



New species of the genera *Glyptothorax* (Teleostei: Sisoridae) and *Oreichthys* (Teleostei: Cyprinidae) from Nagaland, Northeast India

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Abstract

Two new species of fishes are described from the tributaries of the Brahmaputra River in Nagaland, Northeast India. *Glyptothorax sentimereni*, described from the Dikhu River, is distinguished from congeners in having the following combination of characters: ventral surfaces of pectoral spine and first pelvic-fin ray with plicae, serrated posterior edge of dorsal-fin spine, thoracic adhesive apparatus completely encinctured by striae, length of dorsal-fin spine 13.7–16.1% SL, body depth at anus 17.1–19.6% SL, length of dorsal-fin base 12.0–13.1% SL, post-adipose distance 20.8–22.2% SL, head depth 16.5–17.0% SL and dorsal-to-adipose distance 21.8–23.5% SL. *Oreichthys elianae*, described from the Tsurang River, is distinguished from its congeners by a combination of characters that include 19+1 scales (with 5 pored scales) in longitudinal series, ½3/1/2½ scales in transverse row, 9 predorsal scales, 14–15 pores on cheek, a black spot on the caudal-fin base, and reddish fins.

Key words: Brahmaputra River, Cypriniformes, Diversity, Endemic fish, Siluriformes

Introduction

Nagaland, one of the eight states that make up the Northeastern region of India is drained by three major rivers, viz., the Brahmaputra, Chindwin and Barak. This region is recognized as an exceptional hotspot of freshwater biodiversity (Kottelat & Whitten, 1996) due to its unique biogeographic setting between the Eastern Himalaya and Indo Burman ranges. While there have been efforts to document the biodiversity of the state including orchids (e.g. Deb *et al.* 2003, 2019 & 2021), amphibians (e.g. Ao *et al.*, 2003 & Biju *et al.*, 2019), beetles (Ghosh *et al.*, 2020 & Mozhui *et al.*, 2020), and butterflies (e.g. Naro & Sondhi, 2014), freshwater fish have been poorly studied and documented. The earliest known ichthyological surveys in Nagaland were carried out by Hora & Mukerji (1935) and Hora (1936), with the majority of their sampling sites focused in the Manipur Valley of the 1930s (particularly the Naga Hills, comprising parts of present-day Nagaland and Manipur States). These early surveys resulted in the description of *Psilorynchus homalptera* (Psilorhynchidae) and *Bangana devdevi* (Cyprinidae). Since then, there have been no systematic and comprehensive ichthyological surveys in Nagaland. However, surveys in the recent past have resulted in new species discoveries (see Shangningam & Singh, 2020; Praveenraj, 2023; Shangningam, 2024; Kechu & Pankaj, 2025).

During recent ichthyological surveys in the tributaries of the Brahmaputra River in Nagaland, several specimens belonging to the genera *Glyptothorax* and *Oreichthys* were collected. Detailed morphological studies and comparisons with congeners indicated that these specimens are new to science, which are described here as *Glyptothorax sentimereni* sp. nov. and *Oreichthys elianae* sp. nov.

Material and methods

Counts and measurements were made on the left side of specimens following Ng and Kottelat (2016) for *Glyptothorax*, and Kottelat (2001) for *Oreichthys*. Fin rays and scales were counted under a stereo-zoom microscope. Subunits of the head are presented as percentage of head length (HL), and measurements of body parts as percentage of standard length (SL). Numbers in parentheses after a meristic value indicate the frequency of that value. The counts originating from the holotype are denoted by an asterisk. One paratype each of the new species of *Glyptothorax* (CIARI/FF-120) and the new species of *Oreichthys* (CIARI/FF-119) were cleared and stained for osteology. Specimens examined in this study are deposited in the Zoological Survey of India, Arunachal Pradesh, Regional Centre, India (ZSI FF/APRC/V/P), and in the freshwater fish collections of the Central Inland Agricultural Research Institute, Sri Vijaya Puram, India (CIARI/FF).

Additional data for comparisons were taken from Ng & Lalramliana (2013) for *G. radiolus*, Kosygin *et al.* (2019) for *G. gopii*, Kosygin *et al.* (2021) for *G. rupiri*, Anganthoibi & Vishwanath (2013) for *G. pantherinus*, Anganthoibi & Vishwanath (2010a) & (2010b) for *G. chintuipuiensis* and *G. ater* respectively, Devi *et al.* (2023) for *G. lairamkhullensis*, Shangningam & Kosygin (2023a) and (2023b) for *Glyptothorax viridis* and *Glyptothorax primusplacae* respectively, Rameshori & Vishwanath (2012a), (2012b) & (2012c) for *G. churamanii*, *G. jayarami* and *G. verrucosus* respectively, Tenali *et al.* (2024) for *G. pongoensis*, Dann *et al.* (2024) for *O. warjaintia*; Knight (2014) for *O. andrewi*; Knight & Kumar (2015) for *O. coorgensis*, *O. incognito*, and *O. duospilus*, and Schäfer (2009) for *O. parvus*.

Results

Glyptothorax sentimereni

(Figures 1, 2, 3a)

Holotype. ZSI/APRC/V/P 2564, 79.4 mm SL; India: Nagaland, Mokokchung District, Dikhu River; 26°20'08"N, 94°23'20"E; Limaakum, 15 January 2022.

