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Garra phewakholaensis, a new species of stone sucker from Nepal (Cypriniformes: Cyprinidae)

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ABSTRACT

Garra phewakholaensis sp. nov., is described from Phewakhola stream near Gajurmukhidham, Mangsebung Rural Municipality, Ilam district, Nepal. It is a member of smooth snouted group. *Garra phewakholaensis* sp. nov., is distinguished from its congeners by the following combination of characters: snout is smoothly rounded at the tip, with the head being moderately large and slightly depressed. The lateral surface of the snout lacks tubercles between the anterior barbel and the anterior eye margin. The mouth is broader than the snout length. The lateral line is fully developed, consisting of 35–36 scales; four transverse scales above the lateral line and 14 circumpeduncular scale rows. The predorsal region contains 11 regularly arranged scales. Both the chest and abdomen exhibit deeply embedded scales. The torus width is 106.3–129.0% of the disc length, with a width to length ratio of 6.6–10.5.

Keywords: Freshwater fish diversity, gular disc, labeonini, morphology.

1. INTRODUCTION

The stone suckers of the genus *Garra* Hamilton 1822 are cyprinid fishes of the subfamily Labeoninae Bleeker 1859, characterized by the presence of a gular disc; they typically inhabit fast-flowing rivers and streams with rock or gravel substrates. The genus comprises 191 valid species which are distributed in Africa and Asia (Shangningam et al., 2021). Based on the snout morphology, Nebeshwar and Vishwanath, (2017) divided the South Asian species of *Garra* species into five distinct groups: (i) The smooth-snouted species group; (ii) Transverse-lobe species group; (iii) Proboscis species group; (iv) Rostral-flap species group; and (v) Rostral-lobe species group.

They includes the following South and Southeast Asian species into the smooth snouted species group: *Garra abhoyai* Hora, (1921); *Garra annandalei* Hora, (1921); *G. apogon* Norman, (1925); *G. borneensis* Vaillant, (1902); *G. cambodgiensis* Tirant, (1884); *G. chakpiensis* Nebeshwar and Vishwanath, (2017); *G. chaudhurii* Hora, (1921); *G. compressa* Kosygin and Vishwanath, (19980; *G. emarginata* Kurup and Radhakrishnan, (2011); *G. cyclostomata* Mai, (1978); *G. dampaensis* Lalronunga, Lalnuntluanga and Lalramliana, (2013); *G. dulongensis* Chen, Pan, Xiao & Yang, (2012); *G. fasciacauda*

Fowler, 1937; *G. gracilis* Pellegrin and Chevey, (1936); *G. hughi* Silas, (1955); *G. imberbis* Vinciguerra, (1890); *G. kalakadensis* Rema, (1992); *G. lamta* (Hamilton, 1822); *G. menoni* Rema and Indra, (1984); *G. mlapparaensis* Kurup and Radhakrishnan, (2011); *G. naganensis* Hora, (1921); *G. nambulica* Vishwanath and Joyshree, (2005); *G. notata* Blyth, (1860); *G. nujiangensis* Chen, Zhao & Yang, (2009); *G. poilanei* Petit and Tchang, (1933); *G. rupicola* McClelland, (1839); *G. spilota* Kullander and Fang, (2004); *G. surendranathanii* Shaji, Arun & Easa, (1996); *G. tengchongensis* Zhang and Chen, (2002); *Garra theunensis* Kottelat, (1998); *G. ukhrulensis* (Nebeshwar and Vishwanath, 2017).

Subsequently described members of this species group are *Garra nepalensis* Rayamajhi and Arunachalam, (2017), *G. dengba* Deng, Cao and Zhang, (2018), *G. yajiangensis* Gong, Freyhof, Wang, Liu, Liu, Lin, Jiang & Liu, (2018), *G. chivaensis* Moyon and Arunkumar, (2020), *G. langlungensis* Ezung, *G. jaldhakaensis* Kosygin, and *G. chingaiensis* Abonmai, Linthoingambi, Ngangbam, Thoidingjam and Singh, (2023). The species group thus includes a total of 38 species in the region. Diverse reports exist in the field of ichthyology in Nepal regarding the overall count of fish species identified in the country (Edds, 2007). Following early works by Shrestha, (1981), Rajbanshi, (1982), Shrestha, (1995), and Shrestha, (2019) published their seminal monograph, which listed 171, 179, 183 and 252 species.

