A Record of the Lutjanid Fish, Lutjanus ehrenbergii, from Japan with Reference to its Related Species

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The lutjanid fish *Lutjanus ehrenbergii* (Peters) is widely distributed on the coasts of the Indo-West Pacific region (Allen and Talbot, 1985; Allen, 1985). In Japan, however, there is no certain record of this species except that Shimada and Yoshino (1987) pointed out that a specimen (243.0 mm in SL from Ishigahi Island, Japan) identified as *L. johnii* (Bloch) by Shinohara (1966) is this snapper. Recently, we re-examined the specimens of the lutjanid fishes which were collected from the Yaeyama Islands, reported by Hayashi (1979) and Senou and Suzuki (1980), and found 15 juveniles of *L. ehrenbergii* among the specimens identified as *L. fulviflamma* (Forsskål).

Allen and Talbot (1985) described the detailed differences among the Indo-West Pacific snappers with an ocellated spot below the anterior soft dorsal, and their excellent work facilitated the identification of such lutjanids. However, considerable difficulties still remain in their identification, especially in the juvenile stage, because the spotted snappers are very uniform in their morphometric and meristic characters, and their coloration changes with growth.

In this paper, we describe *L. ehrenbergii* from the Japanese waters in comparison with other similar Japanese lutjanids with an ocellated spot in the juvenile stage and provide a key to these species. Counts and measurements follow those of Allen and Talbot (1985).

Lutjanus ehrenbergii (Peters, 1869) (Japanese name: Minami-fuedai) (Figs. 1A, 2A, B)

Material examined. URM-P (Department of Marine Sciences, University of the Ryukyus) 6315, 1 specimen, 243.0 mm SL, Ishigaki I., Mar., 1963; YCM-P (Yokosuka City Museum) 4667, 1 specimen, 37.0, Hirakubo Riv., Ishigaki I., Aug. 3, 1978; YCM-P 4738, 1 specimen, 42.0, Iriomote I., Aug. 6, 1978; YCM-P 7370, 3 specimens, 16.5–20.5, Fukidou Riv., Ishigaki I., May 30, 1980; YCM-P 9345 and 9370, 2 specimens,

33.0–104.2, mouth of Udara Riv., Iriomote I., Jul. 29, 1981; YCM-SSP 9638, 1 specimen, 25.8, mouth of Saji Riv., Iriomote I., Aug. 1, 1978; YCM-SSP 9686, 1 specimen, 37.0, beach near mouth of Saji Riv., Iriomote I., Aug. 15, 1978; YCM-SSP 9695, 1 specimen, 18.0, beach near mouth of Saji Riv., Iriomote I., Aug. 18, 1978; YCM-SSP 9724, 1 specimen, 54.3, mouth of Shukuji Riv., Ishigaki I., Sept. 6, 1978; YCM-SSP 10306, 2 specimens, 20.9–23.5, mouth of Yonada Riv., Iriomote I., Oct. 29, 1981; YCM-SSP 10501, 1 specimen, 34.8, beach near mouth of Saji Riv., Iriomote I., Jul. 29, 1978; YCM-SSP 10502, 1 specimen, 49.0, mouth of Nagura Riv., Ishigaki I., Oct. 24, 1981.

Description. D. X, 13; A. III, 8; P. 15; lateral line scales 44–46; transverse scale rows above lateral line 5 in the middle of spinous dorsal; scale rows on cheek 5–6 (usually 5); gill rakers on first gill arch 6–7+12–15=18–22. Body depth 1.9–2.8, head length 2.1–2.9, both in SL (16.5–243.0 mm).

