

The Rhinoceros in Captivity

The Los Angeles Zoo Story

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Every living form of rhinoceros now existing in the world has at one time or another been kept in captivity. Although relatively easy to keep in captivity, they are not that easy to breed. The rhinoceros represents a mass of incongruities and contradictions.

Most rhinoceros are naturally solitary animals except for the square-lipped or white rhinoceros which tends to be strongly gregarious. They are known for their short tempers and violent reactions, yet they commonly

become so docile in captivity that they literally can be ridden.

They have been kept for long periods of time in enclosures barely larger than themselves; however, they only flourish when given a considerable amount of space. It is dangerous to put another species of animal in with them unless the enclosure is extremely large, but even this can be done in smaller enclosures if the introduction of the animal is conducted in a slow, careful manner.

The rhinoceros can be exceedingly dangerous because of its size and physical ability. They often suffer from chronic foot problems and are not easy to treat. One of our own males developed abscesses and fistulous tracks in one foot and leg which took almost an entire year to eliminate.

The Los Angeles Zoo maintains three different types of rhinoceros: the white or square-lipped rhinoceros (*Ceratotherium simum*), the black or hooked-lipped rhinoceros (*Diceros bicornis*), and the great Indian rhinoceros (*Rhinoceros unicornis*).

When dealing with the rhinoceros, zoo directors have to consider that the value of a male Indian rhinoceros can be as high as \$70,000 - \$80,000 and a lone female could be worth well over \$100,000. Given the premise that when they breed rhinos tend to be

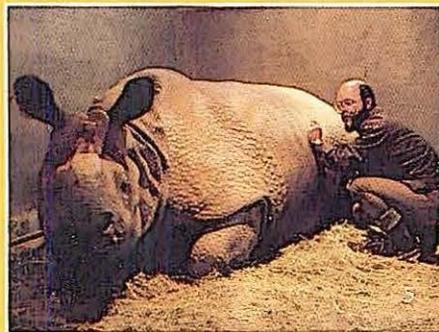
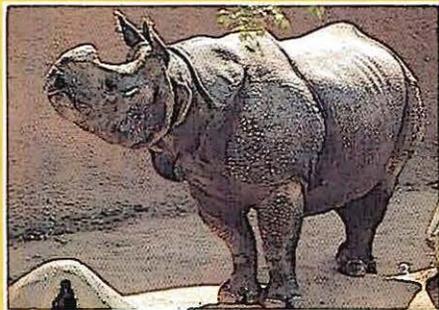
brutal with each other, it takes more than a normal ration of nerve and intestinal fortitude for a zoo director to watch \$80,000 worth of male batter the daylights out of \$100,000 worth of female. Additionally, replacement of the animal is nearly impossible as well as costly. Unfortunately, for a number of years too many rhinoceros were not kept together for this very reason.

In the wild when the female comes into estrous and is receptive to the male, she has considerable space to escape from him if the advances of the male become too threatening or more than the female can tolerate. In captivity, however, rhinos can be put together only in controlled situations because rarely does a zoo have an enclosure large enough to simulate the wild safety mechanism.

The Los Angeles Zoo first obtained white rhinoceros in August, 1965. A few feeble attempts at breeding were made by the rhinos and then sexual activity ceased. The rhinos were a total loss as a breeding, functional pair and only useful for display purposes. The basic reason for the lack of breeding is twofold—numbers and space.

Many, many years ago I had the opportunity to talk at length with Ian Player who, at that time, knew as much or more about the white rhinoceros than anyone else. When asked

why all the pairs of white rhinoceros brought into captivity had such a dismal breeding record, Player quickly answered that the solution was simple. These gregarious animals must live in a family group consisting of at least 4-6 animals and have an acre or so to run in. If that requirement is fulfilled, breeding will result; if not, reproduction will be minimal. Player's simple solution has been borne out over and over again. As soon as the San Diego Zoo brought in a large group of rhinos and placed them in an extremely spacious paddock at the Wild Animal Park, the white rhinoceros started to breed prolifically and white



rhino babies at the Wild Animal Park have become commonplace.

