

Naso reticulatus*, a New Unicornfish (Perciformes: Acanthuridae) from Taiwan and Indonesia, with a Key to the Species of *Naso

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John E. Randall (2001) *Naso reticulatus*, a new unicornfish (Perciformes: Acanthuridae) from Taiwan and Indonesia, with a key to the species of *Naso*. *Zoological Studies* 40(2): 170-176. The acanthurid fish *Naso reticulatus* is described from 2 specimens, 490 and 428 mm SL, from southern Taiwan and Sumatra. It is distinct in having V,29 dorsal rays, II,27 anal rays, no rostral horn or protuberance on the head, a high angular interorbital space, body depth 3.1-3.2 in SL, and a dark reticular pattern on the head and body.

Key words: Fish taxonomy, Acanthuridae, *Naso*, Taiwan, Sumatra.

The systematic study of the acanthurid genus *Naso* has been difficult because of the paucity of specimens, particularly those of the deep-dwelling, zooplankton-feeding species, and the similarity of meristic data of many of the species. Some species have been named from juveniles or subadults, but our present level of knowledge is often inadequate to link these to adults of the species we know today.

Herre (1927) reviewed the species of surgeonfishes (Acanthuridae) of the Philippines. He recognized 10 species of the Indo-Pacific genus *Naso* for the islands, two of which he described as new, *N. genimarginatus* and *N. lopezi*.

Smith (1966) reviewed the subfamily Nasinae which he divided into 3 genera, *Naso* Lacepède, *Axinurus* Cuvier, and *Callicanthus* Swainson. Randall (1994) noted that the genus *Axinurus* was not accepted by Bleeker (1857) or by Günther (1861) and presented further evidence to subjugate it to subgeneric status. Smith placed only *lituratus* in the genus *Callicanthus*. Recent authors have not accepted this genus, probably because the principal key character of dentition fails for many specimens. Smith wrote of *Callicanthus* in his key, "Teeth, 30 or less in each jaw, relatively large incisors with entire edges obtusely rounded apically." His counterpart for *Naso* was, "Teeth small, pointed, numerous, the distal edges serrate." A specimen of *lituratus* in the Bishop Museum (BPBM 4321, 262 mm SL) has 38 upper and 34 lower teeth, hence more than the 30

given in Smith's key. The tooth shape given by Smith for *Callicanthus* applies only to adults. Specimens of *lituratus* as large as 160 mm SL have teeth that are more pointed than rounded, and juveniles as large as 70 mm SL have some fine serrae on the edges of the teeth. Smith wrote in reference to *Naso unicornis*, "There are about 60 pointed teeth in each jaw; these are serrate in the young and halfgrown; the serrae disappear with age, but the teeth remain acute." The lack of serrae on adult teeth of *N. unicornis* therefore falsifies this character of his key. Also important, specimens of *unicornis* can have far fewer teeth than 60 in each jaw. A specimen of 133 mm SL (BPBM 4328) has 28 upper and 28 lower teeth, and a specimen of 303 mm SL (BPBM 16595) has 34 upper and 32 lower teeth.

Smith correctly placed *N. genimarginatus* Herre in the synonymy of *N. hexacanthus* (Bleeker), and he noted that the species Herre had identified as *N. marginatus* Valenciennes is a synonym of *N. annulatus* (Quoy and Gaimard). He recognized a total of 16 species in the subfamily, three of which he described as new, *Axinurus minor*, *N. herrei*, and *N. thorpei*. He included *N. tapeinosoma* (Bleeker) as 1 of the 16 species, but added, "validity may be uncertain." He illustrated what he regarded as a paratype of *tapeinosoma*, 220 mm total length, from Timor; however, this could not be a paratype because the species was described from a single specimen 126 mm in total length from Ambon.

Randall and Struhsaker (1981) described *Naso maculatus* from the Hawaiian Islands and Japan. Francis and Randall (1993) recorded it from Lord Howe Island and suggested that it is an antitropical species.