Paratypes. CIARI/FF-120, 2 ex., 80.1–82.0 mm SL, (82.0 mm SL, cleared and stained for osteology), same data as holotype.

Diagnosis. *Glyptothorax sentimereni* can be distinguished from all congeners of the Brahmaputra River, except *G. pantherinus*, *G. pongoensis*, *G. punyabratai*, *G. radiolus*, *G. rupiri*, *G. striatus* and *G. hymavatiae* in having (vs. lacking) plicate ventral surface of pectoral-fin spine, and first pelvic-fin ray (Fig. 2). It differs from *G. rupiri*, *G. punyabratai* and *G. hymavatiae* in having thoracic adhesive apparatus completely encinctured by striae (vs. open caudally), longer dorsal-fin spine (13.7–16.1 vs. 9.8–12.5% SL), and longer dorsal-fin base (12.0–13.1 vs. 8.7–10.8% SL); from *G. pantherinus* in lacking (vs. having) irregular blotches on dorso-lateral surface of body, longer adipose-fin base (12.8–15.0 vs. 10.8–11.8% SL) and longer post-adipose distance (20.8–22.2 vs. 10.7–15.2% SL); from both *G. radiolus* and *G. striatus* in having deeper body (17.1–19.6 vs. 11.0–15.4% SL), serrated (vs. smooth) posterior margin of dorsal-fin spine, and thoracic adhesive apparatus completely encinctured by striae (vs. open caudally). *Glyptothorax sentimereni* differs from *G. pongoensis* in having rhomboidal thoracic adhesive apparatus with a triangular central depression (vs. ovate leaf shaped with subulate central depression) (Fig. 3), serrated (vs. rugose) posterior margin of dorsal-fin spine, longer anal-fin base (16.4–20.3 vs. 12.3–14.3% SL), and slender inter-orbital (23.6–26.0 vs. 27.0–31.4% SL).

Description. Morphometric data in Table 1. Head depressed; body subcylindrical. Dorsal profile rising evenly from tip of snout to origin of dorsal fin, then sloping gently ventrally from origin of dorsal fin to end of caudal peduncle. Ventral profile slightly convex up to anal-fin base, then sloping gently dorsally from anal-fin base to end of caudal peduncle. Anus and urogenital openings located at vertical through middle of adpressed pelvic fin. Skin prominently tuberculate, with ovoid tubercles particularly visible on sides of body. Lateral line complete and midlateral. Vertebrae 17+19=36 (1).

Head depressed, slightly longer than broad, triangular when viewed laterally. Snout prominent, convex dorsally. Anterior and posterior nares large and separated only by base of nasal barbel. Eyes small, rounded, placed anterodorsally at middle of head length. Gill opening broad, extending from immediately ventral to post-temporal

to isthmus. First branchial arch with 2+7 (1) rakers. Bony elements of dorsal surface of head covered with thick, tuberculate skin. Barbels in four pairs. Maxillary barbel long and slender, extending to middle of pectoral-fin base. Nasal barbel slender, extending to midway between its base and anterior orbital margin. Inner mandibular barbel extending till isthmus. Outer mandibular barbel longer than inner, reaching gill opening. Mouth inferior, premaxillary tooth band almost wholly exposed when mouth is closed. Mouth inferior, lips broad, papillated, upper jaw longer than lower, premaxillary tooth band exposed partially with mouth closed. Oral teeth small, villiform borne on all tooth-bearing surfaces, palate edentate. Premaxillary teeth arranged in two broad semi-lunate band. Dentary teeth in two crescentic patches separated at midline by narrow gap.

TABLE 1. Morphometric data for *Glyptothorax sentimereni* (n=3) type series

Morphometric characters	Holotype	Range (includes holotype and paratypes) (n=3)	Mean ± SD
Standard length (mm)	79.4	79.4–81.7	
In percent of standard length			
Predorsal length	35.7	35.7–37.0	36.2±0.6
Preanal length	63.3	62.6–64.0	63.3±0.7
Prepelvic length	49.0	46.1–49.0	47.9±1.6
Prepectoral length	20.5	20.1–22.0	20.9±1.0
Length of dorsal-fin base	12.7	12.0–13.1	12.6±0.6
Dorsal-fin spine length	14.4	13.7–16.1	14.8±1.3
Length of anal-fin base	19.6	16.4–20.3	18.8±2.1
Pelvic-fin length	16.8	15.7–17.7	16.8±1.0
Pectoral-fin length	20.3	20.2–21.7	20.7±0.9
Pectoral-fin spine length	16.5	16.0–16.5	16.3±0.2
Caudal-fin length	24.2	24.0–25.5	24.6±0.8
Length of adipose-fin base	13.0	12.8–15.0	13.5±1.2
Dorsal to adipose distance	22.0	21.8–23.5	22.4±1.0
Post-adipose distance	20.8	20.8–22.2	21.7±0.8
Caudal-peduncle length	21.9	20.9–22.0	21.4±0.5
Caudal-peduncle depth	8.8	8.4–9.0	8.7±0.3
Body depth at anus	19.6	17.1–19.6	18.4±1.3
Head length	23.9	21.6–24.0	23.0±1.2
Head width at pectoral-fin origin	21.2	20.3–22.0	21.1±0.8
Head depth just posterior to eye	16.5	16.5–17.0	16.8±0.2
Percent of head length			
Snout length	52.1	52.1–53.1	52.5±0.5
Interorbital width	24.3	23.6–26.0	24.7±1.2
Eye diameter	13.4	11.6–13.4	12.6±0.9
Nasal barbel length	22.3	16.9–22.3	19.0±2.9
Maxillary barbel length	95.3	77.7–95.3	84.3±9.6
Outer mandibular barbel length	43.8	36.6–43.8	41.4±4.2
Inner mandibular barbel length	22.1	16.9–22.5	20.5±4.2

