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Cover

Common cat snake (*Boiga trigonata*)

Mildly venomous. Throughout India. Nocturnal. Spends the day coiled up in palmyra fronds, among bushes, in thatched roofs and under tree bark or stones. Grows to about 2 feet. Feeds mainly on lizards, rodents and small birds. Lays 3 to 10 eggs in August – September.

Photo : **Chandra Mouli**.

Chennai Snake Park Trust, Rajbhavan Post, Chennai – 600 022. India.
Ph: 91-044-22353623 E-mail: cspt1972@md5.vsnl.net.in

Herbert Spencer (1820-1903), the philosopher, was one of the earliest proponents of evolutionary theories, even preceding Charles Darwin in some respects, and is credited with coining the phrase 'survival of the fittest'. Col. R. Meinertzhagan (*Diary of a Black sheep,* 1964) has this story to tell about Spencer who was a frequent visitor to his mother's house: "On one occasion I asked Spencer if he believed that we were descended from monkeys. His reply was, "About 99 per cent of humanity have DEscended from monkeys and one per cent have AScended".

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MORTALITY OF REPTILES DUE TO VEHICULAR TRAFFIC IN MUDUMALAI WILDLIFE SANCTUARY, WESTERN GHATS, TAMIL NADU, INDIA

P. Kannan
Chennai Snake Park,
Raj Bhavan Post, Chennai-600 022

The Western Ghats of India is considered as one of the 25-biodiversity hotspots in the World. It is rich in faunal diversity and is remarkable for its endemic species (Myers *et al.* 2000). Of the 285 species of vertebrates endemic to the Western Ghats, 60 species are reptiles (Daniels 1993). However, biodiversity of the Western Ghats is under threat due to the expansion of plantations and townships. According to Forman and Alexander (1998), vehicles on roads have overtaken hunting as the leading direct human cause of vertebrate mortality often endangering local populations of common and threatened species. Roads cause forest fragmentation and take a heavy toll of reptiles during construction and subsequent use.

Reptiles are cold blooded and tend to rest on warm roads when they are easily injured or killed by vehicular traffic. Snakes and other reptiles that move from one place to another also get killed by vehicles. Landreth (1972) established that snakes show a unimodal daily activity pattern by moving to basking sites during mid-day. In late spring and early autumn, activity was bimodal, the snakes being most active during early morning and late evening. During the hottest part of the summer they were nocturnal. Reptiles being slow-moving are more vulnerable than most other animals to vehicular traffic. Also, vehicle drivers tend to be callous and show less concern for reptiles than to other animals confronted on roads.

Study Area

The present study was conducted in the Mudumalai Wildlife Sanctuary between July and September 2002 while doing a field-training programme on the management of elephant reserve for the forest field staff of Tamil Nadu. The Mudumalai Wildlife sanctuary is one of the most popular and oldest Wildlife Sanctuaries in India. It lies between 11°30′ and 11°31′N and 76° 27′ &76° 43′E at

the trijunction of three states, namely, Tamil Nadu, Karnataka and Kerala. The total area of the Sanctuary is 321.5 km^2 and it is bounded on the north by the Bandipur Tiger Reserve of Karnataka, on the west by the Wyanad Wildlife Sanctuary of Kerala and on the south and east by private cultivated land and coffee and tea plantations of Tamil Nadu. The sanctuary with the neighboring wildlife sanctuaries, national parks and reserve forests form a contiguous forest complex supporting a good population of reptiles (Bhupathy and Kannan, 1997, Kannan, 2005). Since the Ooty-Mysore highway intersects this sanctuary and runs along the Moyar River, vehicle movements are very high all through the year particularly during the tourist season. Except one study (Gokula, 1997) no sufficient information is available on mortality of snakes due to vehicular traffic in this sanctuary. The present study was aimed to bring out more information on reptile mortality due to vehicular traffic.

Methods

Searches were made to find out the road-kills on the Ooty-Mysore highway within the Mudumalai Wildlife Sanctuary. During early hours, the highway was searched for road-kills by walking. On sighting a road-kill, species, state of the road-kill were recorded. All the road-kills were examined, identified, photographed and removed from the road to avoid repetition. Whitaker and Captain (2004) and Das (2000), were used for identifying the snakes and other reptiles.

Results

Frequency of road-kills

A total of 36 individuals of road-killed reptiles belonging to eight species and five families were recorded. This included the Indian flapshell turtle *Lissemys punctata* Bonnaterre 11% (N=4) Green forest lizard *Calotes calotes* (Linnaeus) 5% (N=2), Indian garden lizard *Calotes versicolor* (Daudin) 8% (N=3) Bengal monitor *Varanus bengalensis* (Daudin) 11% (N=4), common vine snake *Ahaetulla nasuta* (Anderson) 39% (N=14), common kukri *Oligodon ornensis* 5% (N=2) Checkered keel back *Xenochrophis piscator* 11% (N=4), green keel back *Macropisthodon plumbicolor* 5% (N=2) and striped keel back *Amphiesma stolata* 3% (N=1). Of these, the Bengal monitor *Varanus bengalensis* is an endangered species.