Randall in Smith and Heemstra (1986) recognized 12 species of *Naso* for the western Indian Ocean. He placed *N. herrei* in the synonymy of *N. annulatus*. He included *N. thorpei* but indicated that it is known from a single specimen from Durban separated from *N. hexacanthus* only by a slightly more elongate body and by the lack of a black tongue.

Randall and Bell (1992) described *Naso caesius*, an antiequatorial species in Oceania. They concluded that *Naseus vomer* Klunzinger (a species that Smith recognized), *Naso tapeinosoma*, and *N. thorpei* are probable synonyms of *N. hexacanthus*. It should be added that *N. tapeinosoma* could also be the young of *N. lopezi*. As noted by Smith (1966), “a graded series of stadia” are needed to link the juvenile holotype of *tapeinosoma* to an adult.

Randall (1994) described *Naso caeruleacauda* from Negros, Philippines and observed and photographed it at 6 different islands of Indonesia. He identified specimens of *N. minor* from the Philippines, Indonesia, and Réunion, but expressed some doubt of the identification. *N. minor* was described from a single specimen of 195 mm total length from off Pinda, Mozambique with no record of the life color. Some differences in proportional measurements were noted between the holotype and the newly reported specimens. Additional material is needed, particularly from East Africa, to determine if these differences are within the normal range of variation.

Fricke (1999: 549) placed *N. minor* in the synonymy of *N. unicolor* (Liénard, 1839). Liénard briefly described *Naseus unicolor* from Mauritius as having 2 spines on the tail, blackish blue dorsally on the body, D VI,30, and A II,30. There is no type specimen. Smith (1966) concluded that *N. unicolor* is not determinable, and Randall and Bell (1992) agreed. It is difficult to understand Fricke’s decision because

none of Liénard’s few characters for *unicolor* are shared with *minor*, in particular its having 2 caudal spines instead of 1.

The author has long been aware of striking color differences between the Pacific population of *Naso lituratus*, illustrated by Randall (1985: fig. 142) and Randall (1996: 175), and the Indian Ocean-Red Sea population figured in Randall (1983: 149) and Randall (1992: 165). The recent sighting of both forms at the Indonesian island of Bali and finding a difference in the number of soft rays of the dorsal and anal fins between specimens from the Indian Ocean and the Pacific (Table 1) led to the present decision to regard the Indian Ocean-Red Sea form as a species, for which the name *N. elegans* is available. This unicornfish was described from the Red Sea as *Aspisurus elegans* by Rüppell (1829: 61, pl. 23, fig. 2).

In 1978 the author speared an adult of a species of *Naso* in Taiwan with a spotted and reticular pattern that he did not recognize. Thomas Gloerfelt-Tarp obtained a 2nd more strongly marked specimen in 1983 that had been caught by trawling off southeastern Sumatra. A color photo was published in Gloerfelt-Tarp and Kailola (1984: 252). Both specimens were deposited in the Bishop Museum, Honolulu, and were identified only as *Naso* sp. Because the author is writing a book on the surgeonfishes of the world, the 2 specimens were examined to see if they could be identified to species. Instead, they proved to be a new species which is described below. This brings to 17 the total number of species known for the genus *Naso*.

MATERIALS AND METHODS

The holotype of the new species of *Naso* will remain at the Bernice P. Bishop Museum, Honolulu (BPBM); the paratype has been transferred to the National Museum of Natural History in Washington, DC (USNM).

Lengths of the specimens are standard length (SL), measured from the median anterior edge of the

Table 1. Counts of soft rays of the dorsal and anal fins of *Naso elegans* and *N. lituratus*

	Dorsal soft rays						Anal soft rays					
	26	27	28	29	30	31	27	28	29	30	31	32
<i>N. elegans</i>	1	9	16	5	1		5	10	17	1		
<i>N. lituratus</i>			4	21	18	3		2	9	26	9	1

upper lip to the base of the caudal fin (posterior end of the hypural plate, which is behind the last peduncular plate). Head length is taken from the upper end of the gill opening to the median edge of the upper lip. Snout length is from the fleshy edge of the orbit to the median edge of the upper lip. Body depth is the maximum depth to the groove at the base of the dorsal spines. Body width is the maximum width just posterior to the gill opening. Interorbital width is the least bony width. Orbit diameter is the maximum fleshy diameter. Caudal-peduncle depth is the least depth; caudal-peduncle length is the horizontal distance between verticals at the rear base of the anal fin and the base of the caudal fin. Lengths of spines of fins are measured to their extreme bases. Caudal concavity is the horizontal distance between verticals at the tips of the shortest and longest rays. Pectoral- and pelvic-fin lengths are the length of the longest ray.