The continued introduction of non-native species for aquaculture and the improvement of native fisheries, the listing of synonyms and misidentifications, and an increase in ichthyological activity over the past 25 years Edds, (2007), including published descriptions of new species are some of the reasons for the varying accounts of the number of fish species recorded for Nepal Terashima, (1984), Ng and Edds, (2004), Ng and Edds, (2005a), Ng and Edds, (2005b), Ng, (2006), Conway et al., (2011), plus new records for species discovered to exist in the country (Edds, 1985; Shrestha and Edds, 2012; Rai, 2022; Limbu et al., 2023; Limbu et al., 2024a; Limbu et al., 2024b; Subba et al., 2024).

Previously, a total of 9 species of *Garra* has been reported from Nepal: *G. annandalei* Hora, (1921), *G. gotyla* Gray, (1830), *G. kempi* Hora, (1921), *G. lamta* Hamilton, (1822), *G. lissorhynchus* McClelland, (1842), *G. mullya* Sykes, (1839), *G. nasuta* McClelland, (1838), *G. nepalensis* Rayamajhi and Arunachalam, (2017), and *G. rupicola* (McClelland, 1839) (Shrestha, 2019). However, the records of two species (*G. mullya* and *G. rupicola*) need verification based on specimens collected in Nepal. A collection of fishes from Phewakhola stream near Gajurmukhidham, Mangsebung Rural Municipality, Ilam district, Nepal, included an undescribed species of *Garra* belonging to the smooth-snouted species group, which is described herein as *Garra phewakholaensis* sp. nov.

2. MATERIAL & METHODS

The ichthyological survey was conducted in the Phewkhola stream from 25 January to 14 March 2019 (Figure 1). The samples were collected using a cast net (3 to 5 m diameter, 0.5–2 cm mesh size), and a gill net (0.5–2.5 cm mesh size). The captured fish specimens were preserved in 10% formaldehyde solution in plastic jars, with their head positioned upright in order to protect the caudal fins. All specimens were assigned a collection number to facilitate sample tracking. Voucher specimens were deposited at the Museum of Biological Research and Conservation Centre (BRCC), Koshi Province, Jhapa district, Nepal.

Morphological measurements, and meristic observations follow (Conway et al., 2011). A digital Vernier caliper was used for point-to-point measurements, and data were recorded to the nearest tenth of a millimeter from the specimen's left side. Median fin rays and vertebral counts were counted using lateral radiographs. Paired fin rays were counted under a dissecting microscope. Head length and measurements of body parts are given as proportions of standard length (SL).

