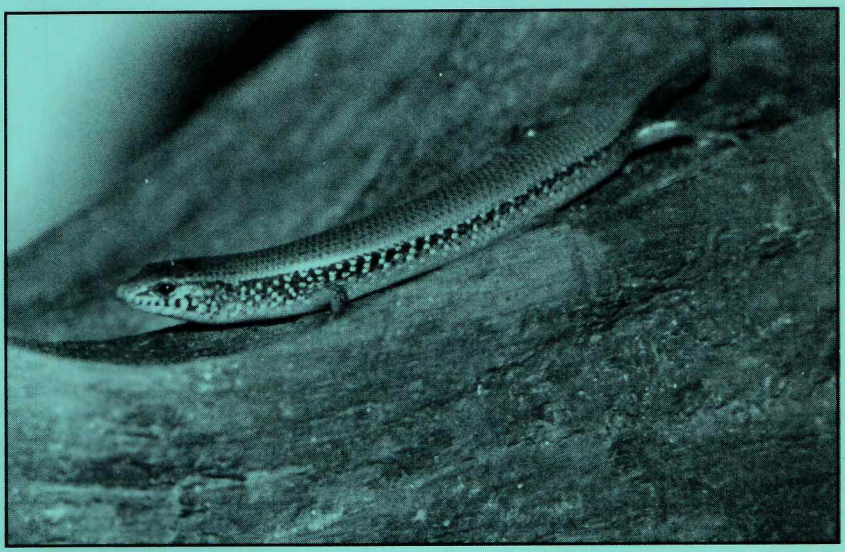
# Cobra

Volume - 47 January - March 2002



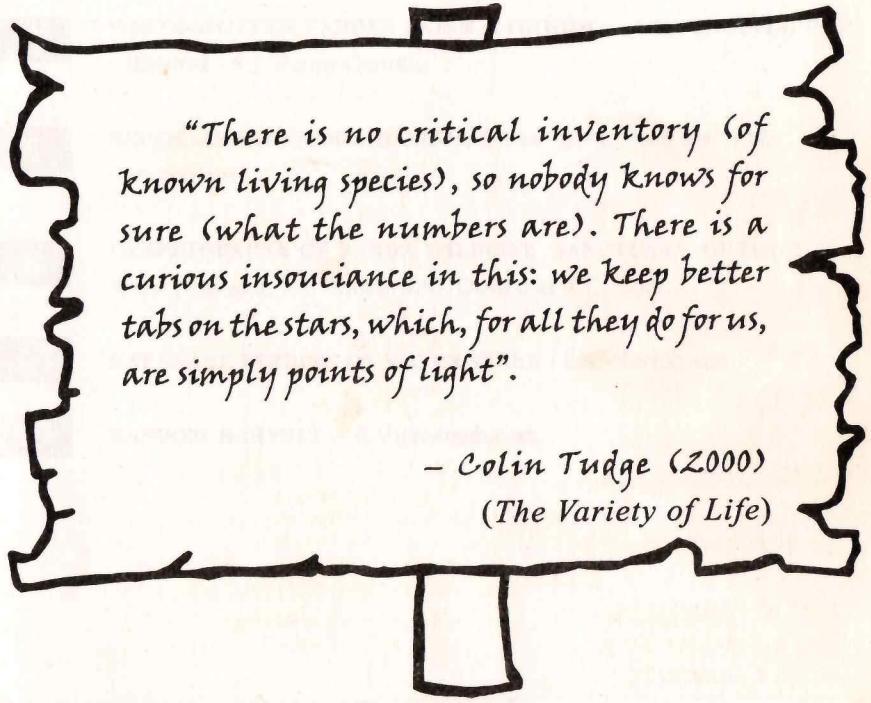
CHENNAI SNAKE PARK TRUST

*Quarterly Newsletter of the Chennai Snake Park Trust*

## Cover

White-spotted Garden skink (*Lygosoma albopunctata)* - a new record for Chennai. Details page 3

Photo : **R.J. Ranjit Daniels.**



*"There is no critical inventory (of known living species), so nobody knows for sure (what the numbers are). There is a curious insouciance in this: we keep better tabs on the stars, which, for all they do for us, are simply points of light".*

*– Colin Tudge (2000)*
*(The Variety of Life)*

# Cobra

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## CONTENTS

## Editorial

The fear of a snake lurking in the garden haunts every human being. Even highly urbanised cities such as Chennai are not free of snakes, including venomous ones, which take shelter within residential areas. In all such instances, panic over-rides reason that the affected residents desperately seek help in removing the snake from their homesteads irrespective of what the species might be.

