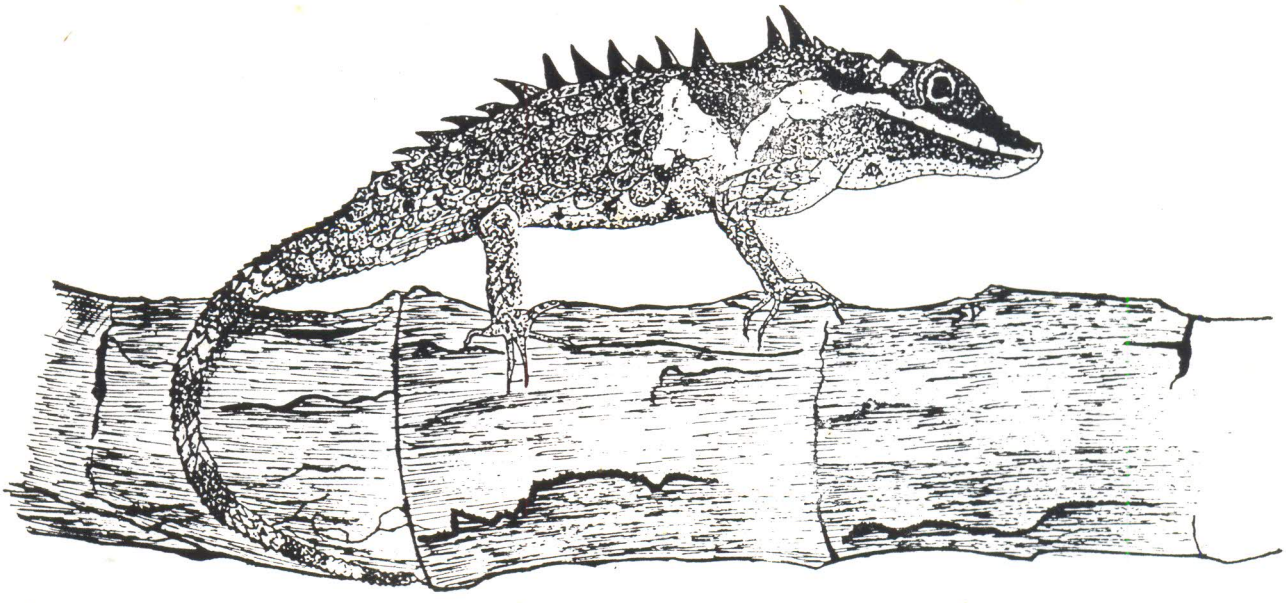
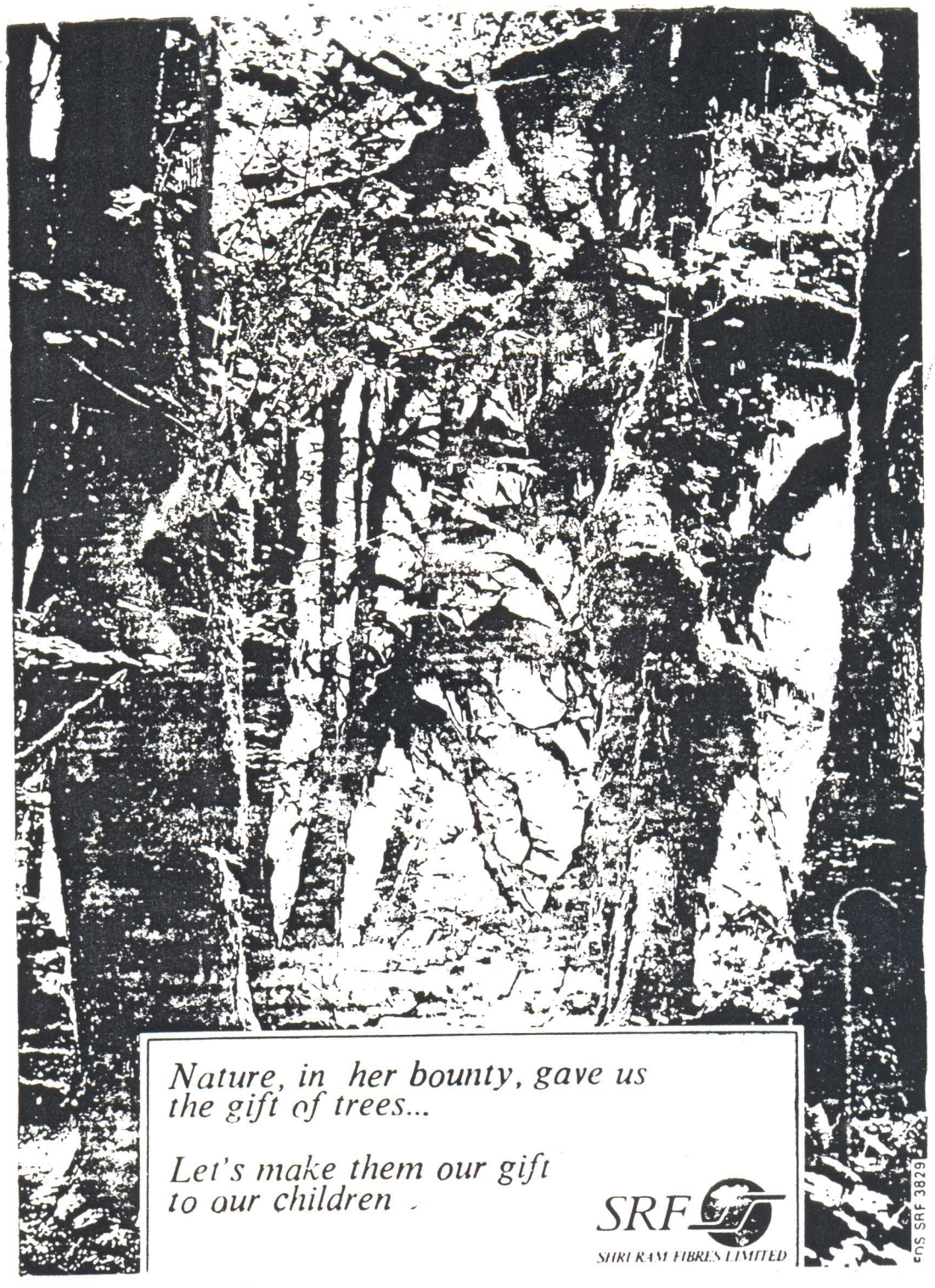
HAMADRYAD

9 : No. 1 January 1984



Cophotis ceylanica


Nature, in her bounty, gave us
the gift of trees...
Let's make them our gift
to our children .
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HAMADRYAD: NEWSLETTER OF THE MADRAS SNAKE PARK TRUST
9 : No. 1 January 1984

News from the MADRAS SNAKE PARK and
MADRAS CROCODILE BANK

Mr E R C Davidar is welcomed as a trustee of the Snake Park

Three Uromastix hardwickii which have been with MSP for two years have now been put on display and are doing well.

