



***Balitora lancangjiangensis* (Zheng, 1980)**

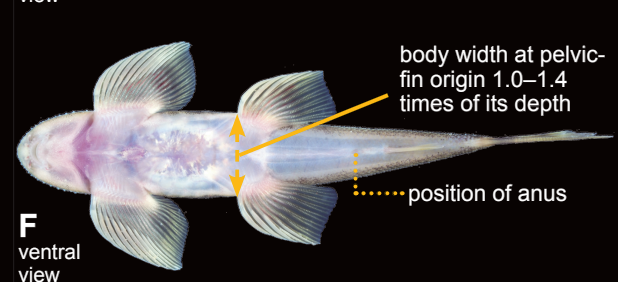
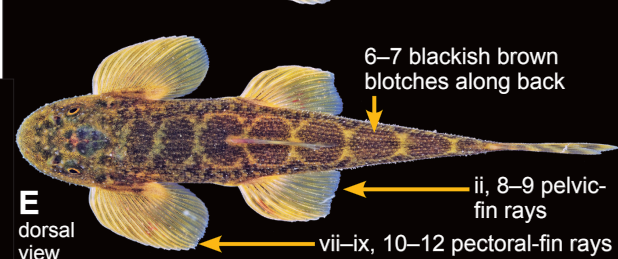
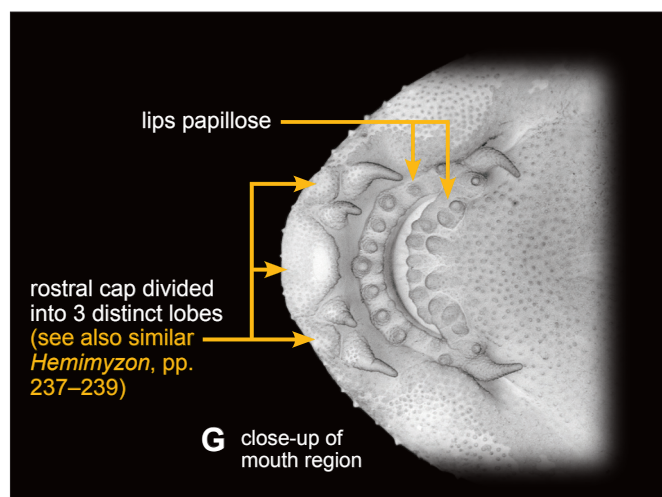
Family: Balitoridae (FC: 107)

Size: 7.1 cm SL (Kottelat, 1998: 95).

Distribution: Mekong Basin in China (Yunnan), Laos, and Thailand; Red River Basin in Yunnan.

Notes: A medium-sized, moderately flattened species of balitorine loaches, found in clear, fast-flowing rivers with rocks and gravel bottoms.

Balitora is similar to *Pseudohomaloptera* (p. 233) in general appearance, but differs in having a rostral cap which is divided into 3 distinct lobes (vs. not in *Pseudohomaloptera*) and 1–2 rows of papillae on both lips (vs. none). This is one of 2 species of *Balitora* known from the Indochinese Mekong, and differs from the other one, *Balitora* cf. *annamitica* (*sensu* Kottelat, 1998, 2001a), by having deeper body; namely, the depths at the pelvic-fin origin are 1.0–1.4 and 1.4–1.6 times the width in *B. lancangjiangensis* and *B. cf. annamitica*, respectively (Kottelat, 1998: 60, 2001a: 95). Rainboth (1996b: 123) indicated the possible occurrence of another congener *B. meridionalis* from the Mekong, but it has not yet been recorded. See also "Notes" of *Hemimyzon pengi* (p. 237).



A) A fish in a net just after collected (one of NUOL-P specimen, photo: KS); B and E) NUOL-P 3787 (photo: TP); C) NUOL-P 4115 (photo: TP); F) IFRED-P 3942 (photo: TP); G) NUOL-P 4317 (photo: KS)

BALITORIDAE

Homaloptera confuzona Kottelat, 2000

Family: Balitoridae (FC: 107)

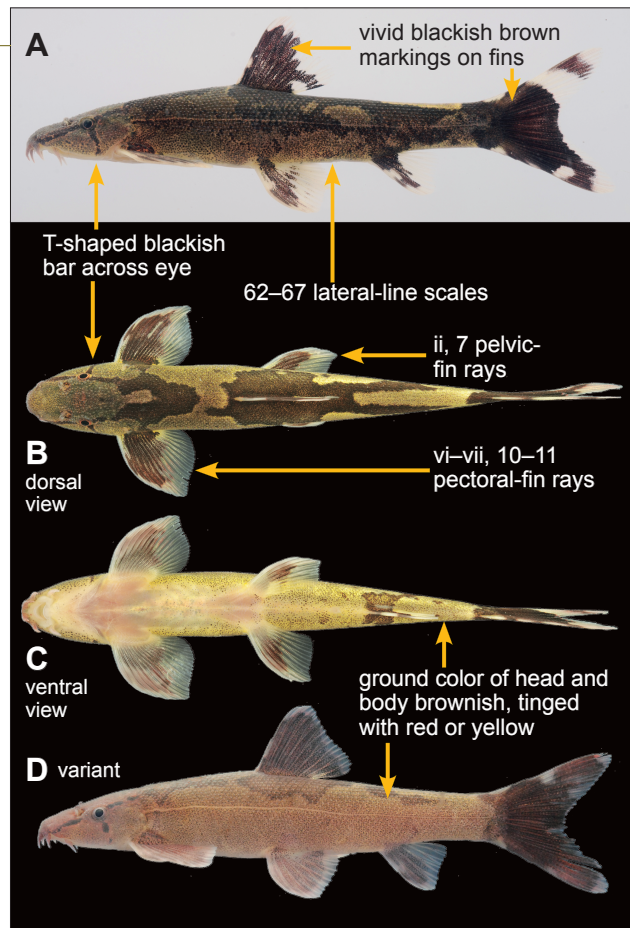
Size: 6.8 cm SL (Kottelat, 2001a: 97).

