

# First records of two triplefins, *Enneapterygius rhothion* and *Enneapterygius olivaceus* (Actinopterygii: Blenniiformes: Tripterygiidae), from Australia and Vanuatu

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## Abstract

Presently reported single specimen of *Enneapterygius rhothion* Fricke, 1997, previously considered endemic to waters off New Caledonia and Vanuatu, represents the first record from Australia and the northernmost record of the species. In addition, *Enneapterygius olivaceus* Dewa, Tashiro, et Motomura, 2023, originally described from Japan and the Philippines, is also newly recorded from Australia and Vanuatu, being the first record of the species from the Southern Hemisphere.

## Keywords

distribution, *Enneapterygius minutus*, morphology, South Pacific

## Introduction

Fish species representing the tripterygiid genus *Enneapterygius* Rüppell, 1835 inhabit intertidal rock pools and subtidal rocky or coral reefs in tropical to temperate Indo-Pacific waters. They are characterized by a discontinuous lateral line, the first dorsal fin with three spines, anal fin with one spine, pelvic fin with one spine and two soft rays, and head, opercle, pectoral-fin base, and abdomen (in the majority of species) scaleless (Fricke 1997; Holleman 2005; Motomura et al. 2005, 2015; Chiang and Chen 2008).

To date, 19 species of *Enneapterygius* have been recorded from Australia (Fricke 1994, 1997; Hoese 2006; Tashiro and Motomura 2018; Dewa et al. 2023). *Enneapterygius rhothion* Fricke, 1997, previously known only from New Caledonia and Vanuatu (Fricke 1997, 2002), is newly recorded from Green Island, Queensland,

Australia. In addition, 18 specimens of *Enneapterygius olivaceus* Dewa, Tashiro, et Motomura, 2023, were collected from Lizard Island, Queensland, and represent the first record of that species from Australia. Together with two specimens previously identified as *Enneapterygius minutus* (Günther, 1877) from Vanuatu, but here identified as *E. olivaceus*, they also constitute the first records of the species from the southwest Pacific Ocean. Detailed descriptions of the Australian specimens of both *E. rhothion* and *E. olivaceus* are provided herein.

## Material and methods

Counts and measurements followed Fricke (1997) and Dewa et al. (2023), with the mandibular-pore formula following Hansen (1986). The pectoral-fin ray formula, beginning with the dorsalmost ray (left side), are designated

unbranched + branched + unbranched rays = total pectoral-fin rays. Small dorsal and ventral scales on the body were counted as  $\frac{1}{2}$  scales. Measurements were made to the nearest 0.1 mm with needle-point calipers under a dissecting microscope. Standard length, pored lateral-line scales, and notched lateral-line scales are abbreviated as SL, PLL, and NLL, respectively. Institutional codes follow Sabaj (2020).

**Type specimens examined.** *Enneapterygius rhothion*: SMNS 18322, holotype, male, 28.9 mm SL, Touaourou, Grand Terre, New Caledonia, 22°10'36"S, 166°57'51"E, 0.6 m depth, 26 July 1996, R. Fricke leg.; SMNS 18698, paratype, male, 23.4 mm SL, Dillons Bay, Erromango Island, Vanuatu, 0–1 m depth, 25–26 May 1996, J.T. Williams leg.; SMNS 18773, paratypes, 7 males, 23.4–27.8 mm SL, Seche Croissant Reef, Grand Terre, New Caledonia, 22°02'00"S, 166°02'12"E, 2 m, 1 Aug. 1996, M. Kulbicki leg.

## Results

### Family Tripterygiidae

#### *Enneapterygius* Rüppell, 1835

#### *Enneapterygius rhothion* Fricke, 1997

English name: New Caledonian blackhead surf triplefin

Figs. 1, 2, 3; Table 1

**Material examined.** AMS I. 5088, male, 32.5 mm SL, Green Island, Queensland, Australia, 17°13'48"S, 145°58'11"E, 1901, C. Hedley leg.

