

## *Nemacheilus pullus*, a new species of loach from central Laos (Teleostei: Nemacheilidae)

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**Abstract.** *Nemacheilus pullus*, new species, is described from the Nam Ngiep and Nam Xan watersheds, Mekong drainage, in central Laos. It was earlier misidentified as *N. platiceps*. It is distinguished from congeners in having an incomplete lateral line, with 23–57 pores, reaching between verticals of pelvic-fin origin and of anus; anterior nare at tip of a short tube; body plain yellowish grey in life in adults; a conspicuous suborbital flap in males; small tubercles on anterior pectoral-fin rays and on flank. It was found in habitats with moderate flow, usually small streams, on mud to stone bottoms. An informal *platiceps* group is recognised, including *N. platiceps*, *N. cacao* and *N. pullus*.

**Key words.** Mekong, Nam Ngiep, Nam Xan

### INTRODUCTION

Loaches of the family Nemacheilidae typically occur in fast-flowing stretches of small streams and less often in other habitats, such as large rivers and caves. The family presently includes about 790 valid species in 51 genera (pers. obs., updated from Kottelat, 2012, 2013), distributed throughout Eurasia and Ethiopia. Besides, new species and genera are still regularly described (e.g. in Southeast Asia: Bohlen & Šlechtová, 2011a–b, 2013a–b; Ou et al., 2011; Bohlen et al., 2014, 2016; Kottelat, 2017a–h, 2018, 2019, 2021, 2022; Kottelat & Grego, 2020). Among them, the genus *Nemacheilus* presently includes about 36 valid species, all endemic to Southeast Asia (Chao Phraya, Mae Klong, and Mekong drainages, Malay Peninsula, Sumatra, Java and Borneo) (pers. obs., updated from Kottelat, 2012, 2013). Most species are described and figured in Kottelat (1990, 1998, 2000, 2001, 2021) and Freyhof & Serov (2001). They are found mainly in streams and rivers with sand to pebble bottoms, and slow to moderate flow.

The purpose of the present paper is to describe a species from Laos that had earlier been confused with *N. platiceps* Kottelat, 1990.

### MATERIAL AND METHODS

Measurements and counts follow Kottelat (1990) and Kottelat & Freyhof (2007). Last branched dorsal and anal-fin ray articulating on same pterygiophore as the preceding ray is noted as “½”. Frequencies of meristic values are indicated in parentheses, if more than one value is observed; asterisks indicate the condition for the holotype. Where possible, toponymy and spelling follows the 1:100,000 topographic map (Service Géographique d’État, sheets 27, E48-28, E48-39, E48-40, E48-52 (edition 1985); sheet E48-27 (edition 1986)). Abbreviations used: CMK, collection of the author; MHNG, Muséum d’Histoire Naturelle, Genève, Switzerland; and ZRC, Lee Kong Chian Natural History Museum, National University of Singapore, Singapore.

#### *Nemacheilus pullus*, new species

(Figs. 1, 2)

**Holotype.** MHNG 2787.091, male, 41.5 mm SL; Laos: Saysomboune Prov.: Thatom: Nam Ngiep watershed: Houay Hok upstream of confluence with Nam Khai; 316 m asl; 18°55'13"N 103°27'16"E; M. Kottelat et al., 11 Mar 2018.

**Paratypes.** CMK 27518, 6, 37.7–64.1 mm SL; same data as holotype. — CMK 24522, 5, 44.6–62.5 mm SL; Laos: Xiangkhouang Prov.: Thatom: Nam Ngiep drainage: Nam Xong, upstream of Ban Naxong; 321 m asl; 19°03'19"N 103°22'27"E; M. Kottelat et al., 18 Feb 2014. — CMK 24632, 11, 32.7–47.8 mm SL; ZRC 63098, 3, 41.9–44.9 mm SL; Bolikhamsai: Borikhan: Nam Xao downstream of Ban Phounxong [Ban Namxon]; 231 m asl; 18°49'20"N 103°32'21"E; M. Kottelat et al., 20 Feb 2014. — CMK 27566, 13, 43.6–51.9 mm SL; Saysomboune Prov.: Thatom: Nam Pang (a tributary of Nam Ngiep entering it at 19°02'07"N 103°23'48"E) at Ban Phon Home, immediately upstream