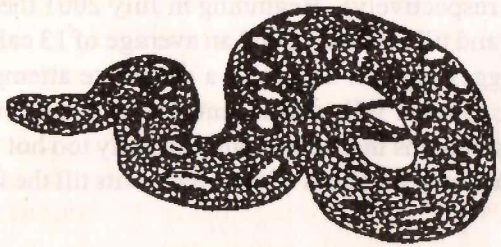
Although the Chennai Snake Park has discontinued the practice of 'snake rescues' (now being undertaken by the wildlife wing of the Forest Department), on an average there is one call every two days seeking help from the Park in removing snakes that have entered homesteads. Considering the rather quick succession of calls, all the incoming telephone calls that sought help in removing snakes were recorded at the Chennai Snake Park, including details of date and the locality, starting from January 2001.

The data thus obtained between January 2001 and February 2002 has suggested two broad patterns: one seasonal and the other spatial. The seasonal pattern is interesting in that the maximum calls (21) were recorded during the month of April. The number of calls fell drastically in May and June (10 and 6 respectively). Beginning in July 2001 the number of calls was on the rise and till February 2002 an average of 13 calls were received each month suggesting that snakes in a desperate attempt to find cooler shelters, before summer fully sets in, enter homesteads in April. May and June, the hottest months in Chennai, are certainly too hot for the snakes as well that they do not venture out of their hide-outs till the first few showers in July.

The second pattern that has emerged is that out of the 142 calls involving 72 localities that are widely distributed in Chennai, 56 (39%) were from just 16 localities. These localities are distributed south and southwest of Chennai including Velachery (recording the highest number of calls),

Adyar, Thiruvanmiyur, Madipakkam, St Thomas Mount and Porur. While it is entirely possible that these areas harbor extensive natural habitats such as the Guindy National Park, Pallikarnai marshes, etc., and hence attract more snakes, the possibility of public awareness playing a role in augmenting the number of calls cannot be ruled out. Since these localities lie within a radius of 5-10 km around the Chennai Snake Park it is likely that the residents here resort to seeking help from the Park.

Patterns may shift as yet another year's data gets analysed. What is however important to note is that the Chennai Snake Park through its 30 years of public education, in various ways, has successfully spread amongst the residents of Chennai the message - *'snakes are not meant to be killed'*.







## WHITE-SPOTTED GARDEN SKINK (*LYGOSOMA ALBOPUNCTATA*) IN CHENNAI

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On the evening of February 15, 2002 I observed a skink outside my residence in Velacherry (Chennai). It was dark and since it was rather unusual to observe a skink moving about after dark, I went after it and caught it. It appeared to be one of the species of *Lygosoma*. Judging by its size and color, I was more or less convinced that it was not the common species *Lygosoma punctata*. First, it had no trace of red in its tail that I would have expected to find in *Lygosoma punctata* of the same size. Second, it was bronzy in overall coloration and the sides of the head, neck and anterior third of the trunk had a distinct brown-black band heavily spotted with white. Although the overall color pattern was very similar to *Mabuya macularius*, the bronzy skink, the legs were typically shorter and weak suggesting that it was indeed a species of *Lygosoma*.

On consulting the literature available at the Chennai Snake Park the following day, I confirmed that the skink that I had with me was the white-spotted garden skink *Lygosoma albopunctata* (Smith, 1935). It was nearly 12.5 cm in total length including the long tail that was 7.5 cm. This species better known as *Riopa albopunctata* was earlier known from northern peninsular India, north of Tamilnadu, including Andhra Pradesh. There has been a single nearly 80 year old record from Travancore in Kerala (Smith, 1935; Murthy, 1990). The present report extends its range further south to include the state of Tamilnadu.

When caught the white-spotted garden skink threw its body into 2-3 loops and tried to wriggle through my fingers much as snakes do. When kept in a box with sand substratum, it readily buried itself in the sand. Unfortunately however, when I kept it in a glass bottle to photograph it, the skink escaped through a small gap that it created on the nylon mesh used to cover the mouth of the bottle. Remarkably, its escape was accomplished in less than half an hour.

