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## SPECIAL FEATURES

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### BREEDING OF INDIAN SMOOTH OTTER (*Lutrogale perspicillata*) IN CAPTIVITY - SOME IMPORTANT REGULATORY FACTORS\*

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#### ABSTRACT

*The paper attempts to provide guidelines and basic essential requirements for breeding the Indian Smooth Otter in captivity on the basis of experience gained from 1968-85 at the National Zoological Park, Delhi.*

*The three key factors, namely, housing, diet and individual behaviour are discussed and minimum physical parameters regarding housing and diet are attempted as basic requisite that may help in captive breeding of Indian Smooth Otters.*

#### INTRODUCTION

I was prompted to prepare this paper by recollections of the repeated queries addressed to me personally by Directors of some Zoos in India in my capacity as Director of the National Zoological Park, Delhi and coordinator of animal exchange programmes, breeding loan and various other aspects of management relating to Indian Zoos. The queries of various Zoo

Directors were based on their difficulties in breeding the Indian Smooth Otter in captivity. Out of about 40 zoos in India only a very few zoos have been successful in breeding the species; the National Zoological Park, Delhi being the most successful having bred the species regularly since 1968. On the basis of observations made and experience gained in breeding the Otters in the course of over 20 years during my tenure at the National Zoological Park, Delhi, in various capacities. I have come to the conclusion that breeding success is linked to three factors, namely the enclosure, the diet and the behaviour of individual Otters. In case of less successful zoos, I have time and again observed that it is one of these factors at fault which was responsible for the failure.

This paper is intended to provide guidelines and basic parameters that may help in meeting the essential requirements for breeding the Indian Smooth Otter in captivity.

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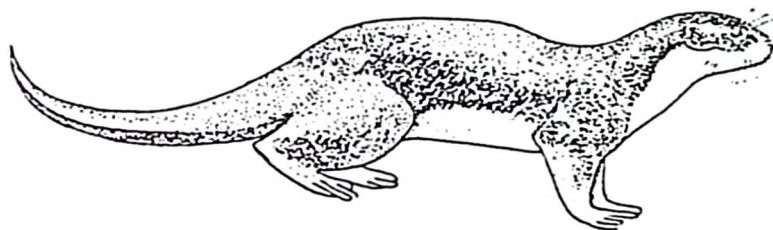
## INDIAN SMOOTH OTTER AT THE NATIONAL ZOOLOGICAL PARK : A BRIEF REVIEW

On the recommendations of the Indian Board for Wildlife, the Government of India, decided to establish a Zoological Park in Delhi as per approved plan in December, 1956. With this announcement the preliminary work for constructing the Zoo was taken up in 1957 at the site selected between Purana Quila and Humayun's Tomb. As the work progressed, the animals started arriving and an assortment of mammals and birds such as carnivore cubs, deer, bears, storks, cranes, parrots were housed in temporary make-shift enclosures at the rear corner of the park site.

The first Indian Smooth Otter was obtained by the Park in 1958 but it survived for only seven months, subsequently three more specimens were obtained in as many years. However, due to inadequate housing and management facilities, none of them survived for more than six months. In 1962, a six month old tame female cub was obtained, but she remained alone for three years until early in 1965, when five more Otters, about six months old, arrived. Of these, three failed to survive but one pair settled down well. During this intervening unsettled phase the Zoo staff had also, by trial-and-error, gained basic knowledge and techniques of maintaining Otters in captivity.

A new spacious enclosure for Otters was completed in 1965. All the three specimens, one young pair and an older female were transferred to the new enclosure, where the young pair mated for the first time in August, 1968 and subsequently the young male also mated with older female in the same month. Both females littered in October, 1968, and since then Indian smooth Otters have been breeding regularly in the Park. It has been observed that each female littered in a separate den which she had excavated.

The average gestation period for four litters calculated from the last observed mating to the date of parturition was 61 days (Desai, 1974). This compares with Yadav's record of 63 days at Jaipur Zoo for *Lutrogale* (Yadav, 1967). Average age of females for sexual maturity ranged from 20 to 22 months and they reproduced at the average age of two years. Both parents cared for the young in all cases. The cubs were weaned completely at the age of 18-20 weeks. The Otters were fed daily : 500 gms fish 22-30 cms long each in the morning and evening.



Encouraged by the breeding success, additional enclosure was constructed to accommodate surplus Otters and a trio was shifted to this new enclosure where they bred in 1982. A total of thirty eight cubs in thirteen litters have been born in park from 1968 to 1988.

### BASIC PARAMETERS FOR CAPTIVE MAINTENANCE AND BREEDING

Based on experience, it is surmised that the three basic factors essential for breeding the species in captivity are : (i) housing (enclosure), (ii) diet, and (iii) individual behaviour.

