

# First record of *Lestrolepis philippina* (Fowler, 1934) (Teleostei: Aulopiformes: Paralepididae) from Andaman Sea, off Phuket, Thailand

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## ABSTRACT

*Lestrolepis philippina* (Fowler, 1934) was collected from the Andaman Sea, Indian Ocean, off Phuket, Thailand. This species has been identified in the western Pacific off Japan, Korea, Taiwan, Philippines, north of northwestern New Guinea, South China Sea and Molucca Passage, and the eastern Indian Ocean off Sumatra to Timor and northwestern Australia. In this study, the first report of this species in Thai waters was presented. This species possesses the following diagnostic characteristics: body depth 5.9–8.6% of standard length; distance between the origins of the pelvic and dorsal fins 32.5–43.1% of the distance between the origins of the pelvic and anal fins; anal-fin rays 36–40; lateral-line scales before the pelvic-fin origin 30–32; lateral-line scales before the dorsal-fin origin 38–40; lateral-line scales before the anal-fin origin 49–51; total number of lateral-line scales 65–72; prehemal vertebrae 29–32; prepelvic vertebrae 30–33; predorsal vertebrae 36–40; preanal vertebrae 48–51; caudal vertebrae 52–58; total vertebrae 82–88; vertebrae between the origins of the pelvic and dorsal fins 5–9; and narrow band of black chromatophores along the abdominal margin.

**Keywords:** Indian Ocean, Pisces, barracudinas, RV Dr. Fridtjof Nansen

## INTRODUCTION

The barracudina genus *Lestrolepis* Harry, 1953 (family Paralepididae Bonaparte, 1835) consists of five species, that is, *L. intermedia* (Poey, 1868) from tropical to temperate waters of the world, *L. japonica* (Tanaka, 1908), *L. philippina* (Fowler, 1934), *L. pofi* (Harry, 1953), and *L. luxiocula* Ho and Golani, 2019 from tropical to temperate waters of the Indo-Pacific (Ho and Golani, 2019; Ho *et al.*, 2019; Ho and Kawai, 2024). This genus has usually 9 dorsal-fin rays, a single light organ at the anterior margin of the orbit, and a luminescent duct divided into two branches (Harry, 1953; Ho and Golani, 2019; Ho *et al.*, 2019).

During our survey of fish collection in Reference Collection, Phuket Marine Biological Center, Thailand (PMBC), three specimens of a single species of *Lestrolepis* were found, which were collected from the Andaman Sea, off west coast of Thailand by RV Dr. Fridtjof Nansen in 1980.

## MATERIALS AND METHODS

Counts and proportional measurements were performed in accordance with the method of Ho *et al.* (2019). The interorbital width and count of gill rakers were measured in accordance with the method of Harry (1951). The abbreviations used in this study are as follows: SL, standard length; HL, head length; V-D, distance between the origins of the pelvic and dorsal fins; V-A, distance between the origins of the pelvic and anal fins; PVLL, lateral-line scales before the pelvic-fin origin; PDLL, lateral-line scales before the dorsal-fin origin; PALL, lateral-line scales before the anal-fin origin; TLL, total number of lateral-line scales; PHV, prehemal vertebrae; PVV, prepelvic vertebrae; PDV, predorsal vertebrae; PAV, preanal vertebrae; CV, caudal vertebrae; TV, total vertebrae; DFO, dorsal-fin origin; AFO, anal-fin origin; and VFO, pelvic-fin origin. Measurements were made to the nearest 0.1 mm using digital calipers. Vertebrae were counted from a radiograph. The lateral-line scales of the specimens could not be examined in this study because they are difficult to be observed without staining scales (Ho *et al.*, 2019). The specimens examined in this study are deposited at PMBC.

## RESULTS

### *Lestrolepis philippina* (Fowler, 1934)

(Figure 1)

*Paralepis philippinus* Fowler, 1934: 281, fig. 42 (type locality: Philippines).

*Lestidium japonicum* (not of Tanaka, 1908): Matsubara, 1941: 8 (in part: Japan); Matsubara, 1955: 262 (in part: Japan); Matsubara, 1979: 262 (in part: Japan).

*Lestidium philippina*: Herre and Herald, 1950: 315 (Philippines).

*Lestidium philippinus*: Ege, 1953: 47 (Japan, Taiwan, Philippines, Molucca Passage, north of northwestern New Guinea and southern Sumatra).