The Director attended the newly constituted sea-turtle conservation committee's meeting in Bombay. This is a Govt. of India/ Dept. of Environment body.

MSP will be getting a female reticulated python from Ahmedabad Zoo. The Park has two males.

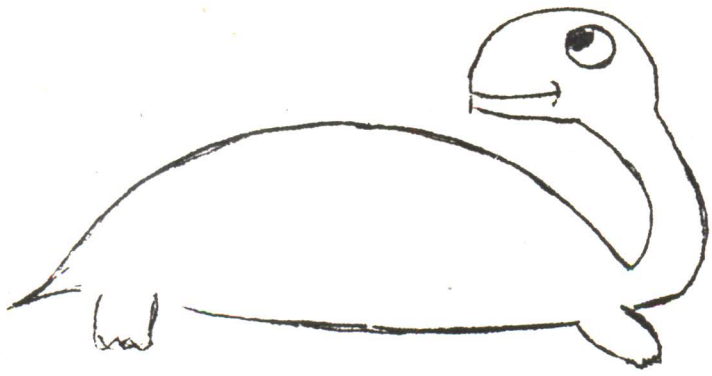
Visitors included Dr Salim Ali the ornithologist, Dr Brian Groombridge of the Species Monitoring Centre (IUCN), Dr Jack Frazier, Smithsonian and Prof. E O Moll of the Univ. of Illinois.

MSP was represented at the Bombay Natural History Society seminars by Shekar Dattatri who read a paper on captive breeding of pythons.

The Crocodile Bank received six Siamese crocodiles (C. siamensis) as a gift from the New York Zoological Society.

The freshwater turtle breeding programme at the Crocodile Bank is progressing well thanks to the wildlife Preservation Trust's grant of $7500. The breeding pen for the cane turtle (Heosemys silvatica) and travancore tortoise (Geochelone travancorica) is completed and adult pairs we have include Batagur baska, Kachuga kachuga and K.dhongoka.

The internationalization of the Crocodile Bank is well underway. But we will only be able to establish breeding groups of all the crocodilians with help from zoos. If you have, or know of, surplus, single, non-breeding crocodilians please let us know.



Marine turtle update - India

In early 1982 our Research Officer J. Vijaya photographed hundreds of Pacific ridley sea turtles being taken off to market from Digha Beach in West Bengal. India Today, India's equivalent of Time Magazine published a few of these pictures with a brief on what the totally protected status of Schedule I on India's Wildlife Protection Act really means in the field. Soon after, a letter campaign was initiated by Dr. Nicholas Mrosovsky of the IUCN Marine Turtle Group and Mrs. Gandhi received letters from all over the world appealing for careful management of a valuable resource. The fact that the turtles were caught while breeding off the Orissa coast where there is a massive annual arribada (with over 150,000 females coming up to lay on a 15 km. beach in three days), made it all the more imperative to stop it
Events for sea turtle conservation which happened following this publicity are:

a) Enforcement by the authorities (Forest Department and Police) in West Bengal has at least slightly curtailed the turtle smuggling which has gone underground. Turtles are now stored in ponds away from the beach and are transported at night according to Vijaya who made a return visit in early 1983.

b) Increased interest by the Central Marine Fisheries Research Institute (Cochin) which came out with a special publication on sea turtles (see references).

c) The Tamil Nadu Forest Department set up 5 hatcheries, between January and April 1983 on the coast between Madras and Rameswaram.

d) The Department of Environment constituted an "Indian Sea Turtle Specialist Group" with the following members:

1. Shri J.C. Daniel, Member — Chairman
   Indian Board for Wildlife
2. Shri Romulus Whitaker, Director
   Madras Snake Park Trust
3. Shri S. Bhaskar, Naturalist
4. Shri Chandrasekar Kar, Research Officer
   Crocodile Breeding Project, Orissa
5. A representative of Director,
   Zoological Survey of India, Calcutta
6. Dr. E.G. Silas, Director
   CMFRI, Cochin

7. Dr. S. Mahadeva, Officer-in-charge
CMFRI, Regional Office, Mandapam.

8. Shri P. Kanan, Deputy Director Convenor
Wildlife Preservation, Bombay

e) We recently had communication with the FAO Bay of Bengal Project (Fisheries) and interest was expressed in the turtle excluder net designs. If an offshore limit of 5 kilometers was set and the excluder nets used the arribada wouldn't be so badly hit each year. In the 1983 season, for example, an estimated 7500 drowned turtles were washed up on the Gahirmatha beach (Silas, et al., 1983). This year optimum depths and ranging dynamics of the mating turtles off the arribada beach will be studied to arrive at meaningful conclusions on which to base recommendations. It is also hoped that with the help of the Coast Guard, inshore use of trawlers and gill nets can be suspended for the few days of the arribada.

f) Satish Bhaskar's sea turtle survey project, supported by WWF-India was renewed and he is now tromping the beautiful beaches of the islands in North Andaman.

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Kar, C.S. and S. Bhaskar 1983. The status of sea turtles in Andamans. Bull. Cent. Marine Fisheries Research Inst.,34:94-97

Bobb, D. 1982. Massacre at Digha. India Today, 31:64-65.

Kar, C.S., 1982. The Gahirmatha sea turtle rookery, Orissa. Makara, 3(1):20-23.

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R. Whitaker
MSPT

Cane turtle (Heosemys silvatica) study project in Kerala

As a follow up of our discovery of Heosemys silvatica in Kerala last year and the later find of a small breeding colony (Vijaya, Hamadryad 7: no. 3, 8: no. 1) a study project is being conducted in the Nadukani forest range for the past three months. The theme is the ecology and natural history of the little known cane turtle and the other interesting chelonian which shares its habitat, the travancore tortoise (Geochelone travancorica).

