

Phylogeny and conservation status of the Indian egg-eater snake, *Elachistodon westermanni* Reinhardt, 1863 (Serpentes, Colubridae)

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Supplementary material

Table S1. Genbank accession numbers of sequences generated in this study; Sequence accession numbers of sequences obtained from Genbank repository.

Species	16S	CytB	CMOS	ND4
<i>Telescopus fallax</i>	KU323974.1	AY188039.1	AY188000.1	–
<i>Telescopus semiannulatus</i>	KR814648.1	KR814696.1	KR814678.1	KR814712.1
<i>Toxicodryas pulverulenta</i>	KX660187.1	KX660460.1	AF471118.2	KX660586.1
<i>Toxicodryas blandingii</i>	KX660283.1	KX660549.1	KX660422.1	
<i>Dasypeltis fasciata</i>	KX660190.1	KX660463.1	KX660328.1	KX660589.1
<i>Dasypeltis atra</i>	KX660179.1	KX660452.1	KX660318.1	
<i>Dasypeltis scabra</i>	KX277241.1	AY235729.1		
<i>Dasypeltis gansi latericia</i>	JQ801327.1			
<i>Dasypeltis gansi</i>	JQ801321.1			
<i>Dasypeltis sahelensis</i>	JQ801329.1			
<i>Boiga kraepelini</i>		FJ710796.1	FJ710795.1	

*: sequences generated in this study

Table S2. Partitions for Bayesian Phylogeny with respective models of evolution

(<https://figshare.com/s/142eeb0823b3a52f3c91>).

Partition name	Model of evolution
16S	GTR + G + I
Cmos codon 1	K80+I
Cmos codon 2	K80+I
Cmos codon 3	HKY+G
CytB codon 1	GTR+I+G
CytB codon 2	HKY+G
CytB codon 3	HKY+G

Table S3. Morphological and other ecological character comparison between species of the genera: *Boiga*, *Dasypeltis* and *Elachistodon*. Color code – dark grey: species of the genus *Boiga* whose relationships are unresolved; light grey: *Boiga* spp. sister to the Indian egg-eater; White: African egg-eaters and the Indian egg-eater.

S. No.	Species	Known Range	Max. length (mm)	Habitat	Mode of predation	Prey	Reproduction	Dentition
1	<i>Boiga cyanea</i>	Thailand, Malaysia, Cambodia ^a ; Myanmar, Vietnam, India ^b ; China, Nepal & Bhutan ^c	2300 ^b	Arboreal ^c	Venom ^c ; constriction ^d	Birds ^d ; Snakes ^b ; Lizards, frogs & rodents ^c ; bird eggs ^e	Oviparous ^c	Maxillary teeth - 12 to 14+2, anterior palatine not strongly enlarged ^b
2	<i>Boiga dendrophila</i>	Thailand, Malaysia, Singapore, Sumatra, Palau Belitung and Batu Archipelago, Pulau Nias, Bornea, Java, Bali, Cambodia, Vietnam, Philippines and Indonesia ^e	2800 ^d	Arboreal ^e	Venom & constriction ^d	Frogs, Lizards, Mammals, Birds and Snakes ^d ; Bird eggs ^e	Oviparous ^e	-
3	<i>Boiga drapiezii</i>	Thailand, Malaysia, Singapore, Sumatra, Pulau Bangka, Mentawai Archipelago, Borneo, Vietnam, Indonesia and Philippines ^e	2100 ^d	Arboreal ^e	-	Lizards, Frogs and Birds ^d ; Bird eggs & large insects ^e	Oviparous ^e	-
4	<i>Boiga cynodon</i>	Thailand, Malaysia, Singapore, Sumatra, Pulau Nias, Pulau Belitung, Pulau Bangka, Mentawai, Philippines ^e	2800 ^d	Arboreal ^e	Loose coils & venom ^d	Birds, Bird eggs ^b ; Lizards & Rodents ^d	Oviparous ^e	Maxillary teeth - 11 to 12+2, anterior palatine teeth strongly enlarged ^b
5	<i>Boiga forsteni</i>	India, Nepal & Sri Lanka ^c	2313 ^c	Arboreal ^c	Venom ^c	Birds, Bats ^d ; Lizards, Rodents ^b ; Snakes & Bird eggs ^c	Oviparous ^b	Maxillary teeth - 10 to 12+2, anterior palatine teeth strongly enlarged ^b
6	<i>Boiga siamensis</i>	Northeast India, Myanmar, Bangladesh, Malaysia, Vietnam, Cambodia & Thailand ^c	1700 ^c	Arboreal ^c	Venom ^c	Birds and Eggs ^c ; Rodents ^e	Oviparous ^c	-
7	<i>Boiga nigriceps</i>	Thailand, Malaysia, Sumatra, Pulau Nias, Pulau Simeulue, Borneo, Java, Mentawai Archipelago ^e	1700 ^d	Arboreal ^e	-	Birds ^d ; Snakes ^e	Oviparous ^e	-
8	<i>Boiga irregularis</i>	Papua New Guinea, Guam, Australia, Indonesia, Solomon Islands ^f	3100 ^f	Arboreal ^f	Constriction & Venom ^d	Frogs, Lizards, Mammals, Birds, Bird eggs and Snakes ^d	Oviparous ^f	Teeth of moderate length, upper rearmost enlarged and grooved
9	<i>Dasypeltis atra</i>	South Tanzania to Central Ethiopia	621 ^h	-	-	-	Oviparous ⁱ	-