Scales are extremely small, not in regular rows, and impossible to count with accuracy. Pectoral-ray counts include the first 2 unbranched rays, the uppermost being a short bony splint. Gill-raker counts were made on both the anterolateral and posteromedial sides of the first gill arch (here termed anterior gill rakers and posterior gill rakers). Only the rakers on the lower limb were counted for the anterior gill rakers.

Data in parentheses in the description of the new species refer to the paratype if different from the holotype. Proportional measurements in the text are rounded to the nearest 0.05.

Key to the adults of species of *Naso*

- 1a. Two bony plates (sharply keeled in adults) on each side of caudal peduncle 2
- 1b. A single bony plate on each side of caudal peduncle ... 15
- 2a. Teeth incisiform with rounded tips and smooth edges; forehead or snout without a protuberance or horn; peduncular plates and keels bright orange in life, pale in preservative); a curved yellow line from behind corner of mouth to lower edge of eye 3
- 2b. Teeth pointed incisors, the edges finely serrate (serrae lost in adults of *N. unicornis*); forehead or snout with or without a protuberance or horn; peduncular plates and keels not orange; no curved yellow line on head 4
- 3a. Dorsal fin black with a broad white border on soft portion, the black extending medially onto nape; anal fin mainly orange; dorsal soft rays 28-31; anal soft rays 29-31 (western Pacific east to Hawaiian Is., French Polynesia, and Pitcairn Is.) *N. lituratus* (Forster, 1801)
- 3b. Dorsal fin yellow with a broad black band at base posterior to 4th spine; anal fin mainly dark yellowish brown; dorsal soft rays 27-30; anal soft rays 27-30 (Indian Ocean and Red Sea) *N. elegans* (Rüppell, 1829)
- 4a. A prominent median protuberance or horn on forehead or snout (only a bump on adult females of *N. brachycentron*

