Cobra

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CHENNAI SNAKE PARK TRUST

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Editor:

Dr. G. Thirumalai

Cover

Common krait (*Bungarus caeruleus*)

Widely distributed in India. Grows up to 1.75 m. Feeds on snakes, lizards and rodents. Highly venomous. Active at night. Very rarely seen by day.

Photo : **R.R. Chari.**

"Every divergence deserves to be cherished, simply because it widens the bounds of life".

- Karel Capek

Cobra

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CONTENTS

ECOLOGY AND STATUS OF THE OPHIOFAUNA OF EIGHT DISTRICTS OF MALWA REGION OF MADHYA PRADESH

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Introduction

Malwa is located in the south-west part of the state of Madhya Pradesh, India (27° 70′-25°10′N & 73°45′-79°14′E) with 14 districts. It covers an area of about 1,50,000 square kilometres. Malwa exhibits the flora of savanna type in the plateau and moist deciduous forest with fair grass land. The region has black soil.

It has four seasons: The cold weather season (Nov.-Feb.), the hot weather season (March-mid June), the rainy season (mid June – mid Sept.) and the transitional season (mid Sept. – Nov.).

During the year 1990-2001, surveys were made especially in eight districts of Malwa Region (Fig.1) in the central part of Malwa. The eight districts are Mandsaur, Ratlam, Shajapur, Ujjain, Dewas, Indore, Dhar and Ghubua. These cover an area of 52,294 square kilometres. During the investigation, 30 species of snakes belonging to 22 genera (6 families) were recorded with 3 typhlops, 3 boids, 18 colubrids, 4 elapids and 2 viperids. Their abundance, seasonality, activity pattern, micro and macro habitats and causative factors for decline were recorded. The threats are partly

due to naturally restricted distribution of snakes in the area, combined with human influenced pressures such as loss of habitat, agriculture, heavy use of pesticides and insecticides, water pollution, increasing number of brick manufacturing places and other less obvious threats such as from climate change and change in edaphic factors. Because of these, there is a drastic decline in population of terrestrial, semi-aquatic and aquatic, arboreal and fossorial snakes.

Species Account

Family : Typhlopidae

1. Rhamphotyphlops braminus

Habit : Fossorial.
Status : Very common.
Seasonality : Rainy season.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains, forests, hilly areas, gardens.
Microhabitat : In ants and termite hills, beneath soil, under stones and debris, seen only when these are turned over, in bath rooms.
Reasons for decline : Loss of habitat, heavy use of pesticides.
Position in IWPA* (1972): Schedule IV.
Distribution : In all the above mentioned districts.

2. Typhlops diardi diardi

Habit : Fossorial.
Status : Common.
Seasonality : Rainy season.
Activity : Nocturnal/Diurnal.
Macrohabitat : Open fields, forests, gardens.

* IWPA - Indian Wildlife (Protection) Act, 1972.

Microhabitat : Under logs of woods, under loose damp black soil up to depth of 100 c.m., under moist leaves.
Reasons for decline : Loss of habitat, heavy use of pesticides, human interference.
Position in IWPA (1972) : Schedule IV.
Distribution : In all the above mentioned districts.

3. Typhlops acutus

Habit : Fossorial.
Status : Uncommon.
Seasonality : Rainy season.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains, light forest, scrub jungle, around dry shrubs.
Microhabitat : In damp black soil, crevices of walls in wells, under logs of wood.
Reasons for decline : Loss of habitat, heavy use of insecticides, pesticides.
Position in IWPA (1972) : Schedule IV.
Distribution : Ujjain district.

Family : Boidae

4. Eryx johnii johnii

Habit : Fossorial.
Status : Rare.
Seasonality : Rainy and hot season.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains, sandy areas, agricultural lands, open fields.
Microhabitat : In rodent burrows, around vegetation.
Reasons for decline : Heavy use of rodenticides and pesticides, loss of habitat, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dhar, Dewas, Manosaur, Ratlam, Indore dtricts.

5. ***Eryx conicus***

Habit : Fossorial.
Status : Common.
Seasonality : All seasons.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains, agricultural lands, rocky areas, around vegetation.
Microhabitat : Under sandy loose soil, in rat burrows, cracks in the earth.
Reasons for decline : Habitat destruction, heavy use of pesticide, insecticides, trade.
Position in IWPA(1972) : Schedule IV.
Distribution : Almost all districts.

