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BOESEMANIA MICROLEPIS (BLEEKER), A COMMON BUT MISIDENTIFIED RIVERINE DRUMFISH (PISCES: SCIAENIDAE) FROM THAILAND AND THE MEKONG RIVER

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ABSTRACT

Examination of the original descriptions and the revision by TREWAVAS (1977) reveals that the scientific name *Pseudosciaena soldado* has been incorrectly used for specimens of a commercially well known and strictly freshwater drumfish of central Thailand and the Mekong River. The correct name is now proved to be the monotypic *Boesemania microlepis* (Bleeker). Outside the type locality in Palembang, Sumatra, the fish is commonest and best known in Thailand and the Mekong River. Locally, it is distributed in the middle and lower courses of all main rivers in the central plain of Thailand up to Sirikit Reservoir on the Nan River, and in the Mekong River up to Pakse, Vientiane, Nong Khai and Loei.

INTRODUCTION

The drumfishes, or croakers, of the family Sciaenidae are a large group of fishes with world-wide distribution. They occur in tropical coastal and shallow waters, or near mouths of rivers to which they migrate for spawning. According to TREWAVAS (1977), all 65 species within 27 genera of the Indo-Pacific sciaenids are confined to marine or estuarine habitats. Only *Otolithoides pama* was denoted by her to migrate up from " ... the sea, estuaries and river to the upper tidal limits and beyond." This life history habit was also verified by ROBERTS (1978) for *Nibea semifasciatus* when he collected the fish far up to the middle course of the Fly River in Papua New Guinea, at Lake Herbert Hoover (locally known as Lake Boset), and in the Wam River (draining Lake Herbert Hoover), 509-512 km up river from Toro Paaa. INGER & KONG (1962) formerly collected 3 large specimens of this latter species "...at high tide but beyond the reach of the saline water... from Tawau District, Kalabakan River at Sungei Tibea" in North Borneo.

According to unconfirmed freshwater records of SCOTT (1959), the range of *Nibea soldado* in Malaysian waters is " ... in the sea, estuaries and even in freshwater". Along the Mekong River beyond Thai territories, CHEVEY (1934), SERENE (1951), TAKI (1968, 1974), and KAWAMOTO *et al.* (1972) variously reported drumfish under the names *Sciaena soldado, Johnius soldado* or *Pseudosciaena soldado* from different parts up to Vientiane in Laos. TREWAVAS (1977) utilized

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Taki's work of 1974 by listing his *Pseudosciaena soldado* (not of Lacepède) as a synonym of *Nibea soldado* proper without any remark on its peculiar habit in freshwater about 1800 km from the sea.

In Thailand, about 35 species of sciaenids have been identified by me from specimens collected only from the coastal areas and estuaries, most of which appeared in BANASOPIT & WONGRATANA (1967). These specimens have been deposited in the Marine Fisheries Laboratory, Bangkok. PUNKA (1968), however, reported only 31 species for the country. Despite their importance, the local species are inadequately known. This is partly because most available identification keys prior to the work of TREWAVAS (1977) are not sufficient, unreliable, uncertain and confusingly difficult to use. Unfortunately, local fisheries biologists who work on bionomics have not normally preserved reference specimens of species studied; hence, the identities and distribution of previously recorded species are mostly impossible to reexamine and ascertain.

The freshwater drumfish or "Pla ma" (meaning horse fish), is one of the largest and locally best known fishes of the rivers, their tributaries and canals in the central plain of Thailand. The name "Bang Pla Ma" District of Suphanburi Province on the Tachin River (some 100 km from Gulf of Thailand) was presumably given in allusion to the popularity of this fish, at least in the past. The importance of the species in that area and in nearby Ang Thong Province is also well known among fishermen along the Meklong, Tachin, Chao Phraya and Bang Pakong Rivers and some of their connecting canals.

The riverine specimens of Pla ma I have examined include: 4 specimens (195-328 mmSL) from the Tachin River, 12 specimens (131-263 mmSL) from the Chao Phraya River, 1 specimen (256 mmSL) from the Bang Pakong River and a specimen (151 mmSL) from the Mekong River. I have also sighted many more specimens from the lower courses of rivers in the central plain of Thailand and studied many local and Mekong records (Table 1), and have come to the conclusion that the correct scientific name of the fish should be *Boesemania microlepis,* instead of *Pseudosciaena soldado, Johnius soldado* or *Nibea soldado,* which is certainly a marine or estuarine fish of smaller size. Its only available nominal synonym is *Otolithoides aeneocorpus.* The previous record of *Johnius dussumieri* as far as the Sirikit Reservoir on the Nan River is in all likelihood a misidentification of *B. microlepis.*

The materials upon which this study is based are deposited in the Chulalongkorn University Museum of Zoology (CUMZ), the Kasetsart University Museum of Fisheries (KUMF), the National Inland Fisheries Institute (NIFI), and the Marine Fisheries Laboratory, all in Bangkok, and the Department of Marine Sciences, University of Ryukyus (URM-P), Okinawa..