- and on subadults of other species; absent in juveniles) 5
- 4b. No median protuberance or horn on forehead or snout ... 11
- 5a. A rounded protuberance on front of snout 6
- 5b. A slender conical bony projection or horn extending anterior to eye 8
- 6a. Protuberance on snout just above upper lip (first appearing as a small convexity at a total length of about 50 cm), becoming more acute in large adults (perhaps only males) and extending slightly anterior to mouth; dorsal soft rays 24-26; anal soft rays 23-25; caudal fin of adults with a filament from each corner (Indian Ocean and western Pacific; few specimens recorded) *N. fageni* Morrow, 1954
- 6b. Protuberance on snout centered just below level of lower edge of eye; dorsal soft rays 26-30; anal soft rays 26-30; caudal fin with or without filaments 7
- 7a. A hump on back below anterior soft portion of dorsal fin (first developing at a total length of about 30 cm); protuberance on snout bulbous, very large on adults (extending anterior to mouth on large males), and edged below by a deep groove curving from before eye to above mouth; body depth 2.7-3.0 in SL; dorsal fin not elevated, the 1st spine 2.5-3.5 in head; caudal fin truncate without trailing filaments; small blackish spots dorsally on body, restricted to below hump on adults (East Africa to islands of Micronesia and Samoa) *N. tuberosus* Lacepède, 1802
- 7b. No hump on back; protuberance on snout not bulbous and not outlined below by a deep groove; body depth 2.5-2.6 in SL; dorsal fin elevated, the first spine 1.5-1.7 in head length; caudal fin rounded with a filament from each corner; vertical bluish to bright blue lines on side of body with small spots above and below, and a broad blue band extending anterior to eye (Indo-Pacific but not Hawaii or Red Sea; recorded from Galápagos Is.) *N. vlamingii* (Valenciennes, 1835)
- 8a. A prominent hump on back below anterior soft portion of dorsal fin (first developing at a total length of about 20 cm); profile of back beneath spinous portion of dorsal fin distinctly concave; males with a long tapering horn that may extend well before mouth, but females with only a bump before eye; dorsal spines IV-V; upper 1/2 of body gray, lower 1/2 whitish, the demarcation abrupt and irregular; a few small pale blue spots usually present behind eye (East Africa to French Polynesia and Guam) *N. brachycentron* (Valenciennes, 1835)
- 8b. No hump on back; profile of back beneath spinous portion of dorsal fin slightly convex; horn extending anterior to eye in both sexes; dorsal spines V-VI; color not as in 8a 9
- 9a. Dorsal profile of snout to horn sloping, forming an angle of about 45°; horn not extending anterior to mouth; body depth 2.4-2.6 in SL; caudal fin truncate with trailing filaments; caudal peduncular plates blue in life (Indo-Pacific) *N. unicornis* (Forsskål, 1775)
- 9b. Dorsal profile of snout forming an angle of 60° or more; horn, when fully developed, extending well before mouth; body depth 2.7-3.0 in SL; caudal fin with filaments only in male of *N. annulatus*; peduncular plates not blue 10
- 10a. Dorsal spines V; angle of snout to base of horn about 60°; adult males with a filament from each corner of caudal fin; no dark markings on head or body; caudal fin of subadults with a white posterior margin, the fin of adults with black rays, the membranes and filaments white; lips broadly white-edged (Indo-Pacific and Clipperton I. in the eastern Pacific) *N. annulatus* (Valenciennes, 1835)
- 10b. Dorsal spines VI; profile of snout to base of horn nearly

- vertical; no trailing filaments on caudal fin; a series of vertical dark gray lines on body, often with small spots above and below, and head with dark gray spots and short irregular lines; caudal fin pale gray; lips not white-edged (Indo-Pacific) *N. brevirostris* (Cuvier, 1829)
- 11a. Dorsal spines V; numerous small black spots or irregular lines on about upper 1/2 of body 12
- 11b. Dorsal spines VI-VII; numerous small black spots or irregular lines present or absent on about upper 1/2 of body 13
- 12a. Anterior interorbital space and adjacent internarial space nearly flat medially; body elongate, the depth 3.4-4.0 in SL; keels on peduncular plates large and antrorse; caudal fin truncate to slightly double emarginate; dark markings on upper 1/2 of body and caudal fin mainly as small round black spots (occasional spots may be joined to form short curved lines) (western Pacific) *N.lopezi* Herre, 1927
- 12b. Anterior interorbital space and adjacent internarial space strongly elevated and angular, with a rounded median ridge; body not elongate, the depth 3.1-3.2 in SL; keels on peduncular plates not large or antrorse; caudal fin emarginate; dark markings on about upper 1/2 of body and caudal fin a mixture of small black spots and irregular lines (Taiwan and Indonesia) *N. reticulatus*, sp. nov.
- 13a. Upper 3/4 of body with small round black spots and short irregular lines except for 1 nearly continuous line following lateral line; caudal fin emarginate; anal soft rays 26-28 (Hawaiian Is., Japan, and Lord Howe I.)
..... *N. maculatus* Randall and Struhsaker, 1981
- 13b. Body without small round black spots and short irregular lines; caudal fin truncate; anal soft rays 27-31 14
- 14a. Peduncular plate keels large, antrorse in large males; dorsal soft rays 26-29; anal soft rays 27-30; no transient spotted color pattern; ventral 1/2 of body abruptly yellowish in life; caudal fin with a broad outer zone of yellowish brown; edge of lower lip broadly white; tongue of adults black; a dark border usually present on edge of preopercle and opercle (Indo-Pacific and Clipperton Is. in the eastern Pacific) *N. hexacanthus* (Bleeker, 1855)
- 14b. Peduncular keels not large and not antrorse; dorsal soft rays 27-30; anal soft rays 28-31; capable of rapidly assuming a pattern of vertically elongate spots on body which may be lighter or darker than ground color; ventral 1/2 of body not yellowish in life; caudal fin entirely gray-blue; edge of lower lip not white; tongue of adults white; no dark border on edge of preopercle or opercle (antiequatorial at islands of Oceania) *N. caesius* Randall and Bell, 1992
- 15a. Dorsal rays IV (rarely V),28-30; oblique groove on side of snout below nostrils from near edge of orbit halfway to mouth; caudal fin gray or blue in life 16
- 15b. Dorsal rays V,27-29; oblique groove on side of snout below nostrils short, about equal to length of naked area enclosing nostrils; caudal fin yellow in life; peduncular plate and keel black (Mozambique, Réunion, Philippines, Indonesia, and the Great Barrier Reef) *N. minor* (Smith, 1966)
- 16a. Dorsal profile of snout convex; anterior interorbital space and adjacent internarial space with a broad flat medial zone; anterior gill rakers 13-16; body depth 2.8-3.2 in SL; a series of about 30 narrow dark gray bars on side of body; caudal fin gray in life (East Africa to Solomon Is. and Caroline Is.) *N. thynnoides* (Valenciennes, 1835)
- 16b. Profile of head from just dorsal to upper lip to above center of eye nearly straight; anterior interorbital space and adjacent internarial space strongly convex; anterior gill rakers 18-19; body depth 2.75-2.8 in SL; no narrow dark bars on

