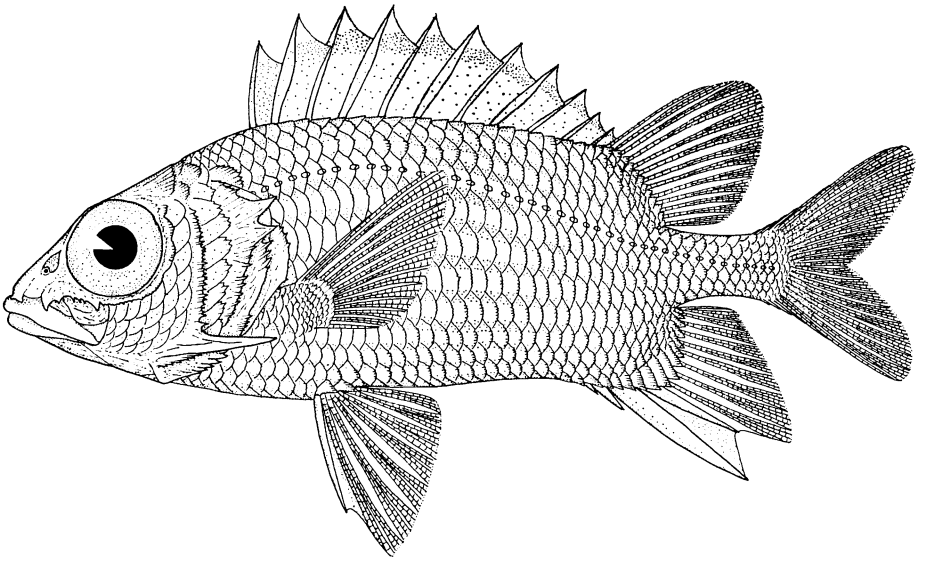

Fig. 15. *Adioryx tiereoides* (Bleeker, 1853), BPBM 16243, 115.5 mm SL, Florida Is., Solomon Islands. Drawing by T. Shimizu.

Gill rakers 7+1+12 or 13=20 or 21.

Head 2.8~3.0, body depth 2.7~2.8 in SL. Orbit 2.5~2.8; jaws, upper 2.3~2.6, lower 1.8~1.9; dorsal-fin spines, first 2.9~4.1, second 2.5~2.9, third 2.3~2.5; anal-fin spines, third 1.5~1.6, fourth 1.9~2.1 in HL. Snout 1.3, interorbital 1.6~2.1 in orbit diameter.

Head profile straight. Head rather pointed. Spinous dorsal-fin base almost straight. Soft dorsal-fin base not raised. Anterior tip of nasal bone with two divergent spines. Posterior portion of nasal bone without spinations. Nostril large, without spinule. Frontal bone not forming a shelf over antero-dorsal portion of orbit. Interorbital concave. Upper margin of first suborbital bone smooth, but postero-ventral portion has a few serrae. Lower jaw not protruding when mouth closed. Opercle with two spines, the upper slightly longer. Preopercular spine long, slightly longer than two-thirds of orbit. Dorsal-fin spines low. Spinous dorsal-fin membranes incised. Third anal-fin spine moderate. Cheek with four scale rows. Body scales finely serrated, not striated.

Color when fresh (based on color slides of a specimen from Tahiti taken by Dr. J. E. Randall): Head, ground color of body and all fin rays red. Each longitudinal body scale row with a whitish stripe, narrow and vague dorsally, wide and distinct ventrally. Spinous dorsal-fin membranes vaguely red, with a longitudinal red band along the distal margin. This band spreads across almost the whole area of the dorsal-fin membranes between the first and second spines. A small triangular white spot just behind tip of each dorsal-fin spine. Small white spot at the base of first and second dorsal-fin spines. Anterior margin of pelvic-fin white. Anterior edge of third anal-fin spine whitish. Spinous anal-fin membranes red. Jaws whitish.

Remarks. Snyder (1912) recorded *Holocentrus binotatus* from Okinawa Island. Okada and Matsubara (1938) included *Holocentrus binotatus* in the ichthyofauna of Japan and gave it the Japanese name "niten-ebisu" without citation of the references. They may quote Snyder's record. Aoyagi (1941) described *Holocentrus tiereoides* and called it "niten-ebisu" quoting Snyder's record, since he (1943) regarded *Holocentrus binotatus* as the snynonym of *H. tiereoides*. As was pointed out by Woods (1953), *Holocentrus binotatus* is nothing more than the synonym of *Adioryx spinifer*. Therefore *Adioryx tiereoides* may not have been recorded from Japan so far, for Snyder's description is too short to ascertain the species.

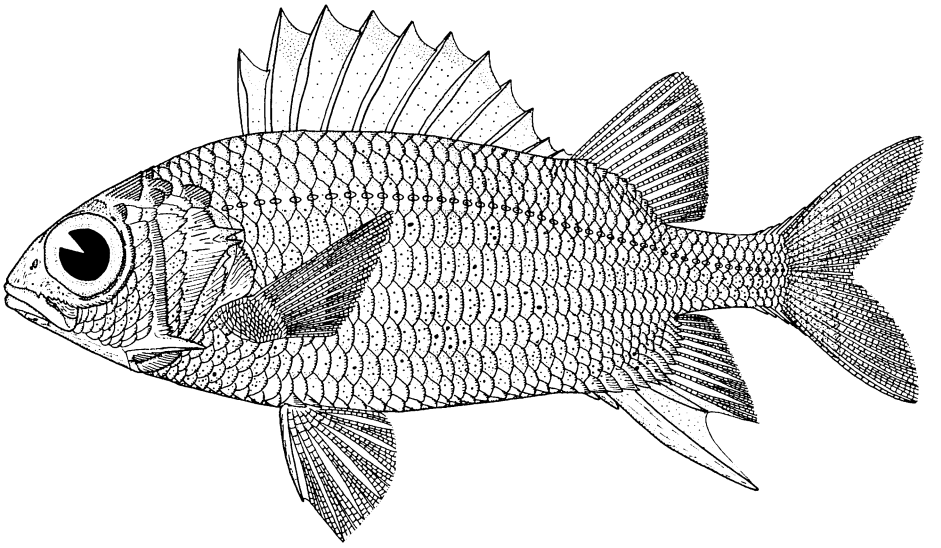

Fig. 16. *Adioryx lacteoguttatus* (Cuvier, 1829), HUMZ 47231, 126.1 mm SL, Okinawa Is. Drawing by T. Shimizu.

There is, however, still a possibility that this species may be found in Japan. The description and the new Japanese name are based on specimens from Papua-New Guinea and the Solomon Islands.

Bryan and Herre (1903: 128) reported *Holocentrus tiereoides* from Marcus Island (BPBM 2410, 93.4 mm SL). Our re-examination of this specimen reveals that they erroneously identified *Adioryx caudimaculatus* as *H. tiereoides*. Seale (1906: 20) may be the first reviser of *Holocentrus tiereoides*.

Adioryx lacteoguttatus (Cuvier, 1829)
(Fig. 16)
(Japanese name: Hoshi-ebisu)

Holocentrum lacteo-guttatum Cuvier, 1829: 214 (type locality, Indian Ocean).
Holocentrum punctatissimum Cuvier, 1829: 215 (type locality, Strong Is., Caroline Islands).
Holocentrum diploxiphus Günther, 1871: 660, pl. 60 (type locality, Samoa).
Holocenthrus gladispinis Fowler, 1904b: 225, fig. 1 (type locality, Tahiti).
Holocenthrus gracilipinis Fowler, 1904b: 228, fig. 2 (type locality, Honolulu).
Holocentrus punctatissimus; Jordan and Evermann, 1905: 162, fig. 60.
Holocentrus lacteoguttatus; Fowler, 1922: 82.
Holocenthrus (*Faremusca*) *punctatissimus*; Whitley, 1933: 68.
Holocentrus lacteo-guttatus; Herre, 1936: 67.
Faremusca lacteo-guttata; Fowler, 1944: 188.
Faremusca lacteoguttata termastigma Fowler, 1946: 127, fig. 2 (type locality, Naha, Okinawa, Japan).
Adioryx lacteoguttatus; Axelrod and Emmens, 1969: 161, with fig. (not numbered).

Diagnosis. Scales above lateral-line 2.5. Nostril without spinules. Lateral-line scales 42～45. Frontal bone forming a distinct shelf over antero-dorsal portion of orbit. Small black or brown spots of unequal size on whole body.