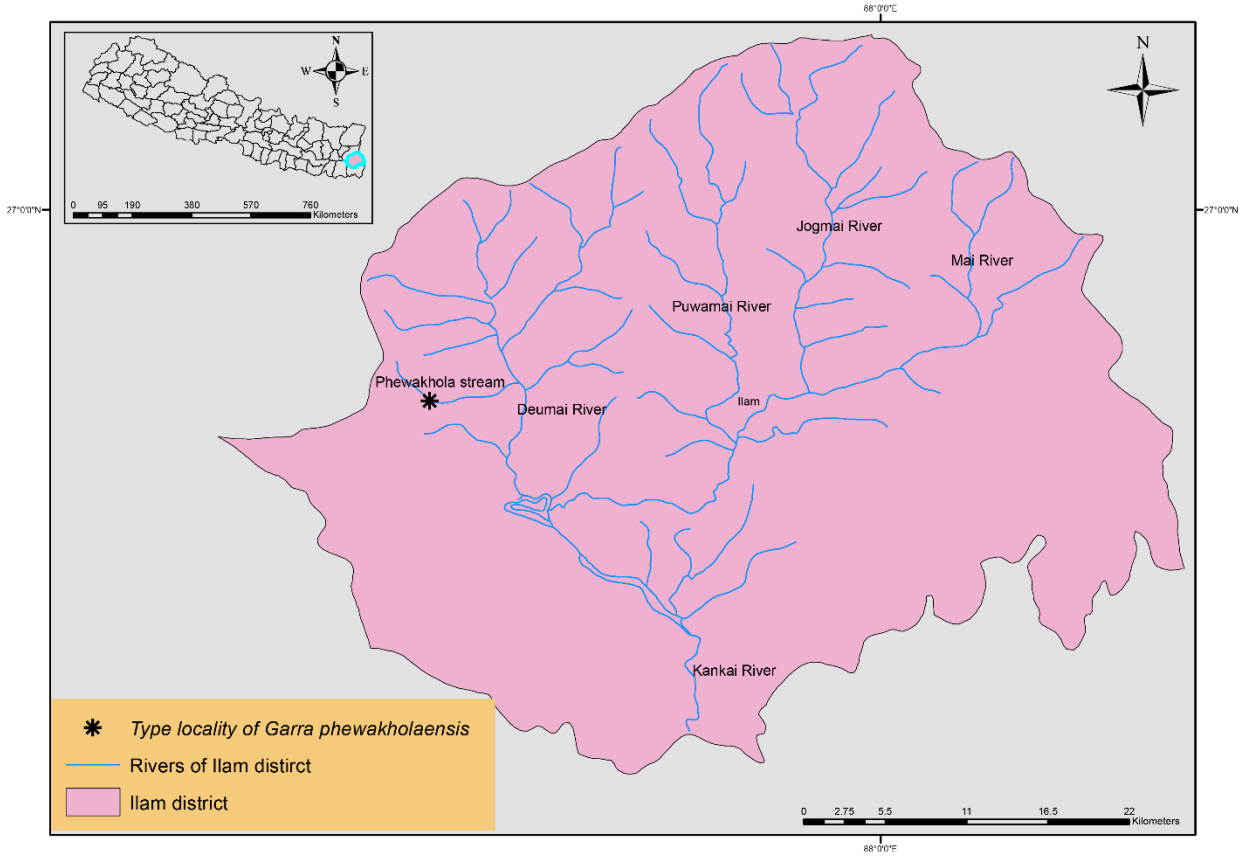

Figure 1 Map showing type locality of *Garra phewakholaensis* sp. nov., Phewakhola stream, Mangsebung Rural Municipality, Ilam.

3. RESULTS

***Garra phewakholaensis* sp. nov.**

(Figures 2-3)

Holotype

BRCC 30201, 69.5 mm SL; Nepal: Koshi Province: Ilam district, Mangsebung Rural Municipality: Phewakhola stream, 26.884166°N, 87.72611°E, 881 masl, Limbu JH, 21 March 2019.

Paratype

BRCC 30202, BRCC 30203 62.7–66.8 mm SL; same data as holotype.

Diagnosis

Garra phewakholaensis sp. nov., belongs to a members of the smooth snouted species group; it is distinguished from congeners by the following combination of characters: smoothly rounded snout tip; head moderately large and slightly depressed; lateral surface of snout without tubercles in between anterior barbel to anterior eye margin; Width of mouth longer than snout length; lateral line complete with 35–36 scales; Transverse scales above lateral line 4; circumpeduncular scale rows 14; predorsal scales 11, regularly arranged; chest and abdomen with deeply embedded scales; width of torus 106.3–129.0 % disc length, width 6.6–10.5 times in its length.

Figure 2 *Garra phewakholaensis* sp. nov., BRCC 30201, holotype, 69.5 mm SL; Nepal: Ilam, Phewakhola stream (A, Lateral, B, dorsal and C, ventral views).

Description

General body shape as in Figure 2 and 3 (for other congeners Figure 4). Biometric data are presented in (Table 1). Body elongate and cylindrical, compressed in the caudal-peduncle region. Dorsal head profile slightly rising, thereafter, slightly rising to dorsal fin origin, then gently decreasing to the caudal peduncle origin. Dorsal body profile slightly convex. Ventral profile concave from the tip of snout to the pelvic fin, then slightly convex until the caudal fin origin. Ventral profile from pectoral-fin origin to pelvic-fin region flat. Head moderately large and slightly depressed, interorbital distance flat. Head depth at nape shorter than head length. Smoothly rounded snout tip, transverse lobe and tubercles absent; lateral surface of snout and preorbital region without tubercles.

