

**REPORT OF NAGARJUNASAGAR RACER *COLUBER BHOLANATHI* SHARMA, 1976 (SQUAMATA: SERPENTES: COLUBRIDAE) FROM THE GINGEE HILLS, TAMIL NADU, INDIA**

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The Nagarjunasagar Racer (or Sharma's Racer) *Coluber bholanathi* Sharma, 1976 was described based on three specimens (one male holotype ZSI 21337 and two female paratypes ZSI 21335, ZSI 21336) which were collected from Nagarjuna Hills (16°31'N; 79°14'E; 105m) in Guntur District, Andhra Pradesh State, India (Sharma 1976, 2003; Gupta et al. 2012; Ganesh et al. 2013; Seetharamaraju & Srinivasulu 2013). Sharma (1976, 2003) states that this species is diurnal and found in rocky habitats covered in a mix of evergreen and deciduous xerophytic vegetation. Judging from his dissection of the female specimen, Sharma (1976) remarked that this species preys upon gecko (*Hemidactylus brookii*). The climate of the type locality is described as hot and dry from March to October, with rainfall during the south-west, and north-east monsoons between November and February (Sharma 1976).

After several decades of obscurity, this species was recently reported from the Seshachalam Hills in

southern Andhra Pradesh (Gupta et al. 2012), Golconda Fort Complex in Hyderabad City, Devarakonda in Nalgonda District, both situated in central Andhra Pradesh (Ganesh et al. 2013; Seetharamaraju & Srinivasulu 2013) and Thally in Krishnagiri District, northern Tamil Nadu (Ganesh et al. 2013). In addition to reporting new localities for *Coluber bholanathi*, Gupta et al. (2012) provided the first in-life illustration of this species, Seetharamaraju & Srinivasulu (2013) elaborated on the hemipineal morphology of the species as described by Sharma (2003) and Ganesh et al. (2013) provided the first illustration of the holotype while clearing up some confusion about its type registration number. Cumulatively, these three works have shed some light on this poorly-understood species.

In this note we provide the first report of *Coluber bholanathi* from the Gingee Hills, Villupuram District, northeastern Tamil Nadu. The snake which was ~40cm long (Image 2), was photographed by A. Mohanty on the morning of 6 December 2004 on a rocky hillock (12°06'16"N, 79°22'46"E; 115m) overlooking the Panamalai Lake (Image 1; Table 1). This lake is one of the many reservoirs that are scattered along the scenic Gingee Hills that run parallel to the east coast of Tamil Nadu. The Gingee Hills, which are a discontinuous southern extension of the Eastern Ghats, are a mixture of dry deciduous scrub forest and thorn scrub (Ramamurthy 1962; Champion & Seth 1968).

The snake was observed and photographed at a distance of ~50m away before it escaped into a series of boulders. We used the photograph provided in this note (Image 2) and three more, which provided several



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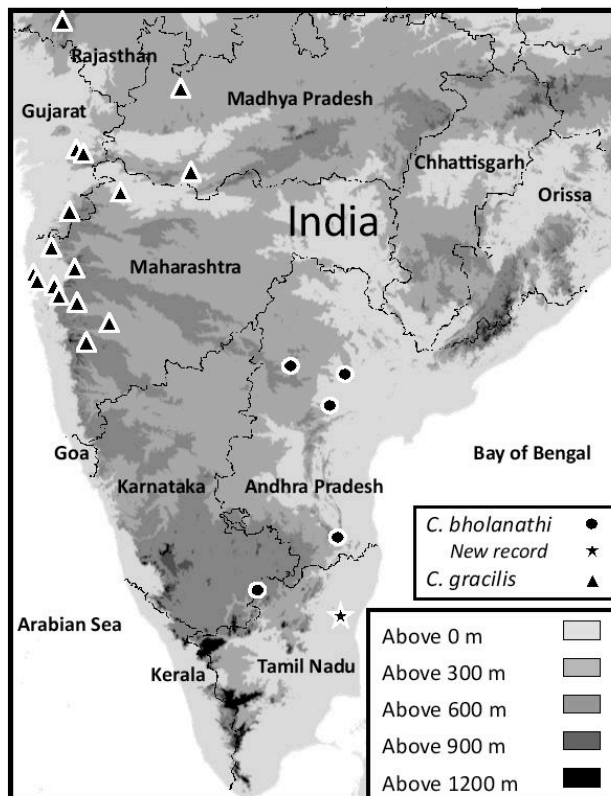


