International Journal of Zoology Studies
www.zoologyjournals.com
ISSN: 2455-7269
Received: 05-07-2021, Accepted: 20-07-2021, Published: 04-08-2021
Volume 6, Issue 4, 2021, Page No. 28-31

New record of glyptosternoid catfish *Glaridoglanis andersonii* (Day, 1870) (Telesotei: Sisoridae) from mabung stream, Arunachal Pradesh, India

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Abstract
Glaridoglanis andersonii is reported for the first time from Mabung stream, small hill stream tributary of Siang river under Riga circle, Arunachal Pradesh, India. *Glaridoglanis andersonii* differs from all other Glyptosternoid catfishes in having interrupted post labial groove and narrow gill opening not extend beyond origin of pectoral fin or not extend onto venter. Reporting of this species from Mabung stream of central Arunachal Pradesh India confirmed the south wards range extension of *G. andersonii* and contribute the knowledge in ichthyofaunal resources of the region.

Keywords: *Glaridoglanis andersonii*, mabung stream, riga, Arunachal pradesh

Introduction

Glaridoglanis andersonii (Day, 1870) was originally described by Day (1870) [1] as *Exostoma andersonii* from Hotha and Ponsee Yunnan China. Later on Norman (1925) [2] erected a new genus *Glaridoglanis* to accommodate Day's *Exostoma andersonii* which has slightly different from other congeners. The genus can be distinguished from other groups in having an interrupted post labial groove, gill opening not extending beyond pectoral fin origin or onto venter; homodont dentition, distally flattened teeth in both jaws; slightly crescent- shaped tooth patch in upper jaw, pectoral fin with 10-11 branched rays. Earlier it was known to restricted to Irrawaddy drainage of Myanmar and Hotha in Yunan province & Ponsee, China (Day 1870, Anderson 1878, Hora 1923, Hora & Silas 1952) [1, 3, 4, 5]; however later on it was also reported from upper Brahmaputra drainage, Tibet China (Wu & Wu 1992, Chu *et al.* 1999, Liu *et al.* 2021) [6, 7, 8] ; single juvenile specimen of 53.41mm SL was reported from India, Tezu Arunachal Pradesh by Sen & Khynriam (2010) [9].

On a routine crosschecking of taxonomic identification of deposited fish specimens at Jawaharlal Nehru College Museum of fishes (JNCMF) two Specimens of *Glaridoglanis* were noticed. On further examination on taxonomical aspect and review of available literature it revealed that the two specimens collected from Mabung stream shows maximum similarities with *Glaridoglanis andersonii* (Day). The species has been reported from India by Sen & Khynriam (2010) [9] from Tezu, India but they did not mentioned exact river system from where they collected their single juvenile specimen.so on the basis of area mentioned in their work we presumed the said single specimen was from Lohit river basin which is a different river basin from the present study. With the above background present paper deals with new occurrence record of *Glaridoglanis andersonii* (Day) from Mabung stream under Riga circle a small tributary of Siang river drainage system Arunachal Pradesh India. The paper also deals in details description of species.

Material and Methods

The studied fish species was the deposited museum specimens of Jawaharlal Nehru college museum of fishes (JNCMF), Pasighat, Arunachal Pradesh, India which was collected during 2017 from Mabung stream under Riga circle which is a small hill stream tributary of Siang river (Fig.1). The specimens were well preserved under 10% formal dehyde. All Measurements were made point to point with a digital calliper to the nearest 0.1 mm. All morphometric measurements and meristic counts were made from left side of specimens wherever possible. Subunits of head are expressed as percentage of Head length (HL) whereas head length and other body measurements are presented in proportion of standard length (SL).

