
Length of Dorsal Fin Base	1.53 – 1.64	1.7 – 1.7 *
Proportions (in head length)		
Snout Length	2.47 – 2.65	3.2 – 3.6
Orbit Diameter	4.47 – 6.03	3.4 – 4.1
Post Orbital Length of Head	1.90 – 2.00	2.0 – 2.2 *
Eye to corner of mouth	3.40 – 4.07	4.3 – 5.3 *
Counts		
Gill Rakers on First Arch	17 – 18	12 – 16

Description (based on holotype and 6 paratypes; 3 terminal phase males and 4 initial phase adults). Morphometric data are summarized in Table 2. The description closely follows Randall (1965) for easier comparison with *S. atomarium*.

TABLE 2. Standard length and proportional measurements (in percent of SL) for *Sparisoma tuiupiranga* sp. n. Mean is mean of all individuals, including holotype (n = 7); S.D. = standard deviation. 1—to end of hypural plate; 2—to fleshy end of opercle; 3—from anterior part of orbit; 4—bony ridge; 5—from end of anal fin to base of lowest anal fin ray; 6—from end of anal fin to end of hypural plate; 7—from fifth ray of pelvic fin to base of anal; 8—from spine to mouth (mandibule); 9—smaller part; 10—from base to top.

	Holotype UFES 1821	**Mean**	**S.D.**	**Range**
Standard Length (mm) [1]	144.1	135.9	12.9	112.2–154.4
Proportions (%SL)				
Body Depth	43.4	44.6	1.7	42.5–47.0
Body Width	17.8	18.7	0.5	17.8–19.6
Head Length	34.2	35.5	1.1	34.2 - 37.3
Post Orbital length of Head [2]	17.5	18.2	0.5	17.5–19.0
Snout Length [3]	13.6	13.9	0.5	13.1–14.6
Orbit Diameter	6.5	6.7	0.5	6.0–7.9
Interorbital Width [4]	7.8	7.4	0.3	6.9–7.8
Eye to Corner of Mouth	10.0	9.4	0.7	8.5–10.2
Snout to Origin of Anal Fin	62.1	66.0	3.6	61.4–69.7
Caudal Peduncle Depth	12.5	13.2	0.6	12.5–14.0
Caudal Peduncle Length [5]	12.8	12.8	0.5	12.1–13.5
Length of Caudal Peduncle [6]	17.3	16.8	0.6	15.9–17.5
Predorsal Length	36.7	36.2	1.0	34.8–37.9
Preanal Length [7]	23.9	28.0	4.3	21.8–33.0
Prepelvic Length [8]	35.8	36.7	1.0	35.4–38.3
Length of Dorsal Fin Base	63.9	63.5	1.4	60.7–65.0
Length of First Dorsal Spine	10.8	10.5	0.5	9.7 –11.6
Length of Nineth Dorsal Spine	11.4	12.1	0.9	11.0 - 13.1
Length of First Dorsal Ray	13.8	14.6	0.6	13.8 - 15.7
Length of Last Dorsal Ray [9]	8.6	8.7	0.6	7.4–9.4
Length of Anal Fin Base	27.2	26.6	2.8	20.9–29.8
Length of Third Anal Spine	10.6	10.1	2.4	7.6–14.1
Length of Longest Anal Ray	12.4	12.9	1.2	11.5–15.5
Caudal Fin Length	24.5	24.5	0.8	23.3–25.6
Pectoral Fin Length [10]	25.3	25.2	0.9	24.4–27.2
Pelvic Fin Length	19.6	20.2	1.6	18.4–23.1
Pelvic Spine Length	14.5	14.3	1.4	12.3–16.7

