

New data of the freshwater fish genera *Laubuca* Bleeker, 1860 (Cypriniformes Cyprinidae) and *Phenacostethus* Myers, 1928 (Atheriniformes Phallostethidae) in Thailand

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ABSTRACT

In the present paper are reported, for Thailand, additional records of the cyprinid fish *Laubuca siamensis* Fowler, 1939 and priapium fish *Phenacostethus smithi* Myers, 1928 respectively from Mekong Basin, Meklong Basin, Southeast Basin and from upstream of Bangpakong Basin and Yom Basin. Description and distribution data of the two freshwater fishes are also provided.

KEY WORDS

Laubuca; *Phenacostethus*; Cyprinidae; Phallostethidae; Thailand.

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INTRODUCTION

Freshwater fishes of the genera *Laubuca* Bleeker, 1860 and *Phenacostethus* Myers, 1928 are poorly known in Thailand.

Currently, for *Laubuca* genus two valid species have been recorded in Thailand, namely *L. caeruleostigmata* and *L. laubuca* (Smith, 1931; 1945; Bănărescu, 1971).

The cyprinid fish *Laubuca siamensis* was described by Fowler (1939) and the distribution of this species is known only in waterfall at Trang Province, peninsular Thailand.

In Thailand, *Laubuca* species taxonomic status is still unclear, especially as far as concerns *L. laubuca*: in 1971, *L. siamensis* was reported as a junior synonym of *Chela laubuca* by Bănărescu (1971) and in 2009, the genus *Chela* Hamilton, 1822 in Thailand was considered a junior synonym of genus *Laubuca* based on a molecular study of phylogenetic interrelationships (Fang et al., 2009).

Phenacostethus are small priapium fishes, found in large rivers and river estuaries in Southeastern Asia.

The genus is separated into three valid species, namely *P. trewavasae* Parenti, 1986 from Sarawak, Malaysia, *P. posthon* Roberts, 1971 from peninsular Thailand (Satul Province, Pungah Province), Malaysia and Sumatra, Indonesia and *P. smithi* Myers 1928 widely distributed: Mekong Basin (Thailand and Cambodia); Chantaburi River, Southeast Basin; Lower Chaophaya Basin (Bangkok); Malay Peninsula, Sarawak, Borneo, Malaysia (Myers, 1928; Roberts, 1971; Parenti, 1986; Rainboth, 1996; Parenti & Lim, 2005).

In the present paper, the authors re-examine all specimens of the cyprinid fishes *Laubuca* stored in Inland Fisheries Resources Research and Development Institute, Department of Fisheries, Thailand [NIFI]. The authors found that the specimens named as *L. laubuca* from Thailand are clearly different from the original description of Hamilton

(1822) of *L. laubuca* by the combination of the following characters: lateral line scales, body depth, number of anal fin rays, pelvic fin length, pectoral fin length and absence of tubercles on lower jaw. The authors suggest the valid name of these specimens to be *L. siamensis* Fowler, 1939. In addition, the authors report additional records on the distribution of *L. siamensis* in Mekong Basin, Meklong Basin and Southeast Basin, Thailand.

As far as concerns the project at Yom River and upstream of Bangpakong Basin, Kabin Buri District, Prachin Buri Province and Nakhon Nayok Province, Central Thailand, we found many specimens of *P. smithi* in both areas, an additional record of this species in Thailand.

ACRONYMS. Standard length (SL); Head length (HL).

RESULTS

Order Cypriniformes Bleeker, 1859
Family Cyprinidae Cuvier, 1817

Laubuca siamensis Fowler, 1939

Chela laubuca. Smith, 1945: Peninsular Thailand); Sontirat et al., 2006: Southeast Basin, Thailand.

EXAMINED MATERIAL. NIFI 0079, 2 specimens, Aun River, Sakon Nakhon Province, Northeast Thailand, I.1967, legit Sopa Trirat. NIFI 1227, 1 specimen, Klong Sang, Chav Raan Reservoir, Surat Thani Province, South Thailand, IV.1983, legit Karnasuta, J. NIFI 1968, 1 specimen, Tapi River Basin, Phrasaeng Suratthani Province, South Thailand, IV.1985, legit Sonkphan, L. (Fig. 1). NIFI 1969, 4 specimens, same data of NIFI 1968. NIFI 2527, 2 specimens, Tanow Sri River, Sune Pung District, Ratchaburi Province, West Thailand, XII.1993, legit Chavalit Vidthayanon (Fig. 2). NIFI 2966, 4 specimens, Klong Phraya W.S. Krabi Province, South Thailand, 1970, legit J.N.