Specimens examined. 23 specimens, 93.9～127.6 mm SL. HUMZ 45338～45342, Apr. 29, 1973; 47231, Apr. 20, 1974; 47957, date unknown; 47978, 47981, 48015, 48018, 48032, Apr. 13, 1974; 48312, Apr. 17, 1974; 48661～48663, 48670, Apr, 13, 1974; 62994, 62995, Apr. 24, 1977; 63067～63069, Apr. 30, 1977; 63088, May 3, 1977. Localities: Okinawa Is., Ishigaki Is., Okinawa Pref.

Description. D. XI, 12～14 (usually 13), Pec. 15, A. IV, 9. Lateral-line scales 42～45. Scales 2.5 above, 8 or 9 below lateral-line. Gill rakers 5～7 (usually 6)+1+9～11=15～19 (usually 17 or 18).

Head 3.0～3.4, body depth 2.7～3.1 in SL.

Orbit 2.3~3.0; jaws, upper 2.6~3.0, lower 2.0~2.4; dorsal-fin spines, first 2.5~3.3, second 1.9~2.4, third 1.7~2.2; anal-fin spines, third 1.2~1.4, fourth 1.7~2.3 in HL. Snout 1.4~1.8, interorbital 1.2~1.4 in orbit diameter.

Snout profile steep, nape profile gently curved. Spinous dorsal-fin base slightly curved. Soft dorsal-fin base slightly raised. Anterior tip of nasal bone round. Posterior portion of nasal bone smooth. Nostril small, without spinule. Frontal bone forming a distinct shelf over antero-dorsal portion of orbit. Interorbital flat and wide. Upper margin of first suborbital bone smooth. Upper jaw not protruding when mouth closed. Opercle with two sharp spines, the lower slightly longer. Preopercular spine short, about a half of orbit. Dorsal-fin spines high. Spinous dorsal-fin membranes incised. Third anal-fin spine long, slender. Body scales finely serrated, striated.

Color when fresh: Small black or brown spots of unequal size scattered over entire body. Head and body bright red, belly silvery red. Each longitudinal body scale row with a stripe, silvery dorsally, whitish ventrally. Dorsal-fin spines pale red. Distal portion of spinous dorsal-fin membranes red, the rest of fin white. Soft dorsal- and pectoral-fins reddish. Pelvic-fin pale. Third anal-fin spine white, spinous anal-fin membranes red, the rest of fin pale. Caudal-fin red. A red band from nape through humeral to inner face of pectoral-fin axil.

Synonymy. Klausewitz and Bauchot (1967) synonymized *Holocentrum punctatissimum* Cuvier, 1829 with *H. lacteo-guttatum* Cuvier, 1829 based on the examination of both holotypes.

Holocentrum diploxiphus Günther, 1871 closely resembles *Adioryx lacteoguttatus* except for its higher count of lateral-line scales and weak punctation. Jordan and Seale (1906) and Fowler (1928) synonymized *H. diploxiphus* with *H. punctatissimus* (=*lacteoguttatus*, see above) without any discussion. Weber and de Beaufort (1929), on the other hand, cast doubt on this synonymy. *Holocentrum diploxiphus* has 45~47 lateral-line scales which slightly overlap with the specimens of *lacteoguttatus* (42~45) examined in this study. According to Günther's description, the larger specimen has weak punctation, but the smaller one has full punctation as known for the present species. In view of other similarities we think the placement of *diploxiphus* in synonymy with *lacteoguttatus* is justified.

Holocenthrus gladispinis Fowler, 1904 and *H. gracilipinis* Fowler, 1904 were synonymized with *Holocentrus lacteoguttatus* by Fowler (1928). The diagonsitic feature of *A. lacteoguttatus*, the shelf over the antero-dorsal portion of the orbit, is present in both of these nominal species. They are probably conspecific with *A. lacteoguttatus*.

Fowler (1946) described *Faremusca lacteoguttata termastigma* from a single specimen from Okinawa. He distinguished this subspecies by the black distal edge of its spinous dorsal-fin. Among the 98 specimens of *A. lacteoguttatus* from the Ryūkyū Islands, the authors found none with coloration as described by Fowler. Fowler's specimen may have been an individual variant of the present species. The authors conclude that there is no satisfactory basis for the establishment of this subspecies.

Adioryx tiere (Cuvier, 1829)
(Fig. 17)
(Japanese name: Aosuji-ebisu)

Holocentrum tiere Cuvier, 1829: 202 (type locality, Tahiti).

Holocentrum poecilopterus Bleeker, 1854: 356 (type locality, Cocos Is.).

Holocentrum erythraeum Günther, 1859: 32 (type locality, San Cristobal Is., Solomon Islands).

Holocentrus erythraeus; Smith and Swain, 1882: 127.

Holocentrus erythroeus; Waite, 1903: 3.

Holocenthrus polynesiae Fowler, 1904b: 229, fig. 3 (type locality, Thornton Is., Polynesia).

Holocentrus tiere; Seale, 1906: 24.

Adioryx tiere; Axelrod and Emmens, 1969: 165, with fig. (not numbered).

Diagnosis. Scales above lateral-line 2.5. Nostril without spinules. Lateral-line scales 47~52. Preopercular spine long, subequal to orbit.

Specimens examined. 18 specimens, 180.9~

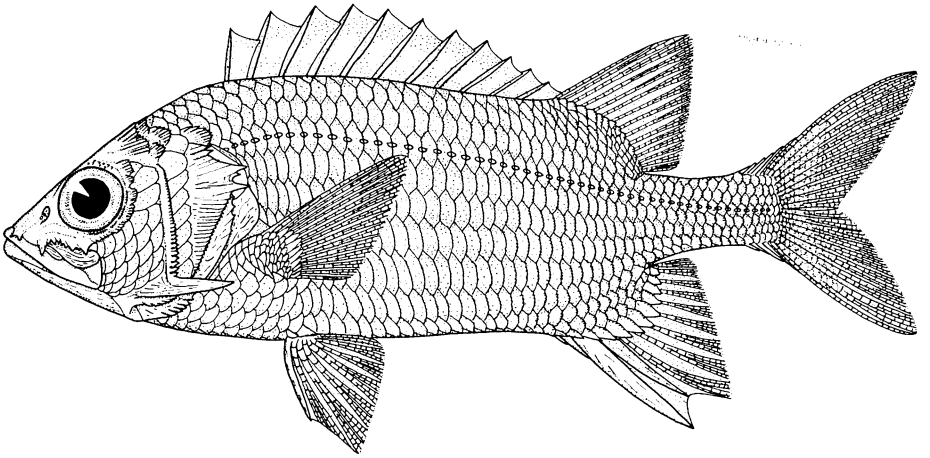

Fig. 17. *Adioryx tiere* (Cuvier, 1829) HUMZ 41394, 212.5 mm SL, Ishigaki Is. Drawing by T. Shimizu.

257.6 mm SL. HUMZ 40467, 40473, Apr. 16, 1974; 41394, 41395, 41398, May 2, 1975; 41416, 41417, May 3, 1975; 45167, 45168, Apr. 16, 1974; 45220, 45301, Apr. 23, 1973; 62878, Apr. 15, 1977; 63071, May 1, 1977. KSHS 5453, Aug., 1966; 12522, Mar. 17, 1972; 14391, Jul., 1973; 15197, Mar, or Apr., 1974; 16969, Nov. 4, 1975. Localities: Okinawa Is., Ishigaki Is., Okinawa Pref.; Amami-oshima, Kogoshima Pref.

Description. D. XI, 14, Pec. 14 or 15 (usually 14), A. IV, 9. Lateral-line scales 47～52. Scales 2.5 above, 8 below lateral-line. Gill rakers 6～8 (usually 7)+1+12～14=19～23 (usually 21 or 22).

Head 2.9～3.3, body depth 2.7～3.0 in SL. Orbit 3.1～3.8; jaws, upper 1.9～2.2, lower 1.5～1.8; dorsal-fin spines, first 4.0～4.9, second 3.1～4.0, third 2.6～3.5; anal-fin spines, third 1.4～1.9, fourth 2.0～2.5 in HL. Snout 0.9～1.1, interorbital 1.2～1.7 in orbit diameter.

Head profile gently curved. Spinous dorsal-fin base slightly curved. Soft dorsal-fin base raised. Anterior tip of nasal bone with two divergent spines. Posterior portion of nasal bone smooth. Frontal bone not forming a shelf over antero-dorsal portion of orbit. Interorbital flat. Upper margin of first suborbital bone smooth. Lower jaw not protruding when mouth closed. Opercle with two flat, short spines, the upper slightly longer. Preopercular spine long, subequal to orbit. Dorsal-fin spines low. Fourth anal-fin spine long, slightly shorter than the third. Body scales finely serrated, not striated.