Image 1. Distribution map of *Coluber bholanathi* and *Coluber gracilis* in peninsular India.

different angles of the animal, to identify the snake as *Coluber* cf. *bholanathi* based on color pattern and dorsal scale rows at one head-length behind the head, at midbody, and at one head-length anterior to the vent. Due to *C. bholanathi*'s close resemblance to *C. gracilis*, we also examined the type specimens of *C. bholanathi*. *Coluber gracilis* (Günther 1862) is another Indian species of *Coluber*, reported only from a few localities in the Satpura mountain ranges and northern Western Ghats from the states of Gujarat, Maharashtra, Madhya Pradesh and Rajasthan (Mahendra 1948; Ingle 2002; Sharma 2003; Whitaker & Captain 2004; Vyas et al. 2011; Walmiki et al. 2012; Table 1). It's found in similar habitat type as *C. bholanathi*, e.g., rocky habitats with sparse, low, and thorny vegetation, although it is also reported to inhabit plains and open fields (Ingle 2002).

After close examination of the photographs, digital sharpening, and identifying the approximate midline of the animal, we found that the dorsal scales of the observed specimen from Gingee Hills were in (no more than) 19:19:17 rows. This count is closer to that observed in *C. bholanathi* (19:19:15 rows) than it is to *C. gracilis* (21:21:15 rows) (Sharma 1976). We observed additional differences in the patterning of the nuchal, oval blotch;

in *C. gracilis*, the blotch appears to usually have an inverse V at its posterior margin (Image 3), whereas in *C. bholanathi*, the posterior margin tends to be either round or it fuses with the subsequent blotch forming a single large and elongate blotch (Image 5). The Gingee specimen has a nuchal blotch that has a round posterior margin, as observed in several specimens, including the type of *C. bholanathi* (Image 2). Moreover, *C. bholanathi* and the Gingee Hills specimen both possess a dark brown parietal bar that is interrupted laterally by light coloration at the post-temporal area adjacent to the parietal scales. In *C. gracilis*, however, the dark parietal bar widens towards the last two supralabials, typically forming an inverted "Y" (Image 4).

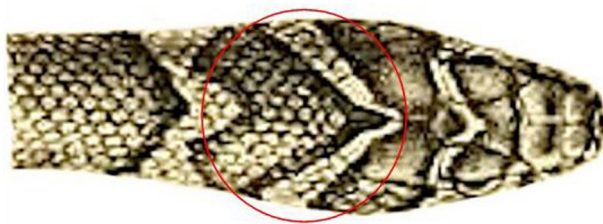
Based on similarities in diagnostic morphological characters (namely: dorsal scale counts, nuchal marking and color pattern) and the geographic proximity of verified records (Gupta et al. 2012; Ganesh et al. 2013), we identified the *Coluber* from Gingee Hills as *C. bholanathi*. Our new record extends the known range of the species by 495km south of the type locality and 194km south-east of the southernmost locality (Ganesh et al. 2013). Our note also provides encouraging prospects that the geographic range of this obscure and rare species is probably larger than documented and we propose that the Gingee hills and adjacent suitable habitat warrant a more thorough sampling.