**Description.** Counts and measurements given in Table 1. Body moderately elongate, slightly compressed anteriorly, progressively more compressed posteriorly (Fig. 1A). Dorsal profile of snout straight, steep. Mouth slight-

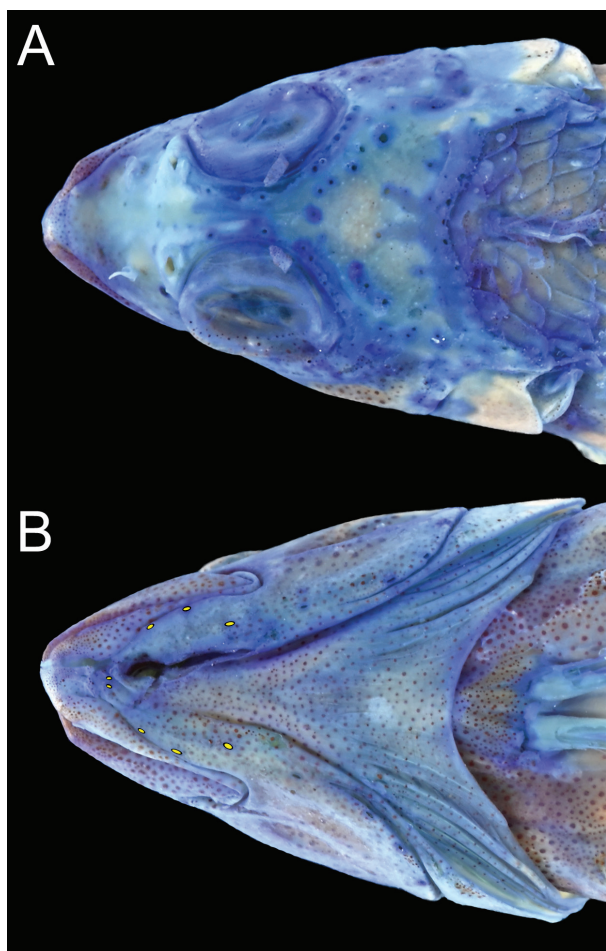
ly oblique; posterior margin of maxilla extending beyond anterior margin of pupil; anterior tip of upper jaw slightly above level of lower margin of orbit (lateral view). Medial supratemporal canal with two branches (Fig. 2A). Anterior nostril a membranous tube, at mid-eye level, slightly closer to eye than to upper lip; nasal tentacle slender, unbranched, with pointed tip; posterior nostril opening circular, without membranous tube (Fig. 2A). Eye oriented dorsolaterally, with small, pointed tentacle, slightly longer than nasal tentacle, on posterodorsal margin. Interorbital space narrow, its width less than pupil diameter. Opercular margin slightly pointed, reaching below base of 3rd spine of first dorsal fin.

Lateral line discontinuous, with anterior series of pored scales ending below base of 11th spine of 2nd dorsal fin; second scale of posterior series of notched scales below third scale from last pored scale, ending at caudal-fin base; body scales ctenoid; scales absent on head (including maxilla, interorbital space, preopercle, and opercle), pectoral-fin base, pre- and inter-pelvic-fin region, abdomen, pre-dorsal-fin region, and all fin membranes, except basal part of caudal fin.

First dorsal fin triangular, origin over and slightly forward of midpoint between pre-opercular and opercular margins; 1st spine of first dorsal fin damaged, 2nd spine longer than 3rd spine. Origin of second dorsal fin just above 4th pored lateral-line scale, 3rd spine longest, spines thereafter becoming gradually shorter posteriorly, forming rounded margin. Third dorsal fin damaged, its origin just above 20th scale row of longitudinal series. Anal-fin membranous margin deeply incised between rays; anal fin origin just below 7th spine base of second dorsal fin, its posteriormost tip close to caudal-fin base. Pectoral fin damaged (posterior tip lost); upper and lowermost pectoral-fin base level with bases of 3rd and 2nd spines, respectively, of first dorsal fin. Pelvic fin origin



**Figure 1.** Photographs of preserved specimen of *Enneapterygius rhothion* (A: AMS I. 5088, male, 32.5 mm SL, Australia; B: SMNS 18322, holotype, male, 28.9 mm SL, New Caledonia, Photo by M. Meguro).