Color when fresh: Head, body and all fins crimson. Each longitudinal body scale row with a bluish stripe. This stripe is very clear in life (personal communication from Mr. T. Yoshino). A small, triangular white spot just behind the tip of dorsal spines. Each spinous dorsal-fin membrane with a medial whitish patch.

Synonymy. *Holocentrum poecilopterus* Bleeker, 1853 was regarded as the synonym of *H. tiere* by Jordan and Seale (1906) with a brief discussion. This nominal species has 52 lateral-line scales, 2.5 scales above the lateral-line, a long preopercular spine about equal to the eye diameter and a nostril without spines (Bleeker, 1854; Günther, 1859; Bleeker, 1873b). These characters coincide with the diagnosis of *Adioryx tiere*. *Holocentrum poecilopterus* is therefore a synonym of *A. tiere*.

Although regarded by Günther (1859, 1875) and Fowler (1928) as a valid species, *Holocentrum erythraeum* Günther, 1859 was synonymized with *H. tiere* by Woods (1953) based on his detailed study.

Holocenthrus polynesiae Fowler, 1904 was synonymized with *H. tiere* by Jordan and Seale (1906) and Fowler (1928), a decision with which the authors concur.

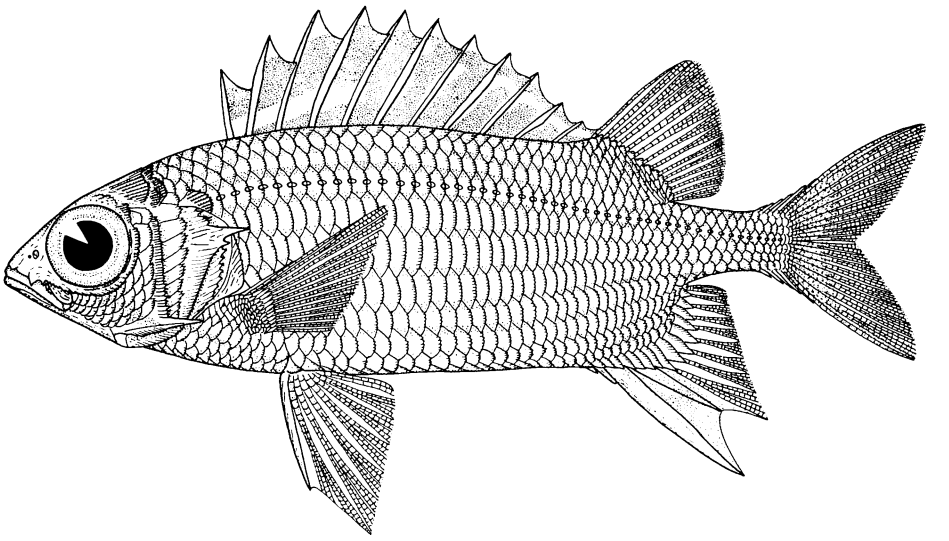

Fig. 18. *Adioryx diadema* (Lacepède, 1802), HUMZ 40265, 113.5 mm SL, Okinawa Is. Drawing by T. Shimizu.

Adioryx diadema (Lacepède, 1801)
(Figs. 5C, 18)
(Japanese name: Niji-ebisu)

Holocentrus diadema Lacepède, 1801, fig. 32-3 (type locality, unknown); 1802: 335, 372.
Perca pulchella Bennett, 1827: 377 (type locality, Sumatra).
Holocentrum diadema; Cuvier, 1829: 213.
Adioryx diadema; Axelrod and Emmens, 1969: 160, with fig. (not numbered).

Diagnosis. Spinous dorsal-fin membranes almost black, with white oblique bands.

Specimens examined. 19 specimens, 107.4~131.2 mm SL. HUMZ 40258~40260, Apr. 18, 1974; 40261, Apr. 14, 1974; 40262, Apr. 28, 1974; 40263, May 13, 1974; 40264, Apr. 20, 1974; 40265, May 11, 1974; 40266, Aug. 1, 1973; 47954, 47965, Apr. 7, 1974; 48317, Apr. 12, 1974; 62887, Apr. 16, 1977. KSHS 11619, Nov., 1970; 11647, Apr., 1971; 12092, Jul. 21~Aug. 7, 1971; 12218, 12219, Sep., 1971; 14393, Jul., 1973. Localities: Okinawa Is., Ishigaki Is., Okinawa Pref.; Amami-oshima, Kagoshima Pref.

Description. D. XI, 13 or 14, Pec. 13~15 (usually 14), A. IV, 8~10 (usually 9). Lateral-line scales 46~50. Scales 2.5 above, 8 or 9 below lateral-line. Gill rakers 4~6 (usually 6)+1+11~14 (usually 12 or 13)=16~21 (usually 19 or 20).

Head 2.9~3.6, body depth 2.7~3.2 in SL. Orbit 2.2~2.7; jaws, upper 2.7~2.9, lower 2.0~2.3; dorsal-fin spines, first 2.9~3.7, second 1.9~2.8, third 1.6~2.1; anal-fin spines, third 1.1~1.3, fourth 1.7~2.1 in HL. Snout 1.3~1.8, interorbital 1.5~1.8 in orbit diameter.

Body much compressed, rather elongate. Head profile gently curved. Spinous dorsal-fin base almost straight. Soft dorsal-fin base well raised. Anterior tip of nasal bone round. Posterior portion of nasal bone smooth. Nostril small, without spinules. Lateral margin of frontal bone almost straight or slightly convex, forming a shallow shelf over antero-dorsal portion of orbit. Interorbital slightly concave. Upper margin of first suborbital bone smooth. Lower jaw not protruding when mouth closed. Opercle with two spines, the upper stout and much longer. Preopercular spine short, less than a half of orbit. Dorsal-fin spines high. Spinous dorsal-fin membranes incised. Third anal-fin spine long, slender. Cheek with four scale rows. Body scales finely serrated and striated.

Color when fresh: Spinous dorsal-fin membranes black, with small triangular white spot just behind the tip of each spine; a white band runs upwards from base of first dorsal spine to fifth spine; a submarginal white band from eighth to eleventh spines. Ground color

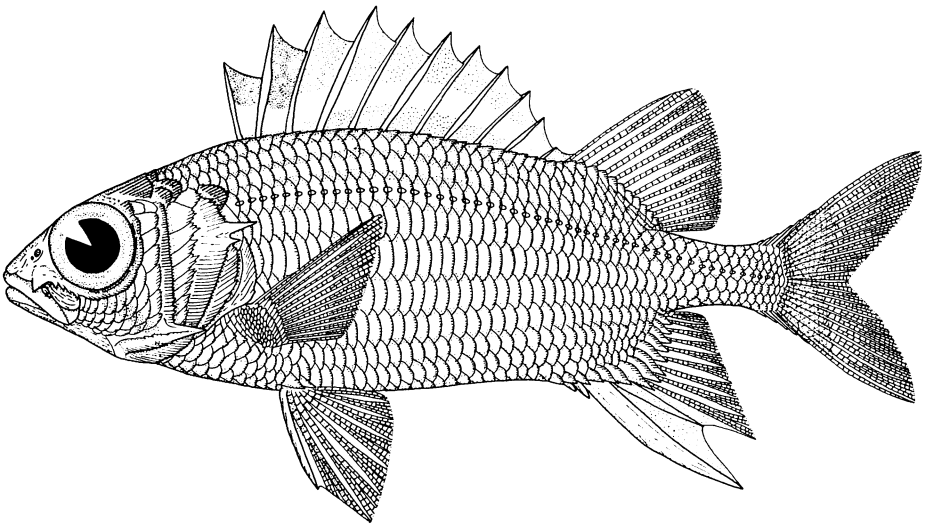

Fig. 19. *Adioryx ittodai* (Jordan et Fowler, 1903), HUMZ 47492, 127.7 mm SL, Okinawa Is. Drawing by T. Shimizu.

of head and body red. Each longitudinal body scale row with a white stripe. A white band from cheek to upper jaw. Anterior margin of soft dorsal-fin red, the rest of fin pale. Pectoral-fin reddish. Anterior margin of pelvic-fin white, first ray red, the rest of fin pale. Third anal-fin spine white, spinous anal-fin membranes red or dusky, the rest of fin pale. Anterior margin of both caudal-fin lobes red, the rest of fin pale. Inner face of pectoral-fin axil brick red.

Synonymy. The authors follow Günther (1859) in placing *Perca pulchella* Bennett, 1827 in the synonymy of *A. diadema*. Bennett's description of *P. pulchella* is too short to ascertain the species. It is thought that Günther might have examined Bennett's specimen.