The anterior part of head naked. Forefront of temporal scalation beginning behind eye, the scalation apart from uppermost scales on cheek and opercular apparatus, and predorsal scales. Preopercle, interopercle, subopercle and opercle scaly. The longitudinal scale rows above lateral line parallel to the lateral one, those below the lateral parallel to the body axis. Preopercular notch very shallow. Vomerine teeth forming a triangular patch without a median posterior extension in specimens less than about 160 mm SL (present in more than about 180 mm SL). Pectoral fins long and pointed, reaching below anterior sport in less than about 100 mm SL and not reaching below that in more than 243 mm SL. Dorsal fin with a distinct notch in large adult. Soft dorsal and anal fins scaly. Spinous dorsal less scaly, minute scales covering only the basal halves of each dorsal spine. Posterior part of soft dorsal rounded. Soft anal rounded or truncate in specimens less than about 130 mm SL, but truncate in more than about 180 mm SL. Caudal fin scaly and truncate or emarginate.

Color in life: body generally light brown, darker in the upper portion and head; a distinct black ocellated spot on the back below the anterior part of soft doral; 4–6 narrow longitudinal yellow stripes running on the side below lateral line.

Color in alcohol: body generally brownish on the upper part of body and head, some specimens fixed directly in alcohol having some faint horizontal pale lines on the side below lateral line. A black

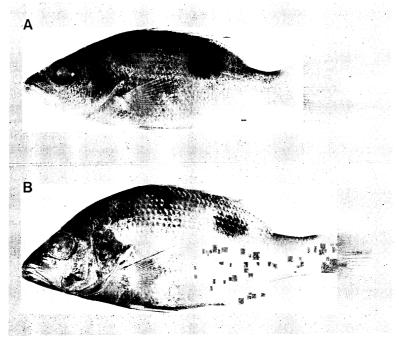


Fig. 1. Juveniles of Lujtanus ehrenbergii and L. johnii. A, L. ehrenbergii, YCM-SSP 10306, 55.5 mm in SL; B, L. johnii, MUDF 1727, 119.0 mm in SL.

ocellated spot present below the anterior part of soft dorsal fin, the size and shape changing with growth. In less than 100 mm SL, the spot very large and nearly circular, its diameter much larger than eye. The greater part of the spot existing above lateral line in this size range. The upper margin of the spot reaching to the dorsal fin base in less than 100 mm SL. In about 180 mm SL, the diameter of the spot slightly larger than the eye, its shape nearly oval, and its center situated slightly above the lateral line transversing the spot in an oblique manner.

Ecological note. Field observations at the Yaeyama Islands by the second and third authors indicate that the juvenile stage of this species is found in mangrove swamps and very shallow water near river mouths during summer to autumn, as are *L. russelli*, *L. fulviflamma*, *L. fulvus* and *L. monostigma*. This fish does not enter freshwater streams.

Remarks. According to Allen (1985), this species attains to about 35 cm TL (commonly to 20 cm). There is no recent adult record from the Ryukyus in spite of careful observations by the second author whereas the young frequently occur

in the Yaeyama Islands.

Descriptions of *L. johnii* by Shinohara (1966) and Akazaki (1984) are actually those of *L. ehrenbergii*, and the figured specimen (pl. 5, fig. E) identified as *L. fulviflamma* by Senou and Suzuki (1980) is also this species. However, the figured specimen (pl. 158, fig. J) of Akazaki (1984) is *L. johnii*, and its locality is the Philippines (Akazaki, pers. comm.). As Shimada and Yoshino (1987) pointed out, there is no actual record of *L. johnii* from Japan. Although Shinohara (1966) described his specimen (URM-P 6315) as having 14 soft dorsal and 7 soft anal rays, we confirmed that the specimen has 13 and 8 rays, respectively.

Comparisons

Table 1 shows the important diagnostic characters for the identification of juvenile Japanese snappers with an ocellated spot over about 20 mm SL. Lutjanus stellatus (Fig. 3G, H) and L. rivulatus (Fig. 3J) are separated from the other species in having a white spot edged anteriorly and posteriorly with black. These two species are easily separated from each other by the length and posi-