Eye situated dorsolaterally, in posterior half of head. Two pairs of barbels; rostral barbel located anterolaterally, shorter than eye diameter; maxillary barbel located at corner of mouth, longer than rostral barbel. Rostral cap fimbriate, papillate on ventral surface. Upper jaw mostly covered by rostral cap. Torus slightly squarish, rarely rounded, labella and labrum entirely covered by small papillae, its width less than disc length. Gular disc well developed, but its shape and size variable. Gular disc elliptical or slightly squarish, its width greater than its length. Gular grooves moderately distinct. Pulvinus wider than long, with few papillae. Labrum well developed, longer than torus. Width of mouth longer than snout length. Dorsal fin with 3 unbranched and 6 branched rays.

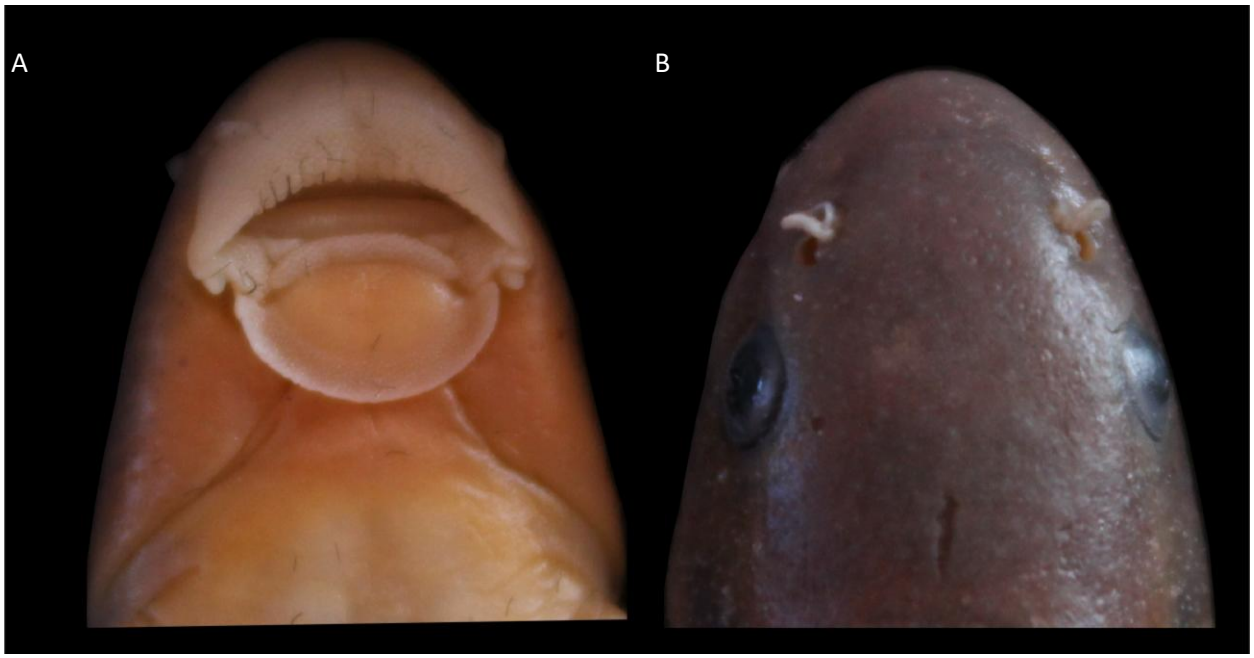

Figure 3 *G. phewakholaensis*; BRCC 30201, holotype, 69.5 mm SL, A, mental adhesive disc and B, dorsal of head.

Its second unbranched ray is the longest (84% of dirsal fin depth); length of first branched ray 74.5% of dorsal fin depth; second branched ray much shorter 59.7% of the dorsal fin depth. Pelvic fin with single unbranched and 7 branched rays, long axillary scale at the base of pelvic fin. Pectoral fin with single unbranched ray and 12–13 branched rays, caudal fin forked with 19 principle rays; tips of lobes slightly pointed. Caudal peduncle almost twice as long as its minimal depth. Number of scales in between pectoral and pelvic fin 12. Anal fin with single unbranched and 5 branched rays. Number of scales in between anal fin origin and anus 3 or 4. Scales on dorsal fin base 5. Lateral line complete, running along midline of body, lateral line scales 35–36. Predorsal scales 11; regularly arranged; same size as flank scales, but smaller than belly scales; chest and belly scaled, scales deeply embedded on chest. Transverse scales above lateral line 4. Circumpeduncular scales 14. Total vertebrae 33.

