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THREATENED FISHES OF THE WORLD: *Eutropiichthys vacha* (Hamilton, 1822) (Siluriformes: Schilbeidae)

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ABSTRACT

River catfish *Eutropiichthys vacha* is one of the foods high in nutritional value in Asian countries. However, natural populations have seriously declined or are on the verge of extinction due to over-exploitation and various ecological changes in its natural habitats, leading to an alarming situation which deserves high conservation attention. This paper suggests conservation measures that should be taken into account towards the preservation of the remnant isolated population of *E. vacha* in Asian countries.

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COMMON NAME

Bacha and River catfish in Bangladesh (Rahman, 1989), Batchwa vacha in India (Talwar and Jhingran, 1991), Cherki in Nepal (Shrestha, 1994) and Challi in Pakistan (Soomro et al., 2012).

CONSERVATION STATUS

Critically endangered in Bangladesh (IUCN Bangladesh, 2000), Endangered in India (Lakra et al., 2010) and Vulnerable in West Bengal, India (Mijkherjee et al., 2002).

IMPORTANCE

Small catfish *E. vacha* is a freshwater and brackish-water subtropical species which is commonly known as 'river catfish'. It is a commercially important food fish in Asian countries and has gained popularity among consumers due to its high nutritional value and good taste (Hasan et al., 2002). This fish is an important target species for small-scale fishermen in Bangladesh who use a variety of traditional fishing gears (Hossain, 2010). It is also a major source of animal protein and micronutrients in the diet of poor people (Hossain et al., 2009a). Aquaculture practice has not been developed so far and the total demand for this fish in the domestic market is met through capture from wild populations, thus the effective conservation of wild stocks is crucial (Mishra et al., 2009).

IDENTIFICATION

Body is elongated and laterally compressed with silver colour and grayish in back (Fig. 1). Upper jaw is slightly longer than the lower. There are four pairs of barbel. Dorsal and pectoral spine are serrated posteriorly and internally, respectively. Adipose fin is always present, which is a key character for its distinction from *Clupisoma garua.* Caudal fin is deeply forked. Fin rays: D 8 (1/7), P1 15(1/14), P2 6(1/5), A 46-48 (3-4/43-44), C 22-24 (5-6/17-18) (Present study);

D 1/7, P1 1-14, P2 6, A 3-4/46-48 (Rahman, 1989; IUCN Bangladesh, 2000).

Fig 1. *Eutropiichthys vacha*sample - Photo of a specimen from the Ganges River (known as Padma in Bangladesh) was taken by the senior author (Md. Yeamin Hossain) on 3 February 2015.

DISTRIBUTION

E. vacha is widely distributed in Asia, throughout the Indian subcontinent including Bangladesh, India, Pakistan, Nepal, Myanmar and Thailand (Talwar and Jhingran, 1991).

ABUNDANCE

Previously abundant in the rivers, streams, canals, reservoirs, lakes, swampland (*beels*, *haors* and *baors*) and ponds of Bangladesh (ICUN Bangladesh, 2000), India and Pakistan (Froese and Pauly, 2014), the species is currently declining in the main streams (Rahman et al., 2012; Hossain et al., 2013).

HABITAT AND ECOLOGY

River catfish inhabits standing and running waters, usually in canals, streams, rivers and lagoon with mostly muddy bottoms (Froese and Pauly, 2014). *E. vacha* juveniles are omnivorous, with a diet dominated by insects, while adults (>14 cm TL, total length) are piscivores with *Puntius ticto* accounting for 35.4% of the diet (Soomro et al., 2012). *Colisa* spp., juveniles of *Channa* spp. and some (5-6) cyprinids are examples of other fish species included in the diet of adults (Soomro et al., 2012).

REPRODUCTION

Spawning occurs from March to June at the Kotri hydrodam in Pakistan (Soomro et al., 2012). This species attains sexual maturity at TLs of 13.15 cm (males) and 14.00 cm (females) in the Ganges River, northwestern Bangladesh (Hossain et al., 2012). Fecundity ranges from 13,800 (14 cm TL) to 88,400 (30 cm TL) at the Kotri hydrodam in Pakistan (Soomro et al., 2012).

THREATS

Populations of *E. vacha* from rivers, streams, canals, reservoirs, lakes and swamplands have seriously declined or are on the verge of extinction due to over-exploitation and various ecological changes in its natural habitats (Mijkherjee et al., 2002). In addition, Mishra et al. (2009) reported that over-exploitation is a potential major threat as this species is heavily used as a food fish, and they recorded a mean decline of 29.2% in wild catches in southern West Bengal for the period of 1960-2000.

CONSERVATION ACTION

Several studies were conducted on the ecology and biology of the species (Hossain et al., 2012; 2013; 2014; Soomro et al., 2012). Artificial breeding and rearing of the species have also been conducted by several research and education institutes in Asian countries (Mijkherjee et al., 2002).

CONSERVATION RECOMMENDATIONS

Stock assessment and population surveys are urgently needed to establish the status of wild stocks in terms of abundance and distribution, as well as ecological requirements for the successful proliferation of the species (Hossain, 2014; Hossain and Alam, 2015). Establishment of suitable sanctuaries in selected areas of rivers, streams, canals, reservoirs, lakes and swamplands is suggested. Factors causing the decline of the species should be identified and the necessary measures should be taken to conserve its preferred habitats (Hossain et al., 2008; 2009b; 2015a). Also, fishing practices should be totally banned during the spawning season (Hossain et al., 2015b; 2015c). The conservation status of *E. vacha* should be developed through effective habitat protection, public awareness programs and ranching.

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Sažetak

UGROŽENE VRSTE RIBA U SVIJETU: *Eutropiichthys vacha* (Hamilton, 1822) (Siluriformes: Schilbeidae)

Riječni som, *Eutropiichthys vacha*, služi kao komercijalno visoka, nutritivno vrijedna hrana u azijskim zemljama. Međutim, prirodne populacije ozbiljno su opale ili su na rubu izumiranja zbog prekomjernog iskorištavanja i raznih ekoloških promjena u svojim prirodnim staništima, što dovodi do alarmantne situacije te je potreban visok stupanj zaštite. U radu se predlažu mjere zaštite koje treba uzeti u obzir kako bi se očuvao ostatak izolirane populacije *E. vacha* u azijskim zemljama.

Ključne riječi: *Eutropiichthys vacha*, riječni som, kritično ugrožen, zaštita, Azija

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