lateral stripe varying in color from brown to brownish yellow passing from eye to caudal base and extending broadly into lower lobe of caudal fin; a blackish spot at upper base of pectoral fin; axil of pectoral fin black, some of this pigment extending lightly above level of upper pectoral base. A 44-mm juvenile (Fig. 14) lacked the mid-lateral stripe; the median fins were largely yellow except the basal scaled part of the dorsal fin which was grayish brown, darkest on soft portion, and the tips of the interspinous membranes which were black.

Remarks. Tanaka (1917) described *C. mirationis* in Japanese in the same publication as his *C. fumea,* without an illustration. Kamohara (1960) reported a specimen 119 mm in total length from Mimase, Kochi-ken (examined by us). He mentioned that two other specimens from off Kochi-ken were destroyed by a fire during World War II. The first fish of this species to be illustrated (Hiyama and Yasuda, 1971: fig. 322) was collected from 40 m off Izu Peninsula by Hajime Masuda; it was identified only as Chrominae and was not retained in a collection. Araga and Yoshino in Masuda et al. (1975: 286, pl. 96-J) described *C. fraenatus* from two specimens taken by hook and line in about 30 m off Wakayama-ken. We have compared their specimens with the holotype of *C. mirationis* and conclude that they are the same. *C. fraenatus* is also a homonym of *Heliases frenatus* Cuvier in Cuvier and Valenciennes, a junior synonym of *C. caerulea.*

Shen and Chen (1978: 29, fig. 4) recorded *C. mirationis* (misspelled *miratonis*) from a single 56-mm specimen from Yeh-liu, northern Taiwan. Their specimen, however, is *C. notata.*

Distribution and habitat. *C. mirationis* is therefore known only from southern Honshu, Shikoku, and Kyushu. It has the largest eye of any Japanese *Chromis,* which seems related to its occurrence in relatively deep water.

Chromis notata (Temminck et Schlegel)
(Japanese name: Suzumedai)
(Figs. 2M, 15, 16)

Heliases notatus Temminck et Schlegel, 1842: 66 (type locality, Japan).

Materials. RMNH 895a, 88 mm, lectotype (selected by Boeseman, 1947: 71); RMNH 895b, 71 mm, paralectotype; FMNH 59185, 101 mm, holotype of *C. villadolidi* Jordan et Tanaka, Sea of Japan between Tsushima and Fukuoka, Kyushu; SU 23681, 92 mm, paratype of *C. villadolidi,* same locality as holotype; ZUMT 5067, 95.5 mm, Tsushima; ZUMT 9103, 99.2 mm, Fukura; ZUMT 26407, 88.8 mm, Hayama; ZUMT 50769, 73 mm, Fukuoka fish market; ZUMT uncatalogued, 3: 96.2～108.2 mm, southern Sea of Japan; FSKU 710825, 74 mm, Kashiwa-jima; FSKU 720623, 100 mm, Oki Island, Sea of Japan; eight type specimens of *C. miyakeensis* (see Moyer and Ida, 1976); BPBM 6521, 3: 92～108 mm, Shirahama, Wakayama-ken; BPBM 18644, 11: 39～93.5 mm, Hong Kong; BPBM 18661, 6: 67～97 mm SL, Yeh-liu, northern Taiwan; BPBM 18958, 4: 116～131 mm, Miyake-jima; BPBM 20980, 8: 77.5～100 mm, entrance to Osaka Bay, Wakayama-ken; TMBS 770904, 7: 70～81 mm, Wakasa Bay, Honshu; BPBM 20981, 6:62～82 mm, Wakasa Bay; BPBM 22699, 5: 67.5～108 mm SL, Sukumo Bay, Shikoku; BPBM 22701, 12: 73～104.5 mm, Yehliu, northern Taiwan; BPBM 22877, 5: 120～126 mm, Miyake-jima.

Description. Dorsal rays XIII (rarely XII or XIV), 12 to 14 (usually 13); anal rays II, 10 to 12 (usually 11); pectoral rays 18 to 20 (usually 19); caudal spinules 2/2; tubed lateral-line scales 16 to 19; scales above lateral line 3; scales below lateral line 8 or 9 (usually 9); gill rakers 8 to 10+ 20 to 24.

Depth of body variable with locality (see Remarks), 41.1～55.2% SL; head length 27.8～34.8; orbit diameter 8.1～12.8; interorbital width 9～12.1; snout length 7～9.7; least depth of caudal peduncle 12.1～16.6; longest dorsal spine 14.1～20.7; second anal spine 14～21.6.

Interspinous membranes very slightly incised except between first few spines; margins of soft portions of dorsal and anal fins angular (though not strongly so on anal fin); caudal fin forked, the lobes pointed (particularly the upper) but not filamentous, the caudal concavity 16.6～26% SL.

Free margin of suborbital not long, reaching to or slightly posterior to a vertical at front edge of pupil; margin of preopercle smooth; anterior nostril prominent with a thin fleshy rim that is developed to a flap dorso-posteriorly; posterior nostril very small; pores of lateralis system on head very small and difficult to detect.

