

Status of Bengal Tigers (*Panthera tigris tigris*) in Dhaka Zoo

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Introduction

Presently, five sub-species of tigers have been recognized as existing in the world. Bengal tiger (*Panthera tigris tigris*) is one of the most beautiful sub-species for its royal beauty, for which it is called Royal Bengal tiger (distribution specially in Sundarban of Bangladesh & India, also few area in Nepal, Bhutan & North-west of Myanmar). The Royal Bengal tiger is an excellent indicator species for the health of the Sundarbans (Ali Reza, *et al.* 2000). It is a solitary animal that inhabits in thorny, dry or moist, deciduous, semi-evergreen, mangrove, swamps, grassland etc. In a group, one tiger 'owns' the territory, 1 or 2 are extremely low ranking & the rest share a central social position (Fraser, *et al.* 1991). The population of free ranging Bengal tigers in Bangladesh (Sundarban) by 2005 was about 445 (Tiger census by IUCN and UNDP).

Study area

During the period of 1986-1989, the Bengal tiger's sheds were established in Dhaka Zoo, Bangladesh. The sheds are almost round shaped, divided in two parts having 18-20 feet space from the middle point of the shed. In each part there is a small extra room and device of suitable locking and opening (squeezing device). There is a water house of 8 feet length & 6 feet breadth with 5 feet deep in each shed. Also a facility for climbing up and down is there. Some portions have non concreted floor and there is a wooden post inside each part of the shed. The animals live in pairs. In the year 1987, 2 females and 2 males were purchased on tender from India. Since then the 2 pairs have bred very successfully and the present population is 12 (8 males & 4 females). One moat has one indoor house, small bush, 25 sq. feet land with grass and a water house of 80 feet length, 11 feet breadth and 8 feet deep for swimming. Here, there are also stairs for climbing up and down. Also there is a water house in the two blocks of the moat. At present (June 2006) 3 male tigers are living in the moat. In the captivity of Dhaka Zoo, though the breeding history of Bengal tiger is very glorious it has created many problems with management, space and inbreeding.

Materials and Methods

Due to some practical limitations, the study has covered a period of last six years duration. During this period, population was very healthy and good birth rate with is total of 16 (8 female & 8 male) tigers. At present (on June 2006) the population is 12 (8 males & 4 females). Four (3 males 1 female) had died and the record of causes of death was collected. The report from CDIL (Central Disease Investigation Laboratory), Department of Livestock Services, Dhaka and IPH (Institute of Public Health), Mohakhali, Dhaka confirmed the causes. Common people are sometime confused due to wrong information both print and electronic media. This creates a painful situation for the Zoo managers and staff. People do not know about the technicality or scientific reasons of various diseases affecting the animals (Srivastava, *et al.* 2002). In Table - 1, death of tigers with causes, age, sex and date is stated.

Table 1, Deaths of tigers in Dhaka Zoo, Bangladesh during June, 2000-June, 2006

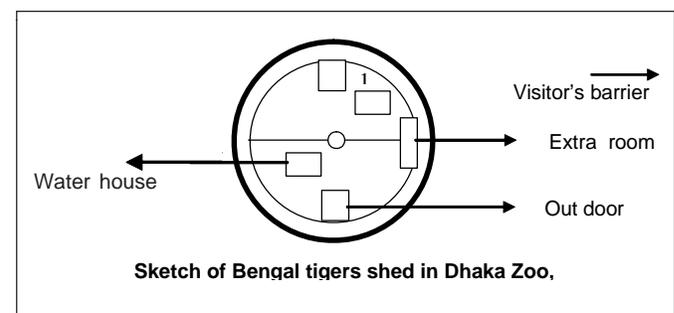
Date	Sex	Age	Causes
21 Oct.2000	Male	4 y	Acute renal failure & shock.
21 Jan.2003	Female	6 m	Cold stress (Record of severe cold)
24 June. 2003	Male	11m	Inbreeding effect.
16 Nov. 2004	Male	16y	Shock (Senility).

* y = year; m = month; d = day

Results and discussion

To study the habitat status, an observation of 45 days was conducted. Condition of the shed, water house, space measurement, quality of protection net and bar were observed. Excluding the moat, all the sheds were not so naturalistic and had no privacy for the animals from visitors. Here, at Dhaka Zoo except Sunday (off day considering the tiger's health condition), every day for each adult tiger, 12 kg beef, 250 gm liver & 10 gm Vitamin - mineral premix is supplied. Once a week poultry is provided.

The observed ratio (male : female) was 8:4, which was very difficult to manage. Three male tigers were in the moat and it was not possible to free them all at a time because of dominant behaviours. The zoo caretaker's psychological signals helped to manage them. In this stipulated time one pair was donated to the Dulahazra Safari Park, Cox's Bazar, Bangladesh, another pair was donated to the Jahanabad Cantonment Zoo, Khulna, Bangladesh and one male tiger was donated to Rangpur Zoo, Bangladesh. The visual body condition of the tigers were good. Stool samples were collected from all the sheds and moat. The samples were examined regularly for detecting major parasitic



infestations. Other preventive measures (vaccine, deworming etc.) were taken properly.