Discussion

The study confirmed the observation of Gokula (1997) about the serious impact of vehicular traffic on reptile populations in Mudumalai Wildlife Sanctuary. A detailed study on this aspect is needed on a long-term basis to quantify the impact of roads on reptiles in the Mudumalai Wildlife Sanctuary and to formulate conservation measures.

References

Bhupathy, S and P.Kannan 1997. *Status of Agamid lizards in the Western Ghats of TamilNadu.* SACON Technical Report No.5. Salim Ali Centre for Ornithology and Natural History, Coimbatore.

Das, I. 2002. *A photographic guide to Snakes and other Reptiles of India.* New Holland Publishers (UK) Ltd. London.

Daniels, R,J,R 1993. The Nilgiri Biosphere Reserve and its role in conserving India's Biodiversity. *Current Science.* 64 (1): 706-708.

Forman, T.T.R. & L.E.Alexandra. 1998. Roads and their major ecological effects. *Ann.Rev.Ecol.Syst.*29:207-231.

Gokula, V. 1997. Impact of vehicular traffic on snakes in Mudumalai Wildlife Sanctuary, *Cobra* 27:26-30.

Kannan, P. 2005. A study on reptiles in Mudumalai Wildlife Sanctuary, Nilgiri Biosphere Reserve, Tamil Nadu. *Cobra.* 61:6-11.

Landreth,H.F.1972. Physiological responses of *Elaphe obsoleta* and *Pituophis melanoleucus* to lowered ambient temperatures, *Herpetologica* 28:376-380.

Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonescaand, G.A. B. and J.Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature*, 2000. (403) :853-858.

Whitaker, R. & Captain, A. 2004. *Snakes of India. The Field Guide.* Draco Books, Chennai, India, 481 pp.

ECOLOGICAL NOTES ON THE HERPETOLOGICAL FAUNA OF KUMBHALGARH WILDLIFE SANCTUARY, RAJASTHAN, INDIA

Shalini Gaur and **Vivek K. Pandey**
Desert Regional Station,
Zoological Survey of India,
Jodhpur

Kumbalgarh Wildlife sanctuary situated 90 km south-east of Udaipur between 25° 04′ 24″N latitude and 73° 26′ 59″E covering an area of 578 square km. forms a unique ecosystem comprising of the high Aravalli ranges lying North West of Udaipur between Kumbalgarh and Gogunda platue. It is the part of "Bhorat Plateau" in which a major part of Rajsamand, a major part of Udaipur and parts of Pali district are located. The average altitude of this plateau is 1225 m above m.s.l. Maximum temperature mostly remains at 35°C, minimum temperature is 15°C. This part comes under the rain-fed area of the Aravalli foothills. The sanctuary is mainly surrounded by rocky slopes which are represented by black rocks of irregular huge stones with deep furrows, crevices, tunnels and deep caves formed by the effect of rain water. This habitat provides an excellent shelter to various species of wild animals.

The soil of the catchment areas of the sanctuary and rainy dams is dark brown. The sanctuary is mainly provided with old angiosperm trees becoming dense in certain parts giving a forest-like appearance. The vegetation on the adjoining hills is mixed deciduous type mainly comprising *Boswellia serrata, Anogeissus latifolia, Lannea coromandelica, Sterculia urens, Anogeissus pendula, Albizia odoratissima, Diospyros melanoxylon, Holoptelea integrifolia, Wrightia tinctoria.* The lower elevation and foothills are dominated by *Cassia auriculata, Annona squamosa, Butea monosperma, Dichostachys cinerea, Diospgros cordifolia.* The common shrubs in foothills are *Capparis spicigera, Dycrophytum indicum, Grewia flavescenes, Justicia adhatoda, Spermadityon suaveolens* and *Grewia flavescenes,* etc.

Herpetofauna

Many surveys were conducted during the study period in different parts of the sanctuary the main points marked for the abundance of the reptiles were 'Khirni Takri' (25°11′ 03″ N & 73°34′52″ E), 'Thandi Beri' (25°12′ 15″ N & 73°33′15″ E),'sumer enclosure' (25°19′31′N & 73°37′27′E), Ghada Bera (25°9′56″ N & 73°31′14″ E), Samria Kund (25°8′27″ N & 73°31′ 27″ E), and Mahuri Khet (25°9′ 30″N & 73°34′ 19″ E).

During the five survey a total of 2 species of amphibians and 21 species of reptiles were recorded. Of these, 1 species of tortoise, 12 species of lizards and 6 species of snakes were reported (Table-1) within the Sanctuary and adjacent out side area upto ½ km. A separate account of the snakes around Kumbhalgarh wildlife sanctuary has already been published (Gaur,2002). The present document lists out species of amphibians and reptiles commonly observed within the sanctuary.

Ecologically, the Sanctuary provides an ideal and diverse habitat to different faunal elements especially reptile species. On rainy days, streams flow across this area and form a stagnant pool on the large catchment area, plenty of water accumulates in the valley which gradually flows to fill the Ranakpur reservoir. These conditions encourage many moisture loving skinks like *Mabuya carinata* (Schneider) and *Mabuya macularia* (Blyth) to flourish. Small pools also give habitations to amphibians like *Euphlyctis cyanophlictus* (Schneider). In the absence of rain water, the animals depend on the water sources provided by the Forest Department. As the Sanctuary is surrounded by rocky terrain many loose stones and boulders are scattered in the Sanctuary providing shelter to species like *Hemidactylus brooki* Gray.

