Journal of
Applied Ichthyology

J. Appl. Ichthyol. 27 (2011), 1112–1115

ISSN 0175–8659

Received: March 23, 2010
Accepted: April 18, 2010
doi: 10.1111/j.1439-0426.2010.01590.x

Short communication

New record of *Glyptothorax brevipinnis* (Hora, 1923) (Pisces, Siluriformes, Sisoridae) in the River Ken, Central India

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Introduction

Sisorid catfish of the genus *Glyptothorax* Blyth are widely distributed, with as many as 32 nominal species reported from India (Talwar and Jhingran, 1991; Jayaram, 2006) where they typically inhabit fast-flowing hillstreams and faster flowing stretches of larger rivers. They are distinguishable by a distinctive thoracic adhesive apparatus (de Pinna, 1996). Kullander et al. (1999) revised its distribution as being widespread in South Asia, from the Tigris-Euphrates basin eastward to Vietnam and eastern China. The native distribution of *Glyptothorax brevipinnis* is not well documented in India and exact locations are not specified in the literature except for records from the Garhwal region of Western Himalaya (Singh et al., 1987; Jayaram, 2006) and the Siang River in Arunachal Pradesh, Northeastern Himalaya, (Nath and Dey, 2000). However, Karmakar (2000) reported on the distribution of 16 *Glyptothorax* species in the Himalayan drainage system (Eastern Himalaya, Northeastern Himalya, Central Himalaya and Northwestern Himalaya) without any record of *G. brevipinnis*. We collected *G. brevipinnis* while conducting germplasm exploration in the Ken River, Central India, which is a new distributional record for this species.

Glyptothorax brevipinnis (Hora, 1923), considered a valid species (Burgess, 1989; Talwar and Jhingran, 1991; Ng, 2005; Jayaram, 2006; Thomson and Page, 2006; Ferraris, 2007), was also treated as a synonym of *Glyptothorax pectinopterus* McClelland, 1842 (Menon, 1999). The exact location where this species was first collected in India is not known but it was probably somewhere in the Ganga drainage. The conservation status of the species was listed as Vulnerable (VU) as per the CAMP (Conservation Assessment and Management Plan) (1998).

The River Ken originates on the northwestern slopes of the Kaimur hills in the Jabalpur district of Madhya Pradesh at an elevation of about 550 masl. The river basin lies between 23°12′ and 25°54′N and 78°30′ and 80°36′E. Total length from its origin to the confluence with the River Yamuna is 427 km (Fig. 1), with a discharge flow rate of 11 300 mm^3 per year and covering a total catchment area of 28 058 km^2.

As there is no previous record of *G. brevipinis* in Central India, the present report may be considered as the first evidence of a broader distributional range of *G. brevipinis* in a tropical river of central India, indicating that the species may be more widely distributed than previously acknowledged.

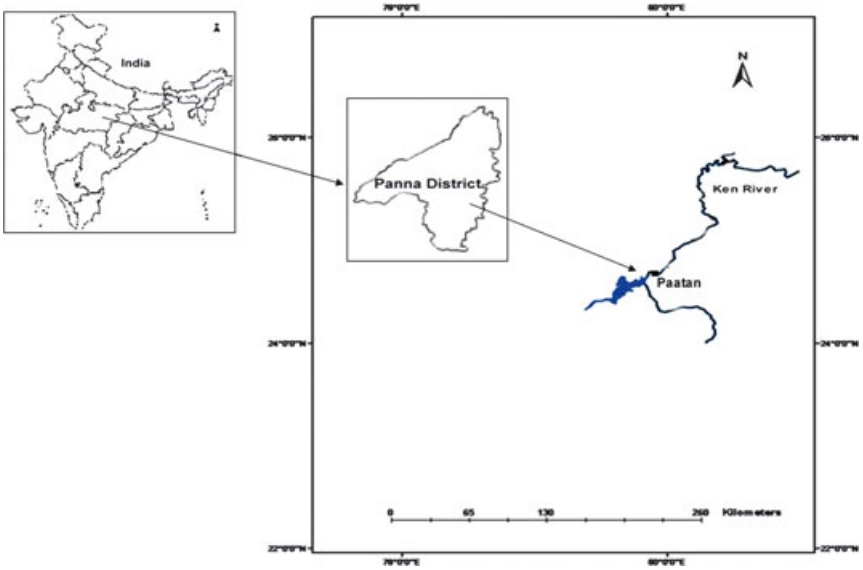

Fig. 1. Drainage map of River Ken with sampling location

Table 1
Morphometric and meristic data for *Glyptothorax brevipinnis*, upper stretch of the Ken River, India