6. ***Python molurus***

Habit : Terrestrial/arboreal.
Status : Rare.
Seasonality : Nocturnal/Diurnal.
Activity : Throughout the year.
Macrohabitat : Dense forest, open forest, rocky moist-wooded valley, Plantation near water bodies.
Microhabitat : Rocky cleft caves, in hollow trees, in mammal burrows, under holes near water sources, around ruined old buildings.
Reasons for decline : Loss of habitat, Human interference, trade.
Position in IUCN*: Endangered.
Position in IWPA(1972) : Schedule I (Part II)
Distribution : Ujjain, Dewas, Indore, Ghabua & Dhar districts .

*IUCN - World Conservation Union

Family : Colubridae

7. ***Lycodon aulicus aulicus***

Habit : Terrestrial.
Status : Very common.
Seasonality : All seasons.
Activity : Nocturnal
Macrohabitat : Plains, populated areas.
Microhabitat : In hollow trees, behind barks, in and around caves, crevices in masonary, under roofs of kachcha houses, in kitchens and bathrooms.
Reasons for decline : Loss of habitat, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : All the above mentioned districts.

8. ***Lycodon striatus***

Habit : Terrestrial.
Status : Uncommon.
Seasonality : All seasons.
Activity : Nocturnal.
Macrohabitat : Plains, hollow trees, in and around human habitations.
Microhabitat : Behind the bark of trees, masonary of walls in houses.Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain and Dewas districts.

9. ***Oligodon arnensis***

Habit : Terrestrial.
Status : Common.
Seasonality : Rainy season.

Activity : Diurnal.
Macrohabitat : Plains, wooded areas, vicinity of human dwellings.
Microhabitat : In termite mounds, holes in trees, in and around ruined buildings, masonary of walls.
Reasons for decline : Loss of habitat, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Indore, Dewas and Dhar districts.

10. Oligodon taeniolatus

Habit : Terrestrial.
Status : Rare.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Plains, hills, green grass, near human habitations, scrub jungle.
Microhabitat : Under stone piles, in and around shrubs, holes in the ground, in and around caves.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain district.

11. Sibynophis subpunctatus

Habit : Terrestrial.
Status : Rare.
Seasonality : Rainy season.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains, hilly areas, gardens.
Microhabitat : In small burrows and cracks in the ground, around vegetation.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Dhar district.

12. Amphiesma stolata

Habit : Semi aquatic/Terrestrial.
Status : Very common.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Plains and hills, agricultural lands, gardens, river and pond edges.
Microhabitat : Holes in cultivated crops, edge of stones/in water.
Reasons for decline : Water pollution, heavy use of pesticide, loss of habitat.
Position in IWPA(1972) : Schedule IV.
Distribution : All the above mentioned districts.

13. Macropisthodon plumbicolor

Habit : Semi aquatic/Terrestrial.
Status : Common.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Hills, plateaus, dense evergreen areas, deciduous forests.
Microhabitat : In holes in cultivated areas, around grassy vegetation & bushes.
Reasons for decline : Loss of habitat, water pollution, use of pesticides.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dewas and Indore districts.

14. Xenochrophis piscator piscator

Habit : Terrestrial/Semi aquatic.
Status: Very common.
Seasonality: Rainy season
Activity: Diurnal

Macrohabitat: Plains, river, lakes, pools, wells.
Microhabitat: Under rocks, on the edge of field in water, around bushes and scrubs near water bodies, drainage in houses.
Reasons for decline: Water pollution, heavy use of pesticides, insecticides, drought.
Position in IWPA (1972): Schedule II (Part II).
Distribution: All the above mentioned districts.

15. Atretium schistosum

Habit : Semi aquatic/Terrestrial.
Status : Uncommon.
Seasonality : Rainy season.
Activity : Diurnal/nocturnal.
Macrohabitat : Plains & plateaus, stagnant water of ponds, tanks, lakes and surrounding areas.
Microhabitat : Buries in loose soil, in muddy areas in the vicinity of pools, lagoons, ascends low bushes.
Reasons for decline : Water pollution, use of pesticide, insecticides, loss of habitat.
Position in IWPA(1972) : Schedule II (Part II).
Distribution : Ujjain, Dhar, Dewas and Indore districts.

16. Elaphe helena

Habit : Arboreal.
Status : Common.
Seasonality : Rainy and hot season.
Activity : Diurnal.
Macrohabitat : Forest, hills, agricultural areas.
Microhabitat : On leafy trees and bushes, in termite mounds, under rock piles and crevices, in hollow trees.
Reasons for decline : Habitat destruction, human interference.
Position in IWPA(1972) : Schedule IV.

Distribution : In all the above mentioned districts except Ghabua.

