

Garra banensis, a new species of labeonine (Teleostei: Cyprinidae) from the Tanintharyi drainage of southern Myanmar

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ABSTRACT

Garra banensis **sp. nov.**, a new species, is described from the Ban Chaung drainage, a tributary of Tanintharyi River in southeastern Myanmar. It is the first species of *Garra* formally described from the Tanintharyi drainage. *Garra banensis* **sp. nov.** is distinguished from other proboscis-bearing congeners in adjacent drainages of Southeast Asia by a combination of morphological characters, and well supported by phylogenetic analyses and genetic distance with *COI* gene. It can be diagnosed by the following combination of characters: snout rounded, transverse lobe present, nearly quadrate developed proboscis slightly upturned, central callous pad longer and its length 26.1–32.7% of head length, chest scaled, lateral-line scales 32–33, transverse scale rows above lateral line 4.5, transverse scale rows below lateral line 4.5, predorsal scales 9, circumpeduncular scales 12.

Keywords: Southeast Asia; Taxonomy; freshwater fish; Phylogeny

INTRODUCTION

Garra Hamilton 1822, comprising 196 valid species (Fricke et al., 2026), is one of the most species-rich genera of freshwater fishes worldwide. It exhibits a vast distributional range, extending from western Africa to southeastern China, and from Turkey and Afghanistan in the north to Borneo in the south (Freyhof et al., 2025). Myanmar is recognized as a biodiversity hotspot, hosting a complex network of rivers and

streams that likely supports a high diversity of fish within the genus *Garra* (Wang et al., 2024). The documented history of *Garra* in Myanmar begins with Vinciguerra (1890), who reported *G. lamta* (Hamilton 1822) from Kachin State, Mekane, Dawana Hills, as well as *G. imberbis* (Vinciguerra, 1890) from the Tao region, a species now considered likely to belong to the genus *Ageneiogarra* Garman 1912 (Liu et al., 2026). Annandale (1919) described *G. gravelyi* (Annandale, 1919) from Inle Lake, considering it is endemic to the Inle Lake basin within the Salween drainage. Hora (1921) listed *G. gravelyi*, *G. nasuta* (McClelland, 1838), *G. notata* (Blyth, 1860), and *G. rupecula* (McClelland 1839) for the Manipur River. Subsequently, Hora & Mukerji (1934) described the new species *G. salweenica* Hora & Mukerji 1934 from the Salween River. Menon (1964) compiled a list recognizing nine species in Myanmar. A significant contribution was made by Kullander & Fang (2004), who described seven new species of *Garra* from southwestern Myanmar and provided a systematic review of the genus in the region. Subsequent records include *Garra qiaojiensis* Wu & Yao 1977 and *G. bispinosa* Zhang 2005, which were reported from the Putao region as newly recorded species for Myanmar by Qin et al. (2017). Tangjitjaroen et al. (2023) described *G. panitvongi* Tangjitjaroen, Randall, Tongnunui, Boyd & Page 2023, a new species of *Garra* from the Ataran and Salween river drainages, in southeastern Myanmar and western Thailand. Phylogenetic analysis by Wang et al. (2024) indicates that there are at least 22 putative species of *Garra* in Myanmar, including eight undescribed species. In addition, several species originally described from China have also been reported to occur in Myanmar, such as *G. rotundinotus* Zhang

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2006, *G. surgifrons* Zhou & Sun 2018 and *G. longchuanensis* Yu, Wang, Xiong & He 2016 (Chen & Zeng, 2025).

Kottelat (2015) recorded a *Garra* sp. from the Tanintharyi drainage but provided no detailed description; the accompanying photograph, being only a lateral view, is insufficient to determine whether it represents the species described herein. In April to May 2019, the authors conducted an ichthyological survey in the Tanintharyi drainage of southeastern Myanmar. During this survey, specimens of a morphologically distinctive species of *Garra* were collected from Ban Chaung, a headwater tributary of Tanintharyi River. These specimens were subsequently identified as an undescribed species and are herein formally described.

MATERIALS AND METHODS

Morphometric measurements were recorded with digital calipers at a precision of 0.1 mm. All values are standardized as percentages of standard length (SL) or head length (HL). Measurements follow Kullander & Fang (2004) except for head depth, which was measured as the maximum vertical depth from the dorsal to the ventral head margin, and the length of the dorsal, pectoral, pelvic, and anal fins, which were defined as the distance extending from the base of the first ray to the tip of the longest ray. We recorded the total number of rays for paired fins and the number of simple and branched rays for unpaired fins. The last branched ray of the dorsal and anal fins, sharing a pterygiophore with the penultimate ray, is counted as one ray, following Hubbs & Lagler (2004). Scales between the anus and anal fin were counted, including only those that were fully exposed. The lateral-line scale count follows the method of Kullander & Fang (2004), excluding the scales on the caudal-fin base. Transverse scale counts included scales above the lateral line (lateral line to dorsal-fin origin) and scales below the lateral line (lateral line to anal-fin origin), and the scale immediately in front of the dorsal fin and the anal fin was counted as 0.5. The predorsal scale count included all the scales on the dorsal midline in front of the dorsal-fin origin. Measurements and counts were taken on the left side when possible. Descriptions of the snout and the oromandibular structures follow Nebeshwar & Vishwanath (2013). Specimens examined were deposited in the Southeast Asia Biodiversity Research Institute, Chinese Academy of Sciences, Naypyidaw, Myanmar (CAS-SEABRI) and Kunming Institute of Zoology, Chinese Academy of Sciences, Kunming, China (KIZ).