Distribution: Mekong Basin in Laos, Thailand, and Cambodia.

Notes: A medium-sized, slender balitorid loach with a characteristic coloration, which is found in swift montane streams.

Generic assignment of the balitorids (*sensu* Nelson, 2006) herein follows Kottelat (2012, 2013c), which seems to follow the earlier Kottelat (1998b). In Kottelat's recognition, *Homaloptera* has a unique coloration (*i.e.*, a reddish tint and characteristic dark markings on the head and fins), a slightly compressed body, 56–65 (to 67 in later described *H. confuzona*), and the dorsal-fin origin situated in advance of the pelvic-fin origin (Kottelat, 1998b: 270). *Homaloptera confuzona* is the only species of the genus known from the Mekong, and is readily distinguished from the other Mekong balitorids by the coloration (see photographs in right).

Homaloptera is similar to *Balitoropsis* (below), *Homalopteroides* (p. 235), and *Pseudohomaloptera* (next page) in having a combination of characters including smooth (non-papillated) lips, more than 2 simple rays of the pectoral fin, and 2 simple pelvic-fin rays. These 4 genera have been lumped under a single genus *Homaloptera* in many of scientific articles/books (*e.g.*, Alfred, 1969; Rainboth, 1996b; Kottelat, 2001a) before Kottelat (1998b, 2012, 2013c). On the other Mekong species assigned to *Homaloptera* in previous literatures, see "Notes" of species of *Balitoropsis*, *Homalopteroides*, and *Pseudohomaloptera*.



A) IFREDI-P 3373 (photo: PT); B and C) IFREDI-P 3372 (photo: PT); D) IFREDI-P 3071 (photo: PT)

Balitoropsis zollingeri (Bleeker, 1853)

Family: Balitoridae (FC: 107)

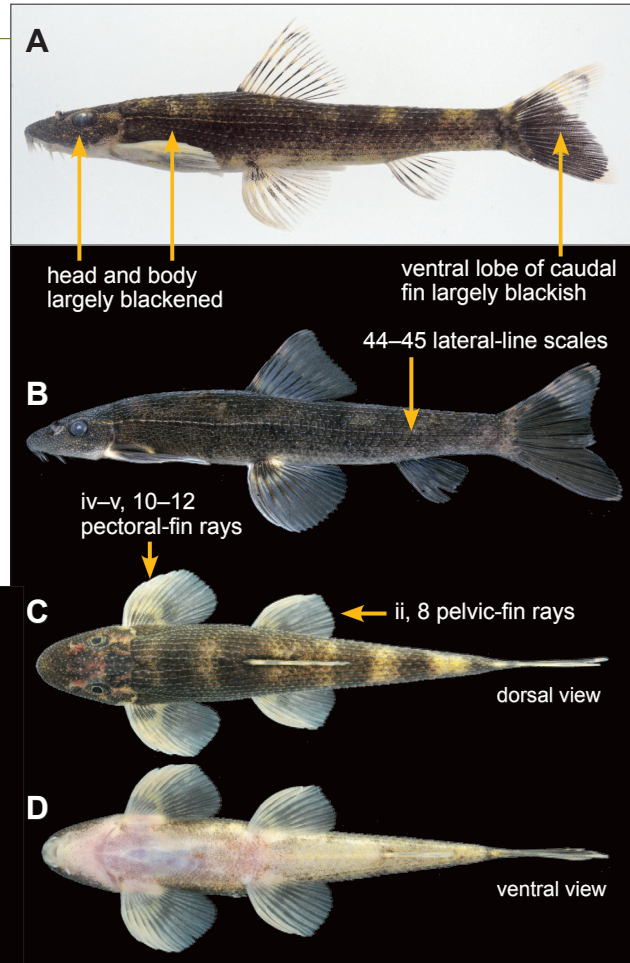
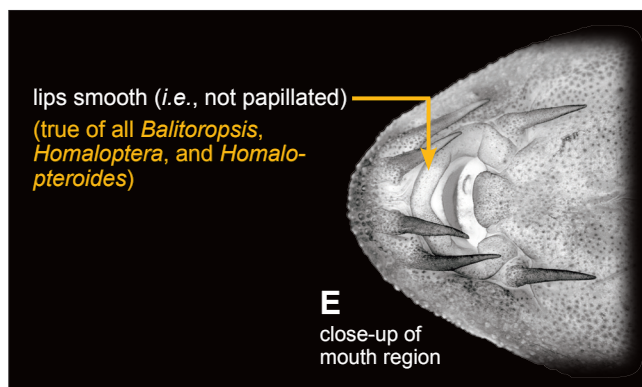
Size: 8.0 cm SL (Kottelat, 2001a: 97, as *Homaloptera zollingeri*).