*Lestrolepis japonica* (not of Tanaka, 1908): Gloerfelt-Tarp and Kailola, 1984: 79, unnumbered fig. in p. 78 (Sumatra to Timor, Indonesia); Fujii, 1984: 76, pl. 68N (Japan); Fujii, 1988: 76, pl. 68N (Japan); Nakabo, 1993: 319 (Japan); Nakabo, 2000: 371 (Japan); Nakabo, 2002: 371 (Japan); Kim *et al.*, 2007: 64, fig. 2c (Korea); Nakabo and Kai, 2013: 443 (Japan); Ikeda and Nakabo, 2015: 312 (Japan); Nakayama, 2017: 51, unnumbered figs. (Philippines); Ho *et al.*, 2019: 127 (Taiwan); Kim *et al.*, 2020: 67, unnumbered fig. in p. 66 (46-2) (Korea); Misawa *et al.*, 2020: 273, fig. 2o (Japan); Gloerfelt-Tarp and Kailola, 2022: 83, unnumbered fig. in p. 82 (Sumatra to Timor, Indonesia).

*Lestrolepis philippina*: Ho and Kawai, 2024: 84, figs. 2, 4 (Japan, Taiwan, Philippines, South China Sea and northwestern Australia).



**Figure 1.** *Lestrolepis philippina*. PMBC 39075, 192 mm SL. Scale bar 10 mm.

**Diagnosis:** Body depth 5.9–8.6% of SL; V-D 32.5–43.1% of V-A; anal-fin rays 36–40; PVLL 30–32, PDLL 38–40, PALL 49–51, TLL 65–72; PHV 29–32; PVV 30–33; PDV 36–40; PAV 48–51; CV 52–58; TV 82–88; vertebrae between VFO and DFO 5–9; narrow band of black chromatophores along abdominal margin (see distinguished features of *L. philippina* in Ho and Kawai, 2024).

**Materials:** PMBC 39075, 3 specimens, 178–192 mm SL, Andaman Sea, 300–400 m depth, trawl, RV Dr. Fridtjof Nansen, 8 September 1980.

**Description:** Counts: dorsal-fin rays 9 ( $n=2$ ), anal-fin rays 36–37, pectoral-fin rays 12, pelvic-fin rays 9, PHV 31, PVV 30–31, PDV 37–38, PAV 49–50, CV 53–56, TV 84–87, vertebrae between VFO and AFO 17–19 ( $n=2$ ), vertebrae between VFO and DFO 6–7 ( $n=2$ ), and gill rakers on epibranchial 12–16, on ceratobranchial 16–19, on hypobranchial 16–19 and in total 47–54. Proportional measurements (% of SL): head length 20.5–21.8, head depth 5.2–5.8, body depth 6.1–6.7, predorsal 60.7–61.4, prepelvic 52.0–53.5 ( $n=2$ ), preanal 73.1–74.4, V-A 21.5–22.6 ( $n=2$ ), V-D 9.0 ( $n=2$ ), eye diameter 3.8–3.9, snout length 10.6–11.0, interorbital 2.1–2.6, upper jaw 9.6–10.1 and lower jaw 13.1–13.3. Proportional measurements (% of HL): head depth 25.4–26.9, eye diameter 17.4–18.3, snout length 49.4–53.7, interorbital 10.2–11.9, upper jaw 44.3–49.4 and lower jaw 61.1–61.3. Proportional measurements (% of V-A): V-D 39.7–42.1 ( $n=2$ ).

Body elongate, slender and compressed. Head acute isosceles triangular shape. Snout long, its length 1.9–2.0 in HL. Eye moderate, eye diameter 5.5–5.7 in HL. Single granular

light organ in front of eye. Mouth terminate and large, upper jaw length 2.0–2.3 in HL, lower jaw length 1.6 in HL; posterior end of upper jaw not reaching below anterior margin of eye; posterior end of lower jaw situated below mid of eye. Upper jaw having single row of small teeth gradually smaller posteriorly with 2 or 3 small fangs at the tip. Lower jaw having 2–4 fangs near tip with two rows of fangs, 6 large fangs in inner row and 8 or 9 small fangs in outer row; all fangs gradually smaller posteriorly. Vomer toothless. Palatine having two rows of fangs, 12 or 13 fangs in outer row smaller than 5 or 6 fangs in inner; all fangs gradually smaller posteriorly. Basihyal with 9–11 small teeth along with lateral margin of left side, 0–2 on anterior part of mid line and 9 or 10 along with lateral margin of right side. Basibranchial with 1 or 2 small teeth on anterior part of left side and 1–3 on that of right side. Operculum smooth margin. Gill rakers plate-like 12–16 on epibranchials, 16–19 on ceratobranchials and 16–19 on hypobranchials, each plate with 1–4 small teeth. Pseudobranches present.