All images of live specimens were taken soon after capture. Figures were edited using Adobe Photoshop CC 2021.

DNA was extracted from pelvic fin tissues using the Cell/Tissue DNA Isolation Mini Kit (Vazyme Biotech Co., Ltd., Nanjing, China). Mitochondrial *cytochrome oxidase subunit I* (*COI*) was amplified by polymerase chain reaction (PCR) and sequenced using the following primers: LCO1490 5'-GGT CAACAAATCATAAAGATATTGG-3', HCO2198 5'-TAACTTC AGGGTGACCAAAAAATCA-3' (Yang et al., 2010). PCR products were sent to Sangon Biotech (Shanghai, China) for purifying and sequencing.

For phylogenetic analysis, 67 individuals representing 42 species of *Garra* were included as ingroup taxa (Supplementary Table S1). Among them, two sequences of *G. banensis* sp. nov. were obtained in this study, whereas the remaining sequences were retrieved from the supplementary materials of Wang et al. (2024) and from GenBank. Two sequences from *Tariqilabeo bicornis* and *T. burmanicus* were

chosen as outgroups (Supplementary Table S1). Sequence alignment was performed using MAFFT v.7.313 (Kato & Standley, 2013) and checked manually for inconsistencies. The optimal partitioning scheme and corresponding nucleotide substitution models were selected with PartitionFinder2 (Lanfear et al., 2017) under the corrected Akaike Information Criterion (AICc). Phylogenetic relationships were reconstructed using both Bayesian Inference (BI) and Maximum Likelihood (ML) methods. The BI analysis was conducted with MrBayes v.3.2.6 (Ronquist et al., 2012) employing the partition model. Two parallel runs of 10 million generations each were executed, sampling trees every 1 000 generations. The first 25% of sampled trees were discarded as burn-in, and stationarity was confirmed by ensuring the average standard deviation of split frequencies fell below 0.01. The ML analysis was implemented in IQ-TREE v.2.2.0 (Nguyen et al., 2015), with branch support assessed by 10 000 ultrafast bootstrap replicates (Minh et al., 2020). The entire workflow was managed within the PhyloSuite v.1.2.2 platform (Zhang et al., 2020). The resulting phylogenetic trees were visualized and annotated using FigTree v.1.4.4 (<http://tree.bio.ed.ac.uk/software/figtree/>).

RESULTS

Taxonomy

Garra banensis sp. nov.

Holotype: SEABRI20190647, 54.1 mm SL, Myanmar: Upper Tanintharyi drainage: Tanintharyi Province: Ban Chaung, Myitta village, Dawei, N14.159713°, E98.524404°, 2 May 2019, leg. Xiao-Yong Chen, Nay Htet Naing, Feng Lin, Bo-Yang Shi, Ye Yint Tun.

Paratypes: SEABRI20190648–51, S20195885–97, 17 specimens, 36.8–50.6 mm SL, same data as holotype.

Non-types: S20195901–07, 7 specimens, 30.9–38.2 mm SL, same data as holotype.

Diagnosis: This new species can be distinguished from all other congeners in the Irrawaddy, Chindwin, Mekong, Mae Klong and Salween river drainages by the combination of the following characters: snout blunt, transverse lobe present, nearly quadrate developed proboscis slightly upturned, central callous pad longer and its length 26.1–32.7% of head length, chest scaled, lateral line scales 32–33, circumpeduncular scales 12, transverse scales rows above lateral line 4.5, transverse scales rows below lateral line 4.5, predorsal scales 9.

Description: Morphometric and meristic data in Table 1, shape and color in Figures 1–3. Body elongate, moderately laterally compressed. Dorsal profile rising moderately from snout, attaining maximum depth at dorsal-fin origin, then descending gently to caudal peduncle; dorsal profile slightly convex from head to dorsal-fin origin, often with slight demarcation at nape. Ventral profile moderately convex to anal-fin origin. Head moderate in size, length 24.5–28.1% of standard length; interorbital space slightly convex; Head depth less than head width, both less than head length. Eye dorso-laterally positioned on upper half of head. Sublachrymal groove shallow, not connected to rostral cap groove. Barbels in two pairs; rostral barbel antero-laterally located at anterior margin of sublachrymal groove, shorter than eye diameter; maxillary barbel at corner of mouth, shorter than rostral barbel.

