

FISHES OF THE GENUS *LETHRINUS* (PERCOIDEI:¹ LETHRINIDAE) OF TAIWAN¹

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Sin-Che Lee (1986) Fishes of the genus *Lethrinus* (Percoidei: Lethrinidae) of Taiwan. *Bull. Inst. Zool., Academia Sinica*. 25(1): 79-89. This paper deals with twelve newly revised species of *Lethrinus* occurring around the waters of Taiwan. They are *Lethrinus nematacanthus*, *L. miniatus*, *L. harak*, *L. rubrioperculatus*, *L. reticulatus*, *L. semicinctus*, *L. mahsera*, *L. ornatus*, *L. nebulosus*, *L. mahsenoides*, *L. lentjan* and *L. haematopterus*. Among them, *L. rubrioperculatus* and *L. semicinctus* are first records for the Taiwan area. Another species, *L. amboinensis* appeared in earlier literatures is not included because of the inavailability of specimen. A key, diagnoses and synonymies are given for all the Taiwanese species of *Lethrinus*.

Fishes of genus *Lethrinus* are moderate sized sparoids which occur mainly in the coastal waters of tropical or subtropical Indo-West Pacific, only one out of 26 species occurs in West Africa (Sato, 1978). Their habitats are almost rocks or coral reefs with few exception of soft ground. This is a popular food fish with high commercial value in Taiwan.

Lethrinus together with *Monotaxis*, *Gnathodentex* and *Gymnocranius* make up the family Lethrinidae. The last three genera were placed in their own family Monotaxidae (Lee, 1982). However, Nelson (1984) does not agree and remains them as member of family Lethrinidae.

The first records of *Lethrinus* from Taiwan were *Lethrinus leutjanus* (= *L. lentjan*) and *L. richardsoni* (= *L. haematopterus*) (Jordan and Evermann, 1902). In the year of 1909, Jordan and Richardson increased *Lethrinus amboinensis* and *L. insulindicus* (= *L. mahsenoides*). In 1928, Oshima made an additional

record of *L. opercularis* which is now considered as a junior synonymism of *L. nebulosus*. In 1951, Liang added *L. rhodopterus* (= *L. harak*). In 1955, Matsubara mentioned three more Taiwanese species, namely *L. nematacanthus*, *L. miniatus*, *L. nebulosus*, *L. choerohynchus* and *L. frenatus*, the last two being synonymous with *L. nebulosus*. In 1960, Liaw recorded *L. kallopterus* from Pescadores, however, it is recognized as a mistake of young *L. haematopterus*, thus the occurrence of *L. kallopterus* in Taiwan is in fact doubtful. This species was occasionally seen at Makung Fish Market, it was actually caught from South China Sea. In 1969, Chen furtherly added *L. reticulatus*, *L. atkinsoni* (= *L. mahsera*), *L. kallopterus* (= misidentification of *L. haematopterus* cf Liaw (1960)) and *L. erythrurus*, the last species being identical with the previously recorded *L. nebulosus*. In 1984, Shen increased *L. ornatus*. All together, eleven valid species of Formosan *Lethrinus* were recorded in the earlier literatures. Resulting from the collecting effort of the

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author, two more species, *L. semicinctus* and *L. rubrioperculatus* are increased. Among the above list, the *L. amboinensis* previously recorded by Oshima (1928) and Chen (1969) was basically cited from the report of Jordan and Richardson (1909) who mentioned Kao-hsiung as the collecting locality. It has not yet been collected by the author during this study period. A specimen labelled as *L. amboinensis* in the Zoology Museum of National Taiwan University is in fact *L. nebulosus*. Because of the uncertainty of its occurrence in Taiwan, the so-called *L. amboinensis* is provisionally excluded from this report until the specimen is actually available. Since most of the species of the genus are similar in morphology and coloration, there has been much taxonomic confusion among the above nominal taxons made by earlier authors. It is needed in the present paper, to emphasize the resolution of the taxonomic confusion through a revised key to the Formosan species, valid diagnostic characters and coloured figures for each species.

MATERIALS AND METHODS

Fishes were captured by longlining, hand lining and trawling from the coastal waters off Hualien, Keelung, Pescadores, Kaohsiung, Tungkang and Hengchun. The materials described in this report are deposited in the Museum of the Institute of Zoology, Academia Sinica (ASIZP), except *Lethrinus reticulatus* and *L. nematacanthus* are the loans from National Taiwan University (NTUM) and Taiwan Fisheries Research Institute (TFRI) respectively. The terminology and method of proportional measurements used in this report follow those of Sato (1978). For counts of fin rays and vertebrate, soft X-ray was used.