From a reproductive standpoint, the Zoo's pair of white rhinoceros are truly wasted in the present manner in which they are housed. Because they need to be with other white rhinoceros in a large area, later this year our pair will be shipped to Singapore where these requirements can be met. Hope-

(Continued on Page 12)



1 A male black rhinoceros calf born at our Zoo in 1975 is shown here with his mother. The youngster was surplus to another zoo.

2 One of Los Angeles' two white or square-lipped rhinoceros. We are phasing out this species to work more intensively with the critically endangered black rhinoceros.

3 Herman, our adult male Indian rhinoceros. He was captured at Laokhawa, Assam, and has resided at the Los Angeles Zoo since 1966.

4 Herman chasing Radha during a breeding encounter. Our Indian rhino complex is designed to give the animals a circular running pattern and reduce the possibility that a female can be chased into a corner and possibly injured.

5 Our adult female Radha is usually quite placid. Here, animal keeper, Dave Smith, is checking to see whether or not lactation has begun. (Photo credit to Michael Dee)

6 Radha and Meetha. The calf was one day old when this picture was taken. (Photo Credit to Michael Dee)

7 Herman and Radha, nose to nose. Only when they are in estrous are the females placed with the male.

8 Radha and her female calf Meetha. This picture was taken only moments after the calf's birth. (Photo credit to Michael Dee)

(Continued from Page 11)

fully, this will turn them into productive individuals.

It is interesting to note that the first white rhinoceros born in this country was after World War II in the Chicago Brookfield Zoo. Since that time their reproductive rate has been marginal partly due to housing and management. All this should change with the concentrated effort by zoos to properly breed and maintain their animals. For instance, the area to be vacated by our white rhinoceros will be utilized for a second family of black rhinoceros, meeting the requirements of space and numbers.

The second species worked with at the Los Angeles Zoo is the hook-lipped or black rhinoceros. One of nature's true solitary creatures, black rhinos have to be put together in captivity with great caution. When they do breed, they batter each other around quite mercilessly.

Our original pair of black rhinoceros arrived at the Zoo in 1966 at the age of 2-3 years. They produced their first calf in March, 1970. From 1970-1979 a total of 5 calves were born. The pair was particularly compatible even though they energetically battered each other around during breeding. Unfortunately, the breeding male died in 1979 leaving us with a lone breeding female. We added another pair late in 1979; however, the year old male was looking for a mother rather than a mate and our old cow fulfilled that role. The current situation is that our three animals are quite compatible and the male is slowly maturing into what we hope will become a functional, breeding animal.

The Indian rhinoceros in the Los Angeles Zoo collection present a slightly different picture with a much more complicated problem. The great Indian rhinoceros is very difficult to obtain and even more difficult to breed in captivity. A critical need is a controlled situation with sufficient room for the female to escape from the male if desired and a way for us to keep them apart if the male's advances become life-threatening. This Zoo learned a painful lesson early in the establishment of our Indian rhinoceros herd. A wild-caught 18 month old male was obtained from Assam in 1966. Upon arrival he was promptly named Herman. In 1968 we obtained an adult female from Europe, Nepali. Originally wild-caught, she was a proven breeder having given birth to two calves in Europe.

Herman and Nepali were kept together for almost two years with only minor skirmishes occurring. Unfortunately, in what appeared to be an exceptionally aggressive breeding frenzy, Herman fatally injured Nepali who died some days later.

In 1969 the Greater Los Angeles Zoo Association purchased a year old female Indian rhinoceros from the zoo in Gauhati, India named Radha.

The single, square enclosure was obviously not proper for the management of these animals, so an adjacent area was modified for them.

On the other side of the central enclosure a new rhinoceros pen was built, giving us three compartments separated by strong gates in which we could exercise a measure of control over the animals. In 1974 a second

female Randa was purchased from the Gladys Porter Zoo in Brownsville, Texas. Randa was five years old, captive-born and had been bred in Basel, Switzerland in 1969. Finally everything was in readiness for putting the animals together for breeding.