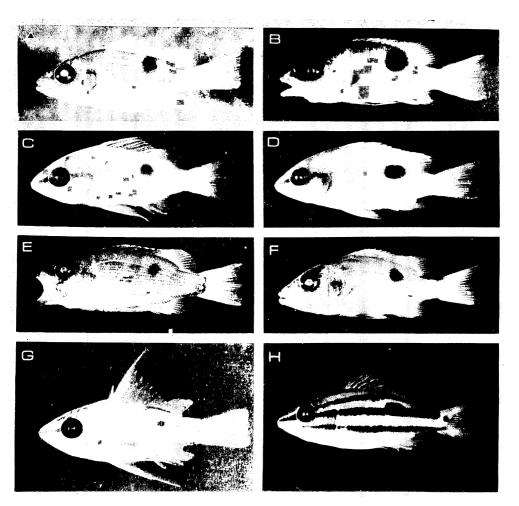


Fig. 2. Juveniles of Japanese snappers with an ocellated spot. A and B, Lutjanus ehrenbergii, YCM-P 7370 and YCM 9686, 20.5 and 37.0 mm in SL; C and D, L. fulviflamma, YCM 9995 and YCM-SSP 9669, 18.9 and 34.9 mm in SL; E and F, L. monostigma, YCM-SSP 9996 and YCM-SSP 9894, 22.0 and 35.5 mm in SL; G and H, L. russelli, YCM 4272 and YCM 15661, 16.5 and 31.9 mm in SL.

tion of the first transverse bar (see key), and also the position of the white spot (on lateral line in *L. rivulatus*; above the lateral line in *L. stellatus*). *L. russelli* (Fig. 2G, H), *L. kasmira* (Fig. 3C, D) and *L. quinquelineatus* (Fig. 3A, B) are characterized by having 4 to 5 distinct longitudinal stripes (the upper 2 or 3 ones slanting toward the dorsal profile). *L. russelli* is a distinctive species recognized by having 4 broad brownish stripes and a conspicuous black spot on the 3rd (broadest) stripe. The latter two species are distinguished from *L. russelli* in the position of the spot, and the number of stripes on the body and below the eyes (see key). *L. vitta* is characterized by a single longi-

tudinal black stripe running from the tip of the snout to the caudal peduncle with a spot on the stripe (Fig. 3I).

It is easy to confuse *L. ehrenbergii*, *L. monostigma*, *L. fulviflamma* and *L. johnii*. *L. ehrenbergii* is often confused with *L. fulviflamma* because both species, when alive, have 4 to 6 horizontal yellow stripes on the side below the lateral line and a black spot below the anterior soft dorsal. However, they are easily distinguished by the arrangement of scale rows above the lateral line and the size of the black spot. The scale rows in *L. ehrenbergii* are parallel to the lateral line, but they rise obliquely in *L. fulviflamma*. The spot of *L.*

Table 1. Comparison of important characteristics in juveniles of Japanese spotted snappers of on extralimital specimens. ** Data in less than 30 mm in SL are based on personal com-

	L. ehrenbergii	$L.\ \mathit{fulviflamma}$	L. johnii*	L. monostigma	L. vitta
Scale rows above lateral line to lateral line	parallel	oblique	parallel	oblique	oblique
Dark stripe on snout through eye, to upper opercle	absent	present even when preserved	absent	absent	present even when preserved
Broad stripe(s) on body	absent	absent	absent	absent	present on snout through eye, to caudal peduncle
Black spot below anterior soft dorsal	present (upper margin of spot reach- ing dorsal base profile even when preserved in less than 100 mm SL)	present (upper margin of spot not reaching dorsal base profile even when preserved)	present (upper margin of spot not reaching dorsal base profile even when preserved)	present (upper margin of spot not reaching dorsal base profile even when preserved)	present on lateral line even when preserved
Horizontal yellow lines on body in life	present (5–6 lines)	present (5–6 lines)	absent	absent	present (about 10 narrow blackish-yellow lines)
4–6 black bars on body	absent	absent	absent	absent	absent
A pronounced black spot in center of each scale	absent	absent	present (giving an ovarall ap- pearance of a series of horizontal lines)	absent	absent
Blue lines below eye in life	absent	absent	absent	absent	absent
Dark submarginal band in soft dorsal	absent	absent	absent	absent	absent

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the genus *Lutjanus*. * We could not confirm the occurence of this species in Japan. Data based munication with Mr. Hamamoto.

