First Confirmed Japanese Record of Suttonia lineata (Perciformes: Serranidae) from Iwo Island, Volcano Islands

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A single specimen (57.6 mm standard length) of Suttonia lineata Gosline, 1960, recently collected from Iwo Island, Volcano Islands, Japan and described herein, represents the first confirmed record of S. lineata from Japan and northernmost record of the species, which was previously known from Christmas and Cocos Keeling islands in the eastern Indian Ocean and various localities in the Pacific Ocean. The new standard Japanese name Kazan-kurenai-togemegisu, is proposed for the species.

Key Words: Distribution, Ogasawara (Bonin) Islands, Ioto island, Kazan Islands, Palestripe Podge.

Introduction

The grammistin fish genus Suttonia Smith, 1953 (Serranidae) includes three Indo-Pacific species (Randall and Baldwin 1997; Endo and Kenmotsu 2013): S. suttoni Smith, 1953 (western Indian Ocean), S. lineata Gosline, 1960 (eastern Indian Ocean and Pacific Ocean localities including the Hawaiian Islands, Society Islands, Line Islands, Tonga, Fiji, Vanuatu, New Caledonia, Solomon Islands, Mariana Islands, Australia, Indonesia and the Philippines, and S. coccinea Endo and Kenmotsu, 2013, known only from a single Japanese specimen.

During an ichthyofaunal survey of the Volcano Islands (Kita-iwo, Iwo, and Minami-iwo islands) in the southern Ogasawara Islands, Japan in June 2017, a single specimen of S. lineata was collected off Iwo Island at a depth of 17 m. The northernmost voucher specimen-based record to date being the Hawaiian Islands, the specimen is the northernmost specimen-based record of the species and first confirmed record of S. lineata from Japan. It is described herein and a new standard Japanese name Kazan-kurenai-togemegisu is proposed.

Materials and Methods

Counts and measurements followed Randall and Baldwin (1997). Measurements were made to the nearest 0.1 mm with needle-point digital calipers under a dissecting microscope. The morphological description is based on the single S. lineata specimen collected from Iwo Island. Curatorial procedures followed Motomura and Ishikawa (2013), the specimen being deposited in the Kagoshima University Museum, Kagoshima, Japan (KAUM).

Suttonia lineata Gosline, 1960
[New standard Japanese name: Kazan-kurenai-togemegisu] (Fig. 1; Tables 1, 2)

Suttonia lineata Gosline, 1960: 28, fig. 1 (type locality: Oahu, Hawaiian Islands); Allen and Smith-Vaniz 1994: 10 (Cocos Keeling Islands); Randall and Baldwin 1997: 33, pl. 2, fig. 1 (Oahu, Hawaiian Islands; Tahiti and Moorea, Society Islands; Tahuirueran, Line Islands; Viti Levu, Viva Island, and Great Astrolobe Reef, Fiji; Emae Island, Vanuatu; New Caledonia; Tautsina Island, Solomon Islands; Guam, Mariana Islands; Lizard Island and Coral Sea, Australia; Molucca Islands and Sulawesi, Indonesia; Siquijor Island, Philippines); Allen 2000: 87 (Christmas Island); Allen and Adrim 2003: 32 (Indonesia); Randall et al. 2003: 12 (Tonga); Randall 2005: 171, unnumbered figs (Guam; Hawaiian Islands); Fricke et al. 2011: 387 (New Caledonia); Allen and Erdmann 2012: 311, unnumbered fig. (in part; Cocos-Keeling and Christmas Islands to Hawaiian Islands, Line Islands, Society Islands, and north-eastern Australia; see Remarks regarding Japanese record); Endo and Kenmotsu 2013: 16, fig. 4B (Oahu, Hawaiian Islands; Sulawesi, Indonesia; Guam; Tahiti); Fricke et al. 2014: 65 (Madang, Papua New Guinea).

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Material examined. KAUM–I. 99999, 57.3 mm SL, off Mount Suribachi, Iwo Island, Volcano Islands, 24°44′46″N, 122°57′02″E, 17 m depth, hand net, 6 June 2017, T. Yoshida.

