

## A note on opportunistic records of reptiles from the Moyar River Valley Landscape, Tamil Nadu, southern India

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### Abstract

A comprehensive record of reptiles found in the Moyar River Valley Landscape (MRVL) is presented in this manuscript. The observations did not adhere to standardized survey methods, and are based on opportunistic encounters during our vegetation survey in different habitats of the MRVL between December 2017 and December 2019. A total of 135 live individuals and 31 road-killed specimens, representing 37 species of reptiles were recorded of which two species are Vulnerable, 13 are Least Concern and 22 species are Not Evaluated in accordance with the criteria of the IUCN Red List of Threatened Species. The recorded species belonged to six families of lizards (Agamidae, Chamaeleonidae, Gekkonidae, Lacertidae, Scincidae, and Varanidae), six families of snakes (Colubridae, Elapidae, Erycidae, Pythonidae, Typhlopidae, and Viperidae), two families of chelonians (Geoemydidae, and Testudinidae), and one family of Crocodylia (Crocodylidae). The road-killed specimens were recorded between the year 2018 and 2020 and come under Indian Wildlife Protection Act, 1972. Though the present work did not follow a specific survey method, the contribution provides baseline information on the reptile diversity of the MRVL and presents interesting findings from the Sathyamangalam and Mudumalai Tiger Reserves in north-western Tamil Nadu.

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**Key words:** Checklist, conservation, diversity, protected area, reptiles, wildlife-vehicle collisions

### Introduction

The Moyar River Valley Landscape (MRVL hereafter) is located at the juncture of the Western Ghats and Eastern Ghats in the Nilgiri Biosphere Reserve and is among the dry tropical landscapes that support a rich flora and fauna, and is habitat for numerous endangered species (Thirumurugan et al., 2021). The Western Ghats and the Eastern Ghats have garnered the attention of researchers in the past few decades, yet the MRVL remains unexplored in terms of reptilian diversity. Of late, a substantial

amount of research has been conducted on the herpetofaunal diversity of southwestern India (Das, 2002; Ganesh et al., 2007; Nande and Deshmukh, 2007; Giri, 2008; Giri and Bauer, 2008; Mirza and Pal, 2008; Bhupathy et al., 2009; Hutton and David, 2009; Rooijen and Vogel, 2009; Chandramouli and Ganesh, 2010; Bhupathy and Nixon, 2011; Bhupathy and Sathishkumar, 2013; Ganesh et al., 2013; Srinivasaulu et al., 2014; Palot, 2015; Deepak et al., 2016; Aengals et al., 2018; Ganesh et al., 2018; Mirza et al., 2018; Gowande et al., 2021; Jins et al., 2021; and Aengals et al., 2022).

About 157 reptile species, which constitutes almost 30% of total reptile diversity of India, have been recorded from the Western Ghats (UNESCO, 2012). Similarly, recent studies in the central Eastern Ghats documented a total of 105 species which includes 35 lizard species, 42 snake species and 4 chelonian species (Ganesh and Guptha, 2021), whereas, a study in the southern Eastern Ghats (Ganesh and Arumugam, 2016) documented 62 species, which included 32 new findings from hill tops of four hill ranges.

The reptile diversity of Tamil Nadu comprises 177 species, of which 77 are in the IUCN Red List of Threatened Species (Baranidharan et al., 2019). A few studies on specific reptile species in the MRVL have been undertaken. These include Das et al. (2014), Baranidharan et al. (2019), Ramesh et al. (2019), Thirumurugan et al. (2020), Samson et al. (2021), Vishnu and Ramesh (2021), and Vishnu et al. (2021). However, these studies were not focused on the entire reptilian fauna present in the MRVL. Since the reptile assemblage of the area has not been intensely investigated, the objective of this study was to produce a checklist of reptiles in the MRVL, and also to provide a record of road kills through vehicle collision encountered during the course of this study.

## Material and Methods

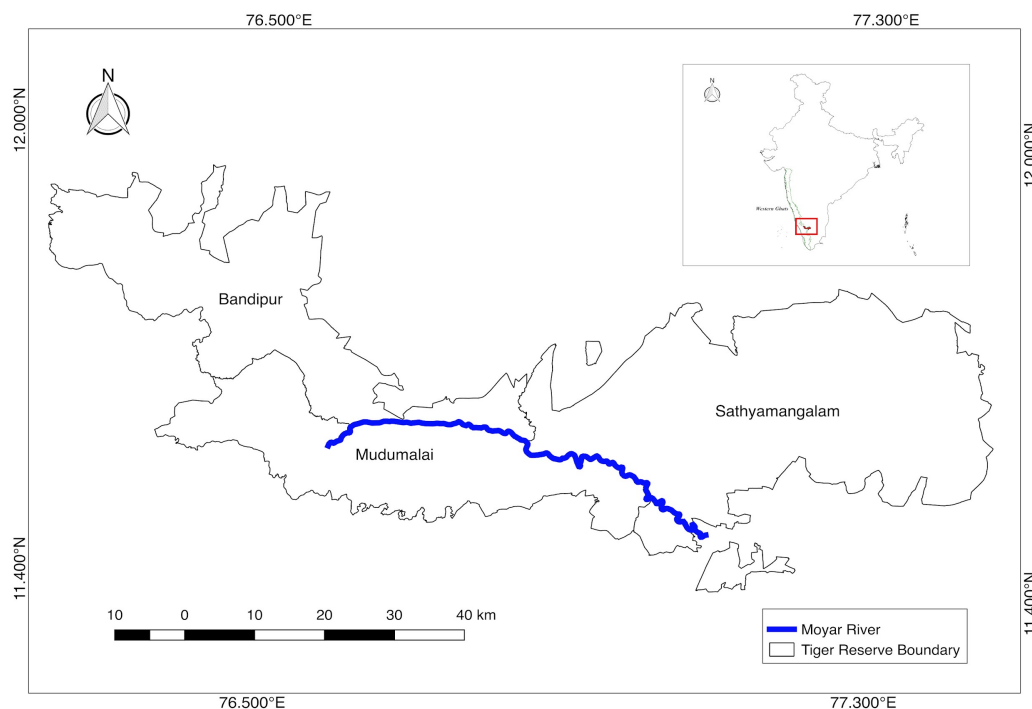
### Study area

The MRVL (Fig. 1) is located between 11.700° N, 76.590° E and 11.470° N, 77.140° E; elevation ranges between 209 and 1950 m above the sea level (a.s.l.). It is located at the center of the Nilgiri

Biosphere Reserve, with the Mudumalai Tiger Reserve on its western side, and the Sathyamangalam Tiger Reserve on its eastern side (Vishnu et al., 2021). It receives a mean annual rainfall of 850 mm and the mean minimum and maximum temperatures were 21 °C and 28 °C, respectively (Nikhil, 2019). The Moyar River is perennial, flowing west to east. It originates in the Nilgiri Mountains of the Western Ghats and traverses the Mudumalai and Sathyamangalam Tiger Reserves, and other protected areas of Tamil Nadu contributing to the survival of wildlife.

The major vegetation types (Fig. 2) of the valley are tropical dry deciduous, southern tropical thorn forest, tropical moist deciduous forest, and riparian forests along the streams interspersed with cultivated areas and reservoirs (Champion and Seth, 1968; Prabhakar and Pascal, 1994).

Reptiles were observed opportunistically during our vegetation surveys in the MRVL, that lasted for 132 days and including 528 man-hours of field work, between December 2017 and December 2019 across different seasons. In addition to this, we also carried out road cruising by night (Crump and Scott, 1994), attended rescue calls from the local inhabitants, around the base camp (Bhavani Sagar village), and recorded road-killed specimens between the years 2018 and 2020. All species were photographed and their geo-coordinates, habitats and microhabitats noted. Nomenclature follows all recent taxonomic advances (Uetz et al., 2022). The threat status of species is reported using the criteria of the IUCN Red List of Threatened Species (IUCN, 2022).



**Figure 1:** Map of the MRVL prepared using QGIS showing the Sathyamangalam and Mudumalai Tiger Reserves along with the Moyar River in Tamil Nadu, southern India.



**Figure 2:** Habitat types in the MRVL, the Sathyamangalam Tiger Reserve, India. **A.** Dry deciduous forest. **B.** Southern thorn forest. **C.** Southern Moist deciduous forest. **D.** Riverine fringe forest. **E.** Southern scrub forest. **E.** Semi Evergreen forest. Photos by Thirumurugan.

## Results

### Species accounts

We recorded 11 species of lizards belonging to seven genera; 23 species of snakes belonging to 21 genera, two species of Testudines belonging to two genera, and a species of crocodile which are arranged alphabetically (Tables 1 and 2).

#### Squamata Opperl, 1811

##### Agamidae Gray, 1827

##### *Calotes* Cuvier, 1817

*Calotes calotes* (Linnaeus, 1758), Fig. 3A

Species observation record: We recorded one individual in riparian forest of the Moyar River on 9 March 2018 at 1128 h running on dried leaf litter. Another individual was sighted near the bank of the Moyar River on 25 April 2019 at 1044 h crawling on a dried fallen branch of *Mangifera indica*. The third

individual was observed digging sand in the Koolituraipatti area on 23 December 2019 at 1251 h.

*Calotes versicolor* (Daudin, 1802), Figs. 3B, 8A

Species observation record: We found one gravid female in Thengumrahada village on 3 July 2018 at 1353 h basking on the trunk of a *Phyllanthus reticulatus* tree. We also observed two individuals in Thengumrahada village on 27 October 2018 at 1427 h, and 25 December 2018 at 0758 h, respectively, basking on a branch of *Cocos nucifera*, approximately 2 m above ground. Two road-killed individuals were found on the Sathyamangalam-Bhavani Sagar Road at 1930 h on 17 September 2018.

