

The Great Indian One-horned Rhinoceros (*Rhinoceros unicornis*) in Captivity in South Asia

Sally Walker*

The purpose of the article is merely to begin what we hope will be a series of articles on the history, status and prospects of *Rhinoceros unicornis* in South Asia.

At present, *Rhinoceros unicornis* can be found in the wild only in India: in Uttar Pradesh, Dudhwa National Park (as a result of a translocation which occurred in 1984 and 1985); in West Bengal, Gorumara and Jaldapara, and in Assam, in Kaziranga, Pobitora and Orang National Parks; and in Nepal in Chitwan and Bardia National Parks. At one time, *Rhinoceros unicornis* ranged across all the major river floodplain ecosystems in northern India, Nepal, Pakistan, Bangladesh, and Bhutan. Currently, *Rhinoceros unicornis* is exhibited in 14 zoos in India, 1 zoo each in Nepal, Bangladesh and Pakistan, and at 42 other zoos throughout the world.

In 1993, Zoo Outreach Organisation / CBSG, India organised a Population and Habitat Viability Assessment (P.H.V.A.) Workshop in Jaldapara Wildlife Sanctuary in collaboration with the Forest Department of West Bengal and the Asian Rhino Specialist Group. An early studbook was prepared at that time by Dr. H. K. Gairola of Kanpur Zoo with the help of Zoo Outreach Organisation for the P.H.V.A.

Recommendations for captive management, including animal by animal recommendations for moves and pairings between Indian zoos as well as some U.S. and European Zoos as well were made by the captive working group. There were also very specific recommendations for health management and nutrition, etc. (Ref. Working Group Report at the end of this article).

Since that time, no significant movement of rhinos has been done within India and no movement at all between Indian zoos and zoos outside the country. To our knowledge systematic health checks have been undertaken on the Indian rhinos as a whole and no research into various problems raised at the P.H.V.A.

In the last three years, it has come to our attention that there are three captive facilities in South Asia which also exhibit rhinos but are not having any success breeding them. These are: Central Zoo, Kathmandu, Nepal; Dhaka Zoo, Dhaka, Bangladesh, and Lal Suhanra NP, Bawalpur, Pakistan. These are all from the Nepal population of *Rhinoceros unicornis*. In the last few months, there has been a move to bring additional rhinos from Nepal for exhibition in a zoo in Pakistan.

In view of the poor track record of all the zoos in South Asia in terms of communication, coordination, cooperation, genetic and health management, as well as other activities which distinguish a healthy captive situation from a sick one, this is not a good idea. However, if the zoos within each South Asian country and of South Asian region truly could come together and manage their animals better, maintain contact with International Studbook and other international bodies which have interest in *Rhinoceros unicornis* and money to support a variety of health initiatives as well as to arrange exchanges of rhinos for improving or maintaining genetic diversity.

South Asian zoos are the least active of the civilized regions of the world within their respective countries, their region and in the international zoo community. A variety of problems beleaguer all the South Asian countries which account for this situation, but if zoos are to hold certain highly threatened animals, then they must find ways to overcome these problems, come what may.

This article is intended as an information (for many people do not know about the holdings in Nepal, Pakistan and Bangladesh), and a wake-up call for the Indian and other South Asian zoos to take a more proactive approach towards the situation of rhinos in their facilities.

Many zoos have pairs of rhinos which have not bred ever, or at least, not for many years. There is new research which suggests that if females don't conceive for a number of years they are likely to develop cysts on their ovaries which make conception practically impossible. There are health screening techniques using ultrasound which can determine the presence or absence of such conditions. Complete work-ups for each individual animal using modern medical techniques is very much required in view of the paucity of births.