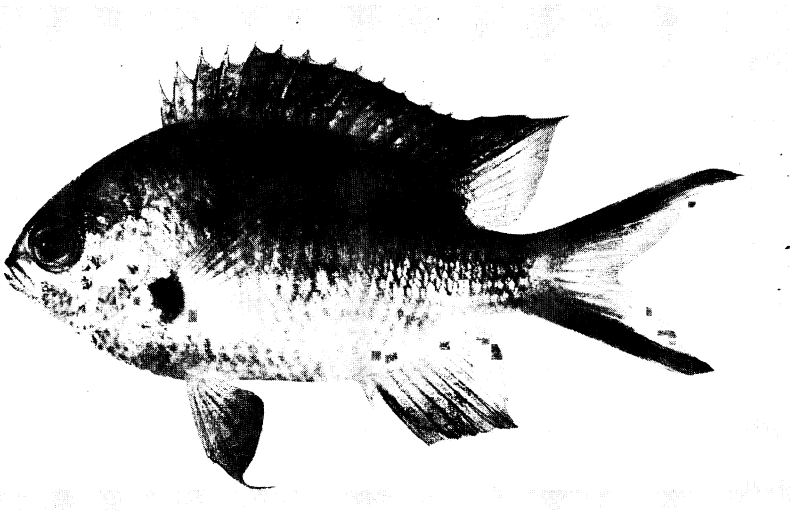

Fig. 15. *Chromis notata notata*, BPBM 18661, 81 mm SL, Taiwan.

Grayish brown, the edges of the scales darker, shading to paler ventrally with a light bluish (sometimes golden) iridescence; a whitish spot at rear base of dorsal fin (often not persisting or faint on preserved specimens); median fins dark grayish brown, sometimes finely flecked with light bluish, becoming paler posteriorly, the distal part of the interspinous membranes of the dorsal fin, spines of the anal fin, and anterior margin of soft portions of these fins light blue; lobes of caudal fin with dark brown pigment tending to concentrate in a broad band at edge except for a narrow light bluish margin on outer part of each lobe (though not all the way to tip); pectoral fins hyaline with dusky rays, a large subtriangular black spot (broad dorsally, narrowing ventrally) on base; axil of pectoral fin black, the upper edge of the axillary spot often blue; pelvic fins dusky, the lateral edge bluish.

Remarks. Temminck and Schlegel (1842) did not illustrate *C. notata* when they described the species. Nevertheless their description, particularly with respect to color, is very diagnostic. Today the lectotype and paralectotype still show the characteristic pale spot at the rear base of the dorsal fin and the large dark spot at the pectoral base. Hiyama and Yasuda (1961: pl. 108, fig. 172) figured *C. notata* in color from a painting by Arita, although no blue markings were depicted. The blue color evidently fades soon after death.

During courtship males of *C. notata* at Miyake-jima were observed to have a great deal of blue on the fins which was concentrated in broad distal bands.

Moyer and Ida (1976) described *C. miyakeensis* from Miyake-jima, distinguishing it from *C. notata* by the deeper body, blue margins of the fins and blue tinge to the anterior ventral surface (then believed to be lacking in *C. notata*). The opportunity to collect fresh material of *C. notata* on the main islands of Japan, Taiwan, and Hong Kong revealed that blue markings do occur. The average body depth is clearly greater on specimens from Miyake-jima, however. The body depth of 11 specimens from the island, 60.8 to 131 mm SL, ranged from 47.6 to 55.2% SL ($\bar{x}$=50.8%), whereas the depth of 37 specimens from Wakayama-ken, Shikoku, Taiwan, and Hong Kong, 67 to 108 mm SL, varied from 43.8 to 50.7% SL ($\bar{x}$=46.9%) (because adults of *C. notata* tend to have greater body depth than juveniles, we have not included measurement data of specimens less than 60 mm SL).

Another apparent distinction is the larger size attained by *C. notata* at Miyake-jima. Of 13 specimens examined by us, six have exceeded 115 mm SL (largest 131 mm). By contrast, the largest of 54 specimens of *C. notata* available to us from other localities is 108.2 mm SL.

Although we now regard *C. miyakeenis* as not distinct at the species level from *C. notata*, we believe that the name *miyakeensis* might be retained as a subspecific designation for the island

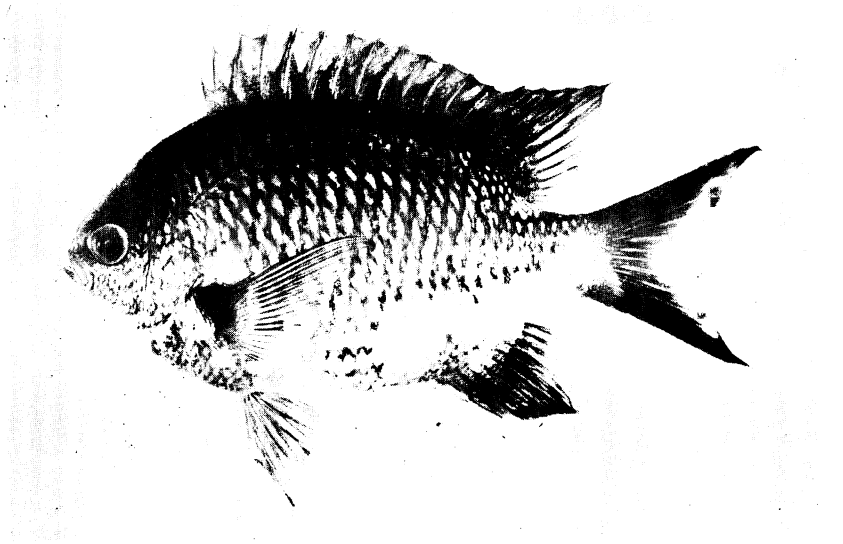

Fig. 16. *Chromis notata miyakeensis*, BPBM 18958, 118 mm SL, Miyake-jima, Japan.

population. More study is needed to determine if *C. notata* is the same throughout all the Izu Islands and whether deeper bodied, larger fish also occur on the Izu Peninsula and adjacent sectors of Honshu.