Distribution: Mekong Basin in southern Laos and Cambodia; Chao Phraya Basin, Malay Peninsula, Sumatra, and Borneo.

Notes: A slender, relatively large-sized species of balitorine loaches, found in swift streams with pebbles and gravel bottom.

Balitoropsis resembles *Homaloptera* in general appearance, and it has been confused with it in many of the earlier literatures (see "Notes" of *Homaloptera confuzona*, above).

Its characteristic blackened coloration readily distinguishes *Balitoropsis zollingeri* from the other Mekong balitorids. Its large black blotch on the caudal fin is similar to that of *Homaloptera confuzona* (above), but *B. zollingeri* has no large blackish markings on the other fins (*vs.* present in *H. confuzona*), no reddish tint on the head and body (*vs.* present), and much fewer lateral-line scales (44–45 *vs.* 62–67).



A, C, and D) IFREDI-P 2933 (photo: PT); B and E) NUOL-P 4875 [photo: TP (B) & KS (E)]



***Pseudohomaloptera leonardi* (Hora, 1941)**

Family: Balitoridae (FC: 107)

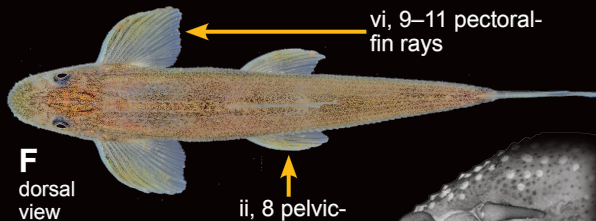
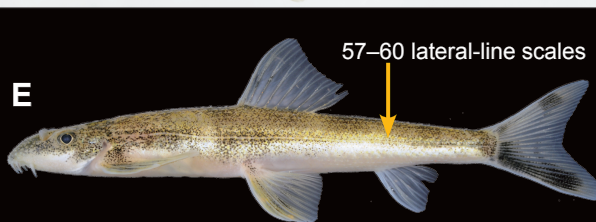
Size: 5.0 cm SL (Alfred, 1969: 221, as *Homaloptera leonardi*).

Distribution: Mekong Basin in southern Laos, Thailand, and Cambodia; Malay Peninsula.

Notes: A slender, medium-sized balitorine loach, commonly found in the rapids of rivers and streams with rocks and boulders. In our field surveys, juveniles and small young of *Balitoropsis leonardi* were frequently collected from shallow waters around the bank of slow-flowing rivers.

Pseudohomaloptera leonardi was known (as *Homaloptera leonardi*) only from the Malay Peninsula (Silas, 1953: 202; Alfred, 1969: 221; Kottelat, 1989a: 12), until Rainboth (1996b: 124) recorded it from the Cambodian Mekong. Within the *Homaloptera*-like species in the Indochinese Mekong, its slender body and short pectoral fin resemble *Homaloptera confuzona* and *Balitoropsis zollingeri* (left page), but the species is readily distinguished by its coloration; namely, *P. leonardi* has no distinct eye bars (vs. a T-shaped blackish bar across the eye in *H. confuzona*), and lacks the broad, vivid blackish area on the caudal fin (vs. present in *H. confuzona* and *B. zollingeri*). Also, *H. confuzona* has 62–67 lateral-line scales (vs. 57–60 in *P. leonardi*), and *B. zollingeri* has 4–5 simple anterior pectoral-fin rays (vs. 6). The other 2 congeners from the Yunnanese Mekong, viz. *P. yunnanensis* and *P. vulgaris*, are also similar in general appearance, but have 7 simple pectoral-fin rays (vs. 6 in *P. leonardi*); furthermore, *P. yunnanensis* has 12 branched pectoral-fin rays (vs. 9–11 in *P. leonardi*) and *P. vulgaris* has 48–50 lateral-line scales (vs. 57–60) (Kottelat & Chu, 1988b, as species of *Homaloptera*; Kottelat, 2001a, as species of *Homaloptera*). See also "Notes" of *H. confuzona* and *B. zollingeri* to distinguish from the other similar genera in this region.

Kottelat (1998: 64, fig. 10) recorded *Pseudohomaloptera yunnanensis* (as *Homaloptera yunnanensis*) from Xe Bangfai in Khammouan of Laos. Nevertheless he later noted that the species is distributed in the "Mekong Basin in Yunnan" (Kottelat, 2001a: 97). Although we did not examine his specimen(s), Kottelat's (1998) species is possibly conspecific with *P. leonardi* shown here; actually *P. leonardi* is common in the next large tributary, Xe Banghiang in Savannakhet, Laos.