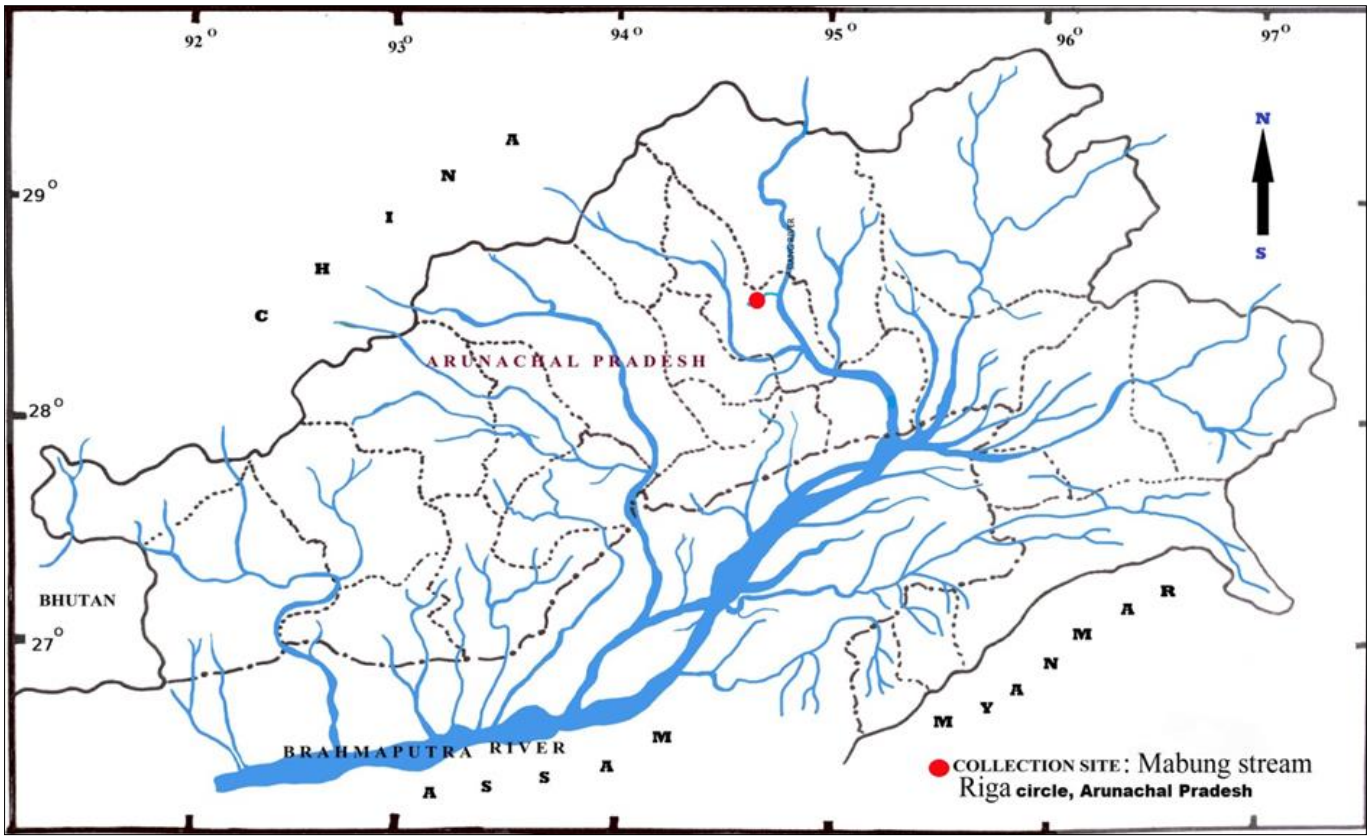

Fig 1: Map showing collection site of *G.andersonii* (day), Mabung stream

Result

***Glaridoglanis andersonii* (Day, 1870)**

Fig 2: (a) Lateral, (b) Dorsal, (c) Ventral view of *Glaridoglanis andersonii* (Day, 1870)

Material examine

JNCMF-709, 133.4 -142.6 mm SL; Mabung stream, a small tributary of Siang river, under Riga circle, Siang district, Arunachal Pradesh, India; collected by Mr. Thomas Jamoh, 11th March 2017.

Description

Biometric data are given in Table.1. Dorsal profile rising gradually from tip of snout to origin of dorsal fin, and then gradually ascending till adipose origin and almost runs straight till caudal origin. Ventral profile almost straight till anal origin and from there gently curving upward dorsally toward caudal peduncle. As a whole head and abdomen region depressed and compressed laterally towards caudal peduncle region. Head moderate in size, depressed and broad. Snout broadly rounded when observed dorsally but no central incision like in Exostoma observed. Eyes are small, subcutaneous, slightly oval shape when observed from dorsal side and dorso-lateral in position, not visible from below ventral. Barbels in four pairs: nasal pair slightly flat, with broad base and pointed tip when pulled back its tip extends beyond posterior margin of orbit. Maxillary barbels with broad base extended beyond origin of pectoral fin, its distal end pointed. Ventral surface of maxillary barbels is equipped with parallel plicated act as adhesive apparatus. Outer mandibular round or cylindrical with pointed tip inserted slightly posterolateral to inner. When add pressed its tip reaches/ extends up to pectoral fin origin. Inner mandible is shorter than outer and its length almost of half the length of outer. Mouth is inferior, transverse and not seen from lateral. Lower lip guarded by Post labial groove which is interrupted near the base of two inner mandibular barbels (Fig.3 (a)). Gill opening narrow moderate, not extends beyond pectoral origin or up to venter (Fig.3 (b)). Dorsal fin spineless with i, 6 rays, inserted almost halfway of pectoral fin length when observed laterally. Add pressed margin just reaching origin of pelvic fin. Adipose fin low, long and its posterior end confluent with caudal fin (Fig. 3 (c)). Pectoral spineless, enlarged fan shaped with i,11 rays, first unbranched rays broaden, fleshy, ventral surface equipped with parallel striae, posterior margin not reaching pelvic origin when add pressed. Pelvic without spine having i, 6 rays, first rays broaden and fleshy plicated ventrally just like pectoral, inserted posterior extremity of add pressed