A sample of 13 specimens of *C. notata* 63 to 83 mm SL from Wakasa Bay on the Sea of Japan off Honshu has a significantly lower body depth than any other area sampled, 41.1～47% SL ($\bar{x}$ = 43.4%). The specimen of this sample with the greatest body depth is a 64-mm ripe female (surprsingly small for a fully mature fish of this species). The one with the next deepest body has a depth 45.5% SL; if the 64-mm specimen is eliminated from the sample, the average depth becomes 43.2%.

Jordan and Tanaka (1927: 387, pl. 34, fig.1) described *C. villadolidi* from five specimens collected in the Sea of Japan between Tsushima and Fukuoka, Kyushu. They gave the body depth as 2.32～2.55 in SL (39.2～43.1% SL). We have examined two of the five type specimens, including the holotype, and we concur with Aoyagi (1941) and Kamohara (1960) that *C. villadolidi* is a junior synonym of *C. notata,* in spite of the more slender body of the specimens.

It would be of interest to examine more material of *C. notata* from the Sea of Japan to determine if the body depth is consistently less there; also to ascertain where individuals intermediate in average body depth will be found.

Distribution and ecological notes. *C. notata* occurs from central Japan south to Hong Kong. It is a shallow-water species, often seen in large aggregations, feeding high in the water column. At Miyake-jima it may mingle with *C. flavomaculata, C. chrysura,* and *C. weberi.* It is the most tolerant of all Japanese damselfishes to cool sea temperatures. The second author observed an aggregation of juveniles and adults at the coast of Naruto City, Shikoku, in Apr., 1976, when the sea temperature was 10°C. *C. notata* can withstand even cooler temperatures in the Sea of Japan; it is known from Yamagata-ken near the northern end of Honshu where the sea may drop to at least 8°C.

This species is of sufficient abundance in some areas of Japan to be of minor commercial importance; it is caught mainly in small trap nets.

Fujita (1958) noted that the spawning season of *C. notata* takes place from early July to early September at Yamaguchi-ken. He studied the early development, illustrating the ova and larvae to three days after hatching (when the yolk was fully absorbed). Nakazono et al. (1979) described the reproductive behavior of *C. notata* in nature.

Chromis ovatiformis Fowler
(Japanese name: Maru-suzumedai)
(Fig. 2F; Pl. 1C)

Chromis ovatiformis Fowler, 1946: 142, figs. 11

and 12 (type locality, Aguni Shima, Ryukyu Islands).

Materials. ANSP 72009, 53.5 mm, holotype; FSKU 751205-a, 3: 50～58.5 mm, Miyake-jima; FSKU 751001-a, 56 mm, Sesoko-jima, Okinawa; FSKU 760630, 71.0 mm, Onna, Okinawa; FSKU 760731, 3: 51～62.2 mm, Seragaki, Okinawa; TMBS 751224, 3: 55.2～63 mm, Kuroshima, Yaeyama Islands; TMBS 760800, 39.2 mm, Abe, Miyake-jima; BPBM 19077, 4: 57～63.3 mm, Sesoko-jima, Okinawa; BPBM 19078, 58.3 mm, Sesoko-jima, Okinawa; BPBM 19113, 61 mm, Nakano-se Reef, Okinawa; BPBM 19132, 61 mm, Sesoko-jima, Okinawa; BPBM 19151, 62 mm, Sesoko-jima, Okinawa; WAM P25516, 4: 61.5～66.0 mm, Sesoko-jima, Okinawa; BPBM 22692, 52.5 mm, Nan Wan, southern Taiwan.

Description. Dorsal rays XII or XIII (usually XII), 12 or 13 (usually 13); anal rays II, 12 to 14 (usually 13); pectoral rays 16 to 18 (usually 17); caudal spinules 2/2; tubed lateral-line scales 13 to 15; scales above lateral line 3; scales below lateral line 8 or 9; gill rakers 6 to 9+20 to 23.

Body very deep, the depth 55～64.8% SL; head length 30～36.4; orbit diameter 10～12.7; interorbital width 11～13; snout length 8.2～10.9; least depth of caudal peduncle 15.6～17.6; longest dorsal spine 13～16.1; second anal spine 14.3～20.9.

Interspinous membranes of dorsal fin moderately incised; margin of soft portions of dorsal and anal fins angular; caudal fin forked, the second and twelfth branched rays greatly produced as filaments, the caudal concavity 32.6～46.8% SL.

Free margin of suborbital extending to or nearly to a vertical at posterior edge of pupil; margin of preopercle smooth; anterior nostril with a fleshy rim; posterior nostril small but distinct; pores of lateralis system dorsally on head and on snout large.

Grayish brown, often with an olivaceous or yellowish cast dorsally, paler ventrally, becoming white on caudal peduncle and scaled basal part of caudal fin (but the demarcation not as sharp as the darker bicolored species such as *C. margaritifer* and *C. leucura*); faint whitish longitudinal bands on abdomen and irregularly on operculum; a light bluish line may be present on suborbital and behind eye; snout and chin yellowish; a narrow yellow band containing nostrils passing from eye to front of snout; an elongate whitish spot at rear base of dorsal fin; dorsal and anal fins colored like adjacent parts of body except posteriorly where pale in line with white anteriorly on caudal peduncle; unscaled part of caudal fin whitish, broadly dusky basally and on proximal part of lobes; pectoral fins hyaline, the edges of the rays dark, with a large diffuse dusky spot at base and in axil which is darker at upper corner; pelvic fins light brownish the lateral edge and filamentous first ray yellow-brown.