A) A fish in a net just after collected, not preserved (Kratie, Cambodia, photo: KS); B) NUOL-P 2466 (photo: VP); C) IFREDI-P 3099 (photo: VP); D) NUOL-P 1758 (photo: VP); E and F) NUOL-P 1759 (photo: KS)

A freshwater stream with rocky and gravel bottom, where several ballitorid loaches of the genera *Balitoropsis*, *Homalopteroides*, *Nemacheilus*, and *Schistura* were collected (Kratie, Cambodia, photo: KS)



Homalopteroides tweediei (Herre, 1941)

Family: Balitoridae (FC: 107)

Size: 3.0 cm SL (Kottelat, 2001a: 97, as *Homaloptera tweediei*).

Distribution: Mekong Basin in southern Laos, Thailand, and Cambodia; Malay Peninsula and Borneo.

Notes: A short-bodied, relatively small-sized species of balitorine loaches, found in the rapids of rivers and streams with rocks and boulders.

Within the Mekong balitorids, *Homalopteroides* shares smooth (non-papillated) lips, more than 2 simple rays of the pectoral fin and 2 simple pelvic-fin rays with *Balitoropsis*, *Homaloptera*, and *Pseudohomaloptera* (pp. 232–233), but has a shortened body, a pectoral fin extending beyond the pelvic-fin origin, and a pelvic-fin origin situated before the dorsal-fin origin.

Two similar-looking species of *Homalopteroides*, viz., *H. tweediei* and *H. smithi*, are currently known from the Mekong; the former is distinguished from the latter by having a slightly fewer lateral-line scales and pectoral-fin rays. Kottelat (2001a: 97) noted that, in the Mekong Basin, *H. tweediei* is distributed "downriver of Khone Falls in Laos and Cambodia," whereas *H. smithi* is known from "Laos, Thailand and Cambodia." See also "Notes" of *H. smithi*, below.

Homalopteroides smithi (Hora, 1932)

Family: Balitoridae (FC: 107)

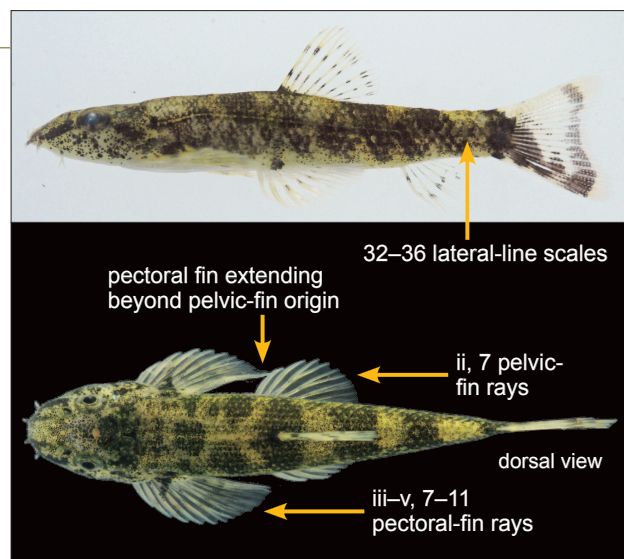
Size: 5.5 cm SL (Kottelat, 2001a: 97, as *Homaloptera smithi*).

Distribution: Mekong Basin in Laos, Thailand, and Cambodia; Chao Phraya Basin and Malay Peninsula.

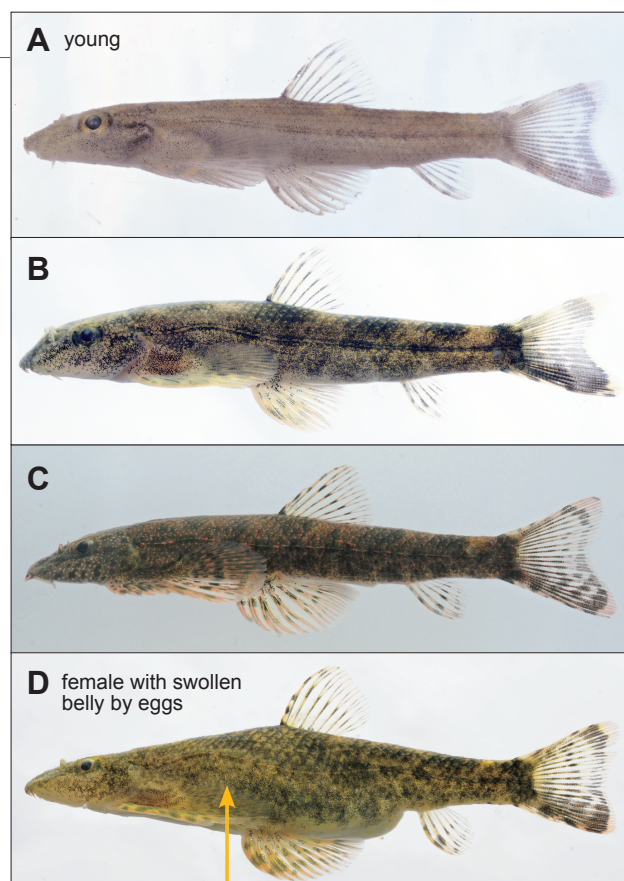
Notes: A short-bodied, relatively small-sized species of balitorine loaches, found in the rapids of rivers and streams with rocks and boulders; juvenile and small young are collected from shallow coastal areas of slow-flowing rivers.

Homalopteroides smithi is superficially similar to the other Mekong congener *H. tweediei* (above), and can be distinguished by the counts of scales and fin rays.

