

**A NEW RECORD OF THE THREADFIN, *FILIMANUS PERPLEXA* FELTES, 1991
(PERCIFORMES: POLYNEMIDAE), FROM THE ANDAMAN SEA, THAILAND**

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ABSTRACT

A single specimen of *Filimanus perplexa* Feltes, 1991, collected in the Andaman Sea off Phuket Island, Thailand, represents the first reliable record from that region and the northernmost record for the species. The species is characterized by seven pectoral filaments, the middle pectoral filaments extending well past the midpoint of the anal fin, 13–15 anal fin rays, the posterior margin of the maxilla deeper than or equal to the eye diameter and the interorbital region of the frontals concave.

INTRODUCTION

The Asian polynemid fish genus *Filimanus* Myers, 1936, which contains six species (Feltes, 1991), is characterized by a large eye, the width of the teeth bands on the upper and lower jaws being narrower than the space separating the teeth bands on the opposing premaxilla, basisphenoid not in contact with the prootic, and pectoral fin insertion well below the midline on the side of the body (Feltes, 1991, 1993). *Filimanus perplexa* Feltes, 1991, originally described on the basis of 26 specimens from Bali, Java and Padang Islands, Indonesia, has not until now been recorded from non-Indonesian waters. However, a single specimen of *Filimanus*, found in the museum collection of Phuket Marine Biological Center, Thailand, and subsequently identified as *F. perplexa* Feltes, 1991, on the basis of meristic and proportional measurements, represents the first reliable record from the Andaman Sea and the northernmost record of the species.

METHODS

Methods for counts and measurements generally followed Hubbs and Lagler (1947) and Feltes (1991). In addition, the length of the pectoral fin base was measured from the base of the uppermost pectoral fin ray to the base of the lowermost pectoral filament. Standard length is abbreviated as SL. Terminology of the supraneural bones follows Mabee (1988) and the formula for configuration of the supraneural bones, anterior neural spines and anterior dorsal fin pterygiophores, Ahlstrom *et al.* (1976). The configuration of the supraneural bone, and vertebral counts were confirmed from X-ray photos. Institutional codes follow Leviton *et al.* (1985) with an additional institutional abbreviation as follows: Phuket Marine Biological Center, Thailand (PMBC).

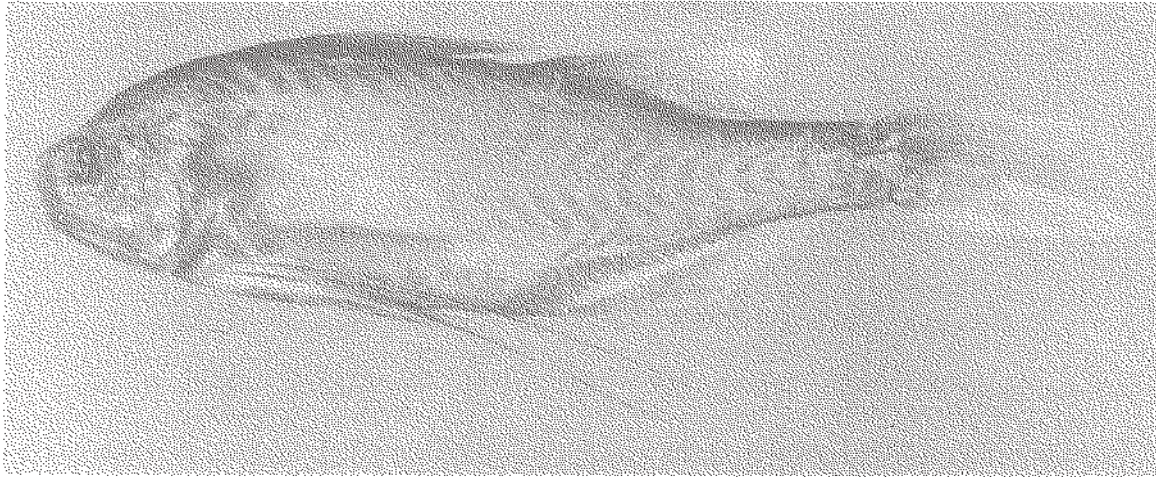


Figure 1 *Filimanus perplexa*; PMBC 5913, 111 mm SL, Phuket Island, Thailand. Caudal peduncle damaged by the attachment of the specimen label.