Remarks. Surprisingly, with the exception of Shepard and Moyer (1980), this represents the first report of this species since the description by Fowler (1946) of the single type specimen. We here extend the range south to southern Taiwan (22°N).

Distribution and habitat. *C. ovatiformis* occurs in the depth range of about 10 to 40 m in outer reef areas of the Ryukyu Islands; it is common in 20 to 30 m where, as discusseed in Remarks under *C. atripes*, it tends to replace this shallower-dwelling species. *C. ovatiformis* is rare at Miyake-jima but a concerted effort to find it will generally reveal some individuals at depths of 25 m or more.

Chromis ternatensis (Bleeker)
(Japanese name: Kaburaya-suzumedai)
(Figs. 2O, 17)

Heliases ternatensis Bleeker, 1856; 377 (type locality, Ternate).

Materials. FSKU 751001, 74.0 mm, Sesoko-jima, Okinawa; FSKU 751205, Nakagusuku, Okinawa; FSKU 720229, 2: 34.5～55.0 mm, Rabaul (for comparison); RUB 760724, 6: 48.8～53.1 mm, Ishigaki; RUB 770700, 64.9 mm, Kerama; BPBM 19131, 67.2 mm, Sesoko-jima Okinawa.

Description. Dorsal rays XII (rarely XIII), 10 to 12 (usually 11); anal rays II, 11; pectoral rays 17 to 19 (usually 18); caudal spinules 3/3; tubed lateral-line scales 14 to 17; scales above lateral line 3; scales below lateral line 9; gill rakers 7 to 9+21 to 23.

Depth of body 49.6～54.7% SL; head length 27.3～33.8; orbit diameter 8.3～11.8; interorbital width 10.4～13.2; snout length 7.9～10;

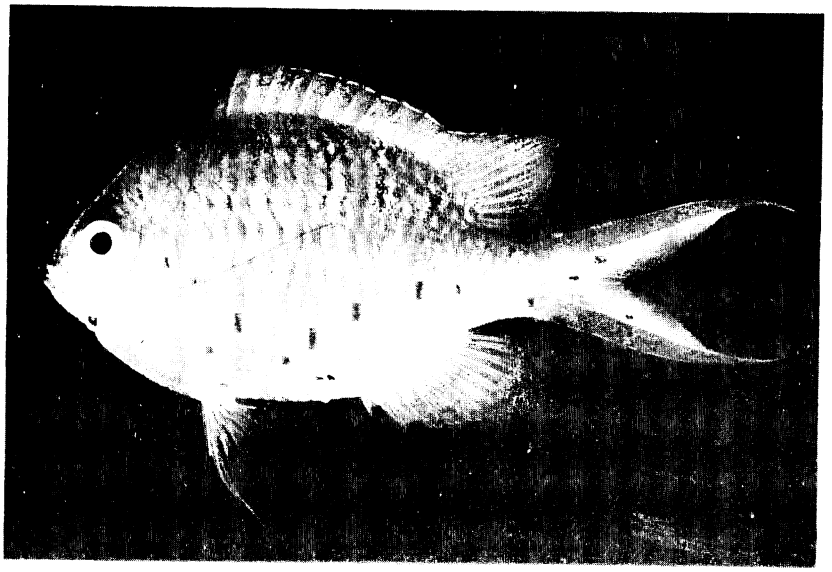

Fig. 17. *Chromis ternatensis*, BPBM 7984, 66 mm SL, Enewetak, Marshall Islands.

least depth of caudal peduncle 14.6～16.4; longest dorsal spine 12.4～15.6; second anal spine 8.7～15.2.

Interspinous membranes of dorsal fin not incised; margins of soft portion of dorsal and anal fins slightly angular; caudal fin deeply forked, the lobe tips long and attenuate, the caudal concavity 29.6～37.8% SL.

Free margin of suborbital short, ending anterior to a vertical at front edge of pupil; margin of preopercle smooth; anterior nasal opening with a very low rim which is not elevated posteriorly; posterior nasal opening small and round; pores of lateralis system of head small and difficult to detect.

Olivaceous to dark yellowish gray, shading to whitish ventrally, the centers of the scales with a light bluish iridescence; a wash of yellow over upper head and nape in life; spinous portion of dorsal fin colored like body, the margin blue; soft portion and anal fin lighter; caudal fin with broad black margins on lobes that narrow as they continue onto the lobe tips; pectoral fins hyaline with dusky rays, the base yellowish, the axil bright yellow; pelvic fins whitish.

Distribution and habitat. *C. ternatensis* ranges in the Indo-Pacific from East Africa and the Red Sea to Micronesia. It was first recorded from Japan by Aoyagi (1941: 183, text-figs. 12, 13) from two specimens collected at Miyakojima, Yaeyama Islands. It is not yet known north of the Ryukyus and is not common there. In more tropical regions it may be very abundant. It is a shallow-water species closely associated with branching corals and is often seen in feeding aggregations with *C. atripectoralis*. The largest Bishop Museum specimen, from Ponape, measures 72 mm SL.