There have been no successful births at all in any of the South Asian zoos' current pairs and in some of the Indian zoos' current pairs, and more often than not, no conception at all. There are 7 Indian zoos with only one animal, or with 2 of the same sex. When most of the rest of the world's zoos are committed to international, regional and national cooperation and are reaping the benefits by breeding almost any number they wish of threatened species while, at the same time, preserving genetic and demographic viability, this situation in South Asia is unconscionable.

The zoos holding rhinos outside South Asia manage their rhinos through two main programs: the Species Survival Plan (SSP) which encompasses the rhinos in the United States, Canada, and Australia; and the European Endangered Species Program (EEP) which encompasses Europe. The SSP and EEP populations are demographically very vigorous with much reproduction occurring. However, the gene pool in the SSP and EEP is not as broad and deep as desirable for long-term viability. This situation is just the opposite of the zoos in South India which have much genetic diversity not represented in the SSP and EEP populations but which are not reproducing this species as the SSP and EEP is.

According to Dr. Thomas J. Foose, Programme Director for the International Rhino Foundation, for quite some time, the SSP and EEP have desired to develop a cooperative program with the zoos in India and South Asia. In fact, a proposal has been submitted through the International Rhino Foundation (IRF) and IUCN/SSC Asian Rhino Specialist Group on behalf of the SSP and EEP for an exchange of rhinos between the SSP and Zoos in India.

* Founder/Hon. Director, Zoo Outreach Organisation, P.B. 1683, Peelamedu, Coimbatore - 641004, TN, India

Basically, the SSP would provide young, reproductively prime females to Indian Zoos in exchange for males which contain bloodlines not represented in the SSP and EEP population. This proposal was originally submitted over 4 years ago and despite some encouraging communication between CZA and IRF in 2002, there unfortunately still has been no official decision on the part of the Indian zoos to engage in this exchange.

The SSP and EEP zoos would also be most willing to engage in programs that would exchange technical expertise as well as animals with the zoos in South Asia toward the goal of developing a truly viable and successful global captive propagation program for this species. Prior to any exchange of animals, good reproductive assessments of all animals would be crucial. The SSP/EEP would be very willing to cooperate in such a program with colleagues in India and other South Asian zoos.

The Table on the right gives the current Status of *Rhinoceros unicornis* in South Asia according to the most recent published studbooks, inventories, personal observation and personal comments.

There is no attempt in this table to provide a means for pairing or of exchange. It is simply a status report for information and, hopefully, to create a renewed interest in pulling together a collaborative captive breeding programme for this region.

Recommendations for Captive Breeding and Health & Disease from the Population and Habitat Viability Assessment Workshop PHVA held in Jaldapara Wildlife Sanctuary in 1993.

The zoos that have had breeding successes should be given priority when pairing or supplying animals.

Mates should be provided to proven breeders in different zoos so that maximum breeding potential is realised.

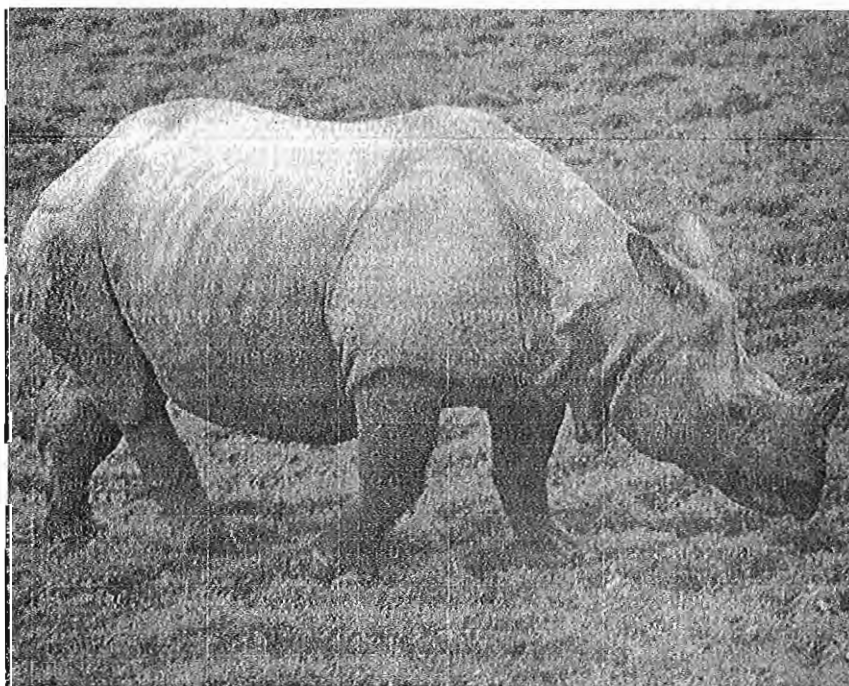
The use of Guwhati Zoo as orphanage for young rhinos stranded during flood has affected the management of the other rhinos in the zoo and should be curtailed. The orphanage should be attached with the Kaziranga National Park or other rhino rearing area where facilities could be established to rear young animals. If surplus

