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New Record of *Anaora tentaculata* (Callionymidae) from the Ryukyu Islands, Japan

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Gray (1835) recorded *Anaora tentaculata* from Amboina, Indonesia, giving only three figures (lateral and dorsal views, and pectoral fin) without description. One male and four females, which are identical with this species, were collected during the years 1974～1977 from the coral sandy bottom of Kabira Bay, Ishigaki Island, Okinawa Prefecture, Japan. Diagnostic characters of the male specimen agree well with Gray's figures. Since this species is new to Japan, we here describe our specimens and compare them with specimens from the Philippines.

Anaora tentaculata Gray
(New Japanese name: Tanzaku-teguri)
(Figs. 1, 2)

Anaora tentaculata Gray, 1835: "Directions for arranging the plates" of "Illustrations of Indian zoology"; Herre, 1953: 781 (listed).

Amora tentaculata Gray, 1835: pl. 90, figs. 1, 1a, 1b (type locality: Amboina, Indonesia); Bleeker, 1879: 107 (reference); Fowler, 1941: 30～31 (Port Calton; Port Galea, Mindoro; Romblon; Sandakan Bay, Borneo; Great Tobea Island).

Callionymus tentaculatus; de Beaufort, 1951: 67～68 (Sandakan, Borneo; Sulu Islands; Makassar, Celebes).

Callionymus fimbriatus Herre, 1934: 93～95 (type locality; Shitankai Reef).

Material examined: MTUF (Museum, Tokyo University of Fisheries) 23470, 23471, 2 females, 28.5～34.2 mm in standard length, Mar. 21, 1977; MTUF 23472, 1 female, 26.3 mm, Aug. 17, 1977; YCM-P (Yokosuka City Museum, Pisces) 1450, 1 male and 1 female, 28.7 and 38.5 mm, Apr. 25, 1974. All the above specimens were taken from Kabira Bay, Ishigaki Island. USNM (United States National Museum) 139346, 1 male and 7 females, 19.0～30.4 mm, Buton Strait Region, Great Tobea Is., Dec. 15, 1909; USNM 139347, 1 female,

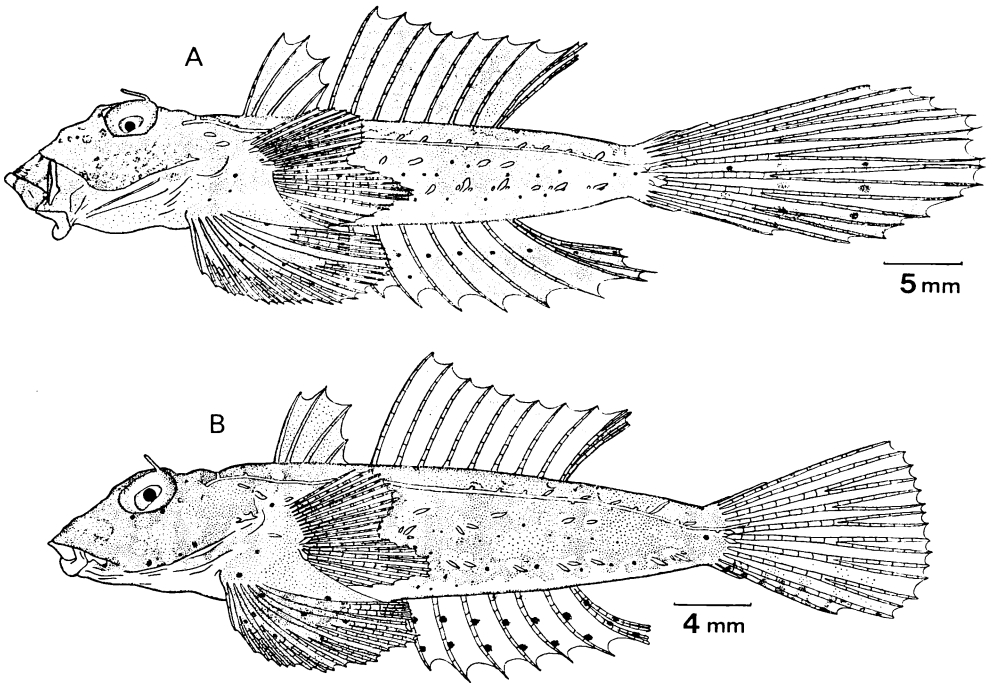

Fig. 1. Lateral view of *Anaora tentaculata* Gray. A: Male, YCM-P 1450a, 38.5 mm in standard length. B: Female, MTUF 23470, 34.2 mm.