Radha came into estrous first. A female Indian rhinoceros comes into estrous about every 40 - 50 days. When it does occur the animal shows the overt effects of it for about twenty hours during which time she is restless, does a lot of vocalization, is hostile to the male, and constantly squirts urine.

When Herman and Radha were put together for the first time, there was a bit of rhinoceros banging around and then they chased each other. Sometimes Herman would chase her and sometimes it would be reversed. Herman finally mounted Radha and stayed coupled for about eight minutes. Unfortunately, this is not long enough to be an effective breeding; Indian rhinos must stay coupled for about an hour.

Then came a period of frustration. When Herman was put together with Radha or with Randa, there would be a bit of battering, some running around, and then Herman would simply go into the pool and go to sleep leaving a terribly frustrated, vocal female.

It was determined that a longer period of time together was needed but it was also necessary to have a crew on hand to control the situation. Lights were installed so that no matter what the time element the rhinos could be put together. Still no progress was made in stimulating the breeding process. Next, it was elected to put the females in with the male only toward the end of her estrous period when her estrous level and activity would be at its highest. This finally succeeded. Herman did occasionally breed Radha but paid virtually no attention to Randa. About six months after Radha became pregnant, Herman changed his mind and decided that Randa was not so bad after all. Something in the rhinoceros' version of abstinence changed his perspective and Herman bred Randa and she too became pregnant.

On February 16, 1982 at 5:39 a.m. a female calf, Meetha, was born to Radha after a gestation period of 496 days (the average is about 480 days). Meetha was the first Indian rhinoceros born in this Zoo's history. The calf was a breech delivery after which Radha

AAZPA SPECIES SURVIVAL PLAN

Recently, the American Association of Zoological Parks and Aquariums (AAZPA) initiated the Species Survival Program (SSP). This program is designed to provide a strategic and supportive framework for zoos that are committed to breeding and preserving the rare and endangered species found in the United States institutions. It is hoped that the SSP plan will be adopted by the world's zoos.

Species presently on exhibit at the Los Angeles Zoo selected for SSP include; Indian rhinoceros, black rhinoceros, Asian lion, Przewalski horse, gaur, golden lion tamarin, gorilla, orangutan, Bali mynah, snow leopard, Arabian oryx and ruffed lemur. So far, about 30 species have been designated for this program.

Each species has a Species Coordinator and it is this person's job to collect data and

make recommendations on possible animal transfers from institution to institution. The Coordinator is assisted by a management committee known as the Propagation Group. This group is made up of the member institutions currently keeping the given species. Also included in the group is the Studbook Keeper for a given species who maintains vital statistics such as breeding records, genetic background and genetic interrelationship.

In order for certain species to survive, this program has been devised to help maintain and propagate the species to the best advantage as a captive population.

Zoos only have limited space available, but with good management it is hoped that some of the most endangered species in the wild will be able to survive into the 21st century.

appeared fatigued. After cleaning the calf she lay down and rested for a prolonged period. The calf struggled to her feet and seemed to be searching for the udder. Finally after some anxious hours, the calf was seen nursing. Radha subsequently has proven to be an excellent mother, solicitous of her baby, and these early months of Meetha's life have been free of problems.

The second birth was recorded on August 9, 1982 when Randa delivered her calf. Unfortunately, it was found dead. It would appear that she too may have had a breech birth and the calf probably breathed at least once but never had a chance. The difference in the two females is that Radha showed all the classical signs of imminent, impending birth, but Randa showed absolutely none of these thus taking us slightly by surprise.

The characteristics of our Indian rhinoceros are fairly typical. They have a tendency to become quite docile and our animal keepers can safely go in with them at times. There have been incidences that due to their docility and our ability to work closely with them that it has been advantageous to all. For example, it was possible for the keeper to take samples of milk by actually milking Radha. Several years ago when Herman developed a badly infected foot, it was possible to treat him without chemical or physical restraint, including extensive flushing of the abscess and fistulous track.

Presently the Indian rhinoceros' prospects in captivity are the best they have ever been. There are more Indian rhinoceros in captivity than ever before and most of them are in potentially good breeding situations. Even though the San Diego Zoo and the Los Angeles Zoo are the only zoos in the United States actually breeding these animals, the prognosis for the future is very promising.

