Records of the Rare Searobin *Lepidotrigla pectoralis* (Triglidae) from Japan and the South China Sea

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Two specimens of *Lepidotrigla* sp., collected in 1990 from Tosa Bay and the South China Sea, were identified as *Lepidotrigla pectoralis* Fowler, 1938, described from a single (holotype) specimen. A full description of the former specimens is given, including the first account of fresh coloration in the species. *Lepidotrigla pectoralis* is uniquely characterized among congeners in the following combination of characters; rostral projection round, comprising many minute spines; snout long, slightly convex in lateral profile; posterior half of first dorsal fin with a large black oval blotch dorsally; inner surface of pectoral fin black on upper half, whitish on lower half. The specimen collected from Tosa Bay is the first confirmed record of *L. pectoralis* in Japanese waters.

**Key Words**: *Lepidotrigla pectoralis*, Japan, South China Sea, rare species.

**Introduction**

Recently, Yamada and Yagishita (2013) reported a triglid species (as *Lepidotrigla* sp.), referring to it by the Japanese common name, Bozu-kanagashira, from Japan and the South China Sea, noting that it possesses a round rostral projection with many rudimentary spines, the snout convex dorsally, dorsal half of the pectoral fin inner surface black, and 70–74 pored lateral line scales. Despite being unidentified, the two specimens have not been further studied until now. However, comparisons with the original description and a photograph of the holotype of *Lepidotrigla pectoralis* Fowler, 1938 (USNM 98878), with particular emphasis on the rostral projection and snout shape, and coloration of the pectoral fin, showed that the Tosa Bay and South China Sea specimens were examples of that species. A valid species of *Lepidotrigla*, included among the 57 species distributed in tropical and temperate zones of the Pacific, Indian and eastern Atlantic Oceans (Fricke et al. 2019), *L. pectoralis* has been rarely recorded since its original description, based on a single specimen (Fowler 1938). The specimens are fully described below, and that from Tosa Bay being the first record of the species from Japanese waters.

**Materials and Methods**

Institutional abbreviations are as follows: BSKU, Laboratory of Marine Biology, Faculty of Science, Kochi University; FAKU, Fish collection of Kyoto University; USNM, National Museum of Natural History, Smithsonian Institution. Methods for counts and measurements followed Nakabo (2002) except for the followings; anterior tip of body is central point of anterior margin between both rostral projections; body depth is measured at first dorsal-fin origin; body width is taken at mid-depth of body; body length is taken at mid-body; head depth is through middle of orbit; head width between right and left preopercular-spine bases; suborbital stay height is the shortest distance from ventral margin of orbit to ventral margin of suborbital stay. Measurements were made to the nearest 0.1 mm by digital caliper. Vertebrae were counted from radiographs (soft X-rays) and indicated in Table 1 as “precaudal vertebrae + caudal vertebrae with urostyle”. Total, standard and head lengths are abbreviated as TL, SL and HL, respectively. Fresh color was described from a color photograph of the Japanese specimen (BSKU 48044) taken before it was fixed in formalin.

*Lepidotrigla pectoralis* Fowler, 1938  
[Standard Japanese name: Bozu-kanagashira]  
(Figs 1–3; Table 1)

*Lepidotrigla pectoralis* Fowler, 1938: 85, fig. 1 (northern Mindanao, Philippines); Richards 1992: 63 (listed); Richards 1999: 2362 (listed); Richards 2000: 607 (listed).

*Lepidotrigla* sp.: Yamada and Yagishita 2013: 723, unnumbered figs (Mimase, Kochi and the South China Sea).

**Material examined.** BSKU 48044, 140 mm SL, Mimase fishing port, Kochi, Japan, 19 October 1990; FAKU 63812, 138 mm SL, off Hainan Island, China, 18°49′N, 112°46′E–18°51′N, 112°58′E, 493–508 m depth, 14 May 1990.

**Diagnosis.** Rostral projection round, comprising many minute spines (Fig. 2A). Snout long, slightly convex. Dorsal
fin rays IX–X, 18. Anal fin rays 17–18. Pectoral fin rather long, the longest connected pectoral-fin ray reaching to the 6th or 11th anal-fin rays. Scales on lateral line 71–74, each with many small spines on apical margin (Fig. 2C). Scales on body with several spines on apical margin (Fig. 2D). Bony plates along bases of both dorsal fins 26–27. Posterior

