



# New Records of the Sikkimese Caecilian, *Ichthyophis sikkimensis* Taylor 1960 (Amphibia: Gymnophiona: Ichthyophiidae), in Nepal

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The Sikkimese Caecilian (*Ichthyophis sikkimensis*) (Nepali name: Andha Sarpa) is known to occur in the Sikkim and Darjeeling regions of West Bengal in northern India and Ilam District in eastern Nepal, and likely occurs in western Bhutan (Taylor 1960; Sarkar et al. 1992; Dutta 1997; Pillai and Ravichandran 1999; Anders et al. 2002; Chanda 2002; Shah and Tiwari 2004; Kamei et al. 2009; Wangyal 2014; Kamei 2017; Frost et al. 2021). The species was classified as Data Deficient (DD) in the IUCN Red List of Threatened Species (Ohler et al. 2004).

From 2016 to 2019, we conducted field surveys at six closely grouped sites in Tansen Municipality, Palpa District, Nepal (Fig. 1): Holangdi, Narayansthan, Setipokhari, and Parvas (27°86.683'N, 83°54.865'E; 27°50.283'N, 83°33.865'E; elev. 1,278 m asl), riparian and marshy areas of Dammak (27°91.595'N, 83°39.785'E; 27°53.595'N, 8°22.285'E), and marshy areas of Rampur (27°51.215'N, 83°03.060'E; elev. 437 m asl; 27°52.050'N, 83°53.040'E; elev. 402 m asl). We



**Fig. 1.** Map of Nepal. Ilam District, site of the previously documented record of the Sikkimese Caecilian (*Ichthyophis sikkimensis*) is indicated in blue; Palpa District, site of the new records is marked in red.

**Fig. 2.** A Sikkimese Caecilian (*Ichthyophis sikkimensis*) from the bank of a small stream in Holangdi (top) and preserved specimen (TMC-0017) from under a decaying log in Narayansthan. Photographs by Pit Bahadur Nepali.

searched for caecilians during daylight hours by digging to depths of approximately 40 cm in moist, dark, porous soil, particularly along the banks of permanent streams, and by raking through leaf litter and lifting decaying logs.

With local help, we collected five adult Sikkimese Caecilians (Fig. 2), three in an agricultural field and riparian

habitats at Holangdi and two from a small stream and adjacent riparian habitat at Narayansthan. Based on these sites and conversations with local residents, these caecilians are most frequently encountered in the soil of agricultural fields, under decaying leaves in low marshy areas, or along the banks of streams (Fig. 3).



**Fig. 3.** Habitat at Holangdi (left) and Narayansthan (right) near Tansen Municipality, Palpa, where Sikkimese Caecilians (*Ichthyophis sikkimensis*) were found. Photographs by Pit Bahadur Nepali.

**Table 1.** Morphometric and meristic data for five Sikkimese Caecilians (*Ichthyophis sikkimensis*) from Tansen Municipality, Palpa District, Nepal. Measurements to the nearest 0.1 mm.

Measurement	Specimen					Mean $\pm$ SD
	1	2	3	4	5	
Total length	299	293	301	313	295	300.2 $\pm$ 7.82
Total annuli (counted ventrally)	292	287	297	307	291	294.8 $\pm$ 7.69
Total annuli (counted dorsally)	296	301	291	305	295	297.6 $\pm$ 5.46
Tail annuli	5	5	6	6	6	5.6 $\pm$ 0.55
Dorsal transverse grooves on second collar	2.1	2.0	2.0	2.0	2.1	2.04 $\pm$ 0.05
Distance between eyes	4.9	4.9	5.7	5.8	5.6	5.38 $\pm$ 0.44
Distance between eye and tentacle	1.1	2.0	2.0	2.1	2.0	1.84 $\pm$ 0.42
Distance between eye and naris	4.9	4.7	5.1	5.4	5.1	5.04 $\pm$ 0.26
Distance between eye and tip of snout	6.2	6.3	6.1	7.0	6.3	6.38 $\pm$ 0.36
Distance between eye and angle of jaw	4.2	4.1	4.8	5.1	5.0	4.64 $\pm$ 0.46
Distance between naris and tentacle	2.3	2.1	2.5	2.7	2.4	2.4 $\pm$ 0.22
Distance between tentacles	8.3	8.1	8.1	8.3	8.2	8.2 $\pm$ 0.10
Head width at angle of jaw	11.8	11.8	12.0	12.1	11.7	11.88 $\pm$ 0.16
Head length	10.9	11.1	11.1	11.2	10.9	11.04 $\pm$ 0.13
Head width at occiput (lateral edge of the first nuchal groove)	9.3	9.1	9.3	9.1	9.3	9.22 $\pm$ 0.11
Distance between tip of the snout and first nuchal groove	13.8	13.9	14.1	14.9	14.1	14.16 $\pm$ 0.43
Length of first collar (measured laterally)	3.2	3.2	3.9	3.9	3.7	3.58 $\pm$ 0.36
Length of second collar (measured laterally)	4.2	4.1	4.8	5.0	4.1	4.44 $\pm$ 0.43
Circumference at midbody	41.3	41.0	41.6	43.2	43.0	42.02 $\pm$ 1.01
Length of the tail from anterior end of the vent	4.1	4.1	4.1	4.2	4.0	4.1 $\pm$ 0.07

Specimens (Table 1) were deposited in the Department of Zoology, Tribhuvan Multiple Campus, Palpa, Tribhuvan University, Nepal (TMC-0017). Using descriptions and keys in Taylor (1960), Sarkar et al. (1992), Dutta (1997), Bhatta (1998), Pillai and Ravichandran (1999), Anders et al. (2002), Chanda (2002), Rai (2003), Kupfer and Müller (2004), Shah and Tiwari (2004), Kamei et al. (2009), Wangyal (2014), Kamei and Biju (2016), and Kamei (2017), we identified them as *Ichthyophis* by being limbless and wormlike in general appearance and by having a short tentacle between the eye and nostril on each side of the head, small scales usually embedded in the skin, body with a series of annulations, and a short tail; and as *I. sikkimensis* by lacking a lateral stripe and having about 293–313 annuli, ten or fewer caudal folds, and 18–21 teeth on each dentary and 1–10 on each splenial with teeth not conspicuously sunken in pits. The identity of the species was confirmed by Prof. Karan Bahadur Shah.

The presence of this species in Tansen Municipality, Palpa District, Nepal, suggests that it also is likely to occur in similar habitats elsewhere in southern Nepal and adjacent northcentral India.

#### Acknowledgements

We thank the University Grant Commission, Nepal, for supporting this research; Prof. Karan Bahadur Shah for help with the identification of the species and preservation technique; Mukta Bahadur Nepali and Neelam Nepal, lecturers, Tribhuvan Multiple Campus, Palpa, for editing an earlier draft of this manuscript; and Munesh Ratna Guvaju, Santoshi Shrestha, and others who helped with fieldwork.

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