Morphometeric variable	Length (mm)
Total length	70.29
Standard length	54.73
Fork length	57.55
Body depth	10.04
Relative characters	
Standard length / body depth	5.8
Standard length / head length	4.9
Head length / eye diameter	15.1
Inter orbital width / eye diameter	3.9
Snout length / eye diameter	2.9
Head length / head width	1.28
Head length / mouth width	2.1
Fin formula D / P / V / A / C	I, 6 / I, 7 / I, 5 / iii, 8 / 17–18

Materials and methods

Study area

The *G. brevipinis* specimen was collected from the upper stretch of the River Ken near Paatan village (24°41.401′N; 79°54.947′E, Fig. 1), around 35 km from the world heritage site, Khajuraho. A tributary to the Yamuna River and flowing through a tiger reserve from south to north, the Ken is rich in aquatic fauna and one of the least polluted. The collection site is adjacent to the buffer zone of a protected wildlife area created in 1981 (the 1 406 km^2 Panna Tiger Reserve). The specimen was collected using a castnet during an experimental shoreline fishing operation in March 2009. A digital photograph was taken of the specimen, which was then fixed in 10% formaldehyde for further studies. A total of ten morphometeric and meristic characters were taken with a Mitiyo digital caliper to the nearest 0.01 mm. The specimen was subsequently

Table 2
Distribution records of the genus *Glyptothorax* species in India, with occurrence locations

S. no	Species	Distribution	Occurrence locations
1	*Glyptothorax alaknandi* (Tilak, 1969)	Alaknanda River, near Srinagar, District Pauri Garhwal (Uttarakhand)	1
2	*Glyptothorax anamalaiensis* (Silas, 1952)	Stream in Anamalai Hills, Western Ghats (Tamil Nadu)	1
3	*Glyptothorax annandalei* (Hora, 1923)	Nierolay stream, Bhavani River, at the base of Nilgiri Hills, Nilgiri District, Tamil Nadu	8
4	*Glyptothorax botius* (Hamilton, 1822)	Hoogly River at Kalna, West Bengal & Northeast India	3
5	*Glyptothorax brevipinnis* (Hora, 1923)	Exact location unknown	15
6	*Glyptothorax cavia* (Hamilton, 1822).	Rivers of northern Bengal	11
7	*Glyptothorax chindwinica* (Vishwanath and Linthoingambi, 2007)	Iril River, Urup, Manipur	1
8	*Glyptothorax conirostris* (Steindachner, 1867)	Simla, Himachal Pradesh, northwestern India	11
9	*Glyptothorax davissinghi* (Manimekalan and Das, 1998)	Karim Puzha, Maancheri, Nilambur Reserve Forest, Kerala	5
10	*Glyptothorax gracilis* (Günther, 1864)	Yamuna River, below barrage, Dakpathar, District Dehra Dun, Uttar Pradesh (Uttarakhand)	3
11	*Glyptothorax garhwali* (Tilak, 1969)	Alaknanda River, near Srinagar, District Pauri Garhwal District, Uttar Pradesh (Uttarakhand)	3
12	*Glyptothorax granulus* (Vishwanath and Linthoingambi, 2007)	Iril River, Phungdhar, Ukhrul District, Manipur	1
13	*Glyptothorax housei* (Herre, 1942)	Mountain stream rapids, Anamallai Hills, 4 miles east of Valparai, Pollachi District, southern India	2
14	*Glyptothorax indicus* (Talwar and Jhingran, 1991)	Streams of Terai, northern Bengal	9
15	*Glyptothorax kashmirensis* (Hora, 1923)	Kashmir Valley	8
16	*Glyptothorax kudremukhensis* (Gopi, 2007)	Stream in Thunga River headwaters, Muduba, Kudremukh National Park, Karnataka, Western Ghats	3
17	*Glyptothorax lonah* (Sykes, 1839)	Deccan, India	5
18	*Glyptothorax madraspatanus* (Day, 1873)	Bowany [Bhavani] River, Neilgherries [Nilgiris], Madras State	5
19	*Glyptothorax manipurensis* (Menon, 1955)	Barak River at Karong, Naga Hills, Manipur State, Assam	3
20	*Glyptothorax ngapang* (Vishwanath and Linthoingambi, 2007)	Chindwin basin in Manipur, India	1
21	*Glyptothorax pectinopterus* (McClelland, 1842)	Ganges River drainages	24
22	*Glyptothorax poonaensis* (Hora, 1938)	Mula Mutha River at Poona, Maharashtra, Bombay [Mumbai] State	1
23	*Glyptothorax sausii* (Jenkins, 1910)	Subarnarekha River, Chotanagpur Plateau, Bihar	4
24	*Glyptothorax stolickae* (Steindachner, 1867)	Simla, Himachal Pradesh	1
25	*Glyptothorax striatus* (McClelland, 1842)	Meghna & Brahmaputra drainages, India	3
26	*Glyptothorax telchitta* (Hamilton, 1822)	Hoogly River at Kalna, West Bengal,	9
27	*Glyptothorax trilineatus* (Blyth, 1860)	Chindwain basin, Manipur, Alaknanda River (Garhwal Himalaya)	11
28	*Glyptothorax trewavasae* (Hora, 1938)	Yenna Valley, Satara District, Maharashtra	3
29	*Glyptothorax ventrolineatus* (Vishwanath and Linthoingambi, 2006)	Irilk River, Ukhruk District, Manipur	1

