

Research Article

First Record of Catfish *Amblyceps waikhomi* (Darshan, Kachari, Dutta, Ganguly, and Das 2016) (Siluriformes: Amblycipitidae) for Nepal from the Singhiya River of Morang District, Eastern Nepal

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In 2016, *Amblyceps waikhomi* from the Brahmaputra drainage of Arunachal Pradesh, India, was described. Based on morphometric and meristic characteristics, we report the first-ever sighting of *A. waikhomi* from the Singhiya River in Morang district. A deeper body depth at the anus sets the *A. waikhomi* apart from its congeners. The river systems of Nepal are home to two Amblycipitidae species, including this one.

1. Introduction

The family Amblycipitidae is considered torrent catfishes, having small-bodied inhabiting streams and rivers mostly in southern and eastern Asia [1]. A double fold of the skin on the upper and lower lips, pinnate-like rays on the anterior margins of the procurrent caudal fin rays, the anterior nostril located directly anterior to the base of the nasal barbel, and the epiphyseal commissure of the supraorbital sensory canals situated directly anterior to and not passing through the epiphyseal bar can all be used to identify the genus *Amblyceps* [2]. Furthermore, *Amblyceps* species are simply identified by the existence of the pinnate rays along the median caudal fin rays, a distinguished cup-like skin flap above the base of the pectoral spine, and adipose fin largely separated from the caudal fin [3].

Twenty-six species of *Amblyceps* are currently considered valid, viz., *A. apangi* Nath and Dey, 1989 (LC), *A. arunachalensis* Nath and Dey, 1989 (EN), *A. caecutiens*

Blyth, 1858 (DD), *A. carinatum* Ng, 2005 (DD), *A. cerinum* Ng and Wright, 2010 (NE), *A. foratum* Ng and Kottelat, 2000 (LC), *A. kurzii* (Day, 1872) (NE), *A. laticeps* McClelland, 1842 (LC), *A. macropterus* Ng, 2001 (DD), *A. mangois* Hamilton, 1822 (LC), *A. murraystuarti* Chaudhuri, 1919 (DD), *A. protentum* Ng and Wright, 2009 (DD), *A. serratum* Ng and Kottelat, 2000 (DD), *A. tenuispinis* Blyth, 1860 (DD), *A. torrentis* Linthoingambi and Vishwanath, 2008 (DD), *A. tuberculatum* Linthoingambi and Vishwanath, 2008 (DD), and *A. variegatum* Ng and Kottelat, 2000 (DD), *Liobagrus marginatus* Günther 1892 (NE), *A. motumensis* Abujam, Tamang, Nimasow, and Das, 2022 (NE), *A. platycephalus* Ng and Kottelat, 2000 (DD), *A. protentum* Ng and Wright, 2009 (DD), *A. waikhomi* Darshan, Kachari, Dutta, Ganguly, and Das, 2016 (NE), *A. yunnanense* Zhang, Long, Xiao, and Chen, 2016 (NE), *A. accari* Dahanukar, Raghavan, Ali, and Britz, 2016 (NE), and *A. hmolaii* Singh, Lalronunga, and Ramliana, 2022 (NE) [4].

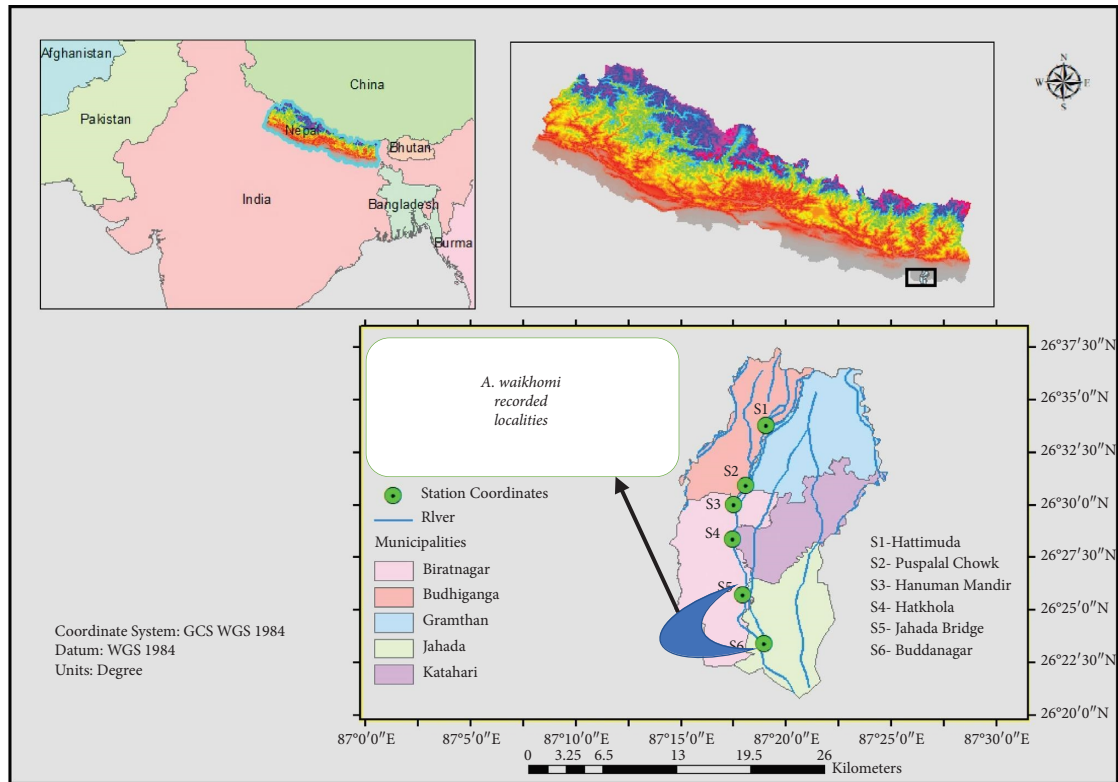


FIGURE 1: Map of the study area showing newly recorded localities of *Amblyceps waikhomi*.