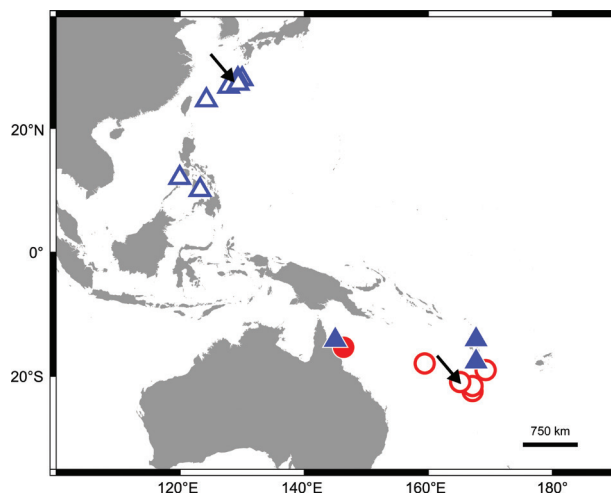
**Figure 2.** Photographs of **A:** dorsal and **B:** ventral views of head of *Enneapterygius rathion* (AMS I. 5088, male, 32.5 mm SL, Australia), showing cephalic sensory system.

vertically below base of 1st spine of first dorsal fin. Caudal fin rounded, its length less than head length.

**Nuptial male coloration (in preservative).** Based on Fig. 1A. Body generally yellowish white; brownish pigmentation forming faint A- and X-shaped bars on lateral surface of body. Head, including snout, lips, cheek, and opercle, and pectoral-fin base brown with numerous melanophores. Pre-pelvic region brown (extending to just behind pelvic-fin base). Orbital tentacle pale brown. First and second dorsal fins dark brown. Third dorsal fin damaged, but brownish basally. Pectoral, pelvic, anal and caudal fins whitish.

**Distribution.** Currently known from New Caledonia (Chesterfield Islands, Grande Terre, Ile des Pins, and Loyalty Islands), Vanuatu (Erromango Island), and Australia (Fricke 1997, 2002; this study) (Fig. 3).

**Remarks.** The morphometric and meristic characters of the single specimen collected from Australia (AMS I. 5088, male, 32.5 mm SL) agreed closely with the type series of *E. rathion* re-examined in this study (Table 1), and much of the original description of the species provided by Fricke (1997). However, although Fricke (1997) described the species as having a short orbital tentacle of length 0.6%–0.9% of SL, both the presently reported specimen and holotype of *E. rathion* had relatively long



**Figure 3.** Distributional map of *Enneapterygius rathion* (red circles) and *E. olivaceus* (blue triangles). Closed and open symbols indicate localities determined during the presently reported study and previous records, respectively. Black arrows indicate type localities of the two species.

orbital tentacles (1.6%–2.1% of SL). In addition, the mandibular pore formula of the species should be revised, the examined specimens having 3–4 + 2 + 3–4 (total 8–10 pores) [vs. 4–5 + 2 + 4–5 (total 10–12) in the original description]. Individual mandibular pore counts were as follows: 4 + 2 + 4 (holotype and 3 paratypes); 3 + 2 + 3 (4 paratypes and non-type Australian specimen); 4 + 1 + 4 (single paratype). The coloration of the presently reported specimen was consistent with that of *E. rathion* shown in Fricke (1997): head, including snout, lips, cheek, and opercle, and pectoral-fin base black; lateral surface of body with faint bars; first and second dorsal fins black; anal fin pale (without markings). Although the color pattern of the caudal fin (dorsally and ventrally with faint vertical dark streaks; Fricke 1997) is one of the diagnostic characters for the species, such pigmentation was lost in the presently reported specimen after long-term preservation (Fig. 1A).

*Enneapterygius rathion* was originally described based on 129 specimens from New Caledonia and Vanuatu. Subsequently, Fricke (2002) reported the species from Ile des Pins as an additional record of the species from New Caledonia. In addition, Randall (2005) showed a fresh photograph of a female individual of *E. rathion* in his field guide. The species is one of the common triplefins in New Caledonian waters (Fricke 1997, 2002). In his taxonomic works on triplefins, Fricke (2001, 2002) provided identification keys to the tripterygiid species in New Caledonian waters. Following those keys, the presently reported Australian specimen (AMS I. 5088, male, 32.5 mm SL) was identified as *Enneapterygius rufopileus* (Waite, 1904). However, the keys described the number of symphyseal mandibular pores and the coloration of the second dorsal fin of *E. rathion* erroneously [symphyseal mandibular pore 1, and second dorsal fin pale (rarely spotted) in males, respectively] (see Fricke 2001, 2002). Although *E. rathion* is similar to *E. rufopileus* in scale