Image 2. *Coluber bholanathi* in the rocky landscape of Gingee Hills in northern Tamil Nadu

**Table 1. Localities based on personal observation and literature for *Coluber bholanathi* and *Coluber gracilis*. The longitude and latitude for the rows with an \* are published in literature, for every other locality we provide the coordinates of the city that is mentioned.**

Species	State	Location	Latitude	Longitude	Elevation	Reference
<i>C. bholanathi</i>	Andhra Pradesh	Nagarjuna Hills (Guntur District)	16°31'00"N	79°14'00"E	105m	Sharma 1976 *
		Seshachalam Hills (Chittoor District)	13°39'00"N	79°25'00"E	175m	Guptha et al. 2012*
		Golkonda Fort Complex, Hyderabad (Hyderabad District)	17°22'58"N	78°24'03"E	Not Available	Seetharamaraju & Srinivasulu 2013*
		Devarakonda (Nalgonda District)	17°10'00"N	79°33'00"E	270m	Ganesh et al. 2013*
	Tamil Nadu	Thally (Krishnagiri District)	12°34'60"N	77°39'00"E	920m	Ganesh et al. 2013*
		Gingee Hills (Villupuram District)	12°06'16"N	79°22'46"E	115m	Smart et al. 2014 (current study)
<i>C. gracilis</i>	Rajasthan	Udaipur (Udaipur District)	24°34'17"N	73°41'30"E	Not Available	Sharma & Nagar 2007*
	Madhya Pradesh	Asirgarh (Burhanpur District )	21°29'06"N	76°16'50"E	Not Available	Vyas et al. 2011*
		Ujjain (Ujjain District)	23°10'45"N	75°47'06"E	Not Available	Ingle 2003
	Gujarat	Narmada Dam (Narmada District)	21°50'09"N	73°44'37"E	50–60 m	Vyas et al. 2011*
		Narmada River Bridge (Narmada District)	21°51'50"N	73°42'01"E	50–60 m	Vyas et al. 2011*
		Vansada National Park, near Waghai river (Navsari District)	20°41'51"N	73°31'48"E	110–360 m	Walmiki et al. 2012*
	Maharashtra	Satara (Satara District)	17°41'29"N	74°00'03"E	Not Available	Vyas et al. 2011
		Phaltan (Satara District)	17°59'00"N	74°26'00"E	Not Available	Whitaker & Captain 2004
		Koyna (Satara District)	19°38'15"N	73°10'11"E	Not Available	Vyas et al. 2011
		Lonavala (Pune District)	18°44'51"N	73°24'12"E	Not Available	Vyas et al. 2011
		Nane Ghat (Pune District)	19°17'51"N	73°41'12"E	Not Available	Whitaker & Captain 2004
		Pune District	Not Available	Not Available	Not Available	Whitaker & Captain 2004
		Mumbai ( Mumbai City and Suburban Districts)	19°04'34"N	72°52'40"E	Not Available	Vivek Sharma pers. comm. 2012
		Dhule (Dhule District)	20°53'59"N	74°46'11"E	Not Available	Prateek Pradhan pers. comm. 2012
	Borivali (Mumbai District)	19°13'48"N	72°52'00"E	Not Available	Vyas et al. 2011	
	Matheran (Raigad District)	18°59'00"N	73°16'00"E	Not Available	Vyas et al. 2011	



**Image 3. Dorsal head pattern of *Coluber gracilis* as depicted by Günther (1862). Notice the V-shaped nuchal blotch (highlighted by red circle).**

## References

- Gupta, B., N.V.S. Prasad & D. Veerapan (2012). Rediscovery and range extension of *Coluber bholanathi* Sharma, 1976 from Seshachalam Hills, Andhra Pradesh, India. *Herpetology Notes* 5: 447–448.
- Champion, H.G. & S.K. Seth (1968). *A Revised Survey of the Forest Types of India* (Vol. 1). Manager of Publications, Delhi, India, 404pp.
- Ganesh, S.R, D. Adimallaiah & P.K. Kailash (2013). New locality record of Nagarjun Sagar Racer Snake *Coluber bholanathi* Sharma, 1976. *Herpetotropicos* 9(1): 9-12.
- Günther, A. (1862). On new species of snakes in the collection of the British Museum. *The Annals and Magazine of Natural History Series* 3(9): 124–132pp.
- Ingle, M. (2002). Ecology and Status of the ophiofauna of eight districts of the Malwa region of MP. *Cobra* 50: 1–17.