Snout moderately blunt with transverse lobe, which covered with many large-sized tubercles; posteriorly delimited by a

Table 1 Morphometric and meristic data for *Garra banensis* sp. nov. and *G. jiulongi*

	<i>Garra banensis</i> sp. nov.				<i>Garra jiulongi</i>		
	n=18				n=15		
	Holotype	Range	Mean	SD	Range	Mean	SD
Standard length, SL (mm)	54.1	36.8–54.1			73.8–134.6		
In percent of SL							
Body depth	22.4	19.8–23.8	21.7	1.2	18.1–25.5	21.4	2.0
Head length, HL	26.8	24.5–28.1	26.4	1.0	20.7–24.2	22.4	0.9
Head depth	17.0	15.1–17.7	16.6	0.7	13.0–15.6	14.0	0.5
Head width	18.5	17.5–19.9	18.5	0.7	14.9–18.8	16.2	0.9
Predorsal length	48.1	47.8–52.2	49.5	1.2	43.5–50.2	46.5	1.7
Prepectoral length	24.8	22.5–26.8	25.1	1.0	20.1–24.3	21.9	1.2
Prepelvic length	57.1	54.9–59.6	56.6	1.2	48.1–54.4	51.2	1.5
Preanal length	83.5	78.8–87.8	83.3	2.1	71.2–76.6	73.7	1.6
Caudal-peduncle length	13.7	11.6–15.2	13.3	1.0	16.4–19.7	18.1	1.1
Caudal-peduncle depth	12.4	10.6–13.2	12.0	0.7	11.8–14.5	12.7	0.6
Dorsal-fin length	31.6	22.4–33.7	27.8	3.2	21.7–25.9	24.1	1.2
Pectoral-fin length	22.4	17.1–25.6	21.6	3.0	20.1–24.5	21.9	1.2
Pelvic-fin length	23.5	18.0–23.5	20.5	1.7	18.8–22.0	20.5	0.9
Anal-fin length	22.4	19.2–23.5	21.0	1.2	18.5–22.6	20.2	0.9
Dorsal-fin base length	18.3	15.0–19.6	17.9	1.5	17.1–19.5	18.4	0.8
Anal-fin base length	9.5	6.4–9.5	7.8	0.7	7.9–9.6	8.6	0.4
Snout length	11.8	10.8–13.2	11.8	0.7	11.6–13.8	12.1	0.6
Eye diameter	6.7	6.2–7.9	7.1	0.4	3.9–5.3	4.6	0.4
Interorbital distance	12.6	11.1–13.3	12.1	0.6	9.6–11.9	10.5	0.6
In percent of HL							
Head depth	63.4	56.0–68.5	62.9	3.0	59.0–66.9	62.5	2.2
Head width	69.0	64.8–75.1	70.2	2.4	68.2–77.8	72.2	2.6
Snout length	44.2	40.1–52.2	44.7	2.9	51.3–57.0	54.1	2.0
Eye diameter	24.8	23.6–30.8	36.8	2.2	17.2–22.5	20.4	1.7
Interorbital distance	46.9	42.1–48.2	45.8	1.9	42.6–50.5	47.0	1.8
Disc width	55.9	51.5–61.6	55.9	2.8	45.7–52.8	49.0	2.1
Disc length	49.0	38.4–49.0	43.3	2.4	31.1–38.0	34.3	1.5
Central callous pad width	33.8	29.6–40.2	35.3	2.7	25.7–31.3	28.4	1.6
Central callous pad length	26.2	26.1–32.7	29.3	2.0	16.8–22.0	19.4	1.3
Dorsal rays	iii, 8	iii, 8			iii, 8		
Anal rays	iii, 5	iii, 5			iii, 5		
Pectoral rays	13	13–14			15–16		
Pelvic rays	8	8			9		
Lateral-line scales	32	32–33			32–34		
Circumpeduncular scales	12	12			12		
Predorsal scales	9	9			9–10		
Scale rows above lateral line	4.5	4.5			3.5		
Scale rows below lateral line	4.5	4.5			3.5		

deep transverse groove. Unlobed, nearly quadrate developed proboscis slightly upturned in larger individuals, without or with shallow depression in middle; poorly developed proboscis downward against snout in small. Anterior region of proboscis with two large uni-cusped acanthoid tubercles; demarcated from depressed rostral surface by transverse groove. Lateral surface of snout slightly raised, with approximately 9–10 small tubercles (Figure 2). Rostral cap well-developed, highly fimbriate; about one third of the distal margin on each lateral extremity smooth; mid-posterior margin slightly notched, papillate ventral surface moderately wide. Upper lip absent. Disc elliptical, wider than long and marginally narrower than head width through roots of maxillary barbel; posterior margin of disc surpassing vertical anterior margin of eye, not reaching posterior margin of eye; antero-lateral lobe of lower lip

present, each latero-posterior flap exhibits a single shallow notch located laterally on each antero-lateral portion. Granular papillae densely arranged on antero-median fold; groove separating antero-median fold and central pad broad and shallow; papillae on latero-posterior flap coarsely arranged, latero-posterior flap indistinctly separated from central pad. Central callous-pad elliptical, with small papillae scattered on anterior marginal surface, distinctly separated from isthmus region (Figure 2).