**Table 1.** Measurements and counts of *Enneapterygius rhothion*. Means in parentheses.

Character	Australia	New Caledonia and Vanuatu	
	AMS I. 5088 Non-type Male	SMNS 18322 Holotype Male	<i>n</i> = 8 Paratypes Males
<b>Morphometric data; absolute value [mm]</b>			
Standard length (SL)	32.5	28.9	23.4–27.8
<b>Morphometric data; relative values [%SL]</b>			
Body depth	20.5	20.0	18.5–20.4 (19.4)
Body width	18.4	18.0	15.6–17.7 (16.8)
Head length	29.3	26.7	28.7–29.8 (29.2)
Snout length	12.5	9.2	9.1–10.1 (9.6)
Orbital tentacle length	1.6	2.1	—
Orbit diameter	8.4	9.6	9.6–10.4 (10.0)
Interorbital width	2.3	2.9	2.4–2.9 (2.7)
Upper-jaw length	11.6	11.4	11.1–11.8 (11.5)
Postorbital length	12.1	12.0	11.6–13.0 (12.5)
Pre-1st-dorsal-fin length	25.4	24.8	25.2–27.3 (26.3)
Pre-2nd-dorsal-fin length	36.5	35.6	35.5–38.6 (37.5)
Pre-3rd-dorsal-fin length	69.2	71.3	69.7–74.6 (72.9)
Pre-anal-fin length	47.0	48.2	48.9–52.8 (50.7)
Anal-fin base length	41.1	42.2	37.6–42.7 (40.4)
Pre-pectoral-fin length	32.2	31.3	29.3–33.1 (31.4)
Pre-pelvic-fin length	21.3	24.4	20.1–24.6 (23.0)
Caudal peduncle length	10.5	10.9	10.9–12.3 (11.6)
Caudal peduncle depth	9.1	8.0	7.6–8.9 (8.2)
1st spine length of 1st dorsal fin	Damaged	9.0	9.8–10.5 (10.1)
2nd spine length of 1st dorsal fin	10.4	8.2	9.2–9.8 (9.4)
3rd spine length of 1st dorsal fin	8.9	7.0	7.8–9.0 (8.1)
1st dorsal-fin base length	5.6	5.6	5.0–6.3 (5.8)
1st spine length of 2nd dorsal fin	14.0	14.2	14.1–15.5 (15.0)
2nd spine length of 2nd dorsal fin	12.5	14.7	14.6–16.6 (15.6)
3rd spine length of 2nd dorsal fin	15.4	14.7	14.5–16.5 (15.5)
2nd dorsal-fin base length	30.5	30.9	29.5–34.9 (31.9)
1st ray length of 3rd dorsal fin	Damaged	16.4	16.1–18.3 (17.0)
2nd ray length of 3rd dorsal fin	Damaged	15.1	16.0–17.1 (16.6)
3rd ray length of 3rd dorsal fin	Damaged	14.9	9.5–16.1 (14.9)
3rd dorsal fin base length	16.4	16.7	14.3–18.1 (16.4)
Pectoral-fin length	Damaged	27.0	29.8–34.8 (32.7)
1st ray length of pelvic fin	16.4	16.0	15.6–19.3 (17.6)
2nd ray length of pelvic fin	Damaged	19.3	22.6–25.1 (24.3)
<b>Meristic data (counts)</b>			
Dorsal-fin rays	III, XIII, 10	III, XIII, 9	III, XIII or XIV, 9 or 10
Anal-fin rays	I, 18	I, 18	I, 17 or 18
Pectoral-fin rays	iii + damaged = 15	ii + 6 + vii = 15	ii–iv + 4–6 + 6 or 7 = 14–16
Scale rows in longitudinal series	33	34	34 or 35
Pored lateral-line scales	16	19	15–17
Notched lateral-line scales	20	19	19–21
Scales above 1st PLL	3	4	4
Scales below 2nd dorsal fin	3	3½	3½ or 4
Scales below 1st NLL	3½	3½	3 or 3½
Scales above last PLL	2½	3	2½ or 3
Mandibular pore formula	3 + 2 + 3	4 + 2 + 4	3 or 4 + 1 or 2 + 3 or 4

counts and overall appearance, the former differs in having the following characters: symphyseal mandibular pore single (vs. double in *E. rufopileus*), head (including maxillary) and pectoral-fin base entirely black (posterior two-thirds of jaws white, pectoral-fin base with black blotch), body with 7 bands (5 bands); first and second dorsal fin black in nuptial males (translucent white); third dorsal fin with black pigmentation in both sexes (not pigmented in either sex); dorsal and ventral parts of caudal

fin with vertical streaks in both sexes (caudal fin pale in both sexes) (Fricke 1997; this study).

