

Facility Focus: The Denver Zoo rhino program - the past, present and future.

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The Denver Zoo began with a humble beginning in 1896 with a purchase of a black bear, since then we have grown to an 80 acre facility with 1.6 million visitors entering our gates. The rhino program began in 1959 with the construction of the Pachyderm building, and has successfully housed and managed black rhinoceros for over 50 years. In this time, we have had fourteen births and six separate pairs. Even with the age of our facility, we have accomplished many husbandry and training goals with our collection. We are proof that your facility should not determine what you can accomplish in your rhino program!

In 2003, we were honored to host the 3rd Rhino keeper Workshop which brought in over 80 delegates from across the country and several foreign countries. The highlight of our workshop was the free standing reproductive ultrasounds performed on both of our males by Dr. Robert Hermes. The delegates were able to observe in real time, the procedures on a wide screen projection system in the building lobby. It was at this workshop, that the birth of the idea of our own rhino keeper organization was formed!

On December 2, 2009, the Denver Zoo held it's ground breaking for our new exciting and progressive exhibit called Asian Tropics. This 10 acre, 50 million dollar facility will allow us to house a second species of rhino at our zoo, the Greater one-horned rhino along with being the first zoo to attempt to house multiple bull Asian elephants. Our current plans are for the development of a successful breeding program with one pair of GOH. The unique layout of this facility will allow us to move the rhinos into any of the six large yards on the site including several that have heated pools that the rhinos can utilize in the winter.

We are very passionate and excited about this new exhibit, and the management, husbandry and conservation efforts that we can contribute in the future.



Denver Zoo Breeding History

BLACK RHINOCEROS ( <i>Diceros bicornis</i> )								
HOUSE NAME	SB#	ISTS #	DAM	SIRE	DATE OF BIRTH	SEX	ORIGIN	DISPOSITION
TOMBO	124	456	wild	wild	2/15/1957	M	Kenya	loan GardenCity 1984; died 1987
MOMBA	125	456	wild	wild	2/15/1955	F	Kenya	loan GardenCity 1984; died 1990
male	640	66001	458	456	1/10/1966	M	stillbirth (84.0#)	stillbirth
female	126	680103	458	456	1/20/1968	F	birth	trade Memphis 02/25/69
Lij	163	459	458	456	1/6/1971	F	birth	death 02/20/95
Spook	204	460	458	456	10/31/1974	M	birth	sale Zeehandler 12/01/75
RHINESTONE	161	457	SB#75	SB#74	1/1/1972	M	purch SanFran 1973	death 1/23/95 (salmonella)
LIJ	163	459	458	456	1/6/1971	F	birth (00458/00456)	death 2/20/95 (neonizing pleuritis)
Nancy	246	2723	459	457	8/25/1977	F	birth	death 02/07/78 (drowned)
Shukri	279	4305	459	457	11/3/1979	F	birth	death 12/26/79
unknown	304	810101	459	457	7/9/1981	U	aborted fetus	aborted fetus
Onyx	328	6258	459	457	11/15/1982	F	birth	death 09/11/96
Pete	376	10522	459	457	5/7/1987	M	birth	sale Portland 06/27/88
Jasper	432	11902	459	457	10/31/1989	M	birth	loan Busch Tampa 06/20/91
Mshindi	505	930808	459	457	11/13/1993	M	birth (87.5#)	
GEORGE (Akeem)	332	7986	SB#180	SB#247	11/1/1983	M	purch Cincinnati 1984	
ONYX	328	6258	459	457	11/15/1982	F	birth (00459/00457)	death 9/11/96 (multiple problems)
Kwanzo	460	12399	6258	7986	10/4/1990	F	birth (9.1#)	death 01/30/92
Tony	458	920056	6258	7986	3/26/1992	M	birth (74.0#)	sale Honolulu 01/31/94
LUANA	190	980332	SB#17	SB#36	11/26/1969	F	loan SanAnt 09/23/98	death 02/08/00 (euth-gen health)
SHY-ANNE	331	A00272	SB#190	SB#170, ONI	12/11/1982	F	loan SanFran 10/03/00	
male		A01125	A00272	7986	5/14/2001	M	aborted fetus (5-mo gest)	aborted fetus
JASPER	432	11902	459	457	10/31/1989	M	birth	loan Busch Tampa 8/20/91 (8654806)
Gery	786	A00384	11902	B658126	8/29/2000	M	birth on loan at Busch	loan Busch Tampa 08/29/00
Kayn	864	A01364	11902	B652154	7/29/2001	M	birth on loan at Busch	loan Busch Tampa 07/29/01