Lateral line complete with 32 (3) or 33 (15) scales. Transverse scale rows above lateral line 4.5, and below lateral line to anal-fin origin 4.5. Circumpeduncular scales rows 12. Predorsal scales 9, scales arranged regularly, smaller than flank scales. Chest and belly fully scaled. Pelvic axillary scale elongate, surpassing posterior end of pelvic-fin base. Preanal



Figure 1 *Garra banensis* sp. nov., holotype, SEABRI20190647, 54.1 mm SL



Figure 2 Head of *Garra banensis* sp. nov., showing disc, transverse lobe and proboscis

A: ventral view of holotype. B: dorsal view of holotype. C: dorsal view of paratype SEABRI20190649, 46.9 mm SL.

scales 5 (14) or 6 (4). Dorsal-fin base scales 5 (6), 6 (9) or 7 (3). Anal-fin base scales 3.

Dorsal fin with 3 simple and 8 branched rays; origin inserted anterior to vertical through pelvic-fin origin; the last branched ray not reaching vertical to anal-fin origin; first branched ray longest. Pectoral fin with 13 (13) or 14 (5) rays; adpressed fin not attaining dorsal-fin origin, posterior margin sub-acuminate; fourth branched ray longest. Pelvic fin with 8 rays; tip slightly passing anus, posterior margin sub-acuminate; second branched ray longest; origin closer to pectoral-fin origin than to anal-fin origin. Anus much closer to anal-fin origin than to pelvic-fin origin. Anal fin short, with 3 simple and 5 branched rays; first branched ray longest, reaching caudal-fin base; origin nearer to pelvic-fin origin than to caudal-fin base. Caudal fin forked with 19 rays, lobes subequal with acutely pointed tips.

Color in life: Head and body dark brown overall; dorsal side darker than the lateral flank; Disc and ventral surface milky white; contact area between tip of rostral cap and antero-lateral lobe of lower lip black. Five distinct black longitudinal stripes present on lateral side of body, which become more pronounced on posterior half and caudal peduncle. Fins overall yellowish-brown with a faint reddish margin, rays dark, and membranes transparent.

Etymology: The specific name *banensis* is derived from Ban Chaung, a stream in Myitta village, Dawei, Tanintharyi Province, Myanmar, which is the type locality. An adjective.

Distribution and habitat: *Garra banensis* is only known in the Tanintharyi drainage in southern Myanmar for now. Specimens were collected in swift rocky riffles in the Ban Chaung in Tanintharyi drainage in Myanmar. Sympatric species collected at the type locality include: *Opsarius*



Figure 3 *Garra banensis* sp. nov., holotype, live specimen.

bernatziki, *Poropuntius genyognathus*, *Mystacoleucus argenteus*, *Tor* sp., *Tariqibabeo burmanicus*, *Osteochilus microcephalus*, *Pangio elongata*, *Lepidocephalichthys* cf. *berdmorei*, *Paracanthocobitis zonalternans*, *Schistura robertsi*, *Balitoropsis* sp., *Glyptothorax ngapang*, *Mastacembelus tinwini*.

Molecular analysis

Based on COI gene sequences, the phylogenetic relationships of the species of *Garra* (42 species and 67 specimens) were reconstructed using BI and ML analyses, with two specimens of *Tariqilabeo* used as outgroups (Figure 6). The BI and ML analyses yielded largely congruent topologies and supported the monophyly of all included species. The genus *Garra* was divided into six major clades (Clades A–F in Figure 6). The new species, *Garra banensis*, was recovered within Clade E. Species in this clade are characterized by the presence of a proboscis, which is either unlobed or bilobed, including *G. banensis* sp. nov., *G. motuoensis* Gong, Freyhof, Wang, Liu, Liu, Lin, Jiang & Liu 2018, *G. gotyla* (Gray 1830), *G. rotundinasus*, *G. qiaojiensis*, *G. jiulongi*, *G. gravelyi*, *G. surinbinnani* Page, Ray, Tongnunui, Boyd & Randall 2019, and *G. bispinosa*. Within Clade E, *G. banensis* was recovered as the sister species of *G. gravelyi* (Bayesian posterior probabilities, PP=0.74; maximum-likelihood bootstrap values, BP=71). This pair subsequently clustered with the clade formed by *G. surinbinnani* and *G. bispinosa* (PP=0.63, BP=70), and together they formed a lineage that was sister to *G. jiulongi* (PP=0.98, BP=96).

Genetic distances among species of *Garra* were calculated based on COI gene sequences using the Kimura 2-parameter (K2P) model (Supplementary Table S2). The results showed that *Garra banensis* sp. nov. exhibited the smallest mean genetic distance to *G. bispinosa* (5.2%) and the largest mean

genetic distance to *G. rakhinica* Kullander & Fang 2004 (18.9%). In addition, the mean genetic distances between *G. banensis* sp. nov. and *G. gravelyi*, *G. surinbinnani*, and *G. jiulongi* were 5.8%, 5.3%, and 6.6%, respectively.