Description. Meristics and morphometrics of the specimen are shown in Tables 1 and 2. Body oblong, moderately deep and compressed, deepest at anus. Dorsal profile of head and body convex from snout tip to caudal-fin base. Ventral profile of head and body convex from lower-jaw tip to caudal-fin base. Head large, 2.5 in SL. Lateral line ending below base of 18th dorsal-fin soft ray. Eye round, 5.0 in HL. Pupil round. Mouth large, slightly oblique, forming angle of ca. 30° to horizontal axis of body. Posterior margin of maxilla extending well beyond vertical line through posterior margin of eye; upper-jaw length less than half head length.

A band of villiform teeth in jaws; inner teeth at front of upper jaw long, slender; a pair of enlarged canine-like teeth on symphysis. Vomer with a patch of villiform teeth. Palatines with a narrow band of villiform teeth in 1–3 rows.

Anterior nostril with long tube, uppermost margin level with ventral margin of pupil. Posterior nostril oval, opening vertically; uppermost margin below level of middle of pupil. Opercle with three flat spines. Gill rakers slender, moderately long but shorter than gill filaments.

Origin of dorsal fin anterior to vertical line through pectoral-fin origin; seventh spine of dorsal fin longest; 20th soft ray of dorsal fin longest. Origin of anal fin below base of third soft ray of dorsal fin; second spine of anal fin longest; 16th soft ray of anal fin longest. Pelvic-fin origin ante-
First Japanese record of *Suttonia lineata*

Table 2. Morphometrics of specimens of *Suttonia lineata.*

|                  | This study | Endo and Kenmotsu (2013) |
|------------------|------------|--------------------------|
|                  | KAUM-1.99999 | n=8                       |
|                  | Iwo Island | Pacific Ocean            |
| Standard length (SL; mm) | 57.3 | 65.5–79.8                |
| As % of SL | Body depth          | 28.8 | 25.9–30.6                |
|                   | Pre-dorsal-fin length | 38.0 | 36.6–38.8                |
|                   | Pre-anal-fin length | 64.2 | 62.3–70.8                |
|                   | Pre-pelvic-fin length | 33.2 | 32.5–38.6                |
|                   | Dorsal-fin base length | 59.7 | 54.6–61.9                |
|                   | Anal-fin base length | 30.9 | 31.0–33.2                |
|                   | Longest dorsal-spine length | 7.9 | 7.6–9.5                  |
|                   | Longest dorsal soft-ray length | 15.4 | 12.6–16.2                |
|                   | Longest anal-spine length | 6.6 | 5.3–7.6                  |
|                   | Longest anal soft-ray length | 15.4 | 12.6–15.5                |
|                   | Caudal-fin length | 23.0 | 18.3–23.2                |
|                   | Pectoral-fin length | 29.1 | 24.8–27.8                |
|                   | Pelvic-fin length | 13.6 | 13.0–14.6                |
|                   | Caudal-peduncle length | 7.0 | 5.6–7.5                  |
|                   | Caudal-peduncle depth | 10.6 | 10.9–12.7                |
|                   | Head length          | 37.9 | 36.4–37.9                |
| As % of head length (HL) |                  | 48.4 | 47.0–49.9                |
|                   | Snout length          | 18.9 | 16.8–20.4                |
|                   | Orbit diameter        | 19.4 | 19.3–21.2                |
|                   | Interorbital width     | 7.4 | 7.6–9.1                  |
|                   | Upper-jaw length       | 49.8 | 49.0–51.9                |
|                   | Lower-jaw length       | 63.1 | 62.5–66.6                |
|                   | Preopercular-spine length | 17.1 | 15.1–19.9               |

Prior to vertical line through origin of dorsal fin. Pectoral fin rounded, posterior tip reaching vertical line through base of fourth soft ray of dorsal fin. Posterior tip of depressed pelvic fin reaching vertical line through base of fourth spine of dorsal fin. Caudal fin rounded.

Coloration when fresh—Upper part of head blackish-red, lower part whitish with pinkish-orange mottling. Dorsal midline of head with discontinuous reddish-orange stripe from upper jaw to origin of dorsal fin. Body dark red, darkest dorsally. Dorsal and anal fins dark red, lighter distally. A single faint whitish-grey mid-lateral stripe on both dorsal and anal fins. Outer margin of soft rays of both fins white. Pectoral fin translucent, red with blackish-red base. Pelvic fin translucent, red with dark red base. Caudal fin dark to lighter red, with faint whitish-grey mid-caudal stripe and white outer margin.