10	<i>Dasypeltis fasciata</i>	and Westwards into EDRC ^g Togo ^j ; Gambia ^k ; Western and Central Africa ^l	670 ^j	Terrestrial ^l	Simple ingestion	Bird Eggs ^l	Oviparous ^l	-
11	<i>Dasypeltis gansi</i>	Togo ^j ; Senegal, Mali, Niger, Benin ^m ; Guinea ⁿ	1020 ^m	Terrestrial and Arboreal ⁿ	Simple ingestion	Bird eggs ⁿ	Oviparous ⁿ	-
12	<i>Dasypeltis scabra</i>	Gambia ^k ; Morocco; Angola, Botswana, Burundi, Congo, Egypt, Eritrea, Ethiopia, Kenya, Lesotho, Malawi, Mali, Mozambique, Namibia, Rwanda, Somalia, South Africa, Sudan, Swaziland, Tanzania ^p	608 ^o	Terrestrial ^p	Simple ingestion	Bird Eggs ^p	Oviparous ^p	-
13	<i>Elachistodon westermanni</i>	India ^q ; Nepal ^r ; Bangladesh ^s	920 ^t	Arboreal and terrestrial ^q	Simple ingestion ^q	Bird eggs ^q	Oviparous ^u	-
14	<i>Boiga beddomei</i>	India (Western Ghats & Orissa) & Sri Lanka ^c	1232 ^c	Arboreal and terrestrial ^c	Venom ^c	Lizards ^c	Oviparous ^c	Maxillary teeth - 12 or 13+2 ^c
15	<i>Boiga barnesii</i>	Sri Lanka ^b	595 ^v	-	-	-	-	Maxillary teeth - 13 or 14+2, anterior palatine teeth not strongly enlarged ^b
16	<i>Boiga ceylonensis</i>	India (Western Ghats) & Sri Lanka ^c	1320 ^c	Arboreal and terrestrial ^c	Venom ^c	Lizards, Birds and frogs ^c	Oviparous ^c	Maxillary teeth - 14 to 20+2 ^c
17	<i>Boiga quincunciata</i>	India (Northeast) & Myanmar ^e	1550 ^b	Arboreal and terrestrial ^e	-	-	-	Maxillary teeth - 11 or 12+2, anterior palantine not strongly enlarged ^b
18	<i>Boiga trigonata</i>	India, Baluchistan & Sind ^w	1250 ^c	Arboreal and terrestrial ^c	Venom ^c	Lizards, Mice & small birds ^c	Oviparous ^c	Maxillary teeth - 8 to 10+2, anterior palantine not strongly enlarged ^b