DISCUSSION

Blyth (1860) reported *Platycaea notata* (= *Garra notata*) from Tenasserim. As Fang & Kottelat (1999) suggested "Tenasserim Provinces" in Blyth's (1860) original description is much larger than today's Tanintharyi (Tenasserim) Region of Myanmar. Blyth's "Tenasserim Provinces" also seems to have included parts of the present Myanmar states of Kayah, Kayin (Karen, Mon and part of Bago (Pegu)). *Garra notata* is considered being restricted in Salween drainage by most recent authors (Kottelat, 2013; Kullander & Fang, 2004; Page et al., 2019; Tangjitjaroen et al., 2023).

Garra banensis sp. nov. represents the first recorded and positively identified species of the genus *Garra* from the Tanintharyi River basin. *Garra* species with a proboscis and a transverse lobe on the snout from drainages adjacent to the Tanintharyi River drainage in Southeast Asia are *G. jiulongi*, *G. salweenica*, *G. panitvongi*, *G. gravelyi* and *G. notata* in the Salween River basin, *G. surinbinnani* in the Mae Khlong River basin, *G. fuliginosa* Fowler 1934, *G. cyrano* Kottelat 2000 and *G. mirofrontis* Chu & Cui 1987 in the Mekong River basin, *G. qiaojiensis*, *G. surgifrons*, *G. bispinosa* and *G. rotundinasus* in the Irrawaddy River basin. Nebeshwar & Vishwanath (2017) described the snout of *G. notata* as smooth. However, this contrasts with the initial account of the species (then classified as *Platycaea notata*) by Blyth (1860), who observed that it possessed generic features typified by *Platycaea nasuta* (now *Garra nasuta*). The snout morphology of *G. nasuta* was detailed by McClelland (1838), who reported as "snout

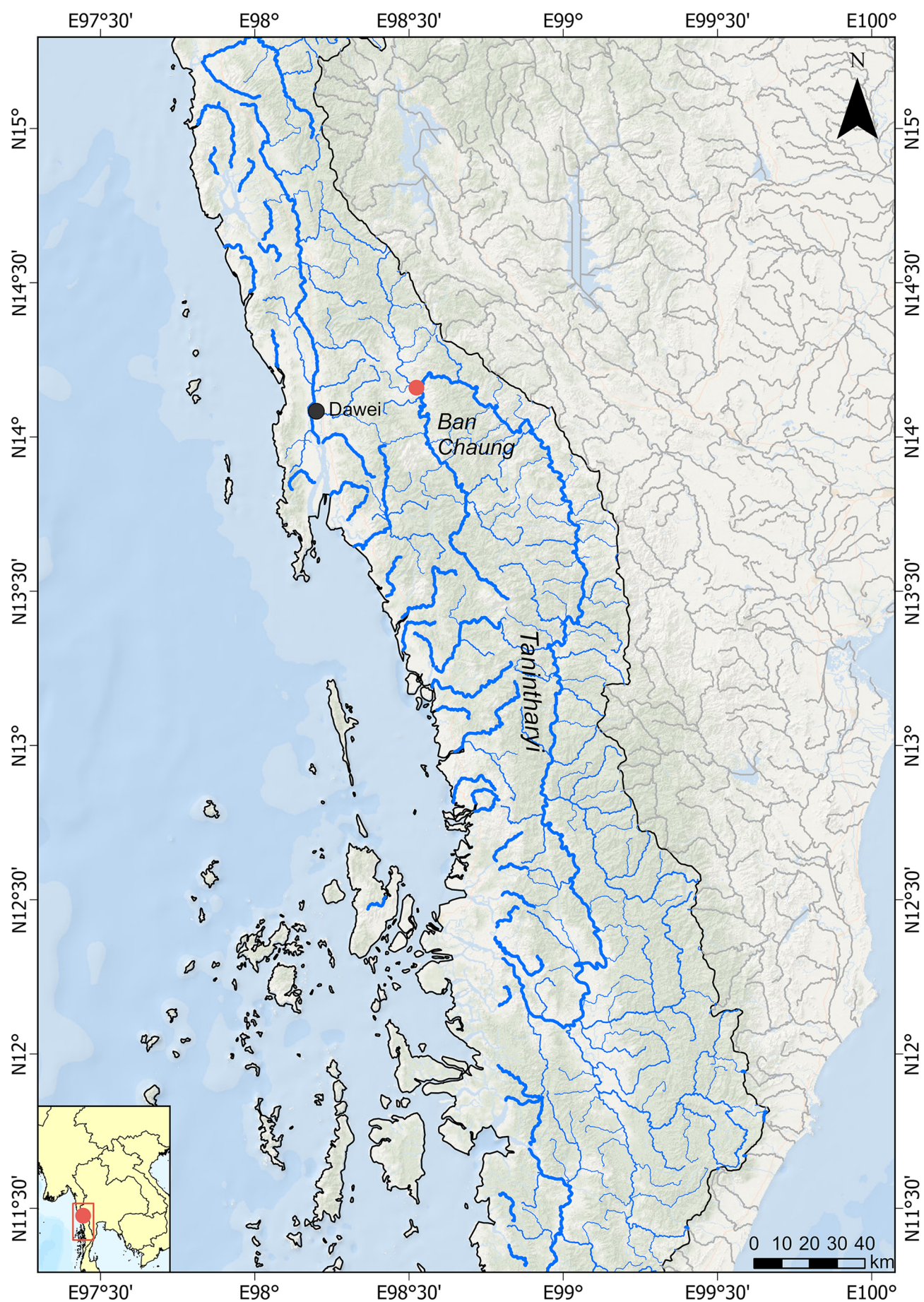


Figure 4 Distribution of *Garra banensis* sp. nov.