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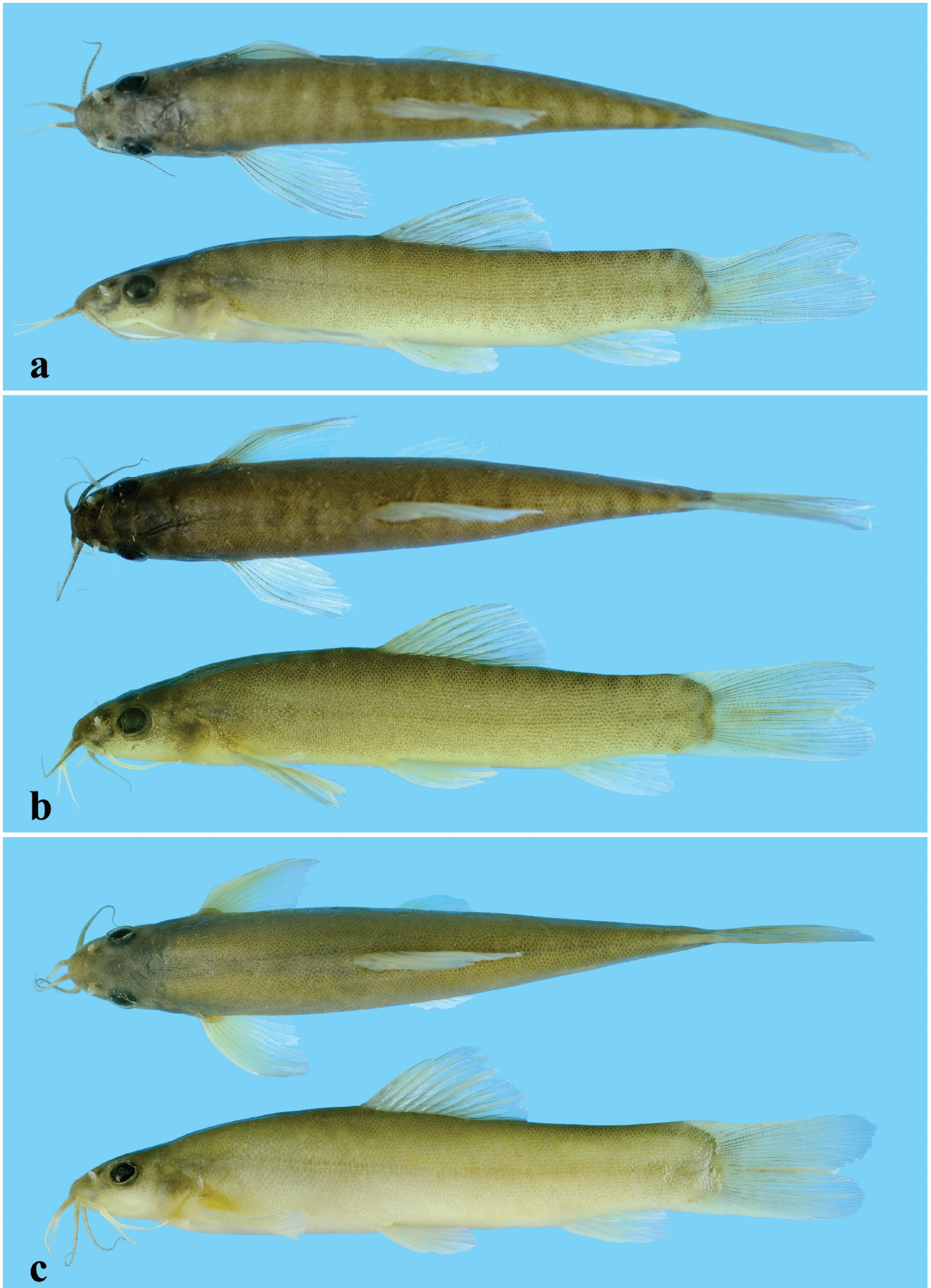


Fig. 1. *Nemacheilus pullus*, Laos: Mekong drainage: Nam Ngiep watershed; a, CMK 27518, paratype, male, 37.7 mm SL; b, MHNG 2787.091, holotype, male, 41.5 mm SL; c, CMK 27518, paratype, female, 64.1 mm SL. Note that in b the specimen is slightly tilted laterally and the eye appears more distant from the dorsal profile than in reality.





Fig. 2. *Nemacheilus pullus*, Laos: Mekong drainage: Nam Ngiep watershed; before fixation; a, CMK 27566, paratype, female, 51.9 mm SL; b, CMK 27552, female, 54.6 mm SL.

of confluence with Houay Khang; 351 m asl; 19°01'27"N 103°22'50"E; M. Kottelat et al., 12 Mar 2018. — CMK 27753, 8, 38.4–53.7 mm SL; Laos: Saysomboune Prov.: Thathom: Nam Ngiep watershed: small tributary of Houay Hok, itself a tributary of Nam Ngiep, entering it about 100 m from mouth; 319 m asl; 18°56'28"N 103°29'54"E; M. Kottelat et al., 18 Mar 2018.

