



The Indian Egg-eater, *Elachistodon westermanni* Reinhardt 1863 (Squamata: Dasypeltidae): First Record from the Satpura Mountain Range of Madhya Pradesh, India, with Notes on Threats and Habitat Conservation

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When Reinhardt (1863) described a new genus and species of snake (*Elachistodon westermanni*) from Rangpore (Rangpur is now in Bangladesh), he noted that the stomach and gullet of the type specimen was filled with a congealed mass of either milk or eggs and compared the new species with African snakes in the genus *Dasypeltis*, specialized for egg-eating and came to the conclusion that the *Elachistodon* was also an egg eater. Gans and Williams (1954) subsequently came to the same conclusion and indicated that *E. westermanni* was the only species specialized for egg-eating on the Indian Subcontinent. Sharma (2014) indicated that these snakes feed primarily on eggs and Vyas (2013) concluded that these feeding habits limit population densities. Mohan et al. (2018) determined that the similarities between *Elachistodon* and *Dasypeltis* were a result of convergent evolution based on their common feeding behaviors and that the former was more similar to snakes in the genus *Boiga*, to which they provisionally assigned *E. westermanni*.

Few specimens of Indian Egg-eaters (*Elachistodon westermanni*; Fig. 1) are available in museum collections (e.g., Smith 1943; Daniel 2002) and sparse distribution records and an elusive nature make it one of the least studied Indian snake species (Vishwanathan 2015). Murty et al. (1993) even suggested that the species was extinct. Captain et al. (2005) recorded the species from Maharashtra, India, and additional new records (e.g., Vyas 2006, 2010, 2013, 2016; Nande and Deshmukh 2007; Narayanan 2012; Khandal et al. 2016) have confirmed its presence in six Indian states (Fig. 2) leading to its listing as being of Least Concern on the IUCN Red List of Threatened Species (Hegde et al. 2013; Srinivasulu et al. 2013). Herein

we report new locality records for Madhya Pradesh, India, including the first records of the Indian Egg-eater from the Satpura Mountain Range, 86 km in straight-line distance from the nearest records in Nagpur (Maharashtra), 171 km from those in Amravati (Maharashtra), and 410 km from those in Shivpuri (Madhya Pradesh).

Our discoveries of specimens from Madhya Pradesh were adventitious. Documentation of threats and road mortality in Vidarbha, Maharashtra, and the Nagpur District in particular was the result of surveys conducted from 2015 to 2017. We identified snakes using available literature sources (Blanford 1874; Wall 1913; Smith 1943; Gans and Williams 1954; Rosenberg and Gans 1976; Captain et al. 2005). We



Fig. 1. An adult male Indian Egg-eater (*Elachistodon westermanni*) from Hingana, Nagpur, Maharashtra, India.

recorded a total of 129 specimens of *E. westermanni*, five of which were from the Chhindwara District (Fig. 3) in the Satpura Mountain Range of Madhya Pradesh and 123 of which were road-killed (Appendix 1).

Vehicular traffic poses a serious threat to these snakes. Deshmukh et al. (2015) had reported 19 road-killed individuals from the Nagpur District, Maharashtra, and Dandge and Tiple (2016) found 40 road-killed snakes from 2008 to 2014.