It's a BOY!



Our first breeding pair of black rhinos was Momba and Tombo. These animals were brought in from Kenya in the 1950's, and later went to Garden City on a breeding loan. Before they left, this pair produced a total of four calves. Both died in their thirties at Garden City in 1987 and 1990.

Our next breeding pair consisted of our first pairs daughter Lij, and a big beautiful male from San Francisco named Rhinestone. This great pair gave Denver Zoo a total of six calves before their deaths in January and February of 1995. Mshindi is the last calf that this pair produced and he remains at our facility to this day!

The third pairing we have had consisted of Lij and Rhinestone's daughter Onyx who was the first third generation calf to be born in captivity. She was paired with a male named Akeem brought in from the Cincinnati Zoo. Upon arrival Akeem's name was changed to George. This pair produced two calves, one a female, which was diagnosed with luekoencephlomalacia and died at 15 months of age. This pair remained together until Onyx's death on Sept. 16, 1996.

After the death of Onyx, our program had been devastated and we were left with two remaining males for several years. In 1998, we brought in a 29 year old female that I had ironically worked with at San Antonio Zoo. Luana was then introduced to George with no success at pregnancies. When Luana died due to complications from tooth disease at the age of thirty, we were left once again with no females. In 2000, we brought in another female from Cheyenne Mt. Zoo. Shy-anne is the daughter of Luana ( she is just as feisty as her mother...!), and she was put with George which produced a pregnancy in 2001. Unfortunately, she aborted a 5 month old male fetus that May. After this, with the approval of SSP, we put her with our younger male Mshindi. To this date, she has gotten pregnant several times, but no viable calf has been produced. At this point, she will be 27 this year, and hopes of producing a calf have been lost.

Over the years, our rhino program has experienced many of the black rhino disease syndromes. Due to this we have taken a positive approach to learning from these experiences, and preparing for future problems. We are currently managing an aging population of black rhinos, and are diligent in the husbandry of aging animals and the special needs that arise from this population. We continue to strive to make contributions to the captive black rhino population through research and conservation efforts!



## Denver Zoo Rhinos

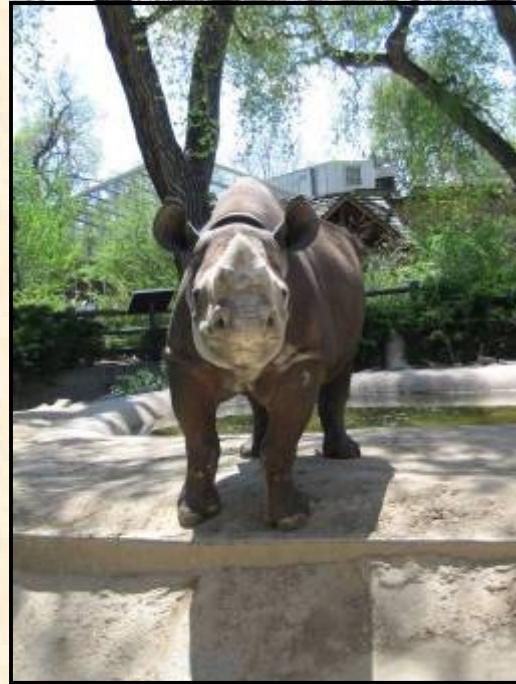


**Shy-anne:** SB # 331

27 years old and weighs 2800lbs

Curious, smart and easily agitated with sudden movement or loud noises especially in barn.