Adioryx ittodai (Jordan et Fowler, 1903)
(Figs. 5D, 19)
(Japanese name: Teri-ebisu)

Holocentrus ittodai Jordan and Fowler, 1903: 16, fig. 4 (type locality, Naha, Okinawa, Japan).

Faremusca ittodai; Fowler, 1946: 127.

Adioryx ittodai; Masuda, Araga and Yoshino, 1975: 197, pl. 31-G.

Diagnosis. Lateral-line scales 47～49. Distal half of spinous dorsal-fin membranes between first and third spines black.

Specimens examined. 77 specimens, 97.0～144.7 mm SL. HUMZ 40423～40425, Apr. 15, 1973; 40426～40429, Apr. 29, 1973; 40430～40432, Apr. 30, 1973; 47236, 47237, Apr. 8, 1974; 47239, Apr. 20, 1974; 47240, Apr. 12, 1974; 47243, 47246, 47726, Apr. 8, 1974; 47727, Apr. 12, 1974; 47757, Apr. 4, 1974; 47801, 47812, Apr. 15, 1973; 47815, date unknown; 47822, Apr. 26, 1973; 47829, date unknown; 47852, Jul. 1, 1973; 47855, 47856, date unknown; 47942, Apr. 4, 1974; 47960, Apr. 8, 1974; 47962, Mar. 6, 1974; 47967, Apr. 8, 1974; 47968, Apr. 12, 1974; 47969, Apr. 8, 1974; 47972, Mar. 6, 1974; 47973, 47983, 47984, Apr. 8, 1974; 47987, 47988, Apr. 12, 1974; 47989, Apr. 20, 1974; 47992, Apr. 8, 1974; 47993, Apr. 12, 1974; 47994, Apr. 8, 1974; 47998, Apr. 12, 1974; 48000, 48004, 48006, Apr. 8, 1974; 48008, Apr. 4, 1974; 48009, Apr. 12, 1974; 48011, Apr. 4, 1974; 48012, Apr. 8, 1974; 48013, 48014, Apr. 12, 1974; 48017, Apr. 4, 1974; 48021, Apr. 8, 1974; 48022, 48026, 48028, Apr. 12, 1974; 48029, 48033, 48036, 48037, Apr. 8, 1974; 48039, Apr. 12, 1974; 48040, 48041, Apr. 8, 1974; 48045, date unknown: 48319, Apr. 8, 1974; 48323, 48654, 48657, Apr. 12, 1974; 48658～48660, Apr. 8, 1974; 48665, Apr. 12, 1974; 48667, Apr. 8, 1974; 48669, 48671, Apr. 12, 1974. Localities: Okinawa Is., Ishigaki Is., Okinawa Pref.

Description. D. XI, 12~14 (mostly 13), Pec. 14~16 (mostly 15), A. IV, 9 or 10 (mostly 9). Lateral-line scales 46~49. Scales 2.5 above, 8 or 9 (mostly 9) below lateral-line. Gill rakers 4~6 (usually 5 or 6)+1+11~13 (usually 12 or 13)=17~20 (usually 19 or 20).

Head 3.0~3.5, body depth 2.8~3.3 in SL. Orbit 2.2~2.7; jaws, upper 2.5~2.8, lower 1.9~2.1; dorsal-fin spines, first 2.4~3.3, second 1.8~2.5, third 1.6~2.2, anal-fin spines, third 1.1~1.5, fourth 1.6~2.2 in HL. Snout 1.4~1.8, interorbital 1.4~1.8 in orbit diameter.

Snout profile rather steep, nape profile gently curved. Spinous dorsal-fin base gently curved. Soft dorsal-fin base slightly raised. Anterior tip of nasal bone round. Posterior portion of nasal bone smooth. Nostril small, without spinules. Lateral margin of frontal bone almost straight or slightly convex, forming a shallow shelf over antero-dorsal portion of orbit. Interorbital slightly concave. Upper margin of first suborbital bone smooth. Lower jaw not protruding when mouth closed. Opercle with two flat, stout spines; the upper much longer. Preopercular spine short, about one-third of orbit. Dorsal-fin spines high. Spinous dorsal-fin membranes incised. Third anal-fin spine sharp and long. Cheek with four scale rows. Body scales finely serrated and slightly striated.

Color when fresh: A distinct black blotch between distal half of first and third dorsal-fin spines, distal membranes between third and fifth spines slightly dusky. Spinous dorsal-fin membranes red, with a white band running lengthwise from base of first spine to middle portion of fin membranes, small triangular spot just behind tip of each dorsal spine. Ground color of head and body red, bright above, faint below. Each longitudinal body scale row with a wide, white stripe. A white band from snout tip to ventral limb of preopercle. Nape through humeral to inner face of pectoral axil red. Dorsal-fin spines, soft dorsal- and pectoral-fins red. Anterior margin of pelvic-fin white, first ray red, the rest of fin whitish. Third anal-fin spine white, spinous anal-fin membranes red, the rest of fin whitish. Anterior margin of both caudal-fin lobes red, the rest of fin whitish.

Remarks. Besides Japan, this species is reported only from Sri-Lanka (Vasiliu, 1931: 328; Munro, 1955: 87) and Taiwan by Burgess and Axelrod (1974: 1061, fig. 406; 1063, figs. 411, 412), although the latter authors regarded it as "*Adioryx* sp. (possibly *A. spinosissimus*)."

The black blotch on spinous dorsal-fin membranes is not descernable in some specimens from Miyake Is., Izu Islands, Japan and south Taiwan (based on color slides taken by Dr. J. E. Randall). But the lengthwise white band in the middle portion of spinous dorsal-fin membranes and other colorations are quite identical with other specimens from Japan. The absence of black blotch may be an infraspecific variation.

Genus *Flammeo* Jordan et Evermann, 1898
(Fig. 2B, C)
(Japanese name: Ukeguchi-ittodai zoku)

Neoniphon Castelnau, 1875: 4, type species, by monotypy, *Neoniphon armatus* Castelnau, 1875: 5.

Flammeo Jordan and Evermann, 1898: 2871, type species, by original designation, *Holocentrum marianum* Cuvier, 1829: 219.

Kutaflammeo Whitley, 1933: 69, type species, by original designation, *Holocentrum tahiticum* Kner, 1864: 482.

Diagnosis. Last dorsal spine nearer to first dorsal ray than penultimate spine. Lower jaw protruding when mouth closed.

Synonymy. The synonymy and application of *Neoniphon* follow the opinion of Woods (1955) and Woods and Sonoda (1973).

Whitley (1933) recognized three subgeneric groups among the species of *Holocenthrus* and proposed the subgeneric name *Kutaflammeo* for *Holocentrum tahiticum* (=*F. sammara*, see synonymy of *F. sammara*). Munro (1967) elevated *Kutaflammeo* to generic rank without showing any differences from other genera. The species included in *Kutaflammeo* (*argenteus*, *sammara* and *opercularis*, see each synonymy) differ from the Pacific *F. scythrops* and the Atlantic *F. marianus* in general coloration and in possessing a longer last dorsal spine than the penultimate one (Fig. 2B, C). These

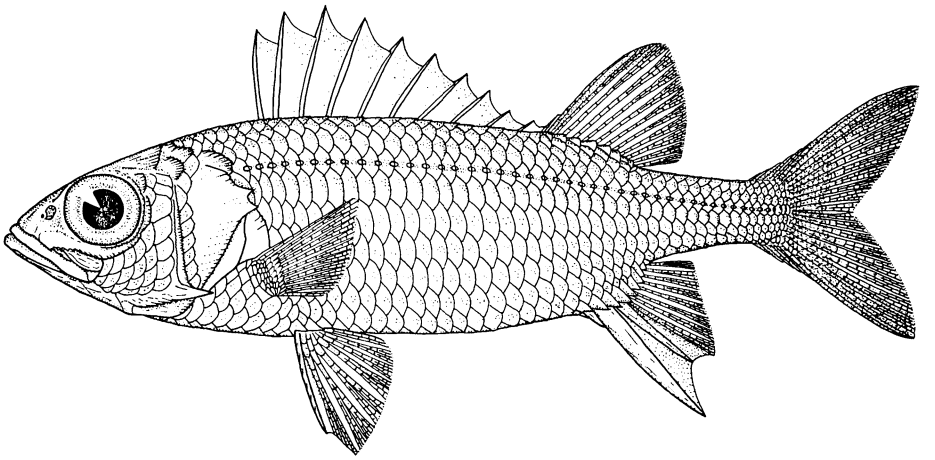

Fig. 20. *Flammeo argenteus* (Valenciennes, 1831), HUMZ 40443, 181.5 mm SL, Ishigaki Is. Drawing by T. Shimizu.

differences, however, may be too trivial to verify the distinction at the generic level. The authors tentatively place *Kutaflammeo* in the synonymy of *Flammeo*.

