

1975 Projects

1. A herpetological survey of Pudukkottai District was undertaken on invitation from the Tamilnadu Government for the District Gazetteers, with the help of two tribal assistants.
2. An experiment was carried out with the Central Food Technology Research Institute in Mysore on the feasibility of employing Irula tribals on the rat control program as a possible alternative to dangerous chemical rodenticides. As the Irulas eat rats they have expert methods for rat catching like smoking, digging and trapping.
3. A one month herpetological collection was carried out in the Andaman Islands (Middle and North Andaman).
4. Collection of Mugger (*Crocodylus palustris*) eggs was carried out in Tamil Nadu. 25% of the hatchlings will be released in suitably protected wild habitats after three years and the rest kept for rearing at the Madras Crocodile Bank.
5. Romulus Whitaker (Honorary Director) spent three weeks in Gujarat on a survey of crocodiles (*C. palustris*) in the Gir sanctuary and in the Barda Hills.
6. Gharial surveys were conducted in U. P., Orissa and Assam, by E. Mahadev, Field Investigator, sponsored by the New York Zoological Society.
7. Herpetological collection was carried out in the Nilgiris and Anamallais and some very interesting specimens were collected including *Xylophis perroteti* and several species of *Uropeltis*.
8. 18 Nests of Olive Ridley's sea-turtle (*Lepidochelys olivacea*) were collected and hatched and 1130 hatchlings released into the sea.

for a 7% hatching average.

1976 Projects

1. Romulus Whitaker visited the Orissa Crocodile and Sea-turtle Breeding Scheme and spent three weeks at the sites of the gharial and salt-water crocodile breeding and rearing stations. Some brief points about the Project are given on page 9.

2. The Madras Snake Park had a snake show in Bombay organized by the World Wildlife Fund-India and sponsored by Glaxo Laboratories. With continuous slide shows, lectures and demonstrations, the show was very successful and received wide publicity in the press, radio and television.
3. During the mugger nesting season (February to March) the Madras Snake Park, with active cooperation from the Forest Department, collected about 15 nests for artificial hatching. Hatching is expected to take place any day now and a full report on this year's collection will appear in the next Newsletter.
4. The most exciting event this year was that one of our female muggers at the Crocodile Bank laid 23 eggs. 22 babies hatched naturally on 8th May; one egg was infertile. The hatchlings are well formed and healthy. The Madras Snake Park is the third institution in India to accomplish successful captive breeding of mugger, and has set the highest hatching percentage (95.69).
5. Romulus Whitaker joined a gharial egg collection program in Nepal for one and a half months. It was organized by Dr H. R. Bustard, FAO/UNDP Crocodile Consultant and the eggs collected will be divided between the Orissa Crocodilian Project and the U. P. Crocodilian Project. Rom Whitaker was camped on the Karnali River where there is a population of at least seven adult gharial but no nests were found. We think they might not have laid this year because of the disturbance on this stretch of the River by the Karnali Dam feasibility project.
6. E. Mahadev spent 40 days in Madhya Pradesh on a gharial survey and visited the Ken, Tons, Son, Mahanadi and Betwa Rivers. This was again possible through a grant from the NYZS. His report will be summarized in the next Newsletter.
7. Our friend Holger Rumpff from the University of Muenster has been with us for the last two months and has helped us start a project on visual acuity and the angle of vision in snakes.

Conservation

1. Since its establishment the Madras Snake Park has been making representations to Government about Guindy Deer Sanctuary, the one

square mile remnant of the original scrub vegetation of Madras. Our latest concern was the construction of a cancer hospital in the Sanctuary, for which seven acres had been allotted. The wall had been constructed and foundation laid when the Prime Minister visited the Snake Park in February. She showed great concern on being told about the gradual whittling away of Guindy and on her return to Delhi issued instructions for the hospital to be moved elsewhere. Money that has been already spent on construction will be reimbursed.

2. The export of all snakes (dead or live) and snake products has been banned by Central Government ruling.
3. The five species of sea turtles that occur in Indian seas (*Lepidochelys olivacea*, *Eretmochelys imbricata*, *Caretta caretta*, *Chelonia mydas* and *Dermochelys coriacea*) are now protected from export.
4. In March this year Kalakkadu, one of the last large chunks of primal rain forest in South India, was gazetted as a Sanctuary by the Tamilnadu Forest Department. Located on the eastern face of the Ashambu Hills, Kalakaddu extends North and South and has a 140 sq km fully protected core area, with 50 metre high trees and masses of orchids and ferns. Kalakaddu receives both the south-west (summer) and north east (winter) monsoon. From the plains up one passes through degraded farm land into heavily eroded scrub. But once in the hills where there are no roads for poachers and timber contractors there is a transition to good deciduous forest and montane rain forest or sholas. This area is one of the few remaining strong holds of the King Cobra (*Ophiophagus hannah*) and Lion-tailed Macaque (*Macaca silenus*) in South India.

Nesting Mugger Observed

Natesan, an Irula tribal assistant of the Snake Park who was camped at Chidambaram Waterworks during the crocodile egg collection project this year, watched a mugger or marsh Crocodile (*Crocodylus palustris*) lay eggs and pack her nest. In looking at literature on the subject we find that this is the first time mugger nesting has been described.

At 6-30 a.m. on 15th March '76 Natesan was walking on the centre bundh of Chidambaram Tank and approached a 3 m mugger within 15 yards.