17. Ptyas mucosus

Habit : Terrestrial/arboreal.
Status : Very common.
Seasonality : In all seasons.
Activity : Diurnal.
Macrohabitat : Plains, high grasses, crop fields, semi desert tracts, grain stores, human dwellings.
Microhabitat : In rodent holes and termite mounds, under crevices of bricks, in muddy wells, in old masonary of houses and gardens.
Reasons for decline : Loss of habitat, trade, human interference.
Position in IWPA(1972) : Schedule II (Part-II).
Distribution : In all the above mentioned districts.

18. Argyrogena fasciolatus

Habit : Terrestrial.
Status : Uncommon.
Seasonality : In all seasons.
Activity : Diurnal.
Macrohabitat : Plains, forests, open fields, grassy and bushy areas.
Microhabitat : Around scrub and shrubs, under the soil.
Reasons for decline : Habitat destruction.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Indore and Dewas districts.

19. Argyrogena gracilis

Habit : Terrestrial.
Status : Rare.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Plains, open fields, light forest.

Microhabitat : In and around low vegetation areas, around shrubs, crevices in rocks.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain district.

20. Dendrelaphis tristis

Habit : Arboreal.
Status : Rare.
Seasonality : All seasons.
Activity : Diurnal.
Macrohabitat : Forest, plains, near cultivated areas.
Microhabitat : On branches of trees, on low bushes and thorny shrubs.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain district.

21. Dendrelaphis pictus

Habit : Arboreal.
Status : Rare.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Plains, forested areas, around agricultural lands.
Microhabitat : On the branches of trees, in hollow trees, around shrubs and low vegetation.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dewas and Ratlam districts.

22. Ahaetulla nasutus

Habit : Arboreal.
Status : Rare.
Seasonality : All seasons.
Activity : Diurnal.
Macrohabitat : Plains, forests and hills.
Microhabitat : On trees, on green grasses, around bushes and shrubs.
Reasons for decline : Loss of habitat, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dewas and Indore districts.

23. Psammophis condanarus

Habit : Terrestrial.
Status : Rare.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Arid and semi arid areas, Open forests, grass lands, light forested regions.
Microhabitat : On green grasses and low shrubs, holes in the ground, under stones.
Reasons for decline : Not known.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain district.

24. Boiga trigonata

Habit : Arboreal.
Status : Common.
Seasonality : Rainy season.
Activity : Nocturnal.

Macrohabitat : Plains, light forested areas cultivated land.
Microhabitat : On low bushes and shrubs, on low trees, holes in trees, behind bark of trees.
Reasons for decline : Habitat destruction, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dewas, Indore, Shajapur and Dhar districts.

Family : Elapidae

25. Bungarus caeruleus

Habit : Terrestrial.
Status : Common.
Seasonality : Rainy and hot seasons.
Activity : Strictly Nocturnal.
Macrohabitat : Plains, scrub jungles, agricultural land, near sources of water.
Microhabitat : In burrows of rodents, in termite mounds, in secluded/cool spots in human habitation, under roofs of houses.
Reasons for decline : Habitat destruction, human interference.
Position in IWPA(1972) : Schedule IV.
Distribution : In all the above mentioned districts.

26. Naja naja naja

Habit : Terrestrial.
Status : Very common.
Seasonality : In all seasons.
Activity : Diurnal/Nocturnal.
Macrohabitat : Plains, jungles, open fields cultivated crop lands, populated areas.
Microhabitat : In burrows of rodents, in hollow trees, around low shrubs, in dens of small mammals, under rock piles, in old termite mounds.

Reasons for decline: Habitat destruction, Human interference, trade, use of rodenticides.
Position in IWPA(1972) : Schedule II (Part II).
Distribution : In all the above mentioned districts.

27. Naja naja kaouthia

Habit : Terrestrial.
Status : Rare.
Seasonality : Rainy season.
Activity : Diurnal.
Macrohabitat : Plains, open fields, light forests, swampy areas.
Microhabitat : Holes in the ground near water body, dens of small mammals, near bank for rivers, ponds etc.
Reasons of decline : Not known.
Position in IWPA(1972) : Scheduled II (Part II).
Distribution : Ujjain district.

28. Naja naja oxiana

Habit : Terrestrial.
Status : Common.
Seasonality : In all seasons.
Activity : Diurnal/Nocturnal.
Macrohabitat : Plains, jungles, agricultural lands, low shrubs, populated areas by man.
Microhabitat : In burrows of rodents, in cracks in damp black soil, in and around low shrubs, in dens of small mammals, under rock piles, in old termite mounds.
Reasons for decline : Habitat destruction, human interference, trade, use of rodenticides.
Position in IWPA(1972) : Schedule II (Part II).
Distribution : In all the above mentioned districts.