Key to the species of *Flammeo*
(Fig. 2B, C)

A_1 Last dorsal spine longer than the penultimate one (Fig. 2B). Scales above lateral-line 2.5.
  B_1 Pectoral-fin rays 12 or 13, usually 13. Spinuous dorsal-fin membranes immaculate ..... *F. argenteus*
  B_2 Pectoral-fin rays 13 or 14, mostly 14. Spinous dorsal-fin membranes with dark pigmentation.
    C_1 Anal-fin rays 7 or 8, usually 8. A large black blotch distally between first and third dorsal-fin spines..... ..... *F. sammara*
    C_2 Anal-fin rays 9. Spinous dorsal-fin membranes black, with a white oblique band ..... *F. opercularis*
A_2 Last dorsal spine shorter than the penultimate one (Fig. 2C). Scales above lateral-line 3.5 ..... *F. scythrops*

Flammeo argenteus (Valenciennes, 1831)
(Fig. 20)
(Japanese name: Hoso-ebisu)

Holocentrum argenteum Valenciennes, 1831: 502 (type locality, New Guinea).

Holocentrum stercus-muscarum Valenciennes, 1831: 503 (type locality, Guam Is.).

Holocentrum laeve Günther, 1859: 47 (type locality, Louisiade Archi.; Guadalcanal Is., Solomon Islands; Amboina).

Holocentrum goldiei Macleay, 1883: 352 (type locality, New Guinea).

Rhynchichthys novae-britanniae De Vis, 1884: 447 (type locality, New Britain Is.).

Flammeo achromopterus Fowler, 1904b: 236, fig. 6 (type locality, Samoa).

Holocentrus laevis; Jordan and Seale, 1906: 226.

Holocentrus angustifrons Ogilby, 1908: 32 (type locality, New Britain Is.).

Holocentrus (*Flammeo*) *laevis*; Woods, 1955: 92.

Kutaflammeo angustifrons; Munro, 1967: 141.

Kutaflammeo laevis; Munro, 1967: 141, pl. 15-fig. 223.

Holocentrum stercusmuscarum; Klausewitz and Bauchot, 1967: 125, fig. 4.

Flammeo laeve; Burgess and Axelrod, 1973: 693, fig. 173.

Flammeo laevis; Bagnis and others, 1974: 238, with fig. (not numbered).

Diagnosis. Pectoral-fin rays 12 or 13 (usually 13). Spinous dorsal-fin membranes immaculate.

Specimens examined. Seven specimens, 117.9～183.6 mm SL. BSKU 10591, Nov. 1961. HUMZ 40443, Apr. 26, 1973; 62974, 62975, Apr. 23, 1977. KSHS 15158, 15493, 15494, Mar., 1974. Locality: Ishigaki Is.,

Okinawa Pref.

Fifteen specimens from Papua-New Guinea were also examined to assist the authors in confirming the synonymy. 87.0~139.3 mm SL. HUMZ 40233, 40234, north side of Buriwad Is., Trobriand Islands; 40285~40287, Casuarina Is., Bougainville; 40291~40295, Fisherman Is., Port Moresby; 40296, Motupone Is., Bootless Bay, Port Moresby; 40299, Por Is., Siassi Group. Syntype of *Holocentrum goldiei* AM I. 16285-001 (3 specimens).

Description. D. X-I, 11~13 (mostly 12), Pec. 12 or 13 (mostly 13), A. IV, 7~9 (mostly 8). Lateral-line scales 38~43 (usually 40 or 41). Scales 2.5 above, 7 or 8 (usually 8) below lateral-line. Gill rakers 4~7 (usually 6)+1+7~11 (usually 10)=14~18 (usually 16 or 17).

Head 2.7~3.4, body depth 3.1~3.7 in SL. Orbit 2.4~3.0; jaws, upper 2.2~2.3, lower 1.7~1.8; dorsal-fin spines, first 2.4~3.1, second 1.9~2.3, third 1.9~2.1; anal-fin spines, third 1.4~1.6, fourth 1.9~2.4 in HL. Snout 1.2~1.6, interorbital 1.2~1.7 in orbit diameter.

Body slender, spinous dorsal-fin high. Head profile gently curved. Spinous dorsal-fin base almost straight. Caudal peduncle rather deep. Snout rather long. Lower jaw protruding when mouth closed. Nostril large, without spination. Nasal bone and upper margin of first suborbital bone smooth. Lower margin of first suborbital bone with weak serrae. Lateral margin of frontal bone convex, forming a shallow shelf over antero-dorsal portion of orbit. Interorbital wide, flat. Opercle with two blunt spines, both almost the same size. Opercular bones with weak striations. Preopercular spine short, about one-third or one-quarter of orbit. Dorsal-fin spines slender, weak; the first one a little shorter than the second, third the longest. First dorsal-fin spine close to second one. Spinous dorsal-fin membranes incised. Pectoral-fin small. Cheek with four scale rows. Body scales finely serrated, not striated.

Color when fresh: Spinous dorsal-fin membranes immaculate, only slightly dusky distally. Head deep brown dorsally. Ground color of head and body silvery, bluish dorsally, whitish ventrally. Each longitudinal body scale row with a faint dark spot in center, these spots forming longitudinal bands. Lateral-line scale row with a distinct brown stripe. Anterior margin of soft dorsal-fin reddish. Pectoral-fin reddish. Pelvic-fin white. Third anal-fin spine white, fourth anal-fin spine and first anal-fin ray reddish, the rest of fin pale red. Anterior margin of both caudal-fin lobes white, a few outer caudal rays brick red, inner caudal rays pale red. Inner face of pectoral-fin axil red.

Synonymy. *Holocentrum laeve* Günther, 1859 has long been recognized as a valid species (Günther, 1875; Jordan and Seale, 1906; Fowler, 1925; Woods, 1953; Randall, 1955). But it was synonymized with *Holocentrum stercusmuscarum* by Klausewitz and Bauchot (1967) based on their examination of the holotype of the latter species. We agree with their conclusion. However, we do not agree with their recognition of *Holocentrum argenteum* and *H. stercusmuscarum* as distinct species. The meristic characters of the holotype of the latter species are included in the range of those characters of the lectotype and paralectotypes of the former (Table 1). The only decisive character between them is the stripe on the body, being evident in *H. stercusmuscarum* but absent in *H. argenteum* (Klausewitz and Bauchot, 1967). Among the specimens of *F. argenteus* examined in this study, the stripe on the body is obvious on some specimens from Papua-New Guinea, but very faint in most; it is also faint in specimens from Japan. In view of this variability, we regard *H. stercusmuscarum* to be a junior synonym of *F. argenteus*.

Holocentrum goldiei Macleay, 1883 was synonymized with *Holocentrus laveis* by Jordan and Seale (1906) and Fowler (1928) without any discussion. Weber and de Beaufort (1929) placed it in the synonym of *H. sammara*. Examination of the three syntypes of *H. goldiei* shows that they agree well with *F. argenteus* (Table 1). The syntypes of *H. goldiei* and some specimens of *F. argenteus* from Papua-New Guinea have a rather narrow interorbital width when compared with the specimens of *F. argenteus* from Japan. This may be a geographical divergence. Thus, *H. goldiei* is judged to be a junior synonym of *F. argenteus*.

Table 1. Comparison of the nominal species from the western Pacific which ally with *Flammeo argenteus*. All specimens have 11 dorsal- and four anal-fin spines, except HUMZ 62975 which has 12 dorsal-fin spines. Data on *Holocentrum argenteum* and *H. stercusmuscarum* are from Klausewitz and Bauchot (1967). Pectoral-fin counts are from the left side; the exception is presented as left side/right side. A*, B*, and C* are the authors' designations.