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We express our deep sense of gratitude to Dr. J. R. B. Alfred Director (Retd.), Zoological Survey of India, Kolkata, and Dr. N.S.Rathore Jt. Director (Retd.) and former Officer – in – Charge, D.R.S., Z.S.I., Jodhpur for all help rendered in connection with this work. We are extremely thankful to the Late Dr. R.C. Sharma Deputy Director (Retd.) D.R.S., Z.S.I., Jodhpur and former P.I. of Project (Ecological studies on some species of Testudines and lizards inhabiting the foothills of Aravallis from Sirohi to Beawer, Rajasthan) for his encouragement and guidance. Shalini is

Table -1 List of Amphibians and Reptiles in Kumbhalgarh Wild life Sanctuary, Rajasthan

S.No.	Family	Species	Stage *	Status
	Amphibians			
1.	Ranidae	*Euphlyctis cyanophlyctis* **(Schneider)**	A	Fairly Common
2.	Bufonidae	*Bufo stomaticus* **(Lutken)**	A & J	Fairly Common
	Reptiles			
3.	Testudinidae	*Geochelone elegans* **(Schoepff)**	J	Rare
4.	Geckkonidae	*Hemidactylus brooki* **Gray**	A & J	Abundant
5.	Geckkonidae	*Cyrtodactylus scaber* **(Heyden)**	J	Rare
6.	Geckkonidae	*Hemidactylus leschenaulti* **Dumeril and Bibron**	A & J	Abundent
7.	Geckkonidae	*Hemidactylus favivirids* **Ruppell**	A & J	Abundent
8.	Agamidae	*Sitana ponticeriana* **Cuvier**	A & G F	Fairly Common
9.	Agamidae	*Calotes versicolor* **(Daudin)**	J	Fairly Common
10.	Agamidae	*Agama agilis* **Olivier**	J	Fairly Common
11.	Scincidae	*Mabuya carinata* **(Schneider)**	J	Fairly common
12.	Scincidae	*Mabuya macularia* **(Blyth)**	J	Rare
13.	Lacertidae	*Ophisops jerdoni* **Blyth**	J	Fairly common
14.	Lacertidae	*Ophisops macrolepis* **(Blanford)**	A	Fairly common
15.	Varanidae	*Varanus bengalensis* **(Linnaeus)**	A & J	Abundant
16.	Typhlopidae	*Ramphotyphlops braminus* **(Daudin)**	J	Abundent
17.	Boidae	*Python molurus* **(Linnaeus)**	S A	Fairly common
18.	Boidae	*Eryx conicus* **(Schneider)**	A	Fairly common
19.	Colubridae	*Xenochrophis piscator* **(Schneider)**	A	Rare
20.	Elapidae	*Naja naja* **(Linnaeus)**	A	Rare
21.	Elapidae	*Echis carinatus* **(Schneider)**	A & J	Abundant

* A: Adult; J: Juvenile; G V: Gravid females; S A: Semi adult

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References

Chanda, S.K., 2002. *Hand Book- Indian Amphibians: i-viii,* 1-335 pp.

Gaur, S. 2002. Studies on the Snakes of the Kumbhalgarh Wild Life Sanctuary, Rajasthan.*Tiger Paper* Vol.xxxi No. 3pp 1-3

Sharma R. C. 1998. *Fauna of India –Reptilia* (Testudines and Crocodilians) Vol.I. XVI + 1-196pp. (Published Director Zoo.l Surv. India, Kolkata)

Sharma, R. C. 2002. The *Fauna of India and adjecent countries –Reptilia (Sauria)* Vol.II. 1-430 pp. (Published Director Zoo.l Surv. India, Kolkata)

Sharma R. C. 2003. *Hand Book- Indian snakes: 1-292* (Published Director Zoo.l Surv. India, Kolkata)

SIGHT RECORDS OF GREEN TURTLE, *CHELONIA MYDAS* (LINNAEUS) IN NORTHERN KERALA

Muhamed Jafer Palot
Western Ghats Field Research Station
Zoological Survey of India
Calicut 673 002.Kerala

On the 7th October 2005, a Green Turtle, *Chelonia mydas* (Linnaeus), weighing about 100 kg was sighted at Onappuzha region of the Kavvayi backwaters in Kasargod district. The area is located about 200 m away from the sea. Evidently the turtle had crossed over the 100 m wide sand banks on the Trikaripur seacoast and entered the Kavvayi backwaters.

The local fishermen captured the specimen from the backwater. The turtle measured about 125 cm long and 100 cm wide. The carapace of the turtle was covered with green algae and small barnacles (*Balanus* sp.). The turtle was apparently in good health and later the fishermen released it in the coastal waters of Trikaripur.

Subsequently, on a visit to the Velliangallu Island (Sacrifice Rock) on 17.12.2005, we sighted a green turtle attempting to climb on the rocky slopes of the island. On hearing the sound of the engine of the fishing boat, the turtle turned back and dived deep into the sea. The rocky edges of the island are covered with lush growth of green algae, barnacles and oysters. The Velliangallu Island is situated about 50 km from Kannur coast and approximately 80 km from Trikaripur coast.