Chromis vanderbilti (Fowler)
(Japanese name: Hime-suzumedai)
(Figs. 2B, 18)

Pycnochromis vanderbilti Fowler, 1941: 260, fig. 12 (type locality, Waianae, Oahu, Hawaiian Islands).

Materials. ANSP 69749, 26.8 mm, holotype; FSKU 760221, 29 mm, Nakagusuku Bay, Okinawa; FSKU 760809, 24.9 mm, Bonin Islands; FSKU 7908–28, 34 mm, Aha, Okinawa; MTUF uncatalogued, 38.5 mm, Ishigaki, Yaeyama Islands; TMBS 730920-B, 31 mm, Miyake-jima, Izu Islands; TMBS 74119-B, 39.3 mm, Miyake-jima; TMBS 760608, 36 mm, Miyake-jima; TMBS 761126, 30 mm, Miyake-jima; TMBS 790823-B, 2: 23.2～36.5 mm, Miyake-jima.

Description. Dorsal rays XII, 10 to 12 (usually 11); anal rays II, 10 to 12 (usually 11); pectoral rays 16 to 18 (usually 17); caudal spinules 2/2; tubed lateral-line scales 16 to 18; scales

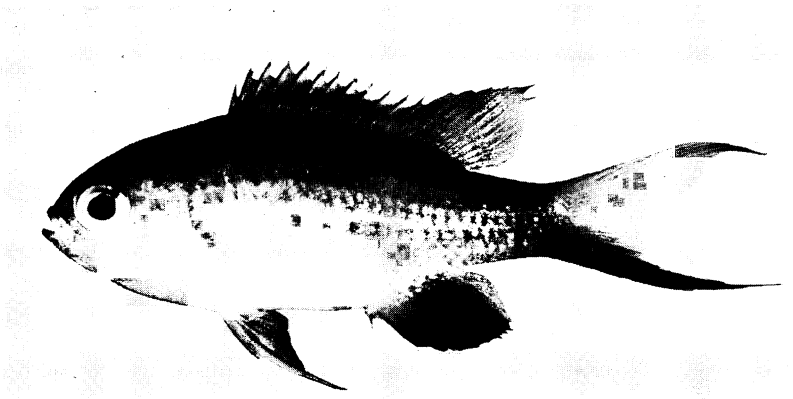

Fig. 18. *Chromis vanderbilti*, BPBM 6882, 35 mm SL, Tahiti.

above lateral line 3; scales below lateral line 9; gill rakers 6 to 8+18 to 20.

Body relatively slender for the genus, the depth 34.1～43% SL; head length 28.5～32.9; orbit diameter 10.2～12.4; interorbital width 10.9～12.2; snout length 8.1～9.1; least depth of caudal peduncle 12.7～15.6; longest dorsal spine 12～14.8; second anal spine 13.7～16.6.

Interspinous membranes of dorsal fin moderately incised; margins of soft portion of dorsal and anal fins moderately angular; caudal fin forked, the lobe tips somewhat filamentous, the caudal concavity 18.3～28.6% SL.

Free margin of suborbital scaled over, no edge visible posterior to maxilla; preopercular margin smooth; anterior nostril of moderate size with a well-developed rim which is higher posteriorly; posterior nostril very small, close to edge of orbit at level of upper edge of pupil; pores of lateralis system of head moderately large.

Dusky yellow dorsally, yellow on sides, and whitish ventrally, with blue stripes on body formed by a bright blue spot on each scale; opercular region behind eye yellow with about ten bright blue spots; dorsal fin dusky, the outer spinous portion with a broad zone of yellow, the spines tipped with blue; a small orange-yellow spot at rear base of dorsal fin; anal fin black with a narrow blue margin except last few rays and membranes which are pale; caudal fin a little dusky with a broad black band along edge of lower lobe; paired fins pale, the pectoral base dusky yellowish, the axil yellow.

Distribution and habitat. *C. vanderbilti* occurs throughout Oceania and the western Pacific. It is one of a complex of four small elongate yellowish species with blue markings (the others: *C. lineata* Fowler and Bean, *C. nigrura* Smith, and *C. acares* Randall and Swerdloff); only *C. vanderbilti* is known from Japan and Taiwan. Masuda, et al. (1975) recorded the first specimen from Japanese waters (from Okinawa) and Shen and Chen (1978) the first from Taiwan. Our specimens from Miyake-jima in the Izu Islands represent the northernmost record (34°05′N).

In the Ryukyu Islands this species occurs commonly on outer reef slopes, usually in small aggregations, from about 2 to 10 m. It is not common in Miyake-jima where it may be seen as solitary individuals or occasionally in small aggregations over coral plateaus and along the upper edges of lava cliffs in from 5 to 20 m.

Chromis weberi Fowler et Bean
(Japanese name: Takasago-suzumedai)
(Figs. 2S, 19)

Chromis weberi Fowler et Bean, 1928: 31, pl. 1 (type locality, Java).

Materials. USNM 72713, 85 mm, holotype; ZUMT 40389, 93.5 mm, Kagoshima; ZUMT 15091, 86 mm, Yaeyama Is.; FSKU 751001-d, 4: 49～52.8 mm, Sesoko-jima, Okinawa; FSKU 760221, 2: 80～83 mm, Nakagusuku Bay, Okinawa; TMBS 741117-C, 31.2 mm, Miyake-jima; TMBS 741230-B, 50.3 mm, Miyake-jima; TMBS 751005-A, 2: 37.1～41.3 mm, Miyake-jima; BPBM 6873, 77 mm, Ishigaki; BPBM 19110, 73 mm, Nakanose-Reef, Okinawa; BPBM 22695, 89 mm, O-luan-pi, southern Taiwan.

