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**A RECORD OF A FLATHEADFISH, *THYSANOPHRYS PAPILLOLABIUM*
SCHULTZ, IN THE ANDAMAN SEA, WITH A KEY TO FOURTEEN
SPECIES OF THE PLATYCEPHALIDAE FROM THAI WATERS
(PISCES : PLATYCEPHALIDAE)**

by

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A RECORD OF A FLATHEADFISH, *THYSANOPHRYS PAPILLOLABIUM* SCHULTZ, IN THE ANDAMAN SEA, WITH A KEY TO FOURTEEN SPECIES OF THE PLATYCEPHALIDAE FROM THAI WATERS (PISCES : PLATYCEPHALIDAE)

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ABSTRACT

A specimen of Platycephalidae from Koh Keo near Phuket Island in the Andaman Sea, Indian Ocean, was identified as *Thysanophrys papillolabium* Schultz. It seems that this is the first record of the species outside the Northern Marshall Islands, type locality, in the Pacific Ocean. A further description of the fish and a key to 14 species of the same family inhabiting Thai waters are also given with their figures.

INTRODUCTION

Platycephalidae is a near shore fish of the tropical and temperate coasts of the Indo-West Pacific, only one species, *Thysanophrys grueveli* (Pellegrin) is found in the Eastern Atlantic. Trawlers off the coast of Australia catch them in great numbers. In Thailand, they are also common but have only been regarded as good marketing fish for the last ten years. They are found in trawl catches throughout the Gulf of Thailand and the Andaman Sea. In Surveys from 1965 until now, 13 species have been collected and identified by the author for the reference collection of the Marine Fisheries Laboratory, Department of Fisheries, Bangkok; and the Phuket Marine Biological Centre, Thailand. (No. Ph 2907-2933). 10 species of which are new record. Only *Suggrundus huntii*, which was named from a Thai specimen from Rayong Province by Fowler in 1937, is absent from these surveys. In this paper the key to all of these species is provided with their figures in order to serve the need of our biologists or students who are studying the sea fishes in this area. However, it is thought to be far from complete because the species of Platycephalidae occurring in Thai waters are only gradually being worked up. A revision of this confusing family is also urgently needed.

Among the fourteen species of this family from Thailand, rough flathead, *Grammoplites*

scaber, is the most common member of the family caught in trawling grounds, but Batavian flathead, *Thysanophrys bataviensis*, Large-spined flatheads, *T. macracanthus*, Spotted flathead, *T. crocodilus* and Indian flathead, *Platycephalus indicus* are also present in fair numbers. Although their flesh is white and considered as good eating by native fishermen, because of its unpleasant-looking, spiny head and tough skin it is rejected by most inland consumers, and great quantities of the landing fishes are prepared as fish balls or other similar products.

During the months of November and December, 1972, the FAO/DANIDA¹ Seminar on Fish Taxonomy in Southeast Asia was held at the Phuket Marine Biological Centre of Thailand. This time several field excursions were carried out, and each of them produced a large amount of fresh material which proved very useful for the description of many commercial species and in adding to the collection. On November 12, 1972, a diving trip was made at an eastern point of Koh (= island) Keo, about three miles off shore from the Centre. Rotenone was used as a piscicide at the depth of about 3-6 meters. It was a sandy bottom near the rocky shore. Among the specimens collected from 13.00-16.00 hrs. was a single Platycephalidae, 173 mm. SL. Because of its fringed lips and striking colour pattern, it was recogni-

¹ Food and Agriculture Organization of the United Nations/Danish International Development Agency.

sed by the author immediately as being different from other members of the species previously known from Thailand. After a day in formalin preservation the colour detail was recorded. Due to the unsuccessful identification, its specific identity remained undetermined until recently when an excellent original description and illustration of *Thysanophrys papillolabium* given by Schultz (1966) as a new species was studied and this description applies to the author's specimen as well. The type material, comprises 32 specimens ranging from 61.00 to 145.00 mm. in SL. They were collected by Schultz and his colleagues and by the University of Washington Group in 1946-1947 at the Northern Marshall Islands (Bikini Atoll, Rongelap Atoll and Rongerik Atoll). This fish seems to be rare as the species was not found elsewhere later on, and is not recognised by Thai fishermen, further searches for additional Thai specimen were unsuccessful. The author's specimen, the thirty-third known, which represents the basis of this study being the second report of the species and the first record of its occurrence in water outside that of the Northern Marshall Islands. This second known locality, at a point in the Indian Ocean, at a distance of some 4,500 miles from the type locality, is interesting and could give a better impression of the distribution of the species.