##### *Psammophilus* Fitzinger, 1843

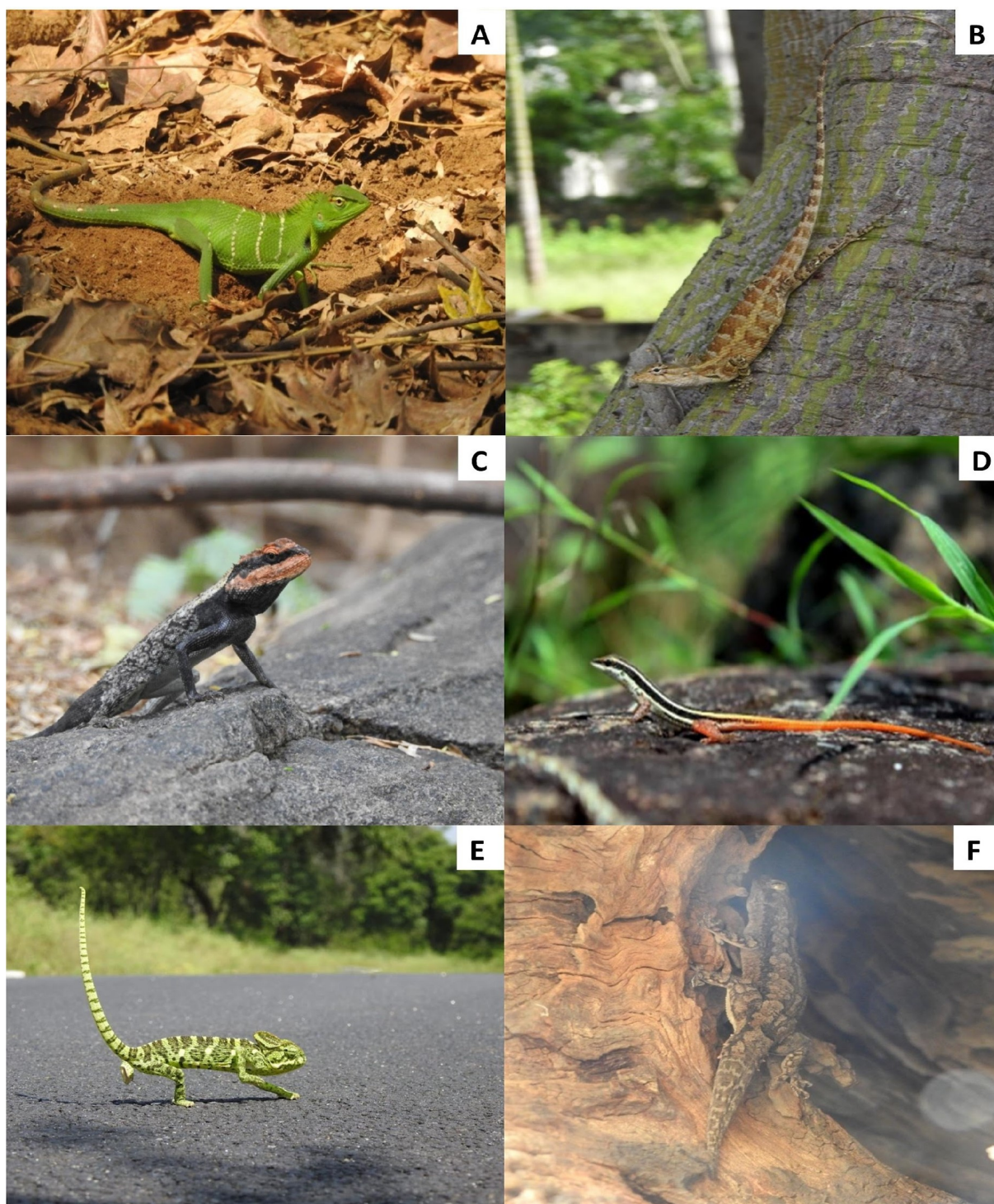
*Psammophilus dorsalis* (Gray, 1831), Fig. 3C

Species observation record: We observed two individuals in the Thalamalai area on 6 March 2018 at 1429 h basking together on a rock under a *Memecylon umbellatum* tree near a stream.

**Table 1:** List of reptile species recorded during the study in the Moyar River Valley Landscape, Tamil Nadu, India.

Family	Serial No.	Species	No. of live individuals	Microhabitats	Presence in the study area	IUCN conservation status
Agamidae	1	<i>Calotes calotes</i>	3	Forest area, Riverine area	Via this study	NE
	2	<i>Calotes versicolor</i>	3	Forest area, Highway area	Known	NE
	3	<i>Psammophilus dorsalis</i>	2	Riverine area	Known	LC
Chamaeleonidae	4	<i>Chamaeleo zeylanicus</i>	3	Agricultural area, Human settlement, Highway area	Known	LC
Gekkonidae	5	<i>Hemidactylus brookii</i>	1	Human settlement	Known	LC
	6	<i>Hemidactylus leschenaultii</i>	2	Forest area	Via this study	NE
	7	<i>Hemidactylus whitakeri</i>	3	Forest area	Via this study	NE
Lacertidae	8	<i>Ophisops leschenaultii</i>	6	Forest area	Via this study	NE
Scincidae	9	<i>Eutropis bibronii</i>	2	Forest area	Via this study	LC
	10	<i>Eutropis carinata</i>	1	Forest area	Via this study	LC
Varanidae	11	<i>Varanus bengalensis</i>	27	Forest area, Riverine area	Known	LC
	12	<i>Ahaetulla oxyrhyncha</i>	4	Forest area, Agricultural area, Highway area	Via this study	NE
Colubridae	13	<i>Boiga forsteni</i>	1	Forest area	Via this study	LC
	14	<i>Boiga trigonata</i>	0	Forest area	Via this study	LC
	15	<i>Coelognathus helena</i>	2	Human settlement, Highway area	Known	NE
	16	<i>Dendrelaphis tristis</i>	3	Forest area, Agricultural area, Highway area	Via this study	NE
	17	<i>Fowlea piscator</i>	3	Agricultural area, Highway area	Via this study	NE
	18	<i>Lycodon fasciolatus</i>	4	Agricultural area, Highway area, Human settlement	Via this study	NE
	19	<i>Oligodon arnensis</i>	0	Highway area	Via this study	NE
	20	<i>Oligodon taeniolatus</i>	1	Agricultural area, Human settlement	Via this study	LC
	21	<i>Ptyas mucosa</i>	4	Human settlement, Forest area	Known	NE
	22	<i>Rhabdophis plumbicolor</i>	0	Highway area	Via this study	NE
	23	<i>Sibynophis subpunctatus</i>	1	Human settlement	Via this study	NE
Elapidae	24	<i>Bungarus caeruleus</i>	1	Human settlement, Highway area	Via this study	NE
	25	<i>Calliophis bibroni</i>	0	Forest area	Known	LC
	26	<i>Naja naja</i>	3	Forest area, Human settlement, Highway area	Known	NE
Erycidae	27	<i>Eryx johnii</i>	2	Highway area, Human settlement	Via this study	NE
	28	<i>Gongylophis conicus</i>	2	Human settlement, Highway area	Via this study	NE
Pythonidae	29	<i>Python molurus</i>	26	Forest area, Riverine area, Highway area	Known	NE
Typhlopidae	30	<i>Grypotyphlops acutus</i>	0	Human settlement	Known	LC
	31	<i>Indotyphlops braminus</i>	4	Human settlement	Via this study	NE
Viperidae	32	<i>Craspedocephalus gramineus</i>	1	Forest area	Via this study	LC
	33	<i>Daboia russelii</i>	1	Riverine area, Highway area	Via this study	NE
	34	<i>Echis carinatus</i>	2	Highway area	Known	NE
Crocodylidae	35	<i>Crocodylus palustris</i>	10	Riverine area	Known	VU
Geoemydidae	36	<i>Melanochelys trijuga</i>	3	Riverine area	Via this study	LC
Testudinidae	37	<i>Geochelone elegans</i>	4	Riverine area	Known	VU

Threatened status based on the IUCN Red List of Threatened Species (Accessed in: December 2022): LC= Least concern; NE= Not evaluated; VU= Vulnerable.



**Figure 3:** Reptile species found in the Sathyamangalam Tiger Reserve, India. **A.** *Calotes calotes*. **B.** *Calotes versicolor*. **C.** *Psammophilus dorsalis*. **D.** *Ophisops leschenaultii*. **E.** *Chamaeleo zeylanicus*. **F.** *Hemidactylus leschenaultii*. Photographs: A, C, F by Thirumurgan; B by Vishnu; D by Karthy; E by Muthukrishnan.

### **Chamaeleonidae Rafinesque, 1815**

#### ***Chamaeleo* Laurenti, 1768**

*Chamaeleo zeylanicus* Laurenti, 1768, Figs. 3E, 8B

Species observation record: We observed one individual in Thengumrahada on 5 October 2019 at 1055 h basking on a fence of an agricultural land. Another individual was sighted near Kallampalayam village on 19 October 2018 at 1412 h crossing forest

trail road near human habitation. Third individual was sighted in Thengumrahada on 1 July 2019 at 2045 h hanging with its tail coiled on the branch of *Erythroxylum monogynum*. We also observed two road killed individuals on Naal Road, Bhavanisagar on 12 July 2018 at 1800 h, and on forest trail road, Gejallati area on 20 July 2018 at 1153 h, respectively.

**Gekkonidae Gray, 1825*****Hemidactylus* Goldfuss, 1820***Hemidactylus brookii* Gray, 1845, Fig. 4B

Species observation record: We observed one individual in Thengumrahada village on 27 March 2019 at 2107 h crawling on a wall in the human settlement area.