RESULTS

Species account

Genus *Lethrinus* Cuvier, 1829

Diagnosis: Dorsal 10 spines and 9 soft

rays, anal 3 spines and 8 soft rays, ventral 1 spine and 5 soft rays, pectoral 13 rays, vertebrae including urostyle 10+14. Cheek scaleless. Vomer, palatines and tongue toothless; lateral teeth on both jaws conical or molarlike, the anteriormost 1-2 pairs of enlarged canines.

Key to species of genus *Lethrinus*

1. Second dorsal spine much longer than third. *L. nematacanthus*
Second dorsal spine shorter than third 2
2. Length of snout without lip to anterior nostril longer than cheek width. *L. miniatus*
Length of snout without lip to anterior nostril shorter than cheek width. 3
3. A persistent large black blotch on body side near the tip of pectoral fin. *L. harak*
The above mentioned blotch absent. 4
4. Head longer than body depth. 5
Head shorter than body depth. 7
5. A red scaleless area on posterior end of operculum. *L. rubrioperculatus*
None of such naked area on posterior end of operculum. 6
6. Ventral fin membrane with uniformly distributed dense melanophores when preserved; a bright red bar on the entire pectoral base when fresh. *L. reticulatus*
Ventral fin membrane with fewer melanophores than the above when preserved; none of such red bar on pectoral base. *L. semicinctus*
7. Inner base of pectoral densely scaled. 8
Inner base of pectoral naked or with only a few scales. 11
8. Scale rows between lateral line and median dorsal spines 6; each of the scale on the back without anterior dark marking. 9
Scale rows between lateral line and median dorsal spines 5; scale with black marking on its anterior half *L. mahsena*

9. Bright yellow longitudinal stripes on body side..... *L. ornatus*
No such bright stripes on body side... 10
10. Two or three blue stripes radiating from orbit, upper margin of pectoral blue; each scale on the back with white or bluish dot; operculum without red posterior edge..... *L. nebulosus*
None of blue stripes on snout and upper margin of pectoral fin; operculum with red posterior edge..... *L. mahsenoides*
11. Body depth 2.56-2.57 in standard length; scales on the back with white dots; posterior margin of operculum and base of pectoral bright red..... *L. lentjan*
Body slightly deeper, 2.29-2.51 in standard length; scales on the back without white dots, posterior margin of operculum and pectoral base without red markings..... *L. haematopterus*

1. *Lethrinus namatacanthus* Bleeker, 1854

絲棘龍占

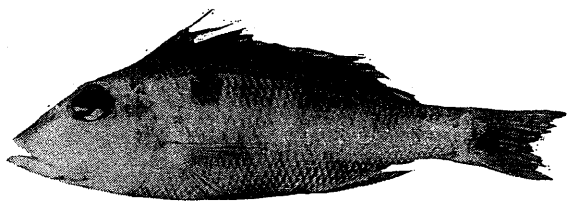
Text-fig. 1

Lethrinus namatacanthus Bleeker, 1854: 403 (Nagasaki); Herre and Montalban, 1927: 401; Fowler, 1933: 11; Weber and de Beaufort, 1936: 433; Matsubara, 1955: 657; Akazaki, 1962: 257; Shinohara, 1963: 41; Chen, 1969: 384; Sato, 1978: 17; Masuda *et al.*, 1984: 179; Shen, 1984: 282.

Lethrinella namatacanthus, Munro, 1967: 326.

Materials: One specimen, 139.5 mm SL, Keelung, date of collection not recorded.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 46, tr. 5; vertebrae 10+14. Head 3.03, body depth 3.03 and pectoral fin 4.50 in standard length. Cheek width 2.46 in head length.



Text-fig. 1. *Lethrinus namatacanthus*, 139.5 mm SL.

Head equal to body depth, the distance between posterior edge of upper lip and anterior nostril shorter than cheek width. Posterior nostril slightly closer to the anterior one than to the front edge of orbit. Second dorsal spine much longer than the third. Inner base of pectoral densely scaled. Color in formalin brown with a black blotch above middle of pectoral fin.

Remarks: This species can be easily recognized by its elongated second dorsal spine.