Colour in preservative

Top of head, predorsal midline and dorsal side of body dark grey, sides of head and ventral side of body pale brown; sides of body mixed yellow and black, with some areas whitish. Certain scales are very dark, and the base of all ventral fins is yellowish brown, transitioning to creamy tips.

Distribution

Garra phewakholaensis sp. nov. is so far known only from the type locality, Phewakhola stream, a tributary of the Deumai River (Ganges River system), Ilam district, Nepal.

Habitat

This species was collected from Phewakhola stream (Figure 5) with swift water current, having big boulders, cabbles, pebbles and little sand. Other species with *G. phewakholaensis* sp. nov., were *Schistura multifasciata, S. prashadi, Schizothorax, plagiostomus,* and *Nazirator chelymoides.* All specimens were collected from water temperature of 22 °C, water velocity of 0.25 m/sec, water depth of 15 cm, and pH 7.5.

Etymology

The new species is named after the Phewakhola stream, where it was collected. This reflects the species geographic origin.

Figure 4 List of Nepalese *Garra* species: (A) *G. annandalei*, (B) *G. lissorhynchus*, (C) *G. gotyla*, (D) G. *nasuta*, (E) *G. kempi*, (F) *G. phewakholaensis* sp. nov.

Figure 5 Type locality of *Garra phewakholaensis* sp. nov., Mangsebung Rural Municipality, Ilam, Nepal.

Table 1 Morphometric data of *Garra phewakholaensis* sp. nov. (N = 3).

	Holotype	Paratypes		Range	Mean±SD
Standard length (mm)	69.5	62.7	66.8	62.7–69.5	66.3±3.4
In % of standard length					
Head length	23.8	25.4	24.9	23.8–25.4	24.7±0.8
Body depth	19.9	20.4	21.0	19.9–21.0	20.4±0.5
Predorsal length	46.9	50.0	49.3	46.9–50.0	48.7±1.6
Postdorsal length	37.8	37.0	37.5	37.0–37.8	37.4±0.4
Prepectoral length	21.5	22.3	22.8	21.5–22.8	22.2±0.6
Prepelvic length	50.3	55.1	56.4	50.3–56.4	53.9±3.2
Preanal length	74.3	78.1	77.0	74.3–78.1	76.4±1.9
Distance between pectoral and pelvic fin origin	24.3	28.0	28.6	24.3–28.6	26.9±2.3
Distance between pelvic and anal fin origin	19.1	20.3	21.7	19.1–21.7	20.3±1.3
Depth of caudal peduncle	11.7	12.3	13.9	11.7–13.9	12.6±1.1
Length of caudal peduncle	15.8	15.7	16.8	15.7–16.8	16.1±0.6
Dorsal fin base length	12.9	14.0	14.6	12.9–14.6	13.8±0.8
Pectoral fin base length	7.5	7.0	7.9	7.0–7.9	7.4±0.4
Pelvic fin base length	6.0	5.6	5.8	5.6–6.0	5.8±0.2
Anal fin base length	7.1	7.6	7.0	7.0–7.6	7.2±0.3
Length of caudal peduncle fin	21.3	21.1	22.1	21.1–22.1	21.5±0.5
In % of head length					
Head depth at eye	50.0	51.0	49.8	49.8–51.0	52.2±0.6
Snout length	45.7	46.8	46.3	45.7–46.8	46.2±0.5
Eye diameter	17.1	17.5	18.0	17.1–18.0	17.5±0.4
Interorbital distance	44.8	48.5	47.9	44.8–47.9	47.0±1.9
Disc length	22.5	24.4	25.4	22.5–25.4	24.1±1.4
Disc width	39.6	38.0	39.2	38.0–39.6	38.9±0.8

Width between anterior barbels	34.8	35.4	36.9	34.8–36.9	35.7±1.0
Width of mouth	48.1	48.9	49.5	48.1–49.5	48.8±0.7
Head width	71.6	69.3	72.4	69.3–72.4	71.1±1.6
Anterior barbell length	8.6	10.0	9.8	8.6–10.0	9.4±0.7
Posterior barbell length	9.5	9.4	9.5	9.4–9.5	9.4±0.05
In % of disc length					
Length of pulvinus	60.2	56.5	59.5	56.5–60.2	58.7±1.9
Width of pulvinus	118.9	109.0	120.5	109.0–120.5	116.1±6.2
Length of torus	12.2	16.1	14.9	12.2–16.1	14.4±1.9
Length of labrum	26.6	22.9	26.4	22.9–26.6	25.3±2.08
Width of torus	129.0	106.3	127.8	106.3–129.0	121.0±12.7