Status of Great Indian One-Horned Rhinoceros in South Asian Zoos and other captive facilities according to most recent published, eye witness and personal communication (Male:female:unknown 22:16:0)

Country & Zoo	IntSB 02	CZA 02-03	Pers. Obs. S. Walker03	BKG.CZA. Pers. comm. October 2003
India				
Assam	5.2.0	5.4.0		0.1 birth 2002-3
Bombay	1.0.0	1.0.0		-
Calcutta	2.3.0	1.0.0		1.0 death 2000-1 0.1 death 2002-3
Bhubaneswar	-	1.1.0		-
Delhi	1.1.0	1.1.0		0.1 birth 2000-1 1.1 death 2000-1
Hyderabad	Not listed	1.1.0		0.1 aquis. in 2000-1 1.0 aquis in 2002-3
Kanpur	3.1.0	1.2.0		-
Lucknow	1.2.0	1.0.0		-
Patna	2.2.0	3.3.0		1.0 birth 2000-1 0.1 birth 2002-3
Punjab	-	1.0.0	-	-
Ranchi	-	0.1.0		-
Tripura	1.0.0	1.0.0		-
Trivandrum	2.0.0	2.0.0		-
Nepal				
Central Zoo, Kathmandu			1.1.0	
Bangladesh				
Dhaka Zoo, Dhaka			1.1.0	
Pakistan				
Lal Suhanra National Park			1.1.0	

Sources

International Studbook (2002). Greater One-horned Rhinoceros *Rhinoceros unicornis* Linne, 1758. International Studbook, 2002, Basel Zoo, Report date 31 December 2002, 68pp.
 CZA, (2002-2003). *Inventory of Animals in Indian Zoos 2002-2003*, Central Zoo Authority, New Delhi, 314pp.
 Sally Walker, 2003 (pers. obs.) - Visits to Nepal and Bangladesh, July 2003; Visit to Pakistan, August 2003
 Brij K. Gupta, Central Zoo Authority (Pers. comm.), October 2003



Assam State Zoo Rhinoceros, Photo courtesy: Ashok Jain and CZA

females are available from the orphanage, they may be kept for the *ex situ* breeding programme while surplus males could be used for reintroduction research.

A feasibility study should be undertaken to determine if indeed reintroduction of captive born rhinos into the wild is a viable possibility and what captive management activities should be undertaken to ensure a successful project. This could be done in consultation with the Reintroduction Specialist Group, SSC, IUCN.

All data related with each individual, namely date of birth, date of any acquisition, transfer, date of death and cause of death should be sent to the National Studbook Keeper (Kanpur Zoo), the Species Coordinator (Addl. I.G., Wildlife), and Central Zoo Authority. The National Studbook Keeper should take all the responsibility to send all information to the International Studbook Keeper.