2. *Lethrinus miniatus*

(Bloch and Schneider, 1801)

長吻龍占

Plate 1, Fig. 1

Sparus miniatus Bloch and Schneider, 1801: 281 (S. Pacific).

Lethrinus miniatus, Valenciennes in Cuvier and Valenciennes, 1830: 315; Herre and Montalban, 1927: 402; Fowler, 1933: 8; Weber and de Beaufort, 1936: 445; Matsubara, 1955: 657; Akazaki, 1962: 254; Shinohara, 1963: 41; Chen, 1969: 383; Sato, 1978: 40; Masuda *et al.*, 1984: 180; Shen, 1984: 282.

Lethrinella miniata, Smith, 1959: 292; Munro, 1967: 326; Kyushin *et al.*, 1977: 150.

Materials: ASIZP 055583, one specimen, 345 mm SL, June 1980, Hengchun.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 48, tr. 6; vertebrae 10+14. Head 2.54, body depth 3.10 and pectoral fin 4.12 in standard length. Cheek width 3.16 in hand. Distance between posterior edge of upper lip and anterior nostril longer than cheek width. Lateral teeth of jaws conical with two pairs of canines at anteriormost part. Inner base of pectoral fin without scales. Pale greyish brown, lips red, the snout with 3 blue lines radiated from the orbit. Vertical fins red, tinged with brown, pectoral yellow, ventral dark brown.

Remarks: This species resembles *L. microdon* in long snout, but it is distinct from the latter by its longer distance between rear of upper lip and anterior nostril than that from eye to preopercular corner, the relationship of above two lengths reverses in *L.*

microdon. In addition, the stripes on snout radiate from eye in *L. miniatus* while paralleling in *L. microdon*.

3. *Lethrinus harak* (Forsk., 1775)

單斑龍占

Plate 1, Fig. 2

Sciaena harak Forskal, 1775: 52 (Red Sea).

Sparus harak, Bloch and Schneider, 1801: 276.

Lethrinus harak, Klunzinger, 1870: 755; 1884: 40; Day, 1878: 137; Herre and Montalban, 1927: 413; Fowler, 1933: 21; Matsubara, 1955: 658; Smith, 1959: 288; Akazaki, 1962: 253; Shinohara, 1963: 43; Chen, 1969: 384; Sato, 1978: 15; Masuda *et al.*, 1984: 179; Shen, 1984: 283.

Lethrinus rhodopterus, Weber and de Beaufort, 1936: 450; Liang, 1951: 24; Munro, 1967: 329.

Materials: ASIZP 055797-055798, four specimens, 202.8-253.5 mm SL, May 1985, Tungkan.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 45-47, tr. 6 (rarely 5); vertebrae 10+14. Head 2.94-3.01, body depth 2.64-2.85 and pectoral fin 3.19-3.45 in standard length. Head slightly shorter than body depth, the distance between the posterior edge of upper lip and anterior nostril shorter than cheek width. Lateral teeth of jaws conical at anterior half and molar-like posteriorly. Inner base of pectoral densely scaled. Color when fresh olive-green, paler below, a persistent large black blotch on body side. All fins pink with red stripes on vertical fins.

Remarks: A persistent large black blotch on body side is the distinctive feature of this species.

4. *Lethrinus rubrioperculatus* Sato, 1978

紅鰓龍占

Plate 1, Fig. 3

Lethrinus rubrioperculatus Sato, 1978: 58 (East Indies); Masuda *et al.*, 1984: 181.

Lethrinella variegatus, Smith, 1959: 291; Kyushin *et al.*, 1977: 144.

Lethrinus variegatus, Akazaki, 1962: 263; Shinohara, 1963: 42.

Lethrinus microdon, Akazaki, 1962: 261.

Lethrinus reticulatus, Akazaki, 1962: 266; Munro, 1967: 327.

Materials: ASIZP 055451, two specimens, 203-215 mm SL; ASIZP 055490, one specimen, 245 mm SL; ASIZP 055688, one specimen, 184 mm SL, December 1979, January 1980 and February 1981, respectively, Hengchun.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 47-48, tr. 5; vertebrae 10+14. Head 2.57-2.72, body depth 2.94-3.18 and pectoral fin 3.68-3.89 in standard length. Cheek width 2.61-2.96 in head. Head longer than body depth, the distance between posterior edge of upper lip and anterior nostril less than cheek width. Lateral conical teeth on jaws, the anteriormost 1-2 pairs canine-like. Inner base of pectoral naked; a scaleless area on the posterior end of operculum. Olive-green with some dark patches, and paler below. Lips red, a red spot on the posterior naked area of operculum. Vertical fins mottled with red, pectoral and ventral fins yellow.