The study has developed with the help of the skilled Kadar tribals who live in the area and are adept at spotting the well camoflaged low-shelled turtles from the dense growth and debris covering the forest floor. G.travancoriea inhabits the upper rocky slopes of the hills. The study area consists of a mixture of semi-evergreen and deciduous forest with a stream which is rain fed. The forest consists of many hardwood and softwood trees including Bombax malabaricum, Palycium elipticum, Vertiria indica, Dipterocarpus indicus.

The area is often affected by forest fires in the dry season (Feb-April) which seem to be the major habitat threat at present. The best cane turtle habitat is a 2.5 km stretch of semi-evergreen forest on the lower part of a hill slope at about 1500 ft.

The travancore tortoise prefers the dry open hill tops to forage for fallen fruit, grass shoots, mushrooms etc. According to the Kadars, tortoises of 500 mm plus shell length used to be common; some believe that large specimens can still be found in the large dense evergreen forests of the higher ranges (W.Ghats). The tortoise is a favourite item on the Kadar diet and is also much favoured as a pet.

The project is being supported by Dr E.O. Moll, Chairman, Freshwater Chelonian Specialist Group and the Madras Crocodile Bank. World Wildlife Fund-Indian has been approached for an additional Rs. 5000. The Kerala Forest Department has been helpful with conveyance and logistical support.

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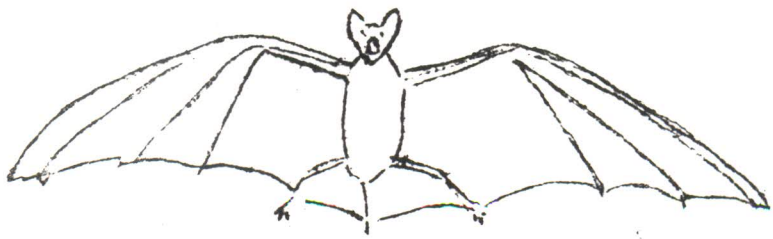
Vijaya, J: Rediscovery of the forest cane turtle (Heosemys silvatica) in Kerala. Hamadryad, 7: no. 3, pp. 2-3.

Vijaya, J: Second search for cane turtles in Kerala. Hamadryad, 8: no. 1, p. 20.

Whitaker, Z (ed): World's rarest turtle (we think) lays eggs in captivity. Hamadryad, 8: no. 1, p. 13.

J. Vijaya
Madras Crocodile Bank



BORNEO CROCODILE SURVEY - Part II

In which tarsiers proboscis monkeys and other Wild Animals are bravely confronted in the Untiring Quest for crocodiles in the Jungles of Borneo and in which there is more on bats than on reptiles for which an Apology is offer ed.

16.5.83, Sepilok

The Kinabatangan river survey had to be prematurely concluded because of a severe tooth-ache which forced me back to Sandakan. A Chinese dentist here drilled and filled a tooth several inches away from the real source of the problem against my (inarticulate, of necessity) wishes.. but the pain has, miraculously subsided. The next trip is to the Segama River, again south, this time by launch.

The highlight of these few days in Sepilok was a trip to the Gomantong, the bat and swiftlet caves where Charles Francis is doing his research. Made the two hour ride there with Ismail, a Forest Dept. ranger who is posted there. We passed new forest clearance projects where they bulldoze hundreds of acres of rain forest along the road side and set the whole resulting mess on fire. Vietnam must have looked like this after the B-52's got through with it. The lack of sense, the refusal to allow a row of trees to survive along the road sides and streams is incomprehensible. Soon after this disaster zone we turned down into the Gomantang Forest Reserve and wound through tall trees till we came to the 700 ft hill with the network of limestone caves and caverns.

Left my gear at the rest house and walked to the lower cave- it was noon and sweat was soon merrily coursing down. Already the number of swiftlets in the air was dramatically noticeable and as I reached the 150 ft high entrance to the massive cave there was a more or less steady in and out pouring of the tiny birds, most along pre-determined, 'traditional' flight paths. There is an old wooden building on stilts near the cave entrance where a family guards it against nest poachers: every year close to M$800,000 worth of nests come from this cave alone.

The nest collection season starts next month and the licensed collectors, brave fellows who climb several hundred feet up to where the nests are, will stay in this building. Incongruously, a volley ball net is set up in front; so they have sports after a hard day of nesting!

So I arrive and gape at the great open mouth of the cave just as Charles comes out of the murkiness into the sunlight, blinking and squinting. We go back in and I get a tour of the lower complex, caves of lesser importance which mainly house black nest swiftlets (nests of less value) and mossy nest swiftlets and white-bellied swiftlets which do not make saliva nests. In the main cave chamber, looking up 300ft to the top with spot lights and binoculars, one sees the nests and the swiftlets coming and going, with clumps of bats interspersed. The cave ladders hanging from the ceiling look fragile and dangerous but are very strong (until they rot). We were always walking on a springy floor of bat and bird guano, in some places over 50 ft thick. The guano is practically alive with small cockroaches and burrowing beetles and there are plenty of bat and bird remains for the insects to feed on. You see many pathetic skeletons of baby bats and birds that have fallen to the cave floor and adults that perhaps collided in mid-air.

There was no overpowering stench as you get in some bat caves, but of course here the ventilation is good with hundreds of feet of air space. Some of the colonies of nesting birds and nesting bats were low down in branches off the main cavern so we had an eye-level view of the black-nest swiftlets, most of whom had just laid their eggs. We went to the deepest chamber where daylight poured in from several large holes in the ceiling and vines and trees leaned over and into the cave roof. Behind this open and lighted area the cave rose and became murky and dark again, and at first it was hard to believe what you were looking at. The huge colony of birds and bats that lived up in this recess of the cave had produced a pile of guano that spilled out about 100 ft above us, and spread out down to the cave floor where we were standing.

At 3 pm we started out again- caught a flying lizard (on the ground!) on the way: Draco cornutus, with neat little horns on its head. This time we were on our way to spend the evening at the upper cave called Simut putih (white cave) where the white-nest swiftlets nest. A short but steep climb and we were up among limestone arches and holes eroded into the main cave, making small entrances which went in sloping dangerously to end up hundreds of feet above the cave floor. Invaribly cane ropes were attached there to allow nest collectors to safely edge their way in and look at the high cave walls. One slip and zoop-- you could fall 300 feet into one of those guano piles. Worse of course would be to miss the shit and hit the rocks.