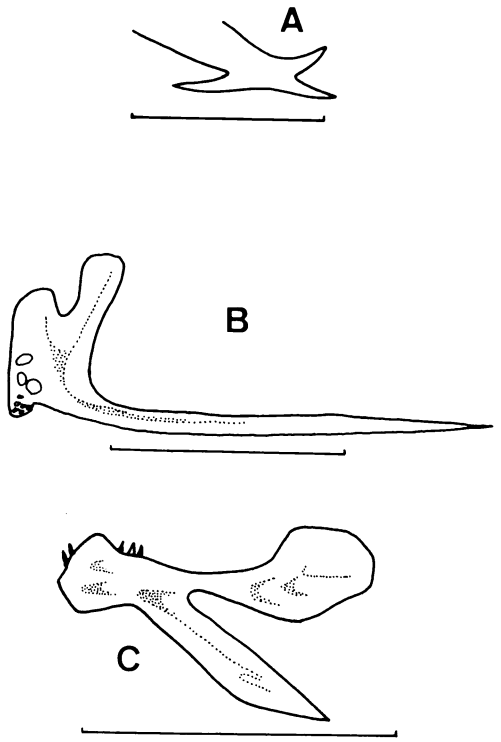

Fig. 2. A: Dorsal view of the left preopercular spine of *A. tentaculeta*, YCM-P 1450b. B: Ventral view of the left premaxillary, MTUF 23472. C: Lateral view of the left dentary, MTUF 23472. Scales indicate 2 mm.

34.9 mm, Pandanon Is. (between Cebu and Bohd), Dec. 15, 1909; CAS-SU (California Academy of Sciences, Stanford University) 25516 (holotype of *Callionymus fimbriatus*), 1 female, 29.4 mm, Sitankai Reef, Philippines, Aug., 1931.

Diagnosis

This is a dwarf dragonet, smaller than 40 mm in standard length, and can be easily distinguished from the other species of the family Callionymidae by the following points: 1) a pair of cirri on the dorsoposterior edge of eye; 2) a pair of bony tubercules on the occipital region; 3) pectoral fin notched, upper half round and lower half lanceolate; 4) a number of short cirri on both sides of the body; 5) caudal fin rays ii (unbranched)+6 (branched)+ii; 6) a few small teeth on jaws.

Description of Japanese specimens

Counts and proportional measurements are shown in Table 1.

Body slightly depressed, and conical. Eye round, slightly shorter than snout. A short thread-like cirrus on the dorsoposterior edge of eye, about 3 in eye diameter. Gill-opening small, located midway between the posterior edge of eye and the upper origin of pectoral fin. Preopercular spine short, with an antrorse process and two processes directed posteriorly (Fig. 2A). Upper jaw protractile. Posterior end of maxillary not reaching to anterior border of eye. Teeth on both upper and lower jaws almost degenerated, retaining only a few small ones (Fig. 2B, C). Palatine and vomer toothless. Occipital region with a pair of bony tubercles. Anal papilla conical, long in male, very short in female. Lateral line single, reaches to the proximal part of caudal fin; the lateral line from the opposite side interconnected by a transverse branch on the occipital region, but not connected on the dorsal surface of caudal peduncle.

First dorsal begins above the insertion of pelvic fin. Dorsal spines not produced into filaments. Second dorsal slightly concave in both sexes; dorsal rays unbranched except the last; each tip of the ray simple, but last branched rays bifurcated; the last one longer in male than in female. Anal fin begins at a perpendicular through the 2nd dorsal ray. Pectoral fin notched, upper half round and lower half lanceolate; the tip of pectoral fin reaches to the 3rd anal ray in male and to the 2nd one in female. Pelvic fin round, connected by membrane with the base of 13th pectoral ray; tip of pelvic reaches to 2nd anal ray in male and 1st anal ray in female. Caudal round, much longer in male than in female.

Color in formalin. Body marbled dark brown, whitish below. Many dark brown spots on cheek in male, but not in female. Three series of dark spots on caudal fin membrane in male but not in female; lower margin of the male's caudal dark brown, but stripped in female. In male, lower half of anal dark brown with one or two black spots on each membrane, but transparent with two

or three series of black spots in female.

Remarks

There are two genus names, *Anaora* and *Amora*, in "Illustrations of Indian zoology" by J. E. Gray. This book consists of no descriptive text, therefore some authors adopted the former and others the latter. *Anaora tentaculata* is used in the only "text" comprising the title-page, "Directions for arranging the plates", and the English name "Bearded Anaora" is also used. A figure of this species occurs as plate 90 of volume 2, where it is spelled *Amora tentaculata*. *Amora* was published in February 1835, but the sheet in which *Anaora* appears is dated "British Museum 1st Jan. 1835" and was compiled by J. E. Gray. It seems that these two were published at the same time, but the names in the "Directions for arranging the plates" should have priority of usage, because in it Gray corrected some names on the plates as typographical errors (A. Wheeler, personal communication). Unfortunately, Gray did not notice the error of *Amora* and plate 90, but as he used the spelling *Anaora* twice (as a Latinized name and an 'English' name) in the "Directions for arranging the plates" this stands as the corrected spelling (A. Wheeler, personal communication).

This species is closely related to species belonging to the genus *Synchiropus* rather than *Callionymus* in having a higher body depth. De Beaufort (1951) included this genus in

Table 1. Counts and proportional measurements, expressed in hundredths of standard length, of *Anaora tentaculata*. * holotype of *Callionymus fimbriatus* Herre.