Proportional measurements were taken with dividers to the nearest 0.1 mm. The height or length of the fins was the measurement of the longest spine or ray (without filamentous extension) from the basal articulation. Head length was measured to include the opercular flap; the eye diameter is the horizontal diameter. Only branched scales on the lateral line within the standard length were counted. The abbreviation

SL refers to standard length, measured from the tip of the upper jaw to the tail base, as indicated by the line of flexure; TL is total length.

TAXONOMIC DISCUSSION

The impetus for my work on Pla ma began recently when I came across a peculiar record (ANON., 1968) of a fish, 55 cmSL, under the name of a saline species, *Pseudosciaena soldado,* with the local name "Pla kwang" (meaning deer fish), from the Mekong River at Loei and Nong Khai Provinces (1800 km up river from the South China Sea). Although that Mekong specimen was not available for the present study, the black and white photograph of the fish from that paper, however, clearly showed its identity to be *Boesemania microlepis* (Bleeker). The existence of the species in that river was reinforced also by a specimen, 151 mmSL (KUMF 2717) from Nakhon Panom Province, in addition to several Indo-Chinese records (see Table 1).

Later, in mid-1983, I saw 6 or 7 medium size living specimens of Pla ma from Bang Pla Ma District, Suphanburi Province, on the Tachin River, in a freshwater aquarium at NIFI. Only 2 specimens, 288-294 mmSL, were known to be preserved and formed a part of the materials available for the present study. They were clearly the same as the *Boesemania microlepis* of about 450 mmSL which I had seen earlier in October 1982 at the fish landing in Bang Pakong District near the mouth of the Bang Pakong River (about 50 km east of Bangkok), and also the same as 2 small specimens of "Pla hang kew" (meaning narrow tail fish), *Otolithoides aeneocorpus,* from Samut Sakhon Province on Tachin River which appeared in BANASOPIT & WONGRATANA (1967). The widely different habitats of the identical specimens indicated then that the fish was euryhaline like *Coilia dussumieri, Chanos chanos, Polynemus paradiseus, Lates calcarifer, Toxotes chatareus, Monodactylus argenteus, Scatophagus argus, Oxyeleotris marmoratus,* and many other local fish species.

The taxonomic identity of Pla ma was initially resolved just after I examined closely a freshwater specimen of Pla ma of 328 mmSL collected at Bang Pla Ma District on 9 January, 1984, during my survey of the outbreak of fish disease. Since then an effort has been made to study all other specimens available in local museums in addition to its freshwater records, which led to the correction of their identifications.

Locally, the name "ปลาม้า" or "Pla ma" was scientifically recorded for the first time for a sciaenid species of *Pseudosciaena soldado* (synonym of *Nibea soldado)* by SUVATTI (1949). This has since then adhered to by all Thai inland fisheries biologists (Table 1); only the genus has sometimes been altered. To the present knowledge, the names Pla ma or Pla hang kew are principally applied by most fishermen to *B. microlepis* from river rather than to *N. soldado.* The latter, however, shares the common name "Pla chauad" (fish name with no obvious meaning) with most sciaenids from the sea (WONGRATANA, 1968, 1982).

It is therefore likely that SUVATTI (1949) misled later local workers by using the common name "Pla ma" only for the species *N. soldado,* instead of *B. microlepis.*

He caused further confusion by listing its habitats as marine, brackish, and freshwater of riverine areas, and giving its size as 60 cmSL or more; whereas he attributed to *B. microlepis* a marine habitat and a size of only 28.2 cmSL (SUVATTI, 1982). It is now known that *B. microlepis* can attain a much greater size, up to 6 kg (there is also a record of 10 kg for the fish from Menam Noi, at Ban Pan Village of Ayutthaya Province, in Thai Rath Newspaper, 26 February 1984, p.9). Specimens of 2 kg are commonly seen throughout the year.

It is surprising that Pla ma was not mentioned in SMITH (1945) among the freshwater fishes of Thailand despite his 12 years (1923-1935) of historic ichthyological work in most rivers throughout the country. It is possible that the fish was known to him (see below) but regarded as a stray marine fish in the local markets, as no previous scientific report of its strictly freshwater habitat was known.

WEBER & de BEAUFORT (1936) who had formerly studied the type specimens of P. Bleeker from Palembang on the Mussi River and others from Singapore also had concluded that the habitat of their *Johnius microlepis* was "... in the sea".

A. Wheeler of the British Museum (Natural History) London also misidentified a Pla ma specimen from Chai Nat Province (about 200 km along the course of Chao Phraya River to the Gulf of Thailand) as *Nibea soldado*. According to him "... it is normally considered to be marine fish which may enter estuaries" (D.I. Gibson, personal communication to S. Chinabut of NIFI, 8 Dec. 1983).