*Hemidactylus leschenaultii* Duméril and Bibron, 1836, Fig. 3F

Species observation record: We observed one individual in the Mudumalai Tiger Reserve on 3 December 2017 at 1327 h camouflaged on *Bombax* sp., and second individual in the Thengumrahada village on 29 June 2019 at 1439 h in the hollow of a dead tree, approximately two meters above ground.

*Hemidactylus whitakeri* Mirza, Gowande, Patil, Ambedkar and Patel, 2018, Fig. 4A

Species observation record: We observed one individual in the Sathyamangalam Forest on 21 December 2017 at 2241 h running near the forest trail road. Two individuals were observed near our base camp in Bhavani Sagar at night hiding in bushes near the roadside.

**Lacertidae Oppel, 1811*****Ophisops* Ménétries, 1832***Ophisops leschenaultii* (Milne-Edwards, 1829), Fig. 3D

Species observation record: We observed one individual in riverine area of the Moyar on 29 June 2019 at 1132 h running on dried leaves and debris. A total of six individuals were recorded mostly near the Moyar River.

**Scincidae Gray, 1825*****Eutropis* Fitzinger, 1843***Eutropis bibronii* (Gray, 1838), Fig. 4C

Species observation record: We found one individual dead in a coconut shell in Bhavani Sagar village on 19 December 2017 at 1150 h. Two individuals were also observed on the same day at 1200 h in bushes near the roadside.

*Eutropis carinata* (Schneider, 1801)

Species observation record: We observed one individual in the Thengumrahada village on 4 July 2018 at 1104 h basking on dry leaf litter near the river side.

**Varanidae Merrem, 1820*****Varanus* Merrem, 1820***Varanus bengalensis* (Daudin, 1802), Fig. 4D

Species observation record: We observed four individuals in the Sathyamangalam Forest on 14 February 2018 resting inside tree holes of *Sapindus emarginatus*, *Azadiracta indica*, *Ailanthus* sp., and *Ficus* sp., at approximately 1–2 m above ground. Another individual was observed in the Mangalapatti area on 14 February 2018 at 1050 h with a deep head injury. We sighted one individual in the Koviltorai area on 17 September 2019 at 1100 h basking on rock surrounded by dried leaf litter. On 18 September 2019 at 1419 h, we observed one individual in the Emttempallam area hiding under a broken tree branch. A total of twenty-seven individuals were recorded during the study, basking and foraging on sand near riverbanks, on open ground, forest trail roads, and near the village areas of Thengumrahada.

**Table 2:** List of road kill individuals recorded during the study in the Moyar River Valley Landscape, Tamil Nadu, India.

No.	Species	Date	Locality	Time	No. of road killed individuals
1	<i>Calotes versicolor</i>	17-09-2018	Sathyamangalam-Bhavani Sagar road	1930 h	2
2		12-07-2018	Nal road, Bhavani Sagar	1800 h	1
3	<i>Chamaeleo zeylanicus</i>	20-07-2018	Forest trail road, Gejallati area	1153 h	1
4	<i>Eutropis bibronii</i>	19-12-2017	Bhavani Sagar	1150 h	1
5	<i>Ahaetulla oxyrhyncha</i>	24-06-2018	Bhavani Sagar-Mettupalayam road	1036 h	1
6	<i>Boiga trigonata</i>	23-05-2019	Vilamundi road, Bhavani Sagar	0830 h	1
7		25-07-2018	Bhavani Sagar-Mettupalayam road	1800 h	1
8	<i>Coelognathus helena</i>	12-06-2019	Masinagudi, MTR	1508 h	1
9	<i>Dendrelaphis tristis</i>	10-07-2018	Sathyamangalam-Mettupalayam road	0859 h	1
10	<i>Fowlea piscator</i>	21-08-2018	Allimoyar road	2030 h	1
11		30-05-2018	Karachikorai check post, Bhavani Sagar	1908 h	1
12	<i>Rhabdophis plumbicolor</i>	11-07-2018	Karachikorai check post, Bhavani Sagar	1338 h	1
13	<i>Lycodon aulicus</i>	25-05-2018	Sathyamangalam-Mettupalayam road	0623 h	1
14	<i>Oligodon arnensis</i>	05-09-2019	Bhavani Sagar-Mudukkanturai road	2059 h	1
15	<i>Oligodon taeniolatus</i>	23-02-2018	Thengumrahada village road	2025 h	1
16	<i>Calliophis bibroni</i>	04-08-2018	Kargudi, Mudumalai tiger reserve	1130 h	1
17		07-06-2019	Sathyamangalam road	2037 h	1
18	<i>Bungarus caeruleus</i>	18-06-2019	Mettupalayam road	1012 h	1
19	<i>Naja naja</i>	14-10-2018	Sathyamangalam-Bhavani Sagar road	0708 h	1
20	<i>Eryx johnii</i>	18-07-2018	Sathyamangalam-Bhavani Sagar road	0928 h	1
21		11-08-2018	Erode-Sathyamangalam road	0900 h	1
22	<i>Gongylophis conicus</i>	06-06-2019	Bhavani Sagar-Mettupalayam road	2229 h	1
23		18-08-2018	Bannari-Dhimbam road	1102 h	1
24	<i>Python molurus</i>	03-05-2019	Bhavani Sagar-Thoddampalayam road	1020 h	1
25	<i>Grypotyphlops acutus</i>	13-12-2017	Bhavani Sagar base camp	1643 h	1
26		03-10-2018	Sathyamangalam road	0629 h	1
27	<i>Daboia russelii</i>	21-11-2018	Bhavani Sagar road	0338 h	1
28		19-06-2018	Sujilkuttai	0801 h	1
29	<i>Echis carinatus</i>	21-07-2018	Bhavani Sagar dam road	1243 h	1
30	<i>Geochelone elegans</i>	08-10-2019	Trail road, STR	1125 h	1

**Serpentes Linnaeus, 1758**  
**Colubridae Oppel, 1811**  
***Ahaetulla* Link, 1807**

*Ahaetulla oxyrhyncha* (Bell, 1825), Figs. 4E, 8C

Species observation record: We observed one individual in Thengumrahada village on 4 July 2018 at 1237 h moving on *Melia dubia*; second individual

on 17 July 2018 at 1156 h on *Calotropis gigantea*; and third individual on 3 November 2018 at 1850 h resting on *Prosopis juliflora*. We also found an individual in the agricultural field in Thengumrahada village on 17 November 2018 at 1521 h basking on the fence. A road killed individual was found on 24 June 2018 at 1036 h on the Bhavani Sagar-Mettupalayam Road.



**Figure 4:** Reptile species found in the Sathyamangalam Tiger Reserve, India. **A.** *Hemidactylus whitakeri*. **B.** *Hemidactylus brookii*. **C.** *Eutropis bibronii*. **D.** *Varanus bengalensis*. **E.** *Ahaetulla oxyrhyncha*. **F.** *Boiga forsteni*. Photographs: A by Karthy; B by Vishnu; C, D, F by Thirumurugan; E by Muthukrishnan.



**Figure 5:** Reptile species found in the Sathyamangalam Tiger Reserve, India. **A.** *Dendrelaphis tristis*. **B.** *Fowlea piscator*. **C.** *Lycodon fasciolatus*. **D.** *Oligodon taeniolatus*. **E.** *Ptyas mucosa*. **F.** *Bungarus caeruleus*. Photographs: A, B, E by Thirumurugan; C by Vishnu; D by Karthy; F by Muthukrishnan.

#### **Boiga Fitzinger, 1826**

*Boiga forsteni* (Duméril, Bibron and Duméril, 1854), Fig. 4F

Species observation record: We observed one individual in Thengumrahada village on 5 December 2018 at 1513 h basking inside a hollow trunk of *Sapindus emarginatus* with its head out.

*Boiga trigonata* (Schneider, 1802)

Species observation record: We found one road-killed individual on 23 May 2019 at 0830 h while road cruising at the Vilamundi road in Bhavani Sagar.

#### **Coelognathus Fitzinger, 1843**

*Coelognathus helena* (Daudin, 1803), Fig. 8D



Species observation record: We observed two individuals near our base camp in Bhavani Sagar on 3 April 2018 at 1229 h, and on 5 July 2019 at 1415 h, basking on the roadside. We also found two road killed individuals on the Bhavani Sagar-Mettupalayam Road on 25 July 2018 at 1800 h, and on the Masinagudi Road (Mudumalai Tiger Reserve) on 12 June 2019 at 1508 h, respectively.

#### ***Dendrelaphis Boulenger, 1890***

*Dendrelaphis tristis* (Daudin, 1803), Figs. 5A, 8E

Species observation record: We observed one individual in the TN Palayam area on 24 December 2017 at 0914 h basking on *Tamarindus indicus*. The second individual was recorded in Bhavani Sagar on 2 May 2019 at 1804 h resting on *Jasminum* bush in agricultural land. The third individual was observed in the Sathyamangalam Forest on 18 September 2019 at 1320 h on *Prosopis juliflora* sapling. We sighted one road killed individual on the Sathyamangalam-Mettupalayam Road on 10 July 2018 at 0859 h.

#### ***Fowlea Theobald, 1868***

*Fowlea piscator* (Schneider, 1799), Fig. 5B

Species observation record: We observed one individual in Thengumrahada village on 15 May 2019 at 1958 h feeding on a frog on open ground. We recorded two sightings in Thengumrahada village on 12 October 2019 at 1625 h, and on 16 October 2019 at 0940 h, hiding in the crevices of a concrete in fresh water channel. One road killed individual was recorded on the Allimoyar Road on 21 August 2018 at 2030 h.

