

FISHES OF THE FAMILY CAESIONIDAE OF TAIWAN¹

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Sin-Che Lee (1988) Fishes of the family Caesionidae of Taiwan. *Bull. Inst. Zool., Academia Sinica* 27(3): 175-181. This report deals with the following six caesionid species inhabiting in the waters of Taiwan: *Caesio caerulaurea*, *C. erythrogaster*, *C. lunaris*, *C. xanthopodus*, *Pterocaesio diagramma* and *P. tile*. None of them is a new record for Taiwan. A key to the species, distinctive characters, and a color photo of each species are provided. Although *Pterocaesio pisang* and *P. chrysozona* were previously recorded in the literatures, they are not included here due to the inavailability of specimens from Taiwan.

Key words: Systematic revision, Caesionids, Taiwan.

Fishes of the family Caesionidae (popularly known as fusiliers) were historically included in the family Haemulidae (Pomadasyidae) (Jordan and Richardson, 1909; Fowler, 1931). Lutjanidae (Greenwood *et al.*, 1966) However, it was separated from its most closely-related Lutjanidae by Johnson (1980) on the basis of the following characters: dorsal and anal soft rays more numerous; highly protractile upper jaw adapted for planktivorous feeding; premaxilla with 1 or 2 finger-like lateral processes (single broad based process in Lutjanidae) (Text-fig. 1); third epibranchial tooth plate absent; sub-pelvic process vestigial or absent. Caesionids are marine food fishes occurring only in the Indo-West Pacific with 4 genera (*Caesio*, *Pterocaesio*, *Gymnoaesio* and *Dipterygonotus*) and about 30 species (Nelson, 1984).

The earliest taxonomic account of the caesionids of Taiwan was reported by Jordan and Richardson (1909) who recognized two species, *Caesio chrysozonus* (= *Pterocaesio*

diagramma) and *C. tile* (= *P. tile*). Liang (1951) added two other species: *Caesio erythrogaster* and *C. caerulaurea*. Chen (1954) added two more species: *Caesio lunaris* and

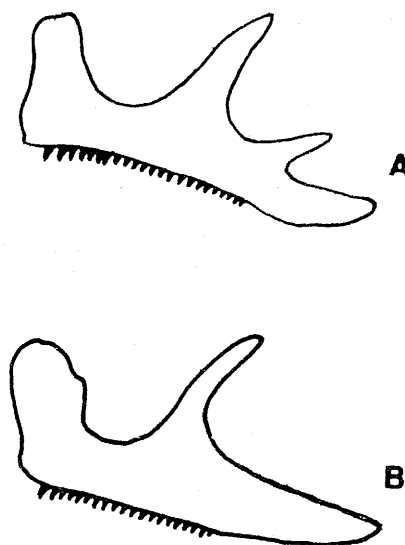


Fig. 1. Premaxilla of *Pterocaesio diagramma* (A), and *Caesio caerulaurea* (B), showing the number of lateral process.

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C. pisang (= *P. pisang*). And in 1969, Chen added *C. diagramma* (= *P. diagramma*) which was erroneously treated as *C. chrysozonus* by earlier Taiwanese ichthyologists. The latest record of *Caesio xanthonotus* by Shen (1984) and that of *Pterocaesio chrysozona* by Carpenter (1987) make a total of eight caesionid species occurring in the waters of Taiwan.

The present report describes six species; here, the specimen of *P. pisang* reported by Chen (1954) has apparently been lost and it was excluded from this report. The species *P. chrysozona* recorded from Taiwan by Carpenter (1987) has not yet been collected by the author and it is also provisionally excluded. A key to the species, distinctive characters, and a color photo of each species are provided.

MATERIALS AND METHODS

Specimens were collected mostly from the vicinity of Hengchun on the southern end of Taiwan, by gillnets and are now deposited in the Museum of the Institute of Zoology, Academia Sinica (ASIZP). Methods of measurements and meristic counts follow Lee (1980), except the transverse scale rows which were counted between the median dorsal spines and lateral line.