Remarks: Very closely related to *L. semicinctus* and *L. variegatus*, but can be distinct from the latter two in having a red spot on the posterior naked end of operculum.

5. *Lethrinus reticulatus* Valenciennes, 1830

網紋龍占

Text-fig. 2

Lethrinus reticulatus Valenciennes in Cuvier and Valenciennes, 1830: 298 (New Guinea); Fowler, 1933: 18; Matsubara, 1955: 658; Sato, 1978: 53; Masuda *et al.*, 1984: 180.

Lethrinus ramak, Herre and Montalban, 1927: 411.

Lethrinella sp., Kyushin *et al.*, 1977: 148.

Lethrinus reticularis, Chen, 1969: 384; Shen, 1984: 282.

Materials: NTUM 00925, one specimen, 110.5 mm SL, August 1955, Hualien.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 45, tr. 5; vertebrae 10+14. Head 2.68, body depth 2.99 and pectoral fin 3.92 in standard length. Cheek width 3.05 in head. Head



Text-fig. 2. *Lethrinus reticulatus*, 110.5 mm SL.

longer than body depth, the length from posterior edge of upper lip to anterior nostril shorter than cheek width. Inner base of pectoral fin without scales. Color in formalin, brownish with dark patches forming more or less reticulations. Ventral fin with evenly distributed melanophores, with a narrow white bar across the entire dark pectoral base, which is red when fresh.

Remarks: This species is closely related to *L. xanthochilus*, however, the area without melanophores on pectoral base of the latter species is restricted only to upper half of the base. *L. reticulatus* also resembles *L. semicinctus*, but differs in having red bar on pectoral base when fresh and in having more uniformly distributed dark melanophores on ventral fin in preserved specimen. The species differs from another closely related *L. conchyliatus* by the absence of naked area above the pectoral base.

6. *Lethrinus semicinctus* Valenciennes, 1830

長身龍占

Plate 1, Fig. 4

Lethrinus semicinctus Valenciennes in Cuvier and Valenciennes, 1830: 294 (Bourou); Sato, 1978: 60; Masuda *et al.*, 1984: 181.

Lethrinus reticulatus, Shinohara, 1963: 42.

Materials: ASIZP 055751, one specimen, 147 mm SL, November 1981, Hengchun.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 45, tr. 5; vertebrae 10+14. Head 2.72, body depth 3.44 and pectoral fin 4.64 in standard length. Cheek width 2.92 in head. Head longer than body depth, the distance between hind margin of upper lip and anterior nostril less than cheek width. Conical lateral teeth on jaws, the anteriormost 2 pairs canine-like. Inner pectoral base scaleless; posterior end of operculum without red naked area. Yellowish brown, paler below, with few obscure dark patterns on body side, many scales on ventral side of body with black dots.

Remarks: *Lethrinus semicinctus* resembles *L. rubrioperculatus* but differs in having no red scaleless area on the posterior tip of operculum.

7. *Lethrinus mahsena* (Forsk., 1775)

白點龍占

Plate 1, Fig. 5

Sciaena mahsena Forskal, 1775: 52 (Red Sea).

Lethrinus mahsena, Klunzinger, 1870: 753; Fowler, 1933: 53; Weber and de Beaufort, 1936: 444; Smith, 1959: 289; Munro, 1967: 328; Sato, 1978: 25; Masuda *et al.*, 1984: 180; Shen, 1984: 283.

Lethrinus caeruleus, Kyushin *et al.*, 1977: 158.

Lethrinus atkinsoni Seal, 1909: 515; Fowler, 1933: 27; Chen, 1969: 384.

Lethrinus haematopterus, Herre and Montalban, 1927: 416; Shinohara, 1963: 45.

Lethrinus mahsenoides, Akazaki, 1962: 243.

Materials: ASIZP 055452; 055718; 055722, three specimens, 196.5; 194 and 224 mm SL, respectively, December 1979, March and October 1981, Hengchun.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 46-48, tr. 5; vertebrae 10+14. Head 2.85-3.02, body depth 2.35-2.53 and pectoral fin 2.87-3.22 in standard length. Cheek width 1.99-2.10 in head. Head shorter than body depth; snout length excluding upper lip shorter than cheek width. Lateral molar teeth on jaws, 2 pairs of canine-like teeth at anteriormost part. Inner base of pectoral densely scaled. Olive-green above and paler below, mouth corner with red line. Dorsal, anal and pectoral fins red, ventral fin pink, caudal fin orangish brown with red margin.