Coloration of preserved specimen—Upper part of head blackish-brown, lower part pale. Mid-dorsal stripe pale. Body dark brown. Dorsal, anal and caudal fins blackish-brown with pale distal margins. Outer margin of caudal fin blackish-brown. Pectoral and pelvic fins whitish with blackish-brown base.

Distribution and habitat. *Suttonia lineata* has been recorded from Christmas Island and the Cocos Keeling Islands in the eastern Indian Ocean, and the following Pacific Ocean localities: Oahu (Hawaiian Islands), Tahiti and Moorea (Society Islands), Tabueran (Line Islands), Tonga (Tonga), Viti Levu, Viwa Island, Great Astrolabe Reef (Fiji), Emea Island (Vanuatu), New Caledonia, Tautinsina Island (Solomon Islands), Guam (Mariana Islands), Lizard Island and the Coral Sea (Australia), Moluccas and Sulawesi (Indonesia), Siquijor Island (Philippines) and Iwo Island (Volcano Islands, Japan) (Allen and Smith-Vaniz 1994; Randall and Baldwin 1997; Allen 2000; Randall et al. 2003; this study).

Collection data for a range of specimens indicate a depth range for the species of 6–30.5 m (Randall and Baldwin 1997). The present specimen was collected under large overhanging rocks at 17 m depth.

Remarks. The specimen from Iwo Island was identified as a species of *Suttonia*, having the following combination of characters: dorsal-fin rays VII, 22–25; anal-fin rays III, 18–22; pectoral-fin rays 14–17; single lateral line with 26–40 pored scales; a mid-dorsal stripe on head; and absence of cteni on scale posterior edges (Randall and Baldwin 1997; Endo and Kenmotsu 2013; Yoshida and Motomura 2014; this study). It was subsequently confirmed as *S. lineata*, having 40 pored scales on the lateral line, the inner pectoral-fin base with scales, and a faint dark blotch on the opercle (Randall and Baldwin 1997; Endo and Kenmotsu 2013; this study). *Suttonia lineata* is distinguished from *S. coccinea* and *S. suttoni* by the large number of pored scales on the lateral line (37–41 in *S. lineata* vs. 26 and 27–35, respectively, in the latter two species) (Randall and Baldwin 1997; Endo and Kenmotsu 2013; this study).

Endo and Kenmotsu (2013: table 1) provided meristics and morphometrics of 12 specimens (66–80 mm SL) of *S. lineata*, although they listed only 11 specimens (23–80 mm SL) under “comparative material”. Most of the meristic and morphometric values for the Iwo Island specimen are within the ranges for the non-type specimens of *S. lineata* given by Endo and Kenmotsu (2013) (Tables 1–2). However, the former specimen differed slightly in some morphometric measurements, as follows: anal-fin base length 30.9% SL (vs. 31.0–33.2% SL in the latter); pectoral-fin length 29.1% SL (vs. 24.8–27.8%); caudal-peduncle depth 10.6% SL (vs. 10.9–12.7%); and interorbital width 7.4% HL (vs. 7.6–9.1%) (Table 2). These small differences were regarded here as intraspecific variations.

Although Allen and Erdmann (2012) included Japan within the distributional range of *S. lineata*, the record was unsupported, there being neither underwater photographs nor voucher specimens of the species from Japan (G. Allen, pers. comm.). In addition, the northernmost record of the species to date, based on voucher specimens, is the Hawaiian Islands (Randall and Baldwin 1997). Therefore, the Iwo Island specimen represents the first reliable record from Japan and the northernmost record for the species.

A new standard Japanese name, Kazan-kurenai-togemegisu, is proposed for *S. lineata*, “kazan” being Japanese for “volcano” and referring to the collection locality (Volcano Islands), as well as the reddish body coloration of the species, reminiscent of magma. “Kurenai-togemegisu” is the common Japanese name for the genus *Suttonia*. 
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