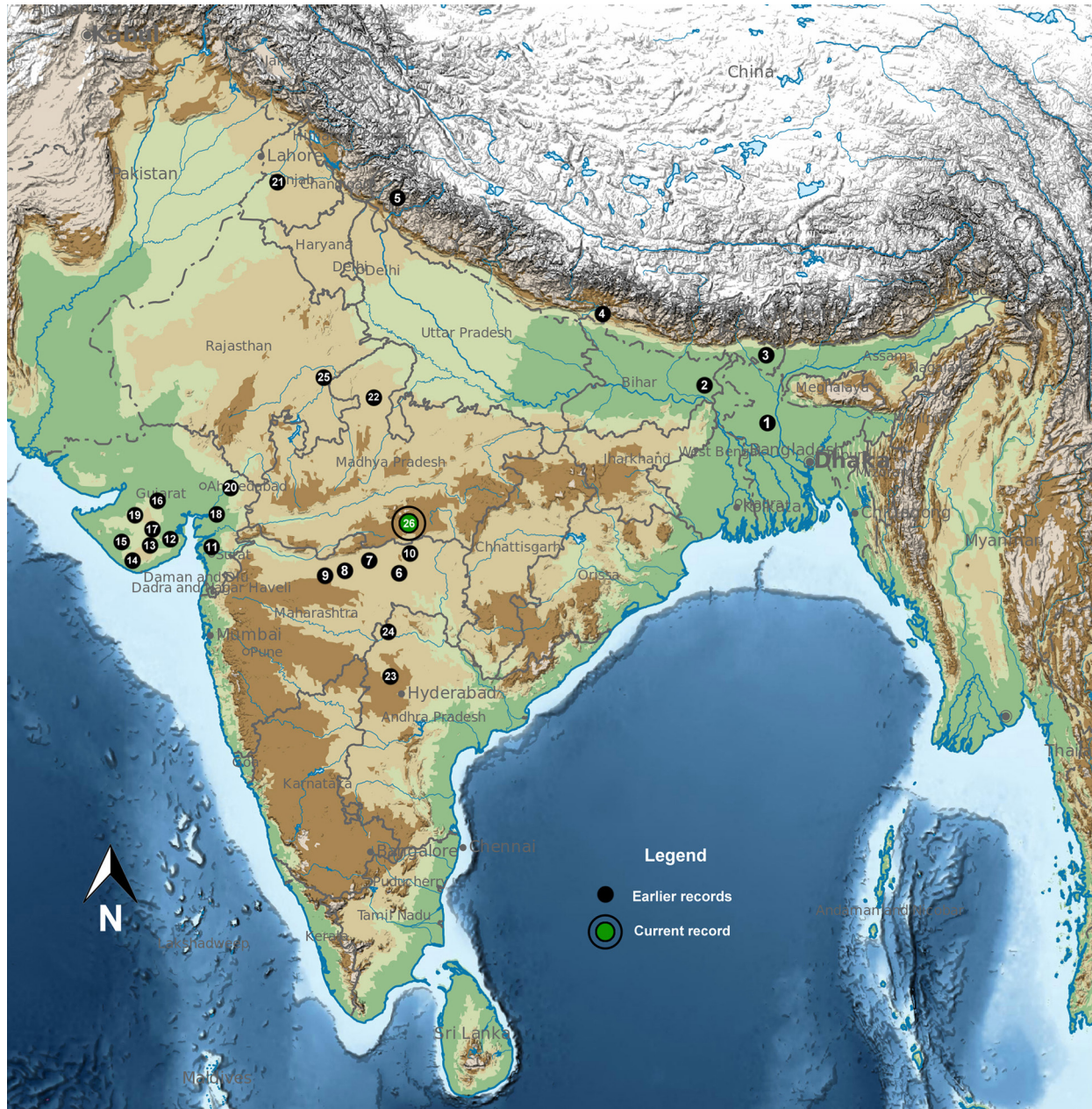


Fig. 2. Map of the Indian Subcontinent showing locality records of the Indian Egg-eater (*Elachistodon westermanni*): (1) Rangpur, Bangladesh (type locality; Reinhardt 1863); (2) Purnea, Bihar, India (Blanford 1875); (3) near Mal, Jailpaiguri, West Bengal, India (Wall 1913); (4) Rapti Dun, Chitwan, Nepal (Rosenberg and Gans 1976); (5) Corbett National Park, Uttarakhand, India (Lamba 1987); (6) Wardha, Maharashtra, India (Captain et al. 2005); (7) Amrawati, Maharashtra, India (Nande and Deshmukh 2007); (8) Akola, Maharashtra, India (Dandge 2008); (9) Shegaon, Buldhana, Maharashtra, India (Narayanan 2012); (10) Nagpur, Maharashtra, India (Deshmukh et al. 2015); (11) Poplod, Surat, Gujarat, India (Vyas 2006); (12) Vitoriya Park, Bhavnagar, Gujarat, India (Vyas 2006); (13) Jesar Town, Amreli, Gujarat, India (Vyas 2010); (14) Junagarh, Gujarat, India (Vyas 2010); (15) Sasan, Gujarat, India (Vyas 2010); (16) Kharaghoda, Surendrahagar, Gujarat, India (Vyas 2013); (17) Hindorana, Amreli, Gujarat, India (Vyas 2013); (18) Vadodara, Gujarat, India (Vyas 2016); (19) Rajkot, Gujarat, India (Vyas 2016); (20) Panchmahal, Gujarat, India (Vyas 2016); (21) Hoshiarpur District, Punjab, India (Sharma 2014); (22) Shivpuri, Madhya Pradesh, India (Sharma 2014); (23) Patancheru, Medak District, Telangana, India (Visvanathan 2015); (24) Bellampalli City, Telangana, India (Dandge and Tiple 2016); (25) Bherounda, Sawai Madhopur, Rajasthan, India (Khandal et al. 2016); (26) Chhindawara, Madhya Pradesh, India (this report).