Cooperation between zoos, the free exchange of information and assistance, and the fact that rhinos are now managed on a captive population basis rather than a zoo-by-zoo basis means that perhaps these magnificent survivors from another time in the world's evolutionary history may yet have more time with us in the world of the living. Future generations will have the unique opportunity to see these huge beasts, hear their short, powerful snorts and marvel at the crude beauty of these unusual creatures.

Rhino Keepers

By Lora LaMarca



Randa, one of our female Indian rhinos, recognizes her keepers, Gene Noda (left) and Dave Smith.

The three men were typical expectant fathers. They paced up and down the hall; peeked into the maternity ward; took color video footage and still photographs of the birth; and quietly encouraged the mother by telling her to "push harder," "bear down," and "stay calm." The scene, however, was not taking place in the maternity section of a hospital. Instead it was at the Los Angeles Zoo in the night quarters and specially constructed maternity stall for Radha, the Zoo's 15 year old Indian rhinoceros, who was in labor. The three keepers had not-so-patiently been awaiting the birth for 495 days.

Mike Dee, senior keeper; Gene Noda, lead keeper; and Dave Smith, relief keeper, have a total of 38 years as keepers at the Zoo, 26 spent caring for and working with the Indian rhinos. They all know the personality traits of the Zoo's three Indian rhinos—Herman, Radha and Randa. Smith recalls that Herman who allowed his keepers and the veterinarians to treat his chronic foot problems twice a day for a year without ever having to be physically restrained. However, that is the same Herman who attacked Nepali, a female rhino, so viciously and brutally while attempting to breed her that it resulted in her death. Noda explains how Randa alerts everyone, including Herman, that she is in heat by urinating on the gates to her enclosure giving minute by minute updates on her condition.

The unsuccessful rhino breeding attempts described in "*The Rhinoceros in Captivity—The Los Angeles Zoo Story*" article were frustrating for the three rhino lovers. "Our fear and concern was natural because of the rough preliminaries that are a part of rhino's breeding," explained Smith. "There's a lot of pushing, shoving and chasing not to mention the damage that can be done by biting and horn jabbing. I remember once, after the lights were installed and we put Radha and Herman together, that he went after her so hard that she got beat up pretty bad before we could get them separated. It was frightening."

"Herman, and Mike Dee along with him, were the big joke of the Zoo for years," explained Noda. "He kept insisting that the next time was going to be a successful breeding. And I kept believing him. Finally, after all those years Mike and I were sure Radha was pregnant . . . but no one would believe us. We swore she was getting fatter but everyone would just look at us and say "come on you guys." After about 100 days and once Radha stopped cycling the skeptics became believers," Noda concluded.

Then began the waiting. "We were worried and with good reason," explained Dee who is the Indian rhino species coordinator for the American Association of Zoological Parks and Aquariums (AAZPA), Species Survival Program. "The Milwaukee Zoo had a stillborn. The National Zoo had the first live birth of an Indian rhino in the United States in 1974. The San Diego Wild Animal Park lost their first two babies. There wasn't a good track record for Indian rhino births in the United States let alone for a first birth. By the time Radha went into labor only two zoos in the states had ever successfully bred Indian rhinos. San Diego had two living kids by then."