Her eyes were closed and she was facing the slope, head away from the water. From the frequent hunching movements he knew she was laying. After half an hour she stopped this movement and started scraping earth forward with front feet, turning while doing so, eventually coming to rest with head towards water and over the pile of excavated earth from the nest hole. This she scraped into the nest hole with hind feet until full. Then she flattened the earth covering the nest and surrounding earth with her belly and lay still for fifteen minutes. She appeared to notice Natesan's close presence and slipped into the water, head on surface, 30 yards out while he checked the nest.

There were 30 eggs in the nest which was left to hatch naturally. The female is occasionally seen lying on her nest, even in broad daylight.

Mugger on a Hill

During this year's crocodile egg collection again with the help of a tribal friend, we were able to observe the unique behaviour of a mugger in Amaravathi Dam in early March.

Walking round the Dam, Munian, a Polliar tribal noticed a large mugger track near the water's edge leading toward a hill. We followed the track across a furlong of flat rocky land and half way up the steep hill, through boulders and heavy scrub. The mugger was lying under a large rocky ledge. She seemed to be a gravid female about 3 m. long. We approached her within 10 m. and this did not seem to worry her.

Binod Choudhury of the Orissa Crocodile Project who visited the Dam at the end of March reported that she laid her eggs on the hill; but she apparently made the nest hole too shallow and most of them rolled down the slope and broke.

Mugger in Drought

Last year in the Barda Hills, Kutch, Romulus Whitaker followed a crocodile track almost 1 km. up into scrub jungle hills. He found and caught the 1½ m. mugger half hidden under a large boulder. It had left the small lake (which was drying up) possibly to try to reach a larger reservoir 12 km. away. It was released the next day in a deeper reservoir. In that area no less than fifty mugger were killed during last year's drought (the worst in 40 years).

Sea-turtles

During the '75/'76 nesting season (December-March) 42 nests (roughly 4,500 eggs) of the Olive Ridleys Sea-turtle (*Lepidochelys olivacea*) were collected and transplanted for artificial hatching and release, to eliminate egg-predators like dogs, jackals and humans and hatchling predation by crabs, birds and so on. 60% of the collection resulted in normal, healthy hatchlings, thus around 2,700 babies were released into the sea. With planned efforts and improvement in technique (possibly involving fishing villages along the Coast in the project) at least a hundred nests could be collected and hatching success brought up by 20%.

We are very grateful to Mr and Mrs Delouche who once more were active participants in the project (and did most of the work!) and let us use their compound on the beach for the hatchery.

Dugongs (Dugon dugon)

During October '75 S. Valliappan, an associate of the Madras Snake Park visited Pondicherry, Rameswaram, Mandappam and the Krusadai and Shingle Islands to investigate reports of dugong slaughter in these areas, which are located on the coast of Tamilnadu adjoining the Gulf of Munnar. Kilakkarai features the regular dugong market as the local population relish the meat which is bought for Rs. 4 or 5 a kg. The most common sizes caught are 2-3 m. long weighing 100-200 kgs and the capture is done with special thick nets. The animals are usually clubbed to death before being hauled into the boat as they could upset the craft if pulled in alive. A decade ago some fishermen thrived on dugong fishing at certain stretches of the sea with *Zoestra* grass beds. Now few people fish exclusively for dugongs but a chance to catch one is never missed as the meat brings in about 300 Rs.

The Central Marine Fisheries Research Institute at Mandappam Camp has two dugongs in a tank bedded with the local sea grass. These were caught in the narrow channel between Pullitiven and Pallivastiven islands near Krusadai.

In recent years no large groups of dugongs have been seen. We are sending out a detailed questionnaire to fishermen and forest officials in the various sites but a planned extensive survey should be undertaken and recommendations made to Government about enforcing dugong protection. One problem is that there is no protection policy for marine wildlife. Dugongs are listed under Schedule I of the Wildlife (Protection) Act of 1972.

Karnali River

There are few roads in Western Nepal, which is the reason so much natural wealth is left. We were camped in April on the banks of the Karnali River 60 kms north of the Indian border at Chisapani (cold water), on a survey of *Gavialis gangeticus* and assisting in an egg collection project being carried out by the Indian Crocodile Project.

The Karnali is a snow-fed river of fair size and goes through a 4 km Gorge above Chisapani, where the river is up to 12 metres deep and averages about 200 metres in width. In the crystal clear waters mahseer and 15 other fish species are plentiful. Seven gharial bask regularly on the white sand banks on the east bank of the river; a remnant of a formerly healthy population. The Karnali is the last major tributary of the Ganga that remains undammed and this is obviously why the river is in prime health. However this may not be so for long. A UN sponsored feasibility study is underway and the gharial and mugger now bask to the sound of blasting, drilling and motor boats. It is an interesting fact that this is a \$ 2,500,000 project out of which only \$ 5000 was allotted for ecological studies on the impact of the dam.

As up-river of the dam site is too cold and full of rapids and down-river is a wide shallow flood plain, it will be well to consider the translocation of these gharial if the dam is built.

A brief survey was also done on the Babaj River Gorge (Sarju in India) just north of the newly gazetted Karnali-Bardia Wildlife Sanctuary. Here six gharial were seen and at least two more reported.

We visited Kateranian Ghat just south of the Nepal border where the Karnali is called the Girwa. At a sharp bend in the river massive trees uprooted by annual floods lie in the water bordered by sand bars and sand banks. Here we observed 16 gharial (and several more were reported) making this possibly the world's largest concentration of this species.

This year gharial egg collection is being undertaken in Orissa, Bihar, U. P. and Rajasthan.