| Counts                                | This study | Fowler (1938) |
|---------------------------------------|------------|---------------|
|                                                      | BSKU 48044 | FAKU 63812    |
| 1st dorsal-fin spines                 | 10         | 9             | 9             |
| 2nd dorsal-fin rays                   | 18         | 18            | 18            |
| Anal-fin rays                         | 18         | 17            | 17            |
| Pectoral-fin rays (connected)         | 11         | 11            | 11            |
| Pelvic-fin rays                       | 1.5        | 1.5           | —             |
| Caudal-fin rays (branched)            | 5 ± 4      | 5 ± 4         | —             |
| Lateral line scales                   | 71         | 74            | 53 ± 4        |
| Bony plates                           | 27         | 26            | 27            |
| Gill-rakers (right side)              | 0 ± 6      | 0 ± 5         | 0 ± 5         |
| Vertebræ with urostyle                | 12 ± 23    | 12 ± 23       | —             |

| Measurements (mm)                     |            |               |
| Total length                          | 171        | 166           | 140           |
| Standard length                       | 140        | 138           | —             |
| % of Standard length                  |            |               |
| Distance from snout to 1st dorsal fin | 36.4       | 35.5          | —             |
| Distance from snout to 2nd dorsal fin | 57.8       | 55.5          | —             |
| Distance from snout to pectoral fin   | 32.1       | 32.3          | —             |
| Distance from snout to pelvic fin     | 27.1       | 26.8          | —             |
| Distance from snout to anal fin       | 55.1       | 56.8          | —             |
| Body depth in front of 1st dorsal fin | 21.8       | 25.6          | —             |
| Body width at cleithral base          | 21.9       | 22.0          | —             |
| Caudal peduncule length               | 11.6       | 14.2          | —             |
| Caudal peduncle depth                 | 5.6        | 5.1           | —             |
| 1st dorsal-fin base length            | 23.7       | 21.5          | —             |
| 2nd dorsal-fin base length            | 34.9       | 34.1          | —             |
| Anal-fin base length                  | 32.9       | 29.7          | —             |
| Head length                           | 29.4       | 29.9          | —             |
| Length of 1st detached pectoral-fin ray | 21.9     | 26.2          | —             |
| Length of 2nd detached pectoral-fin ray | 16.9     | 19.6          | —             |
| Length of 3rd detached pectoral-fin ray | 11.9    | 14.9          | —             |
| Pectoral fin length                   | 36.7       | 43.3          | —             |
| Pelvic fin length                     | 27.9       | 29.2          | —             |
| Length of 1st spine of 1st dorsal fin | 10.9       | —*            | —             |
| Length of 2nd spine of 1st dorsal fin | 12.9       | —*            | —             |
| Length of 3rd spine of 1st dorsal fin | 15.0       | —*            | —             |
| Length of 4th spine of 1st dorsal fin | —*         | —*            | —             |

| % of Head length                      |            |               |
| Head depth at middle of orbit         | 53.1       | 63.6          | —             |
| Head width at preopercle             | 58.8       | 60.4          | —             |
| Snout length                         | 46.9       | 45.7          | —             |
| Height of suborbital stay            | 31.4       | 31.2          | —             |
| Upper jaw length                     | 45.1       | 44.1          | —             |
| Lower jaw length                     | 47.3       | 49.3          | —             |
| Orbit diameter                       | 25.4       | 25.8          | —             |
| Interorbital width                   | 21.7       | 23.3          | —             |
| Opercular spine length               | 21.1       | 20.5          | —             |

| % of orbit diameter                  |            |               |
| Snout length                         | 184.4      | 177.3         | —             |
| Interorbital width                   | 85.2       | 90.6          | —             |

* shows that these spines broken.
half of first dorsal fin with a large black oval blotch dorsally. Inner surface of pectoral fin black on upper half, whitish on lower half (Fig. 2B).

**Description.** Head somewhat large, 29.4–29.9% of SL, rostral projection round, comprising about 10 minute spines (Fig. 2A). Snout long, 45.7–46.9% of HL (177.3–184.4% of orbit diameter), convex. Teeth on both jaws villiform, in a relatively broad band. Several small conical teeth on vomer. Small papillae scattered on dorsal and lateral surface of oral cavity. Upper jaw reaching to level with anterior margin of orbit or slightly beyond. Gill rakers very short, stout, 5–6 on lower arch, absent on upper arch. Orbit moderate, 25.4–25.8% of HL, without associated spines. Interorbit wide, 21.7–23.3% of HL (85.2–90.6% of orbit diameter). Post-
Fig. 3. *Lepidotrigla pectoralis*. Lateral (A) and dorsal (B) views of FAKU 63812, 138 mm SL, South China Sea; lateral (C) and dorsal (D) views of the holotype, USNM 98878, 140 mm TL, off Philippines, photo by Sandra Raredon of USNM.
Lepidotrigla pectoralis from Japan

orbital groove narrow, shallow. Posttemporal spine short, reaching below second spine of 1st dorsal fin. Cheek ridge weak, without spine posteriorly on preopercle. Opercular spine very short, 20.5–21.1% HL. Cleithral spine moderately strong, reaching to below 4th–5th dorsal fin spine.