DESCRIPTION. *L. siamensis* is distinguished from other species of *Laubuca* genus by the combination of the following characters: lateral line scales complete, with 31-33 + 2 scales; transverse line scales on body with 6-7/ 1 / 2-4½ scales; body depth is 28.6-33.0%SL. Pectoral fin is short not extending to the anus; anal fin with 3 unbranched

rays and 18½ - 21½ branched rays; pelvic fin is long (93.8-136.6%HL) reaching beyond the anus; pectoral fin length is 34.6-39.4%SL; a clearly black blotch above the pectoral fin base; thin black longitudinal stripe along the body; caudal peduncle with clearly dark blotch; lower jaw smooth, no tubercles on skin.

Particularly, *L. siamensis* is compressed, body depth is 28.6-33.0%SL. Body width is 9.6-13.2%SL. Scales in lateral series are medium to large, lateral line scales complete, with 31-33 + 2 scales, transverse line scales on body with 6-7/ 1 / 2- 4½ scales and 16-18 predorsal scales. Head length is 21.2-26.8%SL. Eye is large, eye diameter is 25.5-37.9%HL (6.5-8.6%SL). Post orbital length is 39.0-43.8 %HL (8.6-10.1%SL), snout length is short, 25.9-31.9%HL (6.0-7.1 %SL) and interorbital width is 46.9-50.4 % HL (10.9-11.8 % SL), shorter than postorbital width (48.3-54.9 %HL or 12.0-12.5 %SL). Dorsal fin origin coincides with posterior anal fin origin, predorsal fin length is 62.8-71.8%SL, prepectoral fin length is 25.4-30.6 %SL, prepelvic fin length is 43.0-46.5 %SL and preanal fin length is 64.1-68.9 %SL.

Caudal peduncle depth is 9.2-10.9 %SL; pectoral fin is long but not reaching beyond the anus, the pectoral fin length is 34.6-39.4%SL showing 11-12 branched fin rays. Pelvic fin is long reaching beyond the anus, the pelvic fin length is 93.8-136.6%HL or 20.8-36.6%SL with 5 branched fin rays. Anal fin base is longer than dorsal fin base, the anal fin base length is 26.0-28.5%SL, dorsal fin with 3 unbranched rays and 8 branched rays and anal fin with 3 unbranched rays and 18½-21½ branched rays. The dorsal fin base length is 10.5-14.0 %SL.

DISTRIBUTION. This species is distributed in Mekong Basin, Meklong Basin, Southeast Basin and peninsular Thailand.

COMPARATIVE NOTES. Other examined material. *L. caeruleostigmata*: NIFI 0041, 1 specimen, Pong Klong Nong Moe, Ayuttaya Province, Central Thailand, XII.1966, legit Theachareon, p. NIFI 2602, 23 specimens, Pasak, Lopburi Province, Central Thailand, I.1994, legit Chukajom T. (Fig. 3).

L. siamensis was described by Fowler (1931) from waterfall at Trang Province, peninsular Thailand, and “*siamensis*” is referring to Siam, the old name of Thailand, the type locality of this species; this species has been considered until now a junior



Figure 1. *Laubuca siamensis*, 48 mm SL, Tapi River Basin, Phrasaeng, Suratthani Province, South Thailand. Figure 2. *L. siamensis*, 51 mm SL, NIFI 2527, Tanow Sri River, Ratchaburi Province, West Thailand. Figure 3. *L. caeruleostigmata*, 61 mm SL, NIFI 2602, Pasak River, Lopburi Province, Central Thailand. Figures 4, 5. *Phenacostethus smithi*, 15-17 mm SL, male (above) and female (below), NIFI 4545, Yom Basin, VIII.2011, Siriwan Suksri leg., Thailand.

synonym of *Chela laubuca* (Bănărescu, 1971) and genus *Chela* in Thailand has been considered a junior synonym of *Laubuca* (Fang et al., 2009).