Remarks: The present species resembles *L. hypselopterus* in external appearance, it is distinct from the latter in coloration and anal fin shape which has shorter soft ray than anal base.

8. *Lethrinus ornatus* Valenciennes, 1830

黃帶龍占

Plate 1, Fig. 6

Lethrinus ornatus Valenciennes in Cuvier and Valenciennes, 1830: 310 (Java); Day, 1878: 137; Herre and Montalban, 1927: 422; Weber and de Beaufort, 1936: 447; Munro, 1967: 329; Masuda *et al.*, 1984: 180; Shen, 1984: 283.

Materials: ASIZP 055717, two specimens, 163.2-168 mm SL and ASIZP 055724, two specimens, 164.6-169 mm SL, October 1981, Hengchun.

Diagnosis: D. X, 9; A. III, 8; P. 13; LI. 45-47, tr. 6; vertebrae 10+14. Head 2.84-2.96, body depth 2.32-2.44 and pectoral fin 3.02-3.11 in standard length. Cheek width 2.13-2.28 in head. Head shorter than body depth, snout length excluding upper lip equal to or slightly shorter than cheek width; posterior nostril about half way between anterior nostril and front edge of orbit. Inner base of pectoral densely scaled. Pale yellowish green with 5-6 bright yellow longitudinal stripes. Head yellowish brown with red posterior margins on operculum and preoperculum; lips and edge of orbit red. Dorsal and caudal fins red, anal and paired fins yellow.

Remarks: This species resembles *L. ramak* in having conspicuous yellow longitudinal stripes on body side. They are different in two aspects: Snout length without upper lip equal to or less than cheek width in *L. ornatus* while the relationship of the above two lengths reverse in *L. ramak*. Posterior margins of preoperculum and operculum in *L. ornatus* are bright red while they are absent in *L. ramak*.

9. *Lethrinus nebulosus* (Forsk., 1775)

青嘴龍占

Plate 2, Fig. 1A-B

Sciaena nebulosa Forskal, 1775: 52. (Red Sea).

Lethrinus nebulosus, Day, 1878: 136; Fowler, 1933: 33; Weber and de Beaufort, 1936: 432; Smith, 1959: 290; Matsubara, 1955: 658; Chen, 1969: 384; Sato, 1978: 30; Masuda *et al.*, 1984: 180. Shen, 1984: 282.

Sparus choerorhynchus Bloch and Schneider, 1801: 278.

Lethrinus choerorhynchus, Fowler, 1933: 45; Matsubara, 1955: 658; Akazaki, 1962: 246; Shinohara, 1963: 44; Chen, 1969: 384; Kyushin *et al.*, 1977: 154.

Lethrinus fraenatus Valenciennes in Cuvier and Valenciennes, 1830: 291; Fowler, 1933: 28; Matsubara, 1955: 658; Chen, 1969: 384.

Lethrinus erythrurus Valenciennes in Cuvier and Valenciennes, 1830: 293; Fowler, 1933: 49; Chen, 1969: 384.

Lethrinus fetus, Munro, 1967: 328.

Lethrinus opercularis, Oshima, 1928: 133.

Materials: ASIZP 055342, five specimens,

105-123 mm SL, May 1979, Makung; ASIZP 055488, one specimen, 193 mm SL, January 1980, Kaohsiung; ASIZP 055728, one specimen, 83 mm SL, Wanli.

Diagnosis: D. X, 9; A. III, 8; P. 13; LI. 45-47, tr. 6; vertebrae 10+14. Head 2.59-2.87, body depth 2.54-2.61 and pectoral fin 3.05-3.38 in standard length. Cheek width 2.36-3.12 in head. Head slightly shorter than body depth. The distance between posterior end of upper lip and anterior nostril shorter than cheek width. Lateral teeth on jaws mixed with anterior short conical and posterior rounded molar teeth, the anteriormost 2 pairs being canine-like. Inner base of pectoral fin densely scaled. Olive-green above and paler below, each scale on the back with white center, body side appears with several obscure yellow longitudinal stripes in a young specimen of 83 mm SL. Snout with blue stripes radiating from the orbit. Fins yellow when fresh, ventral fin remains densely distributed melanophores when preserved.

