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A preliminary survey on the snakes of Ratnagiri and Sindhudurga districts of Konkan region of Maharashtra

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ABSTRACT: Snakes are well adapted to their habitats. There are entirely aquatic snakes, burrowing snakes and arboreal snakes. The variety of size, shape and colour is due to the different mode of life. Snakes occupy a wide range of habitats, including: fields, forests, wetlands, ponds, lakes, streams, rocky hillsides, farmland, vacant plots and residential areas. An annotated checklist of snakes is prepared on the basis of the information from survey during August 2012 to January 2014 on the basis of the species. The captured snakes represent 18 types of species under 6 families. 5 poisonous snakes, 11 non poisonous and 2 semi poisonous snakes were reported. Species wise concentration of snakes was estimated to predict proportion of particular snake species in this region. In all 158 snakes were captured throughout the period of investigation which include 49 poisonous, 100 non poisonous and 9 semi poisonous type. Poisonous snake Common Indian Cobra *Naja naja* and non poisonous Indian rat snakes and only one species of semi poisonous i.e. vine snakes were found to be predominant in this region. Forest fire, killing, hunting and road kills are the major threats observed in the study area.

I. INTRODUCTION

Snakes have formed an object of awe and curiosity in all lands. In India they have been associated with mysticism, apart from being objects of fear (Devrus, 1970). Snakes are not yet seriously considered as agents of human disease and the scientific insights provided by the clinical phenotype of human envenoming have been ignored for a longtime (Warrel, 2010). There are records in the Ayurveda which pertain to snake venom, particularly the cobra venom. Snakes occupied deserts, forests, marshy, swampy places, lakes, streams and rivers of difficult terrains (Dhamankar Atul, 2006). Snakes are extremely well- adapted to their habitats namely aquatic, fossorial, arboreal and other terrestrial forms observed in this region. The variation of their sizes, shapes and colours are generally due to the adaptive radiation in mode of life (Nande and Deshmukh, 2007). Snakes are intrinsically fascinating and form an important component of the biota. It is natural that their curious mode of propulsion, venom and constricting mechanism have made them important group of predators and the interactions maintains a natural balance in the forest and deserts, the plains and hills of India (Harney, 2011 and Walmiki *et al.*, 2012]. All over the world, about 3500 snake species are found out of which 275 species are venomous and about 261 species of snakes are found in India (Khaire, Neelamkumar 1996). India has great biodiversity of snakes with variation in length ranging from 6mm to 10 m, while weight ranges between few grams to several kilograms. These remarkable reptiles can live in every biogeographic region of the world, at an altitude higher than 5000 m and also survive in deep waters. Shelter for snakes is almost anything close to the ground that they can enter or get beneath to avoid predators and extreme temperatures. Boards on the ground, log and leaf piles, cracks and crevices in foundations, rock walls, ground-hugging shrubbery, dense patches of vegetation and narrow spaces beneath decks and outbuildings are all popular forms of cover.

The present study was conducted in Ratnagiri and Sindhudurga districts of Konkan region of Maharashtra. Konkan region is famous for lush green vegetation, hilly terrain, adjacent sea and mangroves which form a suitable habitat for all the reptilians including snakes. The present paper consists of study of snake diversity of this region on the basis of snake rescues done by the one of the author during the previous two years of 2012-2014. Hot and dry climate of our area provides an ideal environment for cobras, kraits and vipers which are the majority of venomous snakes found in this study. Most houses in these rural areas are made of rocks and mud and have many crevices where rodents flourish.

Snakes have easy access to the interiors of such houses and often enter them in search of their food. Peoples whenever found such snake in their houses, called one of the authors to catch them. It is also found on many occasions when farmers which have some knowledge of snake identification called us for the snake rescue even from their farms. The peoples of this region have shown more interest in saving them by calling snake friend than to kill them. Firewood and dried cow dung stored in or near the houses also provide easy shelter for snakes and rodents as many of the calls were attended from such houses.

II. METHODOLOGY

The description by the caller, time and area of call itself gave idea of the presence of probable type of snake species. All the poisonous, non poisonous and semi poisonous snakes were captured on request telephonic calls from the houses of people throughout the year. The snakes were handled very carefully and all possible precautions were taken not to disturb them. The snakes were caught by the aluminum hooked sticks. Upon catchment the snakes were immediately transferred in big size plastic containers of varying sizes having holes for aeration. The snakes were identified as per Devrus (1970) & Romulus Vitteker (1977). The snakes were bought to resident of one of the author where the graded scale is fixed on the wall and the length of snake was measured by holding the snake at the tip of the tail, parallel to graduated scale. As this procedure is to be carried out in short time the length of venomous snakes are less accurate. The caught snakes were released in forest area.