Family : Viperidae

29. Vipera russelli

Habit : Terrestrial.
Status : Common.
Seasonality : In all seasons.
Activity : Nocturnal/Diurnal.
Macrohabitat : Plains & hills, scrub jungles, cultivated lands, grass lands, thorny shrubs.
Microhabitat : In rat holes, in old termite mounds, under thick vegetation, in and around bushes.
Reasons for decline : Loss of habitat, human interference, trade.
Position in IWPA(1972) : Schedule II (Part II).
Distribution : In all the above mentioned districts.

30. Echis carinatus

Habit : Terrestrial.
Status : Uncommon.
Seasonality : Hot and rainy season.
Activity : Nocturnal/Diurnal.
Macrohabitat : In dry-sandy and rocky areas of plains, on small hills, light scrub jungles, areas of laterite soil.
Microhabitat : In and around dry shrubs and bushes, under rock piles.
Reasons for decline : Water pollution, heavy use of pesticides, insecticides
Position in IWPA(1972) : Schedule IV.
Distribution : Ujjain, Dhar and Ghabua districts.

Summary And Discussion

It is expected that the richness of the ophiofauna might be greater than the reported figures because of the diverse habitat available in the different districts of Malwa Region. Most of the snake species occur in savanna, plains, agricultural fields, forests, moist deciduous, dry deciduous and scrub jungle, grass lands, soyabeen plantations etc. The present study shows that many snake species are distributed commonly in highly developed urban areas with maximum anthropogenic activity. Urbanisation has been seen in all districts in the study area. Habitats that were once agricultural lands/ fields are marked for the construction of houses. Because of increasing urbanisation the habitat of the snake species has got modified, while a rapid increase in brick manufacturing places in Ujjain district has affected the local population of some snakes. The snakes that are present within these areas will be forced to encounter humans. This will result in the depletion of the local populations of snakes. Therefore it requires special conservation measures and further detailed study on ecology and biology of the snakes found in the region.

Out of 30 species, *Sibynophis subpunctatus* was recorded only from Dhar district. Among these 30 species 5 (16.66%) are fossorial, 15 (50.00%) terrestrial, 5 (16.66%) semi-aquatic and 5 (16.66%) arboreal.

The Snake Research Organisation **(A centre for snake conservation & education)** in Ujjain has been making efforts in educating the public on snakes over the last seven years. The Organisation has undertaken exclusive 'Snakes Awareness Education Programme' for school teachers, children, wild life enthusiasts, villagers, officials. Over the last three-four years such programmes have been conducted in over 50 schools, 10 colleges, 20 offices and 50 gram panchayats in and around the suburbs of Ujjain, Indore, Dhar, Bhopal and Dewas districts.

