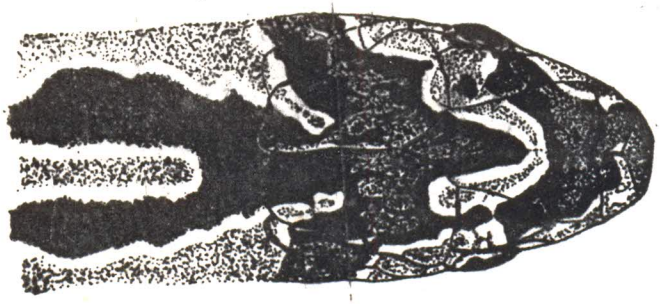
HAMADRYAD



Oligodon nikhilii sp.nov.

HAMADRYAD : NEWSLETTER OF THE MADRAS SNAKE PARK TRUST
8 : No.1 January 1983

News from the MADRAS SNAKE PARK AND MADRAS CROCODILE BANK

Vishnu Mathur, of Canadian television made a film on cobras with the help of the Snake Park and Irula Cooperative.

The Irula Snake-catchers Cooperative finally got the green light from the Government and bought its first snakes and extracted over a gram of venom from cobras, kraits and saw-scaled vipers on the 16th of December. The Cooperative will supply venoms to the domestic producers of antivenom serum.

The Director was invited to Khajuraho by the Madhya Pradesh Government to help them establish a reptile park at a beautiful jungle site near the Ken River.

The IUCN/SSC Snake Specialist Group meeting was a great success. After the meeting a field trip to the forests of the western ghats culminated at Mudumalai Wildlife Sanctuary with the release of four subadult captive-bred pythons from the Snake Park. The Sanctuary Warden, Mangalraj Johnson, presided.

Shekar Dattatri (MSPT Research Associate) is in Sri Lanka doing a survey of the island's sea turtle nesting beaches with a grant of US$400/- from the Sea Turtle Rescue Fund, Department of Environmental Education, Washington D.C. It may be recalled that Snake Park personnel carried out the first crocodile survey in Sri Lanka (see Hamadryad 3:1).

Dr. Edward O. Moll, Eastern Illinois University is in India for a year, his base being the Crocodile Bank. Croc Bank Research Officer, J. Vijaya is accompanying him on a nation-wide study of India's freshwater turtles.

Three of the six female spectacled caiman (Caiman c. crocodilus) at the Crocodile Bank made nests, the first breeding of an exotic crocodilian in India (details on page No.7).

This year the Croc Bank broke the 1000 mark with the season's hatch of mugger. Over 400 crocodiles have been supplied to State breeding and release projects in India.

The Croc Bank recently received four more gharial in exchange with other projects. Of the nine gharial in the breeding pit, one female is mature and a male is showing the first signs of the nasal excrescence which apparently signifies maturity in males.

Mugger supplied to the Orissa Forest Department from the Madras Crocodile Bank in 1976 and 1978 are successfully breeding. We were gratified to hear that this year three nests were laid at Nandankannan Biological Park (with an unfortunately low hatching average) and four nests at Tikerpada (Satkoshia Sanctuary on the Mahanadi River) resulting in 47 hatchlings. We all feel very young to be "grandparents" but we are proud! These events also confirm that C.palustris males mature at seven years of age. One of the seven-year-old males is 3.1 m etres in length.

The Director has been invited by the Forest Department to do a preliminary survey of crocodiles in Sabah, East Malaysia between April 15 and June 15 this year.

Herpetological News

'SNAKE YAGNAS' BANNED IN TAMIL NADU

(from The Hindu, 22/10/82)

The Tamil Nadu Government has banned snake yagnas in the State and has directed police and forest officials to arrest and prosecute persons involved in performing such "yagnas" (a yagna involves sitting in a room full of snakes for several days or weeks to make money).

A press release issued on Thursday recalls that under the provisions of the Wildlife (Protection) Act of 1972 no one should hunt any wild animal except under a licence to be issued by the Additional Chief Conservator of Forests or any other authorised officer.

Anyone trapping snakes under the cover of a licence issued by the Wildlife Warden or reared or exhibited in snake yagnas is liable for punishment. Imprisonment for a term upto two years or fine upto Rs.2000/- or both, may be awarded as punishment.

The Government has also directed the Chief Conservator of Forests and other officials concerned not to issue any licence or grant permission for trapping snakes for the purpose of exhibiting them either in snake yagnas or in any other manner.

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JALAL OJHA EATS FIVE SNAKES EVERY YEAR

(from Bangladesh Times, 30/4/82)

Swarparaj Mid Jaml Ojha eats five live snakes venom and all; every year as directed by his ustad he says.

Son of Md. Amir Hossan Ojha of Birtala of Deudkandi in Comilla Jalal went to Assam-Kamrup Kamakhya according to him at the age of 16 with his maternal uncle. Both of them became disciple of Ram Lal, a Naga Sanyasi who is still living and is now 113 years of age. Jalal was with him for three years mastering the art of tantra. He later went to Nepal and Bhutan he says.

Married to a Naga girl who became Muslim he has been curing people from all walks of life from diseases like gastric, paralysis, piles, asthma, sciatica etc. He also attends people bitten by snakes free of charge. "My ustad has asked me not to take money" he says. He claims his 'Rajmani sarbamangal Tabij' to be very effective.

He sends most of the snakes caught to laboratories. For 13 years he always carried with him a pet Kalnag (Chrysopelea ornata, ed.) which he says is useful for curing paralysis and sterility of women.

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SPY CROC

(from Indian Express, 4/11/82)

A small-sized-instrument, containing a low output transmitter, was detected on the back of a crocodile fished out of the Gandak river at Gatha village in East Champaran district of Bihar on Oct. 5 last.

This was stated in the Lok Sabha today by Minister of State for Home, Mr. P. Venkatasubiah.

It was stated that according to information available, an instrument was detected and that among other things it contained a low output transmitter. The local authorities have seized the instrument and referred it for examination to the forensic science laboratory, Patna. The result is being awaited. (One of the gharial fitted with a bio-telemetry transmitter at Chitawan National Park in Nepal obviously strayed over the Indian border; no need for paranoia! Ed.)

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FROG EXPORTS CAUSING NATURE IMBALANCE

(from Livestock Adviser, December '82)

Pressure is mounting on the countries of the European Economic Community and the United States to stop the import of the Indian bullfrog and common frog since it is leading to serious environmental imbalance in India. Export of a vast number of frogs leads to a quantitative increase in pest population. The solution to this is not spraying insecticide on the insect-affected crops, which only serves to pollute the environment and upset nature's balance. Frogs collected around Calcutta and Hyderabad are often slaughtered in the fields and only the back legs are sent for processing.. India earned about 4.7 million in foreign exchange from the export of frog legs in 1979. Frogs, in other areas, are sent to the processing plant whole and alive in gunny bags which when full, contain 15 to 25 kgs of frogs. Sometimes the body is skinned and dried for production of small leather goods from the skins. The current trade notice bans the export of frog legs processed between June 15 and August 13. But the breeding season of frogs is much earlier than this. Conservationists have strongly condemned the frog trade as ethically intolerable and demanded urgent remedial action by the Centre.

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SNAKE MARKET IN BOMBAY

(from Livestock Adviser Sept. '82)

In Bombay, there is a snake market which sells snakes every year - a week before the Hindu festival of Nag Panchami - the day snakes are worshipped. Snakes are sold till the eve of the festival day. The price of each cobra is about Rs.50/- to Rs.90/- depending on the height of its hood. The highest price of Rs.128/- for a yellowish cobra from Madhya Pradesh was fetched this year. Snake charmers bring hundreds of cobras from neighbouring states like Gujarat and Madhya Pradesh and sell them in the Bombay Market. The buyers are usually 'Maddaris' (jugglers) and Wagharis of Gujarati origin settled in Maharashtra. The snakes are taken around the city where devout Hindus.offer pooja to them, feed them milk and then give alms to the Naagwalla.

SSAR GRANTS-IN-HERPETOLOGY

The Society for the Study of Amphibians and Reptiles is pleased to announce that proposals are now being accepted for the 1983 Grants-In-Herpetology Program. This Program is designed to provide financial support to deserving individuals or organizations enganged in research on or conservation of amphibians and reptiles. Grant proposals will be considered in the following areas:

1. Graduate Student Herpetological Research
2. Herpetology-Oriented Conservation
3. Regional Herpetological Society Programs or Projects
4. Herpetological Research in Zoos

Each proposal should include the following information: A) Background & Objectives of the proposed project, in terms of its relevance to herpetology, B) Methods of carrying out the research or conducting the project, C) Budget for the project, which should not exceed $400 in each category, and D) Curriculum Vitae and Letter of Support (if applicable). The proposal must be typed double spaced and must not exceed 5 pages, excluding cover page, abstract, budget, curriculum vitae, and bibliography.

For additional information on proposals see the December 1982 issue of Herp Review or write:

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U S A

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WEEKLY FEEDING RATES AT MADRAS SNAKE PARK

Delving through the Snake Park weekly feeding records has come up with data on food types and amounts fed to Indian species at the Park. Other guidelines on captive rearing of reptiles in India will be given in future issues of Hamadryad.

Common Name	Scientific Name	Food Type	Numbers per feed
Snakes:			
Common sand boa	Eryx conicus	Rattus meltada (Field rats)	3
Red sand boa	Eryx johnii	" "	3
Indian rock python	Python molurus molurus (1yr.old)	" "	6-7
Striped keelback	Amphiesma stolata	Rana cyanophlictis (juvenile)	1-2
Checkered keelback	Natrix piscator	Rana cyanophlictis (juvenile) Or Rana tigerina (adults)	2
Rat snake	Ptyas mucosus	Rattus meltada or Tatera indica	3-4
Trinket snake	Elaphe helena	Rattus meltada	2-3

Common Name	Scientific Name	Food Type	Numbers per feed
Royal snake	Spalerosophis diadema	Rattus meltada	3-4
Banded racer	Argyrogena fasciolatus	" "	2
		or Hemidactylus brookii	10
Flying snake	Chrysopelea ornata	Hemidactylus brookii or H. frenatus	15-20
Vine snake	Ahaetulla nasuta	Rana cyanophlictis	
		or Rana tigrina	2-3
Bronzeback tree snake	Dendrelaphis tristis	" "	2-3
Common krait	Bungarus caeruleus	Amphiesma stolata	2
		or	
		Rattus meltada	4
Banded krait	Bungarus fasciatus	Amphiesma stolata	2
Indian spectacled cobra	Naja naja naja	Rattus meltada	6
Black cobra	Naja naja oxiana	" "	3
King cobra	Ophiophagus hannah	Natrix piscator	2
		or	
		Amphiesma stolata	3
Russell's viper	Vipera russellii	Rattus meltada	3
Saw-scaled viper	Echis carinatus	Mus booduga (juveniles)	3
Malabar pit viper	Trimeresurus malabaricus	Rattus meltada	1
Bamboo pit viper	Trimeresurus gramineus	" "	1
Lizards:			
Green garden lizard	Calotes calotes	Cockroaches or grasshoppers	15-20
Green forest lizard	Calotes nemericola	Cockroaches or grasshoppers	"
Common monitor	Varanus bengalensis	Frogs or	6
		R. meltada	3
Water monitor	Varanus salvator	Bandicota bengalensis or beef chunks	3 500gm
		or frogs	12
Yellow monitor	Varanus flavescens	frogs or	3-4
		mice	3
Spiny tailed lizard	Uromastix hardwickii	vegetables	30gm
Turtles:			
Flap shelled turtle	Lissemys punctata granosa	Frogs(juveniles) or fish	3-4 30gm
Pond terrapin	Melanochelys trijuga trijuga	vegetables and frogs	50gm 1-2
Indian star tortoise	Geochelone elegans	vegetables	30gm

EXPLORING THE FEASIBILITY OF FRESHWATER TURTLE BREEDING FOR COMMERCIAL PURPOSES

Continued exploitation of freshwater turtles in the Gangetic river system is now seriously bringing down their numbers. In a recent status survey of freshwater turtles in the Bengal region carried out for WWF-USA and the SSC/FWCG it was found that turtles are widely sold in the markets and is considered an important part of the diet. The turtle trade is now a full scale business in the northern riverine areas, though several of the exploited species are protected under Schedule I of the Indian Wildlife (Protection) Act of 1972.