body; caudal fin blue in life (Indonesia and the Philippines) *N. caeruleacauda* Randall, 1994

***Naso reticulatus* sp. nov.**
(Figs. 1, 2; Table 2)

Naso sp. Gloerfelt-Tarp and Kailola, 1984: 253, 363, lower figure p 252 (off southern Sumatra).

Holotype: BPBM 23428, ♂, 490 mm SL, 2.25 kg, Taiwan, S end at Nanwan, middle of bay directly E of fishing boat harbor at Houpihu; top of rocky pinnacle, 15 m, spear, J.E. Randall, 20 July 1978.

Paratype: USNM 364025, ♂, 428 mm SL, Indonesia, off S end of Sumatra, 6°13'S, 104°38'E, trawl, T. Gloerfelt-Tarp, 1983.

Diagnosis: Dorsal rays V,29; anal rays II,27; pectoral rays 17; body depth 3.1-3.2 in SL; no horn or protuberance on forehead or snout; dorsal profile of head convex with a slight angularity before eye; anterior interorbital space and adjacent internarial space strongly elevated with a rounded median ridge; two keeled peduncular plates on each side, the keels not large or antrorse; dorsal fin not elevated, the 1st dorsal spine longest, 2.8 in head length; caudal fin



Fig. 1. Holotype of *Naso reticulatus*, ♂, BPBM 23428, 490 mm SL, southern Taiwan.



Fig. 2. Paratype of *Naso reticulatus*, ♂, USNM 364025, 428 mm SL, southern Sumatra.

emarginate; light brown to olivaceous dorsally, whitish ventrally, the upper 3/5 of body with a mixture of small dark brown to black spots and irregular lines; head with a dark reticular pattern; opercular membrane black; median fins dark gray-brown, the anal with a white margin, the caudal with dark brown to black spots and lines.

Description: Dorsal rays V,29; anal rays II,27; all dorsal and anal soft rays branched; pectoral rays 17, the upper 2 unbranched; pelvic rays I,3; principal caudal rays 16, the upper and lower unbranched; upper and lower procurrent caudal rays 8; anterior lower-limb gill rakers 11; posterior gill rakers 12; pseudobranchial filaments very slender, 41 in holotype; vertebrae 8 + 13.