Thoracic adhesive apparatus consisting of keratinized striae in rhomboidal field (Fig. 3a) extending from isthmus to posterior limit of pectoral-fin base with prominent, ovoid central depression. Anteromedial striae absent. No medial pit devoid of striae. Dorsal fin located above anterior third of body, with I,6* (3) rays; fin margin concave; spine short and gently curved, anterior margin smooth, posterior margin with 9* serrations. Adipose fin

with anterior and posterior margin straight. Caudal fin strongly forked, ventral lobe slightly longer than dorsal lobe and $i,7,8,i^*(3)$ principal rays. Procurrent rays symmetrical and extending only slightly anterior to fin base. Anal-fin base anterior to adipose-fin origin. Anal fin with straight anterior margin and slightly concave posterior margin; with $iv,8^*(2)$ or $iv,9(1)$ rays. Pelvic-fin origin immediately posterior to vertical through posterior end of dorsal-fin base. Pelvic fin with slightly convex margin and $i,5^*(3)$ rays; tip of adpressed fin not reaching anal-fin origin. Pectoral fin with $i,10^*,i(3)$ rays reaching slightly posterior to vertical through dorsal-fin origin; posterior fin margin slightly concave; anterior spine margin smooth, posterior margin with 13^* serrations.

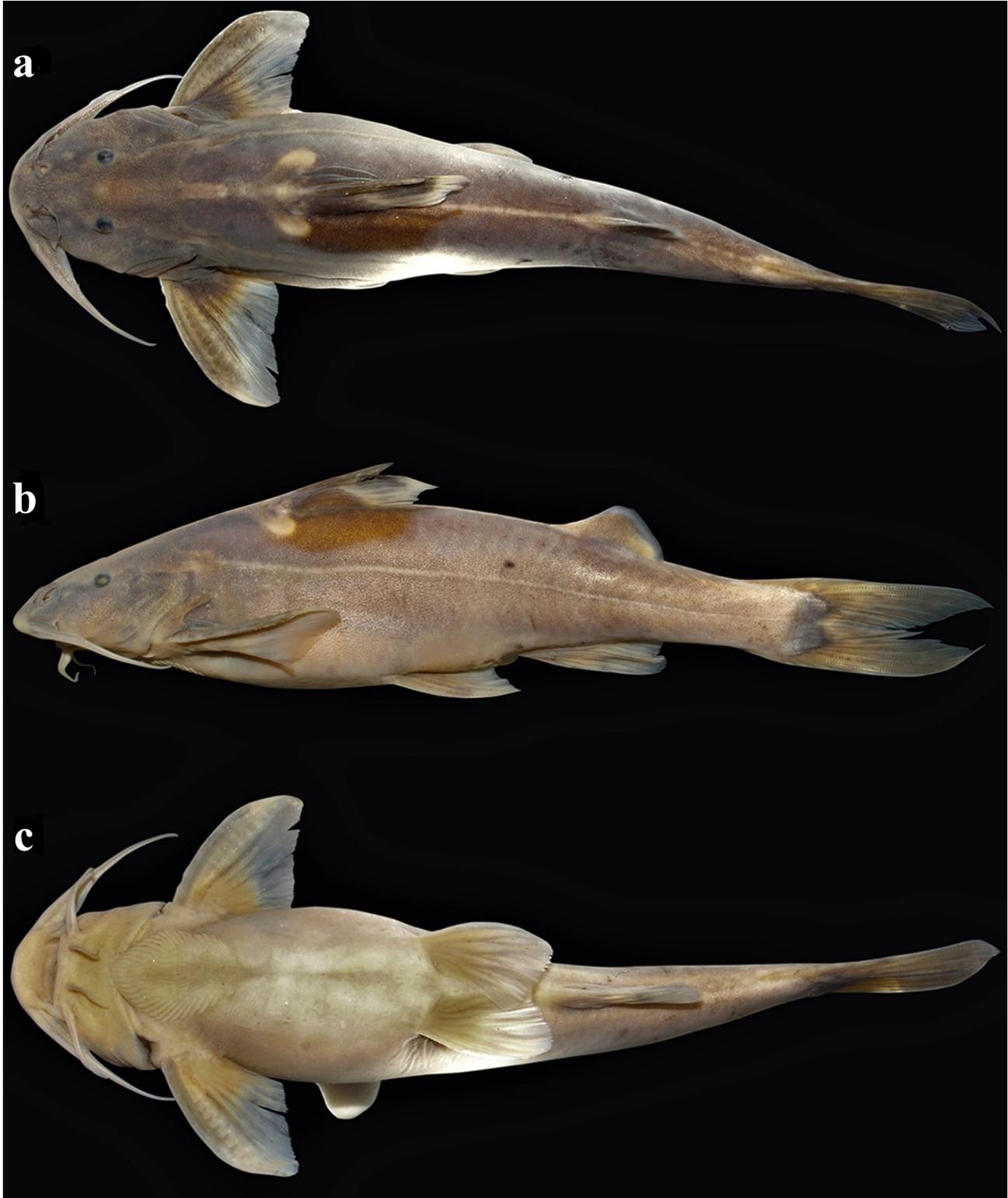


FIGURE 1. *Glyptothorax sentimereni*, ZSI/APRC/V/P-2564, Holotype, 79.4 mm SL.