Many turtlemen now realize that the numbers are decreasing in the wild. According to anecdotal reports turtle catches have fallen by 75% in the last 8-10 years on the Bhagirati river. Elsewhere, on the Rapti a catch of commercial species is no more a certainty when the nets and hooks are cast. Sometimes a turtleman might catch 2-3 turtles a day, on others that could be the catch for the whole week, compared to the dozen a day in previous years. There are fears that the turtle supply will come to an end; even now they come from as far away as Punjab to the hungry Bengali markets.

Many turtlemen met during the survey were interested in captive farming of species like Lissemys punctata, Trionyx gangeticus and Trionyx leithi. Bengal has no fewer than 10 rivers running through it and the rural areas have many small ponds suitable for breeding turtles in. The practicality of captive farming of turtles has not been investigated in this region but it is certain that if this food resource is captive propagated it can be utilised forever as a good cheap protein source in these areas.

Reference:

Status survey of freshwater turtles in West Bengal, report submitted to WWF-US c/o Dr. E.O. Moll, Chairman SSC/Freshwater Chelonian Group, 1982.

J. Vijaya
Research Associate, MSPT

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AMPHIBIAN FAUNA OF PAKISTAN

The zoogeographical peculiarity of Pakistan is best depicted by its amphibian fauna, falling in 3 families, 3 genera and 17 species.

The northwestern mountainuous ranges are divided into
a) dry western mountains with predominantly palearctic fauna like Bufo viridis, with two races V. arabicus (in Baluchistan) and v. pseudoraddei (in Swat), B.olivaceus, B.surdus and Rana ridibunda. These mountains have a peculiar endemic ranid form sternosignata, closely allied to the high mountain ranids of the eastern Himalayas.
b) The northern mountains are wet with the predominantly indo-oriental forms Bufo stomaticus, B. himalayanus, B. melanostictus and recently added B. latastei, Microhyla ornata, Rana cyanophlyctis, R. limnocharis, R. syhadrensis, R. tigerina and R. breviceps.
These mountains have their peculiar torrenticole ranids R. vicina and recently described R. hazarensis, and R. pleskei, having affinities with both R. sternosignata

of the western mountains and the eastern Himalayan high altitude ranids. The wide ranging south-east Asian bufonid Bufo melanostictus is confined to these mountains, while most of these other forms descend to form the amphibian fauna of the Indus plain.

The Indus plain is invaded by the Indo-oriental forms Bufo stomaticus (polymorphic and problematic), Microhyla ornata, R. limnocharis, R. syhadrensis found along the water courses and paddy fields and R.cyanophlyctis and R. tigerina in ditches. Rana breviceps (Rana strachani of Murray) has a spotty distribution in the Plains of Pakistan.

Recent reclamation of the barren areas of Pakistan has caused the spread of various forms of amphibians in the Indus plain. The distribution of various taxa in Pakistan is as follows:

	Baluchistan	Sind	Punjab	N.W.F.P
B. himalayanus	-	-	-	+
B. melanostictus	-	-	+	+
B. olivaceus	+	-	-	-
B. stomaticus	+	+	+	+
B. surdus	+	-	-	-
B. viridis arabicus	+	-	-	-
B. v. pseudoraddei	-	-	-	+
Microhyla ornata	-	-	+	+
Rana breviceps	-	+	+	+
R. cyanophlyctis	+	+	+	+
R. syhadrensis	-	+	+	+
R. pleskei	-	-	-	+
R. ridibunda	+	-	-	-
R. sternosignata	+	-	-	-
R. tigerina	+	+	+	+
R. vicina	-	-	+	+
R. hazarensis	-	-	-	+

M.S. Khan
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FIRST CAPTIVE BREEDING OF CAIMAN (Caiman c. crocodilus) IN INDIA

At 5:30 AM on 18th April, 1982 one of the six, six year old caiman at the Croc Bank laid19 eggs in a straw and dry hyacinth mound provided for the purpose. Mating had been observed in February and March. Two more females laid eggs in the following weeks, the data is presented below:

Female No.	Length	Date of laying	Number of eggs	Date Trans-ferred to hatchery	Date hatched	Incubation period	Number hatched	
2	145cm	18/4/82	19	27/5/82	1/7/82	73	2	10.5
6	133cm	15/5/82	22	20/7/82	1/8/82	77	11	50.0
10	129cm	11/6/82	28	8/8/82	3/9/82	85	8	28.6

A low hatching percentage is expected for the first year of breeding. Incubation temperatures : 30.1°C - 33.1°C
Average size of eggs : 34.5 mm X 60.0 mm
Average size of hatchlings : 11.4 cm total length,
6.9 cm girth.

Natural Communities of Amphibians and Reptiles in Tropical Forests of Kerala

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Introduction:

This study was undertaken under sponsorship of the Indo - US Subcommission on Education and Culture; National Museum of Natural History (New Delhi); Field Museum of Natural History (Chicago). The participants, besides the authors, were Mr. Ramesh Bakde, Field Collector, National Museum of Natural History, New Delhi and Mr. H.Bradley Shaffer, Research Assistant, Field Museum of Natural History Chicago. The purposes of the study were training of Indian Museum Personnel in specialized ecological field procedures. Scientific: 1) Analysis of natural communities of amphibians and reptiles living in tropical forests of Kerala. Specifically, the objectives include: (i) Identification of the species that constitute the communities. (ii) Determination of division of environmental resources (particularly food and space) among the various species. (iii) Estimation of density of animals on the forest floor. (iv) Analysis of relative abundances of species. 2) Study of the natural history of each species. For each species subject to the limitations of sample size: (i) Microhabitat distribution; i.e. use of stream banks, tree buttresses, large rocks, small plants, dead leaves, etc. (ii) Differences in abundance from one patch of forest to another. (iii) Altitudinal distribution, i.e., extent of limitation to particular altitudinal zones. (iv) Breeding habits, for example, site of egg deposition, number of eggs per female, size at sexual maturity, position of calling males (in frogs), etc. (v) Identification and habitat of tadpoles of frogs. 3) Taxonomic study of certain groups of frogs and lizards. The collection is certain to permit study of variation within species and reveal species as yet unknown to science.

Results: We wish to remind readers that this is an interim report prepared in the field while work continues. Final identification can only be carried out in a fully equipped museum laboratory with good optical equipment, scientific library, and comparative specimens. Also calculation of certain data, such as area occupied by buttresses, cannot be carried out under field conditions. Consequently, conclusions as to number and identity of species and density of populations will almost certainly be revised.

Site: Although originally we had hoped to analyse the communities of amphibians and reptiles in both deciduous and evergreen forests, it quickly became apparent that time would permit satisfactory study in only one vegetation type. We chose to work in evergreen forest as it probably represents the original vegetation of much of the hills of Kerala. Our study has been confined to the Ponmudi Area.

Data collection: 1) Variation in Forest Structure:-
These data were collected in order to quantify and interpret observations on amphibians and reptiles. Our data on forest structure come from two sources: 25 x 25 ft. quadrats on the forest floor, and tree samples made in areas 15 x 100 meters. The odd size of the quadrats was chosen because it corresponds tothe size used in studies in Southeast Asia and Central America.

Dead leaves in 2" - 4" layers cover the entire forest floor except for the space occupied by plant stems and large rocks. Rock cover in our quadrats was usually less than 10% of surface area, though clearly there are areas, particularly on steep slopes, in which rock cover is more extensive.

Quadrats were positioned so as to avoid the larger trees. However, these samples may be useful for obtaining frequency of small tree size classes. In the first 13 quadrats (all that were tabulated to date) the observed size frequency of trees was:

DBH

Size Class (cm.)	Minimum No.	Maximum No.	Summed frequency
5 - 9	0	4	17
10 - 19	0	4	18
20 - 39	0	3	19
40 and over	0	1	5

size classes in the tabulation are given in terms of diameter at breast height (D B H).

The 15 x 100 m. vegetation plots give a more accurate picture of the frequency of larger and medium sized trees. As these plots were designed to obtain estimates of forest area enclosed by buttresses, trees smaller than 20 cm. D.B.H which do not have buttress, were not measured and tabulated. In the three plots completed as of 5 June, the size frequency distribution was:

DBH

Size Class (cm.)	No.
20 - 29	23
30 - 39	25
40 - 49	18
50 - 59	14
60 - 69	5
70 - 79	3
80 - 89	3
90 - 99	7
100 -	3

The dimensions of the buttress enclosed area of each of those trees were measured. Calculation of the areas is too laborious and uncertain under field conditions and will be completed at our home laboratory where computers are available. However, rough field calculations have been made for two trees of varying size for each of two species, Cullenia excelsa and Hopea parviflora, which may serve as the basis for approximating the area of forest floor enclosed by buttresses. The data for these trees follow:

Species	DBH (CM)	Area (m^2)
Cullenia excelsa	35	0.5
Cullenia excelsa	130	6.5
Hopea parviflora	50	1.5
Hopea parviflora	120	6.0

If we use these areas and assume intermediate values appropriately for the other size classes, the area enclosed by buttresses amounts to about 5% of the total area in the sample plots. As these plots appeared to our eyes to be representative of the forest as a whole, we make the tentative conclusion that the same percentage applied to wide areas of evergreen forest.

The species of trees and their abundance will be included in our final report.

(2) Microhabitat distribution:- The position of each animal captured was recorded in detail. Besides the type of forest and elevation, we noted the animal's horizontal and vertical position according to the scheme shown in the following tabulation which indicate the positions actually occupied by the specimens collected:

I. along permanent streams:

A. in water
B. in mid-stream

1. on rock
2. on herb
3. on stump

C. on bank

1. under rock
2. on sand or gravel
3. on dead leaves
4. on rock
5. on log
6. on herb (less than 1 m high)
7. on shrub
8. on tree

II. along intermittent stream:

A. on bank

1. on rock
2. in tree
3. in dry bed
4. on dead leaves
5. on rock

III. away from streams

A. below surface of soil
B. under leaves

1. away from tree
2. in buttress area

C. under rock

1. away from the tree
2. in buttress area

D. under log
E. in decaying log
F. on soil

1. away from tree
2. in buttress area

G. on dead leaves

1. away from tree
2. in buttress area

H. on rock
I. on log
J. on herb (less than 1m high)
K. on shrub

1. on trunk
2. on branch
3. on leaf

L. on tree

1. on trunk
2. on branch
3. on leaf
4. in tree hole

M. on stump

In addition, height of capture and size of tree was recorded for all arboreal animals. Sizes of logs and rocks associated with captures were also noted.

Recording distribution in microhabitats as well as in altitudinal zones makes it possible to discern the range of special resources used by each species and to detect fine scale differences between groups of species. For example, the pit-viper, Agkistrodon hypnale, was recorded as under dead leaves (1), on soil (3), on dead leaves (1), on large rocks (3), and on shrubs (2) In contrast, the pit-vipers of the related genus, Trimeresurus climb above surface level much more frequently, almost half (15 of 34) captured in shrubs and trees up to 3 meters above ground.

Four species of the lizard genus, Calotes, were collected. Although at this writing some uncertainty remains concerning specific identity of several specimens, site of capture indicates arboreal habits of these animals; on dead leaves (3), rocks (2), in shrubs (9), on trees (10), in stumps (1). Heights recorded for the arboreal captures were: under 1 meter (3), 1-2 meters (10), 2 - 3 metres (2), 3 - 4 meters (3), 7-6 meters (1), 9-7 meters (1), what remains to be done in our home laboratory is to measure and sex these animals. It has been observed elsewhere in Asia that juvenile and female Calotes occur closer to the ground than males.