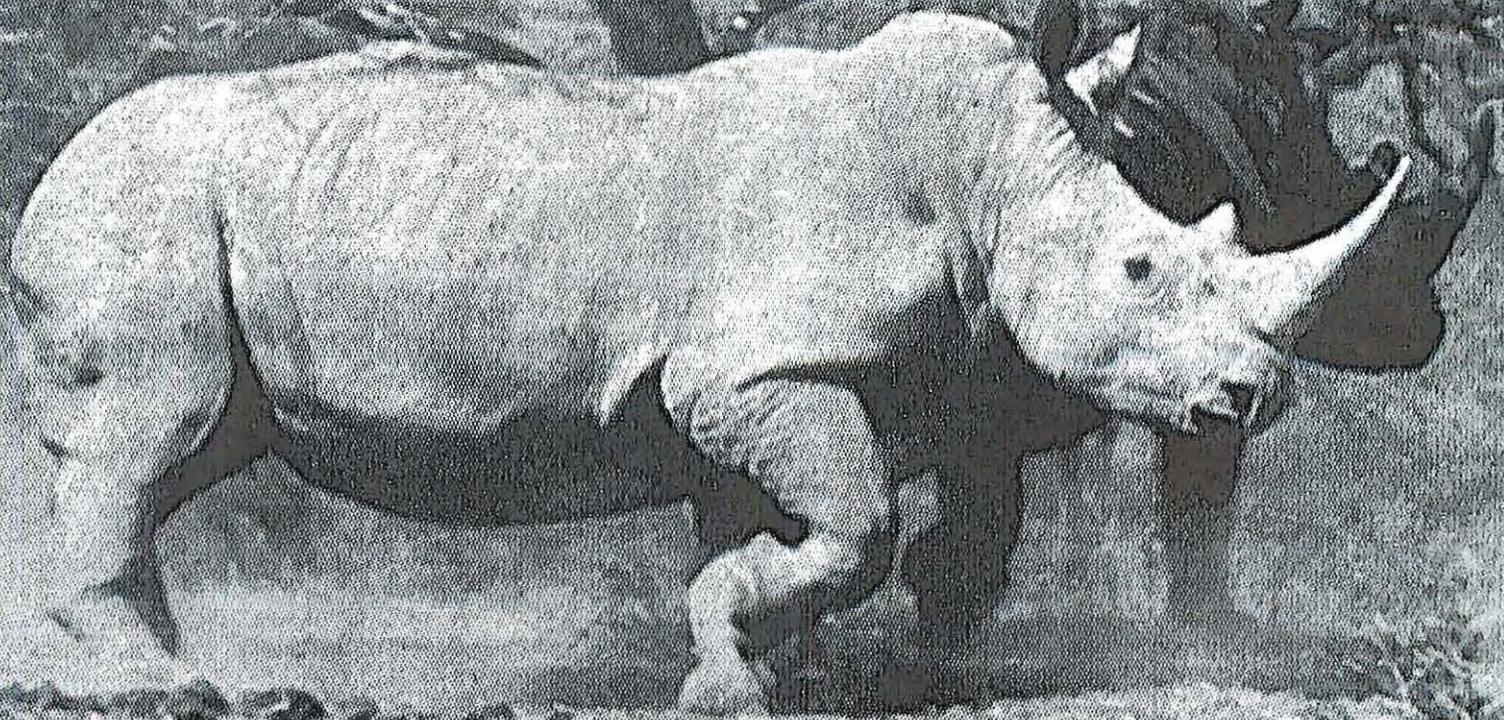
Three weeks prior to Radha's due date a pregnancy watch began with keepers volunteering for the 24 hour watch. Valuable data was recorded and many cups of coffee consumed during the next weeks. On Monday, February 15 Radha began to show unusually aggressive behavior. She became very vocal and tried to bite. Already at work, Dee and Smith called Noda who was off work because his wife had a baby a few days before—he came to the Zoo immediately. Dr. Mike Loomis, zoo veterinarian, was on hand. Radha's water broke at 7:30 p.m. And the long vigil began.