L. boutton	L. russelli	L. stellatus	L. rivulatus	L. kasmira	L. quinque- lineatus	L. fulvus
oblique	oblique	oblique	oblique	oblique	oblique	oblique
absent	present even when preserved	present or absent	absent	present even when preserved	present even when preserved	absent
absent	present (4 brownish stripes even when preserve upper 2 stripes slanting)		absent	present (4 stripes even when preserved)	present (5 stripes even when preserved 5th stripe sometimes indistinct in 20–30 mm SL when preserved	,
absent or rarely present	present on 3rd stripe	absent** (white spot encircled with black margin in over than 20-25 mm SL; spot above lateral line)	absent (white spot encircled with black margin; spot on lateral line)	` • ′	present or rarely indistinct when preserve	absent or rarely present d
present (about 5–6 lines)	absent	absent	absent	absent	absent	present (about 10 narrow yellow lines)
absent	absent	present** (1st to 4th bar only above lateral line and 5-6th over on peduncle or indistinct when preserved)	present (first bar most distinct through nape to pectoral even when preserved; other bars on body indis- tinct when preserved)	absent	absent	absent
absent	absent	absent	absent	absent	absent	absent
absent	absent	absent or present (1-2 line(s))	present (1–6 wavy lines with growth)	present (2 lines indistinct when preserved)	present (3 lines; lower 2nd not continuing with blue lines on body; indistinct when preserved)	present or absent
absent	absent	absent	absent	absent	absent	present

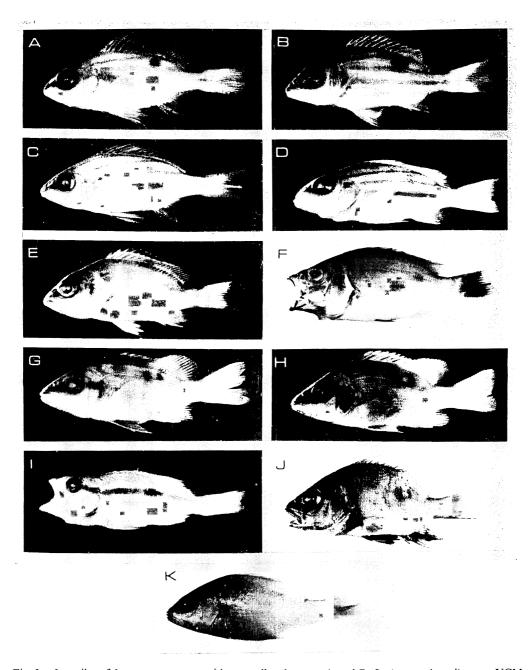


Fig. 3. Juveniles of Japanese snappers with an ocellated spot. A and B, Lutjanus quinquelineatus, YCM-SSP 7630, 21.8 mm and 36.9 mm in SL; C and D, L. kasmira, YCM-P 9400 and YCM 7630, 33.1 and 45.0 mm in SL; E (with no spot: usual type) and F (with a spot: very rare type), L. fulvus, YCM 4634 and CAS 33985, 30.0 and 115.5 mm in SL; G and H, L. stellatus, MUDF uncat., 39.0 and 50.5 mm in SL; I, L. vitta, MUDF uncat., 44.0 mm in SL; J, L. rivulatus, MUDF uncat., 81.0 mm in SL; K (with a spot: very rare type), L. boutton, YCM-P 6839, 86.0 mm in SL.

eherenbergii is very large. The upper part of the spot reaches to the dorsal base in specimens of about 20 mm SL, but does not reach it in specimens larger than about 20 mm SL or specimens of any size in *L. fulviflamma* (Fig. 2A-D).

Although the juveniles of L. johnii were not reported from Japan in the present study, we presume that they are easily distinguished from those of L. ehrenbergii. Judging from the characteristics of L. johnii in the adult and subadult stages (Fig. 1B) and a juvenile figured by Allen and Talbot (1985: pl. 5, fig. G), we predict that smaller juveniles of this species would also have a prominent brownish black spot in the center of each scale (usually remaining in specimens preserved in alcohol), giving the overall appearance of a series of horizontal lines on the side of the body, and no yellow stripes below the lateral line. In contrast, juveniles of L. ehrenbergii lack those features. The ground color of the body seems to be darker than that of L. johnii (Figs. 1A, B, 2A, B). Furthermore, the scale rows on the cheek in L. johnii are 7 to 8 in comparison with 5 to 6 (usually 5) in L. ehrenbergii.