#### ***Lycodon Fitzinger, 1826***

*Lycodon fasciolatus* (Shaw, 1802), Figs. 5C, 9A

Species observation record: We observed one individual in Thengumrahada village on 5 February 2017 at 1910 h on *Sesbania grandiflora*; second individual on the Bhavani Sagar-Mettupalayam Road on 3 June 2019 at 1020 h resting on the edge of road; third individual near our base camp in the Bhavani Sagar on 23 October 2019 at 0841 h crossing a concrete road in the human settlement area. Another individual was found in our base camp on 22 November 2019 at 1030 h on the ceiling of the bathroom. We also observed one road killed individual on the Sathyamangalam-Mettupalayam Highway on 25 May 2018 at 0623 h.

#### ***Oligodon Fitzinger, 1826***

*Oligodon arnensis* (Shaw, 1802), Fig. 9B

Species observation record: We observed one road killed individual on the Bhavani Sagar-Mudukkanturai Road on 5 September 2019 at 2059 h.

*Oligodon taeniolatus* (Jerdon, 1853), Fig. 5D

Species observation record: We sighted one individual near agricultural land in Thengumrahada village on 17 January 2018 at 2008 h. We also observed one road killed individual on 23 February 2018 at 2025 h on the Thengumrahada village Road.

#### ***Ptyas Fitzinger, 1843***

*Ptyas mucosa* (Linnaeus, 1758), Fig. 5E

Species observation record: We observed combat between two individuals in Thengumrahada village on 4 July 2018 at 0945 h. Another individual was sighted in the Sathyamangalam Forest on 20 January 2019 at 1015 h climbing on *Borassus flabellifer*, approximately 2 m above the ground. We also observed one individual in Bhavani Sagar on 28 May 2019 at 0949 h on the ceiling of our base camp.

#### ***Rhabdophis Fitzinger, 1843***

*Rhabdophis plumbicolor* (Cantor, 1839), Fig. 8F

Species observation record: We observed two road killed individuals near the Karachikorai check post in Bhavani Sagar on 30 May 2018 at 1908 h, and on 11 July 2018 at 1338 h, respectively.

#### ***Sibynophis Fitzinger, 1843***

*Sibynophis subpunctatus* (Duméril, Bibron and Duméril, 1854)

Species observation record: We observed one individual near our base camp in Bhavani Sagar on 10 September 2019 at 0845 h going across a concrete road.

#### **Elapidae Boie, 1827**

##### ***Bungarus Daudin, 1803***

*Bungarus caeruleus* (Schneider, 1801), Fig. 5F

Species observation record: We observed one individual near our base camp in Bhavani Sagar on 15 May 2019 at 0948 h on the road near the human settlement area. We also found two road-killed individuals on the Sathyamangalam Road on 7 June 2019 at 2037 h, and on the Mettupalayam Road on 18 June 2019 at 1012 h, respectively.

##### ***Calliophis Gray, 1834***

*Calliophis bibroni* (Jan, 1858), Fig. 9C

Species observation record: We observed one dead individual in the tribal village of Kargudi in the Mudumalai Tiger Reserve on 4 August 2018 at 1130 h. The species was confirmed by its ventral scales.

##### ***Naja Laurenti, 1768***

*Naja naja* (Linnaeus, 1758), Figs. 6A, 9D

Species observation record: We observed one individual on the Moyar-Masinagudi Road on 7 December 2017 at 1429 h basking near road side of the deciduous forest. A second individual was sighted in our base camp on 23 November 2019 at 1400 h, and a third was encountered in the scrub forest of the Sathyamangalam Forest on 5 December 2019 at 1100 h. We also observed one road killed individual on the Bhavani Sagar-Sathyamangalam Road on 14 October 2018 at 0708 h.

#### **Erycidae Daudin, 1803**

##### ***Eryx Daudin, 1803***

*Eryx johnii* (Russell, 1801), Figs. 6B, 9E

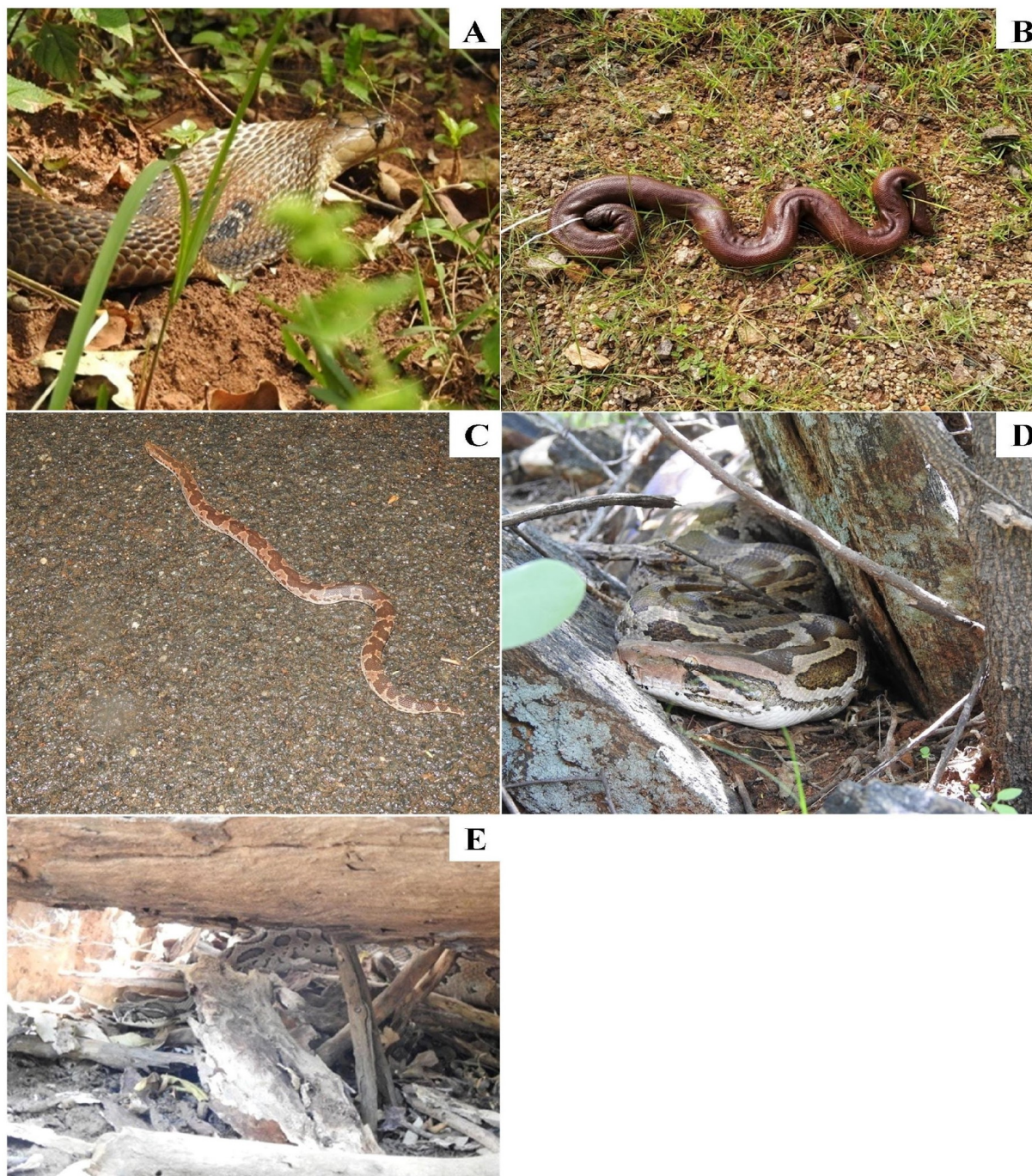
Species observation record: We encountered one individual on the Bhavani Sagar-Mettupalayam Road on 23 May 2019 at 0100 h basking on the edge of the road. Another individual was sighted near the human habitation on the Sathyamangalam Tiger Reserve Road on 18 November 2019 at 0730 h. We also observed one road killed individual on the Bhavani Sagar-Sathyamangalam Road on 18 July 2018 at 0928 h.

***Gongylophis* Wagler, 1830**

*Gongylophis conicus* (Schneider, 1801), Fig. 6C

Species observation record: We observed one individual in Thengumrahada village on 15 May 2019 at 2008 h crossing the road. Another individual was sighted near the Karachikorai check post on 31

December 2019 at 2251 h resting on the roadside. We also recorded one road killed individual on the Erode-Sathyamangalam Road near Kodiveri village on 11 August 2018 at 0900 h and another on the Bhavani Sagar-Mettupalayam Road on 6 June 2019 at 2229 h.



**Figure 6:** Reptile species found in the Sathyamangalam Tiger Reserve. **A.** *Naja naja*. **B.** *Eryx johnii*. **C.** *Gongylophis conicus*. **D.** *Python molurus*. **E.** *Daboia russelii*. Photographs: A by Bagath Singh; B by Shipra; C, D, E by Thirumurugan.

**Pythonidae Fitzinger, 1826**

***Python* Linnaeus, 1758**

*Python molurus* (Linnaeus, 1758), Figs. 6D, 10A

Species observation record: We observed a total of 26 individuals in various habitats and micro habitats of the Sathyamangalam Forest, mostly basking in riverine areas, approximately 1.5–2 m away, under thick shrubs of *Prosopis juliflora*, inside a dried hollow *Mangifera indica*, hiding under crevices of rocks. We also observed four mating incidents in the months of January and February 2019. We also recorded two road killed individuals on the Bannari-Dhimbam Road on 18 August 2018 at 1102 h, and on the Bhavani Sagar-Thoddampalayam Road on 3 May 2019 at 1020 h respectively.

**Typhlopidae Merrem, 1820**

***Grypotyphlops* Peters, 1881**

*Grypotyphlops acutus* (Dumeril and Bibron, 1844), Fig. 9F

Species observation record: We observed one dead individual just outside the perimeter of Thengumrahada village on 13 December 2017 at 1643 h.