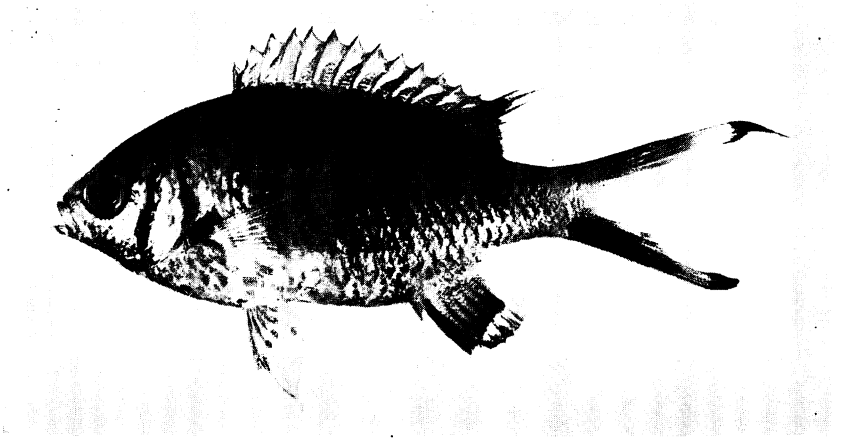

Fig. 19. *Chromis weberi*, BPBM 19110, 73 mm in SL, Okinawa, Japan.

Description. Dorsal rays XIII,11; anal rays II,11; pectoral rays 18 to 20; caudal spinules 3/3; tubed lateral-line scales 17 to 19; scales above lateral line 3; scales below lateral line 9; gill rakers 8 or 9+19 to 22.

Body not very deep, the depth 40.4～46.6% SL (greater, in general, in larger individuals); head length 28.9～33.7; orbit diameter 9.1 to 12.8; interorbital width 10.1～12.1; snout length 7.5～9.5; least depth of caudal peduncle 13.5～15.5; longest dorsal spine 12.9～16.3; longest dorsal ray 18.5～23.4; second anal spine 16.1～19.6.

Interspinous membranes of dorsal fin moderately incised; margin of soft portion of dorsal fin somewhat angular, the longest ray 20.7～22.9% SL; margin of anal fin rounded; caudal fin deeply forked, the lobes progressively more narrow and attenuate (particularly the upper), the caudal concavity 22.6～35.2.

Free margin of suborbital short, not reaching or barely reaching a vertical at front of pupil; margin of preopercle smooth or with a few obtuse serrae or irregularities on upper margin; anterior nasal opening moderately large with a low rim which is slightly higher posteriorly; posterior nostril about one-half size of the anterior; pores of lateralis system on head very small and difficult to detect.

Olivaceous to bluish gray, paler ventrally, the edges of the scales dark brown to blackish; upper edges of the opercle and preopercle blackish; scaled basal part of dorsal fin dark brown, the unscaled outer part of spinous portion yellowish, shading distally to dusky or blackish, the soft portion with yellowish brown rays and hyaline membranes; anal fin similar but without yellowish coloration; caudal fin with very broad dark bands at the edges, the lobe tips blackish, the centro-posterior part of fin with brown rays and clear membranes; paired fins with pale membranes and dusky rays, the pectorals with the lower fourth yellowish except for a blackish spot at upper base and in axil.

Remarks. *C. weberi* is known from the Red Sea and East Africa to the Line Islands and Pitcairn Group in Oceania. It has often been misidentified as *C. xanthochir* (Bleeker), as by Tanaka (1913) from southern Japan, Matsubara (1955), Randall (1955) from the Gilbert Islands, Kamohara (1957) from Amami-Oshima, and Kamohara (1960) from Okinoshima, Kochi-ken. As shown by Allen (1975), *C. weberi* is distinct from *C. xanthochir* in usually having 18 instead of 16 or 17 tubed lateral-line scales and having the extreme base and axil of the pectoral fins dark brown instead of yellow. *C. xanthochir* is not known from Japanese or Taiwanese waters.

Herre (1953), Randall (1955), and Kamohara (1957) were all in error in regarding *C. scotochilopterus* Fowler a junior synonym of *C. weberi*; it is a valid species from the Indo-Malayan Archipelago.

Masuda et al. (1975: pl. 96–A) illustrated *C. weberi* in color from a specimen from Okinawa. Shen and Chen (1978) recorded the first specimens from Taiwan. Our material from Miyake-

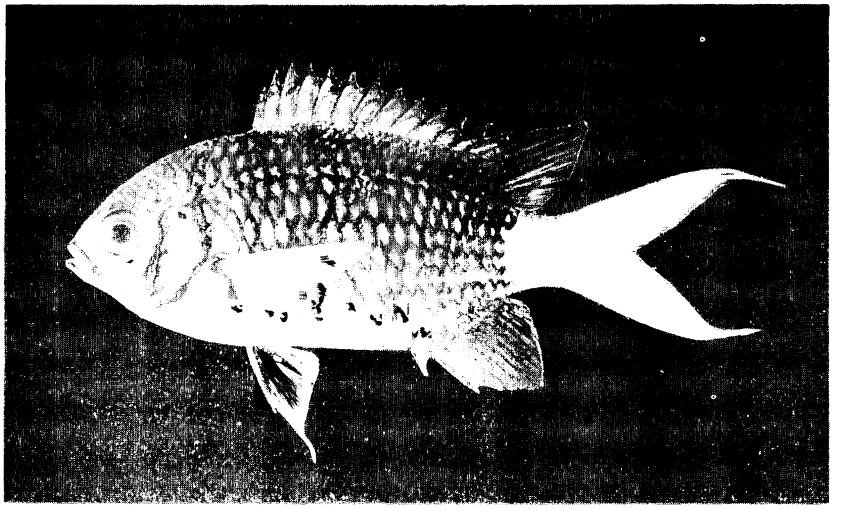

Fig. 20. *Chromis xanthura* BPBM 11437, 99 mm SL, New Caledonia.

jima (34°05′N) represents the northernmost record for the species.