Remarks: The present species is characterized by having blue streaks on snout and blue upper margin on pectoral fin. There has been much taxonomic confusion for this species resulting many synonyms appeared in earlier literatures.

10. *Lethrinus mahsenoides* Valenciennes, 1830

磯龍占

Plate 2, Fig. 2

Lethrinus mahsenoides Valenciennes in Cuvier and Valenciennes, 1830: 286 (Red Sea); Klunzinger, 1870: 755; 1884: 39; Fowler, 1933: 45; Chen, 1969: 384; Sato, 1978: 38.

Lethrinus insulindicus, Jordan and Richardson, 1909: 189; Herre and Montalban, 1927: 424.

Materials: ASIZP 055489, one specimen, 190 mm SL, January 1980, Kaohsiung.

Diagnosis: D. X, 9; A. III, 8; P. 13; LI. 47, tr. 6; vertebrae 10+14. Head 2.79, body depth 2.57 and pectoral fin 3.44 in standard length. Cheek width 2.33 in head. Head shorter than body depth, snout excluding upper lip only slightly shorter than cheek width. Inner base of pectoral densely scaled.

Upper part of body yellowish brown with paler center on each scales. Head olive-brown, operculum with red posterior margin. All fins yellowish.

Remarks: The present species is characterized by its shorter snout. The species differs from *L. ornatus* in the absence of yellow longitudinal stripes on body side and presence of bright red margin of only on posterior rim of operculum. It can also be distinct from *L. nebulosus* in having a red posterior rim on operculum.

11. *Lethrinus lentjan* (LaCépède, 1802)

烏帽龍占

Plate 2, Fig. 3

Bodianus lentjan LaCépède, 1802: 281 (Java).

Lethrinus leutjanus Valenciennes in Cuvier and Valenciennes, 1830: 309; Jordan and Evermann, 1902: 350; Jordan and Richardson, 1909: 189; Herre and Montalban, 1927: 421; Fowler, 1933: 57; Weber and de Beaufort, 1936: 451; Matsubara, 1955: 658; Shinohara, 1963: 45; Munro, 1967: 329; Chen, 1969: 384.

Lethrinus lentjan, Smith, 1959: 291; Kyushin *et al.*, 1977: 156; Sato, 1978: 42; Masuda *et al.*, 1984: 180; Shen, 1984: 283.

Lethrinus nebulosus, Akazaki, 1962: 249.

Lethrinus opercularis, Herre and Montalban, 1927: 420.

Materials: ASIZP 055801, two specimens, 245–250 mm SL, July 1985, Kaohsiung (S. Taiwan Strait).

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 46–48, tr. 6; vertebrae 10+14. Head 2.86–2.88, body depth 2.56–2.57 and pectoral fin 3.11–3.27 in standard length. Cheek width 2.26–2.28 in head. Head shorter than body depth, the distance between posterior edge of upper lip and anterior nostril shorter than cheek width. Lateral teeth small conical, the anteriormost 2 pairs canine-like. Inner base of pectoral naked. Greyish brown with white dot on each scale on the back. Red vertical bars either on posterior margin of operculum and pectoral base.

Remarks: The present species is characterized by the presence of vertical bars either

on opercular free margin or pectoral base. It inhabits soft ground on Southern Taiwan Strait from where the fish was trawled.

12. *Lethrinus haematopterus* Temminck and Schlegel, 1842

正龍占

Plate 2, Fig. 4

Lethrinus haematopterus Temminck and Schlegel, 1842: 74 (S.W. Japan); Oshima, 1927: 129; Fowler, 1933: 43; Matsubara, 1955: 658; Akazaki, 1962: 271; Shinohara, 1963: 45; Chen, 1969: 384; Sato, 1978: 47; Masuda *et al.*, 1984: 180.

Lethrinus richardsoni. Gunther, 1859: 456; Jordan and Evermann, 1902: 350; Jordan and Richardson, 1909: 189.

Lethrinus kallopterus, Liaw, 1960: 10.

Materials: ASIZP 055401, four specimens, 169–182.5 mm SL, May 1979, Pescadores; ASIZP 055689, one specimen, 224.4 mm SL, February 1981, Hengchun; ASIZP 055661, one specimen, 153.6 mm SL, January 1981, Kaohsiung.