Green turtle is distributed throughout the Atlantic, Indian and Pacific Oceans. In India, it is found in abundance in and around the Krusadai Islands in Tamil Nadu, Kutch in Gujarat, Lakshadweep Islands and the Andaman & Nicobar group of Islands (Das, 1995 and Venkataraman & Milton, 2003). In Kerala, the species was recorded only from Kovalam, near Vizhinjam, Thiruvananthapuram district, in southern Kerala (Krishna Pillai, 2004). The present observations are new records for the northern coast of Kerala. The sighted localities are between Kolavipalam in Kozhikode district and Thaikadappuram in Kasaragod district, which are well known nesting grounds of the Olive Ridley Sea Turtle, *Lepidochelys olivacea*, in Kerala.

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The author is grateful to the Director, Zoological Survey of India, Kolkata and the Officer-in-Charge, Zoological Survey of India, Calicut for facilities and encouragement.

References

Das, I. (1995): *Turtles and Tortoises of India.* World Wide Fund for nature – India. Oxford University Press, Mumbai. 176 pp.

Krishna Pillai, S. (2004): Accidental catch of Green Turtle, *Chelonia mydas* in shore-seine at Kovalam, near Vizhinjam, south Kerala. *Fishing Chimes* 24 (3): 57.

Venkataraman, K and M.C. John Milton. (2003): *Handbook on Marine Turtles of India* (Resources, Exploitation and Conservation): 1-87 (Published : Director, Zoological Survey of India, Kolkata).

RECORD OF COMMON BRIDAL SNAKE (*DRYOCALAMUS NYMPHA* (DAUDIN, 1803) IN MAYILADUTHURAI AREA OF TAMIL NADU

S.R. Ganesh
Dept of Zoology and Division of Wildlife Biology
AVC College (Autonomous)Mannampandal, Mayiladuthurai

On 26th July 2006, while conducting a herpetofaunal survey near AVC College, Mannampandal, Mayiladuthurai, a common bridal snake was found at 14:20 hrs. At first glimpse, it looked a bit like a wolf snake. However the differences are that unlike wolf snake, bridal snake has a white collar (The parietal scales scale are interiorly dark-brown and posteriorly white). Bridal snake also has fewer scale row counts (13) as opposed to that of wolf snake (17). The snake was resting amidst a dense patch of coconut groves and the floor was carpeted by teak (*Tectona grandis*) leaf litter. The snake was carefully collected for species confirmation by scale count. The following are the details.

Number of supra labials (L & R)	-	8 (43rd and 4th touching the eye)
Number of infra labials (L & R)	-	4
Ventrals	-	202
Subcaudals	-	69 (divided)
Temporals	-	2 (L,R)
Snout Vent Length (SVL)	-	18 cm
Total Body Length (TBL)	-	23 cm
Scales 13:13:13		
Microhabitat:	-	inside teal leaf litter
Time:	-	14:20 hrs.

As soon as photographed and the species identity confirmed, the snake was released in the same place.

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Reference

Whitaker.R & A.Captain (2004): *Snakes of India – The Field Guide,* Draco Books, Chengalpattu 603 001.

OBSERVATIONS ON THE COURTSHIP OF *FEJERVARYA* CF. *LIMNOCHARIS* (GRAVENHORST, 1829) (ANURA: RANIDAE)

Rakesh Soud[1] K.J. Mazumdar[2] A.Gupta[1]
Stephen Mahony[3] and Simi Talukdar[4]
[1]Department of Ecology and Environmental Science
Assam University, Silchar 781 011
Email: assam_rhino@rediffmail.com

[2]Nature's Foster
P.O.Box No.41
Shastree Road, Bongaigaon 783 380
Assam
Email: kripaljyoti@gmail.com

[3]16 Killakee View
Firhouse Rd. Dublin 24, Ireland
Email : stephenmahony@vodafone.ie

[4]Department of Zoology, Firjhora Mahavidyalaya
Bongaigaon 783 380, Assam
Email : simi_tal@rediffmail.com

Fejervarya cf. *limnocharis* (Gravenhorst, 1829) is a common frog reported as a species complex with five different morphs viz. a) small size, with a thin light yellow line extending from temporal to vent, b) small size, with a thick broad band of yellow to dark red extending from snout to vent, c) large size, smooth bodied, without midline, d) large size, grey coloured, with numerous tubercles on dorsum, the toe IV has two digits free webbing and e) large size, smooth bodied parrot green coloured with more than two digits free from webbing on the toe IV.

During a study carried out from the Department of Ecology and Environmental Science, Assam University, we spotted some calling males of *Fejervarya* cf. *Limnocharis* on 30th August 2006 at 1817 hrs. on a grass bed near a stagnant rain water source surrounded with herbaceous vegetation in the university campus. We had selected three calling males for our observation. These three males resemble the a, b and d types of morphs respectively. The morphometric measurements of these males were later collected and are given in Table 1.