When Schultz (1966) studied the Platycephalidae from the Marshall and Marinas Islands, he also made an attempt to provide a tentative key to all the valid genera, and the author has followed him in the use of generic allocations for the Thai fish.

Thysanophrys papillolabium Schultz

(Plate I, Figure 6; Table 1)

Specimen studied: Ph 2933, MFLB 1973-1-22-1, a single mature female standard length 173.00 mm., total length 206.00 mm, collected by the author at Koh Keo near Phuket Province, Andaman Sea, Thailand, on November 12, 1972.

Diagnosis: *Thysanophrys papillolabium* is one of the most easily distinguished members of the family; the fringed lips or a row of papillae on the edge of both lips is the best diagnostic character whereas they are smooth in all other known species; interopercular flap large and extending on to subopercle and opercle.

Range: It is known only from the Northern Marshall Islands in the West Pacific Ocean and from Koh Keo of Phuket Province in the Andaman Sea of the Indian Ocean.

Description: In order to facilitate comparison with the original accounts of the species given by Schultz (1966), the measurements and counts of this Andaman specimen are tabulated in table 1. Differences in some proportional measurements between this specimen and the type materials may result from the much larger size and maturity of this specimen and/or the geographic variation.

Greatest depth of body at middle of spinous dorsal fin 6.30, of head at hind preopercular margin 9.71; greatest width of body 3.95, of head 3.84; length of head from tip of upper jaw 3.06, all in standard length. Snout 3.31, vertical eye diameter 6.28, horizontal eye diameter 4.91, least width of bony interorbital 9.00, postorbital length of head 1.93, length of upper jaw 2.45, least depth of caudal peduncle 5.14, third dorsal spine 2.35, first dorsal ray 2.30, eleventh anal ray 2.95, caudal 1.46, fifth ray of pectoral 1.83, fourth pelvic ray 1.21, all in length of head. First dorsal spine minute, 2 in interorbital of which 1.83 in horizontal eye diameter and 2.72 in snout. Snout in postorbital length of head 1.72.

Jaws, vomer and palatines with bands of villiform teeth; vomerine bands ovate, palatine bands elongate and placed lengthwise. Tongue free at tip, smooth, broadly spatulate, emarginate in front. Lips with a row of short papillae along their edges. Maxillary reaching anterior fourth of eye, its hind end concave and slipping under suborbital bone. No ocular cirrus. Interorbital broadly concave, naked. Nostrils tubular, anterior one with a

short dermal flap on its posterior edge. Suborbital with many transverse rows of sensory canals, these canals also clearly seen on interorbital and occipital regions. Dermal flap on interopercular margin extending onto subopercle and opercle. Gill rakers lanceolate, that on the angle of gill arch longest but scarcely longer than the longest gill filament. Pseudobranchial filament as long as gill filament.

Spines or serratures on head stout and blunt, never flattened. A pair of closet internasal spines, supraorbital ridge with a rather larger anterior spine and posteriorly 7-8 spines. Superior postorbital ridge with a large spine at its beginning behind eye, and slightly separated from 4 posterior spines, there exists no fan-like diverging ridges. Inferior postorbital ridge with 6 spines, the posterior one larger and in line with the lateral line, the anterior scales of which have a spine. Several distant spines between anterior part of superior and inferior postorbital ridges. Front edge of preorbital smooth without 2 forwardly directed short spines as noticed by Schultz (1966) in many specimens from the Northern Marshall Islands. Suborbital ridge with a spine below anterior half of eye, 4 other spines behind eye, the last of which is at the base of a rather stout preopercular spine which is shorter than the interorbital space. A much shorter one is below it. Opercle with 2 spines, placed horizontally above pectorals. Opercle and preopercle scaly also chest and breast, head otherwise naked, region around base of pectoral also naked. 9 rows of scales before dorsal, the origin of which is distinctly behind gill opening.