Diagnosis: D. X, 9; A. III, 8; P. 13; Ll. 47–48, tr. 5; vertebrae 10+14. Head 2.74–2.92, body depth 2.29–2.51 and pectoral fin 3.22–3.39 in standard length. Cheek width 2.15–2.54 in head length. Head shorter than body depth, the distance between posterior edge of upper lip and anterior nostril shorter than cheek width. Lateral teeth of jaws conical, the anteriormost two pairs canine-like. Inner base of pectoral naked. Ventral fin extends beyond vent but not to the origin of first anal spine. Greyish brown with obscure dark markings and paler below; two bluish lines originated from orbit. Dorsal and anal fins red, caudal yellow, pectoral orangish, ventral yellow with dark melanophores on extent outer part.

Remarks: This species resembles *L. mahsenoides* in having red opercular margin, but differs from the latter in the presence of naked inner pectoral base.

Acknowledgements: I wish to thank Dr. S. C. Shen of National Taiwan University for the loan of *L. reticulatus* and Mr. C. T. Jean

Plate 1

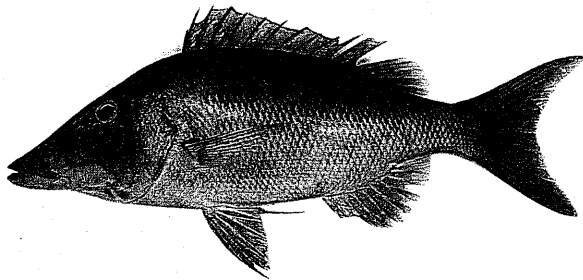


Fig. 1. *Lethrinus minutus*, 345 mm SL.

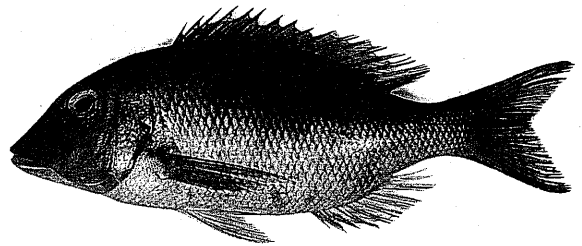


Fig. 2. *Lethrinus harak*, 202.8 mm SL.

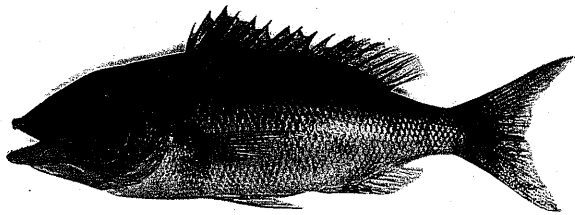


Fig. 3. *Lethrinus rubrioperculatus*, 184 mm SL.

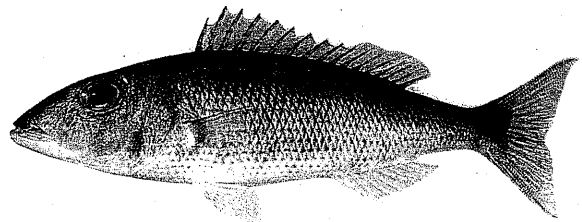


Fig. 4. *Lethrinus semicinctus*, 147 mm SL.

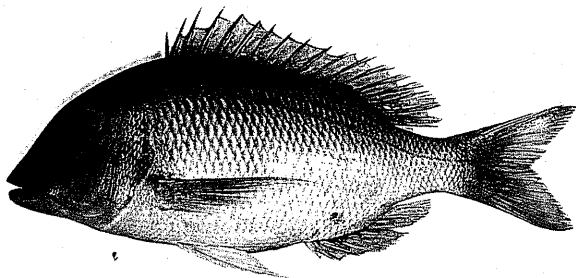


Fig. 5. *Lethrinus mahsena*, 224 mm SL.

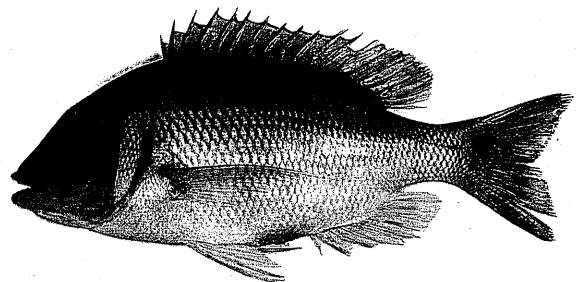


Fig. 6. *Lethrinus ornatus*, 169 mm SL.