dorsal when observed lateral. Anal with i, 7 rays spineless inserted first half or adipose dorsal. Caudal fin emarginated with 16 rays and first ray of upper lobe confluent with posterior extremity of adipose dorsal fin. Lateral line present, straight and mid lateral in position. Chest and abdominal region devoid of modified adhesive apparatus. Some tuberculation present at chest and abdomen area. Anus opens just ahead of anal fin origin.

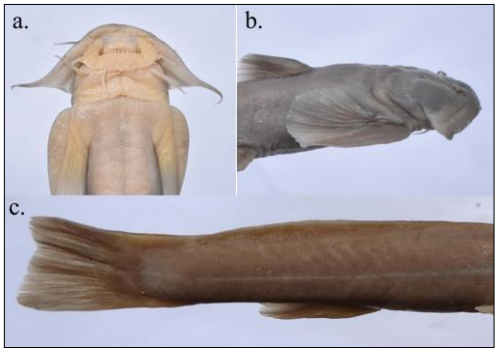

Fig 3: (a) Showing interrupted post labial groove, (b) gill opening not extend pectoral origin, (c) emarginated caudal fin and adipose fin long, low confluent with caudal fin.

Table 1: Morphometric data of *Glaridoglanis andersonii* (Day), N=2

Characters	Range	Mean ± SD
Total length	149.2-158.0	
Standard length	133.4-142.6	
In % of Standard length (SL) in mm		
Head length	21.3-21.4	21.4±0.0
Snout length	10.7-11.3	11.0±0.3
Head height at eye	8.6-8.8	8.7±0.1
Head width at eye	18.3-18.8	18.6±0.3
Body depth at dorsal origin	13.3-14.5	13.9±0.6
Body width at dorsal origin	14.3-15.3	14.8±0.5
Pre-dorsal length	29.5-29.6	29.6±0.1
Pre pectoral length	16.8-17.3	17.1±0.3
Pre pelvic length	42.4-42.8	42.6±0.2
Pre anal length	69.7-70.2	70.0±0.3
Pre adipose length	55.1-61	58.1±3.0
Pre anus length	65.7-67.2	66.5±0.8
Dorsal fin height	13.0-13.4	13.2±0.2
Dorsal fin base length	6.4-8.3	7.4±1.0
Pectoral fin height	20.5-21.4	21.0±0.4
Pectoral fin base length	8.1-8.2	8.2±0.0
Pelvic fin height	17.9-18.4	18.2±0.3
Pelvic fin base length	6.0-6.4	6.2±0.2
Anal fin height	13.6-15.1	14.4±0.8
Anal fin base length	8.8-9.2	9.0±0.2
Caudal fin length	10.8-11.8	11.3±0.5
Caudal peduncle length	19.1-21.9	20.5±1.4
Anal fin to anus	1.3-1.4	1.4±0.0
Distance between Pelvic origin to Anal fin origin	27.7-29.6	28.7±1.0
Dorsal (last ray) to origin of adipose fin length	17.3-17.3	17.3±0.0
In % of Head Length (HL) in mm		
Snout length	51.0-52.8	51.9±0.9
Eye diameter	5.6-6.3	6.0±0.4
Interorbital distance	28.3-29	28.7±0.4
Inter-nostril distance	26.6-27	26.8±0.2
Head height at eye	40.2-42	41.1±0.9
Head width at eye	85.3-89.3	87.3±2.0
length of nasal barbels	43.3-43.3	43.3±0.0
length of inner mandible	19.5-22	20.8±1.3
length of outer mandible	36.7-37.7	37.2±0.5

Colouration

In 10% formalin preserved condition dorsal and lateral body surface appears greyish brawn whereas ventral surface is lighter with whitish yellow till anal origin. Caudal peduncle region at ventral surface is similar to dorsal and lateral. Inner and outer mandible creamy white, nasal pair brown, maxillary brown in dorsal and yellowish white ventrally. Margin of all fins creamy and translucent.

Distribution

Irrawaddy drainage, Myanmar and Hotha and Ponsee, China (Day, 1870; Hora and Silas, 1952) [1] [5]; Tibet China Yarlung Zangbo Chu *et al.*1999 [7]; China Thomson and Page, 2006 [11]; in India species is reported from near Tezu Lohit river drainage Sen & Khyrnriam 2010 [9] and presently recorded from Mabung stream Riga, Siang river drainage, Arunachal Pradesh India.