Colour when fresh, top of head, back and sides creamy white, most scales with a blue spot on center, lower part of head and belly whitish.

Iris grey with 8-9 tiny dark spots encircling pupil. Mandible, suborbital and opercle barred with reddish brown. Anterior nostril partly orangish, posterior nostril hyaline. Interopercular flap, buccal cavity, tongue and gill cavity colourless. Several indistinct brown blotches on back, the last one on caudal peduncle at just before base of upper caudal rays. A series of 5-6 small darker brown spots on lateral line; there exists 8 obscure orange traces, more prominent anteriorly, the first one just behind upper corner of pectorals, the second and the third below first dorsal, the ones following, are very indistinct and terminating before caudal peduncle. Dorsals largely hyaline, each spine of first dorsal with 2-3 reddish brown spots, and of second dorsal with about 5 spots. Anal milky white with 1-2 spots on each ray. Pectorals with small reddish brown spots on rays and membranes, forming many cross bands. Pelvics yellowish with many scattered orange spots. Caudal with several vertical rows of indistinct reddish brown spots.

Colour of formalin preserved specimen largely light brown above, paler below, back and sides with irregular indistinct marmorations. Scales on back bordered with dark, fins spotted.

Notice: Schultz (1966) did not give information regarding the maturity of his 32 specimens, ranging from 61-145 mm. in standard length, the author's specimen 173 mm. in standard length which makes it the largest collected specimen of the species, was a female with gravid eggs in her ovary. The largest were 0.7 mm. in diameter (means 0.6 mm.). These eggs were loose enough to be spawn by exerting pressure along the side of the fish and it is believed that the spawning season, if not throughout the year, as for most Thai species (based on author's personal observations) must have been approaching when the fish was caught.

Key to the Platycephalidae from Thailand

1. A single weak opercular spine and a single strong preopercular spine; 6 dorsal spines, posterior soft dorsal and anal wholly free and unattached; caudal forked with upper lobe produced into a filament (Pl. I, fig. 1) *Elates thompsoni* Jordan and Seale

- Two opercular spines and 2-6 preopercular spines at lower posterior angle; 7-9 dorsal spines, caudal truncate or rounded 2
- 2 Teeth on vomer forming a transverse patch, connecting lateral patch; spines and ridges on head low not serrated or spinose; interorbital space not concave (Pl. I, fig. 2) *Platycephalus indicus* (L.)
Teeth on vomer in 2 villiform patches, spines and ridges on head prominent 3
- 3 Interopercle with a strong antrose spine on lower margin (Pl. I, fig. 3).. *Rogadius asper* (Cuvier)
No antrose interopercular spine 4
- 4 Ridge of lower opercular spine distinctly finely serrate (Pl. I, fig. 4)
..... *Sorsogona tuberculata* (Cuvier)
Ridge of lower opercular spine not finely serrate 5
- 5 All the lateral line scales with a strong spine (Pl. I, fig. 5) *Grammoplites scaber* (L.)
Only first few, or anterior third or half of lateral line scales with or without spines. Eye with or without dermal cirrus; ridges of head devoid of fine denticulations or granulations; interopercular margin with or without a free tip dermal flap (*Thysanophrys*¹ Ogiby) 6
- 6 Lips with a row of papillae along edges otherwise there exists several small tentacles on eyes 7
Edge of lips without papillae, no tentacle on eyes 8
- 7 A row of short papillae along edge of lips, no tentacles in eyes, dermal flap on interopercular margin broad and extending on to subopercle and opercle, head broadly depressed (Pl. I, fig. 6)
..... *Thysanophrys papillolabium* Schultz
Several small tentacles in eyes, edge of lips without papillae, dermal flap on interopercular margin absent, head normally depressed (Pl. I, fig. 7) *T. carbunculus*² (Valenciennes)
- 8 Preopercular spine long (in adult), and extending to posterior half of opercle or slightly beyond, first few or anterior third or half of lateral line scales with spines 9
Preopercular spine short and extending at the most to middle of opercle, only first few anterior lateral line scales with spines 10
- 9 Supraorbital and suborbital ridges very finely serrated and destitute of spines, interopercular margin without dermal flap, 4-6 anterior scales of lateral line spiny; caudal with prominent dark bars (Pl. II, fig. 1) *T. serratus* (Cuvier)
Supraorbital and suborbital ridges spiny, interopercular margin with pointed dermal flap, 6-24 anterior scales of lateral line spiny; caudal dusky without any markings 11
- 10 Supraorbital ridge distinctly serrated at its posterior half and not ending in fan-like ridges, suborbital with a spine below anterior half of eye and 3-4 in its posterior part before preopercular spine, dermal flap on interopercular margin rounded; colour largely marbled with reddish brown, lines of demarcations distinct, anal spotted (Pl. II, fig. 2) *T. malayanus*³ (Bleeker)