Interestingly, a week later on February 22, 2002, my nine-year old daughter, Rosella, while playing outside my residence came across a skink at dusk. It was apparently moving about more or less in the same location where I had caught the first one. She pursued it and despite the skink shedding its tail, managed to catch it alive and restrain it inside a plastic bag. It was indeed a *Lygosoma albopunctata* that measured 5.3 cm in snout-vent length. This time I exercised more caution in housing the reptile till I photographed it!

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## REPTILIAN FAUNA OF MIZORAM, INDIA

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Mizoram has an area of 21,081 sq km and lies between 21° 58′ – 24° 30′ N and 92° 16′ – 93° 25′ E. The hilly state harbours rich biological diversity. Fauna, especially the reptiles of this state, has not been studied in detail. There are however some studies on chelonians (Choudhary 1998, 2001 and Pawar and Choudhury 2000), lizards (Harit 1996), and snakes (Ramanujam & Harit 2002). This paper lists the reptiles reported till date from the state (Table 1).

**Acknowledgements**

The authors are thankful to Dr.S.S.Pawar of Mysore for supplying some of his reprints.

**Table – 1. Reptiles of Mizoram, India.**

| Order | Family | Scientific Name |
|---|---|---|
| Chelonia | Elongated tortoise | *Indotestudo elongata* (Blyth) |
| | Brown Hill/ Asian brown tortoise | *Manouria emys* (Schlegel and Muller) |
| | Asian leaf turtle | *Cyclemys dentata* (Gray) |
| | Indian roofed turtle | *Kachuga tecta* (Gray) |
| | Indian tent turtle | *Kachuga tentoria* (Gray) |
| | Keeled box turtle | *Pyxidea mouhotii* (Gray) |
| | Asiatic Giant softshell turtle | *Pelochelys cantorii* (Gray) |
| | Indian black turtle | *Melanochelys trijuga* (Schweigger) |
| | Assam roofed turtle | *Kachuga sylhetensis* (Jerdon) |
| Lacertilia | Common house lizard | *Hemidactylus flaviviridis* (Rupell) |
| | Brook's gecko | *Hemidactylus brooki* (Gray) |
| | Tucktoo | *Gekko gecko* (Linn.) |
| | Frilled house gecko | *Cosymbotus platyurus* (Schneider) |
| | Common garden lizard | *Calotes versicolor* (Daudin) |
| | Common skink | *Mabuya carinata* (Schneider) |
| | Snake skink | *Riopa punctata* (Gmelin) |
| | Common monitor lizard | *Varanus bengalensis* (Schneider) |
| Ophidia | Boulenger's keelback | *Amphiesma parallela* (Boulenger) |
| | Red-necked keelback | *Rhabdophis subminiata* (Schlegel) |
| | Himalayan keelback | *Rhabdophis himalayana* (Gunther) |
| | Black-striped trinket | *Elaphe porphyracea* (Cantor) |
| | Rat snake | *Ptyas mucosus* (Linn.) |
| | Darjeening false cobra | *Pseudoxenodon macrops* (Blyth) |
| | Checkered keelback | *Xenochrophis piscator* (Schneider) |
| | Common wolf snake | *Lycodon aulicus* (Linn.) |
| | Cantor's kukri snake | *Oligodon cyclurus* (Cantor) |
| | Spot tailed kukri snake | *Oligodon dorsalis* (Gray and Hardwiche) |
| | MacClelland's coral snake | *Calliophis macclellandi* (Reinhardt) |
| | Monocellate cobra | *Naja kaouthia* (Lesson) |
| | Spot tailed pit viper | *Trimeresurus erythrurus* (Cantor) |
| | Python | *Python spp.* |





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# HERPETOFAUNA OF BARDA WILDLIFE SANCTUARY, GUJARAT

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Barda Wildlife Sanctuary is well-known for its rich flora (Thaker 1910 and Nagar 2000). There is however not a single study of fauna of the Sanctuary. We have therefore initiated studies on herpetofauna of the Sanctuary.

## Study area

Barda was the private forest of the ex-princely states of Porbandar and Jamnagar. The Barda Wildlife Sanctuary (21° 42′ – 21° 54′ North and 69° 39′ – 69° 49′ East) is spread over 192.31 sq km. The northern part of the Sanctuary is known as Jam Barda and southern part as Rana Barda.

