Two New Species of Goby of the Genus *Astrabe* from Japan

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Abstract Two species of goby belonging to the genus *Astrabe* are described from Japan as new species, *A. flavimaculata* and *A. fasciata*. *A. flavimaculata* is distinguishable from *A. lactisella*, the type species and hitherto the only known species of the genus, in that it has no protrusion on the upper posterior part of the dermal fold along the upper margin of the eye, fewer scales in a longitudinal row, predorsal scales, scales on the belly, a narrower white transverse band across the base of the pectoral fins, and in life yellow markings on a dark brown ground colour except for the white transverse band across the base of the pectoral fins. *A. fasciata* is distinguishable from *A. lactisella* in that it has fewer scales in a transverse row, a narrower scaled area on the lateral side of the body, a narrower white transverse band across the base of the pectoral fins, and a white transverse band across the anterior part of the 1st dorsal fin extending to the ventral side of the body.

A species of goby was illustrated as *Astrabe* sp. with the Japanese name "Kimidarahaze" by Prince Akihito (1984) in the Fishes of the Japanese Archipelago. In connection with the further study of this species and *A. lactisella*, the type species and hitherto the only known species of the genus, another species of this genus was found, and the examination of the specimen recorded as *A. lactisella* from Tanegashima by Snyder (1912) and of the specimen recorded also as *A. lactisella* from Tashha, Sadogashima by Honma and Tamura (1972) revealed that these specimens do not belong to *A. lactisella*, but belong to two hitherto scientifically unnamed species. Here these two species are described as new, and *A. lactisella* is re-described in comparison with the two new species. According to the results of this study, some corrections are made to the previous explanations of *A. lactisella* and *A. sp.* by Prince Akihito (1984).

With respect to counting, scales in a longitudinal row are counted from the scale closest to the posterior end of the upper part of the gill membrane to the crease at the base of the caudal fin when the caudal fin is bent, and scales in a transverse row are counted obliquely backwards towards the base of the anal fin from the scale closest to the lateral side of the origin of the 2nd dorsal fin.

The relation between the pterygiophores of the dorsal fins and vertebrae is expressed as 6/111000/12-13 in the tables. "6" shows that 6 vertebrae are inserted before the pterygiophore of the 1st spine of the 1st dorsal fin. Each "1" shows that a pterygiophore of the 1st dorsal fin is inserted between the neural spines. "12-13" shows that 2 pterygiophores of the spine of the 2nd dorsal fin are inserted between the neural spines of the 12th and 13th vertebrae. If "12" is written instead of "12-13", "12" shows that 2 pterygiophores of the spine of the 2nd dorsal fin are mounted over the 12th vertebra.

*Astrabe* Jordan et Snyder
(Japanese name: Shirokurahaze-zoku)
*Astrabe* Jordan and Snyder, 1901: 119. Type by monotypy, *Astrabe lactisella* Jordan and Snyder, 1901.

Characteristics common to the species of the genus *Astrabe* are as follows.

Head with dermal folds. Tips of anterior and posterior nostrils protruding. No sensory canals. Tip of genital papilla of male narrow; that of female widely open. Shape of fins not different between sexes. Pectoral fin with unbranched rays in upper and lower parts; most unbranched rays free; minute projections scattered over free rays. Pelvic fin rays I, 5, united by crenated frenum and by connecting membrane between whole length of 5th soft rays; frenum at part of spines protruding. Scales absent on head and...
before pelvic fins; body covered with cycloid scales, but scales on lateral side not extending forwards to posterior margin of gill membrane.

Found in the sea in Japan.

_**Astrabae lactisella** Jordan et Snyder
(Japanese name: Shirokurahaze)
(Fig. 1)

*Astrabae lactisella* Jordan and Snyder, 1901: 119, fig. 26.

**Material.** Holotype: CAS (California Academy of Sciences) (SU) 06460, 28.2 mm in standard length (SL), female, collected at the rock pools near Misaki, Miura, Kanagawa Pref., August, 1900.

Other specimens: USNM (United States National Museum) 071533-1, 39.2 mm SL, male, Misaki, Miura, Kanagawa Pref., 1906, collected by Snyder and Sindo. USNM 071533-2, 37.2 mm SL, male, same data as USNM 071533-1. USNM 071533-3, 28.8 mm SL, same data as USNM 071533-1. USNM 071533-4, 24.1 mm SL, same data as USNM 071533-1. ZUMT (Department of Zoology, University Museum, University of Tokyo) 28675, 42.7 mm SL, female, Misaki, Miura, Kanagawa Pref., May 2, 1912. ZUMT 29243, 37.2 mm SL, male, same locality as ZUMT 28675, date unknown. ZUMT 35951, 33.9 mm SL, female, Uchiura, Amatsukominato, Awa-gun, Chiba Pref., date unknown. ZUMT 35952, 19.8 mm SL, same data as ZUMT 35951. ZUMT 35953, 21.4 mm SL, same data as ZUMT 35951. LICPP (Laboratory of Ichthyology, the Crown Prince's Palace, Tokyo) 1982164, 38.6 mm SL, female, at 5 m depth, Izu Oceanic Park, Futo, Ito, Shizuoka Pref., November 25, 1982, collected by Masuda. No catalogue number, kept in Mie Prefectural Museum, 25.4 mm SL, Oshima, Wagu, Shima, Shima-gun, Mie Pref., date unknown.

**Diagnosis.** A protrusion on upper posterior part of dermal fold along upper margin of eye; 55 to 60 (mean 58.1) scales in a longitudinal row; 19 to 22 (mean 20.9) scales in a transverse row; no predorsal scales; belly without scales; distribution of scales individually different, from extending to near posterior end of base of 1st dorsal fin and posterior part of base of 2nd dorsal and anal fins to not extending to these fins; width of scaled area 80.3 to 88.5% (mean 84.7%) of body depth at origin of anal fin; a wide white transverse band across base of pectoral fins whose width at median dorsal side is 11.1 to 16.7% (mean 13.6%) of standard length; no white transverse band across anterior part of 1st dorsal fin extending to ventral side of body; in life white markings on a dark brown ground colour.

**Description.** Counts and measurements of the material are shown in Table 1.

The arrangement of the dermal folds and sensory papillae on the head is shown in Fig. 2. Large dermal fold along upper margin of eye with a protrusion on upper posterior part. Several