At least one bat, Miniopterus, a litle fellow, makes massive creches for its babies and later in the evening when the adults were off on their feeding flights, a mass of about 30,000 pink babies were left on the cave roof among the swiftlet nesting areas. How the parents locate

and identify them again is anybody's guess. Other species obviously take baby with them on their flights because we saw many with young sleeping by day which were absent when we later came by at night.

We continued on to the top-most cave mouth where there was another house manned by four guards (paid by the nest contractor!) watching the white-nest cave entrance. We descended into the flat, wide mouth of the white-nest cave which gets bigger and bigger as you climb down the gentle slope. Quite soon it is pitch dark inside and all you can hear is the rush of wings and the clicking, echo-locating calls of the swiftlets as they find their way to their nests in the blackness. We got close looks at some of the wierd bats, including a Philipine horseshoe bat with complex arrangements of nasal and ear appendages which help them home in on insects in flight when they are feeding. We came to the tallest point in the cavern and shone the spotlight 450 ft up to the top; even here the collectors hang their flexible ladders to reach the nests.

Then we made our way back out into the sunlight. It was late evening and time to wait for the bats to emerge the big event we had come up to see. We sat on a small ledge perched above the main ceiling hole. Above us on an overhanging vine a yellow trinket snake (Elaphe oxycephala) had also positioned itself to wait for the bats, in hopes of dinner. Charles had watched one a few days earlier as it sat mouth wide open with a stream of thousands of bats pouring out past into the open. Its reward was an unlucky bat that flew straight into its mouth.

The snake we were watching was slow in getting into position so that when the main flow of bats started it was still adjusting its coils. The frequency of swiftlets returning to sleep was increasing dramatically as the light faded- now it was no longer the whisper of thousands of wings as they flew to feed or to their nest, they were diving straight into the cave mouth from hundreds of feet up and the sound was that of jet planes in the distance, a tiny roaring sound from each as it disappeared into the black hole below us. This would continue all night long as some returned from their feeding perhaps 30 or more kilometres away. What a sensation: a million birds pouring in while a million bats poured out!

Suddenly, a new sound. It was 6.15 and the first flight of free-tailed bats were spiralling up from the depths of the cavern and the beating of 25 or 30,000 pairs of wings and the echo-locating squeeks drowned the rushing and clicking sounds of the swiftlets. I watched as the mass of bats flew with tight precision in a sort of aerial choreography that takes your breath away. They rushed out just a few feet in front of us, built up speed and mass (predator avoidance?) and suddenly they were away.. all at once the whole dark cloud of bats sped rapidly out of sight, silhouetted against the sunset, still in a tight mass over the top of the rain forest canopy. And when they were away, below us the sound began again- almost like the beginning

murmur of a huge crowd of silent people- perhaps like the sound of thousands praying together in a mosque. And then like magic another cloud of bats is forming- and is off. This went on for an endless six minutes, hundreds of bats passing in front of us each second as several hundred thousands took off.

The snake provided the comic relief- he was buffetted several times by bats which bashed into him and his branch, much too fast for a strike. After the initial dramatic mass flights were over, a steady stream of several hundred thousand more kept emerging. And now several bat hawks, raptors the size of buzzard eagles or heavy set kites moved in on fast flight plans to intercept the bats. We saw them making several catches with their claws and transfer the squeeking bat to their mouth. A quick gulp and back into another wheeling swoop at the stream of bats.

23;5;83, Kuala Tidal Besar

Sitting on a huge white log which is one of millions of giant driftwood on this tidal mud flat between the Segama and Kinabatangan river mouths. We are camped at the mouth (kuala) of the big (besar) tidal river, a small stream now in the drought. It was supposed to lead us to the Tidal Danau (lake) but we thrashed through the bush for five hours this afternoon and didn't find it. The 'swamp' is completely dry- first time in living memory- and so changed that the croc hunter/guide Tahir Kasim lost his way. We were crawling on hands and knees for two hours of the search, often surprising water monitors, proboscis and grey leaf monkeys. The habitat alternated between grassland, nipa palm and tangled swamp forest. The lake has been one of the main sources for young crocs in the past (500 per season in the '60s) and is slated for protection. It is an important hanteng area and inaccessible enough to be a potentially good place for crocs to continue nesting.

25.5.83, Sandakan

After our adventures trying to find the mythical croc lake we went up river on the jongkong as high as we could but the river is low and many rocks and submerged logs made progress slow. We halted in mid-afternoon at Litang, expecting (from the map) to arrive at a thriving settlement. But the rubber estate, factory and bungalows were totally abandonned with trees growing into houses and elephant dung everywhere. It was eerie walking in and among the buildings, cupboard doors banging in the wind, bathroom fixtures all intact but with bees going in and out of the open taps, fruit trees ripped up by the elephants. A gratifying site, with nature for once on top.

After dark we started our survey, down the river, but few crocs. Heard plenty of elephants, often very close and at dawn we came back from a wash on shore to see a big monitor scramble out of the boat and disappear, leaving behind him the scraps and remains of our tasty

crayfish. That night we started down to the river mouth, only saw a few scared and wary crocs on the way and made it to the mangrove and nipa palm swamps close to midnight.

Back in Sandakan crocs had made front page news. A female croc had been shot in "self defense" by a museum man over in Kota Kinabalu, near a nest from which he collected 15 eggs. We will be seeing the area next week. The west coast has mainly a south-west monsoon so the croc nesting is earlier than over here where the north-east monsoon predominates and laying begins in August.

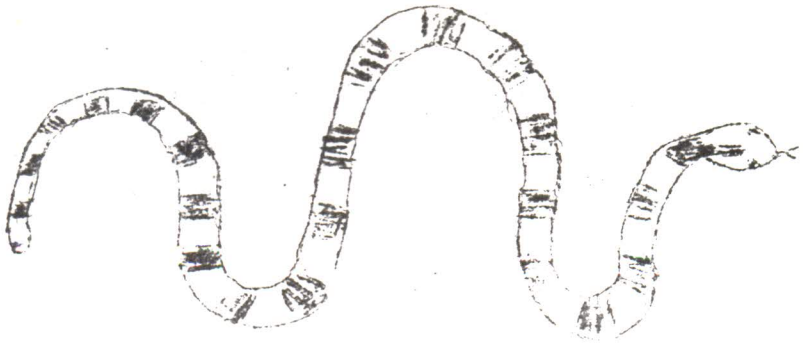
It seems almost certain that Tomistoma is not in Sabah for various geographical reasons- such as the mountain ranges separating the Sarawak and Kalimantan areas from the region.