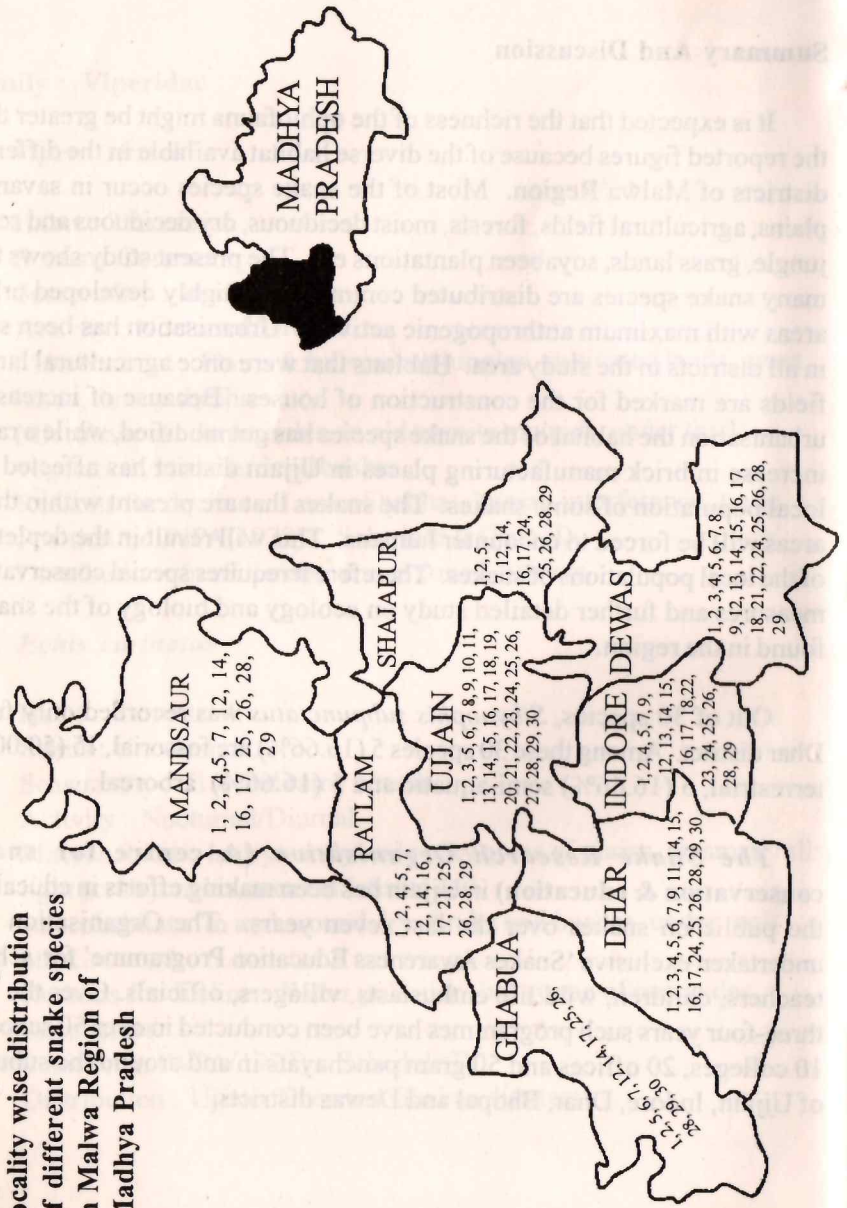

Fig 1: Map showing the locality wise distribution of different snake species in Malwa Region of Madhya Pradesh

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EPIDEMIOLOGICAL STUDY OF SNAKE BITE IN A RURAL AREA

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Introduction

There are about 2,800 species of snakes in the world of which about 236 species are found in India. Of these 50 are venomous in nature. This study consists of snakebite cases admitted during a one-year period in 2001 at the Thanjavur Medical College Hospital (TMCH)

TMCH primarily serves the area around twelve revenue District hospitals as a referral centre, with referrals from the entire Cauvery Delta area of Thanjavur and Trichy Districts.

Incidence

Table below shows a gradual increase in incidents of snakebite reported at TMCH.

Year	No. of snake bite cases
1995	441
1996	421
1997	557
1998	760
1999	858
2000	934
2001	919
2002	962

In 1969, the total number of snakebite patients admitted in the Government hospitals in Tamil Nadu was 968 of which snakebite deaths were 31. Now at TMCH alone in 2002, the number of snakebite patient was 962, and death due to snakebite 43. It is not known to what extent the increase in numbers over the years is because of better reporting and increase in frequency of snakebite victims being brought to hospitals instead of resorting to traditional cures in the villages.

Types of snakebite

Of the 50 poisonous snakes in India, the four main species are Russell's viper, saw scaled viper, cobra and common krait.
Anti snake venom (Polyvalent) suited for bites from the above four species is stocked in TMCH. In 2001, of the 919 cases reported, 521 (56.7 %) were from poisonous snakes and 398 (43.3%) from non-poisonous snakes.

The higher percentage of poisonous snakebite reported could be due to more information available with the villagers for distinguishing between poisonous and non-poisonous snakes.

Types of poisonous snakebite reported at TMCH

Russell's viper and saw scaled viper : 89%
Cobra and common krait : 11%

30% of the victims brought the killed snakes for identification. In other cases, the species were determined from clinical signs.

Age, sex and occupation of the patient

The incidence was very high in the 20-40 age group because of their active involvement in agricultural work in the fields at night.

Sex of victims: Male 63%, female 37%

As most of the snakes are nocturnal, and it is mostly the male workers who attend to agricultural work such as irrigation at night, the incidence is higher in males.

Site of bite

Feet and leg	: 72%
Hand and arm	: 26%
Head and body	: 2%

The higher incidence in the lower extremities is due to walking and working in the fields bare-footed.

The hand gets bitten during agricultural work. Head and body bites occur during sleep and mostly from common krait bite.

Time of bite

Evening and night	: 71%
Morning and afternoon	: 29%

The incidence is more in the evenings and nights as poisonous snakes are more active during these periods and there are also less of opportunities to be warned by sightings.

Urban and rural

Rural	: 97%
Urban	: 3%

Agricultural lands and dense bushy forests harbour large numbers of rodents, birds, frogs and lizards and there is therefore an abundance of snakes in these areas.