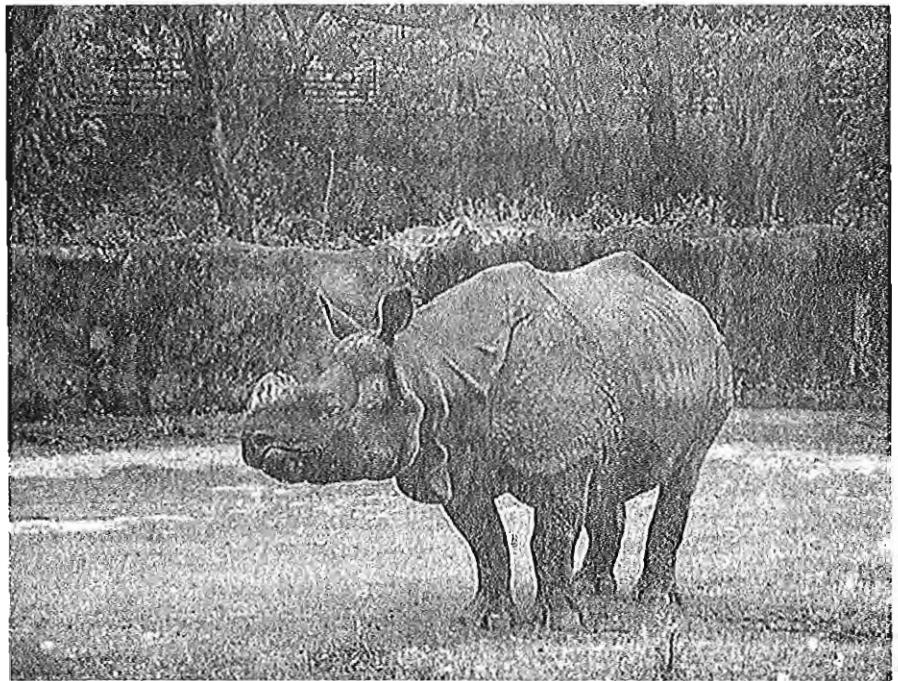
All the zoos that maintain the species should have educational materials available to the visitors and they can be in the form of signage, brochures, or pamphlets in the light of conserving the species.

Health and disease

Suitable veterinary units should be established in all protected areas through which immunisation of domestic livestock in fringe areas and monitoring health of rhino population can be done.

Every zoo that maintains this species should perform post-mortem on every dead animal and the results should be made available to the Regional Studbook Keeper, Species Coordinator and Central Zoo Authority. The post-mortem results may be maintained in accordance with the format as already laid down in the guidelines by the Central Zoo Authority. Additional required information may be added to the existing format of C.Z.A.

The disease which can be prevented by periodical testing and vaccination like rinderpest, haemorrhagic septicaemia, and tuberculosis should be taken into consideration for routine prophylactic measures. The treatment records should be kept properly.

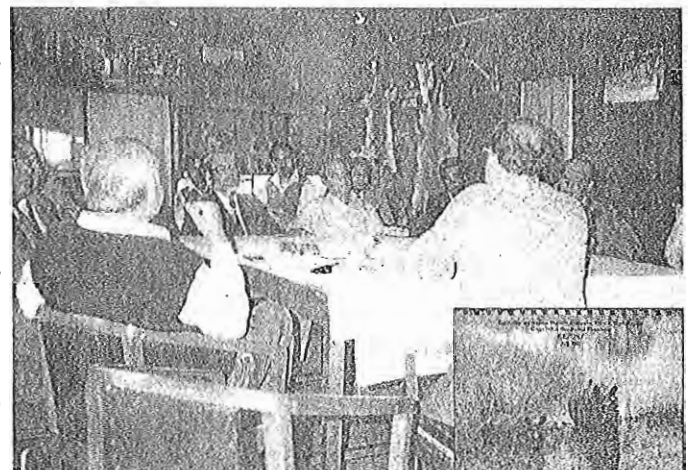


Rhinoceros at Hyderabad Zoo. Photo Courtesy: Hyderabad Zoo



Rhinoceros at Lucknow Zoo. Photo Courtesy: Lucknow Zoo

Meeting of Species Coordinators at Jaldapara on the occasion of the Population and Habitat Viability Assessment Workshop for Great Indian One-Horned Rhinoceros. Photo by S. Walker, ZOO