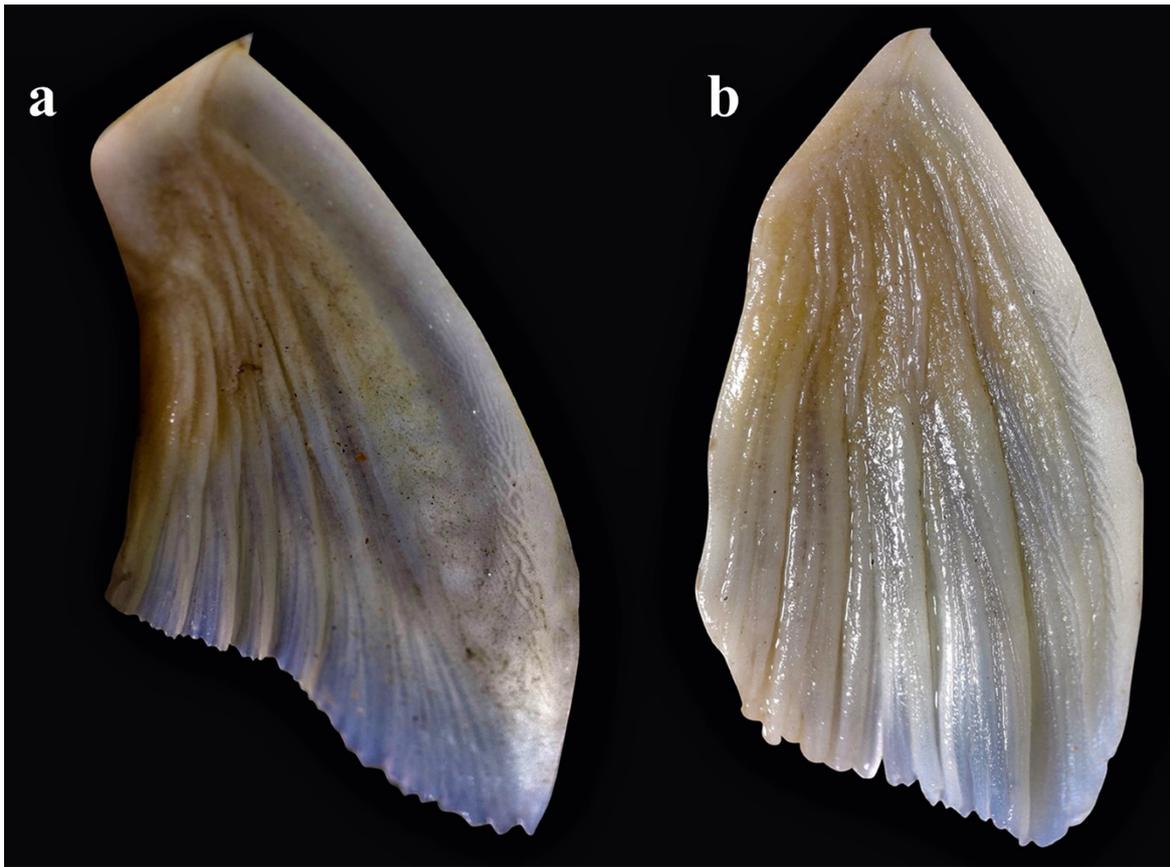


FIGURE 2. Plicae on the ventral surface of pectoral-fin spine and first pelvic-fin ray in *Glyptothorax sentimereni*, ZSI/APRC/V/P-2564, Holotype, 79.4 mm SL.