4.6.83, Klias River, Klias Peninsula

Its 4 pm and we're sitting on an old wooden jetty on the Klias. Last night we "did" the Padas River till midnight and saw 2 crocs in the mostly mangrove and nipa lined swampland river. This morning we visited the local store's Chinese 'Towkay' (owner) and saw his seven miserable crocs kept in a small metal tank. We gave him some advice on keeping crocs, then headed out to sea to skip along the south of the Klias between shore and oil rigs to find the mouth of the Klias River. So we are here after a three hour ride upriver, saw a few crab eating macaques and as usual a lot of monitors. We went above Kota Klias (where this old wooden jetty is) and on until the river narrowed way down at a place called Kampong Seratok Manalan. Saw a big turtle shell (Callagur?) hanging on a fence and went and had a long talk with the Kadazan hunter Mual, who then gave us the shell. Nice hunter stories about pythons eating pig and the big labi-labi (soft-shell turtle) that talked to him once when he was young and told him never to kill soft-shells or sickness would befall his family. So now he hunts and eats hard-shells instead.

Anyway the Segama River trip wasn't very eventful- we did walk up the Bole River and saw lots of pigs, monitors and birds including the rare, endemic bristlehead, black with a stiff red topknotch. Passing under one tall tree we counted twelve hornbills and identified four species: helmeted, rhinoceros, black and wrethed, all feeding on the abundant figs. That night we headed downriver through the rapids in the dark before moonrise. It was strange going through the fast water runs without seeing much but the flash of water. The next day we drove up across the Segama to the Kinabatangan ferry, on our way to a lake which was supposed to have crocs. We walked 8 km through picturesque but tiring swamp forest, to find there were no crocs.

R. Whitaker
Madras Snake Park



A note on food habits of the banded krait

While on tour at [illegible] North Bihar, in November 1968, I observed an [illegible] of/banded krait (Bungarus fasciatus) 156 cm. long swallowing a checkered keelback watersnake known in Bengal as "Jal Dora" (Xenochropis piscator) 30 cm. long. The live specimen of the 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 during this operation it reguritated the watersnake.

The banded kriat was found in the bushy under growth by the side of the seed tank and when disturbed it escaped into the tank. It was then caught by a cast-net.

The banded krait is commonly called "gangur" in this area and is respected by the local people because it is supposed to attribute 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 kraits is well known. I have come across three records of snake food of the banded krait: Craill (1895, Editor's Note), Evans (1902), Wall (1903). Of the four records, including my above observation, in two instances it took Xenochropis piscator and in the other two Ptyas mucosus. The host and the prey being members of the same ecological niche, the chance of availability rather than choice of a particular species of snake as food appears to be the chief factor.

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

Both Wall (1907, 1921) and Smith (1943) while pointing out the food habits of Xenochropis piscator mentioned its enormous meals of frogs and fishes, particularly at the end of/dry season when they concentrate in pools. Thus whether or not the banded krait plays any role in the economy of fisheries by feeding on fish-eating watersnakes should be further investigated.

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Smith, M.A. 1943. The fauna of British India, Vol.III-Serpentes.

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----------1907. A popular treatise on the common Indian snakes. J. Bombay Nat. Hist. Soc., Vol.XVII, pp.859-870.

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

S. Biswas
Z.S.I, Calcutta

A step toward snake conservation: The "Lokbihnan Prasar Samity" in West Bengal

'Lokbijnan Prasar Samity' of Kashinagar, 24 Parganas (W.B) is just like a science club. Their activity is well known in this area. Recently LPS made a positive step toward snake conservation. A four page leaflet in the local language (Bengali) published by this association under the heading "Sunderbans - the snake kingdom", describes the interesting behaviour, habits, and usefulness of snakes. The text is written by B.K. Saha and Dr. S.G. Saha. To make snakes more familiar to the public, snake exhibitions, talks, poster exhibition etc. are also being arranged by LPS. This association regularly publishes a quarterly journal (in Bengali) namely 'Lokbijnan' and the April-June, 1983 issue comes to the reader as a Snake Special. LPS is planning more positive action for snakes and their Conservation.

B.K. Saha
c/o Dr. S.G. Saha
Raidighi Rural Hospital
Raidighi-743 383

Prof. M.S. Khan of the Herp Laboratory, 15/6 Darul Saddar North. Rabwah, Pakistan is working on the taxonomy of Bungarus and wants to know if anyone has come across a krait with 17 midbody scale rows.

Effect of betnesol injection in poisonous snake bite cases

Short case reports

Case No.1

Tarangini Pandit, aged about 45 yrs. was bitten by a common krait (Bungarus caeruleus) on 17.9.82 at 6 PM. Treatment given on 17.9.82 at 9-45 PM. She was treated by me with polyvalent anti- venom serum along with Betnesol Inj. 40 mgm. I/V in a single dose and other supportive treatment. Excellent result (as shown by complete cessation of signs and symptoms) was obtained two hours after treatment.

Case No.2

Lakshmi Rani Ray, aged about 22 yrs. was bitten by a common krait (Bungarus caeruleus) on 20.9.82 at midnight. Treatment started on 21.9.82 at 9.45 PM. She was admitted with all the signs and symptoms of bulbar and glossopharyngeal paralysis along with signs and symptoms of motor paralysis. She was treated by me with anti-. venom serum along with Betnesol Inj. 40 mgm. I/V in a sinlge dose and other supportive treatment. The patient was completely free from all the signs and symptoms of snake venom poisoning 4½ hrs. after treatment.

These two cases responded dramatically with initial loading doses of Betnesol In (Betamethasone sodium phosphate) without any untoward complication during the course of treatment. So it would seem that Betnesol Inj. is an ideal adjurant in treating poisonous snake bite cases as it appears to help prevent and/or relieve neurotoxic symptoms.

Adknowledgement

I express by sincere thanks to M/s. Glaxo Laboratories L+D who supplied Betnesol Ibjection free of cost for this present trial.

Santi Gopal Saha
Dr. S.G. Saha, Medical Officer
Raidaghi Rural Hospital
Pin-743383

Editor's Note: Dr. Saha is encouraged to carry out further trials in this direction. Krait bite has the highest mortality percentage of any Asian snake.