RESULTS AND REMARKS

FAMILY CAESIONLDAE

Dorsal fin continuous with 9-15 slender spines and 9-21 soft rays; anal fin with 3 spines and 9-13 soft rays; mouth upturned, small; jaw teeth small or absent; caudal fin deeply forked; 24 vertebrae. Two subfamilies, Caesioninae and Gymnocaesioninae, are included.

SUBFAMILY CAESIONINAE

Dorsal fin not deeply notched, dorsal rays X- XII, 14-21; anal rays III, 11-13; spinuous dorsal and soft dorsal and anal fins scaled; predorsal bones 3; supraoccipital-frontal crest well developed, extending forward to beyond middle of orbit; no anteriorly projecting horn-like processes on neural

arch of first vertebra. Two genera, *Caesio* and *Pterocaesio*, are included.

Key to genera and species

- 1a. Premaxilla with one lateral process (*Caesio*)2
- 1b. Premaxilla with two lateral processes (*Pterocaesio*)5
- 2a. Body depth 2.3-2.4 in standard length; supratemporal scale-bands continuous, 5-6 scales wide; pectoral fin rays 18 *Caesio erythrogaster*
- 2b. Body depth 2.7-3.1 in standard length; supratemporal scale-bands 3 scales wide, left and right bands separated by a narrow scaleless area; pectoral fin rays 20-213
- 3a. Lateral-line scales 62; scale rows between median dorsal spines and lateral line 10; yellowish lateral band on body; caudal lobes with blackish stripes *C. caeruleaurea*
- 3b. Lateral-line scales 51-57; scale rows between median dorsal spines and lateral line 8-9; no yellowish lateral band on body; caudal lobes without black stripes.....4
- 4a. Body depth 2.70-2.71 in standard length; lateral-line scales 51; caudal fin bluish with black tip on each lobe... *C. lunaris*
- 4b. Body depth 3.00-3.11 in standard length; lateral-line scales 55-57; caudal lobes yellowish without black tips... *C. xanthonotus*
- 5a. Dorsal X, 15; pectoral 20-21; two yellowish lateral bands on body; caudal lobes with a black tip..... *Pterocaesio diagramma*
- 5b. Dorsal XI, 21-22; pectoral 23; no lateral bands on body; caudal lobes with a blackish longitudinal stripe..... *P. tile*

SYSTEMATIC ACCOUNT

Genus *Caesio* Lacépède, 1802

1. *Caesio caeruleaurea* Lacépède 烏尾冬 Pl. 1-fig. 1

Caesio caeruleaurea Lacépède, 1802: 85 (Type locality, Moluccas); Cuvier and Valenciennes, 1830: 434; Klunzinger, 1884: 46; Weber and de Beaufort, 1936: 306.

Caesio caeruleus: Fowler, 1931: 213; Gloerfelt-Tarp and Kailola, 1984: 185; Masuda *et al.*, 1984: 171.

Materials: ASIZP 055705, 233–234 mm SL, May 9, 1981; ASIZP 055733, 205 mm SL, November 14, 1981; all from Hengchun.

Diagnosis: D. X, 15; A. III, 12; P. 21; GR. 9–10+23–24; L1. 62, Ltra. 10; Vertebrae 10+14=24; Predorsal bones 3. Head 3.34–3.41, body depth 2.94–3.04, pectoral 3.29–3.45 in standard length. Snout 4.30–4.44, upper jaw 3.14–3.21, eye 3.68–3.86 in head length. Top of head naked before anterior 2/3 of orbit. Supratemporal scale-band 3 scales wide, the left and right bands separate. Maxilla reaches vertical at anterior border of orbit. Premaxilla with one lateral process. Dorsal and anal fins almost entirely scaled. Pectoral fin pointed, longer than head. Color when fresh: generally pale bluish green with yellowish longitudinal stripe on side of body. Fins pale reddish-brown; pectoral axil blackish; caudal fin with blackish stripe along each lobe.

Remarks: Like *Pterocaesio tile*, this species has a blackish stripe on the caudal lobes. However, it is distinguishable from *P. tile* by having only one premaxillary process and fewer dorsal fin rays.