Species : Specimens	Locality	SL (mm)	Rays D.	Rays A.	Rays Pec.	L.l. scales	Interorbital/ orbit
Holocentrum argenteum							
Lectotype A. 2638		119	12	8	13	38	
Paralectotype B. 2531	New Guinea	115	12	8	13	41	
A. 2639a		107	12	8	13	39	
A. 2639b		99	12	8	13	39	
Holocentrum stercusmuscarum							
Holotype A. 2637	Guam Is.	61	12	8	13	41	
Flammeo argenteus							
7 specimens	Ishigaki Is., Japan	117.9～183.4	11～12	8	13	39～41	0.69～0.81
12 specimens	Papua-New Guinea	78.0～139.3	12～13	7～8	12～13	38～42	0.58～0.72
Holocentrum goldiei							
Syntypes AM I. 16285-001 A*	Port Moresby,	133.6	12	8	13	43	0.67
B*	New Guinea	105.6	12	8	13	39	0.66
C*		104.7	12	9	13	41	0.61
Holocentrus angustifrons							
Holotope	New Britain Is.	124	12	8	12/13	41	0.58

Holocentrus angustifrons Ogilby, 1908 resembles *H. laevis* (=*F. argenteus*, see above) but was distinguished from *H. laevis* by its narrower interorbital width and 12 pectoral rays (Ogilby, 1908). The width of the interorbital may be a geographically variable character as mentioned above. The holotype of *H. angustifrons* has 12 pectoral-fin rays on the left side and 13 on the right (courtesy of Mr. R. J. McKay of the Queensland Museum). The authors found 12 pectoral-fin rays on one side of their specimens of *F. argenteus* as did Randall (1955) in *H. laevis* from the Gilbert Islands. We conclude that *H. angustifrons* is not separable from *F. argenteus*.

Flammeo achromopterus Fowler, 1904 was synonymized with *Holocentrus laevis* by Jordan and Seale (1906) and Fowler (1925). Re-examination of the holotype (ANSP 14141, by courtesy of Mrs. E. B. Böhlke) revealed that it has 13 pectoral-fin rays, the most diagnostic character of *F. argenteus*. Hence, *F. achromopterus* is a junior synonym of *F. argenteus*.

Rhynchichthys novae-britanniae De Vis, 1884 was synonymized with *H. laevis* by Jordan and Seale (1906) and Fowler (1928). The holotype of this species appears to be lost (personal communication from Mr. R. J. McKay). Since the description of *R. novae-britanniae* given by De Vis agrees fairly well with that of *F. argenteus*, it is probably a junior synonym of *F. argenteus*.

Remarks. One specimen (HUMZ 62975) is the only specimen with 12 dorsal-fin spines amang all holocentrine fishes examided here. Woods (1953) reported only one specimen of *H. tiere* with 12 dorsal-fin spines.

This is the rarest species of *Flammeo* in Japan.

Flammeo sammara (Forsskål, 1775)
(Fig. 21)
(Japanese name: Ukeguchi-ittodai)

Sciaena sammara Forsskål, 1775: 48 (type locality, Djedda, Arabia).

Perca sammara; Bloch and Schneider, 1801: 89.

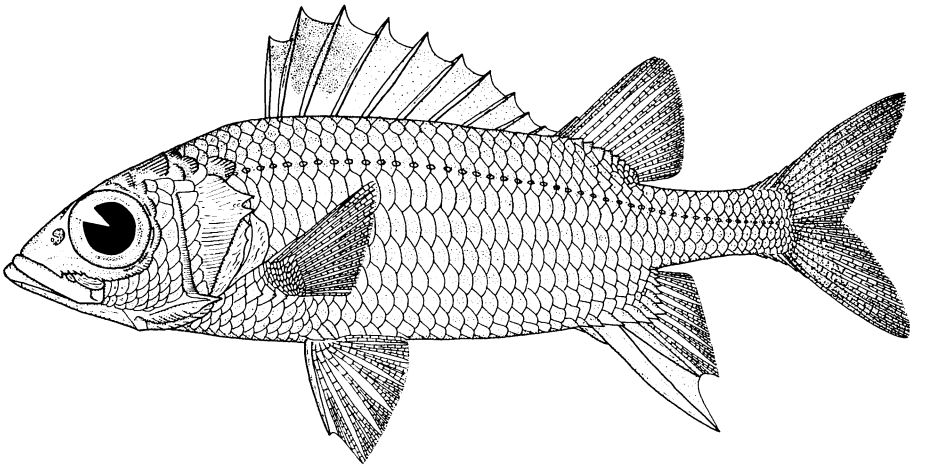

Fig. 21. *Flammeo sammara* (Forsskål, 1775), HUMZ 47366, 174.0 mm SL, Okinawa Is. Drawing by T. Shimizu.

Labrus angulosus Lacepède, 1802: 430, pl. 22-1 (type locality, Mauritius).
Holocentrus sammara; Rüppell, 1828: 85, fig. 22-3.
Holocentrum sammara; Cuvier, 1829: 216.
Holocentrum christianum Cuvier, 1829: 219 (type locality, unknown).
Holocentrum tahiticum Kner, 1864: 482 (type locality, Tahiti); 1865, fig. 1-2.
Holocentrum platyrrhinum Klunzinger, 1870: 725 (type locality, Red Sea).
Neoniphon armatus Castelnau, 1875: 5 (type locality, Cape York, Australia).
Neoniphon hasta De Vis, 1885: 537 (type locality, Queensland, Australia).
Holocentrus fuscostriatus Seale, 1902: 69 (type locality, Guam Is.).
Flammeo sammara; Jenkins, 1904: 440.
Holocenthrus thorntonensis Fowler, 1904b: 231, fig. 4 (type locality, Thornton Is., Polynesia).
Holocenthrus (*Kutaflammeo*) *tahiticus*; Whitley, 1933: 69.
Holocentrus (*Flammeo*) *sammara*; Woods, 1955: 92.
Kutaflammeo sammara; Munro, 1967: 141, pl. 15-fig. 224.

Diagnosis. Pectoral-fin rays 13 or 14 (mostly 14). Anal-fin rays 7 or 8 (mostly 8). Spinous dorsal-fin membranes with black blotch between first and third spines.

Specimens examined. 31 specimens, 36.9~210.8 mm SL. HUMZ 40433, date unknown; 40434~40442, Apr. 29, 1973; 40444, Jul. 20, 1973; 40445, Jul. 28, 1973; 40475, Apr. 11, 1974; 40476, 40478, Apr. 8, 1974; 41442, May 4, 1975; 41452, May 5, 1975; 47366, Apr. 8, 1974; 47471, Apr. 4, 1974; 47373, Apr. 22, 1974; 47376, Apr. 8, 1974; 47378, Apr. 11, 1974; 47387, 47390, 47393, Apr. 8, 1974; 47403, Apr. 4, 1974; 47404, Apr. 12, 1974; 47405, Apr. 22, 1974; 47985, Mar. 6, 1974; 48035, Apr. 11, 1974. KSHS 10371, Aug. 8, 1969. Localities: Okinawa Is., Ishigaki Is., Okinawa Pref.; Okinoerabu Is., Kagoshima Pref.

Description. D. X-I, 11 or 12 (mostly 12), Pec. 13 or 14 (mostly 14), A. IV, 7 or 8 (mostly 8). Lateral-line scales 39~43 (usually 41 or 42). Scales 2.5 above, 8 below lateral-line. Gill rakers 5~8 (usually 6 or 7)+1+7~11 (usually 9 or 10)=14~19 (usually 16~18).

Head 2.9~3.2, body depth 3.0~3.6 in SL. Orbit 2.5~3.0; jaws, upper 2.2~2.4, lower 1.6~1.8; dorsal-fin spines, first 2.2~3.0, second 1.8~2.5, third 1.8~2.3; anal-fin spines, third 1.1~1.5, fourth 1.8~2.2 in HL. Snout 1.1~1.3, interorbital 1.3~1.6 in orbit diameter.

Body slender, spinous dorsal-fin high. Head profile gently curved. Spinous dorsal-fin base almost straight. Caudal peduncle rather slender. Snout rather long. Lower jaw protruding when mouth closed. Nostril large, without spination. Nasal bone and upper margin of first suborbital bone quite smooth. Lower margin of first suborbital bone with weak serrae. Lateral margin of frontal bone con-

vex, forming a distinct shelf over antero-dorsal portion of orbit. Interorbital wide, flat. Opercle with two short and sharp spines of almost equal length. Opercle with distinct striation. Preopercular spine short, about one-third of orbit. Dorsal-fin spines slender, the first slightly shorter than the second, the second almost equal to the third, the third the longest. First dorsal-fin spine close to second one. Spinous dorsal-fin membranes incised. Pectoral-fin triangular and small. Anal-fin spines sharp. Body scales finely serrated, slightly striated on posterior margin.

Color when fresh: Spinous dorsal-fin membranes with a black blotch on distal two-thirds between first and fourth dorsal spines; a small, triangular white spot just behind base and tip of each dorsal spine; the rest of fin brick red. Dorsal-fin spines brick red. Dorsal portion of head and nape dusky brick red. Ground color of body silvery white. Body scales with a dusky spot on its center, these spots forming longitudinal bands. Lateral-line scale row with a distinct brick red stripe. Cheek scales with a central dark spot. Anterior margin of soft dorsal-fin brick red, the rest of fin yellow. Pectoral-fin red. Pelvic-fin pale. Third anal-fin spine white, spinous anal-fin membranes brick red, fourth anal-fin spine dusky, the rest of fin yellow. Anterior margin of both caudal-fin lobes white, a few outer rays brick red, the rest of fin yellow. Inner face of pectoral-fin axil coffee brown.

