Natural history notes on Elachistodon westermanni Reinhardt, 1863

Article *in* Hamadryad · October 2015

CITATIONS
3

READS
187

1 author:

Avinash Visvanathan
Friends of Snakes Society
4 PUBLICATIONS **4** CITATIONS

SEE PROFILE

Hamadryad Vol. 37, No. 1 & 2, pp. 132 – 136, 2015.

Natural history notes on *Elachistodon westermanni* Reinhardt, 1863

The Indian Egg-eating Snake *Elachistodon westermanni* Reinhardt, 1863 is the only species in the monotypic genus *Elachistodon* Reinhardt, 1863. Sparse distribution records and an elusive nature make it one of the least studied Indian snake species. It is currently known from sixteen sites spread across Bangladesh, India and Nepal. I here take the opportunity to report a new locality, which extends the distribution of the species to the south and also provide notes on the behavior and captive feeding of *E. westermanni*.

On 12 October 2014, at 2100 hrs, a live specimen of *Elachistodon westermanni* was rescued by J. Srinivas from a residence in Patancheru, Medak District, Telangana (17°30’16”N, 78°17’18”E; 556 m a.s.l.). The specimen had entered the fenced perimeter of the house from an adjacent dry thorny scrub patch. The current record of *E. westermanni* is the southernmost known for the species (Fig. 1), extending the range ca. 400 km south-east from Buldana, Maharastra (Narayanan 2012), the previous southernmost record. The closest documented record of the species at Wardha, Maharastra (Captain *et al*. 2005) ca. 360 km north of Patancheru shares a similar dry Deccan thorn scrub-forest habitat. From the current and previous documented records, we can infer that the distribution of *E. westermanni* is restricted to dry and moist mixed deciduous, dry grasslands and tropical & sub-tropical moist broadleaf ecoregions. Our current knowledge of the geographic distribution of the species suggests that it is widely distributed. The apparent rarity of the species may well be the result of difficulty of detection.

Because *E. westermanni* is seldom encountered, morphological and behavioural data were recorded from the specimen in captivity. Ventral counts were made according to Dowling (1951). Dorsal scale rows were counted one head-length behind the head, at mid-body and at one head length anterior to the vent. Body length measurements were taken with a non-stretchable thread to the nearest mm. Other measurements were taken with a digital caliper to the nearest 0.1 mm. The specimen was sexed using a 1.25 mm diameter sexing probe. High-resolution digital images were used to describe coloration and pholidosis (except dorsal scale rows which were counted on the live snake).

The specimen (Fig. 2) was an adult female measuring 790 mm in total length (687 mm SVL plus 103 mm tail length) and having the following characteristics: head distinct from neck, slightly elongated with head length measuring 23.1 mm, maximum head width 8.3 mm and maximum head depth 6.7 mm; rounded snout; large protruding eyes measuring 3.0 mm in diameter, with vertically elliptical pupils; body moderately elongated, laterally compressed

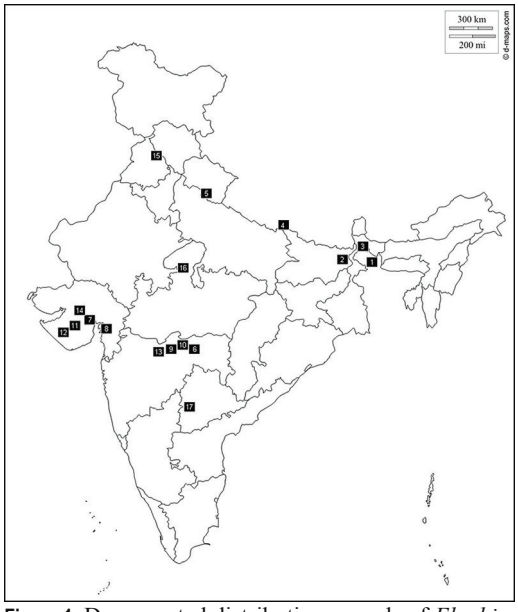

Figure 1. Documented distribution records of *Elachistodon westermanni* from the Indian sub-continent –1. Rangpur, Bangladesh (Reinhardt 1863) (Type locality); 2.Purnea, Bihar, India (Blanford 1875); 3.Jalpaiguri, West Bengal , India (Wall1913); 4. Chitwan, Nepal (Fleming & Fleming 1974); 5.Corbett National Park, Uttarakhand, India (Sharma 2003); 6.Wardha, Maharashtra, India (Captain *et al*., 2005); 7.Bhavnagar, Gujarat, India (Vyas 2006); 8.Surat, Gujarat, India (Vyas 2006); 9.Amrawati, Maharashtra, India (Nande & Deshmukh 2007); 10.Akola, Maharashtra, India (Dangde 2008); 11.Junagadh, Gujarat, India (Vyas 2010); 12.Buldana, Maharashtra, India (Narayanan 2012); 13.Amreli, Gujarat, India (Vyas 2013); 14.Surendranagar, Gujarat India (Vyas 2013); 15.Hoshiarpur district, Punjab, India (Sharma 2014); 16.Shivpuri, Madhya Pradesh, India (Sharma 2014); 17.Patancheru, Telangana, India (this paper).