Allen and Talbot (1985) stated that the small juveniles (less than about 80 mm SL) of L. monostigma and L. fulviflamma are difficult to separate, particularly when preserved, but in life the latter species often has an ocellated spot and a series of yellow stripes on the side, which are lacking in the young of L. monostigma. However, it is easy to distinguish L. monostigma in the juvenile stage from L. fulviflamma in that stage even when preserved. The juveniles of the latter species have a broad brownish black stripe, frequently indistinct in preserved specimens over about 100 mm SL, running from the tip of the snout, through the eye, to the upper part of the operculum, whereas L. monostigma has no such stripe at any stage. Further, L. monostigma generally has a darker body, relatively bigger eyes and a more pointed snout in comparison with those of L. fulviflamma (Fig. 2C-F).

Mori (1984) stated that in larval and early juveniles of *Lutjanus* the first pelvic ray is much longer than the spine in many species (*L. vitta*, *L. campechanus*, *L. aratus*, etc.) and all species possess stout, elongate second dorsal and pelvic spines, and a long second anal spine. An early juvenile of *L. russelli* (16.5 mm SL, Fig. 2G) has the characteristics mentioned above, but this

specimen already shows the striped color pattern with a spot which are the features of the late juvenile stage (according to Mori (1984), the color pattern of *L. vitta* forms at 35.0 mm SL). Recently, Kojima (1988) reported that the reduction in relative size of the 2nd dorsal spine and the 1st pelvic soft ray in *L. russelli* proceeds slowly. On the other hand, similarly-sized *L. ehrenbergii* already have the reduced 2nd dorsal, pelvic and 2nd anal spines, and a spot on the back (Fig. 2A).

L. fulvus and L. boutton very rarely have an indistinct dark spot or blotch on the lateral line below the anterior soft dorsal (faintly observed in Fig. 3F, K). Those two species are easily separated from L. monostigma by their pale body color even when preserved, and are distinguished from each other by the presence or absence of the dark brown submarginal band of the soft dorsal fin (see key).