**Rhinoceros unicornis in
Lalsuhanra National Park,
Bahawalpur, Pakistan**

The Lalsuhanra National Park is located about an hour from Bahawalpur in Pakistan. In this country, the National Park policy is more tolerant of and interested in visitors for their parks than in other South Asian countries, and there is much tourism. The Pakistani people love to get out in the open and really enjoy these parks. The Park is under the administrative control of the Punjab Forest Department since 1972. It is headed by an Administrator of the status of a Conservator of Forests. There is a large core area, wetland area and several recreational areas. There is a Children's Park, a Mini Zoo, a Lion Safari, an Aquarium and a Museum Hall, as well as five large breeding enclosures for Black Buck and Chinkara, and of course, the rhino enclosure.

The rhinos were a gift of the Government of Nepal and were brought as very young animals in 1983. Initially they were kept for many years in a rather small, albeit moated enclosure with a pond, but wildlife officers felt they were not comfortable there and the two pregnancies sustained by the female were not successful. More recently a large rhino enclosure of 12.5 acres has been constructed among large trees. The pond remains in the front of the enclosure and also the feeding area so that the rhinos pay frequent visits to the viewing area. The animals are very tame and mix easily with their keeper. They are healthy-looking and relaxed in the new enclosure. They wander into the forested area of their enclosure which is closed all around the 12.5 acres.

Pakistan wildlife officers related that there had been pairings and pregnancies but they did not come to term. Clearly there are some problems which need to be addressed before more Rhinos come to Pakistan and when they do get more rhinos, there should be a plan in place for cooperative breeding between the zoo which receives them and the National Park, then with other zoos in South Asia and then internationally. *Contributed by Sally Walker*



Top: Female rhino saunters out of the 12.5 ha natural habitat enclosure at the call of her keeper.
Next: Male rhino enjoys a cool bath on a hot day in the pool provided for the animals
Left first: Signage for rhino enclosure
Left second: Director of the LSNP with female rhino in background.
Photos by Sally Walker.

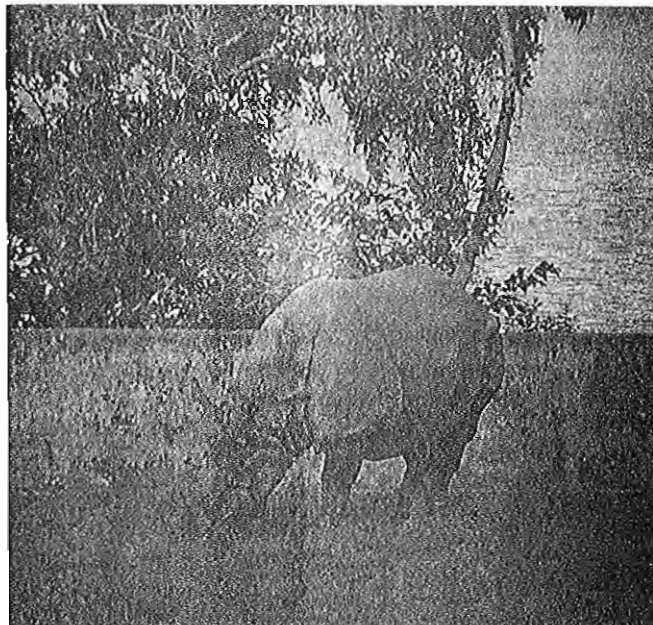


Dhaka Zoo Rhinos

The Dhaka Zoo Rhinos were a state gift of the Royal Nepal Government. They came to Bangladesh on 14th February 1993. At that time the female was 6 months and the male was 8 months old. Accordingly the present age of the female is about 11 years 2 months and the male is about 11 years 4 months. Last year the female showed estrus symptom but the male showed no response. We supply green grass, vegetable, banana, grams and concentrated feed @ 117 kgs /day.