In searching through the handwritten field "Notes" of Dr. H.M. Smith in the KUMF, I found three interesting records in book No. 23. The first two listed "Sciaenoid" for tin tags nos. 6041 and 6042 among 16 other (Nos. 6043-6058) estuarine and freshwater fishes collected at "Salwin River, near mouth, freshwater", on 3 February 1933. The third record was of fishes sighted at Moulmein, Burma, on 7 February 1933. There is the name "Sciaenoids" and a " 7 thread-*Polynemus*" for three freshwater fishes. However, no specimens of Smith could be found in the KUMF for reexamination. Zoogeographically, at the present, I hesitate to conclude

Table 1. Previous records of the freshwater drumfish from Thailand and Mekong River.

Author (s) and year	Recorded name	Locality
HORA (1923)	*Sciaena axillaris*	Nontaburi, on Chao Phraya R.
CHEVEY (1934)	*Sciaena soldado*	Great Lake (Cambodia)
FOWLER (1935)	*Otolithoides aeneocorpus*	Bangkok, on Chao Phraya R.
FOWLER (1937)	*Johnius microlepis*	Bangkok, on Chao Phraya R., and Tachin R.
SUVATTI (1949)	*Pseudosciaena microlepis*	Bangkok, on Chao Phraya R., and Tachin R., and Bang Khen, a connecting canal of Chao Phraya R.
SERENE (1951)	*Johnius soldado*	Mekong R. and its affluents
SRIKOMUT (1964)	*Pseudosciaena soldado*	Ayutthaya, on Chao Phraya R.
THIENCHAROEN (1964)	*Pseudosciaena soldado*	Nonthaburi, on Chao Phraya R., Bangpakong R. and lower course of Nan R.

Author (s) and year	Recorded name	Locality
BANASOPIT & WONGRATANA (1967)	*Otolithoides aeneocorpus*	Samut Sakhon, on Tachin R. (data from field notes and labelling)
SIDTHIMUNKA & SAENGLERT (1967)	*Pseudosciena soldado*	Nong-mor and Nong-aichuang of Ayutthaya, on Chao Phraya R.
HIRANWATANA (1968)	*Pseudosciaena soldado*	Mekong R.
ANON. (1968)	*Pseudosciaena soldado*	Nong Khai, on Mekong R.
TAKI (1968)	*Pseudosciaena soldado*	Vientiane, Pakse, Hatsalao, on Mekong R.
PUNKA (1968)	*Otolithoides aeneocorpus*	Chao Phraya R.
HIRANWATANA (1970)	*Pseudosciaena soldado*	Mekong R.
NIMSOMBOON (1970)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
NIMSOMBOON & THONGMEE (1970)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
BOTHIPITAK (1970)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
NIMSOMBOON (1971)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
KAWAMOTO *et al.* (1972)	*Pseudosciaena soldado*	Mekong delta (Vietnam)
SIDTHIMUNKA (1972)	*Pseudosciaena soldado*	Meklong R.
ANON. (1973)	*Pseudosciaena soldado*	Boraphet swamp, on Chao phraya R.
ANON. (1973)	*Johnius dussumieri*	Boraphet swamp, on Chao Phraya R.
WEONGARM (1973)	*Johnius dussumieri*	Sirikit Reservoir, on Nan R.
WEONGARM & CHANTARASKA (1974)	*Johnius dussumieri*	Sirikit Reservoir, on Nan R.
PLENGCHAWEE & UTSRI (1974)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
TAKI (1974)	*Pseudosciaena soldado*	Hatsalao, on Mekong R.
PLENGSCHAWEE & TONPO (1975)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
TONPO, BOONMAN & PLENGCHAWEE (1976)	*Pseudosciaena soldado*	Boraphet swamp, on Chao Phraya R.
KRUTANUT (1976)	*Pseudosciaena soldado*	Ayutthaya, Singburi, Chai Nat, Boraphet swamp, on Chao Phraya R.
SIRIKUL (1976)	*Otolithes aeneocorpus**	Leam Sing, Chantaburi
TREWAVAS (1977)	*Boesemania microlepis*	River above Bangkok
UKKATAWEWAT (1980)	*Pseudosciaena soldado*	Nakhon Sawan, Chai Nat, on Chao Phraya R., Tachin R. and Mekong R.
CHUKACHORN (1982)	*Johnius dussumieri*	Chai Nat, Ang Thong and Ayutthaya, on Chao Phraya R.
SUVATTI (1982)	*Pseudosciaena soldado*	Compiled data with a note of name used in Tonle Sap (Cambodia)
DUANGSWASDI (1983)	*Pseudosciaena soldado*	Bang Pakong, Ban Po, Muang Chachoengsao, Bang Kla, Bang Nam Prièo, Ban Sang and Prachin Buri, on Bang Pakong R.
ANON. (1983)	*Nibea soldado*	Freshwater of Thailand

* No specimen of this fish from the site is available for reexamination. It could prove to be another species.

that his Sciaenoid (s) are *B. microlepis*.