Distribution and habitat. In the Ryukyu Islands *C. weberi* is relatively common on outer reef slopes from about 3 m down to a maximum of about 20 m. It may occur individually or in small aggregations. At Miyake-jima it has been observed at the tops of lava cliffs and coral plateaus feeding in mixed schools with other zooplankton-feeding fishes such as *C. flavomaculata, C. notata, C. chrysura,* and the serranid *Anthias nobilis.*

Chromis xanthura (Bleeker)
(Japanese name: Mon-suzumedai)
(Figs. 2T, 20)

Heliases xanthurus Bleeker, 1854: 107 (type locality, Banda, Indonesia).

Materials. RMNH 6510, 97 mm, holotype; ZUMT 20471, 117 mm, Yaku Island; ZUMT 39816, 110 mm, Okinawa; ZUMT 39909, 109 mm, Okinawa; FSKU 751001, 2: 41～43.4 mm, Sesoko-jima, Okinawa; FSKU 760220, 4: 83～94 mm, Okinawa; TMBS 741021, 25 mm, Miyake-jima; TMBS 741230-C, 37.2 mm, Miyake-jima; TMBS 781112, 64 mm, Miyake-jima; BPBM 19120, 113.5 mm, Sesoko-jima, Okinawa; BPBM 22693, 114 mm, Nan Wan, southern Taiwan; USNM 147335, 90 mm; Hokuko Soo Wan, Taiwan.

Description. Dorsal rays XIII, 10 or 11 (rarely 10); anal rays II, 10 or 11 (rarely 10); pectoral rays 18 to 20 (usually 19); caudal spinules 3/3; tubed lateral-line scales 16 to 19; scales above lateral line 3; scales below lateral line 8 or 9 (usually 9); gill rakers 6 to 8+19 to 22.

Body not very deep, the depth 43.6～52.8% SL; head length 28.6～33.3; orbit diameter varying from 7.4 in 117-mm specimen to 12.1 in 37.2-mm specimen; interorbital width 11.1～12.1; snout length 7.3～9.4; least depth of caudal peduncle 14.3～15.5; longest dorsal spine 12.3～16.5; longest dorsal ray 24.1～40.7; second anal spine 12.6～16.2.

Interspinous membranes of dorsal fin moderately incised; margin of soft portion of dorsal fin angular, the third ray filamentous, 27.2～40.7% SL; margin of soft portion of anal fin slightly angular, the fourth ray longest, sometimes filamentous; caudal fin deeply forked, the lobe tips filamentous, the upper longer than lower, the caudal concavity 29.6～49.7.

Free margin of suborbital short, not reaching or barely reaching a vertical at front edge of pupil; margin of preopercle smooth; anterior nostril moderately large with a low rim that is slightly higher dorso-posteriorly; posterior nostril small and elongate, its greatest diameter less than half diameter of anterior nasal opening.

Centers of scales blue-green, the edges broadly blackish; upper margin of opercle and subopercle black; posterior half of caudal peduncle usually abruptly white, the demarcation generally curved; caudal fin usually white or white with a

narrow blackish margin on upper and lower edges, often with a submarginal dusky zone along posterior edge which is darker centrally thus seeming like a dark spot (as shown in an illustration by Kamohara and Yamakawa, 1968: fig. 8), especially when caudal lobes not spread (see Remarks below on variation in caudal coloration); dorsal and anal fins blackish except distal part of last four or five rays and associated membranes which are whitish; pectoral fins with dusky and pale membranes, the base and axil black; pelvic fins blackish, a little paler medially.

In Japan, juveniles with very broad orange bands on caudal lobes, extending dorsally onto caudal peduncle; dorsal fin colored as body except black anterior margin to soft dorsal and hyaline posterior part of fin; anal fin black with hyaline margin.

Distribution and habitat. *C. xanthura* occurs throughout Oceania and the Western Pacific. At most localities it has a white tail but at some such as the Society Islands and Line Islands the caudal is usually if not always dark brown to black. In Taiwan the senior author observed some adult individuals of this species with such broad blackish margins on the caudal fin that little white was left. This species is not common at Miyake-jima and rarely survives the winters there. After losing the juvenile orange color of the fins (the last vestige of orange may be seen posteriorly on the edges of the caudal lobes), most individuals are black-tailed, but a few which had identical orange-finned juvenile patterns have ended up with white tails.

C. xanthura occurs in deeper water on the average than *C. weberi,* generally from 10 to at least 40 m. It may be seen individually or in loose aggregations. It swims higher above the substratum than most *Chromis* and is difficult to approach underwater. It tends to remain in the water column and move away from a diver; only when intensively chased is it apt to seek refuge in the reef.