Fig. 3. Details of an adult Indian Egg-eater (*Elachistodon westermanni*) from Sousar, Chhindawara, Madhya Pradesh, India.

Those reports plus our 2015–2017 observations of 123 road-killed individuals suggest that the threat could be increasing and that a more effective “Break for Snakes” educational program is warranted.

We also noted considerable degradation (Fig. 4) of the mixed dry and thorny scrub forests and wetlands that provided habitat for *Elachistodon westermanni* and the birds whose eggs they consume (Sharma 2014; Khandal et al.



Fig. 4. Scrub forest cleared for rapid urbanization (top) and for agriculture in Kalmeshwar, Nagpur, Maharashtra (bottom left); degraded Indian Egg-eater (*Elachistodon westermanni*) habitat in Hingana, Nagpur, Maharashtra.

2016; Dandge and Tiple 2016). Indian scrub forests that covered 76,796 km² in 1987 (Forest Survey of India 1987) had declined to 57,211 km² in 1997 and to 42,176 km² in 2011 (Forest Survey of India 1997, 2011).

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Appendix 1. Localities for road-killed Indian Egg-eaters (*Elachistodon westermanni*) found in the Vidarbha region of Maharashtra, India in 2015–2017.

Gorewada Outer Road: Katol Naka, Nagpur (21°18'40.02"N, 79°03'42.11"E); near Gorewada Chouk, Nagpur (21°18'78.77"N, 79°03'66.23"E); between Katol Naka and Gorewada Chouk (21°18'93.48"N, 79°04'13.16"E); Gorewada Water Filter Gate (21°19'35.81"N, 79°04'69.01"E); near the Piwali River (21°09'35.81"N, 79°04'72.38"E); in front of the Unique Public School (21°20'03.52"N, 79°05'07.67"E); near the Green Valley Farm (21°21'91.91"N, 79°04'17.74"E); near the railway crossing, Bharatwada Raod (21°22'93.99"N, 79°03'36.14"E); near Bharatwada Village (21°23'20.83"N, 79°02'72.92"E); Khandala Water Pond (21°25'00.03"N, 79°98'68.83"E); between J.D. College and the railway crossing (21°22'64.43"N, 79°97'90.44"E). **Nagpur, Kalmeshwar Road:** Asaram Babu Ashram, Borgaon (21°21'00.45"N, 79°97'96.38"E); Manav Mandir, Yerala (21°20'79.09"N, 78°96'750.6"E); near Saint Joseph Hospital, Yerala (21°00'47.51"N, 78°96'25.46"E); Radha Swami, Satsang Byas (21°20'95.88"N, 78°96'10.19"E); near the Kuber Bar (21°21'19.27"N, 78°95'63.58"E); in front of Sharma Dhabha (21°21'39.45"N, 78°95'21.13"E); near the petrol pump (21°21'67.47"N, 78°94'09.36"E); Guru Nanak College Road, Dahegaon (21°21'72.49"N, 78°94'59.86"E); Kalmeshwar Bypass turning (21°22'14.57"N, 78°93'78.57"E); Nirmal Dhabha, Kalmeshwar (21°22'58.15"N, 78°92'95.22"E). **Kalmeshwar and adjacent areas:** Smashan Bhumi, Kalmeshwar (21°22'77.66"N, 78°92'58.32"E); near Khule Natya Mandir, Kalmeshwar (21°23'38.97"N, 78°91'53.65"E); MIDC, railway gate (21°23'23.93"N, 78°91'13.23"E); Tuli farmhouse, bypass (21°22'28.42"N, 78°92'00.33"E); in front of the Sultania Oil Factory (21°20'54.34"N, 78°89'78.35"E); between Saongi and Upparwahi (21°21'86.95"N, 78°88'59.58"E); Gumthala (21°21'75.44"N, 78°87'08.55"E). **Nagpur, Amravati Road:** near Sonegaon (21°20'70.19"N, 78°87'00.36"E); Chargaon Dam (21°23'62.95"N, 78°83'52.08"E); Chargaon Dam (21°23'00.03"N, 78°76'01.59"E); Chargaon Dam (21°26'51.07"N, 78°74'55.51"E); between Hatla and Metpanjara (21°25'98.59"N, 78°77'24.37"E); Katol bypass (21°25'52.08"N, 78°68'19.76"E); near Paradsinga (21°26'48.79"N, 78°58'23.48"E); between Rohana and Indarwada (21°32'94.39"N, 78°51'30.77"E); over the river bridge, Bharsingi (21°35'14.85"N, 78°46'56.14"E); Amner, Amaravati (21°36'30.36"N, 78°44'84.28"E); Jogna Mata Temple, Shendurjana Ghat Road (21°39'20.33"N, 78°41'26.99"E); between Mowad and Khairgaon (21°49'21.78"N, 78°26'59.76"E). **Hingana Area:** Hingana Police Station (21°07'75.78"N, 78°96'82.64"E); Ambedkar Chouk (21°07'90.35"N, 78°96'86.16"E); near the Hingana Post Office (21°06'95.09"N, 78°96'53.03"E); near the Public Health Centre (21°07'37.73"N, 78°95'15.04"E); Hingana Outer Ring Road (21°07'23.03"N, 78°94'79.55"E). **Hingana, Amravati Highway:** Sangam Outer Road (21°09'77.72"N, 78°95'62.92"E); Bhojar Dhabha (21°10'35.32"N, 78°94'99.16"E); Gajanan Mandir (21°11'04.92"N, 78°94'20.82"E); Kadir tyre workshop (21°13'03.69"N, 78°92'12.53"E); Logistic Park, Choudhamail (21°14'69.34"N,