Fowler (1937 : 242, figs. 244, 246) established the first definite record of the fish for Thailand on the basis of 2 specimens, 164 and 174 mmTL, from Bangkok and the Tachin River, but under the name *Johnius microlepis*. The finding was later mentioned by SUVATTI (1949, 1982) along with his *Pseudosciaena soldado*. According to TREWAVAS (1977), HORA (1923) also studied a specimen of 150 mmSL collected from Nonthaburi Province, about 62 km up the Chao Phraya River (now deposited in the Zoological Survey of India, registered as ZSI-F 10618/1) but he misidentified it as *Sciaena axillaris*. A catalogued index card with hand writing by Dr. H.M. Smith in KUMF makes it clear that this specimen of Hora was collected and sent to him by Smith. It was probably the only specimen known to Smith but under the marine species name. Since no further freshwater specimen of the fish was known by him before the appearence of his draft of **The Fresh-water Fishes of Siam, or Thailand,** the fish was therefore never reexamined by him and was not included, despite the presence of many marine fishes in that work, some even from Nonthaburi Province.

On the basis of a 121.5 mmSL specimen among 16 specimens of the type series of *Otolothoides aeneocorpus* Fowler, 1935, from Bangkok, Trewavas concluded that this species was a synonym of *B. microlepis*. This name of Fowler was also used for specimens of Pla hang kew from Samut Sakhon Province by myself in BANASOPIT & WONGRATANA (1967), and it should read *Boesemania microlepis* according to this study.

TAXONOMY

Materials (18 fishes)

CUMZ 2527.2.17.1, 328 mmSL, Bang Pla Ma District, Suphanburi Province, Tachin River, 9 January 1984, coll, ***T. Wongratana;*** CUMZ 2527.2.17.2-3, 205-251 mmSL, Ayutthaya Province, Chao Phraya River, 6 January 1984, coll, ***C. Vidthayanon;*** CUMZ 2527.8.17.1,195 mmSL, Samut Sakhon Province, Tachin River, 22 March 1966. coll. ***Vichit Ravanawik***

KUMF 2717 (1), 151 mmSL, Nakhon Panom Province, Mekong River, 29 December 1973, coll. ***W. Temiyajol and party;*** KUMF 2766 (1), 171 mmSL, Ayutthaya Province, Chao Phraya River, 12 January 1971, coll. ***S. Mongkolprasit;*** KUMF 2872 (3), 131-175 mmSL, Ayutthaya Province, Chao Phraya River, 1967, coll. ***N. Panka;*** KUMF 2873(4), 137-228 mmSL, Nakhon Sawan Province, Chao Phraya River, 12 August 1970, coll. ***N. Panka.***

NIFI uncat. (1), 256 mmSL, Chachoengsao Province, Bang Pakong River, during March 1982-March 1983, coll. ***S. Duangswasdi;*** NIFI uncat. (2), 288-294 mmSL, Bang Pla Ma District, Suphanburi Province, Tachin River, 1982, coll. ***unknown.***

URM-P 13557 and 13793, 263-158 mmSL, Ayutthaya Province, Chao Phraya River, 6 January 1984, coll. ***H. Senou.***

Description

Pla ma, or *Boesemania microlepis* (Bleeker), can be unmistakably recognized by the possession of the following characters (the main proportions and meristic numbers are tabulated in Table 2, and its external morphology is shown in Figures 1, 2A and 3).

Body elongated, tapering and slender posteriorly, top of head evenly concave, length of caudal peduncle 1.4-1.6 times its depth.

Anal fin with a massive second spine contained 13.8-15.8% SL, its origin commencing below 7-10th rays of second dorsal; first branched ray of pelvic fin filamentous; caudal fin acutely rhomboid, its middle rays usually formed into a short filament.

Scales cycloid on head and anterior part of chest, ctenoid on occiput, nape and whole body. Small ctenoid scales forming a narrow sheath on bases of soft dorsal and anal fins. Lateral line scales branched, and extending onto caudal fin by a distinct narrow ridge on middle of the fin to the filamentous tips.

Gill rakers on ceratobranchial very short, often club-shaped, more or less spinose, the upper ones on epibranchial are short denticulated stumps.

Gas bladder with a series of 5-6 tubule-like appendages, each arising from anterior and directed posteriorly. They are close together, attached to each side of wall of body cavity and parallel to the main bladder. Anterior part of each side with branched cephalic appendage.

Saccular otolith (Sagitta, Fig. 2B) large and thick, irregularly and obtusely oblong in shape with a small oval "head" whose surface is covered by fine grooves; joined by narrow stem to very slightly broader "tail" which ends close to, but does not cut into, the vertical edge.