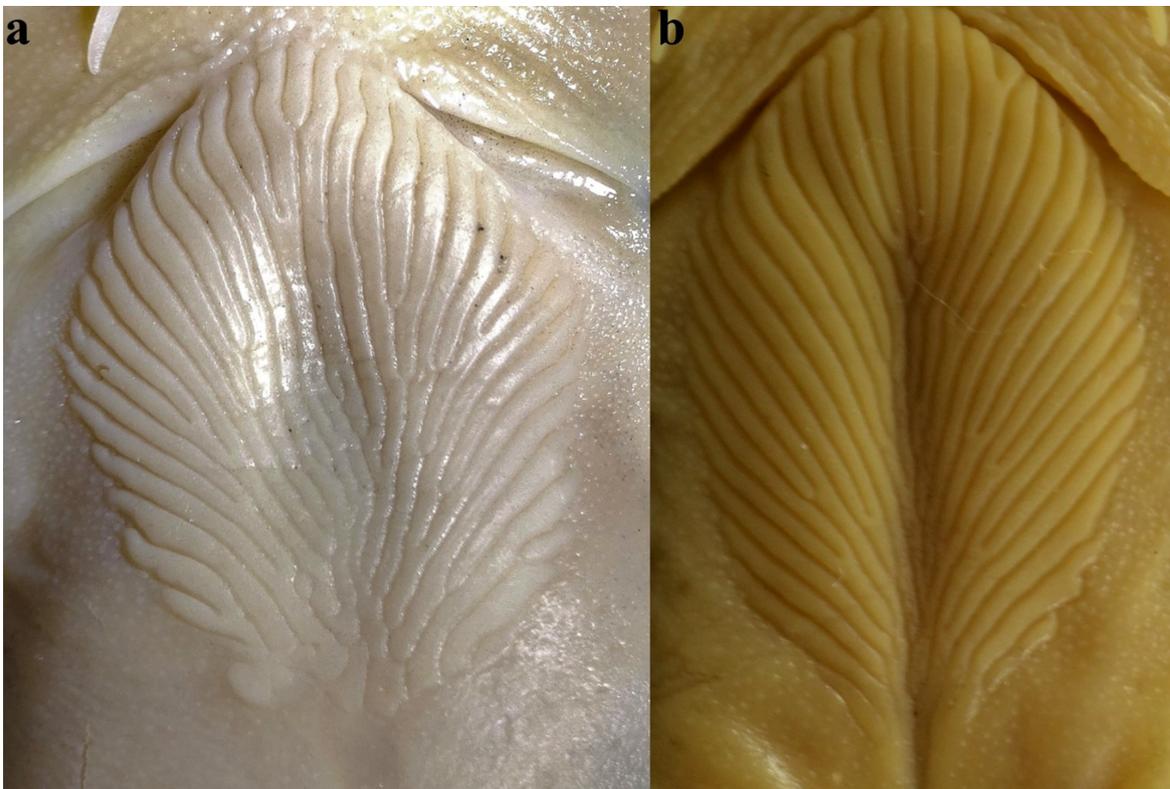


FIGURE 3. Thoracic adhesive apparatus of (a) *Glyptothorax sentimereni*, ZSI/APRC/V/P- 2564, Holotype, 79.4 mm SL (b) *Glyptothorax pongoensis*, ZSI FF 9982, 72.8 mm SL. Images not to scale.



FIGURE 4. Type locality of *Glyptothorax sentimereni*, Dikhu River at Mokokchung District, Nagaland, India.

Colouration in life. Dorsal and lateral surfaces of head and body amber, and fins appearing darker.

Colouration in preservative. Ventral surfaces of head and body yellowish-cream. Distinct pale mid-dorsal stripe on dorsal surface of body, and midlateral stripe running from behind opercle to base of caudal fin. Laterosensory line along lateral line light yellowish-cream against amber. All fins with diffuse melanophores on membranes. Dorsal, pectoral, anal and pelvic fins with yellowish base, followed by gray middle band and distally hyaline margin. Adipose fin amber with light gray distal margin. Caudal fin amber, with black basal margins. Dorsal part of maxillary and nasal barbels brown with melanophores, beige ventrally. Mandibular barbels beige.

Distribution and habitat. *Glyptothorax sentimereni* is currently known only from the Dikhu River (a Brahmaputra tributary) in the Mokokchung District, Nagaland, Northeast India. The type locality during the month of January 2022 had a water depth of 0.5 m, with numerous boulders and rocky substratum (Fig. 4). Co-occurring species include *Pethia dikhuensis*, *Balitora* sp., *Garra* sp., *Mustura* sp., and *Lepidocephalichthys* sp.

Etymology. The species is named after Sentimeren, son of late Limaakum, who collected the type series, but unfortunately passed away before the study began; honouring one among his last wishes.

TABLE 2. Morphometric data for *Oreichthys elianae* (n=5) type series

Morphometric characters	Holotype	Range (includes holotype and paratypes) (n=5)	Mean ± SD
Standard length (mm)	25.4	21.1–25.4	
In percent of standard length			
Head length	29.7	28.6–29.8	29.3±0.5
Body depth	27.2	27.2–34.3	32.6±3.5
Pre-dorsal length	48.3	46.6–50.2	48.6±1.6
Dorsal-hypural length	34.1	34.1–38.4	36.5±1.8
Pre-anal length	68.7	68.7–72.8	71.1±1.7
Pre-pelvic length	49.1	49.1–52.6	50.8±1.5
Caudal peduncle length	21.7	12.3–16.5	14.5±1.7
Caudal peduncle depth	12.3	21.9–31.8	28.0±4.5
Dorsal-fin length	31.8	21.9–31.8	28.0±4.5
Anal-fin length	16.4	12.6–18.6	16.5±2.8
Pectoral-fin length	21.6	16.7–21.6	18.9±2.0
Pelvic-fin length	21.2	19.0–26.4	22.0±3.1
Head depth	20.8	20.3–22.8	21.7±1.3
Snout length	7.8	7.8–9.4	8.3±0.8
Eye diameter	10.0	9.5–10.0	9.9±0.2
Interorbital width	6.1	6.1–7.7	7.0±0.7
Internarial width	5.6	5.5–6.1	5.7±0.3

Oreichthys elianae (Figures 5, 6)

Holotype. ZSI/APRC/V/P 2565, 25.4 mm SL; Nagaland, Mokokchung District, Tsurang River at Medemyim Village; 26°29'50.7"N 94°21'07.1"E; Limaakum, 13 April 2024.