They have a large open enclosure by a very large water body and a comfortable pool and mud bath to wallow. They are still relatively young and we have high hopes of breeding this valuable animal which used to roam our own country.

Information supplied by Dr. Feroz Islam, Dy. Director, Dhaka Zoo.



Rhino at Dhaka Zoo. Photo Courtesy: Sally Walker

Rhinos at Central Zoo, Kathmandu, Nepal

At present we have two Rhinos in the Central Zoo, one male and one female. The female Rhino, named Kanchii, was flooded out by Rapti river in Royal Chitwan National Park when she was a baby. The authorities were able to rescue her and bring her to the Central Zoo at the age of one month in 1988 July 22 where she was nursed back to health.

The male Rhino, Kanchha, was attacked by a tiger in Royal Chitwan National Park when it was still a baby. The authorities rescued him and brought him to the Central Zoo in 5th Nov 1993, when he was two years and three months old.

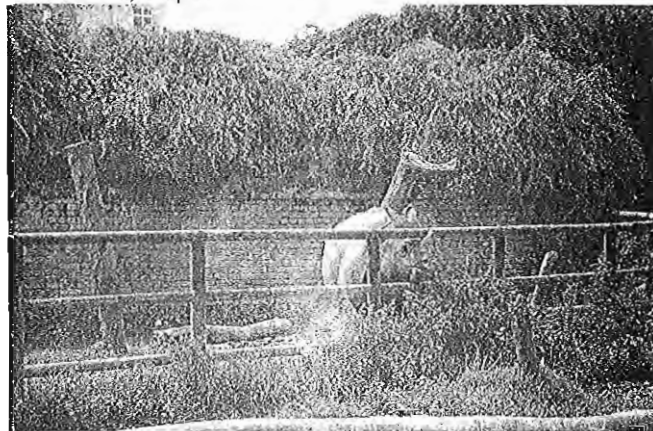
He still bears the scars of the tiger attack, which are visible on his head. The zoo keeper has reported that the wound gives trouble to Kanchha from time to time and he goes out of control during that period. We suspect that he still has some problem in his head. We are unable to find the actual problem due to constraint of lab and technical facility. Earlier Central zoo had one pair of Rhino which were poisoned to death by unknown people and the horn was stolen from the cage. The incident took place under the government period in the year 26th January 1990.

There is no breeding report in the Central Zoo history so far. Now since Kanchha and Kanchii are of breeding age they have been kept in separate but adjacent enclosures to stimulate breeding behaviour. Earlier they were confined together in one enclosure under proper husbandry care and management. Up to the age of their sexual maturity they were kept together.

We observed the rut (estrous period) behaviors many times, where the male became violent and showed

behaviors like chasing, fighting, charging of its own partner a number of times during the natural physiological estrous period. The male started hitting the iron grill vigorously and was continuously attempting to hit the female and thus injured, lifted her and dragged into den. However we succeeded to drive the male away making hue and cry by applying available local resources and could manage to separate and put into adjacent enclosure. This may be an indication of future problems of the same nature, so in our existing condition it looks difficult to manage the pair of Rhino during rut, where the female may have to face injuries or death. In wild condition also it has been observed in some wildlife parks that the female rhino has succumbed to death as a result of rut pursuit and the violence of the male. We are interested in breeding of Rhino but due to lack of technical advice we are not successful in the breeding programme.

Contributed by Rachana Shah, Curator, Central Zoo, Kathmandu, Nepal



Rhino at Central Zoo. Photo Courtesy: Sally Walker