Colour of head and body in life drab grey above and bright silvery below. Upper half of body with many darker lines along the middle of each obligue scale row which ascends from anterior to posterior. Region on body below first dorsal fin with yellowish reflections in younger fish but disappearing in large ones. Both dorsal fins and caudal fin powdered with dark dots, extension of lateral line on tail contrastingly silvery; other fins whitish, only pectoral fins hyaline, inner bases dirty brownish. Inside of mouth and inner surface of gill cover with flesh colour.

Apart from the general external appearance, especially the massive size of the second anal spine, and the shape of the otolith, *B. microlepis* seems close to *Bahama polykladikos* (Bleeker), of which I have examined several specimens from the far southeastern coast of the Gulf of Thailand. The fresh colour of the latter species is greyish purple or dirty purple.

FISHERIES, BEHAVIOUR AND DISTRIBUTION

In the freshwater portion of the Chao Phraya River from Nonthaburi to Ayutthaya, Pla ma has been reported to be caught by gill net and cast net

Table 2. Measurements in percentage of SL and countings of 18 studied specimens of *Boesemania microlepis* from four rivers of Thailand.

Character	Ayutthaya and Nakhon Sawan of Chao Phraya R. specimens (n = 12)	Bang Pla Ma and Samut Sakhon of Tachin R. specimens (n = 4)	Chachoengsao of Bang Pakong R. specimen (n = 1)	Nakhon Panom of Mekong R. specimen (n = 1)*	$\bar{x}$ (n = 18)
SL	131 - 263	195 - 328	256	151	131 - 328
Depth of body	24.8 - 29.3	24.7 - 28.5	25.0	26.6	26.5
Depth of caudal peduncle	5.3 - 7.4	6.5 - 6.9	6.2	7.2	6.7
Width at operculum	13.0 - 14.6	13.6 - 14.5	13.2	13.4	13.9
Head length	29.3 - 32.2	29.3 - 33.0	29.6	29.9	30.6
Snout length	7.0 - 8.9	7.3 - 9.0	7.2	7.7	7.9
Eye diameter	4.9 - 6.6	4.8 - 5.7	5.0	7.2	5.5
Interorbital space	4.7 - 8.3	4.8 - 6.1	5.1	6.2	6.1
Upper jaw length	11.6 - 12.3	11.4 - 12.5	11.8	11.9	11.9
Predorsal length	33.1 - 35.9	33.6 - 35.7	33.3	35.4	34.7
Prepectoral length	27.9 - 31.8	28.1 - 33.3	28.1	29.1	29.7
Prepelvic length	30.8 - 34.1	31.4 - 34.9	30.8	32.1	32.5
Preanal length	64.6 - 67.1	64.7 - 70.8	64.8	63.6	66.4
Height of 1st dorsal	11.2 - 13.9	11.7 - 13.7	13.9	13.0	12.9
Height of 2nd dorsal	13.5 - 14.9	12.5 - 14.0	12.7	13.6	13.9

Table 2. (Continued)

Length of pectoral	19.1 - 23.7	20.5 - 22.0	20.8	20.2	21.2
Length of pelvic	17.8 - 21.55	17.7 - 18.5	17.6	18.9	18.6
Herght of anal	16.6 - 18.3	16.1 - 17.0	16.2	17.3	17.3
Length of caudal	24.1 - 30.6	24.1 - 27.8	25.0	29.1	26.8
Dorsal fin rays	X;I,1,28-32	X;I,1,30-31	X;I,1,32	X;I,1,31	X,I,1,29.9
Pectoral fin rays	2,16 - 18	2,16	2,16	2,16	2,16.4
Pelvic fin rays	I,5	I,5	I,5	I,5	I,5
Anal fin rays	II,7-8(+1)	II,7(+1)	II,7(+1)	II,7(+1)	II,7.1 (+1)
Gill rakers	4-5/1/5-8(+2−6)	4-5/1/5-8(+2−4)	4/1/6(+2)	5/1/8	4.5/1/6.9 (+1.8)
Branchiostegal rays	7	7	7	7	7
Lateral scales	47 - 53	50 - 53	50	51	50.3
Transverse scales	7-11/1/8-13	9-11/1/12-16	8/1/12	10/1/14	9.2/1/12
Circumpeduncular scales	16 - 22	20	20	20	19.8

* A specimen, 130 mmSL, Collected by Dr Tyson Roberts on 7 July 1985, from the same area and presented to me, could not be incorporated herein, as it appeared while the present publication was in press.

(CHUKACHORN *et al.*, 1983). Among the fishes caught by set bag at Pakret, Nonthaburi Province, THIENCHAROEN (1964) evidently described and figured Pla ma from the catch. In the Bang Pakong River, set bag net, gill net and hooks are used to catch this fish in a variety of habitats from tidal zones to freshwater areas (DUANGSWASDI, 1983).

In famous Bung Boraphet (Boraphet Swamp) of Nakhon Sawan Province, according to NIMSOMBOON (1971), Pla ma ranked 13th in landing catch weight among 82 recorded fish species: about 380.56 kg in the year 1970. The fish is a good resource, as it is considered palatable and is frequently eaten. A good marketable size costs about 36-50 baht/kg. At present, some local fishermen and biologists are attempting to raise the fish in ponds and cages to explore possibilities for culture in the future. The Inland Fisheries Station at Phichit Province on Nan River has shown much progress on the matter.