Seasonal

The river Cauvery and its tributaries irrigate 13 lakh hectares of lands. The busy agricultural activities start in July. The incidence of snakebites is high around this time and during the harvest season (Mar.-May).

Prognosis

There is a gradual increase in number of snakebite cases during the years whereas the mortality has come down. The former may be due to better reporting and the latter due to better awareness and prompt medical help.

Mortality in 2001

There were 41 deaths due to snake bite in 2001. Of this, 20 cases died within 24 to 48 Hrs. These cases were referred late from peripheral hospitals or after native treatment. The viperid bites constitute 89% of poisonous snakebite.

Sex of victims

Male	:	25
Female	:	16

Age of victims

Persons of 21-40 years of age are more affected.

Cost of treatment

The cost of treatment is high. In TMCH, during the year 2001 Rs.14,65,525/- was spent on ASV injections. The average requirement is Rs.2,500/- to Rs.5,000/- worth of ASV alone per patient.

Acknowledgement: Thanks to Dean, Thanjavur Medical College for permitting the publication of this article.

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DISTRIBUTION OF THE GANGES SOFT-SHELLED TURTLE *TRIONYX GANGETICUS* (CUVIER, 1825) IN RAJASTHAN

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The Ganges soft-shelled turtle (*Trionyx gangeticus*) is a large-sized turtle of inland river system, highly aquatic in nature, inhabiting the deep turbid rivers (Tikader and Sharma, 1985). This species inhabits the Ganges, Sind, Indus, and Mahanadi river systems in India (Daniel, 1983; Tikader and Sharma, 1985).

A map showing the distribution pattern of *Trionyx gangeticus* in India is given by Tikader and Sharma (1985) which indicates that this species is confined to the northern parts of Rajasthan only. But scanning of scientific literature and field observations reveal that this species is present in the eastern, south-eastern and southern Rajasthan also as shown below.

S.No.	Zone	Locality of occurrence	Reference
1.	Eastern Rajasthan	Keoladeo National Park, Bharatpur	Bhupathy & Vijayan (1994)
		Banganga & Gambir Rivers	Bhupathy & Vijayan (1991)
		Ram Sagar Dam and Ram Sagar Canal, Jaipur District	Sharma (2000 a & b)
		Water bodies near palaces of Deeg, Bharatpur	Personal observation
		Akeda Dam, Jaipur District	Sharma (2000 b)
		Kukas Dam, Jaipur District	Sharma (2000 b)
		Jamwa Ramgarh Lake, Jaipur District	Personal observation
2.	South-eastern Rajasthan	Chambal River	Singh & Sharma (1985)
		Bisalpur dam, Tonk district	Sh. M.L.Meena, Conservator of Forests (Pers. Comm.)
3.	Southern Rajasthan	Madar dam, Udaipur district	Sharma (2000a)
		Mez dam, Bhilwara district	Sharma (2000 b)
		Badi Talab, Udaipur district	Personal observation
		Maha-Satiyan, Udaipur city	Personal observation
		Udaipur district	

The above table shows that *T.gangeticus* is present in the whole of Rajasthan except west of Aravallis i.e. Thar desert. Hence the distribution map of this species in Rajasthan has to be corrected.

Since Rajasthan faced severe drought in the year 2002 and most of the water bodies are drying up very fast, *T. gangeticus* is not safe in many localities. Being a big-sized animal, it is easily noticed and becomes very vulnerable. It is killed for flesh in many localities. Stray and unsafe individuals should be rescued from the bigger water bodies like Badi Talab, Baghdara Talab, Jaisamand Lake, Pichola Lake etc. and translocated.

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OCCURRENCE OF THE COMMON TREE FROG *POLYPEDATES MACULATUS* (GRAY, 1834) IN BANSWARA DISTRICT OF RAJASTHAN STATE

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The first occurrence of the common tree frog *Polypedates maculatus* in the state of Rajasthan was recorded by Sharma (1997, JBNHS 94 (3): 580-81) from the outskirts of Sitamata Wildlife Sanctuary at Bansi in Udaipur district. To know its distribution range in Rajasthan, further studies were conducted in various districts in the southern parts viz., Dungapur, Banswara, Udaipur, Rajsamand, Sirohi, Chittorgarh and Bhilwara. More emphasis was given to the moist and wet localities where potential habitat is available. Since the common tree frog was first seen near Bansi, an area of 100 km radius around this locality was surveyed intensively.