Comparative material examined. L. boutton (Lacepède): YCM-P 6839, 1 specimen, 86.0 mm in SL, Kuroshima I., Yaeyama Is., Aug. 9, 1979. L. ehrenbergii (Peters): CAS (California Academy of Sciences, San Francisco) 55137, 1 specimen, 140.5, side of Cape Arudowaishi, Palau Is., Nov. 9, 1959; CAS uncat., 1 specimen, 134.9, 100 yds. east of Peleliu boat dock, Peleliu I., Palau Is., Sept. 18, 1956; CAS uncat., 1 specimen, 161.0, Melekeick Municipality, end of Melekeiok dock, east side of Babelthuap I., Palau Is., Sept. 27, 1955; CAS uncat., 1 specimen, 186.0, coralline slope, NE off Nardueis I., Palau Is., Nov. 11, 1959. L. fulviflamma (Forsskål): YCM-SSP 9626, 1 specimen, 51.0, beach near mouth of Saji Riv., Iriomote I., Jul. 29, 1978; YCM-SSP 9669, 5 specimens, 34.9-47.0, mouth of Nakama Riv., Iriomote I., Aug. 8, 1978; YCM-SSP 9859 and 10029, 13 specimens, 17.9-52.0, mouth of Nakama Riv., Iriomote I., Jul. 14, 1980; YCM-SSP 10257, 4 specimens, 39.0-41.5, mouth of Nagura Riv., Ishigaki I., Oct. 24, 1981; YCM-SSP 10314, 1 specimen, 96.5, mounth of Nakama Riv., Iriomote I., Oct. 30, 1981. L. fulvus (Schneider): CAS 33985, 1 specimen, 115.5, Madras, India, Jun., 1974, YCM 4634, 11 specimens, 22.0-61.2, mouth of Kawara Riv., Ishigaki I., Okinawa, Aug. 3, 1978. L. johnii (Bloch): CAS 35738, 1 specimen, 154.5, Penang, Malaysia, Mar. 25, 1937; MUDF (Department of Fisheries, Miyazaki University) 1727, 1729 and 1751, 3 specimens, 119.0-175.0, Penang, Malaysia, Aug. 12, 1971. L. kasmira (Forsskål): YCM-P 7630, 3 specimens, 41.2-45.0, Amitori Bay, Iriomote I., Aug. 17, 1980; YCM-P 9400, 2 specimens, 33.1-36.2, Amitori Bay, Iriomote I., Aug. 6, 1981; YCM-SSP 9995, 3 specimens, 41.2-45.0, Amitori Bay, Iriomote Is., Aug. 17, 1980. L. monostigma (Cuvier): YCM-P 358, 1 specimen, 22.0, Hahajima I., Ogasawara Is., Jul. 2, 1970; YCM-P 6598, 1 specimen, 65.0, reef of Hokei, Kuroshima I., Yaeyama Is., Sept. 10, 1979; YCM-SSP 9894, 1 specimen, 35.5, Nakama Riv., Iriomote I., Jul. 14, 1980; YCM-SSP 9996, 2 specimens, 22.0-38.0, mouth of Nagura Riv., Ishigaki I., Jul. 11, 1980; YCM-SSP 10030, 1 specimen, 104.0, mouth of Nakama Riv., Iriomote I., Jul. 14, 1980. L. quinquelineatus (Bloch): YCM-P 7630, 3 specimens, 21.8-36.9, Amitori Bay, Iriomote I., Aug. 17, 1980; YCM-SSP 9997, 1 specimen, 26.0, mouth of Nagura Riv., Ishigaki I., Jul. 11, 1980. L. rivulatus (Cuvier): YCM-P 4740, 1 specimen, 38.5, Iriomote I., Aug. 8, 1978; MUDF uncat., 1 specimen, 75.0, Miyazaki, date unknown; MUDF uncat., 1 specimen, 81.0, mouth of Nakama Riv., Iriomote I., Aug. 1987. L. russelli (Bleeker): YCM-P 4272, 1 specimen, 16.5, mouth of Shimonokae Riv., Kochi Pref., Sept. 28, 1977; YCM-P 5418, 2 specimens, 25.5-52.1, Shinjuku kaigan, Zushi, Kanagawa Pref., date unknown; YCM-SSP 10327, 1 specimen, 68.5, mouth of Nakama Riv., Iriomote I., Oct. 31, 1981; YCM-P 15661, 1 specimen, 31.9, mouth of Yoshida Riv., Tsushima I., Nagasaki Pref., Sept. 16, 1986. L. stellatus Akazaki: YCM-P 5219, 1 specimen, 38.9, Shinjuku-kaigan, Zushi, Kanagawa Pref., date unknown; YCM-P 5263, 1 specimen, 38.8, probably Okinawa Pref., date unknown; MUDF uncat., 3 specimens, 39.0-50.5, Miyazaki Pref., date unknown. L. vitta (Quoy and Gaimard): MUDF uncat., 3 specimens, 38.5-42.0, Shimonoseki, Yamaguchi Pref., Sept. 8, 1977.

Key to the Japanese snappers with an ocellated spot from about 20 to 100 mm SL

1a.	White spot edged anteriorly and posteriorly with black on back below anterior soft dorsal even when preserved2
1b.	No white spot on back3
2a.	Center of spot situated on lateral line; body
	with 4 to 6 dark transverse bars; 1st bar
	most distinct, running from the base of
	first dorsal spine to pectoral fin base even
	when preserved (Fig. 3J)
	L. rivulatus "Nami-fuedai"
2b.	Center of spot situated above lateral line;
	body without black bars or if present 1st to
	4th bar above lateral line, other bars on
	peduncle (Fig. 3G, H)
3a.	Body with 4 to 5 distinct longitudinal bars
	or stripes, the upper 2 or 3 slanting4
3b.	Body with a longitudinal horizontal black

stripe, or without distinct bars or stripes...