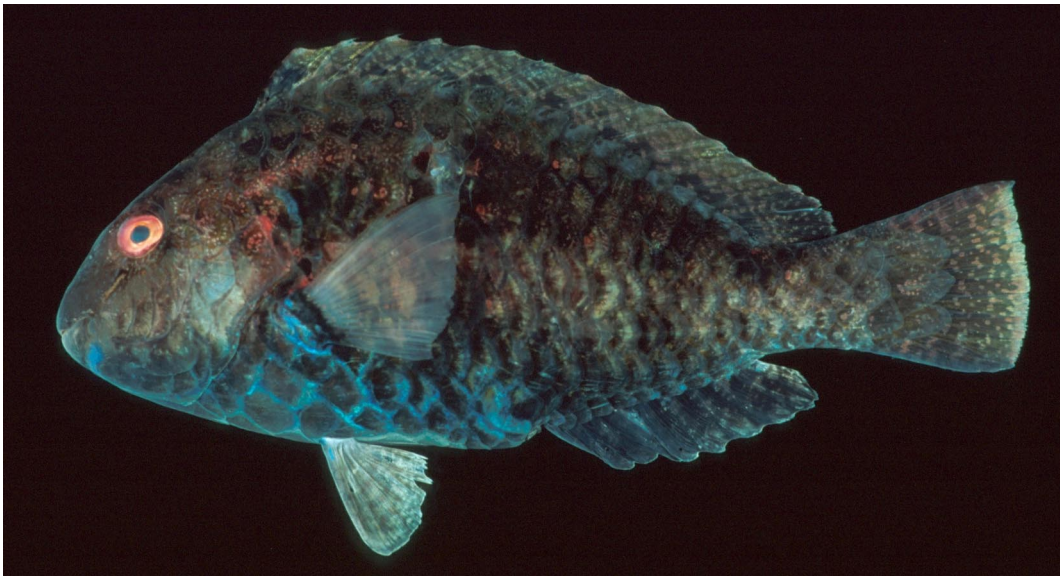

FIGURE 1. *Sparisoma tuiupiranga* sp. n., freshly collected specimen. Ilha Rasa de Fora (20°40´S; 40°22´W), Guarapari, Espírito Santo, Brazil (holotype, UFES 1821, terminal phase male, 144.1 mm SL). The pale area (above the tip of pectoral fin) is from a spear wound. Photograph by João Luiz Gasparini.

Dorsal fin IX,10 (last ray branched to base); anal fin III,9 (last ray branched to base); pectoral rays 13 (the uppermost rudimentary, the second unbranched); pelvic fin I,5; Caudal fin 1+11+1 (branched principal rays 11, secondary [uppermost and lowermost] unbranched); upper procurrent caudal rays 6–7; lower procurrent caudal rays 6–7; 24–25 scales in lateral line (2 posterior to hypural, the last one enlarged); 6 scales between lateral-line scales and the origin of anal fin; 2 rows of scales between lateral-line scales and the dorsal fin, scales in upper row being about half the size of those in lower row; circumpeduncular scales 12; median predorsal scales 4; 1 mid-ventral scale posterior to the origin of pelvic fins; 5 scales on cheek, disposed in a single row; lateral (internal) gill rakers on first gill arch 17–18 (characteristically, the most posterior with 2 or 3 projections from base); vertebrae 25, including the hypural plate.

Greatest depth of body 2.12–2.34 in standard length; width of body posterior to gill opening 5.07–5.60 in standard length; head length 2.67–2.91 in standard length; snout length 2.47–2.65 in head length; greatest orbit diameter 4.47–6.03 in head length; interorbital space flat, the bony width 4.37–5.40 in head length; least depth of caudal peduncle 7.10–7.96 in standard length.

Caudal fin slightly rounded (sometimes truncate), the length 3.89–4.28 in standard length; origin of dorsal fin above upper end of gill opening; dorsal spines pungent; 1–2 cirri standing from distal portion of interspinous membranes of dorsal fin posterior to each spine; last (ninth) dorsal spine 2.64–3.31 in head length; longest (infrequently the first) dorsal soft ray 2.10–2.67 in head length; longest anal soft ray 2.39–3.01 in head length;

pectoral fins 3.66–4.09 in standard length, the distal tips reaching a vertical slightly anterior to slightly posterior to pelvic tips, not reaching a vertical through anus; pelvic fins 1.61–1.89 in head length.

The mouth is slightly oblique and posteriorly reaches a vertical through the anterior nostril; teeth coalesced into beak-like dental plates, the free edge irregular; upper dental plate fitting entirely within lower when jaws are closed; total number of canine teeth on each side of the upper dental plate 2–6 (1 interlocking canine at symphysis + 1–5 others, several apparently deciduous), frequently accompanied by 1–2 remnants of broken (?) canines or alveolar processes of shed (?) ones; the anterior nostril a slightly elevated rim (frequently more tubular in juveniles) with an extended posterior edge, the flat and fleshy extension 1–4 nostril diameters in length, simple or ramified (frequently simpler and less ramified in initial phase adults, and wider and more ornate in terminal phase males); lateral line follows the contour of the back to the level of the posterior part of the dorsal fin, then angles sharply downward and continues along the mid-axis of the caudal peduncle and the base of caudal fin (the last horizontal portion comprising 5 to 7 scales); tubes of all lateral-line scales with several branches (including the last enlarged scale).