#### (i) Housing (enclosure) :

Being a social species, the Indian Smooth Otter prefers to live in group and adapts very well to zoo life. It is also very active, playful and extrovert by nature. Although

by habits, it is an aquatic animal, it spends considerable time on land, hence, the important point to consider is the land/water ratio while designing an enclosure for the species. It is also a very nimble climber and can easily cross over the fencing around the enclosure, if proper overhang over fencing is not provided while constructing its enclosure. It can also dig through under the fence, hence, proper fixing of chain link fence at the bottom upto a depth of one meter in ground is necessary to prevent escapes.

The Otters also have fossorial habits as they excavate dens/burrows for littering. It has been observed that each female in the group excavates its own den for the purpose, hence, this provision needs to be kept in mind while designing the enclosure. Rubbing, rolling and grooming is another activity in which the Otters engage themselves often to maintain their fur coat in condition for the simple reason that it provides warmth, insulation and buoyancy. For this purpose, it is essential to have a 5 cms thick carpet of sand over the land area to facilitate drying of coat and grooming. Rocks, hollow logs, and trees provide the rubbing areas while vegetation in the form of shrubs and small trees in the enclosure help as retreat areas where the Otters can rest in quiet and privacy. These areas also help the young cubs to remain hidden from public and provide a sense of security.

On the basis of enclosure design and space allocation observed in various Indian and foreign Zoos, it is estimated that the minimum space requirement for a pair of Indian Smooth Otter would be 10 m x 10 m with land and water ratio of 2:1 to 4:1.

### (ii) Diet :

It is a common practice to keep Otters exclusively on fish diet. However, for proper maintenance of coat condition and

general health, it is essential that additives like vitamins, vegetable oils, bone meal are added to its diet. Freshly chopped carrots given in small quantity helps in maintaining proper coat condition. Fresh live fish and one day old chicks may be given once or twice a week to provide a change in diet and to sustain a healthy appetite.

### (iii) Individual behaviour :

Even if all physical requirements for successful reproduction are fulfilled, the Otters sometimes do not respond due to rivalry among females or males, incompatibility between individuals in a pair or physiological/physical abnormality of an individual.

Rivalry among females or males in a group is not common, however, it has been observed that fights among members in a group take place resulting in isolation of an individual due to fear or aggression by other members of the group. This can be corrected by removal of the erring member from the group. A small harmonious group is better for reproductive success rather than a large group. It is also advisable not to introduce an unknown individual to a group which has settled down well. Wide differences in age, environment and behaviour lead to aggression among members with detrimental results.

Playful activities among males and females become more frequent prior to mating which mostly takes place in water. After the first initial mating, the frequency of mating increases. As the time of parturition approaches, females get busy in excavating the dens/ Burrows. Males are chased away from the den initially, however, later they play an important part in rearing of the cubs. After birth, the cubs are brought out of the den after about four weeks but not allowed by their mothers to wander freely on their own.

Later such excursions become daily events but they are not allowed to enter water till they are about 10-12 weeks old. At this age, the cubs begin to nibble fish, they wean completely at the age of 18-20 weeks.

In conclusion, I would simply wish to add that this paper makes no pretensions of being comprehensive as it touches upon only the key factors involved in breeding the species in captivity and it is presumed that once these basic requirements are met, the Otters in most cases would respond favourably.

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## VIPERINE ENCOUNTERS

RAVI CHELLAM

Monsoon of 1986. Gir had received continuous heavy showers for nearly ten days from June fifteenth. During these days, clouds darkened the skies and lightning streaked across with dazzling intensity to the accompaniment of deafening thunder. The drenching that the jungles had received, transformed it magically. From a hot, dry, brown dust bowl to a cool, humid, sea of green. This was remarkable. The ability of NATURE to recuperate!

Overnight grass grew to cover the forest floor and hill slopes with a velvety carpet. The trees and shrubs put forth a flush of leaves in various shades of green which was soon followed by blossoms in various colours, dull yellow of Randia, white of Carissa, the vivid yellow of Cassia... Jamun came into fruit. It was a pleasure to walk

### Literature Cited

1. Desai, J.H. (1974) : Observations on the breeding habits of the Indian smooth Otter. Lutrogale perspicillata Int.Zoo Yb.14:123-124.
2. Yadav, R.N. (1967): Breeding the Smooth-coated Indian Otter Lutra perspicillata at Jaipur Zoo. Int.Zoo Yb. 7:130-131.

along the Hiran river, to pick and devour the Plump luscious fruits, fallen on the leaf litter.

Insects were visible in hordes. The delicate pink, velvet bugs, scorpions in various metallic hues and not to forget the ever bothersome mosquitoes. Mosquitoes which gave me three malarial attacks in less than six weeks.

The reptiles were also visible and energetic. Muggers frolicked in the muddy brown waters of Kamaleshwar reservoir, Star tortoises appeared and went about their business in a stately fashion, huge rat snakes moved ever so swiftly with their glistening coats and perky little Sitana lizards darted around, flashing their nuchal pouches.