Filimanus perplexa Feltes, 1991
(Fig. 1, Table 1)

Material: PMBC 5913, 111 mm SL, fish caught by local trawler and landed at Phuket town fishing port, Andaman Sea, Thailand, 19 June 1972, collected by U. Bhatia and D. M. Carlson.

Description: Counts and proportional measurements as thousandths of SL of the above specimen of *Filimanus perplexa*, along with data for the holotype and paratypes of the species (from Feltes, 1991), are given in Table 1. Snout blunt; maxilla covered with scales; orbit diameter greater than snout length, shorter than interorbital; depth of posterior margin of maxilla approximately equal to eye diameter; lower lip well-developed; interorbital region of frontals concave; posterior margin of preopercle serrated; teeth villiform in broad bands on vomer, palatines and ectopterygoids; all pectoral fin rays unbranched; tip of first, sixth and seventh pectoral filament reaching base of anal fin, tip of fifth pectoral filament reaching midpoint of anal fin and second to fourth pectoral filaments extending beyond tip of anal fin; third spine of first dorsal fin longest; second dorsal fin base shorter than anal fin base; lateral line simple, extending to mid-distal margin

of caudal fin membrane; formula for supraneural bones, anterior neural spines and anterior dorsal pterygiophores 0/0/2/1+1/1/1/1/1/; vertebrae 10+14. Color of preserved specimen: Head and body light brown; opercular region blackish-brown; all fins brownish-cream except pectoral filaments; base of pectoral filaments white, becoming light brown on filament tips.

Distribution: *Filimanus perplexa* is currently known from Padang Island, south coast of Java Island and Bali Island, Indonesia (Feltes, 1991) and Phuket Island, Thailand (this study), but is probably more widely distributed in Southeast Asian waters. The occurrence of the species in waters off Thailand, ca. 1,000 km northwards from Padang, Sumatra, is the first record outside Indonesia and the northernmost for the species.

Remarks: According to Feltes (1991), *F. perplexa* is distinguishable from other *Filimanus* species in having the following combination of characters: seven pectoral filaments; pectoral filaments extending well past midpoint of anal fin; 13–15 anal fin rays; 47–55 gill rakers; depth of posterior margin of maxilla greater than or equal to eye diameter; interorbital region of frontals concave. The Thailand specimen corresponded closely to

Filimanus perplexa from the Andaman Sea, Thailand**Table 1** Counts and measurements of *Filimanus perplexa*, expressed as 1×10^3 of standard length.

	This study from Thailand (n=1)	Feltes (1991) from Indonesia (n=26)
Standard length (mm)	111.0	67.9–156.9
Counts		
Dorsal fin rays	VIII–I, 11	VIII–I, 11
Anal fin rays	III, 14	III, 13–15
Pectoral fin rays	14	13–14
Pectoral filaments	7	7
Pelvic fin rays	I, 5	I, 5
Pored lateral line scales	50	49–51
Scales above and below lateral line	6 / 10	5–8 / 9–10
Gill rakers	50	47–55
Measurements		
Head length	319	300–341
Body depth	323	316–368
Second body depth	323	288–358
Body width at pectoral fin base	138	100–158
Snout length	54	40–59
Eye diameter	59	48–76
Orbit diameter	66	-
Interorbital width	74	69–91
Postorbital length	210	197–243
Upper jaw length	167	153–177
Depth at posterior margin of maxilla	59	-
Pre-1st,dorsal fin length	362	350–387
Pre-2nd dorsal fin length	633	590–650
Pre-anal fin length	626	598–665
First dorsal fin base to anal fin base	446	408–508
Pelvic fin base to anal fin base	290	238–313
Second dorsal fin base length	149	142–179
Anal fin base length	225	198–235
Longest pectoral fin length	302	307–487
Longest pectoral filament length (4th)	867	556–1178
Pectoral fin base length	101	-
Longest pelvic fin ray length (1st)	180	183–234
Longest 1st dorsal fin spine length (3rd)	248	245–309
Second dorsal fin spine length	135	115–183
Longest 2nd dorsal fin ray length (2nd)	broken	206–297
Longest anal fin spine length (3rd)	99	76–112
Longest anal fin ray length (2nd)	180	152–205
Caudal peduncle length	231	199–245
Caudal peduncle depth	108	114–138
Caudal fin lobe length	broken	312–555