4. DISCUSSION

Among the five groups of *Garra* species categorized by Nebeshwar and Vishwanath, (2017), *Garra phewakholaensis* sp. nov., belongs to the members of the smooth snouted group. The new species is compared with the smooth snouted species group distributed in adjoining regions in India, and China (Tibet) as well as poorly developed proboscis and transverse lobe congeners. It distinguished from *G. gotyla, G. lamta*, and *G. nasuta* in having a lacking proboscis (vs. presence of a prominent trilobed proboscis). Furthermore, *G. phewakholaensis* sp. nov., is distinct from *G. gotyla* in having a greater number of lateral line scales (35-36+2 vs. 31-32), and shorter disc length (22.5–25.4% HL vs. 36.9-42.6). *G. phewakholaensis* sp. nov., is further distinct from *G. lamta* in having greater number of lateral line scales (35-36+2 vs. 33), and a longer head length (23.8–25.4% SL vs. 10-15.3). *G. phewakholaensis* sp. nov., is distinct from *G. lissorhynchus* in the absence of W-shaped band at anterior part of the caudal din (vs. presence).

Moreover, *G. phewakholaensis* sp. nov., is distinguished from *G. lissorhynchus* in having a scales on chest (vs. absence). *G. phewakholaensis* sp. nov., distinguished from *G. rupicola* in the absence of W-shaped band on the caudal fin (vs. presence). *G. phewakholaensis* sp. nov. is distinct from *G. annandalei* in having a greater number of lateral line scales (35-36 vs. 33), a greater number of pre-dorsal scale rows (11 vs. 9-10). *G. phewakholaensis* sp. nov., is distinguished from *G. nepalensis* in having low number of circumpeduncular scales (14 vs 16), a shorter postdorsal length (37.0–37.8% SL vs. 36.03-47.74). *G. phewakholaensis* sp. nov., is distinct from *G. mullya* in having a absent of broad lateral darkish band (vs. presence), and a shorter dorsal fin base (12.9–14.6% SL vs. 15.2-18.6). *G. phewakholaensis* sp. nov., is distinct from *G. kempi* in having scales on chest (vs. absence) and less number of lateral line scales (35-36 vs. 40-42).

G. phewakholaensis sp. nov., is distinguished from *G. khawbungi* in having a smooth snout (vs. weakly developed transverse groove on snout), a shorter snout (45.7–46.8% HL vs. 49.2–59.8), and more pre-dorsal scales (11 vs. 10). *G. phewakholaensis* sp. nov., is distinct from *G. chakpiensis* in having less lateral line scales (35–36 vs. 38–40), and less circumpeduncular scale rows (14 vs. 16). *G. phewakholaensis* sp. nov., is distinguished from *G. ukhrulensis* in having less number of lateral line scales (35–36+2 vs. 40–41), less circumpeduncular scale rows, and scales present on chest (vs. absent). *G. phewakholaensis* sp. nov., differs from *G. compressa* and *G. elongata* in having smaller adhesive disc (disc width 38.0–39.6% HL vs. 57–66, disc length 22.5–25.4 % HL vs. 47–55). *G. phewakholaensis* sp. nov., further differs from *G. elongate* in having snout with smooth surface (vs. weakly developed proboscis and transverse love), and a shorter caudal peduncle length (15.7–16.8% SL vs 19.2–20.7).