Rajasthan is facing severe drought for the last four-five consecutive years and the situation remained quite unfavourable for our studies. Despite this, we were lucky to locate a new site of *Polypedates maculatus* in the heart zone of Banswara city. We saw many common tree frogs in the campus of the Kadana-Mahi Project office during the rainy season of 1998 and 2000. Luxuriant tree growth is present in the campus. *Tectona grandis* is common. *Tectona grandis* is also common at Bansi. *P. maculatus* was commonly seen inside toilets, bathrooms and other moist places of the buildings in the campus. They were also seen sitting on the windows etc.

After the construction of Mahi dam, Banswara has become one of the most moist districts of Rajasthan. Tree cover is also good in many localities of the district and suitable habitat is available here and there. Perhaps, common tree frog is widely distributed in the Pratapgarh and Banswara areas of southern Rajasthan.

Acknowledgement: The authors are very grateful to Mr.Yogesh Sharma, Range Forest Officer, Kadana Project, Banswara for facilities.

OCCURRENCE OF CAPILLARIASIS IN INDIAN ROCK PYTHON (*PYTHON MOLURUS*)

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The incidence of helminthiasis has been rarely documented in captive species like the Indian rock python (*Python molurus*). One such incident is reported in this paper.

Materials and Methods

During work on a volunteer project, fresh coprological samples were obtained from three Indian rock pythons reared in Chennai Snake Park and the routine parasitological examination of the samples was carried out at the Madras Veterinary College.

Results and Discussion

The finding of barrel-shaped eggs with the sides nearly parallel and bipolar eggs was in agreement with the reports furnished by Soulsby, (1982).

Incidence of helminthiasis in Indian Rock Python reared in the Chennai Snake Park was in agreement with the findings of Beynon and Cooper, (1991). They had suggested that since numerous endoparasites affect the serpentines, routine faecal examination is highly required. The findings of *Capillaria* species of eggs is in agreement with reports by Wallach and Boever (1983) who observed that the hepatic worms (*Capillaria* species) are found in liver of snakes and lizards and, if there is

heavy infection, reduced liver function may occur. In the cases studied, there was no history related with signs of any illness. Nor was there any specific abnormality encountered during the observation of the species. Transmission of parasites from rodents to the snakes was not carried out during this study. However, such factors need to be given emphasis and necessitates systematic study.

Acknowledgements: We acknowledge the facilities given by the Dean, Faculty of Basic Sciences, Madras Veterinary College and permission by the officials of the Snake Park, Chennai.

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RANDOM HARVEST

The booty from the boot

A thief in Redfern, Sydney, stole a promisingly bulky bag from the boot of a car. He little realised that the car belonged to a professional snake-catcher and the bag contained a venomous red-bellied black snake. Police had to warn local residents to be on the look-out for the loose reptile.

(**Source**: *Hindu Business Line 6.1.2003*)

Amphibian visions

Three exotic toads were stolen from a pet shop in the city of Leeuwarden, Netherlands. The proximity of the shop to a drug addicts' centre has given the police a possible clue as to the motive. The skin of the particular species secretes a substance which, when licked, gives hallucination comparable with a trip on LSD.

(**Source**: *Hindu Business Line 8.12.2002*)

Snake on board

A report in the *New Indian Express* of 11 March 2003 says that a live snake carried by a passenger on an Indian Airlines plane had escaped detection by the airport security at Goa from where the plane took off. During the flight, the passenger took out the 12-inch long snake and started "feeding it with milk." The crew noticed this and succeeded in making the passenger put the snake back into his baggage. The passenger was arrested on arrival at Chennai. (Another report identifies the snake as a sand boa)

A gargantuan disaster

It was the unique eco-system of the Galapagos islands that inspired Charles Darwin's theory of evolution. In Jan.2001, a tanker that ran aground on the islands began leaking some 170,000 gallons of diesel fuel. A study estimates that the oil-spill killed 15,000 marine iguanas on Santa Fe Island. This had happened notwithstanding that only relatively small amounts of oil had been washed ashore. Some scientists believe that this was enough to disrupt the intestinal bacteria that the iguana relies on to digest the algae it eats. The extent of the damage done has been noticed only after a year. Galapagos National Park is suing Petroecuador, Ecuador's state-owned oil company, for $600,000 in damages.

(**Source**: *Indianapolis star,* June 2002,quoted in *the Monitor,* the newsletter of the Hoosier Herpetological Society, June 2002.)

Vernacular names

Dependable information on names of snakes in Indian languages is not easy to come by. *Reptile Rap*, the South Asian Reptile Network Newsletter of Feb. 2003, carries a list of Malayalam names ("known local vernacular names") for 104 snakes, the total number of species reported from Kerala. The list has been compiled by M.V.Palot and C.Radhakrishnan of the Western Ghats Field Research Station, Zoological Survey of India. The meaning of the Malayalam names has also been given.