The microhabitat data and time of capture, which we also recorded for every individual, enable us to determine site and time of calling for various species of frogs. The species of Nyctibatrachus (3 or 4) call while in water and only at night or on dark, cloudy days. The species of Nannobatrachus, which are not much larger than medium-sized crickets, call day and night from under dead leaves on wet banks of small creeks and seepage areas. Frogs of the genus Philautus (5 or 6 species collected) call at night from shrubs and low trees, usually 1 - 3 meters above ground. The small frogs of genus Micrixalus (4 or 5 species) seem to be heterogenous with respect to time and place of calling. One form calls day and night from small rocks in and along the smallest streams (about 0.5 meter wide); a second calls at night from the leaves of low herbs or large moss-coated rocks along larger streams (up to 5 meters wide). At this stage of the program, we cannot describe the calling sites of the other 2 or 3 species. The frogs of the Rana beddomi group (at least 4 species) call only at night and only from large rock masses over which a film of water flows.

Clearly, there is much more information concerning microhabitat distribution in our data. But that information cannot be extracted and analyzed until final identification of all specimens. Yet even at this preliminary stage, patterns are emerging.

(3) Relative abundances of species:

This is another area dependent on final identification of all specimens. However, a few conclusions are not likely to be controverted. Two species of lizards have been much more abundant than any others on the forest floor during the course of our field work, the skink Mabuya macularia and the small agamid Otocryptis beddomi. At the opposite, rare extreme, we have seen only 3 individuals of the small, beautiful skink, Ristella guentheri. The arboreal lizards Calotes rouxi and Calotes elliotti, have been seen much more often than their relatives Calotes

nemoricola and Calotes calotes. Along streams, frogs of the genus Nyctibatrachus outnumber all except possibly Micrixalus. This conclusion, however, may be modified when final identifications are made and abundances along streams of different sizes are considered.

(4) Patchiness of species distribution:

The geographic distribution of most species of animals is almost always described in general terms, which assumes that a particular species occurs throughout an area for example, "the Western Ghats", or "the Anamalai Hills between 2000 and 4000 feet". Very little attention has been paid to the actual occurrence in every portion of a geographic area from which it has been reported. Does, for example, a given lizard occur in all patches of evergreen forest in the Ponmudi area? Or granting that nature is usually complicated, is a given species more abundant in one patch of forest than another? Although given limits of time and manpower we could not examine every patch of forest in the Ponmudi area, our data reveal variation in abundances from place to place within an altitudinal zone. Consider the small lizard, Otocryptis beddomi, in the zone between 300 and 600 meters. It was very abundant at Pattani Valava and relatively uncommon at Karadi-Chapathi and Kaduva Puzha; we saw 3 individuals per visit at Pattani Valava and less than 1 per visit at the other sites. We saw the red-tailed skink, Sphenomorphus dussumieri at Pattani Valava and Kaduva Puzha. but never at Karadi-Chapathi. Both of these cases are in sharp contrast to that of the rose-throated skink, Mabuya macularia, which appeared to be equally abundant at all evergreen forest sites in the 300-600 meter zone. Among the frogs the tiny Mannobatrachus was evident by its calls in every wet leafy bank in every area of evergreen forest visited. Similarly, the relatively large stream frog, Nyctibatrachus major, occurred in streams in every area of forest studied between 300 and 600 meters. Contrasting with these patterns the toad, Bufo beddomi, was found only at Pattani Valava.

Unfortunately, snakes are not found in large numbers, so few statements about patchiness of distribution are possible. The one statement in which we have confidence is that the two semi-arboreal pit-vipers, Trimeresurus malabaricus and Trimeresurus strigatus, occurred in every forest we visited.

(5) Altitudinal distribution:

Few high altitude forests were visited. The only ones we had time to visit were Statheertham and Maruthamala, both being above 800 meters. Because of this small sampling, our conclusions are very tentative. There is always the possibility that had we visited a third site those conclusions would be altered. However, we were struck at both high altitude sites by the absence of the three most abundant forest floor lizards of the lower sites - Mabuya macularia, Sphenomorphus dussumieri, and Otocryptis beddomi, species referred to earlier.

Because of the often-mentioned difficulties of identification in some groups (not, however, the three species noted in the preceding paragraph), we cannot be certain of a few forms that seem to be restricted to the higher elevations. Yet we were struck by the abundance of relatively large forms of the nocturnal geckos of the genus Cnemaspis in the high altitude forests.

We feel much more confident about statements concerning a few species that range throughout the elevations from 300 to 970 m. Again we cite the pit-viper, Trimeresurus malabaricus and Trimeresurus strigatus, which we found at elevations from 290 meters to 860 meters. The small four toed skink, Ristella rurki had almost the same distribution 300 - 950 m.

Acknowledgements:- We are indebeted to many persons and agencies in the State and Central Government for numerous services and assistance. In particular, we wish to thank Dr. S.M. Nair, Director, National Museum of Natural History, New Delhi, Mr. N.D. Jayal, Joint Secretary, Department of Environment, Mr. Oomman Chandi, former Minister for Forests, Kerala, Mr. K.P Nurudin, Minister of Forests, Kerala; Chief Conservator of Forests, Kerala; Director, Centre for Earth-sciences Studies, Trivandrum; Director, Kerala Tourism Development Corporation. Without their help, our work could not have been carried out.

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FIRST REPORT OF AMBLYOMMA GEOEMYDAE FROM INDIA

Amblyomma geoemydae (Cantor), a species of tick was found on the travancore tortoise eochelone travancorica, and appears to be the first report of them from India. The two female ticks were collectdd from 2 tortoises in Chalakudy forests, Kerala in June/July of last year. They were sent to the British Museum through Dr. Swingland (Chairman-IUCN Tortoise group) for identification. The species was identified by Dr. Don Macfarlane of the Commonwealth Institute for Entomology and later confirmed by Dr. Santos-Dias, a arachnidae specialist from Portugal. This species has been reported from Sri Lanka, Malaya and Borneo previously.

J. Vijaya

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STOP PRESS

WORLD'S RAREST TURTLE (WE THINK) LAYS EGGS IN CAPTIVITY

One of the female Heosemys silvatcia collected in October in Kerala laid two eggs on December 22. This is the first data reproduction in this recently re-discovered species. Miss Vijaya, Crocodile Bank Research Officer has found that the Cane turtle feeds on invertebrates such as millipedes, molluscs and beetles. Henderson (1912) thought it was a vegetarian but this unique little chelonian turns out to be omnivorous.

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SHUKLAS' SNAKE SERVICE IN BHAVNAGAR

The Shukla family of Bhavnagar in Gujarat is quite unusual in many respects, but the readers of 'Hamadryad' would be interested in at least one of their activities: very prompt and efficient Snake Service.

This four-member family comprising of Mr. Harshvadan V. Shukla (known as Bakulbhai), his wife Mrudula, their son Cyril and daughter Kiran wanted to serve snakes from being butchered by the residents of the area where they live. The appearance of snakes in the houses, gardens and other inhabited places of the Kumudwadi area in Bhavnagar has been quite a common feature. Inevitably the unlucky snake was promptly crushed under a heavy stone or killed in some other equally brutal manner.

But ever since the Shuklas decided to act on behalf of this much misunderstood and feared reptile, the situation has drastically changed for the better- both for the snakes and the residents!

Their snake service is free and has now become so well known that whenever a snake is sighted, they are promptly informed. Any member of the family who is available hastens to the place on a bicycle with a 20 litre tin having a lid (the tin is painted black inside to make it appear like a dark and safe hole to the snake), a stick and plenty of courage and goodwill..

Thus, during 1981, the Shuklas caught and released 97 snakes of 8 species, 32 of them cobras (see table). None was injured and none died in captivity.

Some incidents of their experiences are noteworthy:

A nine-year old boy in their neighbourhood was bitten by a snake. The relatives decided to take him to a 'venom-effect removing priest' living in Vallabhipur, a small town, away from Bhavnagar, which is a district place. The priest carried out his 'act' and assured the boy's relatives that the venom was removed. On their way back to Bhavnagar, the boy died. Ironically, a physican who happens to live nearby and is related to the family neither arranged for prompt and proper medical treatment nor warned them of the possible dreadful consequences of relying on the quack-priest.

An albino trinket snake (*Elaphe helena*) caught in December was a very rare find and Bakulbhai was advised by many friends either to take it to a zoo ('might fetch some money') or to give it to one of his friends who keep snakes in captivity. But young Kiran insisted that the snake must have its freedom. Next day it was released in Victoria Park.

Kishore K. Gohil
'Viral' 4 Jagnath Plot
Rajkot-360 001

STATISTICS OF SHU LAS' SNAKE SERVICE IN 1981

Month	Cobra	Checkered Keelback	Striped Keelback	Cat snake	Rat snake	Wolf snake	Worm snake	Trinket Albino	Total for the Month
Jan.	-	-	-	-	-	-	2	-	2
Feb.	1	1	-	-	-	-	-	-	2
Mar.	2	-	-	-	-	-	-	-	2
Apr.	-	-	-	-	-	-	-	-	-
May.	2	-	-	-	-	-	-	-	2
June	1	1	1	-	-	1	1	-	5
July	6	10	1	-	-	1	-	-	18
Aug.	2	3	-	-	1	1	-	-	7
Sept.	2	14	-	-	1	1	-	-	18
Oct.	8	10	-	1	2	2	1	-	24
Nov.	4	5	-	1	1	-	-	-	11
Dec.	4	-	-	-	1	-	-	1	6
Total	32	44	2	2	6	6	4	1	97

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ANNUAL BITES AND DEATHS FROM SNAKE-BITE AT HARENDRANAGAR SUBSIDIARY HEALTH CENTRE, DISTRICT 24-PARGANAS, WEST BENGAL

Year	No. of Non-Poisonous snake Bites			No of poisonous snake bites					Death due to Poisonous snake Bites		
19-	Male	Female	Total	Male	Female	Total	Total Bites	Death due to Non-Poisonous snakebites	Male	Female	Total
67	22	14	36	2	1	3	39	Nil	1	Nil	1
68	28	21	49	5	Nil	5	54	Nil	1	"	1
69	33	23	56	1	6	7	63	"	1	1	2
70	44	10	54	3	2	5	59	"	Nil	1	1
71	28	19	47	3	1	4	51	"	"	Nil	Nil
72	30	15	45	3	2	5	50	"	"	"	"
73	31	11	42	5	5	10	52	"	"	1	1
74	18	12	30	4	1	5	35	"	1	Nil	1
75	31	10	41	6	2	8	49	"	Nil	1	1
76	21	7	28	3	3	6	34	"	1	1	2
77	35	12	47	7	2	9	56	"	Nil	Nil	Nil
78	15	12	27	2	2	4	31	"	"	"	"
79	29	7	36	2	3	5	41	"	"	"	"
80	10	14	24	3	2	5	29	"	1	"	1
81	16	7	23	Nil	1	1	24	"	Nil	"	Nil
Total	391	194	585	49	33	82	667	Nil	6	5	11

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The above annual figures were collected by me while I was attached as Medical Officer, Harendranagar Subsidiary Health Centre from 1965 to 1981.

Dr. S.G. Saha
Medical Officer
Kaidihi Rural Hospital
Pin.743 383

FOOD HABITS OF THE BANDED KRAIT

While on a faunistic survey tour at Saharsa, North Bihar, in November 1968, I observed a banded krait *Bungarus fasciatus* (Schneider), 156 cm. long swallowing a checkered keelback, known in Bengal as "Jal Dora" *Natrix piscator* (Schneider), 30 cm. long. A live specimen of banded krait which was collected in the Fish Seed Farm of the Fishery Department, Mahespur, was received from Shri B.N. Prashad, Asstt. Fishery Development Officer. It was killed in a box with Chloroform and it regurgitated a *Natrix piscator*.

The Banded Krait was found in the bushy outgrowth by the side of the seed tank and when disturbed it escaped into the tank. It was then caught with a cast-net.

Banded krait is commonly called "Gangur" in this area and is respected by the local people because it is supposed to bring prosperity to the house by its presence in the vicinity. The species in Orissa is commonly known as "Rana" and in W. Bengal by several names such as "Sankhini", "Sankhamute" or "Sakhni". The ophiophagus habit of krait is well known, Millard (1902) and Wall (1903). Traill (1872), Primrose (1899), Phillips (1929), Evans (1903) and Wall (1904) recorded the food and feeding habits of the krait and its snake-eating propensity. I have come across three records of snake food of the banded krait, Traill (1895, Editor's Note), Evans (1902), Wall (1903). Of the four cases including my above observation, in two instances it took *Natrix piscator* and in the other two *Ptyas mucosus* The predator and the prey are members of the same ecological niche and the chance of availability rather than choice of a particular species of snake as food appears to be the chief determinent.