Finished Behaviors: Blood, mouth, weights and line up



#### Denver Zoo Diets:

We recently made a major change in our grain supplementation due to the continued weight loss in our older male George. We had been using the White Oak Browser pellet, but switched over to Mazuri wild herbivore in the late summer. Since then, George has gained 90 lbs. and made dramatic improvement in overall physical health.

Per rhino daily:

4-5 flakes alfalfa

2-3 flakes hay

6 pounds Mazuri wild herbivore

10 cc's Vit. E supplementation on bread

Males on daily phosphorous supplementation in banana

Six apples and carrots

Treats include extracts and applesauce on grain, browse and peanut butter



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**George: SB # 332**

26 years old

2560 lbs

Calm, sweet disposition ( except around females). Can be worked free contact.

Finished behaviors: blood draw, weigh board, line up and pee.



**Mshindi: SB # 516**

16 years old

2500 lbs

Very smart, playful and sweet. ( the second love of my life after my husband...) Can be worked free contact

Finished behaviors: foot, over, back, line up, blood ,urine ,weights, shake head yes or no, painting and fetch.

## Black rhino housing

The rhino facility has indoor holding areas that include one public exhibit and three back holding stalls. We have one outdoor yard that is shared by all three rhinos during different shifts through out the day. The yard is used throughout the year, and the rhinos are confined to the indoor exhibits only when temperatures are below 25 degrees and snow. Our rhinos love the snow, so access to the yard is given on most days for at least an hour. The exhibit yard is 120 ft in length and 40 ft in width with the majority of the yard covered in an infield mix soil, and surrounded by a sloping dry moat. There is a concrete walk way that wraps around the building, and a 4 ft. deep pool that is filled during the summer months. A ring of rocks is at the center of the yard which is referred to as "rhinohenge". This is where we perform rhino demonstrations during the summer months with our youngest male "Mshindi".



LET IT SNOW!!!



Out door enclosure



Off exhibit stalls



Inside exhibit display



"Rhinoenge" - public demos

# Rhino Training Program

# Training

The Denver Zoo implemented an operant conditioning program with our rhinos in the early 90's. At first our goal was blood collection from the ear or leg vein, and then it grew into various behaviors for mental stimulation and enrichment. Since that time, we have been able to accomplish various medical procedures such as free standing rectal ultrasounds on both of our males, weights, and foot work. All of this has been done without the use of a chute or restraint device. Along with medical practices, we have also been able to develop a great protected contact rhino demonstration that educates the public on the unique nature and personalities of our rhinos. Our goal is to have guests walk away caring about rhinos, and therefore more inclined to want to help protect and save these animals. Of course, we have developed some behaviors that are really fun not only for the rhino, but us as well!



Blood draw ear or leg vein



Mouth



Foot work



Free contact weighing and tail treatment



Sit, Down and rollover



The enrichment program at our zoo incorporates food, toys, scents, training and husbandry methods.

Boomer balls and cylinders of all shapes and sizes

Bamboo chimes and logs, and cardboard boxes

Food extracts sprayed on grain ( vanilla, banana, raspberry and root beer!) Apple sauce and mashed bananas mixed into grain.

Scents: essential oils including citronella, lavender, sweet basil, peppermint, and eucalyptus.

Browse: cotton wood, linden, crab apple, ash, mulberry and elm.

We use an enrichment chart which logs the daily use of enrichment so that a variety is used on a weekly basis.



## Public Demonstrations



Our protected contact rhino demonstration is performed in the area known as "Rhinoenge". We really strive to make our visitors walk away with a different perspective and appreciation for rhinos. Along with demos, we give many behind the scenes tours where our guests get to meet up close and personal some of our rhinos. "Mshindi" is our best ambassador, and can be worked through his behaviors to the amazement of the visitor.

We have incorporated some new behaviors of shaking his head yes or no to include great conservation question that "Mshindi" answers to the delight of our audience. Our basic message is that RHINOS ROCK!!!!