**Additional material (non-types).** Laos, Nam Ngiep drainage: CMK 24265, 8, 35.3–45.0 mm SL; Xiangkhouang Prov.: Thathom: Houay None, immediately upstream of confluence with Nam Ngiep, about 9 km downstream of Ban Pou; 279 m asl; 18°59'07"N 103°29'40"E; M. Kottelat et al., 28 Jan 2014. — CMK 24304, 2, 31.6–32.5 mm SL; Xiangkhouang Prov.: Thathom: Houay Pa Ko, a small creek entering Nam Ngiep from the west as a small waterfall about 5 km downstream of Ban Pou; 324 m asl; 19°00'00"N 103°28'50"E; M. Kottelat et al., 29 Jan 2014. — CMK 24339, 1, 46.1 mm SL; Saysomboune Prov.: Khon: Nam Pouan [Nam Phouan], upstream of Ban Soppouan, about 300 m upstream of confluence with Nam Ngiep; 244 m asl; 18°46'57"N 103°25'58"E; M. Kottelat et al., 31 Jan 2014. — CMK 24491, 1, 44.0 mm SL; Xiangkhouang Prov.: Thathom: Nam Ngiep north of Ban Naxong; 337 m asl; 19°03'24"N 103°22'06"E; M. Kottelat et al., 17 Feb 2014. — CMK 24510, 2, 40.8–45.2 mm SL; Xiangkhouang Prov.: Thathom: Nam Chae about 200 m downstream of bridge on road from Ban Thathom to Ban Pou; 368 m asl; 19°02'15"N 103°30'08"E; M. Kottelat et al., 17 Feb 2014. — CMK 24648, 9, 40.2–50.7 mm SL; Bolikhamsai: Borikhan: Houay Ken, a small tributary of Nam Xao, upstream of Ban Phounxong; 295 m asl; 18°50'09"N 103°32'05"E; M. Kottelat et al., 20 Feb 2014. — CMK 24661, 6, 43.9–50.5 mm SL; Saysomboune Prov.: Nam Sao, a tributary of Nam Ngiep, entering it about 1 km downstream of Ban Sopyouak; 340 m asl; 18°43'38"N 103°28'14"E; M.

Kottelat et al., 21 Feb 2014. — CMK 24678, 8, 42.5–52.2 mm SL; Bolikhamsai: Borikhan: Nam Xao upstream of bridge on road from Ban Muanghuang to Ban Nahan; 217 m asl; 18°45'33"N 103°32'57"E; M. Kottelat et al., 21 Feb 2014. — CMK 24697, 1, 52.8 mm SL; Bolikhamsai: Borikhan: Nam Xao, Hart [Keng] Teen Heen, about 2 km upstream of Ban Thahua; 181 m asl; 18°39'56"N 103°37'25"E; M. Kottelat et al., 22 Feb 2014. — CMK 27503, 1, 47.5 mm SL; Saysomboune Prov.: Thathom: Nam Khai at confluence with Houay Hok; 316 m asl; 18°55'12"N 103°27'15"E; M. Kottelat et al., 11 Mar 2018. — CMK 27536, 8, 42.7–52.7 mm SL; Saysomboune Prov.: Thathom: Nam Khai, about 1.5 km upstream of confluence with Houay Hok; 341 m asl; 18°56'03"N 103°26'40"E; M. Kottelat et al., 11 Mar 2018. — CMK 27552, 2, 50.1–54.6 mm SL; Saysomboune Prov.: Thathom: Nam Pang (a tributary of Nam Ngiep entering it at 19°02'07"N 103°23'48"E) below waterfall upstream of Ban Phon Home; 339 m asl; 19°00'50"N 103°22'02"E; M. Kottelat et al., 12 Mar 2018. — CMK 27619, 2, 54.4–61.3 mm SL; Saysomboune Prov.: Thathom: Nam Thaeng (tributary of Nam Ngiep, entering at Vieng Thong) at Ban San Phou Xay, about 5 km from confluence with Nam Ngiep; 356 m asl; 18°59'39"N 103°19'14"E; M. Kottelat et al., 14 Mar 2018. — CMK 27697, 2, 53.7–55.6 mm SL; Saysomboune Prov.: Thathom: Nam Ngiep, downstream of Ban Pou, downstream of confluence with Nam Pou; 314 m asl; 19°00'59"N 103°27'43"E; M. Kottelat et al., 16 Mar 2018. — CMK 27719, 1, 52.0 mm SL; Saysomboune Prov.: Thathom: Nam Chae at confluence with Nam Ngiep; 300 m asl; 19°03'17"N 103°19'14"E; M. Kottelat et al., 17 Mar 2018. — CMK 27728, 2, 44.1–56.6 mm SL; Saysomboune Prov.: Thathom: rivulet about 200 m south of ford on Nam Chae; 304 m asl; 18°59'31"N 103°30'03"E; M. Kottelat et al., 17 Mar 2018. — CMK 27737, 1, 39.0 mm SL; Saysomboune Prov.: Thathom: Houay Hok, a tributary of

