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A Record of Bulbnose Unicornfish, *Naso tonganus* (Valenciennes, 1835), from the Tokara Group, Southern Japan

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Abstract A specimen of *Naso tonganus* (Valenciennes, 1835) has recently been collected from Kodakara-jima Island, Tokara Group, Kagoshima Prefecture, Japan. This species is widely distributed in the Indo-West Pacific from the Seychelles eastward to Samoa, northward to the Ryukyu Islands, Japan and southward to Shark Bay, Australia. In Japanese waters, it has only been known from a single specimen collected from Okinawa-jima Island, Ryukyu Islands. The present specimen represents the northernmost record of this species.
Key words: Acanthuridae, *Naso tonganus*, northernmost record, Tokara Group.

Introduction

Bulbnose Unicornfish, *Naso tonganus* (Actinopterygii: Perciformes: Acanthuridae), originally described as *Naseus tonganus* by Valenciennes (1835) from Tongatabou (Tongatapu Islands, Tonga), had previously been considered a junior synonym of *Naso tuberosus* Lacèpde from Mauritius (Smith, 1966). However, Johnson's (2002) review of the *Naso tuberosus* species complex states that *N. tonganus* is separated from *N. tuberosus* (Lacèpde, 1801) on the basis of the shape of the bulbous nasal tuberosity, the concavity in the dorsal profile between the eye and the fifth dorsal spine, the difference in the degree of the caudal fin concavity, and color differences in the pectoral, dorsal and caudal fins. According to Johnson (2002), *Naso tonganus* occurs widely in the tropical Indo-West pacific from the Seychelles eastward to Samoa, northward to the Ryukyu Islands, Japan and southward to Shark Bay, Australia.

During our recent survey of the fish fauna of the Tokara Group (located south of southern Kyushu, Japan), a specimen of *Naso tonganus* was collected by spear. Since Kishimoto (1984) reported a specimen of this species under the name of *N. tuberosus* from Okinawa Island, Ryukyu Islands, no additional specimens have been collected from Japanese waters. The current specimen from the Tokara Group represents the northern most record for this species, so we report it with detailed description and color photographs.

Materials and Methods

Measurements and counts followed Johnson (2002). All measurements were made with calipers to the nearest 1 mm. Standard length is expressed as SL. All measurements are given as percentage of SL. The specimen is deposited at National Museum of Nature and Science, Tsukuba (NSMT).

Naso tonganus (Valenciennes, 1835)

[Japanese name: Tosaka-hagi]

(Figs. 1–3)

Material examined. NSMT-P 91972, 488 mm SL, Tsukuridomari, Kodakara-jima Island, Tokara Group, southern Japan, 5 m depth, speared, 22 Oct. 2008, collected by S. N. Chiba.

Description. Dorsal fin rays V, 28; pelvic fin rays I, 3; anal fin rays II, 26; pectoral fin rays 16; gill rakers on anterior of first arch 8 + 9 = 17; upper jaw teeth 43. Maximum body depth 36.1; head length 24.5; snout length 12.7; orbit diameter 5.1; preorbital depth 15.7; interorbital width 8.2; length of dorsal fin base 64.0; first dorsal spine length 5.9; fifth dorsal spine length 7.9; pectoral fin length 13.8; pelvic spine length 9.8; prepelvic length 25.5; predorsal length 32.6; preanal length 30.5; length of 1st caudal spine base 5.5; length of 2nd caudal spine base 3.9.

Body shallow; snout with a bulbous tuberosity, rounded in profile, arising from base of upper lip, the center of its arch approximately level with horizontal from lower margin to middle of eye, extending anteriorly well beyond snout tip; nasal groove deep, concavely curved, extending to anterior margin of head; dorsal profile of body with prominent narrowly based hump, its apex at around base of 5th dorsal spine; jaws protruding; teeth denticulate distally, side of caudal peduncle with two bony plates, each with a broad keel-like strong spine, caudal fin slightly emarginate with bluntly angular lobes; scale tubercles with numerous short lanceolate spinules, spinules at posterior of scale slightly elongated.