A. STUDY AREA



III. RESULTS

A. POISONOUS SNAKES



Indian Cobra



Common krait



Saw scaled viper



Russell's viper



Bamboo pit viper

B. NON-POISONOUS SNAKES



Indian rat snake



Montane trinket snake



Bronze back tree snake



Banded kukri snake



Checked keel back



Striped keel back



Sand boa



Indian rock python



Phipson shield tail

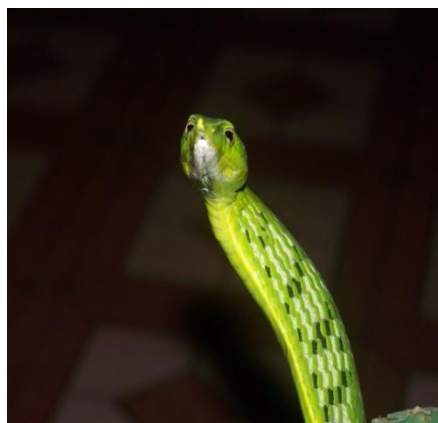


Russell's Kukri snake



Green keelback snake

C. SEMI-POISONOUS SNAKES



Vine snake



Common cat snake

IV. DISCUSSION

During the study period 158 snakes were captured from Ratnagiri and Sindhudurg district and classified under 6 families namely Colubridae, Elapidae, Viperidae, Uropeltidae, Boidae and Pythonidae represents 18 types of species. 5 poisonous snakes, 11 non poisonous and 2 semi poisonous snakes were reported (Table 1).

Table 1: Biodiversity of Snakes in Ratnagiri and Sindhudurg district

Sr.No	Local Name	Scientific Name	Family
A	POISONOUS SNAKES		
1	Indian cobra	<i>Naja naja</i>	Elapidae
2	Common krait	<i>Bungurus caeruleus</i>	Elapidae
3	Saw scaled viper	<i>Calliophis melanurus</i>	Viperidae
4	Russell's viper	<i>Daboia russeli</i>	Viperidae
5	Bamboo pit viper	<i>Trimeresurus gramineus</i>	Viperidae
B	NON POISONOUS SNAKES		
1	Indian rat snake	<i>Ptyas mucosa</i>	Colubridae
2	Mountane trinket snake	<i>Preocryptophis porphyracea</i>	Colubridae
3	Bronze back tree snake	<i>Dendrelaphis tristis</i>	Colubridae
4	Banded kukri snake	<i>Oligodon arnesis</i>	Colubridae
5	Checkered keelback water snake	<i>Xenochrophis piscator</i>	Colubridae
6	Striped keel back	<i>Amphiesma stotatum</i>	Colubridae
7	Sand boa	<i>Gongylophis conicus</i>	Boidae
8	Indian rock python	<i>Python molurus molurus</i>	Pythonidae
9	Phipson shieldtail	<i>Uropeltis phipsonii</i>	Uropeltidae
10	Russell's kukri	<i>Oligodon taeniolata</i>	Colubridae
11	Green kill back	<i>Macropisthodol plumbicolor</i>	Colubridae
C	SEMI POISONOUS SNAKES		
1	Vine snake	<i>Ahaetulla nasuta</i>	Colubridae
2	Common cat snake	Boiga	Colubridae

Sr. No	Local Name	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total
A	POISONOUS SNAKES													
1	Indian cobra				4		2		7	3	5	7		28
2	Common krait		2	3	1		4		1			1	1	6
3	Saw scaled viper						1	1	2		4			8
4	Russel's viper		1	3	2									6
5	Bamboo pit viper											1		1
B	NON POISONOUS SNAKES													
1	Indian rat snake						2	4	7	7	8			28
2	Montane trinket snake					1								1
3	Bronze back tree snake									1	4			5
4	Banded kukri snake			3								1		4
5	Checkered keelback water snake	5									5	12	8	30

6	Striped keel back	6	3	2								7		18
7	Sand boa	3										2		5
8	Indian rock python					1						1		2
9	Phipson shieldtail	2			2									4
10	Russell's kukri				2									2
C	SEMI POISONOUS SNAKES													
1	Vine snake			4	1	2	1					1	2	8
2	Common cat snake											1		1
	Total snakes	16	6	15	12	5	6	5	16	11	26	32	8	158

Table 2 : Distribution of Snakes in Ratnagiri and Sindhudurg district

III. DISCUSSION

As the result shows that the majority of snake's species which were rescued was of non-venomous type. Due to presence of snake friend in this area peoples have shown more tendencies to rescue the snakes rather than to kill them. Spectacled cobra, Russell's viper and coral snakes were most rescued venomous snakes. Snakes are highly misunderstood reptiles on earth which are thought to kill humans but in fact they are friend of farmers as they help in keeping check over rodents. In the present study the percentage of poisonous, non-poisonous and semi poisonous snakes were 31.01%, 62.65% and 5.7% respectively. The high percentage of non poisonous snakes indicates that this region has large number of water bodies and there is no scarcity of water for agriculture. Most of the area in Konkan region is a forest area with high density of trees and is famous for paddy fields due to which number of insects and rodents were large hence the percentage of non poisonous snakes was subsequently high. When non poisonous snakes again classified species wise it is found that 30 percent was contributed by checkered keelback water snake, where as Indian rat snakes (*Ptyas mucosa*) and striped keel back contributed around 28 percent and 18 percent respectively. Study of poisonous snakes found that 57 percent was contributed only by spectacled cobra whereas Saw scaled viper and Common krait contributed 16.32 and 12.24 percentage respectively. Checkered keelback water snake was found maximum while minimum occurrence was of common cat snakes and Bamboo pit viper.

IV. CONCLUSION

During our studies we have observed the abundance of 18 species belonging to 6 families of snakes in both the Ratnagiri and Sindhudurg district amongst which 11 are non-venomous 5 are venomous and 2 are semi-venomous snakes. The anthropogenic activities in these regions are affecting the abundance of snake fauna. The present study will may help to develop awareness in people and to conserve the snakes fauna in both districts of state Maharashtra.

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