Dorsal-fin origin situated behind mid of body; its base short. Anal-fin origin situated at posterior fourth of body; its base long. Caudal fin forked. Adipose fin situated above posterior end of anal-fin base. Pectoral fin situated just behind posterior margin of gill cover; upper end of its base situated at the same level of lower margin of orbit. Pelvic fin originating at ventral margin of nearly mid of body. Dorsal-fin origin before middle between posterior end of pelvic-fin base and anal-fin origin.

Scales on body absent, except for lateral line. Lateral-line tube large, which originates above pectoral-fin girdle and terminates above mid of anal-fin base with scales under skin.

Luminous duct at mid-ventral line divided into two branches.

Color after fixation. Body and all fins uniformly light brown except for black ventral cavity, dusky line along with upper lateral surface of lower jaw, and dusky caudal fin. Single light organ in front of eye black.

**Distribution:** Western Pacific off Japan, Korea, Taiwan, Philippines, north of north-western New Guinea, South China Sea and Molucca Passage, and eastern Indian Ocean off Sumatra to Timor and northwestern Australia (see synonym list of the species) and Andaman Sea (present study).

**Identification:** The counts of total vertebrae and anal-fin rays are important for species identification of *Lestrolepis*, that is, *L. intermedia* (90–96 total vertebrae and *ca.* 37–42 anal-fin rays: Ho *et al.*, 2019), *L. japonica* (94–98 and *ca.* 40–43: Ho and Kawai, 2024), *L. pofi* (87–91 and 32–35: Ho and Golani, 2019), *L. luxiocula* (79–81 and 31–34: Ho and Golani, 2019), and *L. philippina* (84–89 and 36–40: Ho and Kawai, 2024). The characteristics of these specimens, which have 84–87 total vertebrae and 36–37 anal-fin rays, are consistent with those of *L. philippina*. Although 36–37 anal-fin rays of these specimens overlap with those (*ca.* 37–42) of *L. intermedia*, the position of their dorsal fin (V-D 39.7–42.1% of V-A) differs from that in *L. intermedia* (51.4–59.5%: Ho *et al.*, 2019 *vs.* 32.5–43.1% in *L. philippina*: Ho and Kawai, 2024). Although 84–87 total vertebrae of the present specimens overlap with those

(87–91) of *L. pofi*, the present specimens lack a white luminous organ on the lower margin of the orbit, which is contrary to *L. pofi* (*vs.* lacking in *L. philippina*) (Ho and Golani, 2019; Ho *et al.*, 2019). The other diagnostic characteristics of the present specimens are consistent with those of *L. philippina* (see Diagnosis of the species). Therefore, the present specimens are identified as *L. philippina*.

**Remarks:** *Lestrolepis philippina* had been misidentified as *L. japonica* by many authors for a long period of time (Ho and Kawai, 2024). *Lestrolepis japonica* had been reported from Indian Ocean by several authors such as Paxton *et al.* (1989, 2006) and Hutchins (2001) from Western Australia, Psomadakis *et al.* (2019) from Myanmar, and Habib and Islam (2020) from Bangladesh. However, the identification of this species, excluding morphological descriptions, cannot be conducted by the aforementioned previous studies. Although Psomadakis *et al.* (2019) reported *L. japonica* from off Myanmar without any descriptions and photos, they did not show the captured localities of the species, *viz.*, Andaman Sea or Bay of Bengal. On the contrary, this species has been reliably reported from Sumatra to Timor, Indonesia in the Indian Ocean (Ege, 1953; Gloerfelt-Tarp and Kailola, 1984, 2022) and northwestern Australia (Ho *et al.*, 2019; Ho and Kawai, 2024). Therefore, this report is the first reliable record of the species from Andaman Sea. In addition, considering that *L. philippina* and/or *L. japonica* had never been known from Thai waters (Suvatti, 1936, 1950, 1981; Thiemmedh, 1966; Pokapunt *et al.*, 1983; Monkolprasit *et al.*, 1997; Satapoomin, 2011), this species is a new record from Thailand.

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