Though *Ptyas mucosus* is primarily a terrestrial snake it is also at home in water. Its liking for frogs is well known.

Both Wall (1907, 1921) and Smith (1943) while pointing out the food habits of *Natrix piscator* mentioned its enormous meals of frogs and fishes, particularly at the end of dry season when they concentrate in pools.

Whether or not the banded krait (*Bungarus fasciatus*) plays any role in the economy of fisheries by feeding on the fish-eating *Natrix piscator* might best be investigated by fishery experts.

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----------1921. Ophidia Taprobanica or snakes of Ceylon, Colombo.

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REMARKS ON REPTILE PROTECTION IN SRI LANKA AND THE INDIAN STATE OF TAMIL NADU

Across Sri Lanka

During my trip across Sri Lanka in April 1981 I was surprised at the severe measures of environmental protection including regulation of the export of plants and animals. These measures are not only formal, but they are respected.

The activity of environmental protection personnel on this beautiful island is substantially easier than that of their colleagues in Europe. Sri Lanka has not so far met the problems of highly developed industrial countries, where the main problem of environmental protection lies in the constant changes of the environment caused by the pressures of man. Regardless of the high density of population of Sri Lanka we may not so far fear about the future of the environment of this "EMERALD ISLAND" - but how long still?

Buddhism saves wildlife

Certainly also the religion plays its role here; thanks to Buddhism you do not meet the senseless killing of reptiles as we witness elsewhere. A small example of the attitude of the inhabitants towards reptiles: The driver of the mini-bus, in which I rode through the island caused a collision of the car in his effort to deviate from a small snake creeping on the road. A decisive majority of European drivers would do just the opposite. Driving through our country, you see dozens of small and even larger mammals virtually pressed into the asphalt-cover of our motor-ways and roads. Even the simple inhabitants of Sri Lanka showed their disapproval of our chase of lizards. When realizing that we were releasing the lizards after taking photos of them they showed sympathy with us helping us to catch them for this purpose.

Rare reptiles

We have seen many rare reptiles even outside of the National Parks including Varanus salvator, Varanus bengalensis, Crocodylus palustris and others. Among the mammals I was mostly attracted by groups of Presbytis entellus. The excursions of the two principal National Parks, which we visited, namely Yala and Wilpattu are very well organized; all protective measures are being kept to minimize the disturbance of the animals.

The zoo: I was very well impressed by my visit to the beautiful Zoo at Colombo, containing plenty of rare birds and an excellent collection of monkeys. The exhibition of reptiles as compared with non-European zoos, showed a high standard, Our excursion to the Colombo zoo had a very pleasant outcome in our meeting with the director W.L.E. de Alwis, to whom we owe the excursions into the National Parks.

Tamil Nadu, India - a different story

A just different situation in respect of the protection of reptiles was encountered in India, where the marketing of snake-skins has a very old tradition and moreover the local religion of Hinduism does not protect reptiles. I was curious to ascertain how India managed to comply with the regulations of the Washington Convention (CITES) after having put her signature on it. You can still see goods

made of snake-skins displayed in the stores and shops.

Reptile conservation

We take it for granted that the governmental measures cannot so far eliminate the killing of snakes totally, which fact we witnessed by finding the bodies of recent snakes for the sake of obtaining their skins, in the field. The whole business however is now practised illegally. One merchant told us confidentially that there are now bad times for his business owing to the activities of conservation oriented groups like the Madras Snake Park and World Wildlife Fund.

We can add to the above mentioned fact the success in the breeding of hundreds crocodiles in the Crocodile Bank and the meritorious public education in the Snake Park. We express our sincere thanks to these organizations for their environmental work and wish them further success in their hard struggle for the conservation of nature

Dipl.eng.Vladislav T. Jirousek
Director of the Zoological Garden
of the city of Jihlava
Czechoslovakia

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BENGAL MYTHS ABOUT LIZARDS

The common garden lizard (Calotes versicolor)is erroneously known as blood sucker throughout India. In Bengal, the Bengalis believe the other two lizards Gecko and Varanus to be snakes and believe them to be highly poisonous.

Regarding the emission of sound by geckos the Bengalis believe that at night the geckos produce sounds according to its age. If its age is 3 years it will produce three successive sounds at night.

Many Bengalis believe that Saliva of Varanus is highly toxic to man and if it comes in contact with the skin can cause damage. Another common myth in Bengal is that if a Varanus bites a man viciously, it will not release its hold until thunder is heard.

Bikash Kanti Saha
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PELAMIS PLATURUS FROM MADRAS

On December 4, 1982 a live 'pelagic sea snake' was bro[ugh]t to us by a man who had caught it at the mouth of a brackish [wa]ter canal near the sea. This in itself is surprising as this snake is supposedly a strictly salt water species. What is more interesting however is that the specimen, while conforming to Smith's description in every other way (color, lepidosis and size), differs in that the second supra-labial is distinctly separated from the prefrontal, partly by an extension of the nasal and partly by the preocular. Readers who have this species in their collection are encouraged to write and tell us if such a condition has been met with.

Shekar Dattatri, Research Associate.

SECOND SEARCH FOR CANE TURTLES Heosemys silvatica IN KERALA

A second and more intensive search for a good breeding population of the Heosemys silvatica, the forest cane turtle was undertaken in October and November. Dr. Edward Moll and Dr. Brian Groombridge of Species Survival Commission Monitoring Unit (Cambridge) accompanied the author.

We worked along the route Dr. Henderson had taken in 1912 (Henderson, 1912; Smith 1931) and with the Kadar tribals who had helped him earlier.

On 30 October, we visited a new area, a narrow valley between two hill slopes at an altitude of about 500 m in the evergreen forests. The vegetation on the hill slopes were widely spaced trees with reed and cane bushes. The ground itself was covered with dense low bushes. Here we found the first Heosemys silvatica, a young male with a concave plastron.

Our next find was a juvenile about 58 mm in carapace length and later we found one more turtle of the same size. The juveniles are very drab in coloration with brown carapace and head coloration. Three strong keels are present on the carapace, the lateral keels become less distinct in adults. There is a clay-colored spindle-shaped mark on the plastron. The bridge area is also clay-colored.

A further find of two males the next day in the same area (also with concave plastron which incidently Henderson has omitted mentioning as a dimorphic character from his specimens), showed that the first specimen collected (Hamadryad 7 No.3) in July is a female. This started a frantic search for a female Heosemys silvatica of which we finally found a mature and immature specimen.

Males are much more brightly coloured; the top of the head being jet black, the mandibles yellow and pink on the upper eyelid and cornea. The mature males acquire a bright contrasting white corneal ring around the iris. The spur-like protruberance on the hind leg is more pronounced in the males than in the females.

Females are not as brightly colored as the males. In mature males and females the pink post-ocular stripe is present. The cornea is pale pink in females. Head is clay coloured. Shell is pale brown, plastron is yellow.

A male, a female and 2 juveniles were released back for further studies in this area. This search has established the presence of a small localised breeding population of forest cane turtles in Kerala.

References:- Henderson, J.R. 1912, Preliminary note on a new tortoise from South India, Records of the Indian Museum, VII, pp.217-218.

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J. Vijaya
Research Associate, MSPT.

FRESHWATER TURTLE SURVEY IN INDIA 1982-83

Since late October 1982, a follow up to last years preliminary freshwater turtle survey has been underway in India. Dr. Edward Moll. Chairman, IUCN Freshwater Chelonian Group, is conducting the survey on all the major rivers in India, the objectives being to establish the types and number of species in the different rivers in order to help revise the present listings of turtles on the Indian Wildlife (Protection) Act, and to encourage the Government to start rearing schemes for commercially exploited species of the turtle markets in the north eastern States.

A. Turtle Survey on the Godavari:- In November we were in Andhra Pradesh working on the Godavari river. At Hyderabad at the fish market in Begum bazar we saw Lissemys punctata being sold. People buy them to put them in their wells to keep them clean. One specimen was beautifully patterned with black specks and streaks along the vertebral column. The first marginal was about thrice as large as the second. Incidentally Smith (1931) records that the comparative size of the 1st and 2nd marginals is one of the distinguishing features between Lissemys punctata punctata and Lissemys p. granosa.

We worked the Manthani area on the Godavari in the early part of our survey where we collected three juvenile Kachuga tentoria in the turtle traps. Comparitively the general coloration was darker but drab than in the northern species. Also, the post-ocular spot was red instead of pink, and the spots were smaller. It lacked the yellow stripes on the limbs and tail.

We collected some Lissemys punctata granosa shells from fishermen along the Godavari which were supposedly caught in the broad waters of Godavari.

Many Trionyx leithi shells were collected from the fishermen along the river. We also saw some Trionyx lethi kept in a temple tank at Kotipalli village where people feed them on hibiscus (Hibiscus rosa-sinensis) flowers and bananas. Two turtles were collected from this tank.

Some Melanochelys trijuga trijuga were collected from slow flowing stream-outlets near the Osman Sagar dam area outside Hyderabad.

There were many reports of sea-turtles nesting on the Ka inada coast.

B. Turtle Survey in Uttar Pradesh:- In late November a short survey of turtles was done in some rivers of Uttar Pradesh.

In Agra, we found Lissemys punctata at the fish markets; according to the fishermen there, the turtles are eaten as a cure for tuberculosis.

At Kukrail, we met Mr. Dhruva Basu, formerly of the Madras Snake Park who now works at the gharial rehabilitation centre of the U.P Forest Dept.

we caught a Kachuga tecta in our traps from a small stream at Kukrail. Dr. Moll thought that Kachuga tecta ideally might be a slow-water species from nalas while Kachuga tentoria is an inhabitant of broad rivers.

We collected a Hardella thurgi about 35 cm in carapace length and Kachuga tentoria circumdata, the bright coloured sub-species from the Gomati river near Lucknow. This sub-species, according to Pritchard (1979), has been reported only from the Calcutta region till now.

At Katernianghat on the Ghaghra river the fishermen caught a Kachuga smithi; a small male Hardella thurgi, about 17cm in carapace length, which was caught seemed to be a mature specimen. This raises interesting speculations on the age of maturity in male Hardella thurgi, and also on the machanics of reproduction! According to Smith (1931) male Hardella are much smaller than females and much rarer.

We received no information on Kachuga kachuga from any of the northern tributaries of the Ganges, though there have been reports of 'Sal' from the Chambal river.

At Katernianghat fishermen had some interesting news on Hardella nesting habits. It is generally believed that Hardella thurgi nests underwater, its 20-30 eggs laid in a shallow depression, the eggs left exposed to water while the turtle stays close-by. In the nesting season fishermen find the turtles by letting down a small hook suspended by a string into the water. This hook is put into water at intervals. When the hook touches a turtle, the fishermen dive into water and grab the reptile. They say they find eggs near the turtle. Similar reports on the underwater nesting habits of Hardella were also made by fishermen in Bihar

Some clutches of emydine eggs were also observed on the Ghaghra probably that of Kachuga tentoria, the tent turtle.

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J. Vijaya

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AUDITORY CUES AS POSSIBLE STIMULI FOR HATCHING EGGS OF THE FLAP-SHELL TURTLE *Lissemys punctata granosa*

The common flap-shell turtle *Lissemys punctata granosa* (Schoepff) is found throughout peninsular India and Sri Lanka, inhabiting both rivers and still water ponds. Clutches of 3-8 eggs are laid at a depth of 7-11 cm in the cover of thorny plants like *Cereus hexagonus* and *Carissa carandas* in Madras area.

4 clutches of 5,4,6 and 4 eggs were collected in October and artificially incubated. Temperatures were lowest in November/December (about 24.5°C) and highest in June in the earliest months of incubation.