It is now known that the names Pla ma and Pla hang kew are used for the conspecific fish by the farmers and fishermen living along lower courses of the Bang Pakong and Tachin Rivers. They have told me on both rivers that the fish is most frequently seen during June to July and is easily taken during high tide by hooks on longline in shallow water of 2-3 m, usually near the bank at the turn of the rivers. It prefers living Pu peo (fiddler crab, *Uca* spp.) and Pu na (rice crab, *Somanniathelpusa* spp.) as bait. According to them, Pla ma and Pla hang kew are looked in the same way, but the latter occupies the saline influent area of the rivers and has more yellowish hues on head, body and fins. The fish is not so esteemed as Pla ma which replaces it in the middle and upper courses of the rivers.

BOTHIPITAK (1970) reported that many specimens caught in Bung Boraphet fed entirely on small fishes and shrimps. My colleaque, Dr. P. Menasveta, found 4 large Pla ma in his ponds of freshwater prawn *(Macrobrachium rosenbergii)* at Klong Rangsit (a canal connecting with the Chao Phraya River), in Pathum Thani Province (about 20 km north of Bangkok) in 1981 (Fig. 3). They all had prawns in their stomachs.

The adults of Pla ma are strong, fast swimming and probably wide ranging competitors and predators of other fishes and aquatic fauna. The death of all 6-7 medium size specimens after circa 9 months in a NIFI aquarium may have been due to the confining conditions of captivity.

Its sport fishing value is very poor; several Pla ma that I have heard about being taken by experienced fishermen were caught by trolling without strike, run or fight. When caught by hook, the fish tires quickly, and small ones die very soon.

The range of *B. microlepis* was known by TREWAVAS (1977) as "Reported only from rivers in Palembang from Singapore and at above Bangkok". No local specimen of this fish has been recorded for Malaysia, but it is anticipated in that country in FOWLER (1938) under the name *Johnius microlepis*. Prof. Boon Indrambarya, former Director-General (1944-1961) of the Department of Fisheries, Bangkok, recently told me that the fish was commonly seen at Battambang (about 235 km from the sea at Mekong delta), in Cambodia. According to SUVATTI (1982)

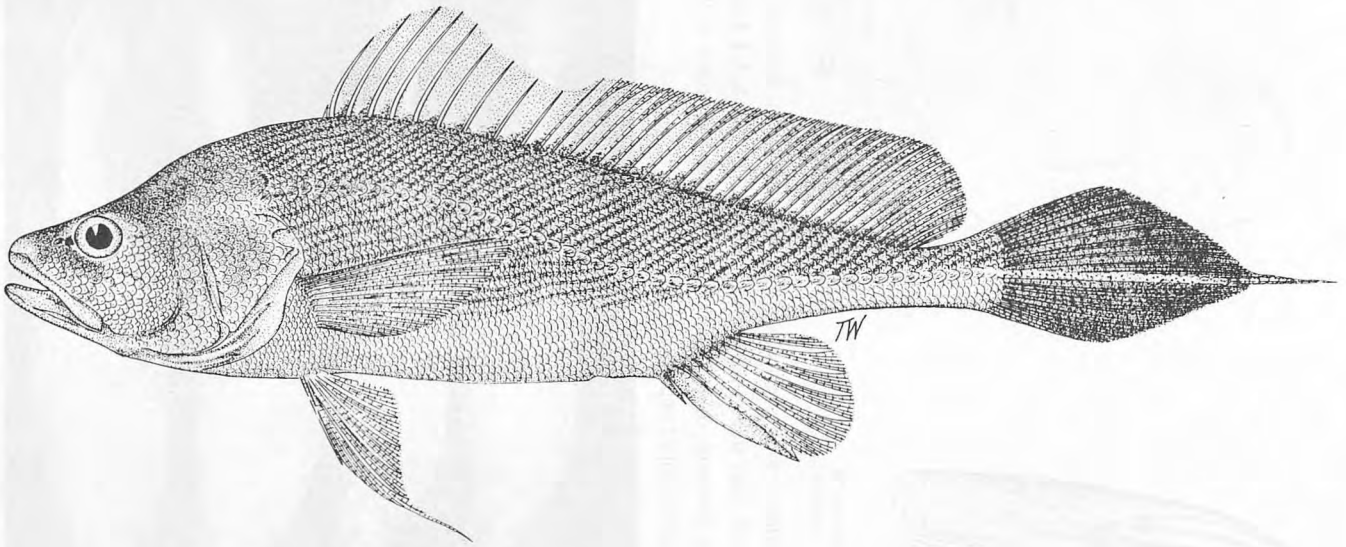

Figure 1. *Boesemania microlepis,* URM-P 13793, 258.0 mmSL, from Ang Thong Province, January 6, 1984.