*Enneapterygius rhothion* has previously been recorded only from New Caledonia (Chesterfield Islands, Grande Terre, Ile des Pins, and Loyalty Islands) and Vanuatu (Erromango Island), and was considered endemic to those areas (Fricke 1997, 2002). The presently reported specimen represents the first record of the species from Australia, and the new northernmost record.



***Enneapterygius olivaceus* Dewa, Tashiro, et Motomura, 2023**

English name: olive green triplefin

Figs. 3, 4; Table 2

**Material examined.** 20 specimens (12.1–22.1 mm SL). **AUSTRALIA:** AMS I. 22732-008, male, 22.1 mm SL, Bird Islet, Lizard Island, Queensland, 15°18'00"S, 145°26'59"E, 1981, D. Hoese et al.; AMS I. 30000-001, 9 males and 8 females, 12.1–19.4 mm SL, Lizard Island, 15°19'48"S, 145°28'11"E, 1989. **VANUATU:** AMS I. 6317, 1 of 3 specimens, male, 19.7 mm SL, Vila, Efate, 1903, W.A. Haswell leg.; AMS I. 6451, 1 of 3 specimens, female, 15.9 mm SL, Vanua Lava, Banks Islands, 1903, W.A. Haswell leg.

**Description.** Counts and measurements given in Table 2. Body moderately elongate, slightly compressed anteriorly, progressively more compressed posteriorly. Dorsal profile of snout straight, moderately steep. Mouth slightly oblique; posterior margin of maxilla reaching to or extending slightly beyond anterior margin of pupil; anterior tip of upper jaw slightly above level of lower margin of orbit (lateral view). Anterior nostril forming membranous tube with short unbranched tentacle, base at level

of middle of eye, slightly closer to eye than to upper lip; posterior nostril opening circular, without membranous tube. Eye oriented dorsolaterally; broad leaf-like tentacle on posterodorsal margin, its length longer than nasal tentacle. Interorbital space narrow, its width less than pupil diameter. Opercular margin slightly pointed, reaching to below base of 2nd or 3rd spine of first dorsal fin.

Lateral line discontinuous, with anterior series of pored scales and posterior series of notched scales; pored scale series ending below membrane between 9th and 10th spines of second dorsal fin; notched scale series beginning below second scale from last pored scale, ending at caudal-fin base; Body scales ctenoid; scales absent on head, including maxilla, interorbital space, preopercle and opercle, and pectoral-fin base, undersurface of head, abdomen and pre-dorsal-fin region; all fin membranes, except basal part of caudal fin, scaleless.

First dorsal fin triangular to trapezoid, its origin vertically above preopercular margin or midway between preopercular and opercular margins; 1st spine of first dorsal fin longest, thereafter, becoming shorter posteriorly. Origin of second dorsal fin just above 4th to 6th pored lateral-line scales, 2nd or 3rd spine longest, thereafter, becoming gradually shorter posteriorly, forming rounded



**Figure 4.** Photographs of preserved specimens of *Enneapterygius olivaceus* (A: AMS I. 22732-008, male, 22.1 mm SL, Australia; B: AMS I. 6317, male, 19.7 mm SL, Vanuatu; C: AMS I. 30000-001, female, 18.0 mm SL, Australia).

**Table 2.** Measurements and counts of *Enneapterygius olivaceus* collected from Australia and Vanuatu. Means in parentheses.