Previous reports of *Lissemys punctata* eggs incubation are (Biswas and Acharjyo, 1977) around 6 months. In Madras area hatchlings with umblicus still present have been observed in August suggesting a 9 month incubation period. Eggs opened around 6 months show completion of embryomic development while at earlier dates they are still incomplete. However the neonates do not hatch till the rains begin. Moll and Legler (in Gibbons and Nelson 1978) suggest that despite time elapsed since egg laying neonates of painted turtles, *Chrysemys picta*, remain in their eggs until the occurrence of heavy rains. The finding of a suitable environment on emerging seems to be the determining criterion.

In one instance the *Lissemys* egg hatched after being transported 40 kms by jeep possibly due to vibration. Later, on 15th September after continuous rains for 1/2 hour, 3 eggs were found hatched in the morning within the incubator. The incubator itself was placed near a window where the sounds of rain and thunder were audible but no rain actually reached it. It is inferred that though lowering of temperature and general wetness of the nesting material are significant to hatchling emergence, the thunder and rainwater sounds may serve as an auditory cue to trigger the hatching of eggs in this case after a prolonged period of 317 days incubation.

Reference:

Gibbons and Nelson, 1978, The evolutionary significance of delayed emergence from the nest by hatchling turtles. Evolution 32(2) pp.297-303.

J. Vijaya

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*** NOTICE - HERPETOLOGY IN PAPUA NEW GUINEA

A limited number of an illustrated publication from the Wildlife Division, Papua New Guinea "Snakes of Western Province" by Fred Parker are available at the Madras Snake Park. Send airmail postage of $5.00 if you want one. Another 1982 publication, "Reptiles of Papua New Guinea" by Rom and Zai Whitaker is available only from Wildlife Division
Ward Strip P.O.
Port Moresby
Papua New Guinea

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GHARIAL PROJECT IN UTTAR PRADESH

At Kukrail Manorajan Van some 200 gharial hatchlings are being reared as well as several hundred 2 year to 6 years old gharials. The pilot project on gharials was started in 1975 (According to Mr. Dhruva Basu who works at the rearing station.

In recent years the centre has had some 50% hatchling loss due to 'hypersensitivity' and month canker. Mr. Basu believes that a good supply of fresh water fish and a special heating system in the hatchling nurseries might lessen the loss; plans are underway to farm freshwater fish there.

In the National Chambal Sanctuary, gharial poaching unfortunately seems to continue. A large male about 60-70 years old was killed in the sanctum sanctorum in Madhya Pradesh section of the Chambal recently, according to Mr. Basu. Lack of manpower to monitor nesting grounds within the Sanctuary is one of the major handicaps. In 1982 5 gharial nests were collected at Katernianghat and 12 or 13 from the Chambal Sanctuary area within the three adjacent states of Madhya Pradesh, Uttar Pradesh and Rajasthan.

The FAO crocodile veterinarian Dr. E.Jacobsen has suggested that a full-time pathologist be trained under him to solve crocodile husbandry problems.

According to Mr. Basu, no mugger (Crocodylus palustris) status surveys have been implemented in Uttar Pradesh to date. He feels that there is a valuable co-operative effort being done among the three states in the Chambal Sanctuary.

J. Vijaya

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NOTES ON SNAKEBITE IN WEST BENGAL

Case 1

Health Centre:- Harendranagar S.H.C Dist:- 24 - Parganas. West Bengal

Patient's Name:- Purnima Garu, Age 6 months, Father's name- Narendra Nath Garu.

Village:- Tarangar, P.S - Patharpratima, Dist.24 Parganas, West Bengal

A strange incident took place on the evening of September 23, 1974. It was a peasant's house in Tarangar village in the remote corner of south Sunderbans. Narandra Nath Garu, father and Surendra Nath Garu, uncle, two elderly members of the family, were sitting on either side of the radio set placed on the earthen floor. The evening news in Bengali broadcast from the Delhi station of AllIndia Radio had just ended. A review followed. Purnima, a baby girl, 6 months old was crawling just behind the radio set. A few sacks of paddy were stacked against the wall. Suddenly something like a rustle of leaves was heard from behind the sacks. Narendra Nath, the father of the baby commented that a mouse was stirring there and that he would have to buy rat poison to dispose of it. Hardly had he finished when a common krait struck at the baby to the consternation of all and bit her so hard on the back near the waist that it was still clinging when the baby's mother who was passing then began shaking the baby desperately to loosen the grip of the snake. Finally she succeeded in flinging it away. All the others were dumb-founded. As the snake was wriggling away the others recovered their presence of mind and caught it with a net and managed to put it into an earthern pitcher.

Then the father and other members of the family rushed to this Health Centre along with the baby and the living snake which was a Bungarus caeruleus 2 feet 8 inches in length. I examined the baby at about 9 p.m. thoroughly and very minutely to detect the fang punctures. But no fang punctures were detected. The baby was kept under intensive observation for about 16 hours. I was very happy to see that the baby developed no signs and symptoms of poisoning. During the observation period the baby was not given any medicine.

Finally, I came to the conclusion that the snake did not bite the baby but bit and clung to the "Ghunsi" (four strands of red thread) that she had round her waist.

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Case : 2

Health Centre :- Harendranagar S.H.C Dist :- 24-Parganas
West Bengal

Patient's Name :- Sri Santosh Kumar Hazra, Age 46 years.

Sex :- Male

Date and time of bite :- 2/8/80 at bout 3.30 PM

Date and time of examination :- 2/8/80 at 9 PM

Snake :- Naja naja kaouthia

History

While he was working in the paddy field he was bitten by a cobra (about 1 m long) on his left foot. He saw and identified the snake but did not kill it. A little blood oozed from two punctures and he felt very severe burning pain. He came home at once and treated by an "Ojha" (country medicine man) who applied some mashed leaves on the foot and gave him "ghee" (clarified butter) to brink. He also recited some mantras (chants) to cure the victim. But the skill of the "Ojha" failed to cure him. He gradually became paralysed and drowsy. He could not speak properly, ubale to stand without help. The foot was swollen and painful. He felt throat pain, vomited 3 times and his vision was blurred.

On examination

Patient fully conscious, pulse 78 p.m. Respiration 20 p.m. B.P not recorded, pupils dilated. Two distinct fang punctures present. Severe swelling of the whole foot with extreme tenderness on pressure. Patient unable to sit without help, drooping of the upper eyelids, slurring speech, tongue swollen and protruded with difficulty and difficulty in swallowing even liquids. No respiratory distress. Hearing normal.

Management

Absolute rest in bed and gave full assurance. The whole foot was cleaned by cold water followed by alcohol.

Inj. Benzyl penicillin 10 lakhs I.M.
Tetanus/vac 0.5 ml. I.M.
Inj. Decadron 2 cc I.M.
Inj. Avil 1 Amp I.M.
Inj. Lasix 20 mgm I.V.

} Stat (i.e. given at once)

Then

40 c.c. Polyvalent Anti Snake Venom Serum was given by I.V. route very slowly at 9.20 PM. Serum was given without skin test to save valuable time. Patient was kept under intensive observation. No serum reaction developed.

Inj. normal saline with 50% Dextrose, 1 bottle given by I.V drip method.

The patient was symptom free at about 12.30 AM except swelling and pain on the foot. Then given sufficient glucose drink. One Proxyron capsule was given at 1 AM. He felt little pain and has a good sleep.

On 3/8/80 at 8 AM Terramycin 250 mgm, 2 caps given and every 6 hours - 7 days. Prednisone 5 mgm, 1 tab. 3 times daily X 7 days, Proxyron 1 cap. 3 times daily X 3 days. After 3 days a large purple bulla was formed on the foot which burst automatically and a big necrotic ulcer was formed. The wound did heal up after conservative treatment. Then he was referred to the surgeon of the Sub-divisional Hospital, Diamond Harbour, where all necrotic tissues were excised and grafting done. He was cured and discharged from the hospital on 5.9.80.

Investigation done - blood sugar (fasting) 112 mgm%

Dr. Santi Gopal Saha
Medical Officer
Raidighi Rural Hospital
Pin.743 383

Date: 7 7.82.

N.B. Patient's home was about 4 k.m away from Health centre.

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**** <u>WANTED : BOOKS, REPRINTS</u>

The MSPT is becoming Indias herpetol ical reference center. We have the largest collection of herp books in India and growing files of reprints. This is still a long way from fulfilling the reference requirements of Indian herpetologists so we request your help. We will greatly appreciate and acknowledge donations or on exchange basis, any reprints or books on general herpetology, Asian taxa, snakebite.

THANKS IN ADVANCE!

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Newsletter
No. 3

January 1983

SNAKE SPECIALIST GROUP - FIRST MEETING

The SSG's inaugural meeting was an interesting gathering consisting, predictably of mainly participants from India. Sri Lanka, the U.K. and U.S.A were also represented and we had papers and notes from all over the world. The titles of the papers are listed below. Due to the usual financial limitations a limited number of cyclostyled copies of the proceedings were made. A few copies are available for libraries and herp societies.

Titles of papers presented:

1. Introduction, aims and objectives of the Group Rom Whitaker
2. Studies and conservation of the rare snakes of the Western Ghats - T.S.N. Murthy
3. Helminthic infections in Malaysian snakes Stephen Ambu
4. The IUCN Red Data Book - Brian Groombridge
5. A cooperative for snake catchers-Revati Mukerjee
6. Snakes of Sri Lanka : How they are endangered Anslem de Silva
7. Endangered snakes, their conservation in north western India - B.D. Sharma
8. The role of the IUCN/SSC Specialist Groups in species conservation - Ed. Moll

9. Indian snake skin trade - Anne Joseph

10. Snakebites and its affect on the snake population in Sri Lanka - Anslem de Silva

11. India's protective legislation for snakes Wilson P. Durairaj

12. On the endangered snakes of Bangladesh M.A. Reza Khan

13. Snakes under pressure in the Sunderbans Bikash Kanti Saha

14. Rodent damage and biological management Ranjan Advani

15. The potentially endangered snakes of Australia H.G. Cogger

16. Methods of conservation of Uropeltids- M.V. Rajendran

17. Problems of conservation on snakes of India - S. Biswas

18. The role snakes play in education, in United States Zoos - Peter Brazaitis

19. Captive propagation of endangered snakes as a conservation tool - Shekar Dattatri

20. Role of Indian zoos in snakes conservation - L.N. Acharjyo

21. Country and regional reports - Rom Whitaker

22. Threatened snakes in Europe-Abstract Brian Groombridge

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SUMMARY REPORT OF THE FIRST MEETING

Introduction:

India naturally dominated the regional focus of this first meeting, and appropriately, since the heaviest exploitation of snakes in history has taken place here. Many of the suggestions and conclusions on snake study, protection and rehabilitation in India are applicable to other regions. In particular the theme of protection of adequate habitat for endangered forms was stressed.

As Brian Groombridge pointed out, we know much less about which species of snakes need help and how to do it than we do about other reptiles like the conspicuous crocodilians and sea turtles. In general this is because of lack of data, pointing to a second priority: Studies on status and biology.

Meeting Discussions and Recommendations

1. Positive publicity for snakes in vernacular languages through the various media was concluded to be the best way to get across the value of snakes and reasons for their conservation. Extension services of government agricultural and rodent control programmes are ideal channels for dispensing information to rural people.

2. Snakebite is an important limiting factor to public acceptance of snakes. Adequate antivenom and publicity are not available in many countries including India, Sri Lanka and Bangladesh.

3. Obscure hill species like the uropeltids of southern India and Sri Lanka need to be studied in their area of occurrence. Their value in soil aeration and loosening, consumption of beetle larvae etc. can be emphasized to the local farmers. A field station to study these snakes in the Western Ghats of South India should be set up.

4. Snakes known by only a few specimens should be listed in the Red Data Book (RDB) until further data on them is available. Look-alikes should not be listed in the RDB, neither should locally rare species, if common elsewhere.

5. After identifying snakes which need priority attention, status surveys and preliminary studies can often be done through small grants now available from small herp and other societies. $100 can finance a month of travel and expenses in countries like India and Sri Lanka.

6. The SSG should advise governments which snakes they should be giving protection or publicity, to based on members and correspondents data.

7. India is gradually tightening the hold on the skin trade but in Tamil Nadu, always the centers of the trade, the industry has gone underground; tanning has become a cottage industry and very hard to control.