Body depth 3.1 (3.2) in SL; body width 2.8 (2.6) in body depth; head length 4.6 (4.35) in SL; no horn or protuberance on forehead or snout; dorsal profile of head convex with a slight angularity before eye; snout length 1.5 in head length; orbit diameter 4.75 (4.35) in head length; caudal peduncle slender, the depth 5.5 (5.7) in head length; caudal-peduncle length 1.6 (1.65) in head length.

Two keeled bony plates on each side of caudal peduncle, the anterior larger, its greatest length 4.0 (3.95) in head length; anterior edge of keels slightly concave and nearly perpendicular to body, the tip sharp and slightly antrorse, the outer edge rounded; maximum lateral length of keel of anterior plate 3.15 (3.55) in plate length.

Mouth terminal and small, the gape slightly oblique; upper-jaw length 4.8 (5.05) in head length; teeth very small, pointed, compressed, with finely serrate edges, 64 in upper jaw and 60 in lower (too many teeth missing in paratype for counts). Upper lip broad medially (its height 1/2 orbit diameter) and narrowing sharply to corner of mouth; lower lip thin, free only on posterior 1/2 of lower jaw. Tongue very short (free for only 2-3 mm) and broadly rounded.

Posterior nostril very small, round to elliptical, in front of eye by a distance equal to 1/2 orbit diameter; anterior nostril anteroventral to the posterior, about twice as large, nearly circular, with a low fleshy rim and a small pointed posterior flap (when folded forward, reaches only halfway across narial opening). An oblique groove forming a sinuous curve as it passes from in front of eye to below nostrils, ending about 1/2 distance to upper lip; groove very deep below and a short distance in front of nostrils, then progressively shallower anteriorly.

Scales highly modified, very small and close-set (a microscope is needed to detect the scale edges), each with an elevated dense mass of spicules that expand to form a flattened outer surface (spicules

project posteriorly, so texture is smooth when skin stroked backward, but abrasive when stroked forward); head fully scaled except for opercular membrane; membranes of dorsal, anal, and paired fins naked; anterolateral side of alternate spines and soft rays of dorsal and anal fins with fine scales like those of body but much smaller (when the spines fold into the groove on the back only the scaled surfaces are exposed); caudal fin densely covered with very small scales; paired fins with very fine scales on rays. Lateral line approximately paralleling dorsal contour of body, but pores not externally visible (instead, at regular intervals, there is a large flat scale about 4 times as large as adjacent scales).

Origin of dorsal fin above upper end of gill opening, the predorsal length 3.95 (3.8) in standard length; dorsal and anal spines slender but transversely broad basally, especially the 1st, which is longest, 2.8 in head length; remaining spines progressively shorter, the 5th 3.4 in head length; 4th to 8th dorsal soft rays longest, 2.7 (2.55) in head length; last dorsal ray 4.1 (4.15) in head length; origin of anal fin below base of 5th dorsal spine, the preanal length

Table 2. Proportional measurements of type specimens of *Naso reticulatus* expressed as percentages of standard length

	Holotype	Paratype
	BPBM 23428	USNM 364025
Standard length (mm)	490.0	428.0
Body depth	32.5	31.3
Body width	11.5	12.2
Head length	21.8	23.0
Snout length	14.5	15.4
Orbit diameter	4.6	5.3
Interorbital width	7.4	7.3
Caudal-peduncle depth	4.0	4.0
Caudal-peduncle length	13.8	14.1
Anterior peduncular plate	5.5	5.8
Upper-jaw length	4.2	4.6
Predorsal length	25.5	26.2
Preanal length	33.7	34.0
Prepelvic length	25.1	25.8
First dorsal spine	7.7	broken
Second dorsal spine	7.4	7.6
Fifth dorsal spine	6.4	broken
Longest dorsal ray	8.1	9.0
Last dorsal ray	5.3	5.6
First anal spine	4.8	5.1
Second anal spine	5.3	broken
Longest anal ray	7.4	7.7
Caudal-fin length	19.5	21.7
Caudal concavity	9.6	10.7
Pectoral-fin length	13.0	14.3
Pelvic-spine length	8.0	8.8
Pelvic-fin length	8.5	9.5