2. *Caesio erythrogaster* Cuvier 赤腹烏尾冬

Pl. 1–fig. 2

Caesio erythrogaster Cuvier in Cuvier and Valenciennes, 1830: 442 (Type locality, Java); Weber and de Beaufort, 1936: 298; Masuda *et al.*, 1984: 171.

Caesio cuning: Day, 1875–1888: 95; Fowler, 1931: 220.

Materials: ASIZP 055580, 273 mm SL, June 26, 1980, Kaohsiung.

Diagnosis: D. X, 15; A. III, 11; P. 18; GR. 10+22; L1.51; Ltra. 7; Vertebrae 10+14=24; Predorsal bones 3. Head 3.36, body depth 2.33, pectoral 2.85 in standard length. Snout 3.93, upper jaw 3.04, eye 4.07 in head length. Head steeply convex on supraoccipital

region. Top of head naked before anterior 2/3 of orbit. Maxilla reaches vertical at anterior border of orbit; premaxilla with one lateral process. Supratemporal scale-band 5–6 scales wide, the bands of left and right sides joined. Dorsal fin scaled at basal half and anal at basal 1/4. Pectoral fin pointed, longer than head. Color when fresh: body generally bluish green; yellowish-brown posteriorly on back and caudal fin. All other fins reddish-brown; pectoral axil blackish.

Remarks: Distinguished from other *Caesio* species by its deeper body shape.

3. *Caesio lunaris* Cuvier 花尾烏尾冬

Pl. 1–fig. 3

Caesio lunaris Cuvier in Cuvier and Valenciennes, 1830: 441 (Type locality, East Indies); Klunzinger, 1884: 46; Weber and de Beaufort, 1936: 299; Gloerfelt-Tarp and Kailola, 1984: 185; Masuda *et al.*, 1984: 171.

Materials: ASIZP 055637, 281 mm SL, November 27, 1980; ASIZP 055734, 277 mm SL, November 14, 1981; all from Hengchun.

Diagnosis: D. X, 14; A. III, 11; P. 20; GR. 10+23; L1.51; Ltra. 8; Vertebrae 10+14=24; Predorsal bones 3. Head 3.35–3.44, body depth 2.70–2.71, pectoral 2.77–2.97 in standard length. Snout 4.10–4.20, upper jaw 3.16–3.22, eye 3.90–4.00 in head length. Top of head naked before anterior 2/3 of orbit. Supratemporal scale-band about 3 scales wide, band of each side separate. Mouth small; maxilla reaches vertical at anterior border of orbit; premaxilla with one lateral process. Dorsal and anal fins entirely covered by scales. Pectoral fin pointed, longer than head. Color when fresh: body including dorsal and anal fins generally bluish green. Pectoral and ventral fins reddish; caudal with blackish tips.

Remarks: It differs from *C. erythrogaster* by less deeper body, narrower supratemporal scale-band and the presence of a naked interspace between left and right scale-bands.

4. *Caesio xanthonotus* Bleeker 黃烏尾冬

Pl. 1-fig. 4

Caesio xanthonotus Bleeker, 1853: 466 (Type locality, Batavia) (not seen); Weber and de Beaufort, 1936: 301; Gloerfelt-Tarp and Kailola, 1984: 185; Masuda *et al.*, 1984: 171; Shen, 1984: 273.

Materials: ASIZP 055155, 112-147 mm SL, April 1, 1978; ASIZP 056134, 209 mm SL, February 26, 1987; all from Hengchun.

Diagnosis: D. X, 15; A. III, 12; P. 20; GR. 9-11+22; L1.55-57; Ltra. 8-9; Vertebrae 10+14=24; Predorsal bones 3. Head 3.10-3.23, body depth 3.00-3.11, pectoral 2.88-3.40 in standard length. Snout 4.30-4.55, upper jaw 2.95-3.18, eye 3.70-3.86 in head length. Interorbital convex. Top of head naked before anterior 2/3 of orbit. Supratemporal scale-band about 3 scales wide, with a narrow scaleless interspace between left and right bands. Mouth small, maxilla reaches vertical at anterior border of pupil; premaxilla with one lateral process. Dorsal and anal fins almost entirely scaled. Pectoral fin pointed, equal to or slightly longer than head. Color when fresh: dark bluish dorsally and reddish ventrally. Pectoral, ventral and anal fins reddish; dorsal and caudal fin, including peduncle yellowish.