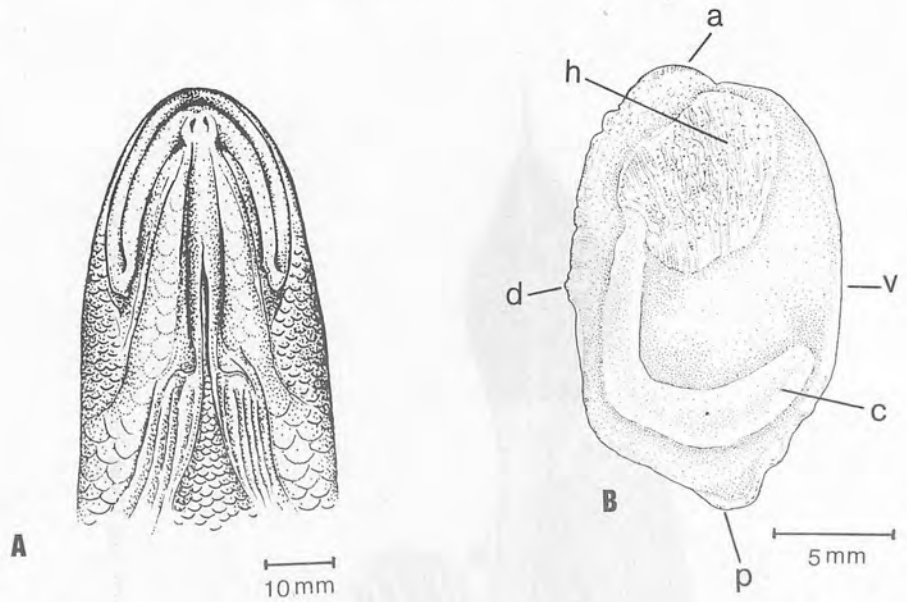

Figure 2. *Boesemania microlepis,* showing ventral view of anterior part of head (A), URM-P 13793, 258.0 mmSL; and (B) inner side of left sagitta, CUMZ 2527.2.17.1, 328.0 mmSL. Abbreviations: a, anterior; p, posterior; d, dorsal and v, ventral edges; h, ostium or "head"; c, cauda or "tail" of the tadpole-shaped impression.

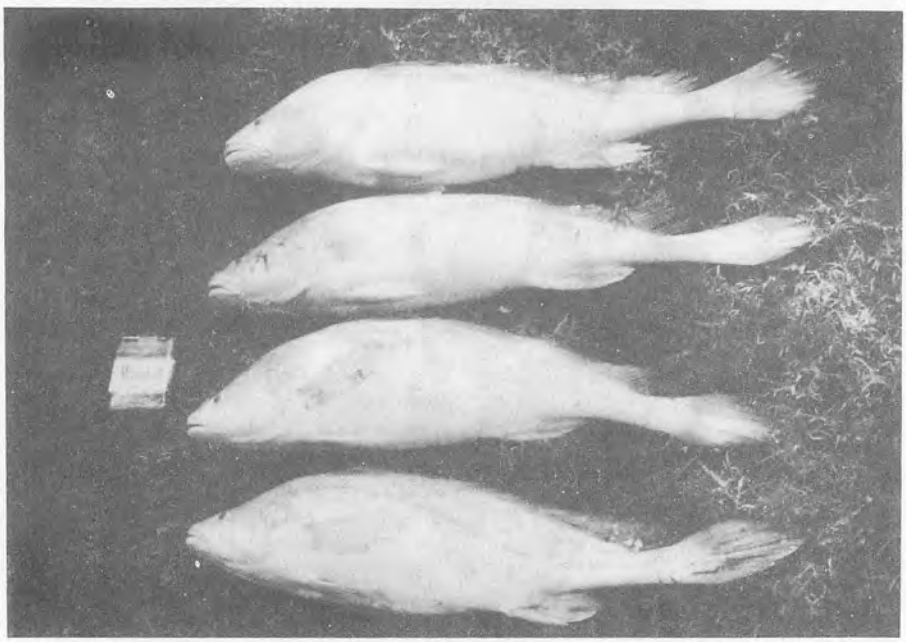

Figure 3. Four specimens of *Boesemania microlepis,* about 45-55 cmSL, captured by Dr. Piamsak Menasveta from his farm of giant freshwater prawn, connecting with Rangsit canal, Pratumthani Province, north of Bangkok and about 25 km from Chao Phraya River.