A pathetic case report

Purnima Das, a girl aged about 17 years was bitten by a cobra (unnoticed) on her left hand on 14.8.82 at about 4AM while she was asleep on the ground of a small hut. After being bitten she shouted and her relatives came and identified the cobra, but did not kill it. She was treated at home by an "ojha" who applied some herbal medicine on the bitten area and gave her some herbal drugs to eat. Then, she was transferred to this hospital which is the nearest source of antivenom serum treatment of snake bite

cases. I examined the patient at 9 AM on the same day and pronounced her dead. It seemed to me that the girl expired on the way to hospital. Her home was about 30 km away from this clinic in the riverine area of Sundarban. But in the days of quick transport the only conveyance of the riverine area of Sunderban is the mechanical boat (locally called 'Bhutbhute'. It was a very painful fact that the girl was married only 11 days before the accident.

In developing countries like India, snake bite is still a rural health hazard. In my last 17 years service in rural Sunderban in the Dist. of 24 Parganas, West Bengal, I have recorded ten snake bite cases brought and also recorded information from various sources that during this period about fifteen snake bite cases died on the way to hospital.

Dr. S.G Saha
Medical Officer
Kaidighi Rural Hospital
24 Parganas
West Bengal

Snakebite

The following data on snakebite makes it clear that a study of this medical problem is long overdue. The old 1954 Swaroop and Grab WHO statistics are still quoted as the authoritative word. They would have us believe that there are 20,000 deaths per year in India. Sawai and Honmas snakebite studies in India in 1972 mainly covered one representative year and though there is necessarily much extrapolation, their figures of 9000 deaths per year are probably closer to the truth.

Inspite of the likely fact that snakebite mortality is not a quarter of the annual fatalities from road accidents and probably a lot lower than the death rate from rabies, the loss of life and limb plus the psychological trauma of snakebite make it of significant meidcal importance. Snakebite is an occupational hazard of workers in fields and forest, where there is little chance of obtaining emergency medical treatment. The most positive development has been the Tamil Nadu State Government's increased interest in production and distribution of polyvalent antivenom serum by King Institute in Madras.

The stock and standard argument that snakes are good for the ecosystem (as rodents enemy No.1) can be used a lot more effectively if you can guarantee survival from snakebite!

TABLE 1

Hospital	Patient	Sex	Age	Date/ time of bite	Date/ time of treatment	Site of bite	Snake	Symptoms	Treatment
Royapettah General Hospital Madras	Gani	M	33	29/1/82 8:30 pm	29/1/82 10:10 pm	Left big toe	Unknown	Patient conscious and oriented, no edema no symptoms	Injection: Decadron 1 ml. Discharged on 30/1/82
	2. R. Christy	M	22	5/2/82 3:45 pm	5/2/82 5.55 pm	Left arm	Unknown	Patient conscious and oriented. Local painful swelling	Injection: Decadron 4 ml Diazepin 1 ml Antivenom 10 ml Discharged on 8/2/82
	3. Dharmaraj (Snake Park)	M	25	22/1/82 5:00 pm	22/1/82 6:00 pm	Fore-finger of left arm	Cobra	Patient conscious and oriented. Painful swollen finger	Injection: Antivenom 20 ml, I:V. fluids 1000 ml Discharged on 24/1/82
	4. Deenan	M	19	24/2/82	24/2/82 5:00 pm	Right hand and left leg	Sea-snake	Patient conscious, shock	Injection: Tetanus I.V. Fluids 1000 ml. Discharged on 26/2/82.
	5. Thulukanam	M	38	-	31/12/81 5:00 pm	Left hand	Unknown	Patient conscious and oriented	Discharged on 3/1/82
	6. Sivanamam	M	29	-	31/1/82 9:45 pm	-	Unknown	Patient conscious	Discharged on 1/2/82
Stanley Hospital Madras	7. Kathavarayan (fisherman)	M	21	6/8/79 7:00 am	6/8/79 12.10 pm	Ring finger of left hand	Sea-snake	Patient conscious & oriented	Injection: Avil Decadron, I.V. fluids Discharged

TABLE 1 Contd/

Hospital	Patient	Sex	Age	Date/ time of bite	Date/ time of treatment	Site of bite	Snake	Symptoms	Treatment
.	8. Perumal	M	54	-	7/2/82 4:45 am	Left leg	Unknown	Patient conscious& oriented	Injection: Decadron 4 ml
	9. Sheik Akbar	M	32	3/2/82 6:00 pm	3/2/82 8:25 pm	Right leg	Unknown	Patient conscious	Injection: Avil Decadron
	10. Chittibabu	M	18	29/1/81 11:00 am	29/1/81 3.50 pm	Left foot	Unknown	Patient conscious, giddiness, blurred vision headache, pain and swelling at bite	Injection: Avil Decadron I.V. fluids Antivenom 10 ml.
Shanti Dispensary	11. Govindaraj	M	26	7:15 am	8:30 am	Two bites on ankle	Cobra		
Selaiyul (1981-1982)	12. Lammi	F	30	3:00 am	3:30 am	Two bites, right thigh and ankle	Cobra	Giddiness, swollen tongue, inarticulate	Bitten when cobra crawled into clothes while sleeping causing her to roll & jump
	13. Anon	F	65	11:00 am	-	Hand	Cobra	Giddiness, frothing; conscious when brought to doctor	No treatment. Patient died at 2 pm. Bitten while collecting eggs in a hay stack.
	14. Munuswamy	M	30	2:00 am	4:30 am	Three bites on the leg	Krait	Giddiness	Bitten when he kicked at the snake while asleep Discharged
	15. Janakiraman	M	17	11:00 pm	8.45 am	-	Unknown	Unconscious, frothing	Patient bitten while asleep Died at 2 am.

At our Rural Hospital in Baidighi, Dist. 24 Parganas, West Bengal, I have treated 76 snakebite cases during 1982 and 1983. The following chart refers to both nonpoisonous & poisonous bites.

Year	No. of Nonpoisonous Snakebites*			No. of Poisonous snakebites (Cobra and Common Krait bites)			Total Bites
	Male	Female	Total	Male	Female	Total	
1982	14	5	19	3	4	7	26
1983	24	15	39	6	5	11	50

* i.e. no envenomation, though the species responsible may have been venomous.

Frequency of Poisonous Snakebites by Age and Sex

Ages	Male	Female	Total
0 - 9	1 (1)	--	1(1)
10 - 19	--	2(2)	2(2)
20 - 29	4 (2)	3(2)	7(4)
30 - 39	2	2	4
40 - 49	--	2	2
50 - 59	2 (2)	--	2(2)

Number in parenthesis indicate fatal cases.