Figure 2. Live female specimen of *Elachistodon westermanni* from Patancheru, Medak District, Telangana, India. **A.** Dorsal view of the entire body **B.** Ventral view of the entire body **C.** Lateral view of the head **D.** Dorsal view of head.

with spine subtly arched outward giving a triangular appearance; tail short and prehensile; scales smooth and lustrous. Internasals as large as prefrontals; supralabials 7, with 3rd and 4th in contact with the eye; preoculars 2, postoculars2; loreal absent; temporals 2+3; dorsal scales in 21:15:15 rows; vertebral scales larger than the adjacent dorsal scales. Ventral scales 217; anal scale entire; subcaudals 52, paired (excluding the terminal scale). Dorsum dark brown with single yellow vertebral stripe from neck to tail tip, discontinuous at the anterior body. Off-white streaks, perpendicular to vertebral scales conspicuous on the anterior body but reduced to speckles of decreasing prominence towards the posterior end. Ventral scales glossy off-white. Many of the anterior ventrals have dark brown triangular patches at their outer edges. Head tan with dark brown patches on parietals, frontal, prefrontals and temporals. Dark brown streaks separate supralabials 2 to 7.

The specimen was terrestrial but showed remarkable dexterity in scaling vegetation. On one occasion, it was able to raise more than half the body length without any other support while reaching out towards other branches. When provoked, it raised the anterior portion of the body, forming 'S' shaped coils as a defensive strategy. It was active exclusively nocturnally. During the day it rested under crevices on land. Its scales appear acutely receptive to vibrations or touch; the specimen was startled, backing off in a sudden jolt, when it accidentally came in contact with a fallen leaf or other obstructions.

Two eggs of a Blue Rock Pigeon (*Columba livia*), measuring 35 mm x 27 mm, were presented to the specimen. After being tongue-flicked, the first egg was swallowed entirely and pushed inward towards the cervical region. After a pause of three minutes, the snake, in a swift motion, threw its vertebral column at the cervical region in a downward thrust to crack open the egg (Fig. 3A). Rapid vertical contractions followed lasting 1 to 2 seconds, to expel the contents of the egg. This was immediately followed by a series of quick horizontal contractions, lasting ca. 2 seconds, which pushed the discharged egg contents further towards the