G. phewakholaensis sp. nov., differs from *G. abhoyai, G. nanyaensis, G. manipurensis*, and *G. paralissorhynchus* in having more anal fin branched rays (5 vs. 4), and having less dorsal fin branched rays (6 vs. 9 vs. 6; except in *G. manipurensis*); and in the absence (vs. presence; except in *G. abhoyai*) of a pair of rostral lobes on snout. *G. phewakholaensis* sp. nov., differs from *G. naganensis* in having absence (vs. presence) of a faint mid-lateral stripe on the body, and less lateral line scales (35–36+2 vs. 38). *G. phewakholaensis* sp. nov., differs from *G. litanensis* in having a snout with smooth surface (vs. prominent proboscis and a transverse lobe). *G. phewakholaensis* sp. nov., is distinct from *G. chivaensis* in having less predorsal scales (11 vs. 16), and presence of scales on chest (vs. absence). *G. phewakholaensis* sp. nov., further differs from *G. tengchongensis* in having less lateral line scales (35–36 vs. 37–38), shorter disc (22.5–25.4% HL vs. 36.1-42.5), less unbranched and branched dorsal fin rays (3/6 vs. 4/8).

G. phewakholaensis sp. nov., further differ from *G. nambulica, G. namyaensis,* and *G. poecilura* in having absence of W-shaped marks on caudal fin (vs. presence). *G. phewakholaensis* sp. nov., differs from *G. theunensis* in having less lateral line scales (35–36 vs. 48–49), more

branched dorsal fin rays (6 vs. 4), and longer head length (23.8–25.4% SL vs. 20.3–22.3). *G. phewakholaensis* sp. nov., is distinct from *G. emarginata* in having fork caudal fin (vs. emarginated), and less branched dorsal fin (6 vs. 8). *G. phewakholaensis* sp. nov., differs from *G. dengba* in having greater body depth (19.9–21% SL vs. 15.1–20.2), less predorsal scales (11 vs. 14–16). G. *phewakholaensis* sp. nov., is distinct from *G. dampaensis* in having greater number of lateral line scales (35–36 vs. 27–29), W-shaped black band across the middle of caudal fin absence (vs. presence), and shorter snout length (45.7–46.8% HL vs. 48.7–54.4).

G. phewakholaensis sp. nov., differs from *G. spilota* in having greater number of lateral line scales (35–36 vs. 31), and fewer circumpeduncular scales rows (14 vs. 16). *G. phewakholaensis* sp. nov., is distinct from *G. nujiangensis* in having presence of barbels (vs absence). *G. phewakholaensis* sp. nov., differs *G. langungensis* in having absence of proboscis (vs. weakly developed proboscis), more lateral line scales (35–36+2 vs. 31–32), less dorsal fin branched rays (6 vs. 8), lobes of caudal fin equal (vs. upper lobe slightly longer). *G. phewakholaensis* sp. nov., differs from *G. dulongensis* in having less lateral line scales (35–36 vs. 39–40). *G. phewakholaensis* sp. nov., is distinct from *G. fasciacauda* in having greatest number of lateral line scales (35–36+2 vs. 28), more number of predorsal scales (11 vs. 10), less dorsal branched fin rays (6 vs. 8), and presence of scales on chest (vs. absence). *G. phewakholaensis* sp. nov., differs from *G. notate* in having more lateral line scales (35–36 vs. 33–34), absence of one or two spot at the base of anal fin (vs. presence), and less number of anal fin branched rays (5 vs. 9).

G. phewakholaensis sp. nov., is distinct from *G. chaudhurii* in having greatest number of lateral line scales (35–36 vs. 32–33), and well-developed scales on ventral surface (vs. poorly developed). *G. phewakholaensis* sp. nov., is distinguished from *G. mlapparaensis* in having absence of tubercles on snout (vs. presence), greater body depth (19.9–21.0% SL vs. 18.64), and smaller eye diameter (17.1–18.0% HL vs 21.20). *G. phewakholaensis* sp. nov., differs from *G. menoni* in having presence of scales on chest (vs. absence), less pectoral fin branched rays (12–13 vs. 12–15), and absence of tubercles on snout (vs. presence). *G. phewakholaensis* sp. nov., is distinguished from *G. kalakadensis* in having less dorsal fin branched rays (6 vs, 8).

G. phewakholaensis sp. nov., differs from *G. surendranathanii* in having longer head length (23.8–25.4% SL vs. 18.25–21.98), shorter eye diameter (17.1–18.0% HL vs. 22.72–30.43), absence of tubercles on snout (vs. presence), and less dorsal fin branched rays (6 vs. 8). *G. phewakholaensis* sp. nov., distinct from *G. apogon* in having presence of barbels (vs. absence), less dorsal branched fin rays (6 vs. 8), less number of lateral line scales (35–36 vs. 40–42), and forked caudal fin (vs. emarginated). *G. phewakholaensis* sp. nov., distinct from *G. poilanei* in having less dorsal fin branched rays (6 vs. 8). *G. phewakholaensis* sp. nov., distinct from *G. hughi* in having scales on ventral surface (vs. absence), and less lateral line scales (35–36 vs. 36–39).

