

### 13. FIRST RECORD OF SLENDER RACER *COLUBER GRACILIS* (GÜNTHER, 1862) (SERPENTES: COLUBRIDAE) FROM RAJASTHAN<sup>1</sup>

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On December 22, 2004 in Nal Sandol Reserve Forest, near Dimri village, Jhadol tehsil, Udaipur district (24° 20' 37.74" N; 73° 29' 55.64" E; 690 m above msl), we came across a snake about 750 mm long that had been injured by labourers. It was slender bodied, and had two pale brown, black edged, forward-pointing V-shaped marks on top of the head followed by white coloured black-edged cross bars, which widen on the sides to join with adjacent bands. Towards the hind body, the bands were replaced by narrow, sometimes broken blackish cross lines. The belly scales were glossy white. The snake was identified as the Slender Racer *Coluber gracilis* based on its scalation: midbody scales in 21 rows; ventrals 217; subcaudals 131, paired; anal divided; preoculars 2, of unequal size; postoculars 2; temporals 2+2; supralabials 9 (5<sup>th</sup> and 6<sup>th</sup> touching eye). A black stripe was present below each eye at the meeting line of 6<sup>th</sup> and 7<sup>th</sup> supralabials. Subcaudals were more than recorded (118-127) by Whitaker and Captain (2004).

The specimen was deposited in the Department of Zoology, Mohanlal Sukhadia University, Udaipur, Rajasthan.

The snake was seen in a hilly, highly degraded deciduous forest, with a network of dry nullahs. *Anogeissus*

*latifolia*, *Madhuca latifolia*, *Feronia limonia* and *Butea monosperma* grow on the slopes and at the foothills. *Sterculia urens*, *Lannea coromandelica* and *Ficus arnottiana* are present higher up on the hills. Thickets of *Lantana camara* are also present randomly. The grass *Aristida adscensionis* is common owing to degradation, but patches of *Themeda quadrivalvis*, *Apluda mutica* and *Heteropogon contortus* are also seen.

*Coluber gracilis* is endemic to India. Presently, this species has been recorded from a few localities in India: Pune district, Nane Ghat and Phaltan all in Maharashtra, and Asirgarh, Madhya Pradesh (Whitaker and Captain 2004). Literature scanning reveals that *C. gracilis* is a new record for Rajasthan (McCann 1946; Sharma 1999, 2001; Sharma *et al.* 2001; Sharma *et al.* 2002). The presence of *C. gracilis* in southern Aravallis in Rajasthan is interesting and worth mentioning.

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### 14. POSSIBILITY OF BREEDING GROUNDS OF MAHSEER IN THE PAISUNI R. (CHITRAKOOT DHAM), ITS ECOLOGY, AND STATUS OF *TOR TOR* (HAMILTON) IN THE NORTH VINDHYAN RIVERS<sup>1</sup>

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The genus *Tor*, known as Mahseer, is widespread from Afghanistan in the west through India, Pakistan, Nepal,

Bhutan to Southern Asia (Thailand and Malaysia) in the east, and is also present in China. All the Mahseers are presently



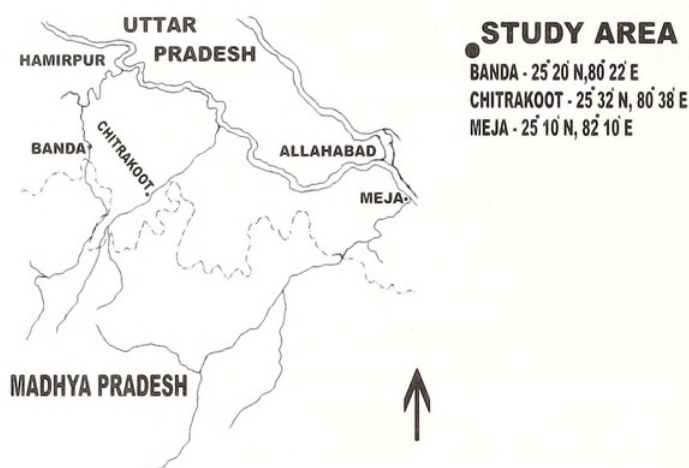


Fig. 1: Rivers draining from north Vindhyan region

classified as endangered/threatened species (Sinha 1992, 1994), and have spectacular sporting qualities and table value. Desai (2003) has described 10 valid species of Mahseer. Khan and Sinha (2000) are of the opinion that the distribution of Mahseer is governed by temperature (6-30 °C) as it influences the rate of development and growth, duration of the life history stages, longevity as well as the size and form of individual. This is a broad generalization. Taking common occurrence as a criterion, each species is distributed in a specific river system; *Tor putitora* and *T. progenius* are common in the Ganga and Brahmaputra river systems along the Himalaya, *T. mosal* along eastern India (Mahanadi river system), *T. tor* in central India (Narmada), and *T. khudree* and *T. mussullah* in the Deccan (Cauvery, Godavari, Krishna).

Considerable information has been generated on *T. putitora* and *T. tor* over the last few decades, especially from the Sutlej (Johal and Tandon 1981; Johal *et al.* 1999), and the Ganga river system in the Himalaya, north-west India (Nautiyal 1994; Bhatt *et al.* 2000) in case of *T. putitora*, and from the Narmada in case of *Tor tor* (Desai 2003). The deep-bodied *Tor tor* is present in the rivers and reservoirs north of the Narmada-Paisuni (Grover and Gupta 1977), Ken

(Srivastava *et al.* 1970), and the Gandhi Sagar Reservoir in Madhya Pradesh (Anon. 1968).