The terrain is mostly hilly and undulating with an altitude ranging from about 50 m to 627 m ASL. The hills run in all directions and have moderate slopes. The main hills are Venu, Abhapara, Dantaro, Nangaru, Motohadiyo, Nanohadiyo, Salang, Katal, Kanmero, Mundo, Boliyo, Nanokalo, Motokalo, Dhoro, Karwal, and Lambo.





## Climate

The climate of the Sanctuary is tropical and semi-arid. The monsoon is short and rainy days are few. The area is drought-prone and there is considerable variation in rainfall from year to year. The average annual rainfall of the area is 650 mm. Winter is cool and dry. January is the coldest month wherein temperature falls to 10° C. In summer, May-June are usually the hottest months of the year when temperature rises to 42° C.

## Vegetation

Singh *et al.* (2002) recorded 759 plant species (515 indigenous and 244 introduced species) belonging to 430 genera of 106 families from the Sanctuary. These include 133 species of trees, one species of liana, 102 species of shrubs, 64 species of under shrubs, 459 species of herbs and climbers. The floristic diversity is found to be more in the riverine region followed by the foothills, slopes and plains and declines towards the peak. The dominant plant species of the Sanctuary are *Acacia senegal*, *Acacia nilotica* var.*nilotica*, *Dicrostachys cinera*, *Tectona grandis*, *Manilkara hexandra*, *Premna herbacea*, *Gardinia resinifera*, *Zizyphus xylopyrus*, *Terminalia crenulata*, *Cordia gharaf*, *Lantana camara* var. *aculeata* and *Hemidesmus indicus*. Bamboo is observed in scattered patches. A study carried out in 1997 by the Gujarat Ecology Education and Research (GEER) Foundation, suggested that 16.3% of the area was under dense forest, 29.9% under open forest and rest was degraded.

## Methodology

Field work was carried out from August 1999 to July 2001. Amphibians were collected from moist places with bare hands and from the water bodies using a net. Only one or two specimens per species were collected. Reptiles were thoroughly searched in all habitats. Snakes were captured using a long stick fitted with a hook, collected in a glass jar, identified, and released back. Lizards were collected with bare hands and

identified. Binoculars were used to scan the inaccessible boundaries of the large water bodies and rivers, especially to identify and count turtles and crocodiles. Data were also collected during nights to record the nocturnal animals. All samples were preserved in 4% formalin, examined carefully and identified using various references such as Smith (1933, 1935, 1943), Daniel (1963, 1975 and 1983), Das (1985), Dutta (1997), Naik and Vinod (1996), Vyas (1996) and Daniels (1997).

**Results and Discussion**

The herpetofauna of the Sanctuary is comprised of a total of 34 species including of six species of amphibians and 28 species of reptiles (Appendix). Some specific remarks are provided below:

**Amphibians**

1. *Bufo melanostictus*
   This toad is the most common amphibian in the Sanctuary.

2. *Bufo stomaticus*
   This toad is uncommon in the Sanctuary and is recorded from Nangaru hill, Lambo hill and Satvirda and Ranvalo nesses only.

3. *Hoplobatrachus tigerinus*
   It is common and lives in the check dams, Kileshwar river, wells and hill streams.

4. *Euphlyctis cyanophlyctis*
   It is the most common amphibian seen in ditches, nallahs, rivers and check dams. During the rainy season, it can be seen on roads at night.





**Reptiles**

1. *Crocodylus palustris*
   It occupies a variety of habitats in the Sanctuary, such as manmade reservoirs (dam), seasonal tanks and rivers. The mugger crocodile was recorded at 11 different water bodies. A total of 32 crocodiles were counted directly (Table 1).

**Table 1. Direct sightings of *Crocodylus palustris* and *Lissemys punctata* in different water bodies of the Sanctuary**

| S.No | Name of water bodies | No. of *Crocodylus palustris* | No. of *Lissemys punctata* |
|---|---|---|---|
| 1. | Killeshwar dam | 3 | 22 |
| 2. | Kharipat (near cause way) | 2 | 2 |
| 3. | Sakroja talav | 1 | 3 |
| 4. | Vantalavadi (near Satvirda ness) | 3 | 0 |
| 5. | Ghuno (near Ghuna ness) | 2 | 0 |
| 6. | Dhoraghuna dam | 1 | 2 |
| 7. | Satsagar dam | 1 | 0 |
| 8. | Khambhala dam | 5 | 8 |
| 9. | Fodaranes dam | 9 | 5 |
| 10. | Ghodadhroi dam (near Bhukhbara ness) | 3 | 4 |
| 11. | Guluabsagar dam | 2 | 12 |
| | **TOTAL** | **32** | **58** |

2. *Geochelone elegans*
   During fieldwork, the Indian Star Tortoise was seen near Ajmapat,

Bhukhbara and Satvirda nesses. It mainly feeds upon *Tridax procumbens*, *Leptadenia reticulata*, *Achyranthes aspera*, *Urginea indica*, *Cocculus hirsutus* and *Themeda cymbaria* which are common in the sanctuary.