¹ In the allied genus *Suggrundus* Whitley, all minor ridges of head are distinctly denticulate or granulate; eye without dermal cirrus; opercular margin with a free tipped dermal flap (type species, *Platycephalus rudis* Günther, 1880).

² This species was misidentified as *Platycephalus tentaculatus* Rüppell, in Banasopit and Wongratana (1967).

³ This species was misidentified as *Platycephalus isacanthus* Cuvier and Valenciennes, in Wongratana (1968).

- Supraorbital ridge indistinctly serrated, or spiny, and ending in fan-like diverging ridges, suborbital with 2 low and well separated spines below eye and ending in a spine at preopercle, dermal flap on interopercular margin small and pointed; colour largely brown with more or less darker cross bands on back, anal unspotted 12
- 11 6-12 anterior scales of lateral line spiny, suborbital dorsally bent outwards; predorsal region with many microscopic open pores; colour brownish with several indistinct cross bands on back, fins unspotted; first dorsal, pectorals and pelvics darkish, a pale transverse patch on middle of pectorals (Pl. II, fig. 3) *T. sculptus*¹ (Günther)
- 22-24 anterior scales of lateral line spiny, suborbital ventrally bent outwards; predorsal region with numerous microscopic open pores; overall colour light brown, sometimes with indistinct irregular cross bands on back; both dorsals, upper part of pectorals (in adults), and sometimes caudal spotted with dark brown (Pl. II, fig. 4) *T. macracanthus* (Bleeker)
- 12 Scales rows above lateral line 60, caudal with broad black basal and subterminal bands and 2 less distinct medially *T. huntii* (Fowler)
- Scales rows above lateral line 80-93, caudal more or less spotted or barred with dark 13
- 13 Scales rows above lateral line 80-82, supraorbital ending in a prominent fan-like diverging ridges; colour largely brown sometimes with indistinct cross band on back, all fins except anal minutely spotted (Pl. II, fig. 5) *T. bataviensis*² (Bleeker)
- Scale rows above lateral line 90-93, supraorbital ridge with less prominent fan-like diverging ridges; colour largely brown with distinct irregular cross bands on back; top of head and body scattered with small black spots, first dorsal and pelvics blackish, second dorsal and pectorals spotted, caudal with prominent horizontal dark bars in adults (Pl. II, fig. 6) *T. crocodilus* (Tilesius).

¹ The unidentified specimen no. 310 on p. 67 in Wongratana (1968) could be considered to belong to this species.

² This species was misidentified as *Platycephalus harrisi* (McCulloch) in Banasopit and Wongratana (1967).