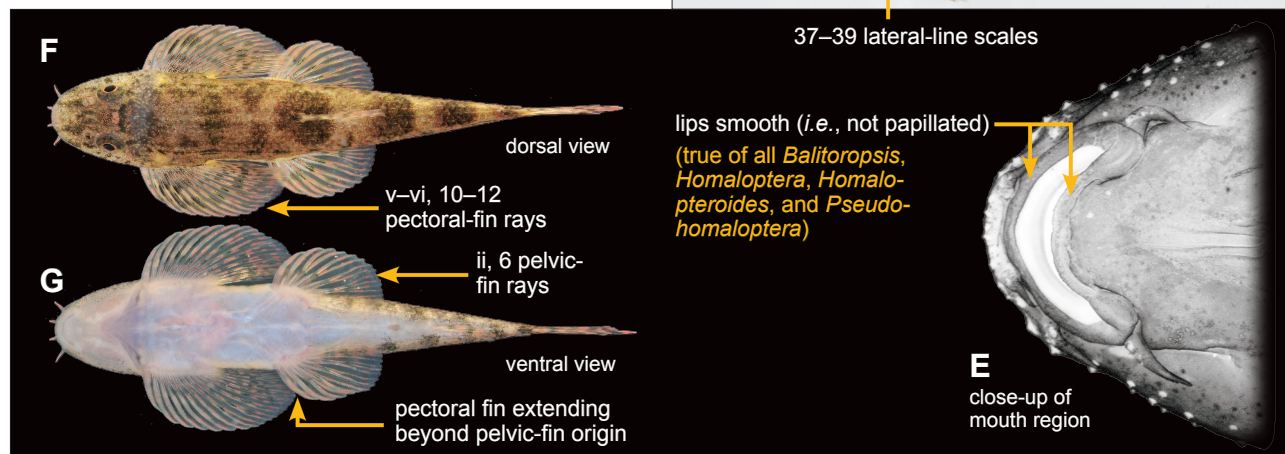
Rainboth (1996b: 124) included additional 2 species of *Homalopteroides* (as species of *Homaloptera*) in his book of fishes of the Cambodian Mekong: *H. indochinensis* and *H. maxinae*; and, in addition to these 2 species, Rainboth *et al.* (2012: 67) included *H. lineata* (as species of *Homaloptera*) in their list of fishes of the "Greater Mekong Ecosystem." Kottelat (2012, 2013c), however, regarded these 3 species (viz., *H. indochinensis*, *H. lineata*, and *H. maxinae*) as possible synonyms of *H. smithi*, a very common species in the Mekong. We here follow Kottelat's decision.



IFREDI-P 2931 (photo: PT)



A) NUOL-P 1365 (photo: VP); B) NUOL-P 1886 (photo: VP); C, F and G) IFREDI-P 3044 (photo: PT); D) NUOL-P 1882 (photo: VP); E) one of NUOL-P specimen (photo: KS)







Hemimyzon pengi (Huang, 1982)

Family: Balitoridae (FC: 107)

Size: 5.9 cm SL (Kottelat, 2001a: 97).

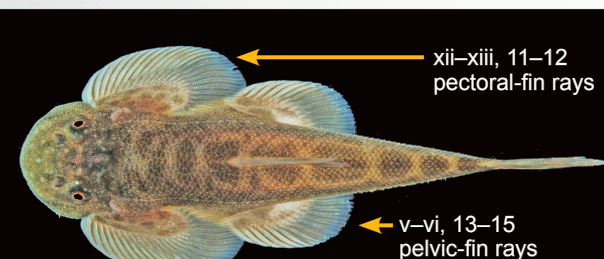
Distribution: Mekong Basin in China and northern Laos.

Notes: A flattened, medium-sized species of balitorine loaches, found in the rapids of clear montane streams with pebbles and boulders.

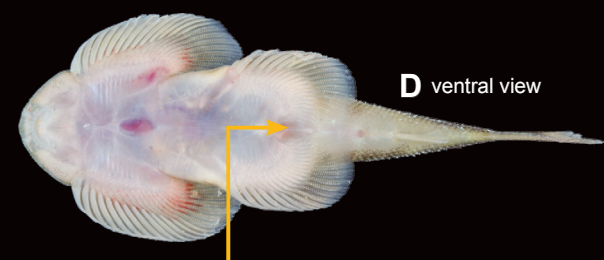
Hemimyzon is a typical balitorine genus (*sensu* Nelson, 2006) with a flattened head, body, and paired fins. Its general appearance is somewhat similar to *Sewellia* (p. 239) and *Homalopteroides* (p. 235) amongst the Mekong balitorids, but *Hemimyzon* has 3–8 simple anterior pelvic-fin rays (vs. 1 and 2 in *Sewellia* and *Homalopteroides*, respectively), 7–15 simple anterior pectoral-fin rays (vs. 1 and 3–8 in *Sewellia* and *Homalopteroides*, respectively), and papillated upper lips (vs. upper lip with no distinct papillae in both *Sewellia* and *Homalopteroides*). The morphological details around the mouth in *Hemimyzon* are similar to those of *Balitora* (p. 231), and the limits of these genera have been controversial by some researchers. On the generic concept of *Hemimyzon*, Kottelat & Chu (1988b) and Kottelat (2000, 2001a) is followed here; namely, *Balitora* has 2 simple anterior pectoral-fin rays, whereas there are 3 or more in *Hemimyzon*.