Paratypes. ZSI/APRC/V/P 2566, 21.1–24.1 mm SL; CIARI/FF-119, 1 ex., 21.8 mm SL, cleared and stained for osteology, same data as holotype.

Diagnosis. *Oreichthys elianae* can be readily distinguished from *O. cosuatis*, *O. andrewi*, *O. warjaintia* and *O. parvus* in having a prominent, large black blotch on caudal-fin base (vs. absent in *O. cosuatis* & *O. andrewi*, and small blotch in *O. warjaintia* & *O. parvus*), and absence (vs. presence) of a black spot on the anal fin. It further differs from *O. cosuatis* in having fewer branched rays on pelvic fin (8 vs. 9–10), fewer scales in longitudinal

series (19 + 1 vs. 19–21 + 2), and deeper caudal peduncle (21.9–31.8 vs. 13.8–14.6% SL); from *O. andrewi* and *O. warjaintia* in having incomplete (vs. complete) lateral line and fewer scales in longitudinal series (19 + 1 vs. 30 + 1 in *O. andrewi* and 25–27 + 1–2 in *O. warjaintia*); and from *O. parvus* in having fewer pored lateral-line scales (5 vs. 9–10), and greater number of pores on cheek (14–15 vs. 9–10). It differs from *O. crenuchoides* in having greater number of pre-dorsal scales (9 vs. 7), presence (vs. absence) of a distinct concave notch on predorsal profile, bright red (vs. yellow) dorsal, ventral and anal fins, concave (vs. convex) dorsoposterior margin of dorsal fin, and deeper caudal peduncle (21.9–31.8 vs. 16.6–18.2% SL).



FIGURE 5. *Oreichthys elianae* (a) Holotype, ZSI/APRC/V/P-2565, 25.4 mm SL (b) Paratype, APRC/ZSI/V/P-2566, 24.1 mm SL.

Description. Body slender, laterally compressed, its dorsal profile arched with distinct hump at nape, ventral profile convex. Body deepest at dorsal-fin origin, its depth decreasing towards caudal-fin base. Dorsal fin with two simple and 8½ branched rays, its posterior margin concave, its height equal to body depth in male and 1/3 in female. Pelvic reaching anal fin origin with one unbranched and nine branched rays; anal fin immediately behind anal opening with two unbranched and 5½ branched rays, not reaching caudal-fin base; pectoral fin reaching beyond pelvic fin origin with one simple and 13 branched rays. Caudal fin deeply forked, its lobes subequal, with 19 (1+9+8+1) rays. Lateral line incomplete, with 5 pored and 14 non-pored scales on body, plus 1 pored scale on base of caudal fin. Predorsal scales nine; scales in transverse line on body ½4/1/2½. Circumpeduncular scales 12. Gill rakers absent. Head small, its length almost equal to body depth, its dorsal profile ascending with indentation at nape. Eyes large, placed forward, their diameter almost equal to snout length. Mouth small, oblique, lips thin, lower jaw shorter than upper jaw, angle of gape reaching behind anterior margin of eye orbit, barbels absent. Snout blunt, devoid of tubercles. Nostrils closer to eye than snout tip. Fourteen to fifteen rows of papillae present on sub-orbital and extending onto pre-opercle. Caudal peduncle slender, its length between 1 and 1½ times its depth.

Colouration in life. Body pale yellowish-brown, becoming slightly reddish-brown dorsally and fading to pale yellowish-white ventrally. Opercle with faint golden sheen. Scale margins bordered by melanophores. Dorsal surface of head and snout golden-yellow, ventral side silvery. Dorsal, pelvic, anal and caudal fins red, immediately losing colour when stressed. Apical portion of first 4 dorsal-fin rays wine-red, with with a black spot on distal end. Caudal-fin base with iridescent turquoise-blue ovoid spot, 3–4 scales wide. Humeral blotch black on 5th perforated scales. No visible sexual dimorphism.

Colouration in preservative. Body yellowish-cream, head greyish. All fins hyaline. Lateral and dorsal scales with melanophores at base, forming a crescent-shaped black bar, margins of scale darker than centre, forming a reticulate pattern on body. Caudal-fin base with black blotch, 3–4 scales wide. Humeral blotch faint black, covering 3rd to 5th perforated scales.