First dorsal fin with 9–10 spines; anterior margin of first spine moderately serrated, third spine longest. Second dorsal fin with 18 soft rays; anterior 5 or 6 rays unbranched. Anal fin with 17–18 soft rays; anterior 12 or 16 rays unbranched. Caudal fin truncated; 5 branched rays on upper lobe, 4 on lower lobe. Pectoral fin with 11 connected rays (7 rays branched) and 3 lowermost detached rays; the longest connected pectoral fin ray reaching to 6th anal fin ray in BSKU 48044 and 11th anal fin ray in FAKU 63812, the longest detached ray not reaching anus. Pelvic fin with 1 spine and 5 rays; 4th ray longest, posterior tip extending beyond anus.

Scales on lateral line 71–74, each with 3–5 branched perforating ducts and many minute spines (on both surface and apical margin) (Fig. 2C). Scales on body with many minute spines on apical margin (Fig. 2D). Thorax, abdomen and around pectoral-fin base lacking scales. Scales above and below lateral line not counted due to irregular arrangement. Bony plates along bases of both dorsal fins 26–27, anterior 7 or 9 plates with denticular edge, remaining plates with a single large backwardly directed spine.

Color when fresh (Fig. 1). Head and body reddish dorsally, whitish ventrally anterior to pectoral-fin base. First dorsal fin reddish, a large dark oval blotch near dorsal margin from fourth to last spines. Second dorsal fin pinkish on dorsal half, whitish on ventral half. Anal fin pinkish on anterior half, whitish on posterior half. Caudal fin reddish on basal half, pinkish on posterior half. Inner surface of pectoral fin blackish on upper half, reddish on lower half. Pelvic fin reddish.

Color in preserved specimen (Fig. 3A, B). Body uniformly light brown. First dorsal fin with a large black oval blotch near dorsal margin from fourth to last spines. Inner surface of pectoral fin blackish on upper half, whitish on lower half (Fig. 2B). Other fins pale.

Remarks. Lepidotrigla pectoralis is easily distinguished from other species of Lepidotrigla in having the following combination of characters: rostral projection round, comprising many minute spines; snout long, slightly convex; second dorsal fin with 18 soft rays; 71–74 lateral line scales; body scales spinous ctenoid; several small spines on each lateral line scale; 26 or 27 bony plates along bases of both dorsal-fins; posterior half of first dorsal fin with a large black oval blotch dorsally; inner surface of pectoral fin black on upper half, whitish on lower half (Richards 1992; der Cerro and Lloris 1995, 1997a, 1997b; Yamada and Yasghita 2013; Gomon and Psomadakis 2018; Gomon and Kawai 2018). Yamada and Yasghita (2013) noted the two specimens as having 70–74 lateral line scales, but our examination found 71–74 such scales.

Both of the present specimens differ somewhat from the original description of the species given by Fowler (1938), viz., in the number of lateral line scales, length of the pectoral fin, and configuration of the black blotch on the first dorsal fin (Table 1). Whereas Fowler (1938) described 53 + 4 lateral line scales, photographs of the holotype of Lepidotrigla pectoralis indicated 73 or 74 scales in the lateral line (Fig. 3C), a number consistent with the specimens examined here. Notwithstanding, the original figure of the species shows the same number of lateral line scales as in the written description. Because the species was described from a single specimen, Fowler (1938) may have taken the count from the inaccurately drawn figure, rather than the specimen.

The holotype also has a long pectoral fin, ca. 55% of SL (judging from the original description), reaching to the 16th anal-fin ray [evident in both a photograph (Fig. 3C) and the original figure], whereas the present specimens have a shorter fin (36.7 or 43.3% of SL), reaching to the 6th or 11th anal-fin rays. This difference may be due to intraspecific variation.

Regarding the configuration of the black blotch on the first dorsal fin, Fowler’s (1938) account stated, “Spinous dorsal pale with grey black blotch broadly terminal on fourth to eighth membranes”. The figure of holotype shows the black blotch extending between the 4th to 9th membranes. However, in the present specimens, the blotch extended from the membrane between the fourth and fifth spines to the most posterior membrane of the fin. The difference may again represent only intraspecific variation.

Comparative material. USNM 98878 (holotype), 140 mm TL, point Tagolo Light, 10.5 miles (8°45′N, 123°33′45″E), vicinity of northern Mindanao, Philippines, 169 fathoms (photograph only), 9 August 1909.

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