8. Organizations like the Madras Snake Park Trust should receive financial help to upgrade field and captive studies and serve as regional reference centers for herpetologists.

9. Status studies and data collection on snakes which are potential candidates for the RDB should be the Group's main emphasis initially.

10. The Group should also focus on identifying habitats and existing and proposed environmental protection measures to include the habitat of a maximum number of known rare or poorly known snake taxa. Rain forests and mangrove swamps are just two such habitats where all life forms are under extreme pressure from human development.

Projects:

1. List of snakes known from a few specimens and their distribution - Brian Groombridge
2. Amateur herp groups, school and college herp projects to focus on rare and endangered snakes of their area - Feedback requested
3. Identification of endangered snakes for which captive breeding and release may be the only hope for them - Feedback requested
4. Alternative employment project for tribal snake catchers in South India - R. Whitaker
5. Uropeltids - distribution and status - T.S.N. Murthy & M.V. Rajendran
6. Production of illustrated leaflets and booklets on snakes of India - Madras Snake Park Trust (MSPT) with National Book Trust and Dept. of Information
7. Rat eating snakes - Quantitative value of snakes in reduction of crop damage by rodents - MSPT with the Central Plantation Crops Research Institute, Kerala
8. King cobra (Ophiophagus hannah) survey and study - S. Dattatri, MSPT
9. Indian python (Python molurus) survey and study - Committee : L.N. Acharjyo, B.C. Choudhury, S. Biswas and S. Dattatri
10. Captive breeding for rehabilitation and feasibility study for pet and skin trade - MSPT
11. Status survey of endangered Sri Lankan snakes - Anslem de Silva
12. Status surveys of endangered snakes in other countries - Feedback requested to facilitate endorsement by the Group.

Resolutions of the First Snake Group Meeting

1. EUROPE

Background: Under the Berne Convention of the Council of Europe a "Critical Habitats Strategy" has been created to identify key areas of abundance of given species. The first study has been made on two subspecies of Vipera ursinii, one occurring in the high country of Italy and another in the lowlands of Hungary by the Societas Europa Herpetologica (SEH). SEH, it is hoped, will be contracted to carry out the entire herpetological work for the "strategy".

Resolution: The SSG highly endorses this undertaking which can serve as a world model for snake conservation through habitat protection.

2. Australia

Background: The Queensland Government, with the approval of Wildlife and National Parks in Canberra, has permitted an initial quota of 40,000 sea snakes per annum to be taken by trawlers for the skin industry. The Queensland Herpetological Society urges the Government to disallow sea snake exploitation until something is known of their status and natural history.

Resolution: In line with IUCN policy (not to mention commonsense), the SSG recommends that exploitation of sea snakes be based on assessments of populations of the different species involved. Further, if a harvest is found sustainable, the whole animal should be utilized.

3. U.S.A.

a) Background: Annual rattlesnake roundups in Oklahoma, Texas, Arkansas and Georgia and other states, kill thousands of rattlesnakes of several species. The snakes are cruelly treated before dying to create a public spectacle.

Resolution: The SSG supports moves by local and regional herp societies to study the effects of intensive local hunting pressure on rattlesnakes. The SSG urges these organizations to get the support of the SPCA and State Wildlife authorities to minimize cruelty to the snakes.

b) Background: A number of studies on rare and endangered snakes in the Americas are underway or planned. These include:

1. Eastern indigo snake (Drymarchon corais couperi)
2. Western massasauga (Sistrurus catenatus tergeminus) (Richard A Seigel)
3. Status of endangered snakes of California (Mark Jennings et al)
4. Inventory of Vermont reptiles (The Nature Conservancy Vermont)
5. Lowland tropical forest snakes in Costa Rica (Harry Greene)
6. Survey and captive breeding of rare neotropical boids by the Jersey Wildlife Trust (U.K.) (as well as the Round Island boas in Mauritius).

Resolution: The SSG fully endorses the above listed projects and urges the numerous American herp societies and appropriate academic departments to plan and sponsor similar studies, with endangered species receiving the highest priority.

4. INDIA

a) Background: The official ban on export of snake skin from India was an important step toward overall control but is far from being effective. Stockpiled skins number in the millions and now will be bought and used by the Government's Bharat Leather Corporation.

Resolution: The SSG congratulates the Govt. of India for relinquishing a large re enue in foreign exchange for the ecological consideration of snake protection. The SSG urges that a) State and Central enforcement agencies be given more powers and support to effectively control

the present illegal trade b) Government should not encourage trade by allowing periodic clearance of "old stock" c) alternate employment be found for traditional tribal snake catchers like the Irulas of Tamil Nadu d) studies on the feasibility of sustained skin harvests and captive breeding be undertaken with a firm biological basis.

b) Background: At present Indian zoos have inadequate reptile displays and nothing is done to preserve the traditional art of snake catchers and charmers.

Resolution: The SSG recommends that the Government of India carries out the following actions with assistance from the appropriate SSC Specialist Groups:

1) develope adequate zoo reptile sections, concentrating on the rearing and breeding of local species
2) develope training programmes in reptile husbandry for zoo personnel
3) employ snake catchers and charmers for zoo reptile work and scientific work and record the dying traditions of these interesting and knowledgeable people.

5. General background: There is no single statement which offers a grovernment an outline of a policy for snake conservation. Many otherwise enlightened governments do not have provisions for protection and management of snakes. Others do not take cognizance of snakes in environmental impact studies and the like.

Resolution

The SSG calls upon the appropriate agencies of all governments to recognize the ecological, medical economic and scientific value of snakes and to formulate study, conservation and management programmes for these important reptiles. Protection of the habitat of rare snakes is desirable because it invariably includes the protection of other rare and endemic animal and plant life. The SSG urges governments to encourage their zoological and academic institutions to carry out the studies on status, biology and distribution necessary to accomplish effective snake conservation.

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PYTHON RELEASE IN MUDUMALAI SANCTUARY AND HERPETOLOGICAL TRIP TO NILAMBUR VALLEY

From November 13th to 16th four participants of the Snake Group meeting and two snake parkers took a trip to the Mudumalai Wildlife Sanctuary in Tamil Nadu and Nilambur Valley, Kerala. The primary purpose of our trip to the sanctuary was to release four, two and a half year old captive bred Indian pythons (Python molurus). This is the first time in India and as far as I know - in the world that an endangered species of snakes has been captive bred and released into the wild. The released snakes were 3 males and one female. The males averaged 1.77 m in length and the female measured 2.15 m. All

the snakes were released at the same site- a rocky knoll approximately 200 m. from the Moyar River. We chose this site after looking at several others because it is on the regular beat of Forest Department personnel. Another reason is that in May, 1982 a python nested in a low (metre high) cave under the rocks. The snakes have been scale clipped and photographed for future identification. At this size they are less vulnerable to predators and big enough to feed on prey such as small mammals, jungle fowl, partridges etc. As our adult python population at the Snake Park are now breeding regularly we hope to make the release program a yearly feature. This release was made possible with the kind cooperation of the Additional Chief Conservator of Forests (Wildlife), Mr.K. Shanmuganathan and the Wildlife Warden Mr. Mangalraj Johnson.

The half day we spent at Kadavakunnu, Nilambur, on the 15th were refreshing and, as always, the diversity and abundance of rain forest herpetofauna encountered amazed us. Since time was short we selected a plot measuring 10 m X 685 m. typical of the forest in that area and subdivided this into six transects to search for herptiles. Later, we walked along a stream for about a kilometre to look for frogs and pit vipers. A list of the herpetofauna encountered that day follows. Most of the specimens were photographed, identified and released.

Reptiles Seen in the Forest Plot

Plot size : 10 m X 685 m.
Vegetation : rain forest flora with sparse undergrowth
Approx. Altitude: 750 m.
Time spent : One hour

Snakes

Viperidae, subfamily : Crotalinae

1. Hypnale hypnale : a single specimen was found on a small, exposed rock. The snake had fed recently, on a skink or gecko. Another specimen was seen earlier that morning on a rock along the path.

Lizards

Agamidae:

2. Calotes elliotii: A juvenile, found low on the trunk of a tree.
Surprisingly, the specimen had a red throat which is more typical of the superficially identical Calotes rouxi.

Gekkonidae:

3. Cnemaspis kandiana: Two specimens were found under a rock and two more at the base of a buttress.

Scincidae:

4. Mabuya macularia: a single specimen.

Several other skinks and frogs seen could not be caught/ identified in the field. A single Rana verrucosa and several Rana beddomii were seen along the path.

Herptiles Found Along the Stream

Snakes

Viperidae, Subfamily Crotalinae:

1. Trimeresurus malabaricus: Eight specimens were seen in the approximately one kilometre of stream surveyed. Two of these were on the stream bank, one was basking on a rock and all the rest were on twigs and thin branches overhanging water. They seemed to prefer having water splashing on them from below continuously. The degree of color variation seen among was startling.

Colubridae

2. Xenochropis piscator: a single reddish colored individual was caught in the stream.

Frogs

3. Rana temporalis: a single specimen at the edge of a stream.

4. Nyctibatrachus major: a single specimen at the base of a small waterfall where the water had formed a small pool before flowing downward.

5. Micrixalus sp.: Several small specimens were found both on the forest floor and along the stream. A pair were seen on the vertical face of a rock a metre away from the water. The smaller male was perched on the back of the slightly larger female which had six pure white round individual eggs adhering to the vent and thighs.

7. Micrixalus sp. : There were numerous torrent frogs on rocks in the stream.

The Road Home

On our way back to Madras on the night of the 16th we made a couple of impromptu stops just south of Kolar (Karnataka) to investigate a few roadside rocky hills for nocturnal herps. At the first hill we were able to observe several Hemidactylus giganteus. This is one of the largest hemidactyles and attains a length of 23 cms. We also saw numerous rock lizards (Psammophilus dorsalis) leeping on the rock faces. Females and juveniles were often found sleeping close to each other in small groups while the few adult males seen were inside deep clefts.

on the second hill Hemidactylus brooki were common and a single H. triedrus was seen. Interestingly, no smaller gecko species were seen in the first hill while H. giganteus and P. dorsalis were conspicuously absent on the second. We found a kukri snake (Oligodon arnensis) on the road and later, on the hill, a small cat snake (Boiga trigonata) on its nocturnal search for prey.

Shekar Dattatri

HERP FIELD TRIP DURING SSG MEETING

During the inaugural meeting of the Snake Specialist Group a field trip was undertaken to introduce the participants to our local herps in the scrub jungle area on the outskirts of Madras.

1. Within an area of about 1000 sq. metres at Pudupakkam near Vandalur, where we spent about 4½ hours with Irula tribal hunters Chockalingam and Kuppam, the following herps were collected:-

Two saw-scaled vipers, Echis carinatus found by the Irulas in the short spiny Carissa bushes in the open field.

A rat snake, Ptyas mucosus was found moving among the leaf debris on the ground in a mango orchard.

A vine snake, Ahaetulla nasuta and a chameleon, Chameleo zeylanicus were found on a neem tree, Azadirachta indica. Common skink, Mabuya carinata, Sita's lizard, Sitana ponticeriana and the garden lizard, Calotes versicolor were found in the open field and sparse scrub area.

Another Ptyas mucosus, over 2 metres in length, was detected by the Irulas. Kuppam one of the Irulas, found the track of this snake entering a rat burrow one one of the bunds bordering the orchard. The burrow itself was well covered and protected by a thick patch of Carissa carandas bush. The tracks of the snake on the earth near the opening was clearly evident. On digging, we found the snake curled within one of the rat's chambers. There were no rats in the burrow, probably having been eaten by the snake.

A Russell's viper, Vipera russelli juvenile was picked up in tall grass clumps after a short chase.

II. Our second search was at a place about 16 kms from nearby Mahabalipuram, the general habitat was a open country with low Opuntia and Carissa bushes. Paddy fields nearby.

Two female black sand boas Eryx conicus were found within Rattus meltada burrows about 4 ft. deep within the tunnels. Another Eryx conicus was found dead among the water clogged paddy plants.

III. Our third stop was about 11 kms from Mahabalipuram at Alathur where we searched along a bund bordering a shallow lake with many trees.