Factors affecting the management

Dhaka Zoo is a very nice place for breeding, conservation of endangered animals but due to lack of proper breeding

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policy, many problems are faced. Due to inbreeding effects, weak Kittens with various nervous syndromes, developmental anomalies occur and many unnatural behaviours are observed. It is very difficult to manage the animals during medical problems, as Dhaka Zoo has no squeeze cage facility with proper equipments. Severe economic loss of managing this large group should be considered also. Male and female ratio and habitat constraints are also major areas of concern.

Recommendations

1. Increasing the area of the tigers and immediate reconstruction of the sheds to make them naturalistic.
2. Considering the inbreeding effects, feed cost minimization (economic), male and female ratio and habitat constraints - a complete and long term breeding road map is needed for maintenance of proper book keeping.
3. Animal exchange programme should be strengthened.
4. Adequate laboratory facilities and a complete Veterinary unit should be developed in Dhaka Zoo, Bangladesh.

5. Print and audio-visual media should take active part with positive reporting.
6. Regular training, workshop and seminars should be arranged to identify, solve the problems and related matters. This will improve research also.
7. Zoo legislation or Act should be prepared at the earliest.

Acknowledgement

We are grateful to the authority, staff members of Research, Animal health & Carnivore section of Dhaka Zoo. We are also thankful to Dr. Md. Salim Iqbal, Veterinary Surgeon & Ratan Kumar Mondol, Zoo Officer, Dhaka Zoo, Bangladesh, for helping us in many ways.

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Spotted Deer (*Cervus axis*) Herd in Dhaka Zoo: Case report

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The Spotted Deer Park in Dhaka Zoo was established in 1978-1979 with a breeding group of 30 (18 females & 12 males) deers collected from Sundarbans with the help of forest department of Bangladesh. Since then the group has propagated very successfully and the present population consists of about 195 animals. This population has created habitat constraints and at present management activities have been increased. The present study took 4 months to document herd behaviours, problems and possibilities along with the habitat conditions. This study has focused on population status and associated management conditions, corner (sheds), and related factors and some recommendations.

Dhaka Zoo was officially inaugurated and opened to the visitors on 23rd June, 1974. It is a zoo with a nice landscape and the site is at Mirpur, about 16 km from Dhaka central point. The river Turag is on the Northwest and very near to the zoo. It took about 11 years (1964-1974) to start the zoo that went through the process of site selection, infrastructure development, animal collection from abroad and inside the country, staff recruitment and independence war of 1971. Earlier it was almost like a jungle with much woodland, fruits trees and the population of the inhabitants was very low. The entire area was very eco-friendly and beautiful. At present the total area of the zoo is 186.63 acres (75.55 hectare) in which 2 lakes cover 32 acres of the land.

The Spotted Deer Park covers a total of 9 acres that includes one large (6.6 acres) and two small (total 2.4 acres) sheds. The large shed is situated just adjacent to the main gate of Dhaka Zoo. It is bounded by the wall of central poultry farm on two sides, Zoo Veterinary Hospital (quarantine block), animal nutrition section on one side, and a residential quarter, visitor's path and a public toilet on the fourth side. One open drain (for the drainage of water

and waste) along with an inner water line and sewerage line pass inside the uneven topography in the shed.

During transect walks for ungulate sighting, data on number, age and sex (in possible cases) were recorded. Animal density per acre/hectare was calculated. The network of paths, trees, boundaries, other structures, land quality, and changing behaviours were recorded. Johnsingh and Sankar (1991) was followed to study on food habits of ungulates and habitat utilization by large mammals while Sathyakumar (2000) was followed for status of mammals in this analysis. Strategy and techniques, various processes for analysis were partially followed based on the paper on Spotted Deer herd by Srinivasulu, *et al.* (1999). Some secondary data were collected from Dhaka Zoo also.

Results & Discussion

The survey was carried out at four different stages from March – June 2006 at 3 Deep Park sheds. In all three sheds, 53 adult males, 35 sub-adult males, 39 adult females, 36 sub adult females and 32 fawns were counted. Excluding the fawns, the density of Spotted Deer within the sheds was 18.11 animals/acre and including the fawns it was 21.66 animals/acre. But at Guindy National Park, Chennai, the density was between 1.84 to 2.39 animals/hectare (Raman *et al.*, 1996) while at Pochermal Deer breeding centre, Pocharam Wildlife Sanctuary, Medak District, it was 1.42 animals/hectare (Srinivasulu, 1998b). Here in Dhaka Zoo, the density of animals in this aspect is very high and it is 53.57 Deer/ha. The ratio of male: female was 88:75 excluding the fawns. If we compare the ratio of the animals, males are much higher in number than

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