Color Pattern in Life. The color pattern of a terminal phase male (holotype) when fresh, is shown in Figure 1. Note that the specimen was photographed about six hours after death and preservation and has lost most of its iridescence. Superior part of flank dark to the upper front of the caudal peduncle, spotted with vivid red, especially in its anterior part and on superior margin of opercle. At the front end of this band, after the superior margin of the opercle and above the insertion of the pectoral fin, is a dark blotch, oblong and barely distinct from the background. The blotch is crossed at front, more or less vertically, by an iridescent turquoise blue crescent. The lower part of the body, from the gular region to the base of the last ray of the anal fin, has a vivid blue background composed of the merging of the turquoise blue margin and the dark gray ventral scales. From the rear of anal fin, following the base of the caudal peduncle to the extremity of the basal ray of the caudal fin, is a fine line of the same vivid blue. Between these two dark bands, a clearer band extends from the preopercle to the postero-basal extremity of the caudal peduncle, of brownish-grayish speckled of vivid red on its front half changing to yellowish green. The region between snout, preopercle and nape varying from grayish green to brownish red, speckled with small pale green and vivid red dots on its upper posterior part. The eye is reddish orange to vivid red.

The pectoral fin is hyaline, the upper ray (second) being slightly yellowish, with a dark basal line. Fin insertion is bluish. Pelvic fins are pale grayish to yellowish green mottled of darker brownish spots. The anal fin is deep blue, mottled with greenish blue. The caudal fin is reddish brown becoming clearer toward the end with an increasing number of pale yellowish green spots. Margin is uniformly yellowish to grayish green. Basal ray is blue and the upper ray is reddish brown. The dorsal fin is yellowish green to reddish brown. A dark spot on the first interspinous membrane with less distinct and smaller others above

the line of scales that extend onto the base of the fin, on irregular intervals along the fin and mostly on the interradial membranes. From the fifth ray to the end, fin is mostly dark with a fine speckle of greenish to mostly reddish dots. Scales sheathing the fin base are mostly brownish green along the front half of the fin, gradually changing to grayish blue (still slightly iridescent) along the rear half of the fin.

Color of terminal males at a cleaning station may be very different from that displayed in other occasions, generally almost uniformly olive green with only the red eye, the iridescent blue crescent, and the dark pectoral fin base underlined of turquoise blue being readily apparent above the background.

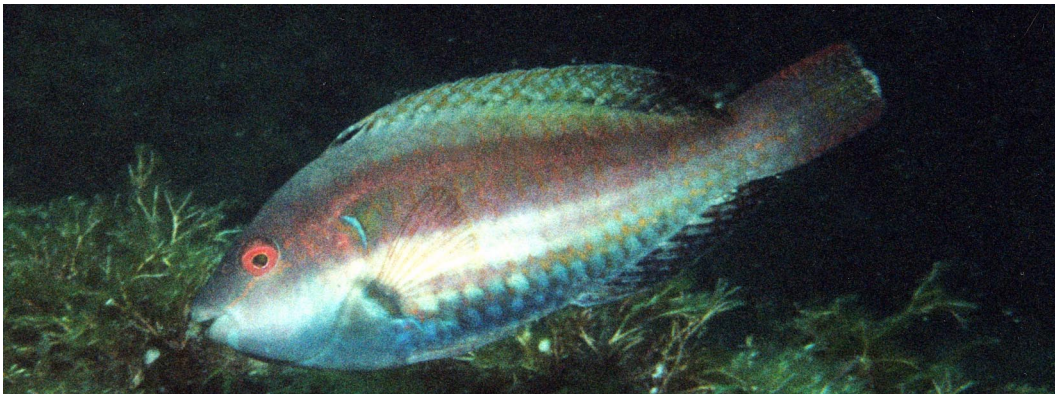

FIGURE 2. *Sparisoma tuiupiranga* sp. n., live specimen. Laje de Santos Marine State Park (24º15´S; 46º 10´W), São Paulo, Brazil, 16m deep (specimen not collected, male, sub-terminal phase, ca. 14–15 cm TL). Underwater photograph by Osmar José Luiz-Júnior.