References. (a) Pauwels et al., 2003; (b) Smith, 1943; (c) Whitaker & Captain, 2004; (d) Greene, 1989; (e) Das, 2012; (f) Rodda & Savidge, 2007; (g) Bates et al., 2012; (h) Broadley and Bates, 2009; (i) Uetz, 2017; (j) Segniagbeto et al., 2011; (k) Barnett & Emms, 2005; (l) Rodel & Spawls, 2010; (m) Trape & Mane, 2006; (n) Bates et al., 2013; (o) Geneiz, 2003; (p) Geneiz et al., 2010; (q) Visvanathan, 2015; (r) Fleming, 1974; (s) Reinhardt, 1863; (t) Dandge & Tiple, 2016; (u) Vyas, 2013; (v) Wall, 1921; (w) Boulenger, 1890

Table S4. Occurrence records of the Indian egg-eater since its description. Descriptions of the terms used in the table are as follows: study – published study/personal communications; year – year recorded/year published; records – number of individuals recorded; region – geographical area; unknown – means by which occurrence reported not specified in the publication.

S. No.	Locality (Published records)	Reported by	Specimen(s) Reported as			
			Live	Dead	Unknown	Total
1	Rangpur, Bangladesh	Reinhardt, 1863	0	0	1	1
2	Purnea, Bihar, India	Blanford, 1875	0	0	1	1
3	Mal, Jalpaiguri district, West Bengal, India	Wall, 1913	0	0	1	1
4	Chitwan, Nepal	Rosenberg and Gans, 1976	0	0	1	1
5	Corbett National Park, Uttarakhand, India	Sharma, 2003	0	0	1	1
6	Wardha district, Maharashtra	Captain et al., 2005; Dandge, 2008; Dandge & Tiple, 2016;	10	6 (Road-killed), 1 (Unknown)	0	17
7	Bhavnagar district, Gujarat	Vyas, 2006; Vyas, 2010; Vyas et al., 2017	4	0	0	4
8	Surat district, Gujarat	Vyas, 2006; Vyas et al., 2017	2	0	0	2
9	Amaravathi district, Maharashtra	Nande and Deshmukh, 2007; Dandge & Tiple, 2016	5	2 (Road-killed)	0	7
10	Akola district, Maharashtra	Dandge, 2008; Dandge & Tiple, 2016	4	0	0	4
11	Amreli district, Gujarat	Vyas, 2010; Vyas, 2013	1	1 (Road-killed)	0	2
12	Junagadh district, Gujarat	Vyas, 2010	2	0	0	2
13	Buldhana district, Maharashtra	Narayanan, 2012; Dandge & Tiple, 2016	2	1 (Road-killed)	0	3
14	Surendranagar district, Gujarat	Vyas, 2013	0	1 (Road-killed)	0	1
15	Hoshiarpur district, Punjab	Sharma, 2014	0	1 (Road-killed)	0	1
16	Shivpuri district, Madhya Pradesh	Sharma, 2014	1	0	0	1
17	Medak district, Telangana	Visvanathan, 2015	1	0	0	1
18	Adilabad district, Telangana	Dandge and Tiple, 2016	0	1 (Road-killed)	0	1
19	Bhandara, Maharashtra	Dandge and Tiple, 2016	0	2 (Road-killed)	0	2
20	Chandrapur district, Maharashtra	Dandge and Tiple, 2016	1	3 (Road-killed)	0	4
21	Gir Somnath district, Gujarat	Vyas et al., 2017	1	0	0	1
22	Gondia district, Maharashtra	Dandge and Tiple, 2016	0	1 (Road-killed)	0	1