Synonymy. *Labrus angulosus* Lacepède, 1802 was synonymized with *Holocentrum sammara* by Cuvier (1829). It was also regarded as *Holocentrus* (*Flammeo*) *sammara* by Bauchot (1970) based on the examination of the holotype. The figure of *L. angulosus* (Lacepède, 1802, pl. 22-1) is clearly that of *F. sammara*.

Rüppell (1828, 1835) justly regarded *Holocentrum christianum* Cuvier, 1829 and *Holocentrus sammara* to be conspecific.

The original description of *Holocentrum tahiticum* Kner, 1864 and the second description by Kner (1865) have some discrepancies as pointed out by Günther (1875). The second, more detailed description (Kner, 1865: 9) indicated a species quite different from *H. tahiticum*, although the figure of *H. tahiticum* (Kner, 1865, fig. 1-2) is completely that of *F. sammara*. Thus, *H. tahiticum* is thought to be conspecific with *F. sammara*.

Holocentrum platyrrhinum Klunzinger, 1870 was placed in the synonym of *H. sammara* by Klunzinger (1884).

Neoniphon armatus Castelnau, 1875 and *Neoniphon hasta* De Vis, 1885 were synonymized with *H. sammara* by Woods (1955) who presented a detailed discussion.

Holocentrus fuscostriatus Seale, 1902 was synonymized with *H. sammara* by Jordan and Seale (1906) and Fowler (1928). The description by Seale coincides well with that of *F. sammara*.

Holocenthrus thorntonensis Fowler, 1904 was synonymized with *H. microstomus* by Fowler (1928). However, Jordan and Seale (1906), Weber and de Beaufort (1929) and Herre (1953) placed it in synonymy with *H. sammara*. Examination of the holotype (ANSP 23769) of *H. thorntonensis* revealed that it has the 11th dorsal-fin spine nearer to the first dorsal ray, the spine about equal in length to the 10th dorsal spine, 11 dorsal rays, eight anal rays, 14 pectoral rays and 40 lateral-line scales (courtesy of Mrs. E. B. Böhlke and Dr. W. F. Smith-Vaniz). These characters plus the pigmentation of the spinous dorsal-fin membranes indicate that this species is conspecific with *F. sammara*.

Remarks. This is the commonest species of *Flammeo* in Japan.

Flammeo opercularis (Valenciennes, 1831)
(Fig. 22)
(Japanese name: Hireguro-ittodai)

Holocentrum operculare Valenciennes, 1831: 501 (type locality, Carteret Harbor, New Ireland Is.).

Holocentrus opercularis; Seale, 1906: 24.

Holocentrus (*Flammeo*) *opercularis*; Woods, 1955: 92.

Kutaflammeo operculare; Munro, 1967: 141, pl. 15-fig. 221.

Flammeo operculare; Gushiken, 1972: 24, fig. 99.

Flammeo opercularis; Bagnis and others, 1974: 239, with fig. (not numbered).

Diagnosis. Anal-fin rays 9. Spinous dorsal-fin membranes almost entirely black, with an

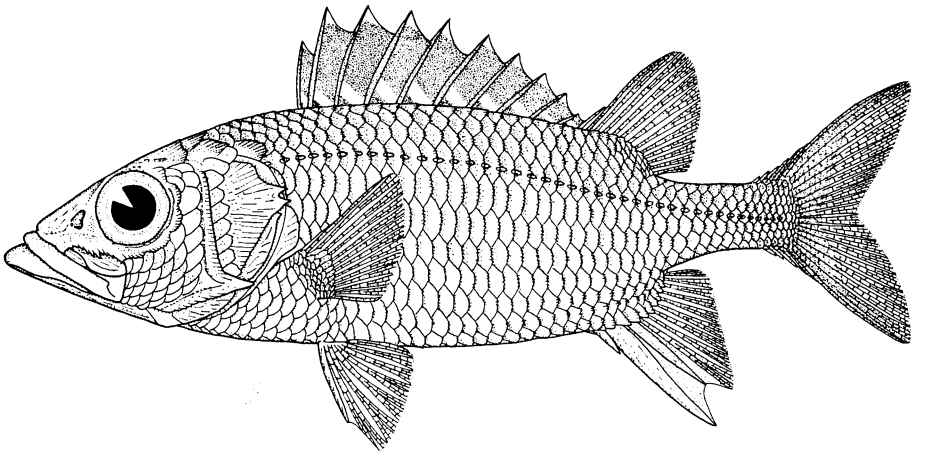

Fig. 22. *Flammeo opercularis* (Valanciennes, 1831), HUMZ 40460, 230.4 mm SL, Okinawa Is. Drawing by T. Shimizu.

oblique white band on lower portion of each membrane.

Specimens examined. Nine specimens, 165.5~245.8 mm SL. HUMZ 40257, Apr. 22, 1974; 40413, date unknown; 40460, 40461, May 6, 1974; 40462, Apr. 13, 1974; 40463, Apr. 22, 1974; 62873, Apr. 15, 1977. KSHS 15545, May 6, 1975; 16880, Nov. 4, 1975. Locality: Okinawa Is., Okinawa Pref.

Description. D. X-I, 13, Pec. 13 or 14 (usually 14), A. IV, 9. Lateral-line scales 38~40. Scales 2.5 above, 8 below lateral-line. Gill rakers 6 or 7+1+10 or 11 (usually 11)=18 or 19.

Head 2.9~3.1, body depth 3.1~3.3 in SL. Orbit 3.0~3.5; jaws, upper 2.1~2.2, lower 1.5~1.7; dorsal-fin spines, first 3.1~3.6, second 2.4~2.8, third 2.2~2.7; anal-fin spines, third 1.5~1.9, fourth 2.0~2.7 in HL. Snout 0.8~1.0, interorbital 1.2~1.5 in orbit diameter.

Body elongate, rather compressed. Head profile and spinous dorsal-fin base gently curved. Caudal peduncle rather short. Snout long. Lower jaw protruding well beyond upper when mouth closed. Nostril very large, without spination. Nasal bone and upper margin of first suborbital bone smooth. Lower margin of first suborbital bone with weak serrae. Lateral margin of frontal bone convex, forming a distinct shelf over antero-dorsal portion of orbit. Interorbital rather narrow, flat. Opercle with two sharp spines of almost equal length. Opercular bones with distinct striations. Preopercular spine short, less than half of orbit. Dorsal-fin spines slender, the first slightly shorter than the second, the second almost equal to the third, the third or fourth the longest. First dorsal-fin spine very close to second one. Spinous dorsal-fin membranes incised. Pectoral-fin small. Third anal-fin spine stout. Body scale finely serrated, not striated.

Color when fresh: Spinous dorsal-fin membranes jet black with an oblique white band at base of each membrane; small, triangular white spot just behind tip of each dorsal spine. Dorsal-fin spines dark red. Body silvery red, paler below. Body scales silvery posteriorly, darker anteriorly. Cheek scales with a central dark spot. Opercle brick red. Anterior margin of soft dorsal-fin brick red, the rest of fin yellowish red. Pectoral-fin yellowish red. Anterior margin of pelvic-fin white, the rest of fin yellowish red. Cleithral region with an oblique dark red band.

Onomatology. As the gender of *Flammeo* is masculine, *operculare* is changed to *opercularis*.

Remarks. This fish is rather rare in Japan. Among the four species of *Flammeo* in Japan, this species may attain the largest size.

Flammeo scythrops Jordan et Evermann, 1904
(Fig. 23)
(Japanese name: Hohobeni-ittodai)

Flammeo scythrops Jordan and Evermann, 1904: 174 (type locality, Honolulu, Hawaii);

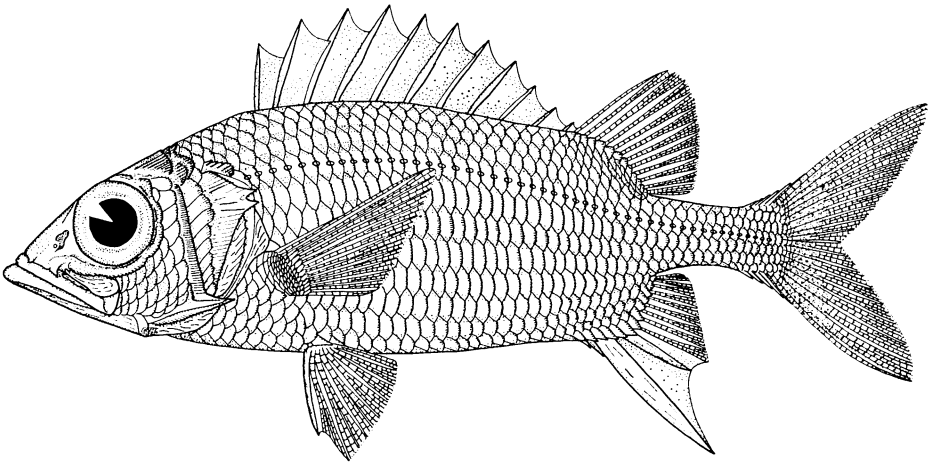

Fig. 23. *Flammeo scythrops* Jordan et Evermann, 1904, HUMZ 40500, 157.6 mm SL, Okinawa Is. Drawing by T. Shimizu.