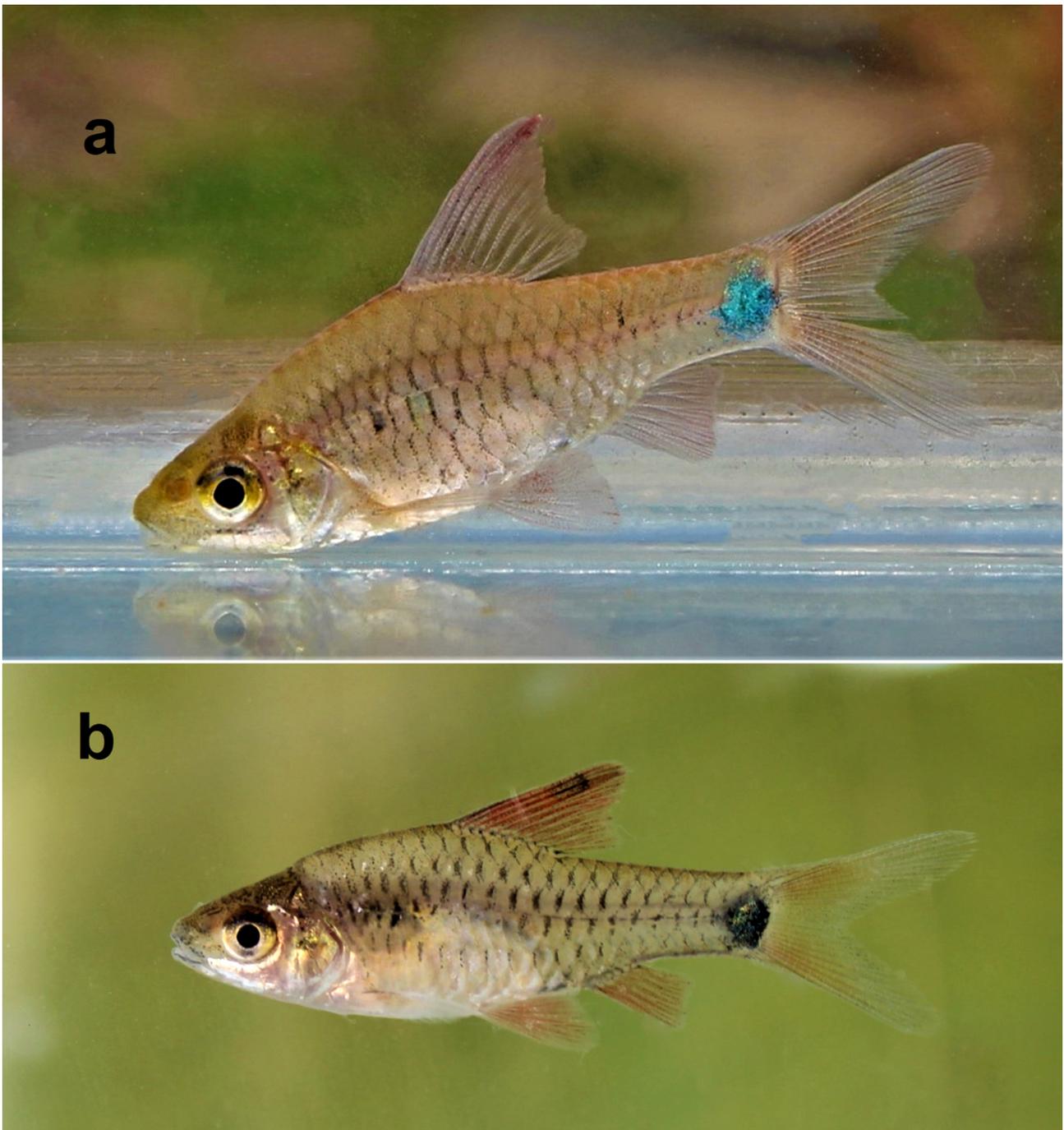


FIGURE 6. *Oreichthys elianaе*, in life (a) Holotype, ZSI/APRC/V/P-2565, 25.4 mm SL (b) Paratype, ZSI/APRC/V/P-2566, 21.8 mm SL.

Distribution and habitat. *Oreochthys elianae* is currently known only from the Longpha River, a small tributary of Tsurang River (a Brahmaputra tributary) in Mokokchung District, Nagaland, Northeast India. The habitat consists of muddy water with silty bottom, and surrounding riparian vegetation (Fig. 7). Co-occurring species include *Pethia* sp., and *Devario* sp.

Etymology. The species is named after Eliana, daughter of Late Limaakum, who collected the type series, but unfortunately passed away before the study began; honouring one among his last wishes.



FIGURE 7. Habitat of *Oreochthys elianae*, Tsurang River at Medemyim Village, Mokokchung District, Nagaland, India.

Discussion

Glyptothorax sentimereni – comparisons with congeners in the Ganges-Brahmaputra-Meghna basin

Since it is widely recognized that *Glyptothorax* species are restricted to two or three adjacent river drainages or watersheds at most (Ng & Kottelat 2016, 2017), we compare *Glyptothorax sentimereni* only with species with plicate ventral surface of pectoral-fin spine, and first pelvic-fin ray, known from the Ganges-Brahmaputra-Meghna basin.

In addition to the species mentioned in the diagnosis, six species of *Glyptothorax* from Ganges-Brahmaputra-Meghna basin are known to possess plicate ventral surface of pectoral-fin spine, and first pelvic-fin ray viz., *G. brevipinnis*, *G. pectinopterus*, *G. conirostris*, *G. dakpathari*, *G. bhurainu* and *G. himalaicus*. *Glyptothorax sentimereni* differs from both *G. brevipinnis* and *G. pectinopterus* in possessing serrated (vs. smooth) posterior margin of dorsal-fin spine, longer thoracic adhesive apparatus reaching (vs. not reaching) posterior limit of pectoral-fin base and slender caudal peduncle (8.4–9.0% SL vs. 10.1–18.0); from *G. conirostris* and *G. himalaicus* in having thoracic adhesive apparatus completely encinctured by striae (vs. open caudally), lacking (vs. having) medial pit, and further from *G. conirostris* in lacking (vs. having) anteromedial striae of the thoracic adhesive apparatus, and from *G. himalaicus* in lacking (vs. having) irregular blotches on dorso-lateral surface of body. It differs from *G. dakpathari* in having rhomboid (vs. ovate) shaped thoracic adhesive apparatus, longer anal-fin base (16.4–20.3% SL vs. 12.1–12.9) and wider and deeper head (20.3–22.0% SL vs. 15.0–18.2 and 16.5–17.0% SL vs. 9.8–13.5), and from *G. bhurainu* in having rhomboid (vs. elliptical) shaped thoracic adhesive apparatus with ovoid (vs. spindle) shaped central depression and deeper body (17.1–19.6 vs. 13.6–14.6% SL).