***Indotyphlops* Hedges, Marion, Lipp, Marin and Vidal, 2014**

*Indotyphlops braminus* (Daudin, 1803)

Species observation record: We observed one individual on 4 January 2018 at 1003 h, and another on 12 July 2019 at 0941 h inside our base camp in Bhavani Sagar. A third individual was observed on 3 July 2018 at 0814 h, near the human settlement area and another individual was sighted on 19 August 2018 at 1501 h, near agricultural land in Thengumrahada village.

**Viperidae Opperl, 1811**

***Craspedocephalus* Kuhl and Van Hasselt, 1822**

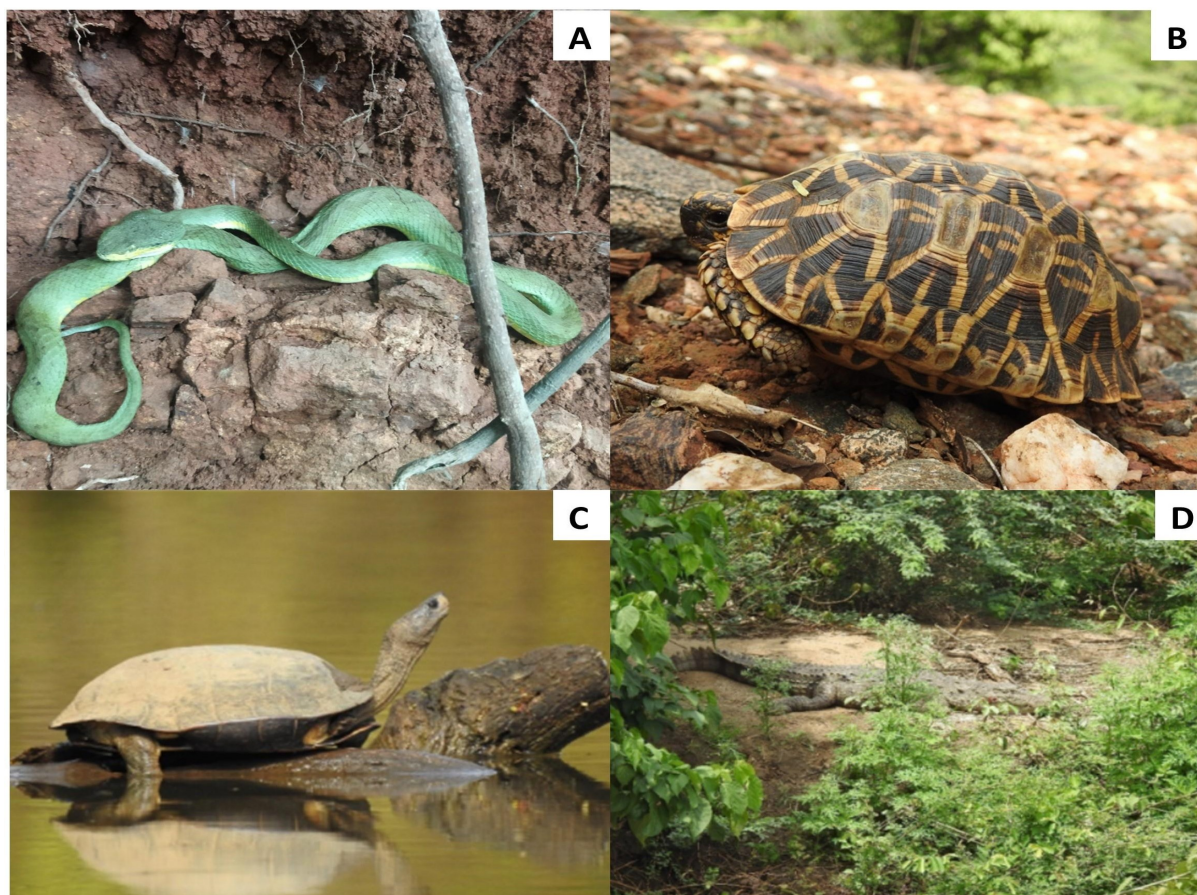
*Craspedocephalus gramineus* (Shaw, 1802), Fig. 7A

Species observation record: We observed one individual on the Talamalai-Bejallati Ghat Road on 6 August 2021 at 1318 h basking under the roots of *Pterocarpus marsupium* and *Ligustrum perrottetti*.

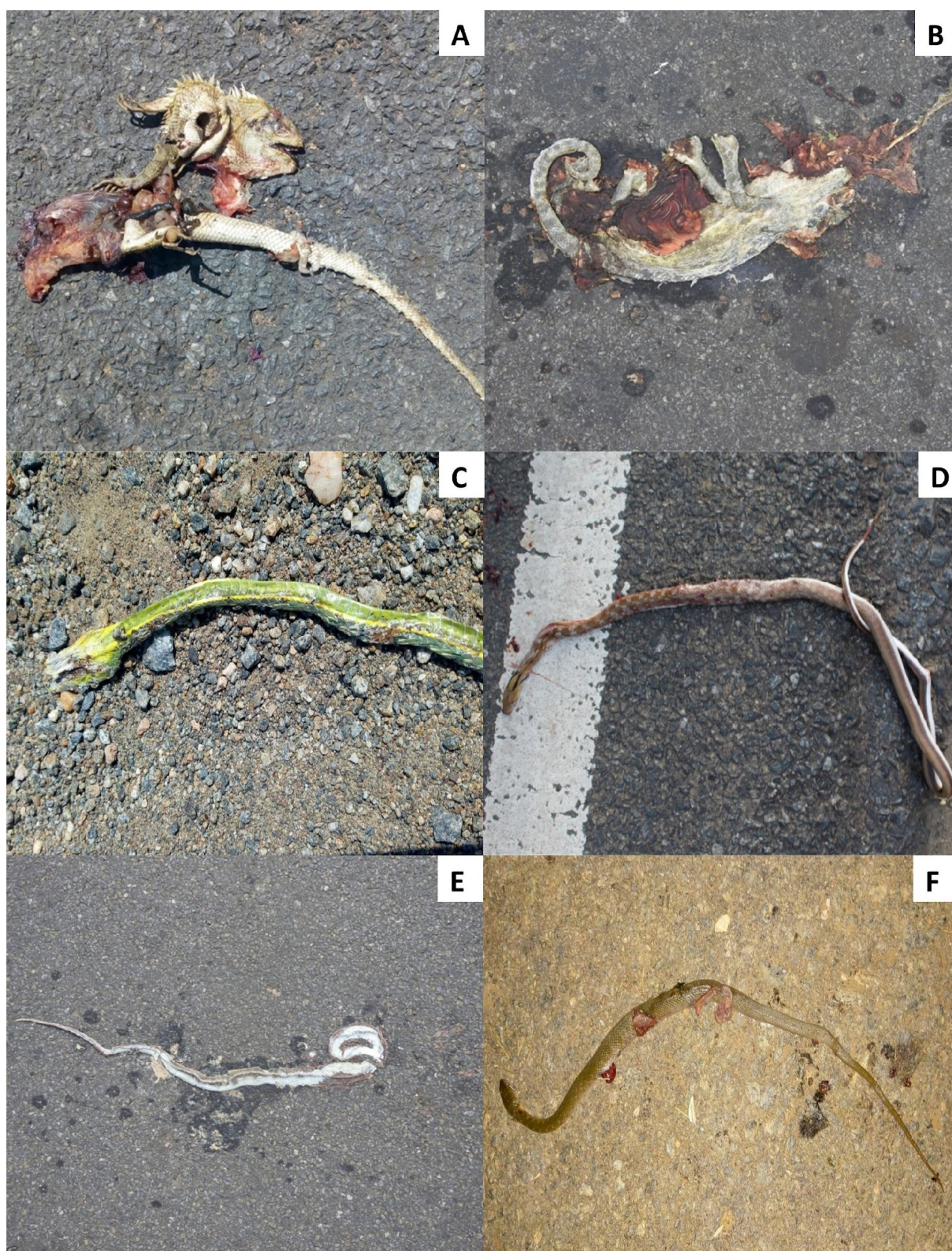
***Daboia* Gray, 1842**

*Daboia russelii* (Shaw and Nodder, 1797), Figs. 6E, 10B

Species observation record: We observed one individual in the Mokkalur area in the Sathyamangalam Tiger Reserve on 16 June 2019 at 1500 h coiled under the fallen *Mangifera indica* near the riverbank. We also found two road killed individuals on the Sathyamangalam Road on 3 October 2018 at 0629 h, and on the Bhavani Sagar Road on 21 November 2018 at 0338 h.



**Figure 7:** Reptile species found in the Sathyamangalam Tiger Reserve. **A.** *Craspedocephalus gramineus*. **B.** *Geochelone elegans*. **C.** *Melanocheilus trijuga*. **D.** *Crocodylus palustris*. Photographs: A, B, D by Thirumurugan; C by Muthukrishnan.



**Figure 8:** Road killed reptile species found on State and National Highways (Bhavani Sagar to Nal Road; Bhavani Sagar to State Highway 15; National Highway 948; National Highway 181; State Highway 15; State Highway 700), and in and around the Sathyamangalam Tiger Reserve, India. **A.** *Calotes versicolor*. **B.** *Chamaeleo zeylanicus*. **C.** *Ahaetulla oxyrhynca*. **D.** *Coelognathus helena*. **E.** *Dendrelaphis tristis*. **F.** *Rhabdophis plumbicolor*. Photographs by Vishnu.



**Figure 9:** Road killed reptile species found on State and National Highways, and in and around the Sathyamangalam Tiger Reserve, India. **A.** *Lycodon fasciolatus*. **B.** *Oligodon arnensis*. **C.** *Calliophis bibroni*. **D.** *Naja naja*. **E.** *Eryx johnii*. **F.** *Grypotyphlops acutus*. Photographs: A, E by Vishnu; B, C by Thirumurugan; D by Muthukrishnan; F by Karthy.