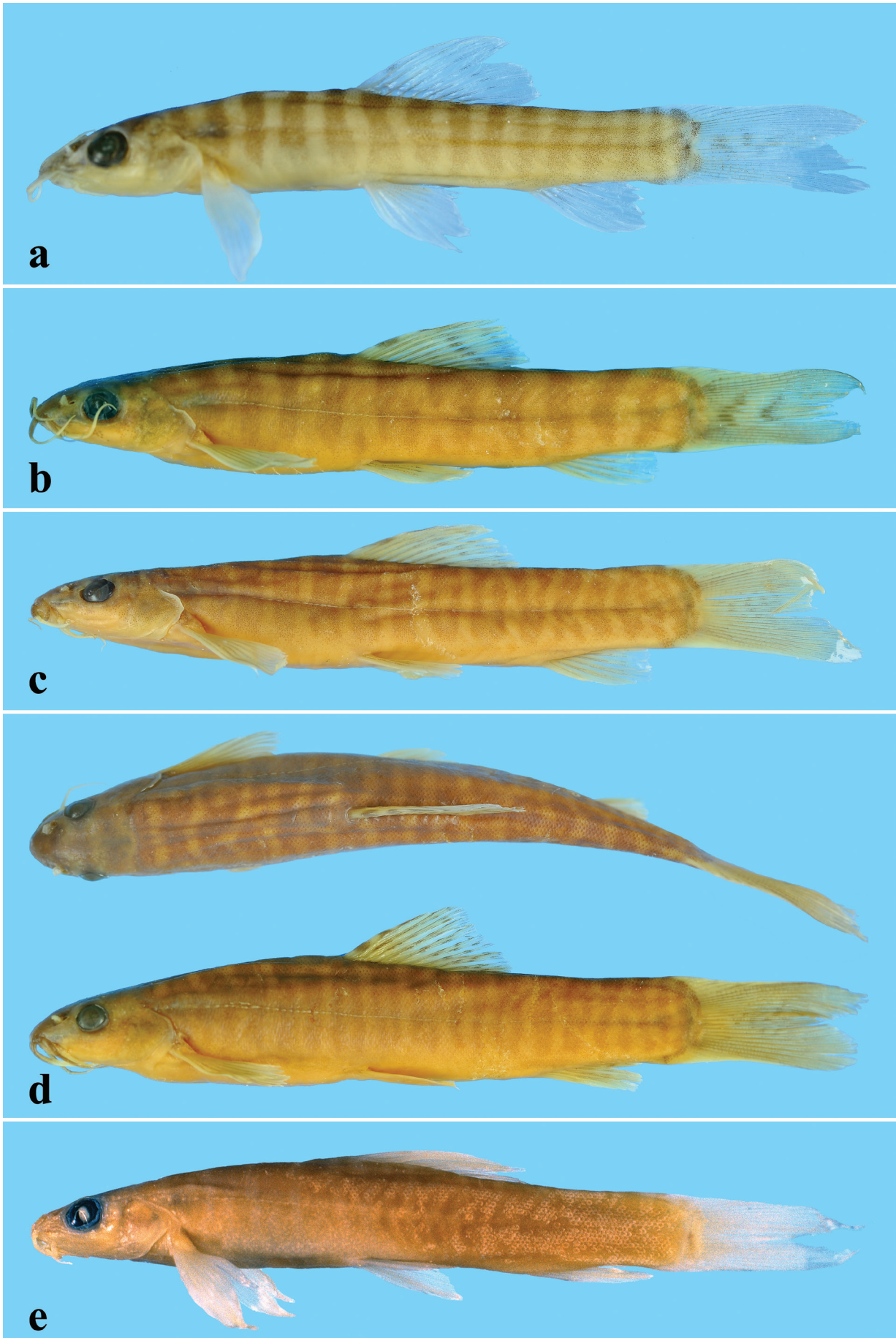


Fig. 3. *Nemacheilus platiceps*; a, CMK 21392, 27.8 mm SL; Laos: Mekong drainage: Xe Kong watershed; b–d, CMK 7927, Vietnam: Dong Nai drainage, 36.2 mm SL (b, reversed), 40.8 mm SL, 54.4 mm SL (d, reversed); and e, NRM 15095, holotype, 40.1 mm; Vietnam Dong Nai drainage (reversed).





Fig. 4. *Nemacheilus cacao*; CMK 23170, 36.9 mm SL; Laos: Mekong drainage: Xe Bangfai watershed.

Nam Ngiep, about 400 m upstream of confluence; 326 m asl; 18°56'26"N 103°30'02"E; M. Kottelat et al., 18 Mar 2018.

Laos: Nam Xan drainage: CMK 24479, 2, 48.8–49.6 mm SL; Xiangkhouang Prov.: Thathom: Nam Pha [Nam Phó], a tributary of Nam Tai, about 3 km northeast of Ban Thathom; 317 m asl; 19°00'23"N 103°36'44"E; M. Kottelat et al., 16 Feb 2014. — CMK 24589, 3, 41.0–58.1 mm SL; Bolikhamsai: Borikhhan: Nam Xa, a tributary of Nam Xan entering it about 2 km upstream of Ban Pakhuang; 183 m asl; 18°42'00"N 103°47'40"E; M. Kottelat et al., 19 Feb 2014.

**Diagnosis.** *Nemacheilus pullus* is distinguished from all other species of the genus except *N. platiceps* and *N. cacao* in having an incomplete lateral line reaching between verticals of pelvic-fin origin and of anus, with 23–57 pores (vs. complete). *Nemacheilus pullus* is most easily distinguished from *N. platiceps* (Fig. 3) and *N. cacao* (Fig. 4) by its colour pattern, with a plain grey body when preserved (yellowish grey in life), but small specimens (less than about 45 mm SL) may have numerous faint, narrow and very irregular bars, darker along dorsal midline where they appear as small darker saddles. The patterning on the caudal peduncle and the dark saddles may remain, including in some of the largest specimens, especially females. In contrast, *N. platiceps* has 12–16 narrow bars on the flank, clearly distinct at all sizes; quite regular in juveniles (Fig. 3a), about as wide as interspaces; with increasing size they become wider and less regular, the median area becomes paler and in some specimens the bars even appear as two bars (Fig. 3d). In *N. cacao* adult males have a uniform dark brown body; in females, most bars are split and become fainter with increasing size, resulting in a pattern of numerous narrow grey bars along body and broader dorsal saddles.