Table 1. Morphometric measurements (cm) of *F. limnocharis* males

Characteristics	Male 1	Male II	Male III
Snout-vent length	4.51	4.76	4.66
Head length	2.26	2.88	1.83
Head Width	2.16	1.95	1.52
Snout Length	2.06	1.75	1.11
Eye Diameter	0.14	0.84	0.41
Tympanum Diameter	0.31	0.75	0.31
Inter-orbital length	0.51	0.72	0.61
Inter-nostril distance	0.21	0.75	0.51

We had observed the calling males under a cadmium spotlight (250000 candle power) used as a secondary source of light. The observation was not very close, the nearest was about 120 cm and the frogs were apparently undisturbed. They maintained a distance of *c.*60 cm and *c.*80 cm from each other. As it was a rainy evening, whenever rain fell, the males started calling more loudly. At 20.25 hrs. a female was seen to approach towards the males. Just after the appearance of the female (SVL 4.85 cm), all the males followed the female and the third male held the female in amplexus. The other males were observed calling around the pair. Finally, the pair moved out to the stagnant rainwater source. The pair was put in a plastic container having some water and brought to the laboratory for further observation. The female laid eggs in clusters at 1310 hrs. on 31 August, 2006 and the hatching of eggs started from 5 September 2006.

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Selected References

Das, I. and Dutta, S.K. 1998: Checklist of the amphibians of India with English common names. *Hamadryad*, 23 (1) : 63-68.

Soud, R. and Das, R.2006: Observation on the courtship of Bamboo Tree Frog *Polypedates leucomystax* (Gravenhorts) (Anura: Rhacophoridae) *Cobra*, Vol.63: 16-18.

FIRST RECORD OF THE ASSAM PAINTED FROG (*KALOULA ASSAMENSIS* (DAS *ET AL.*, 2004) FROM WEST BENGAL

Subhadip Paul[1], Manindra Chandra Biswas[2] and Kaushik Deuti[3]

[1]Village Birpara, District Jalpaiguri
Alipurduar: 736 121, West Bengal

[2]Divisional Forest Officer, Cooch Bchar Forest Division
Nilkuthi, Cooch Behar : 736 101, West Bengal.

[3]Zoological Survey of India
Identification & Advisory Section
Nizam Palace, Calcutta 700 020, West Bengal

The Assam Painted frog, *Kaloula assamensis* Das, Sengupta Ahmed & Dutta, 2004 was recently described from eastern Assam based on specimens collected from Majbat (26° 45′ N, 92° 20′ E, 141 m ASL), Sonitpur district; Nameri Wildlife Sanctuary (26° 56′ N, 92° 52′E, 140 m ASL), Sonitpur district; Sirajuli (26° 42′ N, 92° 12′ E), Sonitpur district; Orang National Park (26° 30′ N, 92° 15′ E), Darrang district and from Arunachal Pradesh based on a specimen from Pakhui National Park (26° 55′ 25.6″N, 92° 51′37.2″E, 94 m ASL). In August, 2005 a specimen was collected from Bongaigaon (26° 30′ N, 90° 50′ E), western Assam about 180 km west of the type-localities (Talukdar, Saud & Deuti, in press).

On September 10, 2006 and September 23, 2006 two juvenile specimens (Registration No:ZSIC A 10590 and A 10591) were collected from an inch under the ground near Bong basti forest village in Mendabari beat and on the bank of the Kaljani river between Mendabari Beat Office and Chilapata Range Office respectively in Chilapata Range (26° 32′ N, 89° 25′ E) of Cooch Behar Forest Division. Chilapata Rnage is Reserve Forest of semi-evergreen forest-type that forms a corridor between

Jaldapara Wildlife Sanctuary and Buxa Tiger Reserve in Jalpaiguri district of northern West Bengal.

In three juvenile specimens, the dorsal colour is pale brown with broad dark brown lateral stripes from the post ocular region to the ingumal region. However, there is only a very faint impression of the yellow vertebral stripe from the tip of snout to the vent. This is the first record of the Assam Painted frog (*Kaloula assamensis*) from West Bengal and extends the range of the species by a further 140 km to the west.

The measurements (in mm) of the two juvenile specimens are given below:

Characteristics	ZSIC A 10590	ZSIC A 10591
Snout-vent length	32.95	30.65
Head length	7.35	7.15
Head width	9.65	9.40
Head depth	7.20	6.85
Tibia length	11.60	11.15
Eye diameter	3.15	3.05
Inter-narial distance	3.25	3.10
Inter-orbital distance	4.35	4.15
Eye-snout distance	4.60	4.35
Eye-nostril distance	2.75	2.25
Axilla-groin distance	13.40	12.65

Reference

Das, I., S. Sengupta., M.F. ahmed & S.K. Dutta (2004): A new species of *Kaloula* (Anura: Microhylidae) from Assam State, North-eastern India. *Hamadryad.*, 29(1): 101-109.

THE BURROWING BEHAVIOUR OF *SPHAEROTHECA ROLANDAE* (DUBOIS, 1983) IN AN ARTIFICIAL ENCLOSURE

Reena George, Isha Desai, B. Suresh and **Y.M. Naik**
Department of Zoology, Faculty of Science
The Maharaja Sayajirao University of Baroda
Vadodara 390 002, India

Many anurans show burrowing behaviour. This may be an ecological specialization. They burrow for food, shelter and reproduction and remain underground for varying periods of time depending upon whether the frog is a facultative or obligate burrower. These burrowing frogs are very rarely seen except during the monsoon season. Structural and morphological modification in the body shape, size and the limbs of these burrowing forms help in digging. According to Dutta and Pradhan (1985), there seem to be two types of burrowers, forward and backward and each type of burrowers has special kind of digging mechanism.