Table 1. Measurements and counts of *Thysanophrys papillolabium* Schultz, MFLB.
1973-1-22-1, from Koh Keo, Andaman Sea.*

Characters	Thousandths of SL.
Standard length, 173 mm.	-
Total length 206 mm.	-
Depth at middle of spinous dorsal	151.445
Depth of head at hind preopercular margin	98.266
Depth of caudal peduncle	60.694
Head length, from tip of snout to hind opercular margin	312.139
Width of body at middle of spinous dorsal	241.618
Width of head at hind preopercular margin	248.555
Length of snout	94.220
Horizontal diameter of eye	63.584
Vertical diameter of eye	49.711
Length of postorbital	161.850
Breadth of interorbital	34.682
Length of upper jaw	127.168
Predorsal length	338.150
Preanal length	591.907
Prepelvic length	375.722
Prepectoral length	301.156
2nd dorsal base length	278.613
Anal base length	323.699
Length of first and third dorsal spines	17.341 ,132.948
Length of first dorsal ray (longest)	135.838
Length of first and eleventh anal rays	89.595 ,105.780
Length of fifth pectoral ray (longest)	170.520
Length of fourth pelvic ray (longest)	257.225
Length of caudal fin	213.873
Dorsal	IX; 1, 10
Anal	12
Pelvic	1, 5
Pectoral	, 15, 6
Branched caudal rays	9
Scale rows at above lateral line	55
Transverse scale rows**	8, 1, 16
Gill rakers	1, 1, 5

*All measurements except those for standard length and total length are expressed in thousandths of standard length.
**Counting from soft dorsal origin to lateral line in a forward direction and from anal origin to lateral line in a backward direction.

PLATE I

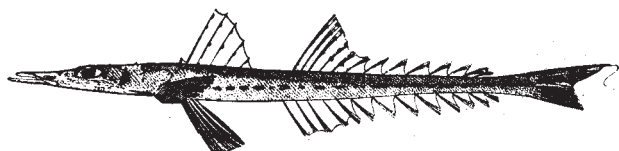


Fig. 1

Fig. 2

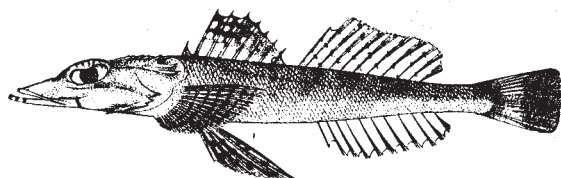
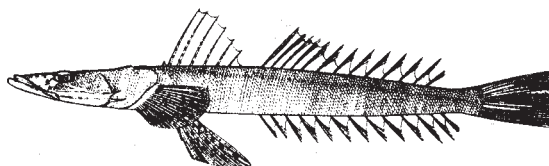


Fig. 3

Fig. 4

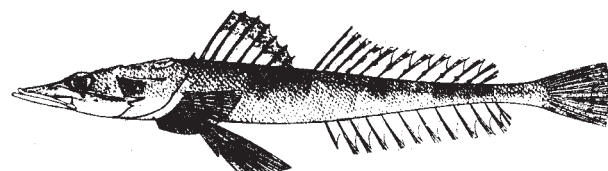
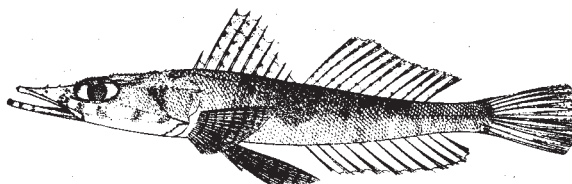


Fig. 5

Fig. 6

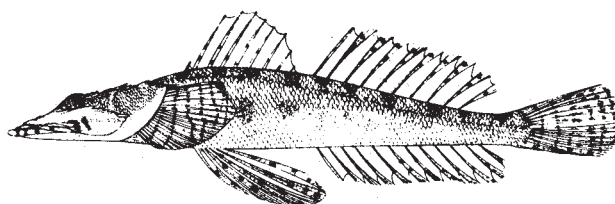


Fig. 7

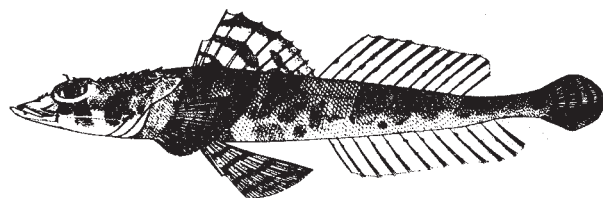


Fig. 1— *Elates thompsoni* Jordan and Seale, 135 mm. SL;
Fig. 3— *Rogadius asper* (Cuvier), 23 mm. SL;
Fig. 5— *Grammoplites scaber* (L.), 178 mm. SL;
Fig. 7— *carbunculus* (Valenciennes), 138 mm. SL.