Besides, *N. pullus* is distinguished from *N. platiceps* by having: a conspicuous suborbital flap (vs. poorly developed; see Fig. 5); small tubercles on the anterior pectoral-fin rays and on the flank (vs. absence); a more rounded dorsal profile of the snout (compare Figs. 1, 2 with Fig. 3); a more convex and somewhat wider interorbital area (distance 39–43 % of dorsal head length vs. 31–41); and a somewhat deeper body (depth at dorsal-fin origin 17–22 % SL, vs. 15–18; depth of caudal peduncle 12–14 % SL, vs. 11–13).

Besides the characters mentioned above, *N. pullus* is also distinguished from *N. cacao* by having only a few small pointed tubercles on dorsal surface of the first 2–3 branched pectoral-fin rays (up to 5 in largest specimens; Fig. 8) (vs. densely-set, coarse, small tubercles on the dorsal surface of the first 3–7 pectoral-fin rays); and a somewhat deeper body (depth at dorsal-fin origin 17–22 % SL, vs. 14–21).

**Description.** See Figures 1 and 2 for general appearance and Table 1 for morphometric data of holotype and 12 paratypes. A moderately elongate nemacheilid with body depth slowly increasing up to slightly in front of dorsal-fin origin, then decreasing below dorsal-fin base, and then almost uniform until caudal-fin base. Dorsal profile with a shallow concavity at nape. Head slightly depressed; body slightly compressed anteriorly to compressed posteriorly. Interorbital area flat to slightly arched. Eye diameter 1.4–1.8 times in interorbital distance. In lateral view, eye immediately below or flushed with dorsal profile of head. Cheeks not swollen. Snout rounded in dorsal and lateral views. Depth of caudal peduncle 1.1–1.4 times in its length, depth almost uniform. Low dorsal keel on posterior third of post-dorsal area. Low ventral keel on posterior third of caudal peduncle. Dorsal keel continuous with upper margin of caudal fin. Largest recorded size 64.1 mm SL.

Table 1. Morphometric data of *Nemacheilus pullus* (n= 12; holotype, paratypes CMK 25422 [5], 27753 [5], 27518 [2]). Range and mean include holotype data.

	Holotype	Range	Mean
Standard length (mm)	41.5	41.5–64.1	
Total length (mm)	53.3	53.3–81.1	
In percent of standard length			
Total length	128.6	125.8–130.1	127.8
Head length (dorsal)	20.7	18.0–20.7	19.3
Head length (lateral)	24.6	21.6–24.6	23.0
Predorsal length	48.5	47.0–50.5	48.9
Prepelvic length	47.8	47.6–51.7	49.2
Pre-anus length	68.2	67.8–70.9	69.0
Pre-anal length	78.0	75.8–78.6	77.3
Head depth	11.7	11.4–13.5	12.4
Body depth at dorsal-fin origin	18.6	17.0–21.9	19.4
Depth of caudal peduncle	13.4	12.1–14.1	13.3
Length of caudal peduncle	18.4	15.7–18.5	17.4
Head width	13.6	13.3–15.8	14.4
Body width at dorsal-fin origin	12.8	12.2–16.6	14.2
Snout length	8.7	7.7–9.3	8.5
Eye diameter	5.1	4.2–5.7	5.1
Interorbital width	8.1	7.4–8.4	7.9
Length of dorsal fin	18.9	18.9–22.3	20.6
Length of upper caudal-fin lobe	30.7	25.9–31.0	28.2
Length of median caudal-fin rays	25.3	20.0–25.3	21.9
Length of lower caudal-fin lobe	28.4	25.1–29.5	26.9
Length of anal fin	21.7	15.6–21.7	18.0
Length of pelvic fin	18.1	14.7–18.1	16.3
Length of pectoral fin	23.7	18.6–24.2	21.8
In percent of dorsal head length			
Snout length	42	38–48	44
Eye diameter	25	23–29	26
Interorbital width	39	39–43	41
In percent of lateral head length			
Snout length	35	32–40	37
Eye diameter	21	19–25	22
Interorbital width	33	33–36	34

Dorsal fin with 4 unbranched and 8½\* (6) or 9½ (7) branched rays; distal margin straight to slightly convex. First or second branched ray longest. Pectoral fin with 1 unbranched and 11\* (10) or 12 (3) branched rays (including small last ray, usually unbranched), triangular, reaching about 2/3–4/5 of distance to pelvic-fin base; all rays slightly projecting beyond margin of fin; see under Sexual dimorphism for further details on pectoral fin. No axillary pectoral lobe. Pelvic fin with 1 unbranched and 7 branched rays (including small last ray, usually unbranched); reaching to or almost to anus; triangular to rounded; posterior margin straight; origin below base of last unbranched to 1st branched dorsal-fin rays; axillary lobe absent or present as a small bump, fused with body. Anus situated about 1.5–2 eye diameters in front of anal fin, behind or at posterior extremity of pelvic fin. Anal fin with 3 unbranched and 5½ branched rays; distal margin almost straight. Caudal fin with 9+8\* (12) or 7+8

(1, probably anomalous); about 6–8 dorsal and about 6–8 ventral procurrent rays; forked, lobes rounded, upper lobe 1.0–1.1 times longer than lower lobe, 1.2–1.4 times longer than median rays.