A juvenile Echis carinatus was found in a small burrow.

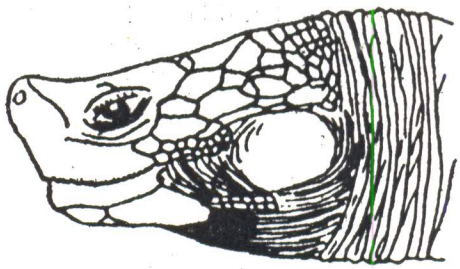
A bronzeback tree snake Dendrelapis tristis, found half coiled at a height of 2 m. on a tree branch.

Two striped keel backs Amphiesma stolata, were found among thick patches of prickly pear cacti. The big one was about 30 cms in length.

2 DOR specimens of Amphiesma stolata a male and a female were found, possibly killed by being run over while mating.

J. Vijaya

NEWSLETTER



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U S A

Number 5
January 1983

This number of the FCSG Newsletter is being issued along with the January Hamadryad: the Newsletter of the Madras Snake Park Trust. Members having an interest in reptiles and conservation in India and South East Asia will be interested in subscribing to this ~~tri-yearly~~ publication.

IUCN/SSC MEETING-MALAYSIA

The 58th meeting of the IUCN/SSC was held October 4-6 in Kuala Lumpur, Malaysia. In addition to regular business Russ Mittermeier organized a symposium entitled Species Conservation Priorities in the Tropical Forests of South-east Asia. This was followed by an informal mini-symposium on concepts, definition, interpretation and useage of categories of species status and threats.

Considerable discussion accompanied the latter subject particularly as to how one should define "endangered ". The term has been equally applied to populations having but a few members to others that number in the thousands. No consensus was reached and the chairman appointed a committee to study the subject further.

Following the meetings two different fieldtrips were offered one of which was particularly productive to turtle enthusiasts. This trip included the Department of Wildlife's new Batagur hatchery and nursery facility at Batu Gajah, Perak. This facility includes an artificial sand beach for hatching eggs, a series of concrete holding pens for raising hatchlings and a larger concrete pond for a group of near adults which have been raised in captivity since hatching in 1967. Also on this trip, we visited my former study area for Batagur and Callagur at Telok Anson and were treated to seeing a male Callagur in full breeding colors basking within good camera range.

On 5 October the Freshwater Chelonian Specialist Group met following the regular session. Considering the distances that most of us had to travel, the turnout was quite good. Members attending included: Kiew Bong Heang of the University of Malaya, Kuala Lumpur; Russell Mittermeier, World Wildlife Fund-US, Don Moll, Southwest Missouri State University; Luis Fernando Padua, Dept. of National Parks and Equivilent Reserves; Brasilia, Brazil; Anders Rhodin, Fitchburg, Mass; Siow Kuan Tow, Malaysian Fisheries Department, Kuala Lumpur and myself. S. Biswas of the Zoological Survey of India, Calcutta could not attend but sent two reports for the meeting.

In addition to the aforementioned members, several guests also attended the meeting. Ms. Misliah Mohamed, Basir, Dept. of Wildlife and National Parks, Trenggaru; Admiral Ibsen Camara, Brazilian Foundation for Conservation of Nature; Ms. Isabelle Constable, Boston, Mass; Encik Mohamed Khan bin Nomin Khan, Director General of Wildlife and National Parks, Kuala Lumpur; Ms. Susan Rodin, Fitchburg, Mass;and Mr. Robert Scott, Executive Officer IUCN/SSC Gland, Switzerland. Dr. R.C. Sharma of the Zoological Survey of India arrived too late for the meeting but participated in subsequent discussions.

Six reports were presented during the evening. These are briefly summarized below or in the case of Biswas and Camara reports where typed copies were provided, the entire text has been appended.

Mohamed Khan discussed the history, accomplishments and future of Batagur conservation in Malaysia. The Batagur conservation program was initiated by the Game Department of Malaysia on the Perak River in 1967. The program started with a hatchery and later added a head starting program where the young are raised for one year in captivity prior to release. Early set backs due to flooding and inexperience have been largely overcome. The perak hatchery has now released some 20,000 young into the wild and new programs have been started in two additional States- Kedah and Trengganu. All of the projects now have permanent staff (1 ranger and 3 assistants) which are provided with housing, a vehicle, a boat and the necessary rearing facilities.

To update the above reports I worked with the Game Department on a study of Batagur and their conservation program in 1975-1976. Results of these studies have been provided in an unpublished reports and several scientific and popular articles. Last year the Malaysian Department of Wildlife and National Parks asked me to prepare a recovery plan for Batagur. Based on this experience, the plan has been completed and was presented to Mohamed Khan at the IUCN/SSC meeting. One of the main points of the plan was that artificial hatcheries by themselves are inadequate to save Batagur; problems of habitat destruction must also be solved. I have just heard from Mohamed Khan and he is taking immediate steps to implement the recovery plan. The plan will be printed and distributed to appropriate personnel and agencies. He is assigning a research officer to work particularly on Batagur baska. This officer will be provided with supporting staff and equipment. According to Mohamed Khan

this is the easy part, the hard part will be securing the cooperation of all the relevant agencies necessary to protect the turtles (the river) environment. The involvement is quite massive. He closes by saying: "we will have to do our best. We have no choice if the project is to succeed".

Siow Kuan Tow tate Director of Fisheries Trengganu then discussed the Callagur hatchery program which he and I began in 1978 at Kampong Mankok near the Setiu River in the Besut District of Trengganu. Callagur like Batagur is heavily exploited for its eggs. As it usually lays along sea beaches where most stretches are licensed to sea turtle egg collectors, almost all of the eggs are taken and sold in local markets. The hatchery was established to assure some recruitment. In the initial year 1000 eggs were collected or purchased from collectors for the hatchery. Several hatching techniques were tried i.e. reburying on a fenced area of beach, styrofoam boxes and plastic buckets. Although hatching success was greater in the latter two methods (Ca.85%) no evaluation was made of the sex ratios produced.

In a later experiment Siow investigated the feasibility of rearing hatchlings in floating cages prior to release. The hatchlings were fed vegetables and fish but seemed to prefer the former. The experiment was cut short when the cage was destroyed by a flood but results prior to this were discouraging in that the hatchlings grew extremely slowly.

Recently the project has slowed due to difficulties in getting egg collectors to bring in eggs for the hatchery. In 1981 268 were purchased 219 hatched in the beach hatchery. In 1982, 173 eggs were taken and 139 hatched.

In the next report Liew Bong Heang discussed one of the most serious current threats to riverine life in Malaysia- dam construction. Malaysia is investing heavily in hydroelectric power. At present some 20 projects have been completed about 3 more are under construction and somewhat more than 20 additional projects are planned.

Many of these projects are useful and well planned others are ill conceived such as the proposed dam on the Tembling River which would flood much of the lowland forest habitat in Peninsular Malaysia is only National Park.

Whether useful or not most of these dams involve alterations in the riverine habitats which can affect turtle populations.

Potential problems include the following:

1. Siltation, due to earthwork, destroys nesting sites and makes more shallow allowing species such as softshell to be more easily exploited.
2. Sand taken for construction frequently comes from favoured nest sites of certain species (e.g. Batagur)
3. Those species dependent on land based food supplies (e.g. Batagur feeds heavily on fruits and vegetation of bank species) may have their food supplies destroyed when the water rises.

4. The lentic habitat formed with its high organic content may not be suitable habitat to lotic habitat forms.

The Malay Nature Society is currently campaigning to stop ill conceived dams such as the Tambeling. However, a large dam on the Trengganu River is almost complete and its effects on the large Batagur population there will soon be known.

Two reports of Dr. S. Biswas concerning turtle conservation problems in India and recommendations for action were read by the Chairman, these have been appended to the newsletter.

Admiral Ibsen Carrera followed with a report on Brazil's efforts in river turtle conservation. A copy of this report has also been appended.

Moll then presented a review of the group's accomplishments over the last year a report of which would be submitted to the general meeting in the specialist group reports. As most of this information has already appeared in previous newsletters, I have not reproduced it here. However a subgroup report presented at the general meeting by Anders Rhodin and Russell Mittermeier concerning the status of Chelid turtles has been appended.

Following the reports the group discussed problems of funding the action plan and of compoting with mammals and birds for a share of the conservation dollar. Russ Mittermeier recommended that the group prepare their action plan in the form of a booklet containing abstracts of needed projects and RDB sheets for each species. Such booklets have proven very effective for the Primate Group in their efforts to fund important projects. The FCSG members present generally approved of the recommendation.

The meeting was adjourned at 8 PM.

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REPTILE RED DATA BOOK - PART- I

The first part of the IUCN Amphibia-Reptilia Red Data Books in the new hard-bound format was displayed at the IUCN/SSC meeting in Kuala Lumpur. This volume of this series which has been compiled by Dr. Brian Groombridge concerns turtles, crocodilians and rhyncocephalians. Threatened turtles covered include 5 species of Kinosternidae, 1 Dermatemydidae, 12 Emydidae, 22 Testudinidae, 5 marine turtles, 1 Trionychidae, 6 Pelomedusidae and 6 Chelidae. In addition to the revised data sheets the book lists the included species in systematic order, by Red Data Book category and by country and zoogeographical region.

The Red Data Books are published by IUCN, Gland, Switzerland

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REGIONAL NEWS

Oriental Region

Currently I am in India on a 9 month survey, collecting data on the distribution and status of Indian turtles. In the first third of this survey, I have visited the evergreen forests of Kerala, the Godaveri River in Andhra Pradesh and the Gompti and Ghagra River of the Ganges drainage in Uttar Pradesh.

One of the most interesting trips thus far has been the trip to Kerala. The purpose of this trip was to survey the status of the recently re-discovered Heosemys silvatica and to select a site where it can be studied ecologically.

H. Silvatica was described in 1912 from specimens taken in evergreen forest at about 2000 altitude by J.R. Henderson (Records of the Indian Museum VII) but it was not reported again until in July 1982 when Ms. J. Vijaya of the Madras Snake Park obtained one from a local inhabitant near the type locality (1982 Hamadryad 7 No.3) A second specimen was obtained in similar fashion by Mr. P. Kannan (FCSG Member-Oriental Region) in September of 1982.

In late October, Ms. Vijaya, Dr. Brian Groombridge (Editor- Reptile Red Data Books) and I visited the type locality and spent a week in the vicinity. We found twelve of these small terrestrial turtles (5 males, 2 females, 1 female immature and 4 juveniles). Considering the large percentage of juveniles the population appears to be healthy and reproducing. In the search time, we found about equal numbers of Heosemys and Geochelone travancorica, the only other chelonian in the habitat. It appears that at present the turtle is still relatively common within its habitat. Some are being eaten by tribals but because of their small size they are seldom hunted but rather are usually taken incidentally. The greatest danger lies in lumbering of the habitat which is occurring throughout the area. The cut-over areas that we observed lacked turtles.

Ms. J. Vijaya will be studying the ecology of the turtle as well as the effects of lumbering on its abundance over the next year.

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PROPOSAL FOR CONSERVATION OF CHELONIANS OF INDIA

By
S. Biswas

Turtle conservation and management in India is a big challenge for Indian conservationists. There are many social and economic problems connected with conservation work which are difficult to solve without active government help. It also requires coordinated efforts of all other organisations and institutions to make a conservation programme successful.

The Malaysian conservation program for Batagur baska as described by E.O Moll (1980) is an example of one such programme which has been successful. The Perak River population of Batagur was declining rapidly due to the great demand for its eggs. Fortunately the Malaysian government intervened and created a hatchery for Batagur eggs which are purchased from local egg collectors. In this way the Batagur population is being protected without bringing financial hardship to the egg collectors.