3.0 (2.95) in SL; 1st anal spine 4.6 (4.5) in head length; 2nd anal spine 4.05 in head length; 6th anal soft ray longest (rays to either side nearly equal in length), 2.95 (2.9) in head length; last anal ray 4.1 (4.15) in head length; caudal-fin length 5.15 (4.6) in SL, the fin emarginate without filaments, the caudal concavity 2.25 (2.15) in head length; pectoral fins short, the 3rd and 4th rays longest, 1.7 (1.6) in head length; origin of pelvic fins slightly posterior to lower base of pectorals, the prepelvic length 4.0 (3.8) in SL; pelvic fins short, not reaching origin of anal fin, the 1st soft ray longest, 2.55 (2.3) in head length.

Color of holotype when fresh, body brown, shading to whitish ventrally, the back above lateral line with numerous very small dark brown spots, only a few joined with other spots to form short lines; some small dark brown spots below lateral line, but most markings as irregular dark brown lines; head darker brown than body except for a broad pale zone anterior and posterior to eye; cheek and side of snout below groove with a dark reticulum; opercular membrane black; a large irregular dark brown blotch below and extending slightly above anterior part of pectoral fin; dorsal fin with dark brown spines and rays and nearly black membranes (pale areas on membranes of anterior part of fin of figure 1 the result of fading); anal fin with light brown rays, gray membranes that shade to blackish distally, and a pure white margin; caudal fin dark gray-brown with dark brown spots and lines, the lines paralleling the rays; pectoral fins pale gray, shading to blackish distally, with a broad dark brown bar at base; pelvic fins with white rays and gray membranes.

Color of holotype in alcohol similar, the overall color orangish brown, and the dark brown markings less evident.

The paratype (Fig. 2) was dark olive-gray dorsally, shading to greenish white ventrally, with a stronger and darker reticular pattern on the body and 4 short dark gray bars anteriorly on midside of body, partly covered by the pectoral fin.

Etymology. Named *reticulatus* from the Latin in reference to the reticular color pattern.

Remarks: *Naso reticulatus* is known only from the 2 type specimens. The author is unaware of any other specimens or of any underwater photographs.

The paratype differs from the holotype in its stronger reticular color pattern, and its interorbital space not being as strongly angular. In view of the many other similarities, these differences are believed to be within the range of variation of the species.

This species is most similar to *Naso maculatus* Randall and Struhsaker which is known from the Ha-

waiian Is., Japan, and Lord Howe Is., hence suggestive of an antitropical distribution. *N. maculatus* differs in having VI,26-28 dorsal rays, (compared to V,29 for *reticulatus*), and in being deeper bodied (depth 2.75-2.9 in SL, compared to 3.1-3.2 for *reticulatus*). In addition, *maculatus* as an adult has a color pattern that consists mainly of small black spots.

N. lopezi is also a dark-spotted species and has the same fin-ray counts as *reticulatus*, but it differs in its nearly flat median interorbital space and more elongate body (depth to 4.0 in SL).

The structure of the scales of this and other species of *Naso* is similar to that of sharks and may serve, as it does for sharks, to reduce the turbulence of water during swimming, thereby allowing greater speed. Species of *Naso* such as *N. hexacanthus*, *N. vlamingii*, *N. lopezi*, and others of the genus that live in the open water off drop-offs need to be very swift to avoid predation by sharks.

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記產自臺灣及印尼之一新種鼻魚(鱸形目：粗皮鯛科)，
Naso reticulatus，兼附鼻魚屬各物種之檢索表

John E. Randall

本文根據兩尾分別採自南臺灣及蘇門答臘的標本(940 mm及428 mm標準體長)，描述一新種粗皮鯛科之魚種，網紋鼻魚(*Naso reticulatus*)。其特徵為背鰭具5棘，29枚軟條，臀鰭具2棘，27軟條，頭部無吻尖之突出物，眼眶間之角度高，體高為標準長的3.1-3.2，頭及體側具有暗色的網狀紋。

關鍵詞：魚類分類，粗皮鯛科，鼻魚屬，臺灣，蘇門答臘。

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