Body entirely covered by scales. Scales embedded, but very distinct; see under Sexual dimorphism for distribution of tubercles on flank. Lateral line incomplete, reaching between verticals of pelvic-fin origin and of anus, with 23–57 pores (several isolated tubes posterior to end of lateral line pores). Cephalic lateral line system with 5 or 6 supraorbital, 4 + 10–12 infraorbital, 9–11 preoperculo-mandibular and 3 supratemporal pores.

Anterior nare pierced at tip of an obliquely truncate tube (Fig. 5a). Posterior nare adjacent to anterior one. Mouth arched, gape about 2–2.5 times wider than long (Fig. 6a).



Fig. 5. Anterior nostril at tip of a short tube and suborbital flap (arrow) in male of: a, *Nemacheilus pullus*, CMK 27566, 50.8 mm SL; and b, *N. platiceps*, CMK 7927, 40.8 mm SL.



Fig. 6. Mouth of: a, *Nemacheilus pullus*, CMK 27697, 55.6 mm SL; and b, *N. platiceps*, CMK 7927, 55.4 mm SL.

Lips thin. Upper lip without or with shallow median notch, with numerous wrinkles. Processus dentiformis present. Lower lip with narrow median interruption; median part with 2–5 shallow, weakly marked sulci, lateral part with numerous shallow wrinkles. Tip of lower jaw not exposed. No median notch or concavity in lower jaw. Inner rostral barbel reaching beyond vertical of posterior margin of eye; outer one reaching almost to vertical of posterior margin of eye. Maxillary barbel reaching almost to base of pectoral fin.

Intestine with a bend behind stomach (Fig. 7). Air bladder without visible posterior chamber in abdominal cavity.

**Sexual dimorphism.** Ripe females deeper bodied. Males over 35 mm SL are distinguished by the presence of a suborbital flap (externally visible lower extremity of lateral ethmoid), with a groove along its posterior and lower margin; Fig. 5) (missing in females), flap larger with increasing size and in at least one specimen (CMK 27697, 55.6 mm SL) with small tubercles at tips. Pectoral fin longer in males than in females, more pointed, more rigid and expanded laterally, and with a black line along posterior edge of unbranched ray and along both edges of branched rays 1–3, most conspicuous on posterior edge of branched ray 1; with thicker membranes and a few melanophores, the combination appears as a dark grey to black band along branched ray 1 (Figs. 1b, 8). Some males above about 40 mm SL with a few pointed small tubercles on dorsal surface of branched rays 1 and 2 (Fig. 8); two males with very few small tubercles also on branched ray 3 and on simple ray. Two specimens (CMK 27697, 53.7 and 55.6 mm SL) with more and coarser tubercles on simple and branched rays 1–5. Last two specimens with small tubercles on flank (on lower third of space between

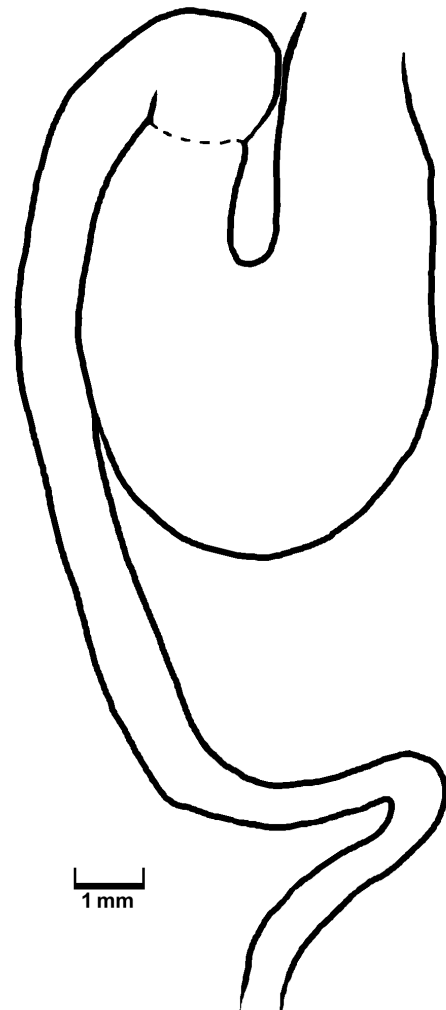


Fig. 7. *Nemacheilus pullus*, CMK 27753, male, 49.0 mm SL; digestive tract.