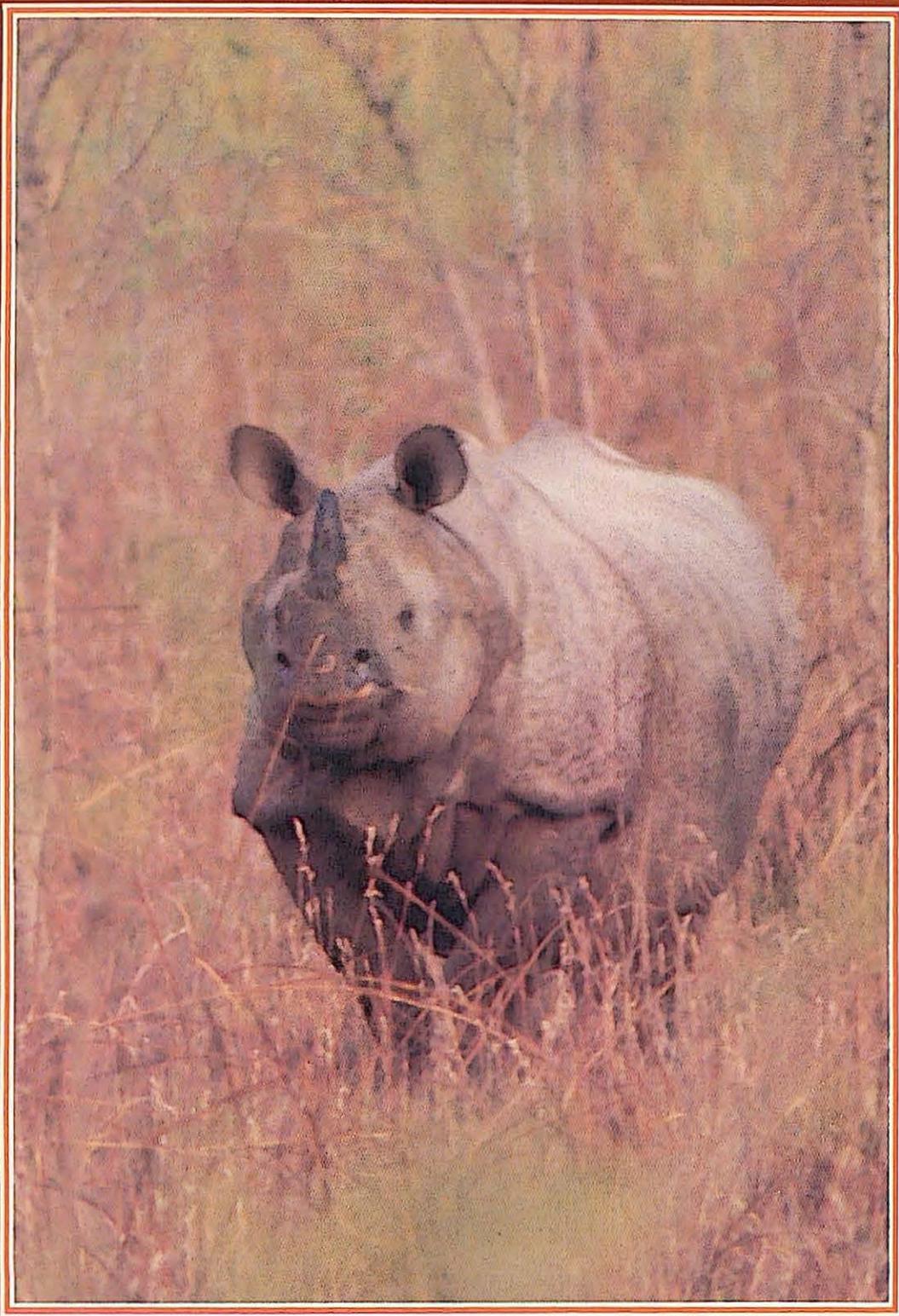
Comments picked up from the video taping during delivery: "She seems calm and oblivious to what's happening. I can't believe she stands or lays with her head against the wall all the time. Come on, Radha, you can do it. Look, there's the membrane. Listen to how she grinds her teeth between contractions. Yeah, but she sure tenses up and opens her mouth when she's having one. My God, the baby's a third of the way out!"

At 5:39 a.m. on February 16, 1982 Meetha, a female, entered the world with a thud, hitting the floor hard. The waiting wasn't over yet. According to the keepers the next few seconds seemed like hours as they watched Radha sniff the still baby. Finally they saw the baby move, but it was another 7 hours before Mike, Gene and Dave could go home confident that Radha was properly caring for her newborn.

A few months later they suffered the heartbreak of Randa's baby not surviving. However, they look on the positive side. Herman bred both females, they both conceived and one live birth resulted in less than two years. Things are definitely looking up.

A white rhinoceros in the Umfolozi Reserve in South Africa. Thanks to the conservation efforts of the South African government, the population of this species is relatively secure.





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