3. *Lissemys punctata*
*Lissemys punctata* was recorded at eight different water bodies in the area. A total of 58 turtles were counted (Table 1). At Kileshwar dam (near Kileshwar temple) a higher number of turtles (twenty two) were seen during the study.

4. *Sitana ponticeriana*
It is the most abundant lizard most frequently sighted in the Sanctuary.

5. *Chamaeleo zeylanicus*
Sighted only once near Savar Kundala ness on *Lantana camara* during the study. *C. zeylanicus* is locally called as 'Gadhio' and believed to be a poisonous lizard. It is hence killed when seen by Maldharis.

6. *Rhinotyphlops acutus*
It is a rare species in the area. It was once sighted near Karanjvari ness. It is also an uncommon species in Saurashtra.

7. *Python molurus*
During the study *P. molurus* was seen near Kileshwar dam (near Kileshwar temple). Three pythons were captured from villages adjoining the Sanctuary and were released at Ratanbagh (near Satvirda ness).

8. *Sibnyophis subpunctatus*
This snake was sighted only once. It is a rare species both in the Sanctuary and Gujarat State. It lives minly in hilly areas. It is the only endemic Indian species of reptiles found within the Sanctuary.





**Acknowledgements**

The authors are grateful to the Director, Gujarat Ecology Education and Research (GEER) Foundation, Gandhinagar for financial support and Forest Department, Gujarat State for giving the permission to work in the Sanctuary. We are thankful to Dr.Raju Vyas for identifiying some specimens. We are also thankful to Shri. Parbatji Odedara (ACF) and other staff of the Sanctuary for accommodation and other facilities and local people who were assisting us during the course of the study.

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## Appendix

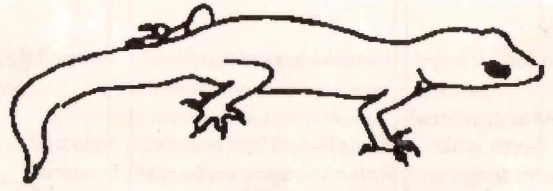
| No. | Common Name | Scientific Name | Habitat | Status |
|---|---|---|---|---|
| | **Amphibians:** | | | |
| | **Bufonidae** | | | |
| 1. | Common Asian Toad | *Bufo melanostictus* | Terrestrial | Abundant |
| 2. | Marbled Toad | *Bufo stomaticus* | Terrestrial | Uncommon |
| | **Ranidae** | | | |
| 3. | Indian skipping frog | *Euphlyctis cyanophlyctis* | Aquatic | Abundant |
| 4. | Indian bull frog | *Hoplobatrachus tigerinus* | Aquatic | Common |
| 5. | Cricket frog | *Limnonectes limnocharis* | Semiaquatic | _____ |
| 6. | Ornate narrow-mouthed frog | *Microhyla ornata* | Fossorial | _____ |
| | **Reptiles:** | | | |
| | **Crocodylidae** | | | |
| 7. | Mugger crocodile | *Crocodylus palustris* | Aquatic | Common |
| | **Testudinidae** | | | |
| 8. | Indian star tortoise | *Geochelone elegans* | Terrestrial | Uncommon |