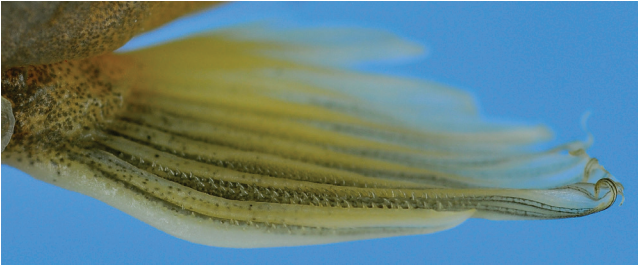


Fig. 8. *Nemacheilus pullus*, CMK 27697, male, 55.6 mm SL; left pectoral fin, dorsal view. Note that this is one of the specimens with most developed tubercles on pectoral-fin rays; in most specimens they are fewer and restricted to branched rays 1–3.



Fig. 9. *Nemacheilus pullus*, CMK 27697, male, 55.6 mm SL; flank with small tubercles on scales.

lateral line and dorsal profile, and half of space between lateral line and ventral profile, from about midlength of pectoral fin to above origin of anal fin) (Fig. 9).

**Colouration.** Based on specimens from Nam Ngiep and Nam Xan drainages (Figs. 1, 2). General appearance of head and body plain grey, darker on dorsal fourth of body (resulting from presence of a black dot on posterior extremity of each scale); throat and belly backwards to anal-fin origin from paler grey to pale yellowish. Only vague inner axial stripe, if present restricted to posterior part of body. Head with a narrow black band from eye to between bases of outer rostral and maxillary barbel, a blackish band between eyes and one between nostrils.

In some of the smaller specimens (less than about 45 mm SL; Fig. 1a), body with numerous faint, narrow and very irregular bars, darker along dorsal midline where they appear as small darker saddles, 4–6 predorsal [modally 5], 3–5 [4] along dorsal-fin base, 4–7 [4] postdorsal). Pattern on body more distinct on postdorsal area and especially on caudal peduncle (Figs. 1a, 2a). Pattern on flank disappearing in most specimens over about 45 mm SL. Patterning on caudal peduncle and black saddles may remain, including in some of the largest specimens (Figs. 1b, 2a). Most large males have a plain body; large females may also have a plain body but several retain some faint bars and saddles on caudal peduncle. Smallest available specimen 35.3 mm SL; colour pattern of smaller individuals not known; based on other species of the *platiceps* group, a pattern of narrow bars could be expected.

Pattern at caudal-fin base: a tiny black spot at mid-height on posterior extremity of caudal peduncle, more or less conspicuous in all specimens. Several specimens with a darker band along posterior edge of caudal peduncle.

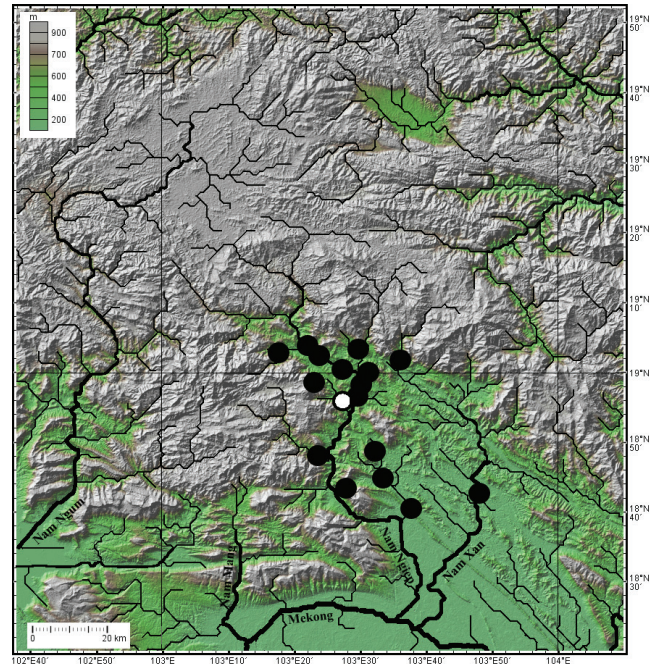


Fig. 10. Distribution of *Nemacheilus pullus*. One symbol may represent several localities. White circle is type locality. Dams, reservoirs and other alterations of original hydrographic network omitted.



Fig. 11. Laos: Saysomboune Province: Nam Ngiep watershed: Houay Hok upstream of confluence with Nam Khai. Type locality of *Nemacheilus pullus*, 11 March 2018. Now at about, or below, full supply level of Nam Ngiep 1 reservoir.

All fins hyaline, with yellowish hue, without patterning. Dorsal fin sometimes with two faint grey marks along anterior edge of fin, on 3rd and 4th unbranched rays. Pectoral fin of male with a black line along posterior edge of unbranched ray and along both edges of branched rays 1–3, most conspicuous on posterior edge of branched ray 1; with thicker membranes and a few melanophores, the combination appears as a dark grey to black band along branched ray.

In life and freshly preserved (Fig. 2): as above, but with a more yellowish to olive colouration.