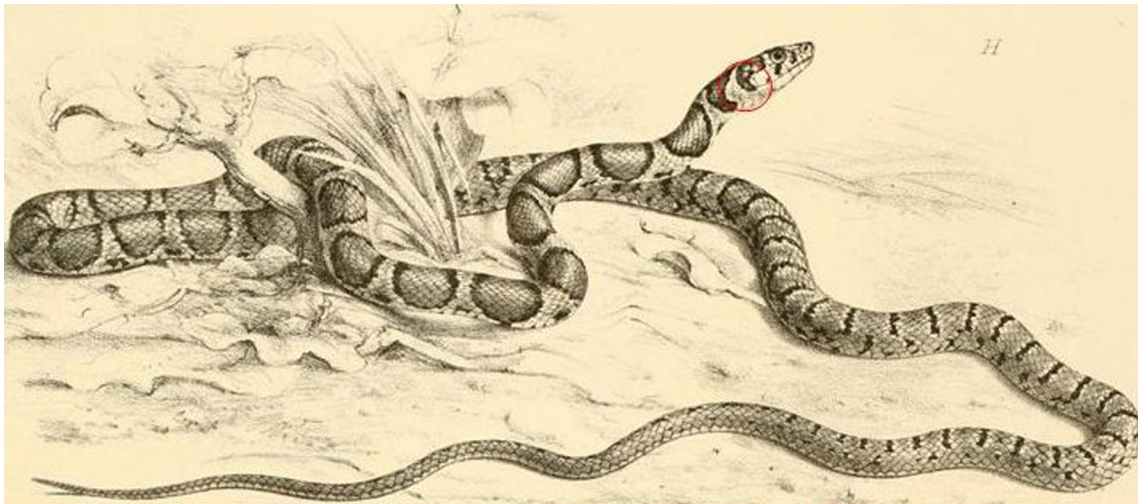


Image 4. *Coluber gracilis* as depicted by Günther (1862). Notice how the dark parietal bar widens towards the last two supralabials, forming an inverted “Y” (highlighted by red circle).



Image 5. Dorsal pattern of head (a) and body (b) of holotype of *Coluber bholanathi*, ZSIC 21337. Notice the presence of light coloration in the temporal area (a) and the round nuchal blotch (b) (highlighted by red circles).

**Mahendra, B.C. (1984).** *Handbook of the Snakes of India, Ceylon, Burma, Bangladesh and Paskistan*. Vol. XXII. The Annals of Zoology. The Academy of Zoology, Khandari Road Agra -2, India, 412pp.

**Ramamurthy, K. (1962).** Ecological studies of the vegetation of Gingee Reserve Forest, South Arcot District, Madras State. *Proceedings of the Indian Science Congress* 49: 319–320.

**Seetharamaraju, M. & C. Srinivasulu (2013).** Discovery and description of male specimen of *Coluber bholanathi* Sharma, 1976 (Reptilia: Colubridae) from Hyderabad, India. *Taprobanica* 5(1): 32–35; <http://dx.doi.org/10.4038/tapro.v5i1.5659>

**Sharma, R.C. (1976).** Some observations on ecology and systematics of *Coluber bholanathi*, a new species of snake (Reptilia: squamata: Colubridae) from India. *Comparative Physiology and Ecology* 1(3): 105–107.

**Sharma, R.C. (2003).** *Handbook, Indian Snakes*. Zoological Survey of India, Kolkata, India, 292pp.

**Sharma, S.K. & S. Nagar (2007).** First record of Slender Racer *Coluber gracilis* (Günther, 1862) (Serpents: Colubridae) from Rajasthan. *Journal of the Bombay Natural History Society* 104(3): 355.

**Vyas, R., V.V. Patel & M.N. Thakur (2011).** Records of the Slender Racer, *Coluber gracilis* (Günther, 1862), from Gujarat State with notes on its distribution. *Sauria* 33(2): 51–56.

**Walmiki, N., A. Kumbhar & B. Gupta (2012).** Range Extension of Slender Racer (*Coluber gracilis* Günther, 1862) in India. *World Journal of Zoology* 7(4): 303–305.

**Whitaker, R. & A. Captain (2004).** *Snakes of India, The Field Guide*. Draco Books, Chengalpattu, Tamil Nadu, India, 385pp.