Headfirst burrowing amphibians have greater morphological specialization than the hindlimb burrowing ones and this could be the probable reason for their rarity (Emerson, 1976). Maximum number of burrowing anurans digs their hind feet first into the soil. These anurans are short but are powerfully built and possess metatarsal tubercle that helps in digging.

In the present study, the experimental animal, *Sphaerotheca rolandae* was collected from its natural habitat and was maintained in controlled condition in the lab so as to know its burrowing behaviour. Species belonging to the genus *Sphaerotheca* are burrowing type and are generally found only during breeding season (Chanda, 2002).

Sphaerotheca rolandae commonly known as the Roland's burrowing frog was collected from the field and was kept in captivity for 15 days in an aqua-terrarium at a temperature maintained between 25°C to 29°C. Soil was taken from the natural habitat where *S.rolandae* was found, it was mixed with termites, ants and small

worms. The mean pH of the soil was 7.3. The animal was monitored daily for two hours during day (0900hrs to 1100hrs) and also during night (1900hrs to 2100hrs).

From the observations made it can be said that *S. rolandae* is a hindlimb burrower as it digs hind feet first into the soil. The frog's short, stout and outwardly directed feet laterally works like spades and also making use of the enlarged (5mm in length), crescentric outer metatarsal tubercles (Fig-1). Digging is not a continuous process but is done at intervals, with a gap of 7 seconds on an average. While digging they move their body in clockwise direction. The frogs dig the under soil outwardly and over to the back of the body. Initially the hindlimb is covered in the soil and then the head followed by the central dorsal part of the body (Fig-2). The frog at rest, in its burrowed condition, was found to have a horizontal posture, with limbs closely tucked to the body. Under the soil it changes its position from one place to another. This was observed when the frog was gently exposed so as to check whether it was alive or not. The condition of the soil is an important factor which determines the time required for burrowing. More the loose soil less is the time taken for the animal to dig. Time required for the animal to burrow completely ranged from 2-3 minutes. In the present study it was observed that the burrow of *S. rolandae* was not too deep; it extends 5-6 inches below the surface of soil. This may vary in natural habitat depending upon the soil type.

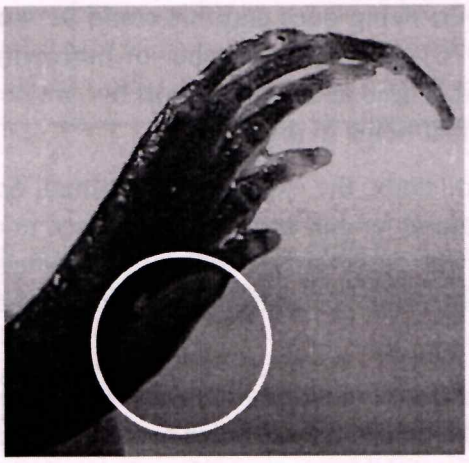
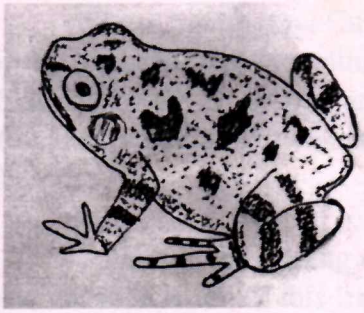


Figure-1 Hind feet of *S. rolandae* showing the metatarsal tubercle



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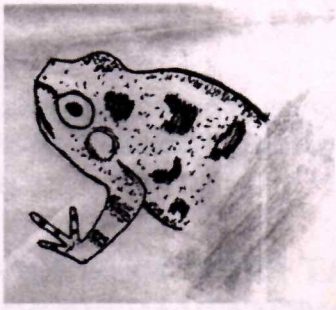

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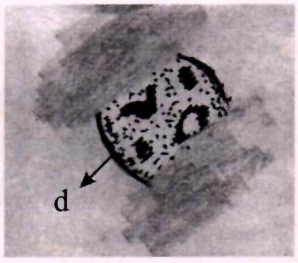

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Figure-2 Diagrammatic representation of the burrowing behaviour in *S. rolandae* A- *S.rolandae*; B- burrowing starts by initially covering the hind part of the body; C- This is followed by covering the head region and then followed by the central dorsal part of the body (d)

Acknowledgements

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References

Chanda, S.K. (2002). *Handbook: Indian Amphibians.* Zoological Survey of India, Kolkata.

Dutta, S.K. and Pradhan, B. (1985). Burrowing specializations in anurans. *Pranikee* 6:41-52.

Emerson, S.B. (1976). Burrowing in frogs. *J. Morph.* 149:437-458.

HABITAT PREFERENCES AND FOOD OF *SITANA PONTICERIANA* CUVIER, IN ARAVALLI FOOTHILLS OF RAJASTHAN

Shalini Gaur

Desert Regional Station
Zoological Survey of India
Jodhpur

Sitana ponticerina Cuvier is a lizard of family Agamidae which mainly prefers habitations near moisture where there is green vegetation.