**Figure 10:** Road killed reptile species found on State and National Highways, and in and around the Sathyamangalam Tiger Reserve, India. **A.** *Python molurus*. **B.** *Daboia russelii*. **C.** *Echis carinatus*. Photographs: A by Thirumurgan; B by Muthukrishnan; C by Karthy.

#### ***Echis* Merrem, 1820**

*Echis carinatus* (Schneider, 1801), Fig. 10C

Species observation record: We sighted two individuals on the Mettupalayam Road on 24 May 2019 at 2241 h coiled on grass, near roadside. We also observed two road killed individuals in the Sujjilkuttai area on 19 June 2018 at 0801 h, and near the Bhavani Sagar Dam on 21 July 2018 at 1243 h.

#### **Crocodylia Owen, 1842**

##### **Crocodylidae Cuvier, 1807**

##### ***Crocodylus* Laurenti, 1768**

*Crocodylus palustris* (Lesson, 1831), Fig. 7D

Species observation record: We observed a total of ten individuals in the riverine area of the Sathyamangalam Tiger Reserve, basking near the river banks, holm, bunds or dead trees, and their debris or swimming in the Moyar River. We observed

one individual from the Thekkathimalai Hills (Eastern Ghats, 550 m elevation) on 29 June 2019 at 1632 h basking on the bank of the Moyar River. On 9 September 2019 at 1134 h, we observed an adult mugger basking with a juvenile on the opposite side of the riverbank (Mudumalai Tiger Reserve). On 16 October 2019 at 1226 h, we observed one individual approximately one meter away from the river bank that jumped back into the river as we approached the site, and at 1240 h another individual was observed basking on an island in the river.

#### **Testudines Batsch, 1788**

##### **Geoemydidae Theobald, 1868**

##### ***Melanochelys* Gray, 1834**

*Melanochelys trijuga* (Schweigger, 1812), Fig. 7C

Species observation record: We observed one individual on 21 March 2018 at 1110 h and another

individual at 1408 h in Theppakadu and Mavanalla villages in the Mudumalai Tiger Reserve during our survey in riverine habitat. The two individuals were sighted on a log and a rock in the middle of the Moyar River, respectively.

#### **Testudinidae Batsch, 1788**

##### ***Geochelone Fitzinger, 1835***

*Geochelone elegans* Schoepff, 1795, Fig. 7B

Species observation record: We found one individual in the riverine area of the Moyar River on 28 January 2019 at 1400 h crawling on gravels approximately one meter away from the riverbank. Another individual was sighted in the Mudumalai Tiger Reserve on 28 September 2019 at 1011 h camouflaged in shrubs. A mating pair was recorded near Thengumrahada village on 4 October 2019 at 0951 h approximately two meters away from the riverbank. One road killed individual was found on the forest trail road in the Sathyamangalam Tiger Reserve on 8 November 2019 at 1125 h.

### **Discussion**

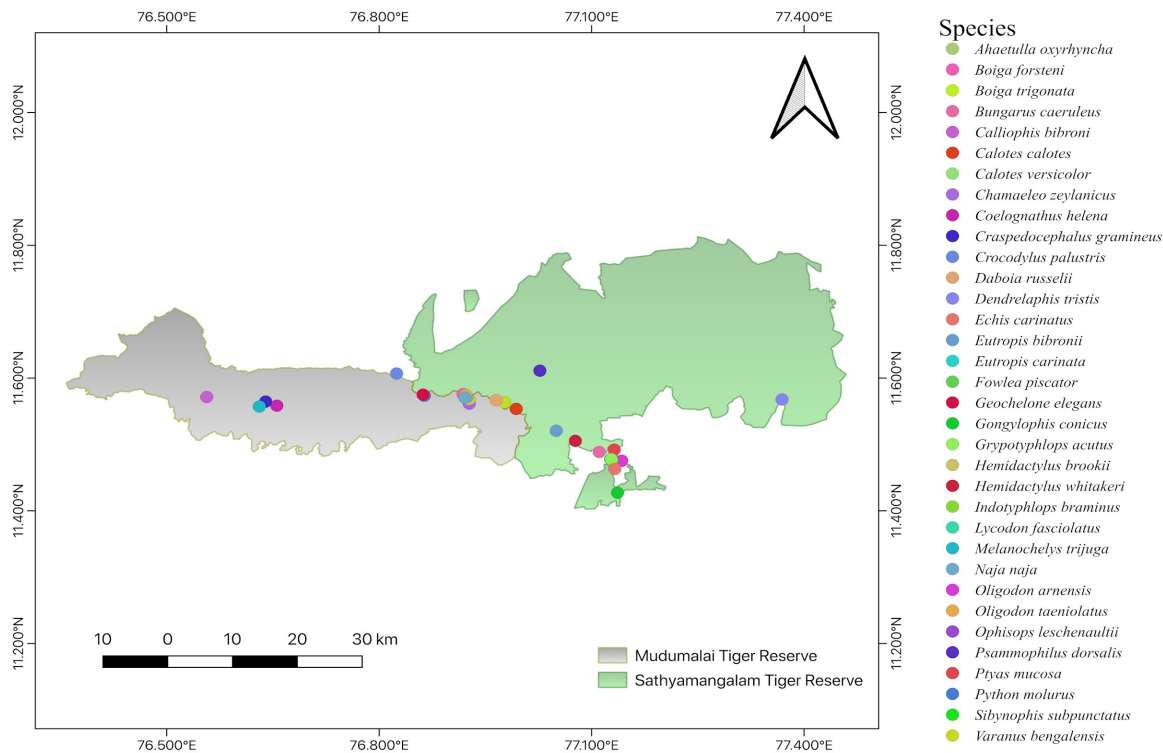
Among the lizards, the highest diversity was observed in the families Agamidae, and Gekkonidae with three species, two species from Scincidae, whereas a single species from each of three families i.e., Lacertidae, Chamaeleonidae, and Varanidae were recorded (Table 1; Fig. 11). The highest diversity in snake species was recorded from the family Colubridae (12 species), followed by Viperidae (three species), Elapidae (three species), Erycidae (two species), Typhlopidae (two species), and Pythonidae (one species). Three species, *Python molurus*, *Crocodylus palustris* and *Varanus bengalensis*, fall under the Schedule I, Part II of the Indian Wildlife Protection Act, 1972. *Fowlea piscator*, *Ptyas mucosa*, *Naja naja*, *Daboia russelii*, fall under the Schedule II, Part II, whereas *Chamaeleo zeylanicus* falls under Schedule II, Part I of the Indian Wildlife Protection Act, 1972. *Geochelone elegans*, and rest of the snake species (except those under Schedule I and II) fall under Schedule IV of the Indian Wildlife Protection Act, 1972.

The herpetofauna of the Sathyamangalam Tiger Reserve and adjoining forests are still unexplored compared to other parts of the Western Ghats and Eastern Ghats. In recent decades, herpetological surveys in the Western Ghats and the Eastern Ghats regions of Tamil Nadu have given new insights to the reptilian diversity. A preliminary study conducted by the State Forest Department and WWF India to assess the faunal diversity of the Moyar River Valley gave 38 species of reptiles (WWF, 2019). Chandramouli and Ganesh (2010) recorded 46 species of reptiles from the Cardamom and Ponnudi Hills of the southern Western Ghats. Bhupathy and

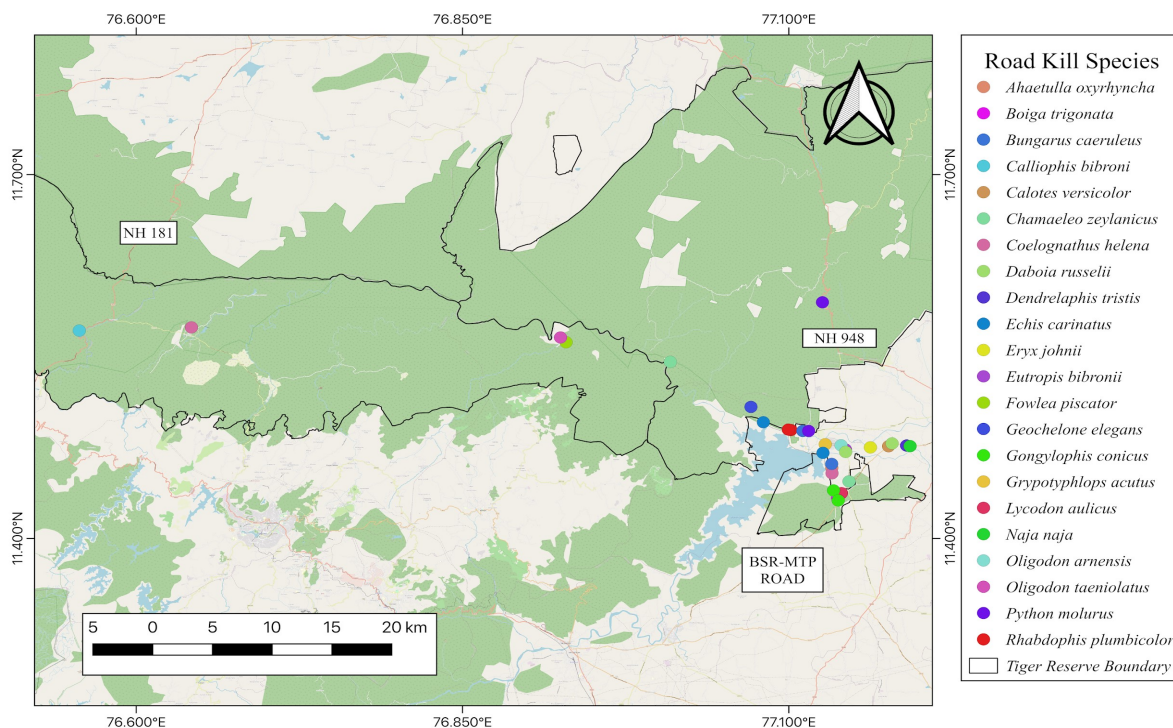
Nixon (2011) were able to record 10 species of reptiles from the upper Nilgiri Hills restricted to altitude between 1800 and 2400 m a.s.l. A study by Bhupathy and Sathishkumar (2013) in the Meghamalai Hills of the southern Western Ghats, which is one of the species rich regions in the Western Ghats, yielded 90 species of reptiles. However, a study by Chaitanya et al. (2018) found 64 species of reptiles from the same region. Ganesh et al. (2018) encountered 33 species of reptiles from the Bilgiri Hills adjoining the Sathyamangalam Tiger Reserve.