Dr. S.G. Saha

TABLE:2

Royapettah General Hospital, Madras

Number of Snake-bite cases treated.

Year	Adults M	Adults F	Children M	Children F	Total	Deaths
1977	58	17	11	4	90	-
1978	48	14	5	3	70	-
1979	43	12	5	2	62	3M
1980	31	13	7	3	54	2M

TABLE:3

Stanley Hospital, Madras

Number of Snake-bite cases treated*

Year	M	F	Total	Dead
1979	16	14	30	-
1980	7	10	17	1
1981	1	3	4	-
Not completely processed.				
1982	15	19	34	-

* Data from Medical Records - Cases include scorpion stings and insects' bites.

Vials of Antivenom purchased (Stanley Hospital)

1979	48
1980	50
1981	54

A CASE OF SAW-SCALED VIPER BITE

During our third diploma course in wildlife management, we were camping at Ranthambore Tiger Reserve, Rajasthan. On 8th October, '80, we were on a tracking exercise in the sanctuary, in groups of four. At about 7.20 a.m. our group tracker spotted a snake which he said was a baby python. It turned out to be a saw-scaled viper (*Echis carinatus*) however, and measured 43 cms.

I caught the snake by its tail and pulled it out of its thorny retreat. Using a small stick, I was holding it at belt-level when it suddenly darted toward me from a distance of 15 cms and in a fraction of a second, bit me twice on the abdomen. The snake was released with alacrity and we examined the three fang marks with blood oozing from them, about 1 cm apart. We squeezed out the blood; this resulted in a sudden colour change to violet blue around the fang marks.

Not very prudently, I made a second attempt to catch the snake and this resulted in another bite on the index finger of my right hand. After sucking the bite we examined the snake's mouth with the aid of a stick. Confirming that it was a viper we killed it and proceeded back to camp with the specimen, This involved a 3 km walk; from there we could take a bus to Sawai Madhopur hospital 14 km away. My colleagues took down notes on symptoms of the bite:

7.25 a.m.	First bite on abdomen.
7.30 a.m.	Second bite on right hand.
7.35 a.m.	Started back to camp.
7.37 a.m.	Bitten finger becoming numb and bluish.
7.40 a.m.	Slight head-ache.
7.45 a.m.	Head-ache more pronounced.
7.46 a.m.	Respiration rate slightly increased.
7.48 a.m.	Slight pain on abdomen.
8.00 a.m.	Finger swollen and numb
	(Reached Ranthambore, boarded the bus for Sawai Madhopur)
8.12 a.m.	Blood oozing out from bite on stomach; signs of uneasiness.
8.15 a.m.	Stain around bite spreads further; oozing reduced.
8.20 a.m.	Pain on finger spreads to palm.
8.22 a.m.	Swelling of finger increasing
8.30 a.m.	Pain gradually spreading upward. Arm painful and increasing pain on abdomen.
8.32 a.m.	Admitted to Sawai Madhopur hospital.
8.37 a.m.	B.P. 136/80. Slight head-ache.
8.45 a.m.	Pulse rate increasing. Contraction of muscles. Severe pain on abdomen. Acute head-ache.
8.50 a.m.	Blood sample taken for coagulation test.
8.52 a.m.	Blood continues oozing out of stomach bite. Pain in arm pit when pressed.
8.58 a.m.	Test dose of antivenom serum administered.
9.07 a.m.	Wound washed and dressed. Severe pain when touched.
9.17 a.m.	Antivenom serum given in left arm.
9.25 a.m.	Stomach pain increasing.
9.30 a.m.	Found sensitive to antivenom. Very uneasy, lips shivering, nausea, dizziness.
9.32 a.m.	Vomited twice.

9.35 a.m.	Sweating; BP 138/80.
9.40 a.m.	Increased respiration, nausea. Pulse 56.
9.42 a.m.	Dextrose solution given IV.
9.43 A.M.	Placed on oxygen. Exhausted, drowsy, pain severe. Vomitting continues. Reaction climaxing.
9.50 a.m.	Feeling better but pain continues.
10.00 a.m.	Had cup of tea.
10.12 a.m.	BP 136/80. Feeling much better.
11.38 a.m.	Pulse 80.
11.45 a.m.	Analgesic injection given; pain reduced.

At 7 p.m. I was admitted to S.M.S. Medical College Hospital, Jaipur because the clotting time of blood was still abnormally high. Blood was still oozing from the stomach bite and the right side of abdomen was swollen and blue back to the spine. The finger and palm were also bluish. BP 140/70. Pulse and temperature normal. Bleeding time 3½ minutes. Clotting time over one hour. Traces of blood in urine.

Since I was sensitive to antivenom, it was administered in dilute form through dextrose along with Avil. 3 vials of antivenom (30 cc) were given and other injections included Bekezin, Synthocilin, Decaudron, Styptobion, Avil and Wymesone. Oral medicines included Suganril, Deltacortil, Cadesper-C, Celin, Laplin and Ampicillin.

From the 13th on, Betropase injections were given instead of Styptobion for reducing clotting time. Betropase is a strong coagulant derived from the venom of a S.American snake. When discharged from hospital on the 18th, my clotting time was 7 minutes and bleeding time 1 minute 30 seconds. The wounds on the abdomen and finger were not healed and the bluish patches remained.

A month after the bite I got a cut on my toe and the bleeding continued for 15 minutes. A capillary test showed that bleeding time was 2 minutes and 40 seconds and clotting time 5 minutes 30 seconds.

A statistical evaluation of snakebite made by the Central Research Institute in Kasauli between 1948 and 1952 showed that while just 5% of cobra bites proved fatal, 36% of the saw-scaled viper bites were fatal (this must refer to the northern race only since it grows much bigger that the southern). In my case the following factors were in my favour: 1) The first two bites on the abdomen were inflicted through the shirt and hence a minimum venom quantity may have been injected. 2) I was not in shock or panic, states which accelerate the circulation of venom. 3) I received adequate antivenom serum treatment within two hours of the bite.

Jayarajan O.
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Wildlife Sanctuary
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Kerala

Irula snake-catchers Co-operative

Since the last report in Hamadryad the Co-op has come a long way. The venom extraction project is firmly established and we modestly predict that we shall one day monopolise the venom market in India.