During the period of study (2001-2003) in Aravalli foothills (Udaipur, Sirohi, Bar , Beawar, Rajsamand etc.,) while surveying the reptile in the area population of the *Sitana ponticerina* Cuvier was maximum observed in places wherever there is a good growth of a bushy plant with yellow flowers *Cassia auriculata* known as tarvar in Hindi. The occurrence of the lizard particularly in these areas was further confirmed by the study of gut contents of certain dead specimens in road accidents. Crushed pods of the plant along with termites, dermapterans (Family Forficulinidae) and soil orthopterans (Family Gryllidae) were verified from the gut content of the lizard. The previous records by the study of gut contents confirm that their food comprises grasshoppers and their nymphs, beetles, bugs, small red ants, dipterous insects and their maggots and spiders (Sharma and Vazirani, 1977).

Sitana ponticerina Cuvier inhabits the moist scrub, sandy rocky areas with plenty of bushes and vegetation. The lizard is terrestrial, diurnal and insectivorous (Sharma, 2002). It makes burrows in the roots of the bushy plants. The lizard is stout and powerful. It can raise its forelimbs and swiftly run on its hind legs when chased.

Although the finding of plant parts from the gut content of a lizard is not new the association of this lizard with a particular plant is of interest. It seems to have a taste for the pods of the plant.

References

Sharma, R.C. 2002. The *Fauna of India and the adjacent countries – Reptilia (Sauria)* vol. II: 1-430pp. (Published Director, Z.S.I., Kolkata.)

Sharma, R.C. and Vazirani, T.G. 1977. Food and feeding habits of some reptiles of Rajasthan, India. *Rec. Zool. Sur. India* 73:77-93.

RANDOM HARVEST

A 'spitting' viper

That some species of cobra can 'spit' venom is well-known*. But there is also at least one species of viper that can do so. In his foreword to *Asian Pitvipers* by A.Gumprecht *et al.* (Geitje Books, Berlin, 2004), Wolfgang Wuster says that the Mangshan pitviper *(Zhaoermia mangshanensis),* a giant pitviper reaching lengths of over 200 cm. and weights of upto 5 kg., spits venom "in a manner analogous to the spitting cobras". This spectacular creature was described only in 1990 from the single mountain in Mang Shan area in the Hunan province, China. This forms its entire known distribution.

Ø Ø Ø

Snakes that suckle and other such

One curious feature of superstitions is that, sometimes, the same or a similar belief would run through different countries, cultures, languages or relate to different objects. Some superstitions about snakes provide typical examples. A best-known one is the belief that some snakes suck milk from cows. In Asian countries, it is the Indian rat snake (*Ptyas mucosa*). In the Mediterranean countries, it is the European rat snake (*Zamenis situla*). In N. America, it is the *Lampropeltis triangulam* which is appropriately (or, rather, inappropriately) called 'milk snake'.

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* For more on spitting cobras, see paper captioned 'Are There Spitting Cobras in India?' by B. Vijayaraghavan. *Cobra* Vol.61.2005.

This is, of course, no more than a superstition fortified by the frequent presence of ratsnakes in or near cow sheds which is only because they come there in search of rats. Snakes have no powers of suction and, with their numerous sharp teeth, they will surely not be obliged by any cow. Nor do snakes have any particular fondness for milk even though the categorical statement sometimes heard that a snake will never drink milk, even if offered, may not entirely be true since a thirsty snake may, perhaps, find it a substitute for water if no water is available.

A grotesque modification of the story is found in parts of S. America. According to Curran and Kauffeld (*Snakes and Their Ways*, 1937), the belief in these parts is that the snake secures its supply of milk not from cattle but from human beings. "According to this legend, the snake interrupts the feeding of the baby while the mother sleeps, inserting its tail into the child's mouth in order to soothe it."

It is not snakes alone that have been erroneously credited with the habit of sucking milk from cattle. The nightjar (birds of Family Caprimulgidae) is also called the 'goat sucker' in England for a similar reason. It has a wide mouth and flies with its mouth open to catch flying insects. The wide mouth has been mistakenly assumed to be for sucking milk from goats.

Another superstitious belief in England is that the hedgehog sucks milk from cows. In The *Manchester Guardian Weekly* of Dec.6.1987, a correspondent says: "I have often discussed this with old farmers and labourers some of whom have sworn they have seen hedgehogs at work on the udders of cows sitting on grass and chewing the cud. The explanation could well be that the hedgehogs were lapping up milk oozing from the full udder of a freshly-calved cow, as can happen when she is sitting down. Hedgehogs certainly like milk, as is demonstrated by the avidity with which a garden hedgehog will devour bread-and-milk. Or, on the other hand, the hedgehogs [which are insectivores] allegedly sucking cows could have been snapping up worms and insects around the cows' warm bodies. But a hedgehog's jaws are not built to fit around a cow's teat".