1905: 157, fig. 57, pl. 7.
Holocentrus scythrops; Fowler, 1927: 8.

Diagnosis. Last dorsal-fin spine shorter than the penultimate one and nearer to first dorsal ray than penultimate spine.

Specimens examined. Ten specimens, 157.6～200.6 mm SL. HUMZ 49468, Apr. 22, 1974; 40469, Apr. 20, 1974; 40498, Apr. 22, 1974; 40499, Apr. 15, 1974; 40500, May 11, 1974; 40510, Apr. 5, 1974; 45300, Jul. 16, 1973; 62837, Apr. 13, 1977. KSHS 14291, Jul., 1973; 15172, Apr. 3, 1974. Localities: Okinawa Is., Okinawa Pref.; Kagoshima City, Kagoshima Pref.

Description. D. X-I, 12 or 13 (usually 13), Pec. 14, A. IV, 8 or 9 (usually 9). Lateral-line scales 44～46. Scales 3.5 above, 8 or 9 below lateral-line. Gill rakers 5 or 6+1+9 or 10 (usually 10)=16 or 17.

Head 2.8～3.1, body depth 3.0～3.3 in SL. Orbit 2.5～2.9; jaws, upper 2.0～2.3, lower 1.7～1.8; dorsal-fin spines, first 3.2～4.5, second 2.4～3.0, third 2.2～2.5; anal-fin spines, third 1.4～1.6, fourth 2.1～2.7 in HL. Snout 1.2～1.5, interorbital 1.6～2.1 in orbit diameter.

Body rather elongate. Caudal peduncle slender. Head profile gently curved. Spinous dorsal-fin base slightly curved. Soft dorsal-fin base not raised. Anterior tip of nasal bone round. Posterior portion of nasal bone smooth. Nostril large, without spination. Upper margin of first suborbital bone slightly serrated. Lateral margin of frontal bone almost straight or slightly convex, forming a shallow shelf over antero-dorsal portion of orbit. Interorbital slightly convex. Lips thick. Lower jaw protruding well beyond upper jaw when mouth closed. Opercle with two flat, short spines; the upper slightly longer. Preopercular spine short, about one-third of orbit. Dorsal-fin spines high, slender. Last dorsal-fin spine shorter than penultimate one. Spinous dorsal-fin membranes incised. Third anal-fin spine long, slender. Body scales slightly striated and serrated.

Color when fresh: A red spot on anterior end of subopercle. Head, opercle and both lips red. A white band from snout tip to lower limb of preopercle. Ground color of body yellow. Each longitudinal body scale row with a red stripe. Dorsal-fin spines yellow. Spinous dorsal-fin membranes red with irregularly shaped yellow or whitish patches between second and tenth spines. Soft dorsal- and pectoral-fins red. Pelvic-fin pale red. Third anal-fin spine white, the rest of fin red. Caudal-fin red.

Remarks. *Flammeo scythrops* resembles the Atlantic species *F. marianus* in some meristic characters and coloration, but it is clearly separable from the latter in having 3.5 scales above the lateral-line (2.5 in *F. marianus*, judging from Fig. 15 of Woods, 1955) and 16 or 17 total gill rakers (19 or 20 total gill rakers given for *marianus* by Woods, 1955).

This species is rather rare in Japan.

Acknowledgments

The authors would like to express their sincere thanks to the following persons for their kindness during this study: Tokiharu Abe, Yoshiaki Tominaga and Kenji Mochizuki of the University Museum, University of Tokyo; Chuichi Araga of the Seto Marine Biological Laboratory, Kyoto University; Marie-Louise Bauchot of Muséum National d'Histoire Naturelle, Paris; Eugenia B. Böhlke, William F. Smith-Vaniz and William Saul of the Department of Ichthyology, The Academy of Natural Sciences of Philadelphia; Marinus Boeseman of Rijksmuseum van Natuurlijke Historie, Leiden; Soko Gushiken of the Forest and Fisheries Section, Okinawa Development Agency, Okinawa; Jirō Isa, Seijin Inoha, Kōki Uehara and other members of the Okinawa Prefectural Fisheries Experimental Laboratory; Patricia J. Kailola, former fisheries biologist, Kanudi Fisheries Research Station, Konedobu, Papua-New Guinea; Keiichi Matsuura of National Science Museum, Tokyo; Hajime Masuda of Izu Marine Park, Ito; Ronald J. McKay of the Queensland Museum, Australia; Han Nijssen of the Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Universiteit van Amsterdam; Nobuaki Nishijima and Tetsuo Yoshino of the University of the Ryukyus; Osamu Okamura of the Faculty of Sciences, Kochi University; John R. Paxton of the Department of Ichthyology, The Australian Museum, Sydney; John E. Randall and Arnold Y. Suzumoto of the Division of Ichthyology, Bernice P. Bishop Museum, Honolulu; Shiro Shinohara, former professor of the University of the Ryukyus; Wataru Takada of the Suruga Bay Marine Biology Research Group; P. K. Talwar of the Zoological Survey of India, Indian Museum, Calcutta; Alwyne C. Wheeler of the Department of Zoology, British Museum (Natural History); and Fujio Yasuda and Akira Zama of the Laboratory of Ichthyology, Tokyo University of Fisheries. This study could not have been completed without their assistance.

Professor Takao Igarashi of the Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University and Dr. O. Okamura continuously encouraged and facilitated the authors throughout the course of this study. Special gratitude should be expressed to Dr. Kunio Amaoka of Hokkaido University, Dr. J. E. Randall and Mr. A. Y. Suzumoto for their critical review of the manuscript.

The publication of this study was supported financially in part by a grant of Ithō Foundation for the Advancement of Ichthyology to Shimizu.

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日本産イットウダイ亜科（キンメダイ目）魚類の再検討およびイットウダイ属1新種の記載

清水　長・山川　武

今日までに日本から知られているすべての種，西太平洋産の2種，さらに日本産の1新種を含むイットウダイ亜科2属18種の分類学的研究を行い，各種のシノニムを詳細に論じた．

この亜科には，イットウダイ属 *Adioryx* とウケグチイットウダイ属 *Flammeo* の2属が知られ，両者は背鰭第11棘の位置で区別される．この棘は，イットウダイ属では第10棘と背鰭第1軟条との中間に位置し，ウケグチイットウダイ属では背鰭第1軟条に極めて近く位置する．

イットウダイ属の分類には計数的形質のほかに，鼻骨後部の棘，鼻孔の棘および第1眼下骨上縁の棘もしくは鋸歯の有無が有効な形質である．本属の日本産10種，ハナエビス *A. furcatus*, トガリエビス *A. spinifer*, クラカケエビス（新称）*A. caudimaculatus*, スミツキカノコ *A. cornutus*, イットウダイ *A. spinosissimus*, アヤメエビス *A. ruber*, ホシエビス *A. lacteoguttatus*, アオスジエビス *A. tiere*, ニジエビス *A. diadema*, テリエビス *A. ittodai* および1新種バラエビス *A. dorsomaculatus* の記載が与えられた．この新種は鼻孔の後縁（時には前縁にも）に小棘をもつ，第1眼下骨上縁に鋸歯をもつ，鼻骨後部は平滑で棘をもたない，側線鱗数32～35，体色は全体に赤色で背鰭第1棘から第3棘の間の鰭膜の下方部に黒斑をもつなどの特徴により他のいずれの既知の種とも区別される．日本以外からのスミレエビス（新称）*A. violaceus*, ヒメエビス *A. microstomus*, サクラエビス（新称）*A. tiereoides* の3種を含めて，西太平洋産イットウダイ属14種の実用的検索が作製された．

ウケグチイットウダイ属4種は，背鰭第11棘の長さ，側線上方鱗数，胸・臀鰭条数および背鰭棘部鰭膜上の黒色斑紋の有無と形により容易に識別される．これら4種の記載と検索が与えられた．

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