| No | Common Name | Scientific Name | Habitat | Status |
|---|---|---|---|---|
| | **Trionychidae** | | | |
| 9. | Indian flapshell turtle | *Lissemys punctata* | Aquatic | Common |
| | **Eublepharidae** | | | |
| 10. | Common Leopard gecko | *Eublepharis macularius* | Terrestrial | Uncommon |
| | **Gekkonidae** | | | |
| 11. | Brook's house gecko | *Hemidactylus brookii* | Terrestrial | Abundant |
| 12. | Yellow-green house gecko | *Hemidactylus flaviviridis* | Terrestrial | Common |
| | **Agamidae** | | | |
| 13. | Indian garden lizard | *Calotes versicolor* | Arboreal | Abundant |
| 14. | Fan-throated lizard | *Sitana ponticeriana* | Terrestrial | Abundant |
| | **Scincidae** | | | |
| 15. | Spotted supple skink | *Lygosoma punctatus* | Terrestrial | Common |
| 16. | Keeled grass skink | *Mabuya carinata* | Terrestrial | Common |
| 17. | Bronze grass skink | *Mabuya macularius* | Terrestrial | Uncommon |
| | **Lacertidae** | | | |
| 18. | Snake-eyed lacerta | *Ophisops jerdoni* | Terrestrial | Common |
| | **Chameleonidae** | | | |
| 19. | Indian chameleon | *Chamaeleo zeylanicus* | Arboreal | Rare |
| | **Varanidae** | | | |
| 20. | Indian monitor | *Varanus bengalensis* | Terrestrial | Common |
| | **Typhlopidae** | | | |
| 21. | Brahminy worm snake | *Ramphotyphlops braminus* | Fossorial | Common |
| 22. | Beaked worm snake | *Rhinotyphlops acutus* | Fossorial | Rare |
| | **Boidae** | | | |
| 23. | Common sand boa | *Eryx conicus* | Fossorial | Rare |
| 24. | Red sand boa | *Eryx johnii* | Fossorial | Rare |
| 25. | Indian rock python | *Python molurus* | Terrestrial | Rare |
| | **Colubridae** | | | |
| 26. | Indian trinket snake | *Elaphe helena* | Terrestrial | Uncommon |

| No. | Common Name | Scientific Name | Habitat | Status |
|---|---|---|---|---|
| 27. | Common wolf snake | *Lycodon aulicus* | Terrestrial | Uncommon |
| 28. | Rat snake | *Ptyas mucosus* | Arboreal | Common |
| 29. | Checkered keelback water snake | *Xenochrophis piscator* | Aquatic | Common |
| 30. | Dumerils blackheaded snake | *Sibynophis subpunctatus* | Terrestrial | Rare |
| | **Elapidae** | | | |
| 31. | Spectacled cobra | *Naja naja* | Terrestrial | Common |
| 32. | Common Indian krait | *Bungarus caeruleus* | Terrestrial | Rare |
| | **Viperidae** | | | |
| 33. | Indian saw-scaled viper | *Echis carinatus* | Terrestrial | Common |
| 34. | Russell's viper | *Daboia russelii* | Terrestrial | Uncommon |







## RAT SNAKE FEEDING ON WATER SNAKE

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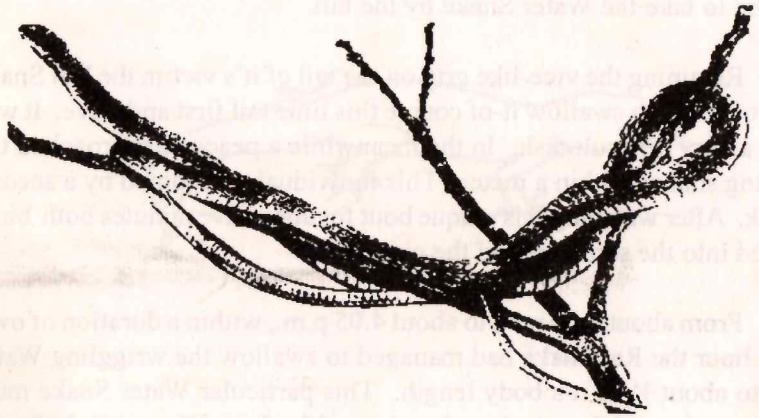
One January afternoon at about 3.20 p.m. a 1.5 m Rat Snake *(Ptyas mucosus)* approached a jungle pond from the slope. It rested at the edge of the water for a couple of minutes and then entered the water, making it's way towards a partly submerged log. On this particular log, at that point of time basking in the late afternoon sunshine, happened to be two Checkered Keelback Water Snakes *(Xenochrophis piscator)*. The Rat Snake attacked the larger of the two, taking a firm hold on the head. Both the snakes, after the attack, rolled over and over, entwined for a few minutes. The Rat Snake managed to drag the Water Snake to the north shore of the pond and eventually, with great labour on to dry land. For another few minutes the struggle continued, and then all of a sudden the Rat Snake lost it's grip, but managed to take the Water Snake by the tail.