Character	Australia	Vanuatu	
	<i>n</i> = 18 Males and females	AMS I. 6317 Male	AMS I. 6451 Female
<b>Morphometric data; absolute value [mm]</b>			
Standard length (SL)	12.1–19.4	19.7	15.9
<b>Morphometric data; relative values [%SL]</b>			
Body depth	20.0–22.1 (21.2)	23.5	20.8
Body width	17.4–20.5 (19.2)	21.4	19.4
Head length	28.9–31.6 (30.4)	32.3	31.9
Snout length	7.8–12.3 (10.4)	12.3	13.6
Orbit diameter	8.2–11.0 (9.6)	9.1	10.4
Interorbital width	1.2–2.4 (1.9)	2.0	1.9
Upper-jaw length	9.3–12.0 (10.5)	11.8	11.4
Postorbital length	12.0–14.6 (13.0)	12.7	11.5
Pre-1st-dorsal-fin length	23.7–27.3 (25.3)	26.2	27.5
Pre-2nd-dorsal-fin length	33.2–38.3 (36.5)	37.9	38.2
Pre-3rd-dorsal-fin length	68.5–73.3 (70.9)	73.8	74.4
Pre-anal-fin length	45.7–53.9 (51.3)	54.1	51.0
Anal-fin base length	38.2–44.0 (41.2)	40.4	38.8
Pre-pectoral-fin length	28.9–35.5 (33.4)	35.6	34.4
Pre-pelvic-fin length	23.6–27.2 (25.6)	28.4	25.1
Caudal peduncle length	9.1–13.7 (11.8)	13.5	11.0
Caudal peduncle depth	7.1–9.2 (8.5)	8.6	8.3
1st spine length of 1st dorsal fin	11.0–15.6 (13.2)	18.2	12.6
2nd spine length of 1st dorsal fin	8.6–11.8 (10.6)	14.3	10.7
3rd spine length of 1st dorsal fin	6.8–9.9 (8.8)	11.2	Damaged
1st dorsal-fin base length	4.3–6.8 (5.2)	5.6	5.0
1st spine length of 2nd dorsal fin	11.9–18.5 (13.5)	14.8	Damaged
2nd spine length of 2nd dorsal fin	12.6–16.6 (14.5)	16.6	Damaged
3rd spine length of 2nd dorsal fin	10.3–18.6 (14.6)	14.9	Damaged
2nd dorsal-fin base length	25.5–30.9 (28.8)	29.4	30.8
1st ray length of 3rd dorsal fin	13.1–19.6 (16.1)	18.6	15.8
2nd ray length of 3rd dorsal fin	13.4–18.2 (15.9)	17.6	12.6
3rd ray length of 3rd dorsal fin	13.6–17.2 (15.4)	15.5	Damaged
3rd dorsal fin base length	13.9–19.5 (17.0)	17.3	15.1
Pectoral-fin length	27.6–34.9 (32.2)	30.9	31.7
1st ray length of pelvic fin	13.4–18.3 (15.6)	19.1	16.3
2nd ray length of pelvic fin	20.6–26.5 (24.0)	30.4	23.9
<b>Meristic data (counts)</b>			
Dorsal-fin rays	III, XI–XIII, 8–10	III, XIII, 9	III, XIII, 8
Anal-fin rays	I, 16 or 17	I, 16	I, 16
Pectoral-fin rays	iii–v + 3–5 + vi–viii = 14–16	3 + damaged = 15	iv + 4 + vii = 15
Scale rows in longitudinal series	29–32	29	30
Pored lateral-line scales	12–14	13	12
Notched lateral-line scales	18–21	20	19
Scales above of 1st PLL	2 (rarely 1)	2	2
Scales below 2nd dorsal fin	2–3	2½	2½
Scales below of 1st NLL	2 or 3	3	2
Caudal peduncle scales	8	8	8
Mandibular pore formula	3 + 1 + 3	3 + 1 + 3	3 + 1 + 3

distal margin. Third dorsal fin semicircular to trapezoid, its origin just above 19th and 20th longitudinal scales, 1st or 2nd ray longest, thereafter becoming gradually shorter posteriorly. Anal-fin membranous margin deeply incised between rays; anal fin origin just below 6th to 8th spine base of second dorsal fin, its posteriormost tip close to caudal-fin base. Pectoral fin relatively long, its posterior tip pointed and slightly beyond or reaching vertical through base of last spine of second dorsal fin; upper and lowermost pectoral-fin base level with bases of 1st spine of second dorsal-fin and 3rd spine of first dorsal fin,

respectively. Pelvic fin origin just below vertical through base of 1st spine of first dorsal fin, its tip not reaching anus. Caudal fin rounded; its length similar to head length.