Remarks: It resembles *C. lunaris*, but is distinguishable by its slightly lower body depth and the yellowish caudal fin when fresh (paler when preserved).

Genus *Pterocaesio* Bleeker, 18765. *Pterocaesio diagramma* (Bleeker)

雙帶烏尾冬

Pl. 1-fig. 5

Caesio diagramma Bleeker, 1865: 180 (Type locality, Amboina) (not seen); Fowler, 1931: 219; Weber and de Beaufort, 1936: 305; Masuda *et al.*, 1984: 171.

Pterocaesio diagramma: Gloerfelt-Tarp and Kailola, 1984: 185.

Materials: ASIZP 055438, four specimens, 167-188 mm SL, December 4, 1979; ASIZP 055867, 152 mm SL and 12 uncataloged specimens, 134-157 mm SL, January 16, 1986; all from Kaohsiung.

gued specimens, 134-157 mm SL, January 16, 1986; all from Kaohsiung.

Diagnosis: D. X, 15; A. III, 12-13; P. 20-21; GR. 8-11+21-27; L1.70-72; Ltra. 9-11; Vertebrae 10+14=24; Predorsal bones 3. Head 3-45-3.60, body depth 3.42-3.96, pectoral 3.80-4.38 in standard length. Snout 4.09-4.52, upper jaw 2.86-3.03, eye 2.88-3.46 in head length. Top of head naked before anterior half of orbit. Supraoccipital scale-band 8-9 scales wide, the left and right bands joined. Mouth small, the maxilla reaches slightly beyond the anterior border of orbit; premaxilla with two finger-like processes. Dorsal and anal fins scaled at bases. Pectoral fin pointed, shorter than head but longer than head without snout. Color when fresh: bluish above and reddish below, two equally slender golden stripes on side of body, the lower stripe 1-2 scales below lateral line for most its length. Fins reddish, the caudal lobes with blackish tips. Pectoral axil black.

Remarks: It is easily confused with the closely allied *P. chrysozona* which has not yet been collected by the author. However, it was also recorded from Taiwan by Carpenter (1987). They differ by having one scale less between lateral line and median dorsal spines, and more broader lateral band directly below the lateral line in the latter. The so called *C. chrysozona* reported previously from Taiwan by other authors is in fact, *Pterocaesio diagramma*.

6. *Pterocaesio tile* (Cuvier) 蒂爾烏尾冬

Pl. 1-fig. 6

Caesio tile Cuvier in Cuvier and Valenciennes, 1830: 428 (Type locality, Caroline Archipelago); Jordan and Evermann, 1902: 350; Weber and de Beaufort, 1936: 296; Masuda *et al.*, 1984: 171.

Pterocaesio tile: Fowler, 1931: 202.

Materials: ASIZP 056136, three specimens, 170-178 mm SL, March 21, 1987, Kaohsiung.

Diagnosis: D. XI, 21-22; A. III, 12-13; P. 23; GR. 10+22; L1.74-75; Ltra. 7; Vertebrae 10+14=24; Predorsal bones 3. Head 3.65-3.87, body depth 3.83-3.87, pectora

3.78-4.23 in standard length. Snout 4.07-4.24, upper jaw 2.75-2.91, eye 3.31-3.48 in head length. Top of head naked before anterior 2/3 of orbit. Supratemporal scale-band 6-7 scales wide, left and right bands joined. Mouth small, maxilla reaches vertical at anterior border of orbit; premaxilla with two lateral processes. Dorsal and anal fins with low scaly sheath at bases. Color when fresh: purplish red, darker dorsally. Pectoral fin with black spot at base. Each caudal lobe with a black longitudinal stripe.