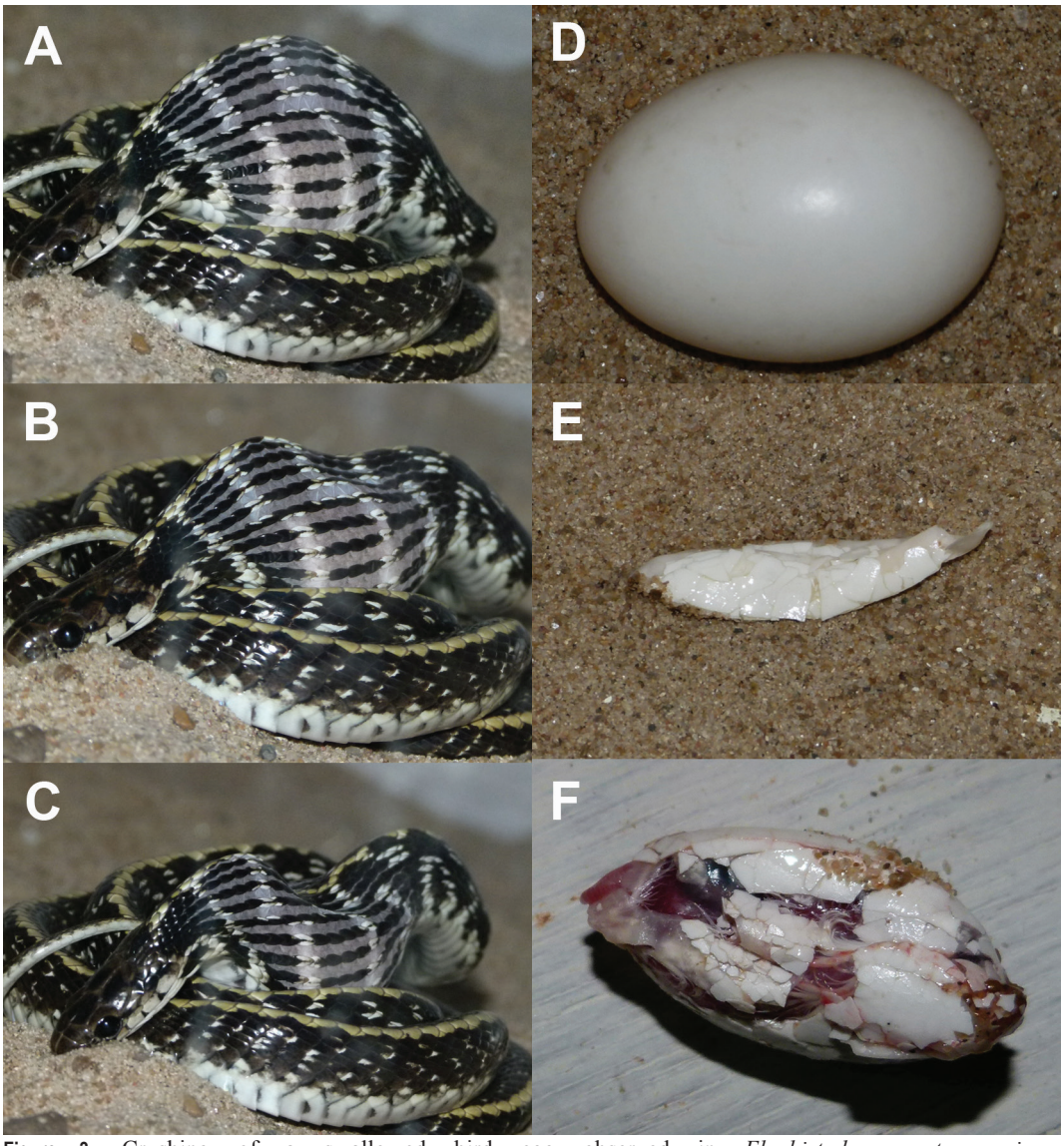

Figure 3. Crushing of a swallowed bird egg observed in *Elachistodon westermanni* – **A.** swallowed egg resting in the cervical region **B.** Initiation of the egg crushing process by the vertebral column **C.** Egg crushed by the downward thrust of the vertebral column. D. Intact egg before inhestionby *E. westermanni.* **E.** Elongated disc-like remnants of the regurgitated egg shell. The shell fragments are held together by the egg membrane **F.** Regurgitated egg containing a fully-formed chick.

stomach. Subtle peristaltic movements of the oesophagus continued until the contents had reached the stomach.

Vertical and horizontal contractions at the cervical region were repeated thirty times, to ingest all the content of the egg, except the shell, which was later regurgitated (Figs. 3B–C). The process of egg consumption, from initial ingestion until the regurgitation of the egg shell, lasted 56 minutes. The regurgitated egg shell was crushed and folded inward along a median line. The fragmented pieces of the shell were still attached to the egg membrane. Further examination revealed that the egg membrane was torn only at two sites at the posterior end of the egg towards the stomach. I speculate that the snake uses the sharp edges of the vertebral projections to slice open the egg membrane. Flat and blunt side of the projections probably aided in crushing of the hard egg shell and squeezing the contents out. Out of ten regurgitated eggs shells examined, egg membranes of seven were torn

open at only two sites, while the other three had been torn at three sites – two small circular gashes and one adjacent longitudinal tear running more than half the length of the egg. Das (2002) suggested that the secretions from the Harderian glands helped adhesion of the egg shell to the internal tissue of the oesophagus. However, freshly regurgitated eggs (Fig. 3E) were slippery and no sticky secretions were found. The regurgitated shells were, however, thoroughly wetted, probably to avoid shell fragments from getting stuck to the oesophageal wall.

Eggs with embryonic development were rejected. Such eggs, when washed thoroughly in water were ingested by the snake, but subsequently regurgitated (Fig. 3F), suggesting the specimen's inability to successfully take solid prey. Based on the above it is extremely probable that the snake uses its olfactory ability to choose eggs without embryonic growth. Smaller eggs of Red-vented Bulbul (*Pycnonotus cafer*) (20.6 ± 0.08 mm x 15.97 ± 0.13 mm) presented to the snake, were crushed and consumed entirely, including the shell. I speculate that the thin egg membrane of *P. cafer* was not able to hold the shell fragments together, which would otherwise aid in channeling the contents out of the egg. Defecation on the following day contained a powdery mass, creamy-white in appearance indicating the total breakdown of the calciferous shells by the snake's digestive fluids.