the meristic counts and proportional measurements of the holotype and paratypes of *F. perplexa*, as given by Feltes (1991).

Filimanus similis Feltes and *F. xanthonema* (Valenciennes) also have been reported in the Andaman Sea (Feltes, 1991). *Filimanus perplexa* can be easily distinguished from *F. similis* and *F. xanthonema* in having longer pectoral filaments (extending well past midpoint of anal fin vs. not extending to midpoint of anal fin in the latter two species), higher counts of anal fin rays (13–15 vs. 10–12), higher counts of gill rakers (47–55 vs. 40–49 and 36–46, respectively) and greater posterior margin of maxilla (greater than or equal to eye diameter vs. less than eye diameter) (Feltes, 1991; this study). Furthermore, *F. similis* differs from *F. xanthonema* in having 7 pectoral filaments (vs. 6 [occasionally 5 or asymmetrically 5 and 6 or 6 and 7] in the latter) (Feltes, 1991).

Comparative material examined: *Filimanus heptadactyla*: NTM S. 14784-007, 2 specimens, 112–113 mm SL, Gadong Ikan Pasar, Brunei. *F. hexanema*: RMNH 443, 108 mm SL, Java, Indonesia. *F. sealei*: AMS IB. 1462-IB. 1463, 2 specimens, 130–147 mm SL, Bougainville, Torokina, Solomon Islands; USNM 57844 (holotype of *P. opercularis* Seale and Bean), 123 mm SL, Zamboanga, Mindanao, Philippines. *F.*

similis: AMS I. 21033-004 (paratypes), 3 specimens, 126–128 mm SL, Phuket Island, Thailand; URM-P 12605, 12611, 12639, 3 specimens, 104–115 mm SL, Phuket Island, Thailand; USNM 304495 (holotype), 99 mm SL, Beruwella, Sri Lanka. *F. xanthonema*: FRLM 15716, 62 mm SL, Lombok Island, Indonesia; MNHN A.3033 (lectotype and paralectotype), 2 specimens, 109–110 mm SL, Pondichery, India.

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REFERENCES

- Ahlstrom, E. H., J. L. Butler and B. Y. Sumida. 1976. Pelagic stromateoid fishes (Pisces, Perciformes) of the eastern Pacific: kinds, distributions, and early life histories and observations on five of these from the Northwest Atlantic. *Bull. Mar. Sci.*, **26**: 285–402.
- Feltes, R. M. 1991. Revision of the polynemid fish genus *Filimanus*, with the description of two new species. *Copeia*, **1991**: 302–322.
- Feltes, R. M. 1993. *Parapolynemus*, a new genus for the polynemid fish previously known as *Polynemus verekeri*. *Copeia*, **1993**: 207–215.
- Hubbs, C. L. and K. F. Lagler. 1947. Fishes of the Great Lakes region. *Bull. Cranbrook Inst. Sci.*, **26**: i–xi + 1–213, 44 pls.
- Leviton, A. E., R. H. Gibbs, Jr., E. Heal and C. E. Dawson. 1985. Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia*, **1985**: 802–832.
- Mabee, P. M. 1988. Supraneural and predorsal bones in fishes: development and homologies. *Copeia*, **1988**: 827–838.