**Notes on biology.** A dissected female (CMK 27753, 53.7 mm SL) had unripe ovaries with eggs about 0.8 mm diameter. Stomach of three dissected specimens contained unidentifiable insect remains.



**Distribution and habitat.** *Nemacheilus pullus* is presently known only from central Laos, in the Nam Ngiep and Nam Xan watersheds (Fig. 10). It was observed in a variety of habitats, from small forest streams to larger streams, in stretches with slow to moderate current, on substrate from mud to stones (Fig. 11). In larger rivers it was rarely observed, along shores, in shallow (less than 50 cm), sheltered areas close to shore vegetation, with little flow; it has not been collected in deeper waters and rapids. It was also present in open areas without canopy, and with signs of eutrophication and siltation.

**Etymology.** From the Latin *pullus*, meaning dark yellow to blackish. An adjective, *-us*, *-a*, *-um*.

**Remarks.** Kottelat (1990) distributed the then-known species of *Nemacheilus* in three groups based on colour pattern and scales on caudal peduncle, but he did not allocate *N. platiceps* to any of these groups. The species differed from all other species of the genus in having an incomplete lateral line (vs. complete) and its colour pattern made of 12–16 narrow, irregular bars on the flank (Fig. 3). Since, the interrelationships within *Nemacheilus* have been addressed by Šlechtová et al. (2021) in a molecular phylogeny, which recovered three clades corresponding to the three groups. Their analysis found *N. planiceps* clustered with their “Selangoricus” clade (group B of Kottelat, 1990), but as sister-species to the rest of the clade.

*Nemacheilus pullus* is distinguished from all other species of *Nemacheilus*, except *N. platiceps* and *N. cacao*, by having an incomplete lateral line, while it is complete in all the other species examined. The three species also share a number of characters that are diagnostic within the genus *Nemacheilus*, although not unique to the three species: caudal fin forked with subequal lobes; suborbital flap present; anterior nare at tip of a short tube; absence of acuminate scales on caudal peduncle; and absence of an elongate black spot on lower ¼ of first branched dorsal-fin ray and adjacent membranes. These three species are treated here as an informal *platiceps* group; this corresponds to the unnamed clade within the “Selangoricus” clade of Šlechtová et al. (2021).

*Nemacheilus platiceps* was originally described from the Dong Nai drainage in Vietnam. The type locality is Trang Bom [10°57'N 107°00'E] and paratypes also originated from Cambodia (Sre Pok River, and stream on road from Phnom Penh to Sihanoukville; Kottelat, 1990: 66). It has since been recorded from southeastern Thailand and the Mekong drainage in Thailand (e.g. Vidthayanon, 2017: 128; pers. obs.) and Laos (Kottelat, 1998, 2001, 2009, 2016). Examination of material obtained since 1990 shows that various species have been confused under this name, including the distinctive *N. pullus*. Other species are discussed by Bohlen et al. (2022).

There is apparently no published mention of *N. pullus*. Published mention and figures of specimens identifiable as *N. platiceps* include Serov et al. (2006: 162) and Freyhof et al. (2000: 95) from the Dong Nai drainage (Vietnam), Baird

et al. (1999: fig. 152 right (as *Nemacheilus* sp. 1), fig. 163 (as *N.* sp. 7) from southern Laos, Kottelat (2009: 9) from Xe Kong, Rainboth (1996: 128, pl. 15 fig 117) and Rainboth et al. (2012: pl. 33 fig. 689) from Sesan (Cambodia). I have seen photographs of specimens from the area of Chantaburi (Thailand) (from J. Bohlen) apparently belonging to *N. platiceps*. Photographs of specimens from other localities in Thailand are not identifiable.

**Comparison material.** *Nemacheilus platiceps*: CMK 5857, 1 paratype, 39.8 mm SL; Cambodia: bridge on Srepok River on road from Stung Treng to Ratanakiri [13°26'39"N 106°36'13"E]; F. d'Aubenton, 19 February 1964. — CMK 7252, 1, 41.0 mm SL; Vietnam: Dong Nai Prov.: Ma Da River; D. Serov, February 1990. — CMK 7927, 97, 33.2–54.4 mm SL; Vietnam: Dong Nai Prov.: Dong Nai River, Nam Cat Tien National Park; D. Serov, December 1990. — CMK 21392, 3, 25.6–28.3 mm SL; Laos: Attapeu Prov.: Houai Katom, a southern tributary of Xe Kong, downstream of Ban Khan Mak Nao, 14°35'44"N 106°33'23"E; M. Kottelat et al., 22 May 2009.

*N. cacao*: CMK 19403, 1, 32.2 mm SL; Laos: Khammouan: Southwest of Gnommalat, Tham Pong cave, near Phou Phathoung quarry, inside cave, 17°32'30"N 105°09'58"E; M. Kottelat et al., 7 May 2006. — CMK 23170, 1, 36.9 mm SL; Laos: Khammouan: Xe Bangfai drainage: Houai Kalo, a small tributary of Nam Oula near Ban Phonexay, 17°20'56"N 105°20'07"E; M. Kottelat et al., 22 May 2012. Additional data from Bohlen et al. (2022).

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