Oreochthys elianae – Comparisons with congeners in Western Ghats

Members of the genus *Oreochthys* are distributed across India, particularly in the eastern and northeastern regions, and the southern peninsula. A single species, *O. parvus*, is also known from south-east Asia (Smith, 1933). Three

species of *Oreichthys* are known from the Western Ghats, a biogeographic region located at distance of over 2,000 km from the type locality of *O. elianae*. These three species are *O. coorgensis*, *O. duospilus*, and *O. incognito*. *Oreichthys elianae* can be differentiated from these three species in having fewer scales in longitudinal series (19 + 1 vs. 21–23 + 1–2), and more branched rays on pectoral fin (13–14 vs. 10–11). It further differs from *O. coorgensis* in lacking (vs. having) a black bar on anal fin, and greater number of predorsal scales (9 vs. 6–7); from *O. duospilus* in having fewer pored lateral-line scales (5 vs. 11–21) and lacking (vs. having) a black spot on anal fin; and from *O. incognito* in having more predorsal scales (9 vs. 8), and more scales in transverse row ($\frac{1}{2}3/1/2\frac{1}{2}$ vs. $\frac{1}{2}3/1/1\frac{1}{2}$).

Nagaland lies at the confluence of Himalayan and Indo-Burma biodiversity hotspots. This region's remarkable diversity stems directly from its complex geological past, including the Tertiary collision of the Indian plate with Asia, which uplifted the Tibetan Plateau and induced significant climatic changes, drainage shifts, and tectonic disturbances (Brookfield, 2008). These events, further affected by lateral and vertical movements, and phenomena such as river capture, shaped the current river basins of the Indo-Burma Hotspot and the eastern part of the Himalayas (formerly the Eastern Himalaya Hotspot), two global biodiversity hotspots (Mittermeier *et al.* 2004; Allen *et al.* 2012). The linkage between freshwater fish distributions and the evolutionary patterns of these basins highlights how vicariance and dispersal have impacted contemporary patterns of endemism and species richness in the region (Burridge *et al.* 2006, 2007). A comprehensive biogeographical analysis, encompassing these two regions, along with reconstructions of paleo-drainages, would bring to light the drivers of northeast India's fish biodiversity, which encompasses over 400 freshwater species across multiple families (Pandey & Rameshori, 2024).

Comparative material

Glyptothorax hymavatiae: SISGHYM/NBFGR (1), 1 ex., 153.2 mm SL; India: Arunachal Pradesh: West Kameng District: Doimukh stream, a small tributary of Kameng River, Brahmaputra River basin; SISGHYM.1/NBFGR (2), 2 ex., 99.4–108.1 mm SL; collection data same as above.

Glyptothorax brevipinnis: ZSI F 10134/1 (4), syntypes, 4 ex., 44.6–79.0 mm SL; India.

Glyptosternum conirostre: NMW 46574 (1), 1 ex., syntype, India: Himachal Pradesh, Shimla (photograph examined).

Glyptothorax pectinopterus: ZSI/NRC 10636 (2), 2 ex., 55.6–67.1 mm SL; India: Uttarakhand: Tons River, Dehradun District.

Glyptothorax dakpathari: ZSI/NRC V-988 (1), holotype; 116.8 mm SL, ZSI/NRC V-989 (2), 103.2–110.0 mm SL, paratypes; India: Uttarakhand, Yamuna River below Dakpathar barrage, Dehradun District, India.

Glyptothorax himalaicus: ZSI/NRC F-10671, holotype; 92.2 mm SL, India: Uttarakhand: Ganges River at Haridwar.

Glyptothorax bhurainu: ZSI/NRC F-10669, holotype, 63.7 mm SL; ZSI/NRC F-10670 (6) 61.5–69.9 mm SL, paratypes; India: Uttarakhand: Ganges River at Haridwar.

Glyptothorax punyabratai: SISGPUN/NBFGR (1), 1 ex., 125.4 mm SL; India: Arunachal Pradesh: Tung Stream, a tributary of the Tissa River in the Brahmaputra River basin; SISGPUN.1/NBFGR (2), 2 ex., 112.2–144.0 mm SL; collection data same as for above.

Glyptothorax striatus: CIARI/FF-118, 2 ex., 100.5–138 mm SL, Nagaland, India.

Oreichthys cosuatis: CIARI/FF-116, 4 ex., 27.3–31.0 mm SL, Toofanganj, Cooch Behar District, West Bengal, India.

Oreichthys crenuchoides: CIARI/FF-117, 4 ex., 21.0–25.0 mm SL, River Jorai, near Barobisha, Jalpaiguri District, West Bengal, India.

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