23	Jalgaon district, Maharashtra	Dandge and Tiple, 2016	0	1 (Road-killed)	0	1
24	Jalna district, Maharashtra	Dandge and Tiple, 2016	0	1 (Road-killed)	0	1
25	Nagpur district, Maharashtra	Dandge and Tiple, 2016	5	20 (Road-killed)	0	25
26	Panchmahal district, Gujarat	Vyas, 2016	2	0	0	2
27	Rajkot district, Gujarat	Vyas, 2016	1	0	0	1
28	Sawai Madhopur district, Rajasthan	Khandal et al., 2016	0	1 (Road-killed)	0	1
29	Vadodara district, Gujarat	Vyas, 2016	0	1 (Road-killed)	0	1
30	Yavatmal district, Maharashtra	Dandge and Tiple, 2016	3	2 (Road-killed)	0	5
31	Bharuch district, Gujarat	Vyas et al., 2017	0	1	0	1
32	Navsari district, Gujarat	Vyas et al., 2017; Sondarva et al., 2017	2+7 (hatchlings)	1 (Road-killed)	0	10

Unpublished records

a	Akola district, Maharashtra	Balu Deshmukh (pers. comm.) - 2007-10	0	0	2	2
b	Wardha district, Maharashtra	Gajendra Surkar (pers. comm.) - 2007-10	0	0	2	2
c	Porbandar, Gujarat	Chirag Tank - 2016	0	1 (Road-killed)	0	1
d	Ranga Reddy District, Telangana (17.3107410,78.178 3890)	Arun Kumar (pers. comm.) - 2016	0	1 (Road-killed)	0	1
e	Vikarabad District, Telangana	Avinash Visvanathan (pers. comm.) - 2017	1	0	0	1

Table S5. Reference of published literature from where species level data was obtained for the table (<https://figshare.com/s/a0fbc6d0c5aacf01e1a7>).

S. No.	Species	Source	References
1	<i>Boiga cyanea</i>	Research papers and books	Pauwels et al., 2003; Smith, 1943; Whitaker & Captain, 2004; Greene, 1989; Das, 2012;
2	<i>Boiga dendrophila</i>	Book & research paper	Das, 2012; Greene, 1989
3	<i>Boiga drapiezii</i>	Book & research paper	Das, 2012; Greene, 1989
4	<i>Boiga cynodon</i>	Books & research paper	Das, 2012; Smith, 1943; Greene, 1989
5	<i>Boiga forsteni</i>	Books & research paper	Whitaker & Captain, 2004; Smith, 1943; Greene, 1989
6	<i>Boiga siamensis</i>	Books	Whitaker & Captain, 2004; Das, 2012
7	<i>Boiga nigriceps</i>	Book & research paper	Das, 2012; Greene, 1989
8	<i>Boiga irregularis</i>	Research papers	Greene, 1989; Rodda&Savidge, 2007
9	<i>Dasypeltis atra</i>	Research papers & website	Bates et al., 2012; Broadley et al., 2009 & Uetz, 2017
10	<i>Dasypeltis fasciata</i>	Research papers	Barnett & Emms, 2015; Rodel&Spawls, 2010; Segniagbeto et al., 2011
11	<i>Dasypeltis gansi</i>	Research papers	Segniagbeto et al., 2011; Trape & Mane, 2006; Bates et al., 2013
12	<i>Dasypeltis scabra</i>	Research papers	Barnett & Emms, 2015; Geneiz, 2003; Geneiz et al., 2010
13	<i>Elachistodon westermanni</i>	Research papers & book	Dandge & Tiple, 2016; Fleming, 1974; Reinhardt, 1863; Visvanathan, 2015; Vyas, 2013
14	<i>Boiga beddomei</i>	Book	Whitaker & Captain, 2004
15	<i>Boiga barnesii</i>	Books	Smith, 1943; Wall, 1921
16	<i>Boiga ceylonensis</i>	Book	Whitaker & Captain, 2004
17	<i>Boiga quincunciata</i>	Books	Das, 2012; Smith, 1943
18	<i>Boiga trigonata</i>	Books	Boulenger, 1890; Smith, 1943; Whitaker & Captain, 2004

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