Retaining the vice-like grip on the tail of it's victim the Rat Snake now proceeded to swallow it-of course this time tail first and alive. It was indeed a very difficult task. In the meanwhile a peacock approached the wriggling snakes within a meter. This individual was joined by a second peacock. After watching this unique bout for about five minutes both birds retreated into the scrub around the pond.

From about 3.30 p.m. to about 4.05 p.m., within a duration of over half an hour the Rat Snake had managed to swallow the wriggling Water Snake to about ¾ of it's body length. This particular Water Snake must have been about 0.5 m in length. As Mr. Jagru Prasad Pal (Snake

keeper, Sundarvan) and I tried to get close to the snakes, the Rat snake got disturbed. The mauled prey, desperately escaped into the water with great haste. The Rat Snake however glided into the water as fast as it could move. In vain, the Rat Snake attempted to recapture the Water Snake in water. While all this was happening the second Checkered Keelback remained undisturbed basking on the same log!

Having given up his missed dinner, the Rat Snake approached the second Water Snake on the log. A stealthy attack was launched on the seemingly oblivious snake. But as luck would have it for the predator, the prey was quick enough to dodge the violent attack and slip into the water. The hungry Rat Snake continued to patrol the waters of the jungle pond till about 5.30 in the evening in search of its elusive prey.







## RANDOM HARVEST

### Learn from the Pit viper

Pit vipers have small depressions on either side of their heads between their eyes and nostrils that hold membranes sensitive to infra-red radiation, an indication of heat. The membrane can detect temperature changes of upto one-thousandth of a degree. Pit vipers use this membrane to detect where their prey's blood vessels are closest to the surface and most vulnerable to a venom injecting bite.

A greater understanding of the mechanism of heat detection in pit vipers will facilitate development of equipments for use by humans.

"Biomedical engineers in the University of Texas Medical Branch are seeking to determine the mechanism that makes pit vipers so sensitive to heat".

"Medical scientists could benefit from infra-red sensors that could detect early-stage tumors or plaque accumulations in blood vessels. The military would like to equip jet engines with heat sensors that are compact, stable and reliable. Man-made infra-red sensors which cost up to $200,000 are one hundred times less sensitive than those of pit vipers".

*(*Source*: The Whitaker Foundation)*

## Why the croakers croaked

Frogs in large areas of London and the Southwest England have suffered heavy mortality from a disease that causes sores and loss of whole legs as the frogs slowly die. So far there have been 3500 documented cases of disease with a death toll of 62,000. The worst outbreak killed 2000 frogs in a single incident. The disease was first noticed in the early 1990s.

Tom Langton, the Director of the Froglife Trust, and Andrew Cunningham and Peter Bennett of the Institute of Zoology at Regents Park, the research arm of London Zoo, have been looking for the cause of the epidemic.

The main culprit has been identified as a ranavirus found in N.America that appears to have landed in Britain along with imported goldfish. The virus also attacks reptiles.

(Source: *The Guardian Weekly* Feb.7, 2002.)

## Was the ancestor of the snake a pigmy or a giant?

The discovery of skull bones from a giant extinct snake in Australia suggests that snakes could have evolved from a huge water or land-dwelling animal rather than from a small burrowing creature as generally believed.

John Scanton from the university of Queensland and Michael Lee from the University of New South Wales have suggested the possibility that the extinct snake-like creature named *Wonambi* which grew to a length of upto 6 metres and which lived 100 million years ago and till about 30,000 years ago could have been the ancestor of snakes.

(Source: *News in Science* Jan.27, 2000)





## The good that wars can do!

Many species have suffered decline and death because of human factors. But instances are not wanting of human factors, not to mention planned efforts at conservation, inadvertently assisting the protection of species.

In *The Birds of Heaven. Travels with Cranes*, Peter Mattheissen, the celebrated author of books like *The Snow Leopard* containing evocative insights into wild places and wildlife, refers to the Demilitarized Zone between the North and South Koreas that has proved a haven for cranes. During the Korean War, crane populations in Korea suffered heavy casualities. But, after the war, 375 square miles of land between N. and S. Korea have been declared a Demilitarized Zone where no human habitation is permitted. This has become the most "fiercely protected wildlife sanctuary on earth" with two armies standing guard. It has become an "accidental paradise for cranes".

**– 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.