Gans & Williams (1954) noted the scarcity of knowledge on the genus *Elachistodon*. This situation still remains much the same. There is much to learn about this elusive species by maintaining it in captivity, as sightings are few and far apart. Extensive field surveys should also be made to document the extent of geographic range of the species in the sub-continent.

Acknowledgements

I am thankful to the Telangana Forest Department for permitting me to study the specimen. I sincerely thank Karthikeyan Vasudevan, for the insightful suggestions and guidance in every aspect of this study. I also thank Vivek Sharma and Rajiv Menon in helping me in the collection of literature. Last and surely not the least, I wish to thank members of Friends of Snakes Society for their constant and unconditional support.

Literature Cited

BLANFORD, W. T. 1875. Note on (i) *Elachistodon westermanni*,(ii) *Platyceps semifasciatus*, and iii) *Ablepharus pusillus* and *Blepharosteres agilis*. *Journal of the Asiatic Society of Bengal* 44(2): 207–209.

CAPTAIN, A., F. TILLACK, A. GUMPRECHT & P. DANDGE. 2005. First record of *Elachistodon westermanni* Reinhardt,1863 (Serpentes, Colubridae, Colubrinae) from Maharashtra State, India. *Russian Journal of Herpetology* 12(2): 121–123.

DANDGE, P. H. 2008. Food and feeding habits of *Elachistodon westermanni* Reinhardt, 1863. *Hamadryad* 32(1): 75–77.

DAS, I. 2002. *Elachistodon westermanni* Reinhardt, 1863, pp. 857–860 in: H. H. Schleich and W. Kästle (eds.), Amphibians and Reptiles of Nepal. A. R. G. Gantner Verlag, Ruggell, Liechtenstein.

DOWLING, H. G. 1951. A proposed standard system of counting ventrals in snakes. *British Journal of Herpetology* 1(5): 97–99.

FLEMING, R. L., JR. & R. L. FLEMING, SR. 1974. Some snakes from Nepal. *Journal of the Bombay Natural History Society* 70(3): 426–437.

GANS, C. & E. E. WILLIAMS. 1954. Present knowledge of the snake *Elachistodon westermanni* Reinhardt. *Brevoria* 36: 1–17.

NANDE, R. & R. DESHMUKH. 2007. Snakes of Amravati District including Melghat, Maharashtra, with important records of the Indian egg eater, montane trinket snake and Indian smooth snake. *Zoos' Print* 22(12): 2920–2924.

NARAYANAN, A. 2012. Records of Indian Egg Eater Snake *Elachistodon westermanni* in the localities of Shegaon, District Buldhana, Maharashtra, India. *Reptile Rap* 14: 9–12.

REINHARDT, J. 1863. Om en ny slaegt af slange familien Rachiodontidae [On a new genus of snake family Rachiodontidae]. *Oversigt over det Kongelige Danske Videnskabernes Selskabs Forhandlinger* 1(2): 198–210.

SHARMA, R. C. 2003. Handbook — Indian Snakes. Zoological Survey of India, Kolkata. xxvi + 410 pp.

SHARMA, V. 2014. On the distribution of *Elachistodon westermanni* Reinhardt, 1863 (Serpentes, Colubridae). *Russian Journal of Herpetology* 21(3): 161–165.

VYAS, R. 2006. Story of a snake's photograph from Gujarat and notes on further distribution of the Indian egg-eater snake. *Herpinstance* 3(2): 1–4.

VYAS, R. 2010. Distribution of *Elachistodon westermanni* in Gujarat. *Reptile Rap* 10: 7–8.

VYAS, R. 2013. Notes and comments on distribution of a snake: Indian Egg Eater (*Elachistodon westermanni*). *Russian Journal of Herpetology* 20(1): 39–42.

WALL, F. 1913. A rare snake *Elachistodon westermanni* from the Jalpaiguri District. *Journal of the Bombay Natural History Society* 22(2): 400–401.

Avinash C. Visvanathan

Friends of Snakes Society, Hyderabad

34-114/1, Vivekanandapuram, Sainikpuri P.O., Secunderabad 500094, Telangana, India

E-mail: Avinash@friendsofsnakes.org

Received:22 December 2014.
Accepted:15 July 2015.

Reviewers for *Hamadryad* 37 (1 & 2)

Kraig K. Adler, A. H. M. Ali Reza, Patrick D. Campbell, Ashok Captain, Indraneil Das, Patrick David, Jesse L. Grismer, Jakob Hallermann, James Lazell, Michael Lough-Stevens, Stephen Mahony, Daniel Portik, Suman Pratihar, Thomas Rainwater, and Gernot Vogel

Note: Indraneil Das acted as Editor for the two papers in this issue authored by Hamadryad Editor, Aaron M. Bauer.