78°88'15.23"E); near Haniman Mandir Dhamna (21°13'77.04"N, 78°94'66.47"E); between Dhamna and Bajargaon (21°14'02.74"N, 78°80'55.01"E). **Bajargaon, Dorli Road:** Dhaga Factory Road (21°14'05.81"N, 78°80'31.48"E); Parker Industries (21°13'69.86"N, 78°77'69.48"E); Fun n Food Village (21°13'76.84"N, 78°76'21.04"E); near Star Key Point (21°14'38.45"N, 78°75'70.42"E); Katlabodhi Village (21°11'38.24"N, 78°75'76.96"E); Kathalabodhi (21°17'74.76"N, 78°75'81.07"E); between Kathlabodhi and Murli (21°18'73.65"N, 78°75'40.34"E); Roulgaon Lake (21°21'11.07"N, 78°76'11.37"E). **Hingana, Wardha Road:** Near Mangali (21°06'96.55"N, 78°92'24.43"E); between Mangli and Mohgaon (21°06'81.68"N, 78°90'97.43"E); Ujjayani Buddha Vihar Phata (21°06'85.21"N, 78°89'15.07"E); near Ramesh Pan Palace, Mohgaon (21°06'78.19"N, 78°88'69.95"E); Zilpi Lake (21°06'16.41"N, 78°87'19.06"E); at the top of the ghat (21°06'06.98"N, 78°87'20.73"E); Ambazari Phata (21°05'23.21"N, 78°83'57.09"E); Dhaba Phata (21°05'36.00"N, 78°81'63.91"E); near Seloo Ghat (21°92'93.47"N, 78°75'14.02"E). **Hingana, Kanolibara Road:** Near the Bor Dam Canal (20°92'42.66"N, 78°73'75.09"E); Mumbai, Kolkata Highway (21°06'23.27"N, 78°96'00.37"E); near Mondha (21°04'69.83"N, 78°95'78.13"E); Panjari Village (21°03'65.58"N, 78°95'38.89"E); Wyphad Pitesur (21°98'85.45"N, 78°92'52.76"E); Katangdhara Phata (20°97'63.26"N, 78°90'99.22"E); Lakhamapur Nandi Dam (20°96'21.04"N, 78°88'28.24"E); near Khadaki Dam (20°95'03.53"N, 78°86'34.22"E); Kanolobara River (20°93'51.13"N, 78°85'03.71"E). **Hingana, Jamtha, Khapri Road:** Sukli Nala (21°05'44.44"N, 78°97'42.03"E); Khadka Turninig (21°03'19.59"N, 78°98'25.93"E); near Khadaka (21°03'11.61"N, 78°99'15.12"E); Khadka Village (21°03'90.48"N, 78°98'96.26"E); Khadaka housing society (21°04'29.35"N, 78°98'81.08"E); near Brindavan Bar (21°02'83.21"N, 79°01'89.98"E); Mata Madir Sondapar (21°02'73.19"N, 79°02'82.25"E); Helipad Road (21°02'57.78"N, 79°03'37.05"E); near the railway crossing (21°02'45.35"N, 79°03'90.84"E); near the railway crossing (21°02'44.79"N, 79°03'92.98"E); near Gavsi, Manapur Flyover (21°02'38.06"N, 79°04'28.09"E); Wardha Road turning (21°02'60.17"N, 79°04'84.85"E); Jamtha Village (21°01'05.05"N, 79°04'40.46"E); near Parsodi (21°03'49.27"N, 79°05'16.83"E); near TCS Mihan (21°05'39.15"N, 79°02'02.56"E). **Maharshi Karve College Road:** Tahsil Office Phata (21°06'90.16"N, 78°96'46.96"E); Hanuman Temple (21°06'86.31"N, 78°96'43.14"E); near Khadak Nala (21°06'85.07"N, 78°96'42.38"E); near Karve College (21°06'77.29"N, 78°96'33.67"E); Karve College Gate (21°06'66.14"N, 78°96'21.92"E). **Kalmeshwar, Saoner Road:** Shri Krishna Mangal Karyala (21°24'93.49"N, 78°90'85.27"E); KZS Science College (21°25'42.26"N, 78°90'95.23"E); Varoda River (21°26'23.46"N, 78°91'09.42"E); Zunki Saoli Phata (21°26'56.26"N, 78°91'07.47"E); Carmel Academy (21°27'50.34"N, 78°91'10.03"E); Renuka Mata Mandir (21°28'42.12"N, 78°91'14.96"E); Kolba Swami School, Dhapewada (21°29'83.15"N, 78°91'55.88"E); near the petrol pump, Adasa Road (21°31'16.24"N, 78°91'69.48"E); Emu Farm (21°33'33.93"N, 78°92'03.54"E); Borgav turning (21°34'51.57"N, 78°92'73.81"E); near Borgaon Nala (21°35'35.94"N, 78°92'49.06"E); Coal Mines Phata (21°36'92.01"N, 78°92'09.74"E); near Bhalerao ITI (21°37'67.08"N, 78°91'73.49"E). **Mahurzari, Wadi:** Mahurzari water tank (21°22'17.04"N, 79°00'15.03"E); cement factory (21°21'49.47"N, 79°00'09.01"E); near NIT College (21°21'15.52"N, 78°99'61.66"E); Borgaon Fata (21°21'10.17"N, 78°99'61.63"E); Gorewada Zoo gate (21°20'34.75"N, 78°99'77.64"E); Gorewada Zoo bus stop (21°20'21.07"N, 78°99'74.69"E); Godown turning (21°20'00.76"N, 78°99'48.54"E).