Discussion

A fishes of Glyptosternoid catfish under the genus *Glaridoglanis* has only one species or mono specific *i.e. Glaridoglanis andersonii* (Day, 1870) originally described by Day (1870) [1] as *Exostoma andersonii* from Hotha and Ponsee Yunnan China. Later on Norman (1925) [2] erected a new genus *Glaridoglanis* to accommodate Day's *Exostoma andersonii* which has slightly different from other congeners. Hora (1923) [4] while working on composite genus Glyptosternon McClelland included the species under genus Glyptosternum in part group-II as *G. andersoni* (Day) and describe species on the basis of four available specimens collected by Dr. Anderson. Hora and Silas (1952) [5] replaced species under the genus *Glaridoglanis* where they describe in detail about genus and its mono species *Glaridoglanis andersonii* (Day) on the basis of two specimens (badly dissected, in one head was separated from rest of body) available at Zoological survey of India (ZSI) deposited by Dr. Anderson. He (1996) [10] also confirms the status of genus *Glaridoglanis* among Glyptosternoid fishes by his in depth studies on Phylogeny of Glyptosternoid fishes on osteological aspects. Thomson and Page (2006) [11] also nicely describe about genus in their revisionary works on genera of Asian catfish families Sisoridae and Erethistidae. Earlier it was known to restricted only to Irrawaddy basin of Myanmar and Hotha & Ponsee, China (Day 1870, Anderson 1878, Hora 1923, Hora & Silas 1952) [1, 3, 4, 5]; however later on it was also reported from upper Brahmaputra drainage in Tibet China (Wu & Wu 1992, Chu *et al.* 1999, Liu *et al.* 2021) [6] [7][8]. Though the species was describe by Day (1870) [1] on the basis of four specimens deposited at ZSI from Irrawaddy drainage Myanmar and Hotha & Ponsee China it was never reported from India until Sen & Khynriam (2010) [9] reported only a single juvenile specimen of 53.41mm SL collected from India, Tezu Arunachal Pradesh, after Sen & Khynriam (2010) [9] species is never been reported from any water bodies of Indian territory.

The Glyptosternoid catfish of genus *Glaridoglanis* can be easily distinguished from other groups of Glyptosternoid by having an interrupted post labial groove, gill opening not extending beyond pectoral fin origin or onto venter, homodont dentition, strong, distally flattened teeth in both jaws; slightly crescent- shaped tooth patch in upper jaw, pectoral fin with 10-11 branched rays. It can be distinguishes from *Oreoglanis*, *Pseudoexostoma*, *Exostoma*

and *Parachiloglanis* by having an interrupted post labial groove. It can also be distinguished from *Glyptosternon, Euchiloglanis and pareuchiloglanis* by having strong, distally flattened teeth in both jaws (vs. small pointed teeth). Further, *Glaridoglanis* can be distinguished from *Euchiloglanis* and *Pareuchiloglanis* by having lesser pectoral branched rays 10-11 (vs. 12-14 in *Euchiloglanis* and 13-16 in *Pareuchiloglanis*)and from *Glyptosternon* in having gill opening not extending onto venter (Thomson & page 2006) [11].

Presently described specimens of *Glaridoglanis* from Mabung stream of Riga Village fully agrees with the original descriptions of *Glaridoglanis andersonii* (Day) and the morphometric characters mentioned by subsequent review works and publications. However, the present specimens slightly differ from the species reported by Sen & Khynriam (2010) [9] in some morphometric measurements and meristic counts *viz*. pectoral with 11 branched rays (vs.10); anal fin with 7 branched rays (vs. 6). However the differences may occurs due to adoption of different measurements techniques or may be due to measurements taken from a small juvenile single specimen. Morphometric and meristic studies of different fresh water fish species are carried out in different parts of world as well as in India so the present paper provides detail information on morphometric measurements and meristic counts of lesser known Glyptosternoid catfish *G.andersonii* (Day). Local villagers used them up as food fish along with other fishery item and are known as *Tayek* (Adi tribe). Apart from food fish the species has a tremendous potential as ornamental fish. Ng (2010) [12] included *G.andersonii* (Day) under data deficient in the IUCN red list of Threatened species where he categorically mentioned that there is insufficient information regarding distribution, population (and its trends) and biology of *G.andersonii* (Day). The present paper provides essential data's on the morphometry and new distributional range extension of *G.andersonii* (Day) from Mabung stream Siang river basin India which may be helpful in understanding the problems of conspecificity of species that from Irrawaddy and Brahmaputra drainage system as pointed by Ng (2010) [12].

Acknowledgement

Authors are grateful to Principal of Jawaharlal Nehru College Pasighat for granting permission to access available specimens of Jawaharlal Nehru College Museum of fishes (JNCMF) for research purpose.

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