Change of site

On December 15, '82 the Co-op started operating at the premises of the Madras Snake Park. In October '83 we shifted out to a roadside plot at the Crocodile Bank (35 km south of Madras on the main tourist route). This enables us to sell tickets to tourists who wish to see venom extraction, which goes on all day every day. So far the average number of visitors has been about 4000 a month. An Irula tribal Chochalingam who is a Director, and his son Rajendran now live on the premises and maintain the snakes (up to 2000), extract venom and sell tickets. Bupesh Kumar has been hired to carry out office routine and process venom.

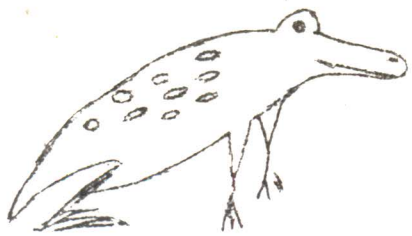
Donations and loans

The British High Commissioner in India very kindly donated equipment to the Co-op including a sensitive electronic balance for weighing venom. Mr D N Mazumdar of Shri Ram Fibres rounded up over Rs. 8000 worth of donations. As reported earlier, WWF-India gave the Co-op an interest free loan of Rs. 20,000. Oxfam-India has very generously offered a diesel jeep for our use for one year; a vehicle is essential for visiting Irula villages, releasing snakes and snake-bite emergencies.

Venom production and sale, Dec. '82 to Nov. '83

Species	No. bought	Venom prod.	Venom sold	Price per gm.	Mortality
Cobra	372	95.35gm	33gm	Rs. 500	7
Krait	536	11.49gm	10gm	Rs. 1500	28
Russells viper	252	71.15	31gm	Rs. 500	22
Saw-scale viper	3047	9.45	1gm	Rs 1000	0
TOTALS	4207	187.44	75		57 (1.3%)

Revati Mukherji
Vice President
Irula Co-op



Frog legs - a cottage industry

In West Bengal the frog-leg season coincides with the monsoon (May to September) and in the Sunderbans area the majority of the collectors are tribals. The killing and sorting is done at home after which the 'Fare' or agent buys the frog-legs for Rs.7 per kg (large R. tigerina) or Rs.4 per kg (small size).

This year there are several reports that large quantities of Rana tigerina are being smuggled into Bangladesh through Dinhata Subdivision of Coochbehar district, North Bengal. In North Bengal the current price is Rs.50-60 for 100 Rana whereas in Bangladesh it is Re.1 per frog.

B.K. Saha

Survey of the frogs at a location in North Trivandrum District

Arippa is a small outpost of the Kerala Forest Development Corporation in North Trivandrum District in Kerala about 30 km from the Tamil Nadu border at Tenkasi. Adjoining the corpn's softwood plantation is a large stretch of forest (tropical evergreen). I did a survey of the local frogs here in the last week of May.

I spent three days in this forest and collected 54 specimens of the families Ranidae and Engystomatidae. My route was along the Poovar river for about 5 kilometers till its concluence with the Kalleda river which is west-flowing and then off the water-course into the forest interior for about 8 kilometers to a spot called Karinkurinchipacha (which means "meadow of the Kurinchi plants" which are supposed to bloom once in 12 years). Legend has it that the Poovar has its origins from the tears shed by Sita en route to Lanka when she was abducted by Ravana.

List of species collected

Species	No of specimens	Average Length (in cm)	
		Snout-Vent	Snout-Toe
1. Rana hexadactyla	2	6.25	16.25
2. R. tigerina	17	10.00	26.2
		15.50 for the largest	82.55
3. R. cyanophlyctis	14	3.5	7.5
4. R. limbocharis	7	3.0	7.0
5. R. verrucosa	4	5.25	12.25

Species	No. of Specimens	Average Length Snout-Vent	Snout-Fore
6. R. rufescens	2	3.25	9.25
7. R. beddomei	2	2.75	5.50
8. Tomopterna (Rana) breviceps	3	4.25	10.25
9. Micrixalus signatus	2	2.50	5.75
10. M. variabilis	2	2.05	6.00
11. Nyctibatrachus pygmaeus	1	3.75	9.50

Capture locations

Rana hexadactyla	In puddles and pools in river bed.
R. tigerina	Along river bed, under overhangs in mudbanks along river, along plantation road. (Specimens showed a wide variation of colour from very dark brown (blackish) to almost green or bright lemon yellow. Vertebral streak not always present).
R. cyanophlictis	Puddles in river bed, along forest path. Predominant frog on the forest floor away from streams.
R. limnocharis	Along forest paths during rain.
R. verrucosa	Along river bed in reeds and shrubs on the bank.
R. rufescens	On raised terraces on river banks about 20 metres away from nearest water in dense grass.
R. beddomei	Along forest paths and plantation roads.
Tomopterna breviceps	On raised mud bank beside jungle pond. Also seen burrowing in soft leaf mould at base of hollow tree.
Micrixalus signatus	Low forest shrubs away from river, and shrubs bordering river.
M. variabilis	In reed beds and bamboo clumps along river. Located by following the metallic clicking calls.
Nyctibatrachus pygmaeus	Plantation road during rain.

The dominant frogs here seem to be R.tigerina and R. cyanophlictis which dominate the streams and the forest. The locals described species which sounded to me like the two Microhyla species, Micrixalus, Rana curtipes and Rhacophorus . We also saw what was probably Rhacophorus malabaricus gliding from a teak (Tectona grandis) into a

clump of bamboo. Some Bufo melanostictus were observed in dry areas of the forest.

The local villagers and tribals reportedly eat R. tigerina and R. hexadactyla. Snakes seen were the vine snake (Ahaetulla nasuta) and the Malabar pit viper (Trimeresurus malabaricus). We saw numerous tracks of sambhar, wild boar and elephant. Mouse deer, a slender loris and five lion-tailed macaques were seen.

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CONTENTS

SUBSCRIPTION

Local : Rs. 10 annually

Foreign : U.S. $ 4 annually

Cheques should be made to the Madras Snake Park Trust

Cover : Cophotis ceylanica by Shekar Dattatri.

This slow moving agamid is endemic to Sri Lanka and inhabits hilly areas such as Nuwara Eliya and Horton Plains. It is olive green above with a reddish brown or cream stripe along the upper lip extending to the shoulder. **Cophotis** is vivaparous, giving birth to upto 5 young at a time.

Newsletter of the Madras Snake Park Trust, Guindy Deer Park, Madras-600 022,
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