Ø Ø Ø

Snake-like limbless lizard

A 19 cm – long limbless lizard has been found in the Khandadhar hills in Sundergarh, Orissa. This species of skink, new to science, was discovered by a team of researchers led by Sushil Kumar Dutta of North Orissa University, Baripada. Preliminary study shows that it belongs to the genus *Sepsophis*, of Family Scincidae, species not yet determined. The limbless scaly lizard looks like a snake. This skink is endemic to the region which is now threatened by mining activities. The last discovery of another species of this genus was in 1870 from the Golconda hills in Andhra Pradesh. According to Dutta, the discovery is of bio-geographic importance since its closest relatives are also found in Sri Lanka and South Africa which, like India, were parts of the ancient Gondwana land.

Source : *The Hindu* May 31, 2007
and *Down to Earth* June 30, 2007.

Ø Ø Ø

Crocs as honorary forest guards

A news item in the *Hindustan Times* of 21st June 2007 says that in a bid to protect and help regenerate the fast-depleting mangrove vegetation in Bhitarkanika National Park in Orissa, forest authorities have released 48 estuarine crocodiles (*Crocodylus porosus*), bred in captivity, into the water bodies surrounding the sanctuary. The reputation of the estuarine crocodile, unlike the marsh crocodile (*C. paluster*), of being a 'man-eater' is enough to scare away poachers from the sanctuary.

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"Toadzilla": a godzilla among toads

The devastation caused to the local fauna in Australia by the cane toad (*Bufo marinus*) introduced in a misguided attempt to eradicate the cane beetle is well-known. See ' Random Harvest' in *Cobra* Vol.22, 1995 and Vol.57, 2004.

The Hindustan Times of 28 Mar. 2007 quotes a report in T*he Guardian* about the discovery of a giant cane toad, "the size of a small dog", in Northern Australia. It weighed almost 2 lbs.

Can snakes predict earthquakes?

Reports have appeared in the press occasionally of the queer behaviour of different species of mammals and birds well ahead of earthquakes even as the humans had no idea of the impending doom. Similar reports had come also after the tsunami of Dec.2004. The earliest such account seems to be of the earthquake in 373 BC which wrecked the port city of Helice. According to the Roman scholar, Pliny the Elder (23-79 AD), one of the signs of a coming earthquake is "the excitation and terror of animals with no apparent reason".

There are accounts of such phenomena down to the present times. Most of the observations, understandably, relate to cats and dogs, farm animals and commonly seen birds. The historian Diodorus Siculus records animals leaving the city of Helice in droves days ahead of the earthquake of 373 BC much to the puzzlement of the human inhabitants. And, in this exodus, he includes snakes also. On 4 February 1975, there was a major earthquake in the Liaoning province of China causing widespread damage and loss of lives. This had been preceded for some two months by unusual behaviour of many species of animals and birds. It had been reported in this context that "snakes came out of hibernation, crawled from their burrows and froze to death on the snow-covered surface".

Various theories have been advanced to explain this phenomenon but none that will stand scrutiny. There has been no detailed or consistent research on this except some attempts by the Chinese State Seismological Bureau from the 1970s and some studies by Rupert Sheldrake and Daniel Jay Brown in California from the 1980s which have not led to any significant findings so far*.

This note has been occasioned by a report from Reuters that appeared in *The Hindu Business Line* of 29 Dec. 2006 on the observations made by the earthquake bureau in Nanning, capital of the Guangki autonomous region in Southern China,

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* For more on this subject, see *Dogs That Know When Their Owners Are Coming Home and Other Unexplained Powers of Animals* by Rupert Sheldrake (Hutchinson, London,1999), particularly the chapter captioned 'Forebodings of earthquakes and other disasters'.

about the curious behaviour of snakes before an earthquake. "Of all the creatures on earth, snakes are perhaps the most sensitive to earthquakes", bureau director Jiang Weisong was quoted as saying. Jiang said snakes could sense an earthquake 120 km away, three to five days before it happens. Their erratic behaviour would be an indication of the quake to come. A report in *The Hindu* of 12 Jan. 2007, based on the same source, further quotes Jiang as follows: "When an earthquake is about to occur, snakes will move out of their 'nests' even in the cold of winter. If the earthquake is a big one, the snakes will even smash into walls while trying to escape. By installing cameras over the 'snake nests', we have improved our ability to forecast earthquakes".

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Visitors to zoos

In the preface to his book *Life at the Zoo* (2004), Phillip T. Robinson says: "...more Americans are reported to visit zoos and aquariums annually than attend all major professional sporting events combined, with present numbers approaching 140 million. Worldwide attendance at zoos and aquariums [in a year] is estimated at 600 million people".

It will be interesting to know the corresponding figures for India.

- B. Vijayaraghavan

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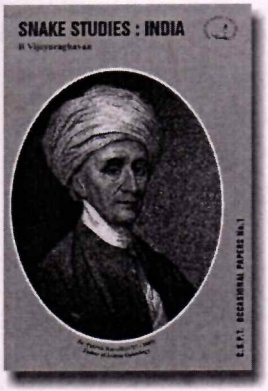

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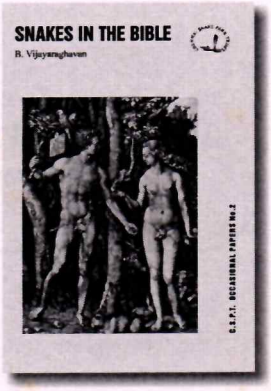

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