4a.	A distinct black spot on the 3rd (broadest)
	stripe even when preserved; stripes brownish
	(Fig. 2G, H)
	L. russelli "Kurohoshi-fuedai"
4b.	A black spot on back between 2nd and 3rd
	stripes, or without spot; stripes blue, margin-
	ed with black in life5
5a.	Body with 4 stripes; spot larger than pupil
	diameter if present, its darkness almost same
	as that of stripes when preserved (Fig. 3C,
	D)L. kasmira "Yosuji-fuedai"
5b.	The state of the s
	distinct in less than about 30 mm SL when
	preserved); the spot diameter almost same
	as pupil in specimens about 30 mm SL, its
	color darker than that of stripes when pre-
	served (Fig. 3A, B)
	L. quinquelineatus "Rokusen-fuedai"
6a.	Body with a longitudinal black stripe from
	eye to caudal peduncle in specimens over
	20 mm SL; a spot on the stripe below lateral
	line in over than about 35 mm in SL (Mori,
	1984: figs. D, E and F; Fig. 3I in this paper)
	L. vitta "Yokosuji-fuedai"
6b.	Body without a black stripe7
7a.	Longitudinal scale rows above lateral line
	rising obliquely8
7b.	Longitudinal scale rows above lateral line
	parallel to the lateral line11
8a.	Head with a dark stripe running from tip of
	snout, through eye, to upper part of opercle
	(even when preserved); body with 4 to 6
	horizontal yellow stripes in life (sometimes
	remaining when preserved) (Fig. 2C, D)
	L. fulviflamma "Nisekurohoshi-fuedai"
8b.	Head without a dark stripe 9
9a.	Body pigmented uniformly, its ground color
	dark brown even when preserved, without
	longitudinal yellow stripes in life; eye-sized,
	round, black spot usually present on the
	lateral line below the anterior soft dorsal
	(Fig. 2E, F)
	L. monostigma "Itten-fuedai"
9b.	Body less pigmented, with yellow stripes
	in life, its ground color pale, especially on
	the lower half of body; spot on the lateral
	line present or absent
10a.	Soft dorsal fin without distinct dark brown
ıva.	submarginal band; a spot just above lateral
	line; body generally pink or reddish with
	mie, body generany plink of feddish with

- 11b. Center of each body scale with a prominent dark spot, giving the overall appearance of a series of horizontal lines on side of body, especially on back (even when preserved); body without horizontal yellow stripes in life; scale rows on cheek 7 to 8 (Fig. 1B)L. johnii (This species is not confirmed in Japan.)

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フエダイ科魚類ミナミフエダイの日本からの記録および 稚魚期における近似種との区別点

岩槻幸雄・瀬能 宏・鈴木寿之

篠原(1966)が石垣島から採集された 1 個体に基づき記載した Lutjanus johnii は L. ehrenbergii の誤同定であることが確認された。その後日本から本種が報告されたことはないが,林(1979)と瀬能・鈴木(1980)の八重山諸島の魚類に関する報告の中でニセクロホシフエダイ L. fulviflamma と同定されていた中に合計 15 個体の L. ehrenbergii が含まれていた。 これらは日本からの正確な採集場所がわかっている最初の記録である。本種の和名は篠原の提唱したミナミフエダイとする。本種は側線上の鱗が側線に対して平行に配列し,体側に 4 ~ 6 本の黄色縦線をもつことにより容易に他種から区別できる。さらに本種と混同されやすい眼状斑をもつフエダイ属魚類 11 種との 稚魚期における 区別点 を明らか

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にし、その検索表を作成した。なお篠原によって使用さ (岩槻: 113 東京都文京区弥生 1-1-1 東京大学農学部水 れた学名の種 L. johnii は現在のところ 日本から確認 産学科; 類能: 164 東京都中野区南台 1-15-1 東京大 されていない.

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