In life, sub-terminal phase males (Figure 2) have four distinct horizontal bands and more or less diffuse iridescence. The upper band extends from above the eye to the end of the dorsal fin base, with a maximum height of one and a half scales. Color varies from blue in front to greenish blue and yellowish green toward the rear. From the rear of eye to upper part of caudal peduncle and upper ray of caudal fin, a high red band of two scales height (remnants of the juvenile color, yet of different shade) with indistinct, irregular "pumpkin" specks toward the end. Behind the opercle and above the insertion of the pectoral fin, is an iridescent, vivid green blotch with a well defined, almost vertical turquoise blue crescent. A whitish band extends from the mouth to the lower half of the posterior part of caudal peduncle, with the insertion of the pectoral turquoise blue on its lower part and deep blue of the upper part. The lower body is deep blue from the gular region to the end of the base of the anal fin and followed by a thin stripe to the insertion of the basal caudal ray. The body of a scale is generally clearer than its margin.

The caudal fin is green with a white margin and red upper and lower rays. The pectoral fin is hyaline. The pelvic fin is grayish blue, the first ray being whitish blue. The dorsal fin

is mostly yellowish green, mottled of white dots. The first interspinous membrane displays a dark spot above a blue background. The last five rays are greenish with dark membranes. Small dark spots are irregularly distributed along the upper line of scales sheathing the base of the fin.

Initial phase adults are strikingly vivid red all over (see Figure 3, a freshly preserved individual), of a darker shade over the abdominal cavity and lighter shade on the scales that extend onto the base of the dorsal fin. From the gular region to the final of the anal fin, scales are outlined of iridescent pale blue. The head is spotted of small, dark, brown reddish dots. The eye is yellowish orange.

FIGURE 3. *Sparisoma tuiupiranga* sp. n., freshly collected specimen. Ilha Rasa de Fora (20°40´S; 40°22´ W), Guarapari, Espírito Santo, Brazil (paratype, UFES 1822, initial phase adult, 130.5 mm SL). The pale scapular area is from a spear wound. Photograph by João Luiz Gasparini.

Median fins are vivid red. However, the dorsal fin (especially on its upper half membranes), anal fin (especially on membranes) and caudal fin (especially on the rearmost third, excluding the upper and lower unbranched rays) may vary between vivid red to slightly orange or even yellowish, depending on the exact level of transition between juvenile and initial phase adult [equivalent transitional color levels exist for all other parts of the body]. The pectoral fin is hyaline, with a dark brownish line on its base. The pelvic is hyaline, with vivid red spots.

In life, juveniles (Figure 4) are red on the upper half of the body and the caudal fin, varying from being paler at the snout to darker by the tail, with yellowish tones better developed on the head and below the front end of the dorsal fin. The lower half of the body is white with three red stripes of decreasing thickness and increasing paleness toward the

belly. All red bands initiate at the height of pectoral fin insertion, and end at the base of the caudal fin, with the exception of the lower one which disappears toward the rear half of the anal fin. From the gular region to the insertion of the caudal fin, the body is white (striped by the lowest and less defined red band), with iridescent blue on the edges of ventral scales, especially on the belly and above the anal fin. Above the white gular region, the head is sparkled with small dark red spots on a pink to red background. Eye orbit is gold yellow, and the eye is grayish red to vivid yellow at the border of the iris. The eye is underlined by an almost horizontal white band, about the size of the eye in length and slightly smaller than that of the pupil in height.

FIGURE 4. *Sparisoma tuiupiranga* sp. n., live specimen. Laje de Santos Marine State Park (24º15´S; 46º10´W), São Paulo, Brazil, 16m deep (specimen not collected, juvenile, ca. 14-15 cm TL). Underwater photograph by Osmar José Luiz-Júnior.

The pectoral fin is hyaline, with the base of the rays pale gold yellow. The pelvic fin is white with hyaline interradial membranes. Spines and rays of the dorsal fin are vivid red to orange yellow. From the second spine to about the fifth ray, interspinous membranes are essentially hyaline, sparkled with yellow dots, with a dark spot at the limit of the sheathing scale. The first interspinous membrane lacks the black spot, and the last interradial membranes appear hyaline without black spots. The caudal fin appears completely vivid red, although the interradial membranes are essentially hyaline. The base of the caudal peduncle and of the lowest ray is marked with iridescent blue. The anal fin is yellow, including the membranes with the number of yellow spot decreasing (both on rays and membranes) toward the edge and the rear.