Fig. 2— *Platycephalus indicus* (L.), 251 mm. SL;
Fig. 4— *Sorsogona tuberculata* (Cuvier), 118 mm. SL;
Fig. 6— *Thysanophrys papillolabium* Schultz, 173 mm. SL;

PLATE II

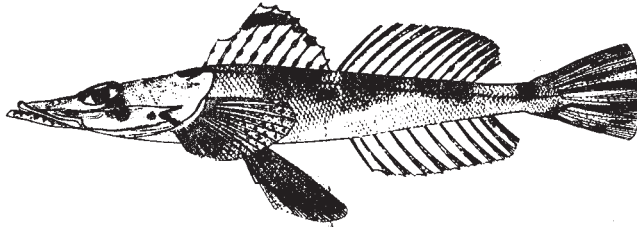


Fig. 1

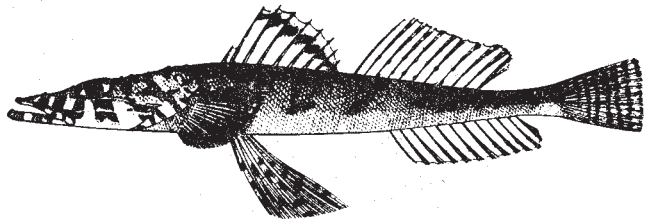


Fig. 2

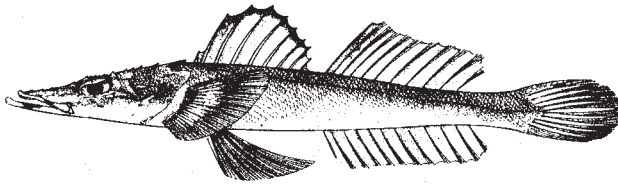


Fig. 3

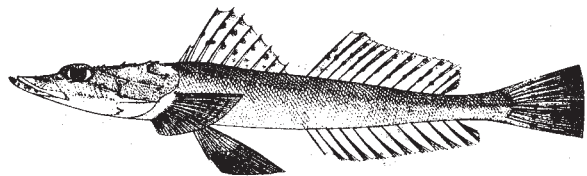


Fig. 4

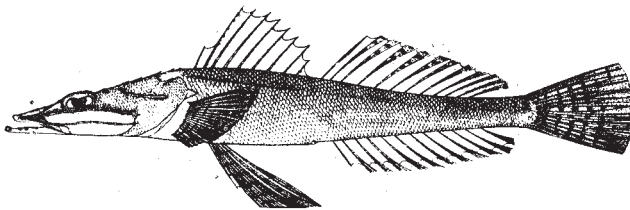


Fig. 5

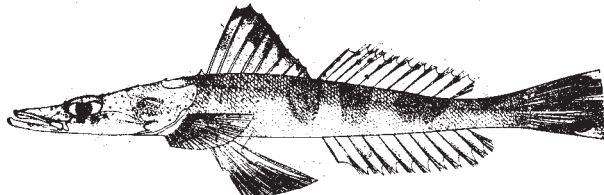


Fig. 6

Fig. 1—*Thysanophrys serratus* (Cuvier), 188 mm. SL;
Fig. 3—*T. sculptus* (Günther), 114 mm. SL;
Fig. 5—*T. bataviensis* (Bleeker), 161 mm. SL;

Fig. 2—*T. malayanus* (Bleeker), 176 mm. SL;
Fig. 4—*T. macracanthus* (Bleeker), 190 mm. SL;
Fig. 6—*T. crocodilus* (Tilesius), 256 mm. SL.

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