Coming to habitat characteristics and preferences by reptiles, the species sightings were high in the riverine area and the forest area around it. The study area has a diverse variety of habitat types which are utilized by the species according to their needs. This is reflected by numerous sightings of species around the riverbank and surrounding riparian forest. The species were mostly sighted basking on rocks near the river banks, crawling on the dried leaves, debris, sand, or inside fallen tree branches. The Moyar River acts as an important water source for faunal species and humans residing in Thengumrahada village situated near the riverbank, leading to their co-existence and interaction which is reflected by the presence of reptiles in agricultural areas and even by road killed individuals on forest trail roads.

The study recorded a total of 31 road killed individuals (Table 2; one tortoise, five lizards, and 25 snakes) during the field survey and night recce (Fig. 12). The road kills were encountered on Bhavani Sagar to Nal Road and Bhavani Sagar to State Highway 15. The highways (National Highway 948, National Highway 181, State Highway 15 and State Highway 700) and roads passing through the National Parks are the major sites of reptile deaths. The highest number of road kills was recorded in the months of June and July between the years 2018 and 2020. The reptiles move toward roads for basking during these months when the area receives South-West monsoons. The reptiles are ectotherms and often use roads as thermoregulatory surfaces, since roads get heated up by sunlight, and thus become warmer than any other surface (Samson et al., 2016). This attracts nocturnal reptiles to the roads for thermoregulation of their body temperatures (Bernardino and Dalrymple, 1992; Bambaradeniya et al., 2001; Selvan et al., 2012; Karunarathna et al., 2013). Due to their limited mobility as well as drivers' inattention, these reptiles eventually die, leading to high amount of deaths caused by road kill alone (Bennett, 1991; Rosen and Lowe, 1994; Vijayakumar et al., 2001; Row et al., 2007; Samson et al., 2016). A road killed individual (*Geochelone elegans*) on the forest trail road inside the Tiger Reserve proves that the species are vulnerable even inside the protected areas.



**Figure 11:** Map prepared using QGIS showing reptile species recorded along the Moyar River Valley Landscape, Tamil Nadu, India.



**Figure 12:** Map prepared using QGIS showing reptile road killed species recorded along the Moyar River Valley Landscape, Tamil Nadu, India.

This study records a small fraction of the actual undetected and unreported reptile diversity of the MRVL. Our observations show a bias in reptile species diversity

towards riverine habitats and scrub forests. This may be due to the fact that reptiles are hard to detect in a dense forest habitat unless systematically surveyed. A majority



of the reptile surveys in the Western Ghats and the Eastern Ghats followed time constrained visual encounter method (Chandramouli and Ganesh, 2010; Bhupathy and Nixon, 2011; Chaitanya et al., 2018; Ganesh et al., 2018) and belt transect (Bhupathy and Sathishkumar, 2013). For proper inventory study, a combination of different survey methods like drift fence with funnel and pitfall trap (Fisher et al., 2008), nocturnal spotlight surveying, and arboreal cover boards for tree dwelling geckos (Nordberg and Schwarzkopf 2019), noosing, and adhesive boards for agamid, skinks and lacertids (Henderson et al., 2016) can be applied in this landscape. The scarcity of information about the distribution of species in the MRVL provides ample opportunity to study the ecology and natural history of the reptiles.

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### Conflict of interest

All the authors declare that there are no conflicting issues related to this research article.

### References

Aengals, R., Ganesh, S. R., Sethy, P. G. S., Samson, K. J., Ahamed, J. M., Satheeshkumar, M., Thanigaivel, A. and Vogel, G. (2022). First confirmed distribution records of *Dendrelaphis bifrenalis* (Boulenger, 1890) (Reptilia: Colubridae) in India, with a revised key to the southern Indian forms. *Taprobanica*, 11 (1): 25–32.  
<https://doi.org/10.47605/tapro.v11i1.274>

Aengals, R., Kumar, S. V. M., Palot, M. J. and Ganesh, S. R. (2018). A Checklist of Reptiles of India. *Zoological Survey of India*, 35 pp. Version 3.0. Online publication available at [www.zsi.gov.in](http://www.zsi.gov.in) (Last update: May 2018).

Bambaradeniya, C. N. B., Wickramasingha, L. J. M., Samarawickrama, V. A. P. and Kekulandala, L. D. C. B. (2001). Herpetofaunal mortality in highways: A case study from Sri Lanka. *The Proceedings of the IV World Congress of Herpetology*, 10–11.

Baranidharan, K., Vijayabhama, M. and Bhuvensh, P. (2019) Faunal diversity of Sathyamangalam Tiger Reserve, Tamil Nadu, India. *Journal of Entomology and Zoology Studies*, 7 (5): 826–831.

Bennett, A. F. (1991). Roads, roadsides and wildlife conservation: a review, *In*: Saunders, D. A. and Hobbs, R. J. (Eds.), *Nature Conservation 2: The Role of Corridors*. Surrey Beatty and Sons, New South Wales. pp. 99–117.

Bernardino, F. S. and Dalrymple, G. H. (1992). Seasonal activity and road mortality of the snakes of the Pa-hay-okee wetlands of Everglades National Park, USA. *Biological Conservation*, 62 (2): 71–75.  
[https://doi.org/10.1016/0006-3207\(92\)90928-G](https://doi.org/10.1016/0006-3207(92)90928-G)

Bhupathy, S. and Nixon, A. M. A. (2011). Status of reptiles in upper Nilgiris, Nilgiri Biosphere Reserve, Western Ghats, India. *Journal of the Bombay Natural History Society*, 108 (2): 103–108.

Bhupathy, S. and Sathishkumar, N. (2013). Status of reptiles in Meghamalai and its environs, Western Ghats, Tamil Nadu, India. *Journal of Threatened Taxa*, 5 (15): 4953–4961.  
<https://doi.org/10.11609/JoTT.o3595.4953-61>

Bhupathy, S., Silori, C. S. and Sunderraj, W. S. F. (1994). Additional locality records for two Indian star tortoise species. *Journal of the Bombay Natural History Society*, 91:149–150.

Bhupathy, S., Srinivas, G. and Sathishkumar, N. (2009). A study on the herpetofaunal communities of the Upper Vaigai Plateau, Western Ghats, India. Final Technical Report, Sálím Ali Centre for Ornithology and Natural History, Coimbatore, India.

Chaitanya, R., Khandekar, A., Daniel, G. C., Mukherjee, N., Ghosh, A. and Giri, V. (2018). Herpetofauna of the Meghamalai Wildlife Sanctuary, Southern Western Ghats, India: an updated checklist with annotations on taxonomy and nomenclature. *Journal of the Bombay Natural History Society*. 115: 21–37.  
<https://doi.org/10.17087/jbnhs/2018/v115/122716>

Champion, H. G. and Seth, S. K. (1968). *A revised survey of the forest types in India*. Manager of Publication, New Delhi, India. 404 pp.