Locality	Ishigaki Is., Japan		The Philippines		
Sex	male	female	male	female	female
Cat. No.	YCM-P 1450	MTUF 23470-72 YCM-P 1450	USNM 139346	USNM 139346-47	CAS-SU 25516*
No. fish	1	4	1	8	1
Standard length (mm)	38.5	26.3~34.2	27.0	19.0~34.9	29.4
Dorsal fin rays	IV, 8	IV, 8~9	IV, 8	IV, 8	IV, 8
Pectoral fin rays	25	23~24	23	21~25	22
Pelvic fin rays	I, 5	I, 5	I, 5	I, 5	I, 5
Anal fin rays	7	7	6	6~7	7
Caudal fin rays	ii+6+ii	ii+6+ii	ii+6+ii	ii+6+ii ii+1+i+4+ii	1+i+6+ii
Body width	21.3	21.0~25.1	23.7	22.5~25.6	25.9
Body depth	18.7	18.6~21.0	16.3	16.9~20.6	19.4
Caudal peduncle depth	8.3	8.4~ 8.8	7.4	7.6~ 8.9	8.6
Predorsal length	34.0	36.1~38.8	39.6	35.4~43.0	35.4
Caudal fin length	58.2	30.0~34.8	45.2	29.9~38.4	32.7
Head length	30.1	30.2~33.1	33.3	29.3~35.8	29.3
Eye diameter	9.4	9.6~10.8	12.6	10.0~12.7	10.5
Snout length	13.5	11.6~15.2	14.8	10.5~15.8	10.5
Upper jaw length	9.9	9.1~11.4	11.1	8.7~11.4	7.1
Interorbital width	3.1	1.7~ 4.1	3.7	2.9~ 5.3	3.1
1st dorsal spine length	15.6	11.7~13.3	14.8	13.4~15.8	13.6
2nd dorsal spine length	16.9	13.3~13.9	13.3	13.4~15.1	15.3
3rd dorsal spine length	14.3	10.9~13.2	11.9	10.4~12.4	11.9
4th dorsal spine length	7.8	4.2~ 4.6	7.4	5.2~ 7.9	6.5
1st dorsal ray length	20.5	18.6~20.2	20.7	16.3~20.2	19.0
last dorsal ray length	21.8	13.3~13.9	18.5	13.0~15.2	15.0
1st anal ray length	13.8	11.4~12.9	13.0	11.8~13.7	12.9
last anal ray length	27.3	13.6~14.3	22.6	12.4~15.8	13.9
Pectoral fin length	25.5	19.4~21.3	22.2	17.8~24.2	22.8
Pelvic fin length	36.6	28.9~34.1	34.1	31.0~33.7	34.0

Callionymus, but Schultz and Woods (1948) and Schultz (1960) recognized it as a distinct genus. We think the genus, *Anaora*, is valid because of its degenerated teeth on both the upper and lower jaws. In feeding habits, this species seems to be different from other dragonets by having the degenerated teeth.

We fortunately had a chance to examine nine specimens of *Anaora tentaculata* from the Philippines, deposited in the United States National Museum and the holotype of *Callionymus fimbriatus* Herre, deposited in the California Academy of Sciences. Counts and proportional measurements of these specimens are shown in Table 1. The loaned ones, preserved in 70% alcohol, show pinkish bodies in both sexes, but our specimens from Japan in 10% formalin are dark brown. We think this is not due to the difference of preservative, but local variation.

Fowler (1941), Schultz and Woods (1948), Schultz (1960) and de Beaufort (1951) placed *C. fimbriatus* and *Synchiropus tentaculatus* Herre (1928) in the synonymy of this species. In regards to *C. fimbriatus* we agree with their opinion based on the examination of the holotype. But Herre (1953) regarded *S. tentaculatus* as distinct from *A. tentaculatus* because of its smooth body and gave it the substitute name *Anaora fowleri*. The figure of the holotype of *S. tentaculatus* and the specimens of this species from the Philippines resemble each other in general phisiognomy, especially coloration. However, we agree with Herre (1953). De Beaufort (1951) stated that this species had 16 rays in the pectoral fin, but we were unable to confirm this.

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沖縄より得られた日本初記録のタンザクテグリ（新称），*Anaona tentaculata*

中坊徹次・岩田明久

1974 年から 1977 年にかけて，沖縄県八重山諸島石垣島川平湾の砂底より，雄 1 個体，雌 4 個体の *Anaora tentaculata* Gray が得られた．これは本邦初記録であり，和名としてタンザクテグリを提唱する．本種は体長 40 mm までの小型種で，体高はネズッポ属のもの

より高く，ハナヌメリ属のものに近い．他のネズッポ科魚類とは以下の点で区別される．1) 眼上後方部に小さな皮弁がある．2) 後頭部域に左右一対の小さな骨質隆起がある．3) 胸鰭縁の上半分は丸く，下半分は槍状の形を呈する．4) 体側に多数の小皮弁が散在する．5) 尾鰭の軟条数は ii (不分枝)+6 (分枝)+ii である．6) 上顎と下顎の歯は小さく数も少ない．特に 6) の特徴から，*Anaora* 属は正当と考えられる．

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