Sixteen species of *Hemimyzon* are known from China, Taiwan, and Indochina, and, of these, 6 have been recorded from the Mekong (Kottelat, 1998, 2000, 2001a; Freyhof & Herder, 2002a), viz. *H. confluens* (p. 239), *H. ecdyonuroides* (next page), *H. elongata* (not shown in this book), *H. khonensis* (not shown in this book), *H. papilio* (next page), and *H. pengi*. Within these Mekong species, *Hemimyzon pengi* resembles *H. confluens* by having very short distance between the bases of the last pelvic-fin rays, but the pelvic fins are clearly separated from one another (vs. entirely fused posteriorly in *H. confluens*).

Kottelat (2009: 21) regarded that *Dienbienia namnuaensis*, described from Nậm Núa (upper reaches of Nam Ou Basin, a tributary of the Mekong) in Điện Biên of northern Vietnam by Nguyễn & Nguyễn (2002: 9, fig. 1), is a junior synonym of *Hemimyzon pengi*.



C dorsal view

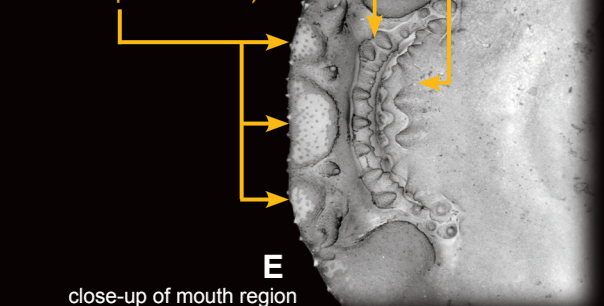


D ventral view

distance between bases of last pelvic-fin rays 8.7–13.3% of body width at pelvic-fin origin

rostral cap divided into 3 distinct lobes (true of all *Hemimyzon*, and not repeated below)

lips papillose (true of all *Hemimyzon*, and not repeated below)



E close-up of mouth region

A) NUOL-P 3793 (just after captured, photo: KS); B) NUOL-P 3782 (photo: TP); C) NUOL-P 3783 (photo: TP); D) NUOL-P 3943 (photo: TP); E) NUOL-P 4670 (photo: KS)

Hemimyzon ecdyonuroides Freyhof & Herder, 2002

Family: Balitoridae (FC: 107)

Size: 4.21 cm SL (Freyhof & Herder, 2002a: 55).

Distribution: Mekong Basin in southern Laos and Vietnam.

Notes: A small-sized species of *Hemimyzon*, found in the rapids with rocky and sandy bottoms. Although it was previously known only from Kontum in Vietnam, the photographed specimen shown here was collected from Champasak, Laos.

Of 6 congeners recorded from the Mekong (see "Notes" of *H. pengi*, p. 237), this species differs from *H. confluens* by having separated pelvic fins (vs. confluent in *H. confluens*), 6–7 simple and 10–13 branched pelvic-fin rays (vs. 5 simple and 13–14 branched pelvic-fin rays), and 59–64 lateral-line scales (vs. 58–60). It is differentiated from *H. elongata* and *H. papilio* by having 13–14 simple pectoral-fin rays (vs. 10 and 10–12 in *H. elongata* and *H. papilio*, respectively), 6–7 simple pelvic-fin rays (vs. 3 and 3–4, respectively), and a slightly narrower interspace between the bases of the innermost pelvic-fin rays (25.0–37.0% of the body width at pelvic-fin origin vs. ca. 55.5% and 41.7–45.5%, respectively). It differs from *H. khonensis* by having more lateral-line scales (59–64 vs. 54 in *H. khonensis*); and from *H. pengi* by having wider interspace between the bases of the innermost pelvic rays (25.0–37.0% of body width at the pelvic-fin origin vs. 8.7–13.3% in *H. pengi*).

Hemimyzon papilio Kottelat, 1998

Family: Balitoridae (FC: 107)

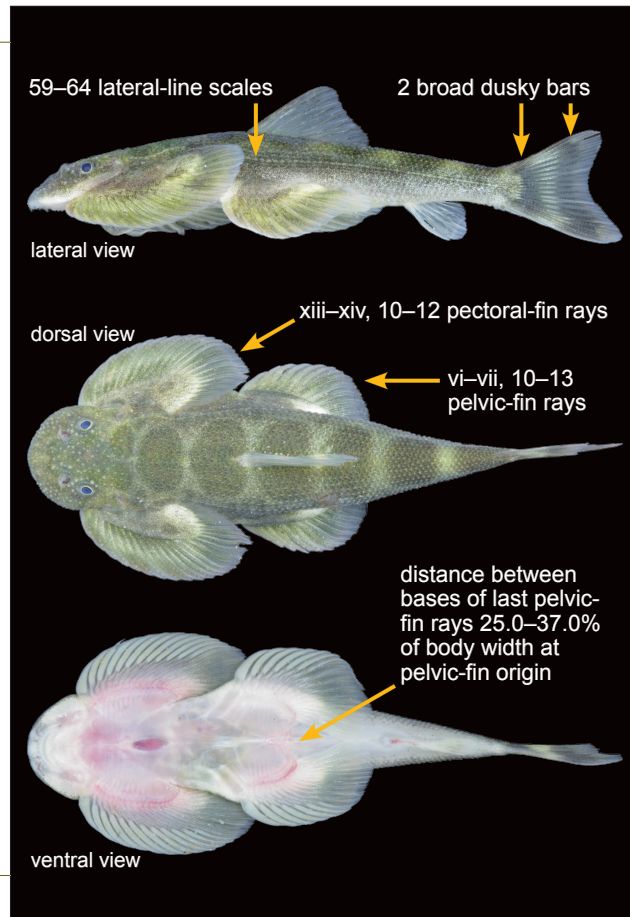
Size: 5.5 cm SL (Kottelat, 2001a: 97).