Color Pattern in Preserved Specimens. Males (terminal phase; Figure 5) are dark brown, being even darker from the gular region to the base of the last anal ray, including

the anal fin and the lower ray of the caudal fin. Pelvics are brown. An indistinct dark spot, about the size of the eye, is present after the opercle and above the pectoral origin. The base of the pectoral is dark, almost black.

FIGURE 5. Above: *Sparisoma tuiupiranga* sp. n. (holotype, UFES 1821, terminal phase male 144.1 mm SL). Lower: *Sparisoma atomarium* (Poey, 1861; UF 227038, terminal phase male from Yucatan Channel, Quintana Roo, Mexico, 68.6 mm SL). Photograph by João Luiz Gasparini.

Initial phase adults are beige-brownish with a large, irregular, oblong, horizontal dark blotch along the mid-line, from after the opercle to above the insertion of the anal fin. Below it, the belly is brownish. The bases of pectoral fin rays are dark. On the head, including the opercle and excluding to the lower gular region, are numerous small brown dots on a beige background. All fins are pale, the dorsal having a small dark spot on the first interspinous membrane.

Juveniles are beige below body the mid-line and slightly darker brownish beige above the mid-line, with distinct but vague lines of clearer (upper side) or darker (lower side) tones, larger at the front end of the trunk. Snout, pre-opercle, opercle and nape are spotted with brownish dots on beige background.

Geographic Range. Southwestern Atlantic, from the state of Bahia (Abrolhos Archipelago National Marine Park (17°57´ S) to the state of Santa Catarina (27°20´ S), Brazil.

Etymology. The name of the species signifies “red parakeet” in Tupi, the native American language once spoken all along the Brazilian coast, and refers to the splendid color of initial phase adults of this small parrotfish (Figure 3).

Ecology and evolution. *Sparisoma tuiupiranga* is found in shallow areas of tropical rocky reefs, in depths of 5 to 20 meters. Males establish territories (approximately 8 m^2). Juveniles are strongly associated with seaweeds beds, occasionally found mixed with *Sparisoma radians* and *Cryptotomus roseus*. The tuiupiranga parrotfish is a typical scraper (sensu Bellwood & Choat, 1990), grazing upon a large variety of epilithic algae (e.g. *Jania*, *Gelidium*, *Polysiphonia*), consequently ingesting a large quantity of sediment (Ferreira, 1998; as seen on X-ray plates). However, as other Brazilian parrotfishes, *S. tuiupiranga* is very plastic in its feeding habits and is commonly observed browsing over *Sargassum*. Males and larger initial phase adults individuals perform up to 2400 bites daily with a mean gut turnover of ca. 2.5 guts day-1, having an important role on local energy flux (Ferreira et al., 1998).

The clade *S. atomarium–S. tuiupiranga* appears to be basal in the phylogeny of *Sparisoma* (Bernardi et al., 2000; Giacomo Bernardi, pers. comm.), a genus that probably originated 14–35 mya in the tropical western Atlantic off Brazil (Bernardi et al., 2000). While the Caribbean *S. atomarium* is a browsing resident of seagrass and seagrass/reef interface habitats (Robertson and Warner, 1978), the Brazilian *S. tuiupiranga* is a predominantly scraping species that inhabits rocky reefs and associated macroalgae beds. The assumption that browsing in seagrasses is the ancestral condition in scarids (Bernardi et al., 2000; Streelman et al., 2002) certainly needs reevaluation, especially considering the association of *S. tuiupiranga* with rocky reefs and algal beds. In addition, *S. tuiupiranga* is apparently absent (or exceedingly rare) in northeastern Brazil (Joyeux et al., 2001; Moura et al., 2001), where seagrass ecosystems are more abundant and better developed than in the south, although seagrass species (as elsewhere in Brazil) are restricted to *Halodule wrightii* and *Halophila* spp. (Oliveira-Filho et al., 1983; Phillips, 1992). The idea that one can partition scarinines and sparisomatines by historical association with different habitats (coral reefs vs. seagrass) seems too simplistic (cf. Streelman et al., 2002).

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