identified following the taxonomic keys published by Talwar and Jhingran (1991) and Jayaram (2006).

Physical and chemical parameters of the site were also collected (water temperature, conductivity, pH, total dissolved solids, and dissolved oxygen). Water velocity was measured by flow meter (JDC Electronics SA, Switzerland).

Results

The *Glyptothorax brevipinis* specimen, 70.29 mm total length, 54.73 mm standard length and 57.55 mm fork length, has been deposited in the fish museum of the National Bureau of Fish Genetic Resources (NBFGR), Indian Council of Agricultural Research (ICAR), India. Morphometric and meristic details of *G. brevipinis* are presented in Table 1.

Habitat attributes and aquatic parameters show the collection site as 0.86 m in depth, flow 0.5 m s^{-1} and the water temperature 23.8°C. Pools with lateral and scour riffles were major habitat characteristics, with substrate such as cobbles and gravel, and a riparian cover of shrubs and small trees pre-dominating the study area. Among other coldwater fish species in the River Ken, the genera *Tor*, *Nemachilus*, *Labeo, Cirrhinus, Puntius, Rasbora, Salmostoma, Rita, Channa, Notopterus*, *Ompok* and *Garra* were dominant.

Discussion

The first description of *G. brevipinnis* was reported by Hora (1923), although the locality of the species was unknown. Subsequently, Jayaram (2006) documented the species in glacier-fed rivers of Western Himalaya (Uttarakhand), which may also be the original location of this specimen. *G. brevipinis* was identifiable among major works on the Asian catfish families Sisoridae and Erethistidae and Indian catfishes (Jayaram, 2006; Thomson and Page, 2006). A review of the literature shows that this species has not been sighted subsequent to its original discovery (Talwar and Jhingran, 1991; Froese and Pauly, 2009), although a few specimens have been reported in recent times from hillstream tributaries to the River Ganga in Western Himalaya (Singh and Sharma, 1998; Verma et al., 2008). There are no previous records of this species in other central river drainages in India, e.g. the Chambal, Betwa, Narmada or Tapti (Lakra and Sarkar, 2007). Habitat loss, dynamiting and siltation have been reported as the major causes of near-extirpation of this species in India (CAMP, 1998). A list of 29 species of *Glyptothorax* from India (Froese and Pauly, 2009; Eschmeyer and Fricke, 2010) along with their distribution area is presented in Table 2, of which 13 of the species are reported in the Ganga basin, India. The genus *Glyptothorax* is also important from a taxonomic point of view, as several new species have been reported from northeastern India in the past few years (Vishwanath and Linthoingambi, 2006; Vishwanath and Linthoingambi, 2007). We believe the population of *G. brevipinnis* to be in a precarious state and therefore more exploration in the streams and rivers of Central India needs to be encouraged. There is also a need to characterize the population using morphological and molecular tools.

The present record of *G. brevipinnis* from the upper stretches of the River Ken adds a new location to the known range of the species in Central India. As our report is based on a single specimen, additional catches of specimens are needed to confirm whether there is an established population of this species in the area.

Acknowledgements

We thank the Department of Biotechnology (DBT), Govt. of India for providing financial assistance and the Director, NBFGR for necessary facilities and suggestions. We are also thankful to the anonymous reviewers for their important suggestions to improve this paper.

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