The red dot represents the type locality, the black dot represents Dawei, the capital of Tanintharyi Region



Figure 5 Type locality of *Garra banensis* sp. nov. Ban Chaung River, a tributary of Tanintharyi River. Photo by Xiao-Yong Chen, 2 May 2019.

abruptly depressed between the eyes with a large pit between the nostrils." Furthermore, as previously acknowledged by Tangjitjaroen et al. (2023), *G. notata* has a trilobed proboscis.

Garra banensis sp. nov. can be distinguished from all congeners with a proboscis occurring in the Salween River basin by having 12 circumpeduncular scales (vs. 16 in *G. notata*, *G. panitvongi*, and *G. salweenica*), 4.5 scales above the lateral line (vs. 3.5 in *G. jiulongi* and *G. gravelyi*), 4.5 scales below the lateral line (vs. 3.5 in *G. jiulongi* and *G. gravelyi*), 32–33 lateral-line scales (vs. 29–31 in *G. panitvongi*), 9 predorsal scales (vs. 10–11 in *G. notata* and *G. salweenica*), an unlobed proboscis (vs. trilobed proboscis in *G. notata*, *G. panitvongi*, and *G. salweenica*), a scaled chest (vs. naked chest in *G. notata*, *G. jiulongi*, *G. panitvongi*, and *G. gravelyi*), and the absence of black stripes on the caudal fin (vs. black stripes present on the caudal fin in *G. salweenica*). Among these species, *G. banensis* sp. nov. is morphologically most similar to *G. jiulongi*. In addition to the characters mentioned above, it further differs from *G. jiulongi* by having a longer head (head length 24.5–28.1% SL vs. 20.7–24.2% SL), a longer prepelvic length (54.9–59.6% SL vs. 48.1–54.4% SL), a longer preanal length (78.8–87.8% SL vs. 71.2–76.6% SL), a shorter caudal peduncle (11.6–15.2% SL vs. 16.4–19.7% SL), a longer disc (38.4–49.0% HL vs. 31.1–38.0% HL), and a longer central callous pad (26.1–32.7% HL vs. 16.8–22.0% HL).

Garra banensis sp. nov. differs from *G. surinbinnani* from the Mae Khlong River by having 32–33 lateral-line scales (vs.

28–31). It can be distinguished from the three proboscis-bearing congeners in the Mekong basin by its unlobed proboscis (vs. trilobed in all three species) and 12 circumpeduncular scales (vs. 16 in *G. cyrano* and *G. mirofrontis*).

Among the four proboscis-bearing species known from the Irrawaddy basin, *G. banensis* sp. nov. differs by having 12 circumpeduncular scales (vs. 16 in *G. bispinosa* and *G. surgifrons*), 32–33 lateral-line scales (vs. 34–35 in *G. qiaojiensis* and 35–37 in *G. rotundinasus*), 4.5 scales above the lateral line (vs. 3.5 in *G. rotundinasus*), 4.5 scales below the lateral line (vs. 3.5 in *G. rotundinasus*), and an unlobed proboscis (vs. trilobed in *G. surgifrons*).

It is worth noting that the close relatives of *Garra banensis*—specifically, the species in the lower subclade of clade E—include *G. jiulongi*, *G. gravelyi*, *G. bispinosa*, and *G. surinbinnani*, with the latter three all possessing a bilobed proboscis. According to Liu et al. (2026), both unilobed and bilobed types can coexist in *G. gravelyi* and *G. bispinosa*. Furthermore, we recently also observed that large individuals of *G. jiulongi* have developed bilobed proboscis. As close relatives of the aforementioned species, some individuals of *Garra banensis* have already developed rudimentary bilobed proboscis. Furthermore, since the *G. banensis* individuals we have observed so far are relatively small (maximum length only 54.1 mm SL), we have reason to believe that the bilobed proboscis will be observed in larger *G. banensis* individuals in the future.