Remarks. The name *C. opercularis* (Günther) in Playfair and Günther (1866) has been used by some authors for *C. xanthura.* The type locality of *C. opercularis* is Zanzibar. Further study is needed to determine if this name can be maintained for the Indian Ocean form which is very close to *C. xanthura* of the Pacific or whether it can at best be retained as a subspecific designation.

C. xanthura is closely related to *C. weberi.* When *C. xanthura* lacks the white tail, the two can be difficult to differentiate. *C. xanthura* attains larger size (our largest specimen measures 117 mm SL whereas our largest *C. weberi* is 93.5 mm). As noted in the Key, the prolonged ray of the soft portion of the dorsal fin of *C. xanthura* is longer than the longest dorsal ray of *C. weberi*; also the caudal concavity is greater.

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日本および台湾産のスズメダイ属魚類

John E. Randall・井田　斉・Jack T. Moyer

日本およびその周辺海域から得られたスズメダイ属魚類の形態，分布，生態などについて検討した．

スズメダイ属は 1) 鼻孔は各側に2個，2) 円錐歯をもつ，3) 尾鰭上下の棘状軟条は2又は3本，4) 不完全間神経棘は3本で第1～第3椎体の神経棘の前方にそれぞれ1本ずつ位置するものと定義される．

該当する魚として日本およびその周辺海域からは20種が認められる．その内フカミスズメダイ(新称) *Chromis leucura*，タイワンスズメダイ(新称) *C. elerae*，アオバスズメダイ(新称) *C. atripectoralis* の3種は日本周辺域からの初記録であり，1未記載種をオナガスズメダイ *C. alleni* として記載した．なおマツバスズメダイ *C. fumea* は従来ソラスズメダイ属に位置づけられていたが，上記の形質を具えることよりスズメダイ属へ含めた．更にアマミスズメダイ *C. chrysura*，シコクスズメダイ *C. margaritifer* などに用いられている学名についても検討した．

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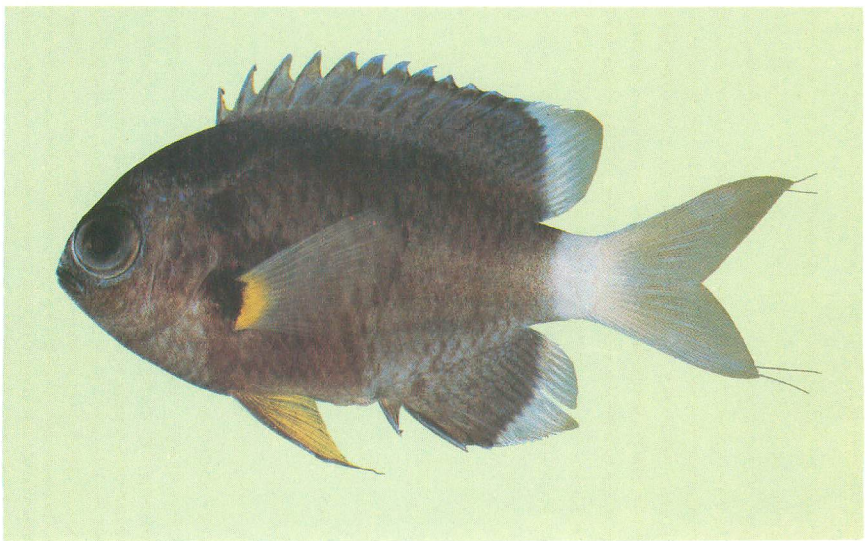
Explanation of plate

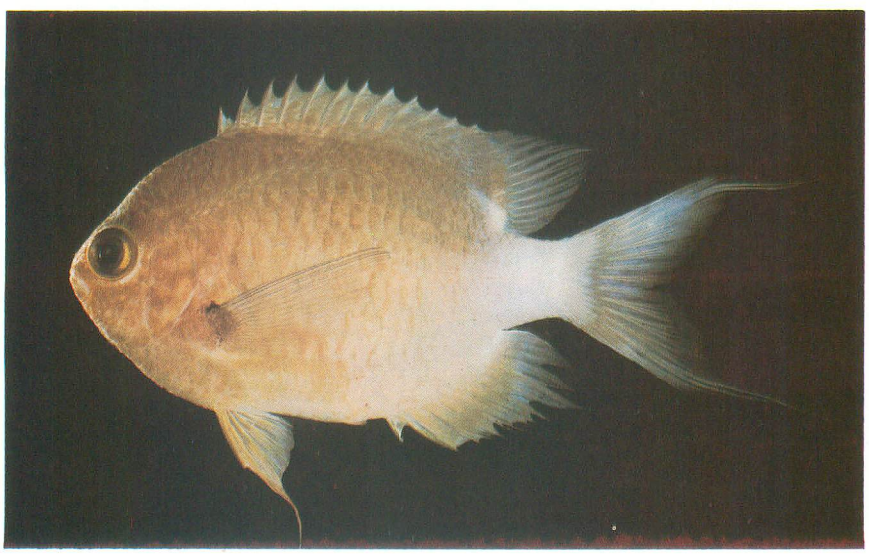
Plate 1

A. *Chromis alleni*, sp. nov., holotype, 575 mm SL, Okinawa, BPBM 19092.
B. *Chromis leucura*, 36.0 mm SL, Marquesas Islands, BPBM 11883.
C. *Chromis ovatiformis*, 58.3 mm SL, Okinawa, BPBM 19078.

A



B



C