2. Materials and Methods

The current *Amblyceps* species was only found in the Singhiya River in Morang district. It is a perennial river that rises from the edges of Hattimuda, Dulary, and Sundar Haraicha and then roars through Budhiganga municipality and Biratnagar submetropolitan before crossing the border into India from Buddhanagar. It is located at latitude 26.913°N and longitude 87.1570°E (Figure 1), respectively. The primary use of this river's water is irrigation. Bamboo and coniferous forest make up the majority of the riverside vegetation, and cobbles, pebbles, gravel, and sand make up the majority of the riverbed's substrate.

Only one species of *Amblyceps* (*A. mangois*) has been discovered in recent ichthyological surveys of Nepal. The fieldwork was conducted in eastern Nepal's various rivers, including Singhiya, Keshaliya, Lohandra, Ratuwa, and Kankai, from December 21, 2021, to September 5, 2022, using cast nets of various sizes, one with a mesh size of 0.5 cm, a diameter of 5 m, and a weight of 2 kg and another with a mesh size of 2 cm, a diameter of 5 m, and a weight of 4 kg. Environmental factors like water temperature, dissolved oxygen, free carbon dioxide, total alkalinity, total hardness, water velocity, and pH were also measured while fish were being collected. The collected specimens were photographed and preserved in 95% ethanol by lowering their heads to shield the caudal fin. The present species was compared with *A. mangois*, and we concluded that this represents the new *Amblyceps* species for Nepal.

3. Description and Comparison of the Specimens

The specimen's diagnostic features were examined and measured in accordance with [3, 5–7], including standard length, predorsal length, preanal length, prepelvic length, prepectoral length, length of the dorsal fin base, length of the anal fin base, length of the pelvic fin, length of the pectoral fin, length of the caudal peduncle, body depth at the anus, head length, width, and depth, and also, meristic counts of the dorsal, pectoral, pelvic, anal, and caudal fin rays were performed. Morphometric and meristic data were compared with the literature for *A. mangois*, *A. caecutiens*, *A. carinatum*, *A. serratum*, *A. tenuispinis*, *A. torrentis*, *A. tuberculatum* and *A. variegatum*, *A. motumensis*, *A. murraystuarti*, *A. platycephalus*, *A. protentum*, *A. waikhomi*, *A. accari*, and *A. hmolaii*.

The current species has a depressed head, unequal jaws with the lower one being slightly longer, an incomplete lateral line, and a short, laterally compressed body. The anal fin origin is slightly anterior to the locations of the anus and urogenital openings. The nasal barbel extends beyond the upper margin of the upper gill opening but does not reach the posterior margin of the opercle. Lips are papillate with a double fold of thickened skin. The skin on the head, tuberculate, and inner mandibular barbel extends to the base of the pectoral fin. In addition to lacking (or having) strongly developed projections on the proximal lepidotrichia of the median caudal fin rays, *A. waikhomi* differs (Figures 2 and 3) from *A. mangois* by having a longer, wider, and deeper head.



FIGURE 2: (a): Lateral view, (b) dorsal view, and (c) ventral view of *A. waikhomi*.



FIGURE 3: Photographic comparison of (a) *A. waikhomi* and (b) *A. mangois*.



FIGURE 4: Continued.



(c)

FIGURE 4: *A. waikhomi* recorded the habitat of the Singhiya River: (a) Singhiya bridge; (b) north to the Singhiya bridge; (c) south to the Singhiya bridge.

In fresh conditions, the dorsal and lateral sides of the head and body are deep brownish, and ventrally creamy. The dorsal fin with six branching rays has a spine and a spinelet. The dorsal fin spine is smooth, short, and straight, with a sharp point at the distal end. Short and low, joining from the vertical halfway between the anus and anal fin origins, the adipose fin's posterior border is well isolated from the caudal fin. The pectoral fin with 6 branching rays has a smooth spine. The front and posterior borders of the pectoral fin spine are smooth, and it is longer than the dorsal fin spine. The anal fin has 10 rays, while the pelvic fin has 5. The upper lobe of the deeply forked caudal fin is longer than the lower lobe [8].

The Singhiya River's slow-moving water (0.091 ± 0.112 m/s) with a bottom substrate primarily made of sand and mud (Figure 4) is where the current species was discovered. However, *Amblyceps* is thought to live in swiftly moving rivers and streams. Occasionally, between the months of June and November, there were fewer *A. waikhomi* individuals recorded. The species was discovered in the river with the following environmental conditions: water velocity 0.091 ± 0.112 m/s, pH 6.4 ± 0.24 , air temperature $32 \pm 0.98^\circ\text{C}$, water temperature $29 \pm 0.78^\circ\text{C}$, total hardness 99 ± 0.234 mg/l, DO 6.34 ± 0.56 mg/l, and free CO₂ 3.12 ± 0.12 mg/l. According to the local fisherman, *Amblyceps* is known to exist in Nepal's eastern Terai region but is primarily endangered by the removal of boulders, cobbles, pebbles, and gravel. Major risks to the current fish species include ongoing road construction, microhydropower generation, the use of harmful herbicides, illegal electrofishing, deforestation, and water diversion [9]; furthermore, the existing fish species of Nepal's hillside rivers and streams are determined to be seriously threatened by riparian loss, dams, aquatic habitat loss, and fragmentation, among other factors [10].

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

JHL, DR, and AS collected the specimen and wrote the manuscript. BRS, JQY, and CL contributed to the manuscript revision and approved the submitted version.

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