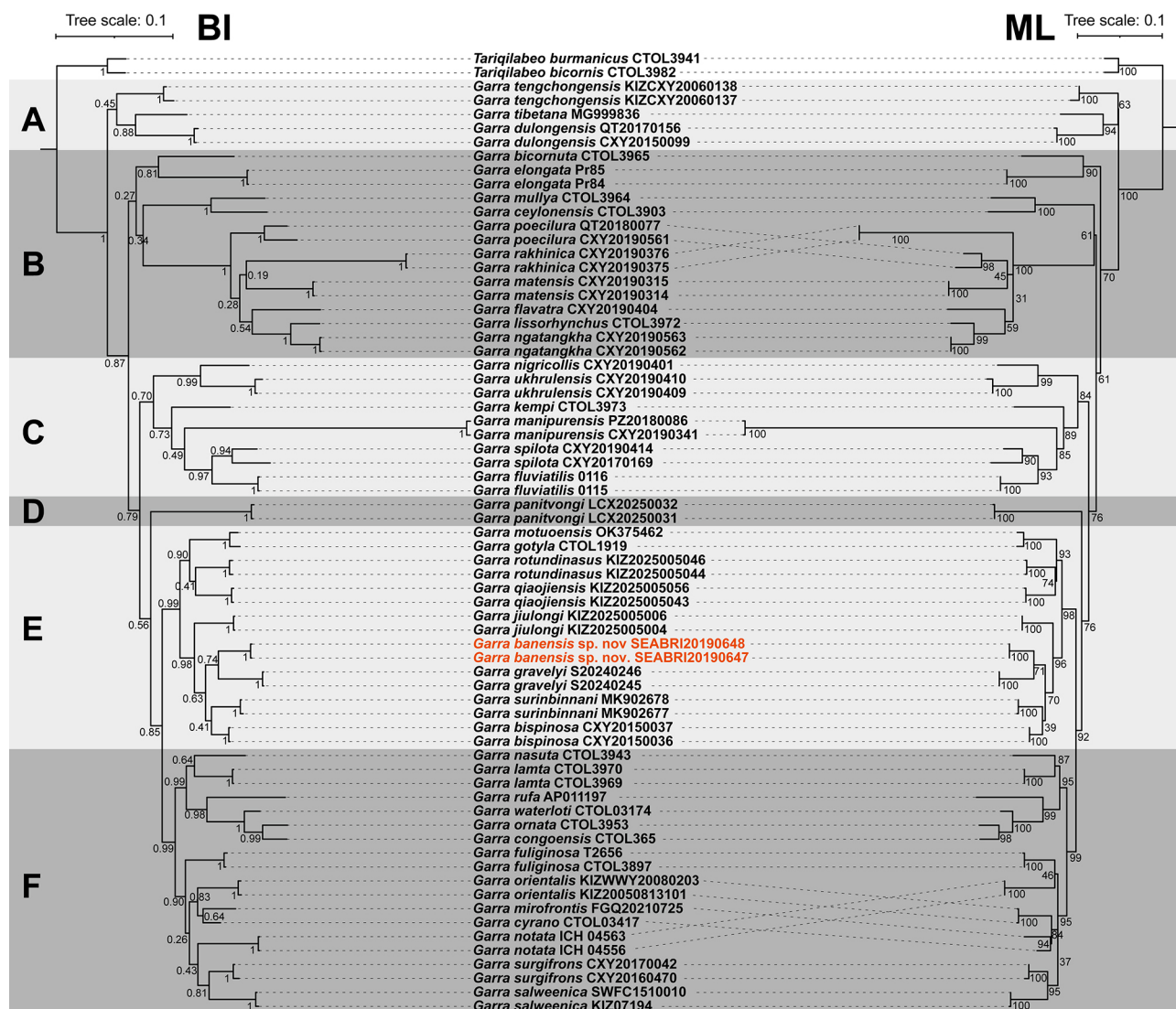


Figure 6 Phylogenetic relationship inferred from *COI* sequence data for species of *Garra* and the outgroup species *Tariqilabeo bicornis* and *T. burmanicus*.

Bayesian inference (BI) tree is shown on the left, and maximum likelihood (ML) tree on the right. The new species is indicated in red.

COMPARATIVE MATERIAL

Garra bispinosa—Myanmar: SEABRI20150001–06, 6 ex., 38.0–97.6 mm SL, Upper Chan Khaung Village, Putao, 5 Dec. 2015; SEABRI20160188–90, 3 ex., 61.5–63.8 mm SL, Putao fish market, Malihka Basin, 6 Oct. 2016.

Garra jiuilongi—China: KIZ2025005001, holotype, 118.3 mm SL, Mengboluo River, Kejie Town, Baoshan, Yunnan, 17 May 2025; KIZ2025005002–5007, paratypes, 6 ex., 73.8–134.6 mm SL, Mengboluo River, Kejie Town, Baoshan, Yunnan, 17 May 2025; KIZ2025005008–5015, 8 ex., 81.4–121.2 mm SL, Mengboluo River, Kejie Town, Baoshan, Yunnan.

Garra gravelyi—Myanmar: SEABRI20182079–80, 2 ex., 49.5–71.5 mm SL, Yae Pale Chaung, Nyang Pin Tha Village, an inlet of Inle Lake, 12 Aug. 2018; SEABRI20240245–47, 3 ex., 74.6–107.0 mm SL, Inle Waterfall, westside of Inle Lake, 2 July 2024; SEABRI20240501–07, 7 ex., 83.4–124.5 mm SL, Nouwn Tar Dam, Westside of Inle Lake, 6 July 2024.

Garra mirofrontis—China: KIZ2009001409–11, 3 ex., 121.7–145.9 mm SL, Zhengxing Town, Jinggu County, Pu'er City, Yunnan, 20 April 2009.

Garra qiaojiansi—Myanmar: QT20170065–67, 3 ex., 89.5–109.0 mm SL, upper Mali Kha River, camp 2, 28 Nov.