Fresh coloration (Figs. 2–3): head and body dark brownish gray to dark grayish brown dorsally, becoming pale ventrally; irregularly shaped pale markings scattered on posterior part of head and anterior part of body; proximal three-fourths of pectoral fin pale without spots and posterior one-fourth black forming a distinct submarginal band; caudal fin becoming dusky to black near posterior edge.

Remarks. The present specimen was classified in *Naso*, because it has the following characters, which were stated by Randall (1994) to be diagnosic of the genus: dorsal fin rays V, 28; pelvic fin rays I, 3; anal fin rays II, 26; two fixed spines on each side of the caudal peduncle, consisting of a basal plate and a lateral keel-like blade. It was further identified as *N. tonganus* on the basis of the more expanded and bulbous nasal tuberosity and the presence of a concavity in the dorsal profile between the interorbital and the fifth dorsal spine (Johnson, 2002).

Naso tonganus has been reported throughout the tropical western Pacific, from Samoa, through Micronesia and Ryukyu Islands to Indonesia and eastern Australia (Johnson 2002). In Japanese waters, a single specimen of this species was reported only from Okinawa Island by Kishimoto (1984). Although he provided a short description and an excellent color photograph of his specimen, he reported it under the name of *Naso tuberosus* (Lacèpde, 1801).

Motomura *et al.* (2010) have recently made a comprehensive survey of fishes in shallow waters of Yaku-shima Island, reporting 951 species. Although Kodakara-jima Island, where the present specimen was collected, is located only

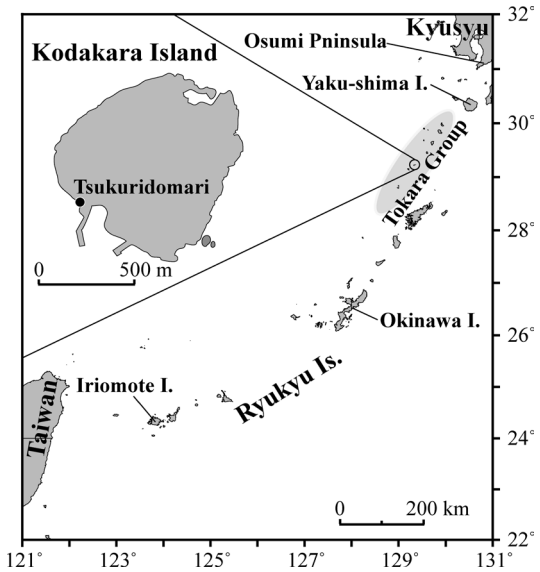

Fig. 1. Location of the present study site, Kodakara-jima Island, Tokara Islands, southern Japan.

Fig. 2. *Naso tonganus*. — NSMT-P 91972, 488 mm SL. The photograph was taken one day after the specimen was collected and kept in a styrofoam box with ice.

Fig. 3. The freshly dead specimen of *Naso tonganus*, showing irregularly shaped white markings on the anterior part of body.

170 km southwest of Yaku-shima Island, *N. tonganus* has never been collected nor observed in Yaku-shima Island. Sakai *et al.* (2005) reported fishes by underwater observations from the northern part of the Tokara Group. Their report included an underwater photograph of "Tosakahagi, *N. tuberosus*" taken at Kuchino-shima Island (100 km northeast of Kodakara-jima Island). Because they did not collect the specimen and it was not possible from their underwater photograph to identify whether the fish was *N. tonganus* or *N. tuberosus*, we did not include their report as a distribution record of *N. tonganus*. Therefore, the present specimen represents the

northernmost record of *N. tonganus*.

Johnson (2002) reviewed the *N. tuberosus* species complex and proposed that *N. tuberosus* was split into two closely related taxa, *N. tuberosus* from the central and western Indian Ocean and *N. tonganus* from the Indo-West Pacific. Debelius (1993: Indian Ocean) and Yamashita (1997: Iriomote-jima Island, Ryukyu Islands) published an excellent underwater photograph of a small school of *N. tonganus* with the remark "this rare species swims in groups." Although they mistakenly applied *N. tuberosus* to this species, their photographs clearly show *N. tonganus*. Just before the first author (S. N. Chiba) speared the present specimen, he observed that it was swimming in a large school of other acanthurids. This suggests that the present specimen is a stray transported by the Kuroshio Current from the tropical region of the western Pacific.

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