Comparative material

Garra kempi

BRCC 20211–20214, 78.4 mm SL, Morang, Lohandra River, Nepal.

Garra gotyla

BRCC 30311–30317, 85.2–103 mm SL, Morang, Lohandra River, Nepal.

Garra annandalei

BRCC 40420–40423, 78.5–98.3 mm SL, Phewakhola stream, Mangsebung Rural Municipality, Ilam, Nepal.

Garra nasuta

BRCC 40424–40428, 81.6–103.2 mm SL, Tamor River, Panchthar, Nepal.

Published information used for comparison.

Garra abhoyai Hora, (1921); *Garra annandalei* Hora, (1921); *G. apogon* Norman, (1925); *G. borneensis* Vaillant, (1902); *G. cambodgiensis* Tirant, (1884); *G. chakpiensis* Nebeshwar and Vishwanath, (2017); *G. chaudhurii* Hora, (1921); *G. compressa* Kosygin and Vishwanath, (1998); *G. emarginata* Kurup and Radhakrishnan, (2011); *G. cyclostomata* Mai, (1978); *G. dampaensis* Lalronunga, Lalnuntluanga andLalramliana, (2013); *G. dulongensis* (Chen, Pan, Xiao & Yang, 2012); *G. fasciacauda* Fowler, (1937); *G. gracilis* Pellegrin and Chevey, (1936); *G. hughi* Silas, (1955); *G. imberbis* Vinciguerra, (1890); *G. kalakadensis* Rema, (1992); *G. lamta* Hamilton, (1822); *G. menoni* Rema and Indra, (1984); *G. mlapparaensis* Kurup and Radhakrishnan, (2011); *G. naganensis* Hora, (1921); *G. nambulica* Vishwanath and Joyshree, (2005); *G. notata* (Blyth, 1860); *G. nujiangensis* Chen, Zhao & Yang, (2009); *G. poilanei* Petit & Tchang, (1933); *G. rupicola* McClelland,

(1839); *G. spilota* Kullander and Fang, (2004); *G. surendranathanii* Shaji, Arun and Easa, (1996); *G. tengchongensis* Zhang and Chen, (2002); *Garra theunensis* Kottelat, (1998); *G. ukhrulensis* (Nebeshwar and Vishwanath, 2017). Subsequently described members of this species group are *Garra nepalensis* Rayamajhi & Arunachalam, (2017), *G. dengba* Deng, Cao & Zhang, (2018), *G. yajiangensis* Gong, Freyhof, Wang, Liu, Liu, Lin, Jiang & Liu, (2018), *G. chivaensis* Moyon and Arunkumar, (2020), *G. langlungensis* Ezung, *G. jaldhakaensis* Kosygin, and *G. chingaiensis* (Abonmai, Linthoingambi, Ngangbam, Thoidingjam and Singh, 2023).

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Author contributions

Jash Hang Limbu and Dipak Rajbanshi contributed to the study conception and design. Data collection, and data analysis were performed by Jash Hang Limbu. The first draft of the manuscript was written by Jash Hang Limbu and all authors commented on previous versions of the manuscript. All authors read and approved the manuscript.

Ethical approval & declaration

In this article, as per the animal regulations followed in Shanghai Ocean University, Shanghai, China & Biological Research and Conservation Center (BRCC), Damak, Jhapa, Koshi Province, Nepal, the authors observed the *Garra phewakholaensis* sp. nov., from Phewakhola stream near Gajurmukhidham, Mangsebung Rural Municipality, Ilam district, Nepal. The Zoobank registered id 1079802C-867F-4B9E-A6F0-936537266452 (URL: http://zoobank.org/urn:lsid:zoobank.org:pub:1079802C-867F-4B9E-A6F0-936537266452) The Animal ethical guidelines are followed in the study for species observation, identification & experimentation.

Informed consent

Not applicable.

Conflicts of interests:

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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