- Chandramouli, S. R. and Ganesh, S. R. (2010). Herpetofauna of southern Western Ghats, India – reinvestigated after decades. *Taprobanica: The Journal of Asian Biodiversity*, 2 (2): 72–85.  
<https://doi.org/10.47605/tapro.v2i2.30>
- Crump, M. L. and Scott, N. J. (1994). Visual encounter surveys, *In*: Heyer, W. R., Donnelly, M. A., McDiarmid, R. W., Hayek, L. C. and Foster, M. S. (Eds.), *Measuring and monitoring biological diversity: standard methods for amphibians*. Smithsonian Institution Press, Washington DC, USA. pp. 84–92.
- Das, I. (2002). *A photographic guide to snakes and other reptiles of India*. New Holland Publishers, London, UK. 144 pp.
- Das, I., Sirsi, S., Vasudevan, K. and Murthy, B. H. C. K. (2014). *Nilssonina leithii* (Gray 1872) – Leith’s Softshell Turtle, *In*: Rhodin, A. G. J., Pritchard, P. C. H., Van, D. P. P., Saumure, R. A., Buhlmann, K. A., Iverson, J. B. and Mittermeier, R. A. (Eds.), *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*. *Chelonian Research Monographs*, 5: 075, 1–5.  
<https://doi.org/10.3854/crm.5.075.leithii.v1.2014>
- Deepak, V., Giri, V. B., Asif, M., Dutta, S. K., Vyas, R., Zambre, A. M. and Karanth, K. P. (2016). Systematics and phylogeny of *Sitana* (Reptilia: Agamidae) of Peninsular India, with the description of one new genus and five new species. *Contributions to Zoology*, 85 (1): 67–111.  
<https://doi.org/10.1163/18759866-08501004>
- Fisher, R., Stokes, D., Rochester, C., Brehme, C., Hathaway, S., and Case, T. (2008). Herpetological monitoring using a pitfall trapping design in southern California. *US Geological Survey Techniques and Methods*, 2-A5, 44 pp.  
<https://doi.org/10.3133/tm2A5>
- Ganesh, S. R. and Arumugam, M. (2016). Species richness of montane herpetofauna of southern Eastern Ghats, India: a historical resume and a descriptive checklist. *Russian Journal of Herpetology*, 23 (1): 7–24.
- Ganesh, S. R. and Gupta, B. (2021). Herpetological diversity in the Central Eastern Ghats, Peninsular India. *Journal of Animal Diversity*, 3 (3): 18–44.  
<https://doi.org/10.52547/JAD.2021.3.3.3>
- Ganesh, S. R., Chandramouli, S. R., Sreekar, R. and Gowrishankar, P. (2013). Reptiles of the central Western Ghats, India — a reappraisal and revised checklist, with emphasis on the Agumbe Plateau. *Russian Journal of Herpetology*, 20 (3): 181–189.
- Ganesh, S. R., Chandramouli, S. R. and Edward, S. L. (2007). A study on herpetofaunal assemblages in the rainforests of Western Ghats, Karnataka, India. *Journal of Scientific Transactions in Environment and Technovation*, 1 (2): 95–103.  
<https://doi.org/10.20894/STET.116.001.002.009>
- Ganesh, S. R., Kalaimani, A., Karthik, P., Baskaran, N., Nagarajan, R. and Chandramouli, S. R. (2018). Herpetofauna of southern Eastern Ghats, India – II from Western Ghats to Coromandel Coast. *Asian Journal of Conservation Biology*, 7 (1): 28–45.
- Giri, V. B. (2008). A new rock dwelling *Hemidactylus* (Squamata: Gekkonidae) from Maharashtra, India. *Hamadryad*, 32: 25–34.
- Giri, V. B. and Bauer, A. M. (2008). A new ground-dwelling *Hemidactylus* (Squamata: Gekkonidae) from Maharashtra, with a key to the *Hemidactylus* of India. *Zootaxa*, 1700: 21–34.  
<https://doi.org/10.11646/zootaxa.1700.1.2>
- Gowande, G., Pal, S., Jablonski, D., Masroor, R., Phansalkar, P. U., Dsouza, P., Jayarajan, A. and Shanker, K. (2021). Molecular phylogenetics and taxonomic reassessment of the widespread agamid lizard *Calotes versicolor* (Daudin, 1802) (Squamata, Agamidae) across South Asia. *Vertebrate Zoology*, 71: 669–696.  
<https://doi.org/10.3897/vz.71.e62787>
- Hutton, A. F. and David, P. (2009). Notes on a collection of snakes from south India, with emphasis on the snake fauna of the Meghamalai Hills (High Wavy Mountains). *Journal of the Bombay Natural History Society*, 105 (3): 299–316.
- Jins, V. J., Panigrahi, M., Jayapal, R. and Bishop, T. R. (2021). Elevational gradients of reptile richness in the southern Western Ghats of India: Evaluating spatial and bioclimatic drivers. *Biotropica*, 53: 317–328.  
<https://doi.org/10.1111/btp.12878>
- Kamdar, A., Jangid, A., Roy, P. and Kunte, K. (Eds.) (2022). <https://www.indianreptiles.org/home>. *Reptiles of India*, v. 1.26. Indian Foundation for Butterflies. (Accessed on 13 November 2022).
- Karthik, P. and Sengupta, D. (2018). A Beaked Wormsnake, *Gryptotyphlops acutus* (Duméril and Bibron 1844), in the Sathyamangalam Tiger Reserve of southern India. *Reptiles and Amphibians*, 25 (2): 132–133.  
<https://doi.org/10.17161/randa.v25i2.14267>
- Karunaratna, D. S. M., Henkanaththegedara, S. M., Amarasinghe, A. A. and Silva, A. D. (2013). Impact of vehicular traffic on herpetofaunal mortality in a savannah forest, Eastern Sri Lanka. *Taprobanica: The Journal of Asian Biodiversity*, 5 (2): 111–119.  
<https://doi.org/10.47605/tapro.v5i2.106>
- Mirza, Z. A., Gowande, G. G., Patil, R., Ambekar, M. and Patel, H. (2018). First appearance deceives many: disentangling the *Hemidactylus triedrus* species complex using an integrated approach. *PeerJ*, 6: e5341.  
<https://doi.org/10.7717/peerj.5341>

- Mirza, Z. and Pal, S. P. (2008). A checklist of reptiles and amphibians of Sanjay Gandhi National Park, Mumbai, Maharashtra. *Cobra*, 2 (4): 14–19.
- Nande, R. and Deshmuk, S. (2007). Snakes of Amaravati District including Melghat, Maharashtra, with important records of the Indian egg eater, Montane trinket snake and Indian smooth snake. *Zoo's Print*, 22 (12): 2920–2924. <https://doi.org/10.11609/JoTT.ZPJ.1653.2920-4>
- Nordberg, E. J. and Schwarzkopf, L. (2019). Reduced competition may allow generalist species to benefit from habitat homogenization. *Journal of Applied Ecology*, 56 (2): 305–318. <https://doi.org/10.1111/1365-2664.13299>
- Palot, M. J. (2015). A checklist of reptiles of Kerala, India. *Journal of Threatened Taxa*, 7 (13): 8010–8022. <http://doi.org/10.11609/jott.2002.7.13.8010-8022>
- Prabhakar, R. and Pascal, J. P. (1994). Nilgiri Biosphere Reserve Area- vegetation and land use map. The French Institute of Pondicherry, Pondicherry, India.
- Ramesh, C., Nehru, P., Vishnu, C. S., Karthy, S., Murugan, V. T., Das, A. and Talukdar, G. (2019). Indian Rock Python: Mating behaviour of *Python molurus molurus* (Linnaeus, 1758) in Moyar River Valley, Tamil Nadu, India. *Reptile Rap*, 191. In: *Zoo's Print*, 34 (2): 10–14.
- Rooijen, J. V. and Vogel, G. (2009). A multivariate investigation into the population systematics of *Dendrelaphis tristis* (Daudin, 1803) and *Dendrelaphis schokari* (Kuhl, 1820): revalidation of *Dendrophis chairecos* Boie, 1827 (Serpentes: Colubridae). *The Herpetological Journal*, 19 (4): 193–200.
- Rosen, C. and Lowe, C. H. (1994). Highway mortality of snakes in the Sonoran Desert of southern Arizona. *Biological Conservation*, 68: 143–148. [https://doi.org/10.1016/0006-3207\(94\)90345-X](https://doi.org/10.1016/0006-3207(94)90345-X)
- Row, J. R., Blouin-Demers, G. and Weatherhead, P. J. (2007). Demographic effect of road mortality in black Rat Snakes (*Elaphe obsoleta*). *Biological Conservation*, 137: 117–124. <https://doi.org/10.1016/j.biocon.2007.01.020>
- Samson, A., Balasundaram, R., Sivasubramani, R. K., Sivashanker, R., Kumar, P. and Sivaraj, K. (2014). *Calliophis bibroni* (Bibroni coral snake): rediscovery in Mudumalai tiger reserve, south India. *Natural History Notes*, 127: 35–36.
- Samson, A., Ramakrishnan, B., Veeramani, A., Santhoshkumar, P., Karthick, S., Sivasubramanian, G., Ilakkia, M., Chitheena, A., Princy, J. L. and Ravi, P. (2016). Effect of vehicular traffic on wild animals in Sigur Plateau, Tamil Nadu, India. *Journal of Threatened Taxa*, 8 (9): 9182–9189. <http://doi.org/10.11609/jott.1962.8.9.9182-9189>
- Samson, A., Santhoshkumar, P., Princy, J. and Ramakrishnan, B. (2021). Population status of mugger crocodile (*Crocodylus palustris*) in Moyar River, Tamil Nadu, Southern India. *International Journal of Pure and Applied Zoology*, 9 (2):1–3.
- Selvan, K. M., Sridharan, N. and John, S. (2012). Roadkill animals on national highways of Karnataka, India. *Journal of Ecology and the Natural Environment*, 4 (14): 363–365. <https://doi.org/10.5897/JENE11.068>
- Srinivasulu, C., Srinivasullu, R. and Molur, S. (2014). The status and distribution of reptiles in Western Ghats, India. Conservation Assessment and Management Plan (CAMP). Wildlife Information Liaison Development Society, Coimbatore, Tamil Nadu, India.
- Thirumurugan, V., Prabakaran, N., Vishnu, C. S. and Ramesh, C. (2021). Ecological importance of two large heritage trees in Moyar river valley, Southern India. *Journal of Threatened Taxa*, 13 (1): 17587–17591. <https://doi.org/10.11609/jott.6095.13.1.17587-17591>
- Thirumurugan, V., Vishnu, C. S., Khanduri, S., Ramesh, C., Talukdar, G. and Das, A. (2020). Crocodile scavenging python. *Herpetological Review*, 51: 321–322.
- Vijayakumar, S. P., Vasudevan, K. and Ishwar, N. M. (2001). Herpetofaunal mortality on the roads in the Anamalai Hills, southern Western Ghats. *Hamadryad*, 26 (2): 265–272.
- Vishnu, C. S. and Ramesh, C. (2021). A bifurcated tail in a common house gecko (*Hemidactylus frenatus*) from the Moyar river valley, Tamil Nadu, India. *Reptiles and Amphibians*, 28 (2): 343–344. <https://doi.org/10.17161/randa.v28i2.15254>
- Vishnu, S. N., Ramesh, C., Thirumurugan, V. and Sathish, C. (2021). Size Matters: First record of minimum male size at maturity and mating of free-ranging, endangered Indian Python *Python molurus*. *Asian Journal of Conservation Biology*, 10 (1): 153–158. <https://doi.org/10.53562/ajcb.AQOE1932>
- Whitaker, N. and Srinivasan, M. (2020). Human crocodile conflict on the Cauvery river delta region, Tamil Nadu, south India. *International Journal of Fisheries and Aquatic Studies*, 8 (5A): 1–5.
- WWF (2019). Moyar Valley: Conservation status report. WWF India and Tamil Nadu Forest Department, Chennai, India. 50 pp.