The current status of *L. siamensis* is *L. laubuca*. *L. laubuca* was described by Hamilton (1822) from Northern parts of Bengal (NorthEast India; Bangladesh). From a comparison with documents and specimens from Thailand, we strongly believe that, in Thailand, the valid name of *L. laubuca* is *L. siamensis*.

L. siamensis from Thailand is distinguished from the original description of Hamilton (1822) and the report of Günther (1868), who re-examined the *C. laubuca* specimens of Dr. Bleeker's Collection from Bengal, by the combination of the following characters: lateral line scales are 31-33 + 2 (in *L. laubuca* they are 37), body depth is 3.00-3.50 times greater than SL (in *L. laubuca* is 2.75-2.80 times); transverse line scales is 6-7/ 1 / 2-4½ scales (in *L. laubuca* is 7½/1/4); pelvic fin shows 5 rays (in *L. laubuca* 7); pectoral fin is short not extending to the anus (in *L. laubuca* it reaches the anus); pelvic fin is long extending beyond the anus (in *L. laubuca* is shorter, not reaching beyond the anus); first ray of pelvic fin appears like a filament (in *L. lau-*

buca it is undivided from the other branched rays); a thin black longitudinal stripe along the body and a clearly dark blotch on caudal peduncle (which are absent in *L. laubuca*).

L. siamensis is clearly different from *L. caeruleostigmata* of Thailand by many characters such as: body depth is 3.0-3.5 times greater than SL (in *L. caeruleostigmata* is 2.25 times), lateral line scales includes 31-33 scales (in *L. caeruleostigmata* 34-35). *L. siamensis* has one black blotch above the pectoral fin base, a thin black longitudinal stripe along the body and a clearly dark blotch on caudal peduncle (*L. caeruleostigmata* shows 4-5 dark vertical stripes above pectoral fin base on both sides of the body) (Smith, 1931; Smith, 1945).

Order Atheriniformes Rosen, 1966

Family Phallostethidae Regan, 1913

Phenacostethus smithi Myers 1928

EXAMINED MATERIAL. NIFI 4545, 8 specimens, Yom Basin, Pakpot Subdistrict, Moung District, Su-



Figure 6. Collection area, floodplain of Yom Basin in Sukhothai Province, Thailand.

khothai Province, Thailand, 25.VIII.2011, legit Siriwan Suksri (Figs. 4-5). NIFI 4548, 3 specimens, upstream of Bangpakong Basin, Kabin Buri District, Prachin Buri Province, Thailand, 5.II.2011, legit Sitthi Kulabtong.

DESCRIPTION. *P. smithi* has a slender and cylindrical body. Body depth is 16.5-19.9%SL. Head is short, head length is 18.2-19.1 %SL. Eye is big, eye diameter is 33.5-37.6 %HL. Post orbital length is 33.5-37.7%HL, snout short (23.5-24.3 %HL) and mouth is upward. First dorsal fin is very small, but second dorsal fin is large. Pre-second dorsal fin length is 70.6-70.7 %SL and the second dorsal shows 6-7 rays.

Dorsal fin origin is clearly posterior the anal fin origin. Pre-anal fin length is 52.3-52.9%SL and the anal fin comprises 14-17 rays. Second dorsal fin base is shorter (12.4-14.4%SL) than anal fin base (23.5-25.1%SL). The body is translucent, with tiny scales. Head with membranous dome. Males have a priapium (reproductive organ) below the head at the base of pectoral fin.

The priapium of *P. smithi* is ruffled and hence distinguished from that (i.e. smooth) of other *Phenacostethus* occurring in Thailand.

VARIABILITY. Priapium, the reproductive organ is found in males only.

BIOLOGY AND DISTRIBUTION. *Phenacostethus smithi* were found in several habitats of Yom Basin (Fig. 6); floodplain canal and mainstream, characterized by slow and turbid waters and muddy bottom. In each habitat, submerged or marginal plants, such as green algae, papyrus and grass, were found. Specimens from upstream of Bangpakong Basin were found in a small stream nearly the mountain, with shallow, turbid and slow waters.

This species is known from Yom Basin, Bangpakong Basin, Lower Chaophaya Basin and Southeast Basin in Thailand; Mekong Basin in Thailand and Cambodia; Malay Peninsula, Sarawak, Borneo in Malaysia.

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