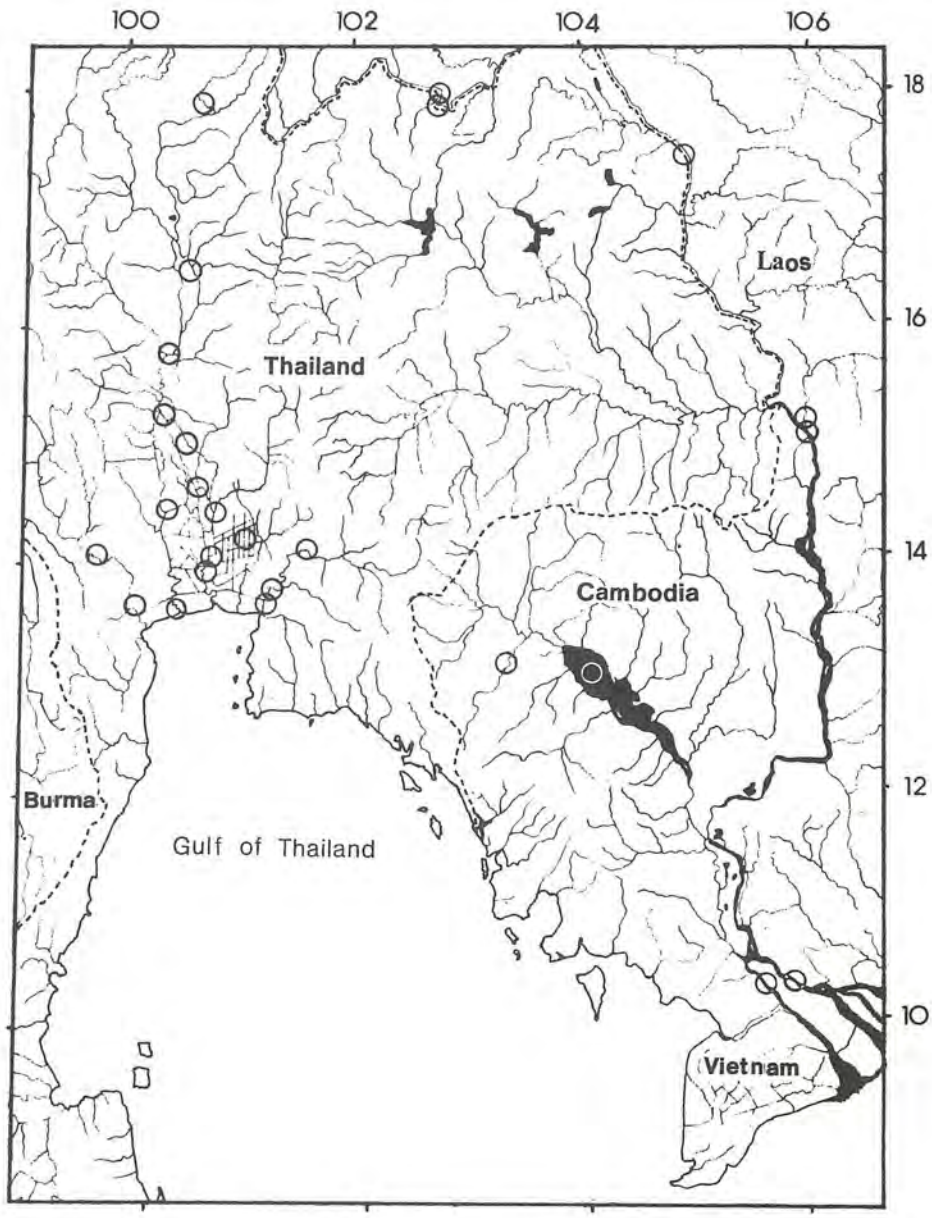

Figure 4. Freshwater distribution of *Boesemania microlepis* in Thailand, Mekong River and its tributaries.

the freshwater Pla ma is known as "Kim leng hue" (meaning golden dragon fish) among the Chinese at the Great Lake of Cambodia. According to a student of mine, Mr. C. Vidtayanon, this name is also used for the fish in the vicinity of Ang Thong Province, Thailand.

The appearance of Pla ma in freshwater habitats of Thailand, under whatever scientific (Table 1) or vernacular name is peculiar in that it is so far the only freshwater sciaenid species that may be accepted without further evidence. Likewise, its absence from any list may be taken as evidence that it was not found. Lacking evidence to the contrary, however, the freshwater drumfish should now all be identified as *Boesemania microlepis* (Bleeker) and certainly not under the specific epithets *soldado* or *dussumieri,* which are marine. The record of Pla ma as high up from Chao Phraya River to the Sirikit Reservoir on the Nan River by WEONGARM (1973), and WEONGARM & CHANTARASKA (1974) are very interesting and comparable to the findings of the species in Mekong River at exactly the same latitude (Fig. 4) The Nan is the only river in Thailand among five that flow from the north that contains the habitat of Pla ma.

In comparison with other sciaenids of the Indo-Pacific region, *B. microlepis* could be defined as a primary freshwater species. It is possibly very sensitive to polluted water, like the other euryhaline fishes mentioned earlier. Its extinction from many freshwater habitats, especially in the lower courses of the rivers, is foreseen from its gradual disappearance from the tidal influent area of the Tachin River since 1980.

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