Plate 2

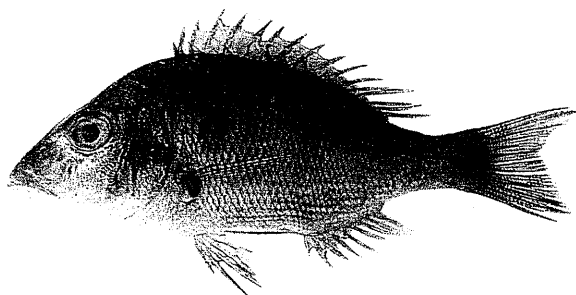


Fig. 1A. *Lethrinus nebulosus*, 83 mm SL.

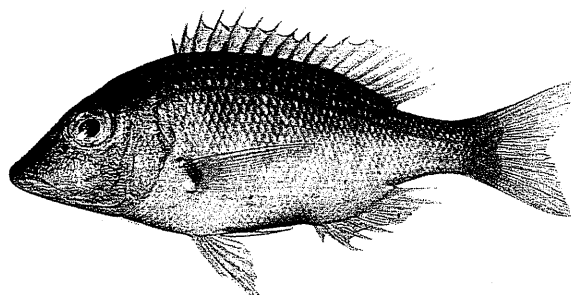


Fig. 1B. *Lethrinus nebulosus*, 105 mm SL.

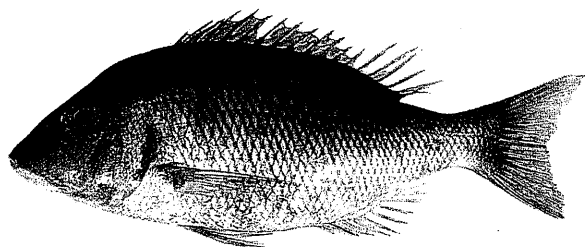


Fig. 2. *Lethrinus mahsenoides*, 190 mm SL.

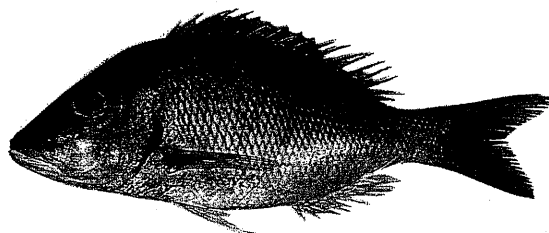


Fig. 3. *Lethrinus lentjan*, 245 mm SL.

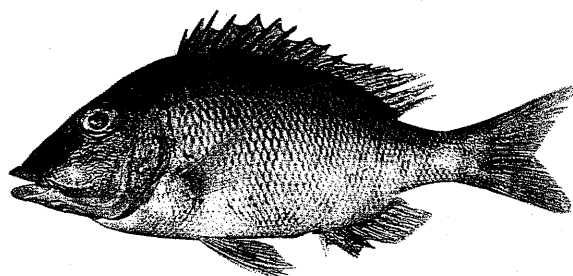


Fig. 4. *Lethrinus haematopterus*, 182.5 mm SL.

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臺灣之龍占屬魚類

李 信 徹

本文記述下列之絲棘龍占 (*Lethrinus nematacanthus*)、長吻龍占 (*L. miniatus*)、單斑龍占 (*L. harak*)、紅鰓龍占 (*L. rubrioperculatus*)、網紋龍占 (*L. reticulatus*)、長身龍占 (*L. semicinctus*)、白點龍占 (*L. mahsena*)、黃帶龍占 (*L. ornatus*)、青嘴龍占 (*L. nebulosus*)、磯龍占 (*L. mahsenoides*)、烏帽龍占 (*L. lentjan*) 及正龍占 (*L. haematopterus*) 等十二種棲息於臺灣近海之龍占魚類，其中之紅鰓龍占及網紋龍占等二種乃臺灣地區新記錄種。由於屬內各魚種之外形特徵頗為相似，極易令人混淆，致使吾人經常可在有關文獻上發現諸多同物異名，徒增鑑定此屬魚種之困擾。為此本文特列出分種檢索表，各魚種之識別特徵並附原色圖照以利學者查考。另外，在以往之文獻上雖曾記載安朋龍占 (*L. amboinensis*) 亦棲息於臺灣海域，然因筆者迄今尚未採獲標本，不敢驟然確定其可靠性，故目前暫將該種排除。

