

Hand-rearing and observations of a White rhinoceros

Diceros s. simus

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In mid October of 1965 a female White rhinoceros *Diceros s. simus* and a known 21 day old female calf were immobilised with M-99, hyoscine, and acetyl promazine, tagged and translocated into Umfolozi Game Reserve from tilled land because of damage they were causing to fences.

At the Game Reserve the calf failed to rejoin its mother during an observed time of 24 hours, probably from a combination of exhaustion and residual drug effects, so it was decided to attempt to hand-rear the rejected calf. One previous success in hand-rearing a White rhino was recorded at Pretoria Zoo (Bigalke, 1946). The baby rhinoceros was placed in a three sided garage measuring 6 x 6 m and two litres of a 5 per cent dextrose-electrolyte solution was administered per rectum to restore depleted blood sugar and tissue fluids.

The first two nights in the garage she attempted to climb over the log barriers and made 'dummy' charges at quick movements and loud noises. She dozed only in my presence so that the first two nights were spent sleeping with her. Then, to free me for other duties, a ram sheep was placed with her for companionship.

To approximate the low fat milk of the rhinoceros (see Table 1) we provided a diet made up

of 227 g of skim milk powder, 227 g calf milk replacer, two tablespoons of a vitamin-mineral enriched skim milk, and 2.25 litres of water. Feeds were given every 4 hours for the first week after which time the 0200 hours feeding was omitted. The first feed was refused when placed

	SAMPLE A %	SAMPLE B %
Total solids	8.84	8.26
Fat	0.60	trace
Lactose	6.50	6.85
Protein	1.54	1.18 (casein 0.91)
Ash	0.20	0.23
pH	—	6.4

Table 1. Analysis of White rhinoceros *Diceros s. simus* milk. Sample A from a cow with a five month old calf and sample B from a cow with an 18 month old calf.

directly in a baby bath and so the young rhino was enticed to drink by soaking the mixture into a sponge and allowing her to suck the sponge. The sponge was gradually lowered into the tub and after a few attempts the animal was drinking

	22 DAYS cm	68 DAYS cm	152 DAYS cm
Head	40.0	40.0	44.4
Anterior horn length	1.58	2.54	6.3
Anterior horn circumference	22.9	23.1	24.1
Posterior horn	nil	nil	nil
Eye to eye	14.6	16.5	19.0
Eye to ear	20.95	20.9	22.8
Ear	13.3	13.3	13.9
Occiput to tail head	91.4	96.48	104.1
Tail	26.6	28.5	30.5
Heart girth	96.48	113.0	—

Table 2. Measurements of a hand-reared White rhinoceros *Diceros s. simus* at 22, 68 and 152 days of age.

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from the tub. No attempt was made to nibble at the grass and hay provided until 2 months of age when the grass was chewed dry then let fall from her mouth. By four months of age grass was being consumed in quantity between the milk feeds.

The young rhinoceros was constipated upon arrival, probably as a result of dehydration associated with capture. Symptoms were relieved in 24 hours by administering 2 tablespoons of fig juice with her milk ration.

First tooth eruptions occurred at 70 days; both left and right lower first premolars appeared. At 76 days the opposing upper premolars erupted. Both sets of eruption were accompanied by a rise in rectal temperature to 37.8°C (100.0°F) and 38.4°C (101.1°F) respectively, loss of appetite and

diarrhoea. Cool water was provided to wallow in and clinical symptoms disappeared in 24 hours.

The resting heart rate was 64 to 70 beats per minute and the resting respiratory rate was 12 to 16 per minute. Normal rectal temperature varied considerably with the environmental temperature and ranged from 29.4°C (85°F) to 35.0°C (95°F).

Body measurements were recorded at intervals in the absence of a suitable scale to assess growth progress (see Table 2).

At the age of five and one-half months, the baby rhino was moved to a larger pen where she continued to do well. At seven months of age she was transported to Queen Elizabeth Park in Pietermaritzburg where she still lives.

A review of the physiology of reproduction in the New World Camelidae *

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INTRODUCTION

The South American camel (Camelidae) plays an important part in the economy of the cordilleran countries of Argentina, Chile and especially Peru and Bolivia. These species, which are found from 10,000–16,000 feet elevation in the Andes Mountains, provide a subsistence way of life for many Indians. Peru has a total of 2,720,000 cameloids; of these 2,000,000 are alpacas, 600,000 llamas and 120,000 vicunas. Bolivia has 1,780,000 llamas, 250,000 alpacas, and 50,000 vicunas. Argentina and Chile have significant but smaller numbers of these species.

The total economy depends upon these animals, not only for the high quality wool fibre which they produce, but also for meat production and transportation. Many of the highland Indians take what few products they have to market on the backs of their llamas. The alpaca is used mainly for its extremely soft and fine wool fibre, although it also provides meat.

The management of these animals has been extremely poor in the centuries of Christian

influence since the arrival of the Spaniards in the Andean region. There has been little or no significant improvement of these animals during this period. When Pizarro and his adventurers arrived in what is now Peru and Bolivia, they found vast numbers of llamas and alpacas that were used for transport of local products by the natives who made an excellent cloth from the alpaca fibre. The Incas had selection programmes for improving herd quality, and a rotational grazing programme to assure the necessary forage. These management practices were lost at the time of the destruction of the Incan Empire and have not been revived.

The last ten years has seen a kindling of interest in these animals. Some research has been conducted which provides preliminary information concerning their nutritional requirements, parasite control, and some reproductive processes.

This paper is an attempt to review the available literature on the reproductive physiology of the New World Camelidae. There are only a few reports dealing directly with this area of physiology

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