**Nuptial male coloration (in preservative).** Based on Fig. 4. Body generally yellowish white or brownish. Head, including eye, snout, lips, cheek, and opercle, and pectoral-fin base black or dark brown with melanophores. Pre-pelvic region and undersurface of abdomen black or dark brown with melanophores. Orbital tentacle translucent white, covered by melanophores. Iris greenish white; pupil silver. First dorsal fin black. Second and third dorsal

fins generally transparent, with two brown longitudinal bands on fin margin and base, width of former ca. 1/2 length of spines, latter somewhat indistinct. Membranous margin of 1st to 3rd rays of third dorsal fin transparent, without brownish pigmentation. Pectoral fin transparent, membranes between lower 6–8 rays brownish. Pelvic fin white, its basal part brownish. Anal fin brown, fin margin and base whitish. Caudal fin white with faint brownish bars.

**Female coloration (in preservative).** Body generally yellowish white; lateral surface with A- or X-shaped brownish bars. Faint brownish stripes extending from tip of snout to anterior margin of eye, width subequal to upper lip width. Prepelvic region and undersurface of abdomen whitish. Orbital tentacle translucent white, covered by melanophores. Iris navy, pupil silver. Caudal-fin base with vertical brown band. First dorsal fin transparent, with scattered melanophores. Second and third dorsal fins generally transparent, with 2 or 3 irregular oblique brownish bands. Anal fin white. Pectoral fin translucent white; fin rays broadly flecked with brown pigmentation forming ca. 4 or 5 vertical bands. Pelvic fins translucent white. Caudal fin translucent white with narrow brownish vertical bars.

**Distribution.** Currently known from Japan (the southern Ryukyu Islands), the Philippines (Talampulan and Negros islands), Australia (Lizard Island), and Vanuatu. (Dewa et al. 2023; this study) (Fig. 3).

**Remarks.** The morphological characters of the presently reported South Pacific specimens agreed well with the description of *E. olivaceus* provided by Dewa et al. (2023), especially as follows: 11–13 (modally 12) second dorsal-fin spines; 18–21 (modally 20) notched lateral-line scales; mandibular pore formula 3 + 1 + 3; head length 28.9%–32.3% (mean 30.6%) of SL; upper jaw length 9.3%–12.0% (10.6%) of SL; 1st spine of first dorsal fin longer than that of 2nd dorsal-fin, its length 11.0%–18.2% (13.4%) of SL; orbital tentacle broad, leaf-shaped; head, pectoral-fin base and lower part of pectoral fin brownish in nuptial males; caudal fin whitish in nuptial males; pectoral fin with bands in females; anal fin without distinct bars or lines in both sexes. Although the presently reported specimens had fewer longitudinal series scale rows and scales below the 1st notched lateral-line scale compared to the type series of *E. olivaceus* [29–32 (modally 30) and 2 or 3 (3), respectively, in the former vs. 30–32 (31) and 2–3 (2) in the latter], such differences were considered minor and regarded as intraspecific variations.

In Japanese waters, *E. olivaceus* co-occurs with *Enneapterygius minutus* in the Ryukyu Islands (Dewa

et al. 2023). Similarly, the two Vanuatu specimens of *E. olivaceus* examined in this study had been collected with *E. minutus* specimens (AMS I. 6317, 2 of 3 specimens, 19.4–20.2 mm SL; AMS I. 6451, 2 of 3 specimens, 16.5–16.7 mm SL). *Enneapterygius olivaceus* is distinguished from *E. minutus* by the following features: orbital tentacle large and leaf-shaped (vs. slender and pointed in *E. minutus*); head long, length 28.4%–33.0% of SL (vs. short, 24.7%–32.4% of SL); upper jaw long, length 9.3%–13.1% of SL (vs. short, 7.4%–11.0% of SL); 1st spine of first dorsal fin relatively long, length 11.0%–18.2% of SL (vs. short, 7.6%–11.4% of SL); black areas in nuptial males restricted to head and all fins, except for caudal fin [body (except nape and all fins) entirely black in nuptial males]; pectoral fin with faint broad bands in females (with distinct narrow bands in females) (Dewa et al. 2023; this study).

*Enneapterygius olivaceus* was originally described based on 28 specimens from the southern Ryukyu Islands, Japan and Talampulan and Negros islands, the Philippines (Dewa et al. 2023). Accordingly, the presently reported specimens, collected from Australia and Vanuatu, represent the first records of the species from those localities and the Southern Hemisphere.

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