There is no information on its breeding grounds in north Vindhya rivers. Hence, it was considered appropriate to generate some information on the population dynamics of *T. tor* from rivers draining the north Vindhyan region (Fig. 1). These rivers arise in the hills north of Narmada, and drain into the Yamuna, and its principal tributary the Chambal. Though devoid of high mountains, the elevated plateau does provide a gentle gradient and the rocks a stony substratum, a favourite haunt of Mahseers. Paisuni is a 100 km long river, draining the northern extremity of the Vindhya flowing through forests in the upper stretch and cultivated land in the lower stretch. In the upper stretch it is 10-20 m wide, the bed is rocky and depth varies from 1-2 m, and the water is clear, indicating the oligotrophic nature of the river. The macrophytic vegetation also occurs along banks or in patches. Epilithic algae (1543 cells per sq. cm) were represented by species of *Achnanthes* (over 50%) and *Cymbella*. The bottom fauna of the upper stretch (355 individuals per sq. km) comprised nymph of Ephemeroptera, larvae of Diptera and Trichoptera. Oligochaete-annelids and molluscs, primarily the gastropods, were rare. The physical quality during December (2003) was as follows, water temperature (16.5-21.5 °C), air temperature (11.0-21.5 °C), current velocity (1.0-30.94 cm per/s), pH (7.0-8.0), discharge 1.10 cusecs. The organisms found in the Paisuni indicate pristine nature of the water attributed to religious protection by virtue of its pilgrimage status (Chitrakoot Dham) and Reserved Forest (Madhya Pradesh).

Preliminary studies on the size composition indicated that fish measuring 18-82 cm and 18-65.3 cm were found in the Tons and Paisuni, respectively. In the Tons, 76.9% of the population was constituted by fishes measuring 20-50 cm, while in the Paisuni 86.4% comprised this size range. The size classes 30-40 and 40-50 cm were dominant in the Tons while only 30-40 cm in the Paisuni (Fig. 2). It is obvious that Tons had better size composition, but Paisuni had a good share of brooders (36.4%), even the previous size class 20-30 cm was quite good (29.5%) compared with 26.9% in each of the size group of Tons sample. This can be attributed to the religious sanctuary provided by the temples along the river at Chitrakoot Dham. Fishing is prohibited. Since the Mahseer are known to exhibit rheotropism (tendency of upstream migration, Nautiyal 2002) for breeding, this protected stretch of the river (upstream of Chitrakoot Dham, the Ramghat, Kanch Ka Mandir, Sphatic Shila and Sati Ansuiya are temple destinations), and its upstream section can be the only possible breeding grounds in the Paisuni. As such fishing and unwanted human activities are prohibited for a considerable stretch, and

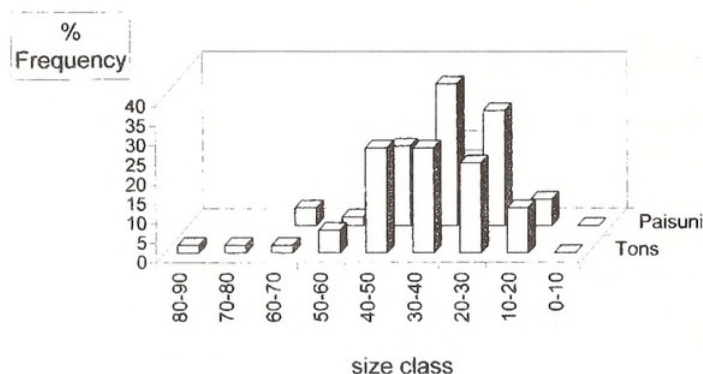


Fig. 2: Size composition (as %) of *Tor tor* in the Vindhya rivers, Tons and Paisuni. 20-50 cm size was prevalent in these rivers



it seems to be an ideal place for the fish to breed.

However, observation during the first monsoon showers revealed that the fish which is a common sight on flour baiting, especially at Sati Ansuiya, was not sighted even once after an hour long baiting schedule. This suggests that in the Paisuni river the fish probably breeds upstream of Sati Ansuiya; this is a densely forested area lacking habitation. Since it is not accessible, it serves as a perfect sanctuary with undisturbed breeding grounds for *T. tor*, in particular, and fish assemblages in general. Also the origin of the river is quite near. The Tons on the other hand has habitation all along its course, and therefore the fish population is relatively low. Also breeding grounds, which must be in the upper

reaches, suffer from acute human interference (agriculture). Studies on population structure are in progress to understand how exploitation affects age distribution and ecological health.

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### 15. ON THE RECORD OF *GARRA CEYLONENSIS* BLEEKER 1863: A SRI LANKAN CYPRINID FISH FROM INDIA<sup>1</sup>

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#### Introduction

Twenty four fish species under genus *Garra* have been reported so far from the Indian subcontinent (Jayaram 1999), of which nineteen species are found in India. Several new species and new records of the fishes under this genus have been reported in the past two decades. Remadevi and Indra

(1984) described *Garra menoni* from the Silent valley, Kerala, India; Vishwanath and Sarojnalini (1988) discovered *Garra manipurensis* from Manipur; *Garra kalakadensis* was discovered from the Kalakad Wildlife Sanctuary, Tamil Nadu (Remadevi and Indra 1992); *Garra surendranathani* from the Chalakkudy river of Kerala (Shaji *et al.* 1996) and *Garra*



Nautiyal, P et al. 2007. "Possibility of Breeding Grounds of Mahseer in the Paisuni R. (Chitrakoot Dham), Its Ecology, and Status of Tor Tor (Hamilton) in the North Vindhyan Rivers." *The journal of the Bombay Natural History Society* 104, 355–357.

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