In India one special organisation is urgently needed at the present moment to undertake the responsibility of research connected with the conservation of Chelonians such as, survey, ecology, biology, prospective planning and management. Some institutions or organisations like Tiger Project, Crocodile Research Institute and many fishery departments are doing good work in their field in collaboration with International and national scientific bodies. Though Zoological Survey of India is carrying on efficiently general faunistic survey research on systematics and some scientists of the survey are interested in turtle conservation, its present strength, resources, mobility and flexibility are not sufficient to undertake such a big task alone. There should be an institute where applied research in the field of chelonian research will be carried on as is being done on fish by the Central Inland Fisheries Research Institute. Nearly 25 species of freshwater turtles, 5 sea turtles and 4 land tortoises are occurring in the Indian subcontinent and each species require careful attention. These species should be surveyed extensively and intensively for preparing a realistic status map. Our present knowledge on most of these species is insufficient to suggest any realistic plan. There is no other organisation in India which is at present entirely interested and devoted of such a magnitude of turtle research problem, nor is able to take up the responsibility. Therefore, I wish to propose for setting up a central organisation of Chelonian research which should be named as Chelonian Research Institute or Centre of India. This organisation will also implement the following four proposals of turtle conservation in cooperation with the Government and other institutions interested in the conservation of Chelonians.

If it is adopted and agreed upon, it will be the first step for a successful turtle conservat on in India.

1. A programme of mass education to make the people conscious for conservation of turtle in its natural condition should be carried out through all the available mass media.

2. Capture or exploitation in nature should be banned totally or partially and where implementation of ban is not possible due to social or economical reason it should be actively discouraged.

3. Reared captive turtle fishery should be encouraged to meet the market demand and should be expanded to such an extent that the pressure of turtle capture in the natural condition is released.

4. Study on each species especially the rare ones should be carried out in captivity as well as in natural condition and habitat. They should be bred, reared and releasef in their original protected habitat, A system should be developed for periodical monitoring the reintroduced or rehabilitated population.

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CONSERVATION AND STATUS OF CHELID TURTLES
FCSG SUB-GROUP REPORT - IUCN/SSC MEETINGS, KUALA LUMPUR

By
Anders Rhodin and Russell Mittermeier

In conjunction with the preparation of the Red Data Book, and the development of a global conservation strategy for freshwater chelonians, the status of all chelid turtles has been reviewed.

The Western Australian swampturtle, Pseudemydura umbrina possibly the single most endangered freshwater chelonian in the world, though closely monitored and well protected, has failed to make significant population gains. Captive breeding is slow due to low fecundity and delayed maturation, and one of the two wild populations is continuing to decline in numbers. The total world population remains below 100.

As a preliminary step to delineating the status of South American chelid turtles, an extensive taxonomic and distributional review of the group has been undertaken. Previously felt to contain 18 non-endangered taxa, our work indicates the presence of at least 28 taxa, with as many as 11 of those endangered or extremely rare. Many of these new species are currently being described, and should probably be added to the Red Data Book and CITES listings upon publication. A new species of Phrynops from Rio Grande do Sul in southern Brazil and northern Uruguay is known from less than 20 specimens, none collected within the last 30 years. A new

species of Platemys from southern Bolivia and northern Paraguay, until recently only known from 2 specimens collected over 100 years ago, is currently showing up in small numbers in pet trade shipments from that area, the total number of known specimens now up to 13. A relatively cryptic species of Phrynops from southern Paraguay has also been identified, in this case known from less than 10 museum specimens and one live animal. In addition, several previously described species have had their population status clarified. For example, Phrynops hogei from the Rio de Janeiro area of Brazil, previously known from only the single type specimen has had its range delineated through museum and field work which has identified an additional 16 specimens, including the first 4 live animals ever known. The population occurs in the Rio Parabia drainage, an area of heavy siltation and habitat destruction where the creation of a natural reserve is unlikely. A program of captive breeding has been recommended. The e tremely rare Phrynops dahli from the Sincelejo region of Colombia may be on the verge of extinction due to severe habitat destruction. Live animals have not been observed in the wild for over 20 years and suitable habitat within the species' known range is almost non-existant. An immediate status survey and specific conservation recommend ations are desperately needed.

This work has demonstrated that when a poorly-known group of animals is subjected to rigorous taxanomic analysis, the results may demonstrate that several members of that group are in actuality endangered and will require specific conservation efforts.

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RIVER TURTLE PROTECTION IN BRAZIL

By
Ibsen G. Camara

Brazilian river turtles include atleast nineteen species, belonging to nine genera and four families. The ecology and size of the surviving populations of these species are little known, but in the most developed areas of the country illegal capture, environmental degradation and water pollution are certainly producing negative results.

According to Brazilian legislation, the capture and trade in river turtles are nominally prohibited, but the size of the country and lack of adequate controls make it very difficult to enforce the law to the full extent. Several species belonging to the genera Podocnemis, Kinosternon and Chrysemys still are illegally captured in considerable numbers, the first two for food, the last one for the pet trade.

In spite of the large number of Chrysemys and Kinosternon that are captured each year, these species don't seem to be endangered. The situation of the turtles of the genera Podocnemis and Paltocephalus, the big Amazonian river turtles, is somewhat different. The genus Podocnemis is represented in Brazil by four species (P. expansa, P. unifilis, P. erythrocephala and P. sextuberculata)

and Peltocephalus by only one (P. tracaxa), all found exclusively in Amazonia. The five species, specially P. expansa the giant South American river turtle, always have been a traditional and important food source for the Indians and for local populations of today. In addition, their eggs were used to produce "turtle oil" for food and ilumination in the past. For those reasons, exploitation of the Amazonian river turtles reached almost incredible levels during the last three centuries.

In the first half of the last century, the British naturalist Bates estimated that atleast 48,000,000 eggs were destroyed each year in Brazil, only for the production of turtle oil. Other writers mentioned boats carrying tons of turtles to the local markets. Such enormous devastation over a period of so many years couldn't be supported even by such prolific animals. Ojasti, studying P. expansa in the Orinoco, estimated that the local population in 1965 was less than 14,000 turtles, whereas Humboldt found more than 300,000 in 1799. There aren't reliable data concerning the size of its populations in Brazil, but the depletion has also been drastic. The giant turtle has become so difficult to find that a large animal is said now to cost as much as US$200,00 in the city of Belem.

During the last fifteen years, the Brazilian Ministry of Agriculture, the Government agency responsible for the protection of fauna, has been trying to prevent the depredation of Amazonian river turtles, particularly P. expansa. As a preliminary measure an extensive survey of possible nesting beaches was carried out and a great number of them have been located and studied all over Brazilian Amazonia. Since the capture of nesting females and collecting of eggs are the most important factors, the protection of all beaches against poachers would be the best course of action, but the great number of sites, the length of incubation and the high cost of extensive surveillance prevented the protection of a very large number of nesting beaches. A selection of beaches couldn't be avoided and a programme for protection of the most promising beaches was enacted.

A second measure of defense was to reduce the enormous proportion of destruction of the young turtles by natural predators during the first days of life, when a number of fishes, birds and caimans catch as much as 95 per cent of the hatchlings. The protection of the young animals inside provisional enclosures for one or two weeks and their later liberation far from the beach gives them a much higher probability of survival.

Using these techniques during the years of 1979, 1980 and 1981, more than 40,000 nests in 71 beaches have been protected and a total of more than 2,600,000 hatchlings of P. expansa were released under controlled conditions. These actions were intended mainly to protect P. expansa, but since other podocnemine turtles reproduce on the same beaches they have also been protected.

The giant river turtle is a most prolific animal. The majority of females deposit 80 to 140 eggs each year, maybe sometimes more than 180. We estimate that a female produces a mean of a hundred eggs a year, over a period of atleast thirty years. If only seventeen percent of the offspring reach mature age and reproduce at the same rate, just one female after thirty years could have more than 210,000 edult descendants. By applying adequate measures of protection and management, to such a fertile animal the threat of extinction can be prevented easily and sustained-yield harvesting is quite possible. The giant river turtle, with careful and scientificly oriented management may become a major source of valuable meat for local human populations. The high level of protein in Podocnemis meat, much appreciated by local people, and the possibility of large scale breeding and control of hatchling's predation leads us to believe that the cautious use of these turtles can lead to the restoration of a very important source of food for the whole region.

In our opinion, facing the present situation, P. expansa shouldn't be considered endangered, at least in Brazil. The situation of the other species of Podochemis and Peltocephalus is rather indeterminate, but it seems to be more or less similar. Besides that, all the Brazilian species of podocnemine turtles are protected inside large national parks and biological reserves created recently. Dozens of nesting beaches have been protected soon and some of them are expected to be converted into national sanctuaries.

We agree that the effort to protect the river turtles has to be a continous one or it will not be effective, and that the high cost of its maintenance is a serious problem to overcome, but the prospects for the future of those important turtles have improved substantialy during recent years.

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PRESENT STATUS OF INDIAN EMYDIDAE AND OUR IMMEDIATE ACTION PROGRAMME

By
S. Biswas

One of the main causes of declining turtle population of India is the intensive exploitation for the market consumption. Turtles supply a readily available source of cheaper food for the local tribal as well as the poorer section of urban and rural people. Another cause of some species of turtle being endangered in nature is the change of ecological balance due to human intervention.

The only hopeful feature in the struggle of the hopeless existance in the life of turtle in India is that there still exist some remote inaccessible and difficult places away from human habitation where the hungry hand has not yet reached or in natural waters where turtle exploitation is difficult and uneconomical (Biswas 1982). Another hopeful point for the existance is the religious sentiment of a section of Hindu, Muslim and tribals, some of whom think turtles are representative of God and to others whom turtle meat is forbidden. But this sentiment is not believed by all and the day is fast approaching when whatever restraint these sentiments may hold will vanish. In north and south India a major portion of population is still vegetarian but slowly even this food habit is being limited only to the higher caste of people. Now where turtles are not consumed by vegeterian and religious people they are being exploited for the markets where most people are non-vegetarian and there is demand in the market. Turtle or the meat is sold in most of markets of North Eastern India and people of this area usually prefer meat of freshwater turtle than that of sea turtles.

Therefore to save the turtle of India, first of all we shall have to identify the concerned species and at the same time its present status in nature is to be determined, so that we will be in a position to suggest the appropriate management programme for its conservation.

Out of the two families of freshwater turtle, Emydidae and Trionychidae, in my opinion, the species belonging to Emydidae are placed in a more disadventagous position in their struggle for existance due to their terrestrial, semiterrestrial and restricted or limited aquatic adaptation. The species of this family are more vulnerable and are easily brought to the threatened status due to predation, exploitation and habitat destruction and that is why I presume comparatively population of Emydids usually have a more restricted distribution than Trionychids. Information on distribution and present status of the following species are necessary as we have little knowledge about them. I have mentioned below only some emydid species of India though there are several other species of the same ~~fait~~ family in the adjoining regions which need careful attention. The survey should be conducted in such a planned manner that that the report should contain species wise area of its distribution, approximate population population of the species in that area, causes of distributional limitation if there is any suggestion of future conservational or management programme etc. Out of all the above

mentioned species Batagur baska is the most endangered or almost extinct in the Sunderban area of West Bengal which was once its typical habitat. So far no information of its occurrence in Sunderban is available though in the Sunderban area of Bangaldesh this species still esists. A survey should be immediately conducted in collaboration with the Tiger Project of that area to find out the status of the species in that area. The survey will also find out the cause of Batagur disappearing from part of Sundarban in West Bengal and suggest future course of action for its rehabilitation.

Species	Status
Cyelemys mouhati Gray,	A few shells only were collected in North Cachar.
C. dentata Gray	Garo and Khasi Hills.
Geoclemys hamiltoni Gray	The distribution is generally known from Sind to Bangaldesh but data is lacking.
Morenia petersi (Blyth)	Jessore, Dacca, Fatehgarh, Bangladesh, Calcutta recorded doubtful.
Kachuga smithi (Gray)	Much rarer in the Ganges river system.
Melanochelys trijuga	Known to occur only from Kerala. Present information nil.
Heosemys silvatica (Henderson)	Only two specimens are known from Cochin (Kerala)
Kachuga sylhetensis (Jerdon)	Once known to occur in Garo, Khasi and Naga Hills but at present no knowledge.
Kachuga kachuga (Gray)	The distribution discontinus and localised and in S.India not confirmed.
Batagur baska (Gray)	Present occurance in India is boubtful.

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SUBSCRIPTION

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Participants of the 1st meeting of the SSG

Releasing pythons at Mudumalai Wildlife Sanctuary, Tamil Nadu.