Distribution: Mekong Basin in southern Laos, Cambodia, and Vietnam.

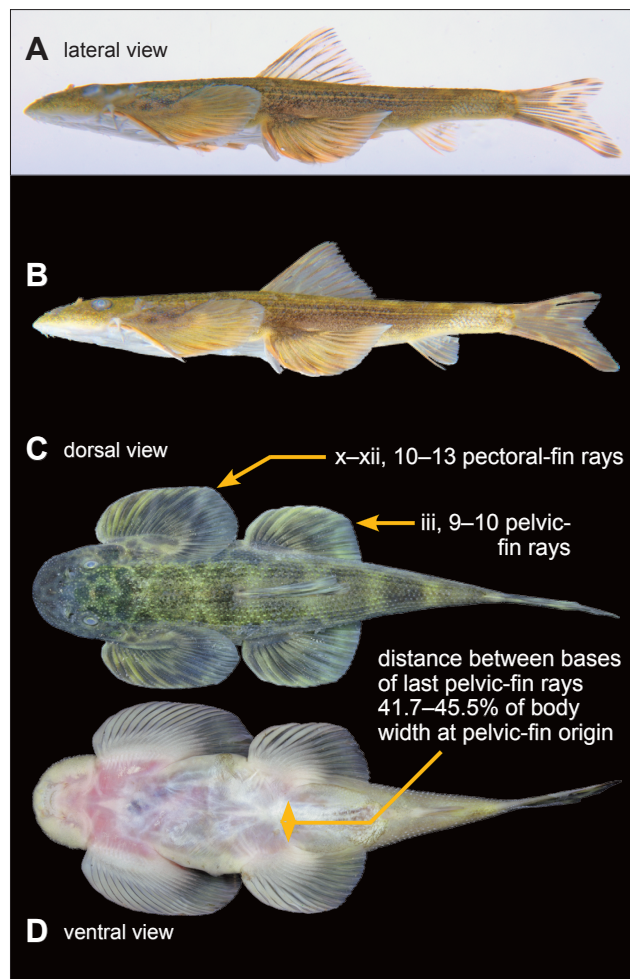
Notes: A medium-sized species of *Hemimyzon*, found in rapids of clear montane streams with pebbles and boulders.

Hemimyzon papilio was described by Kottelat (1998) from Nam Theun Basin (a tributary of the Mekong) of southern Laos, and was subsequently recorded also from Cambodia and Vietnam (Kottelat, 2001a: 97). According to Kottelat (1998: 64), *H. papilio* differs from most similar congener *H. nanensis*, which is known from Chao Phraya Basin, by having the pectoral fin extending beyond the origin of the pelvic fin (vs. not or just reaching the pelvic fin in *H. nanensis*), as well as some differences in shape of the head, proportional measurements, and fin-ray counts. The NUOL specimens of this species from the Mekong Basin in southern Laos, nevertheless, reveals that all of these characters are not useful for differentiating these 2 species, except for the minor difference in the mode of counts of pectoral- and pelvic-fin rays. Namely, in the NUOL specimens, the pectoral fin does not or only barely reaches the pelvic fin, and all proportional measurements concur with those of *H. nanensis*; the shape of the head does not work well for the practical identification. Further analysis is needed to verify the taxonomic status of these 2 allopatric species.

In the Indochinese Mekong, *Hemimyzon papilio* can be distinguished from the other congeners by having wider interspace between the innermost rays of the pelvic fin (41.7–45.5% of body width at the pelvic-fin origin vs. 0.0–37.0% in the other congeners from the Indochinese Mekong) and iii, 9–10 pelvic-fin rays (vs. v–vii, 10–15). Considering these characters, *H. papilio* resembles a congener in the Chinese (Yunnanese) Mekong, *H. elongata*, but has 61–62 lateral-line scales (vs. 75–78 in *H. elongata*) (see Kottelat & Chu, 1988b; Kottelat, 1998).