Medical use of snake venom

A report in the *Telegraph* of 30 Dec.2002 speaks of the research done by Antony Gomes of Kolkata University on king cobra venom. He and his team of scientists have extracted several molecules from the venom that could have medicinal applications particularly in dissolving blood clots. This has uses in the treatment of strokes and deep-vein thrombosis.

A role for the tortoise in composting

In *Out of God's Oven* (2002), Dom Moraes writes of his visit to the village of Chitrakoot on the border between Madhya Pradesh and Uttar Pradesh where the villagers practice "sustainable agriculture". There is an interesting observation here on the use of a live tortoise to measure moisture levels in a green manure compost heap. A tortoise is kept inside the pit filled with green leaves and cowdung. The tortoise keeps moving towards moisture. When it goes deep, the top layer is treated as ready for use. When that is removed, the tortoise burrows deeper.

B. Vijayaraghavan.

Dr.V.Krishnamurthy
1929 - 2002

Obituary

Doc

In his 1992 book, *The Fate of the Elephant*, Douglas H. Chadwick quotes the then-63-year-old Dr.V.Krishnamurthy as saying: "Once an elephant man, always an elephant man. I can't retire. I will stay with them until death." And that was precisely what he did. Doc or Dr. K., as he was known to his friends, died, aged 73, on the 9th Dec. 2002.

In spite of a major heart surgery and failing health towards the end, it was difficult for his well-wishers to restrain him from rushing to some spot or the other, in some part of the country near or far, where there was a problem concerning elephants, wild or captive, and the foresters or others needed his advice and help. Doc was the elephant-doctor and elephant-lover nonpareil.

Forest veterinarians are a rare breed. Professional veterinarians prefer a less demanding environment and the safer and more predictable domesticated animals. But Doc was an exception. Having come over to the Forest Department of the Government of Tamil Nadu from the Department of Animal Husbandry at an early stage in his career, he chose to stay on for over 26 years and soon realised that veterinary care of elephants, and more particularly the 'working' elephants in the Forest Department's elephant camps, was indeed his metier. He applied himself to the job with a passion that remained undimmed long after his retirement from government service and till his very end.

He was a member of the Asian Elephant Specialists Group of IUCN–SSC from 1975. For his outstanding knowledge of the Asian elephant, he had received recognition in many forms, including membership of expert groups and consultancy work, from the Kerala Agricultural University, the Bombay Natural History Society, the National Zoo of the Smithsonian, IUCN/SSC, Zoo Outreach Organisation, WWF-Indonesia, University Federation

of Animal Welfare of the U.K., Government of India, State Governments of Tamil Nadu, Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Uttar Pradesh and West Bengal and so on. He was the recipient of the Venu Menon Lifetime Achievement Award 2001. The list should have been longer but for his self-effacing nature and his singular lack of predatory skills.

Treatment of injured or ailing wild and 'working' and other captive elephants, care and upkeep of orphaned elephant calves, drug immobilisation of wild animals during translocation or radio collaring to avoid stress and injury, saving wild animals from irate villagers incensed over the damage caused to life and limb and property, management of the wild elephants intruding into cultivated fields and villages – he had done exemplary work in all these areas. He was always there whenever and wherever his expert services were needed.

Doc was our valued and beloved colleague on the Board of Trustees of the Chennai Snake Park Trust from 1994. He was much more than a trustee and was deeply involved in the day-to-day veterinary care of the reptiles. We miss him.

B. Vijayaraghavan.

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AIMS AND OBJECTIVES OF

CHENNAI SNAKE PARK TRUST

i) To maintain and display a captive collection of snakes and other reptiles as a means of education of the public.

ii) To undertake captive breeding of vulnerable species of snakes and other reptiles.

iii) To promote knowledge on snakes, and other reptiles and amphibians and dispel the erroneous beliefs about them.

iv) To aid and assist research on reptiles and amphibians.

v) To provide facilities for the identification and classification of snakes and other reptiles and amphibians and, for this purpose, maintain a museum of study collections.

vi) To maintain a library of books and other literature on reptiles and amphibians.

vii) To publish scientific and semi-scientific literature on snakes and other reptiles and amphibians.

viii) To undertake survey on the distribution and status of snakes and other reptiles and amphibians.

ix) To provide consultancy services on snakes and other reptiles.

x) To provide a common forum for interaction among amateur scientists and friends of reptiles and amphibians.