2017. QT20170079, QT20170081, SEABRI20174063–4068, 8 ex., 65.0–119.8 mm SL, a stream on the way from camp 2 to 3, 29 Nov. 2017. QT20170135, 1 ex., 111.2 mm SL, Upper Mali Kha River, 30 Nov. 2017. QT20170173–174, 2 ex., 117.1–142.9 mm SL, Left tributary of Ma Dwei Stream, 3 Dec. 2017. SEABRI20192094–97, 4 ex., 39.7–42.2 mm SL, Top upper of Mote Soe stream, Indawgyi Lake, 19 Feb. 2019. SEABRI20192144–47, 4 ex., 49.7–75.1 mm SL, Lwe Aim Chaung, Lone Sant village, 21 Feb. 2019.

Garra rotundinasus—China: KIZ2025005044–47, 4 ex., 77.6–104.6 mm SL, Mengwo Village, Yingjiang County, Yunnan, 12 May 2023; KIZ2025005048–55, 8 ex., 65.3–108.6 mm SL, Kaya Village, Nabang Town, Yingjiang County, Yunnan, 13 May 2023; KIZ2025005057–72, 16 ex., 55.8–95.3 mm SL, Luolang Village, Mengga Town, Yingjiang County, Yunnan, 11 May 2023; KIZ2024003699–71, 3 ex., 68.2–97.9 mm SL, Husa River, Husa Town, Longchuan County, Dehong, Yunnan, 18 Apr. 2024; KIZ2003006931–33, KIZ2003006935, 4 ex., 80.7–153.2 mm SL, Mengdian River, Kachang, Yingjiang County, Dehong, Yunnan, 18 Nov. 2003; KIZ2013001296–7, 2 ex., 56.6–115.3 mm SL, Erganya River, Tongbiguan Town, Yingjiang County, Dehong, Yunnan, 10

Jun. 2013.

Garra salweenica—Myanmar: SEABRI20252271–2279, 9 ex., 50.5–89.2 mm SL, Salween River, Tar Sang, Shan State, 30 October 2025. China: KIZ2024000258–60, 3 ex., 112.7–160.5 mm SL, Ximeng County, Pu'er City, Yunnan, 28 April 2014; KIZ2025002209–12, 4 ex., 166.4–184.7 mm SL, Nanka River, Mengma Town, Menglian County, Pu'er, Yunnan, 6 March 2025; KIZ2006011053–62, 10 ex., 78.7–137.4 mm SL, Nujiang River, Bizhai Town, Longling County, Baoshan, Yunnan, 28 April 2006; KIZ2006011067–70, 4 ex., 60.7–71.2 mm SL, Gongyang River, Longling County, Baoshan, Yunnan, 29 April 2006.

Garra surgifrons—Myanmar: CXY20170042, 1 ex., 53.6 mm SL, Kyate Nga Nwa Stream, at Kyate Myone Town, Shwebo Township, 13 Jun. 2017; CXY20170163–64, 2 ex., 57.7–62.3 mm SL, Nyaung Chae Taung Stream, Pyay, 27 Jun. 2017. no catalog number, 8 ex., 68.3–102.8 mm SL, Ma Dwei Stream, upper Mali kha river, 1 Dec. 2017. China: KIZ2025005031–40, 10 ex., 65.4–141.5 mm SL, Kaya Village, Nabang Town, Yingjiang County, Yunnan, 13 May 2023; KIZ2014002196, KIZ2014002205, KIZ2014002218, KIZ2014002220, 4 ex., 115.0–129.4 mm SL, Tenglong Bridge, Tengchong, Baoshan, Yunnan, 19 June 2014; KIZ1993004217–18, KIZ1993004220, KIZ1993004222, 4 ex., 95.0–158.2 mm SL, Tengchong Bridge, Longling County, Baoshan, Yunnan, 15 September 2003

NOMENCLATURAL ACTS REGISTRATION

urn:lsid:zoobank.org:pub:D57F07DA-F9A9-49CF-A8A1-622CCD1DD789

SCIENTIFIC FIELD SURVEY PERMISSION INFORMATION

All the fieldworks in Myanmar were made possible by the CAS-SEABRI Biodiversity Conservation Project, a cooperative agreement (MOU) between Chinese Academy of Sciences and Ministry of Natural Resources and Environmental Conservation of Myanmar (MONREC). The field survey in South Myanmar in 2019 was approved by MONREC (permit number FRI/XTBG/1478/2019).

DATA AVAILABILITY

DNA sequence data were deposited in GenBank under accession numbers PZ491087–PZ491088

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

Y.G.Z. was responsible for the investigation, methodology, data generation, analysis and drafting of the manuscript; C.X.L. performed molecular and phylogenetic analyses and revised the manuscript; Y.Y.Z. identified the species post-collection, handled part of the photography cartography, and revised the manuscript; T.N.O. contributed to project administration and funding acquisition; X.Y.C. conducted the field surveys, and was responsible for conceptualization, methodology, project administration, supervision, validation, funding acquisition, reviewing and editing.

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