Remarks: This species can be distinguished from other *Pterocaesio* species by having more numerous dorsal spines and soft rays.

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Plate 1

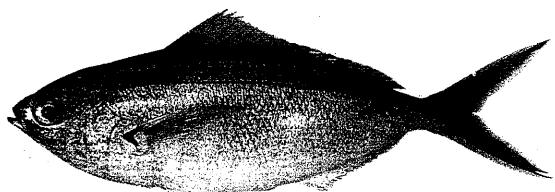


Fig. 1. *Caesio caerulaurea*, 240 mm SL.

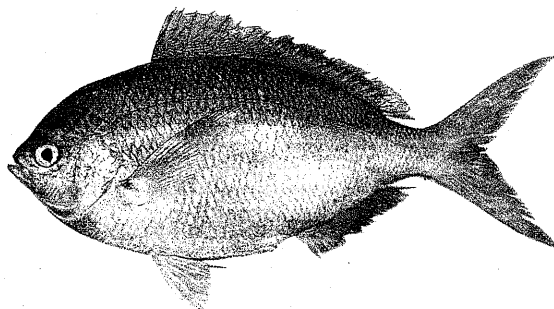


Fig. 2. *Caesio erythrogaster*, 273 mm SL.

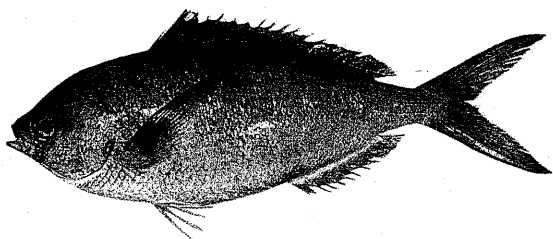


Fig. 3. *Caesio lunaris*, 276.8 mm SL.

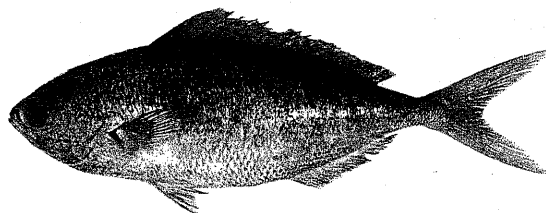


Fig. 4. *Caesio xanthonotus*, 209 mm SL.

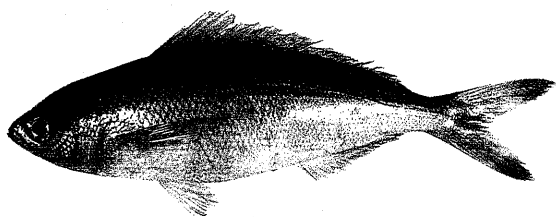


Fig. 5. *Pterocasio diagramma*, 167 mm SL.

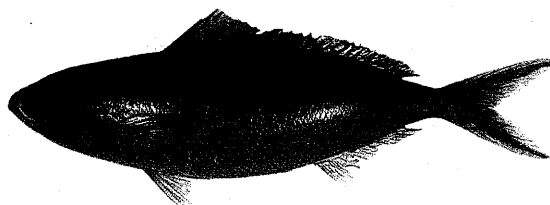


Fig. 6. *Pterocasio tile*, 170.3 mm SL.

臺灣之烏尾冬科魚類

李 信 徹

本文報導如下之六種棲息於臺灣環海之烏尾冬科魚類：烏尾冬 (*Caesio caerulea*)，赤腹烏尾冬 (*C. erythrogaster*)，花尾烏尾冬 (*C. lunaris*)，黃烏尾冬 (*C. xanthonotus*)，雙帶烏尾冬 (*Pterocaesio diagramma*) 及蒂爾烏尾冬 (*P. tile*)。這些魚種中並無任何臺灣新記錄種出現。以上各種之識辨特性，彩色圖照以及分種檢索表均列記於本文以利查考。另有二種過去雖曾記載於有關文獻之瘦身烏尾冬 (*Pterocaesio pisang*) 及金帶烏尾冬 (*P. chrysozona*)，因一直未獲標本不敢肯定其是否確產於臺灣，故暫時刪去。