NUOL-P 4778 (photo: CG)

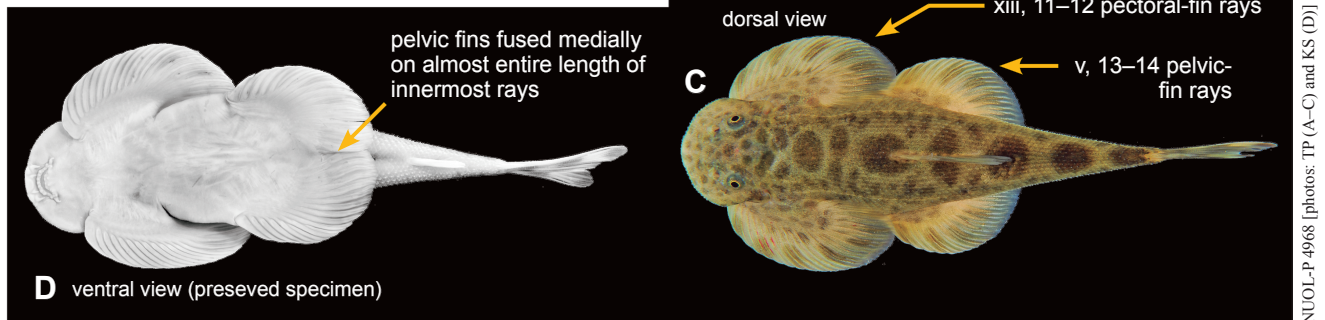


A and B) NUOL-P 2620 (photo: TP); C) NUOL-P 4763 (photo: CG); D) NUOL-P 4764 (photo: CG)

Hemimyzon confluens Kottelat, 2000**Family:** Balitoridae (FC: 107)**Size:** 4.7 cm SL (Kottelat, 2001a: 95).**Distribution:** Mekong Basin in central Laos.

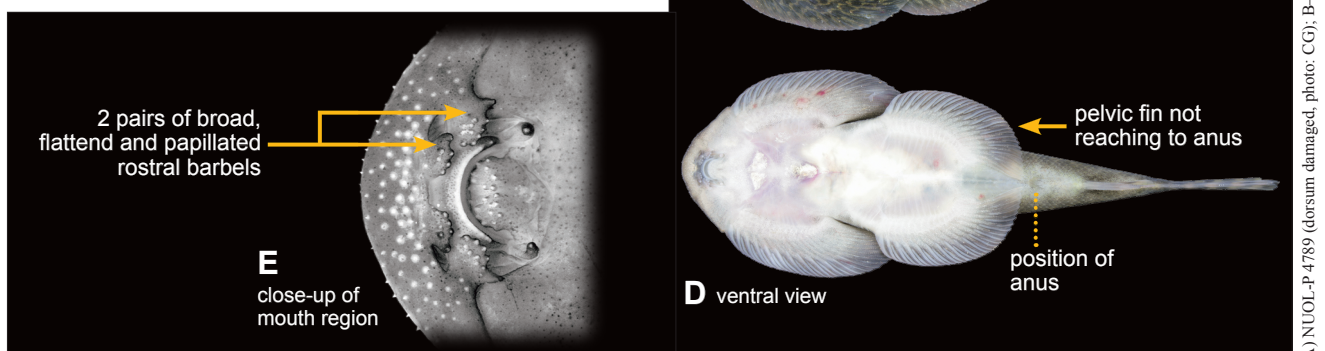
Notes: A relatively small-sized species of *Hemimyzon*, found in the rapids with rocky and sandy bottoms; known only from the upper reaches of Nam Ngum Basin (a tributary of the Mekong), central Laos.

Hemimyzon confluens is unique within the genus by having the continuous pelvic fins, which are fused medially on almost the entire length of the innermost rays (vs. pelvic fins separated or fused only at the base of the innermost rays in the other congeners) (Kottelat, 2000: 52). A similar northern congener *H. pengi* (p. 238) has overlapping counts of scales and fin rays, but *H. pengi* has a narrow but distinct gap between the pelvic fins (its width 8.7–13.3% of the body width at the pelvic-fin origin).

*Sewellia* sp. (cf. *elongata*)**Family:** Balitoridae (FC: 107)**Size:** (not measured).**Distribution:** Boloven Plateau of Laos.

Notes: A flattened, medium-sized species of balitorine loaches, found in rapids of clear montane streams.

Sewellia differs from the other Mekong balitorid genera by having 2 pairs of broad, flattened and papillated rostral barbels. *Sewellia* comprises about 13 species, known only from montane streams in the Indochinese Peninsula (Serov, 1996, Roberts, 1998d; Freyhof & Serov, 2000; Freyhof, 2003; Nguyễn & Nguyễn in Nguyễn, 2005). Following 8 nominal species of *Sewellia* have been recorded from the Mekong, as well as a single undescribed species from Xe Kong in Laos (Kottelat, 2005: 22): *S. analis*, *S. breviventralis*, *S. diardi*, *S. elongata*, *S. media*, *S. patella*, *S. songboensis*, and *S. speciosa*. The species shown here, collected from Pakse of Champasak Province, Laos, differs from all known congeners except for *Sewellia elongata* in that the pelvic fin does not reach the anus. It can be distinguished from *S. elongata* by having fewer lateral-line scales (57–61 vs. 65–70 in *S. elongata*).



NUOL-P 4968 [photos: TP (A–C) and KS (D)]

A) NUOL-P 4789 (dorsum damaged, photo: CG); B–E) NUOL-P 4790 [photo: CG (B–D) and KS (E)]

