

THE MANAGEMENT, BEHAVIOUR AND HEALTH OF RHINOS AT PORT LYMPNE

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INTRODUCTION

Port Lympne Zoo currently cares for nine black rhinos and two Sumatran rhinos. The black rhinos are housed in two separate buildings, each consisting of a passageway for the staff and several loose-boxes. These measure approximately 16 ft sq. in one building and 20 ft. sq. in the other, with concrete floors and good drainage. Each loose-box has a sliding door leading to an outside concreted yard and then to grass paddocks. The four paddocks total 12 acres in area. The animals are put outside as often as possible, weather permitting, throughout the year.

The two Sumatran rhinos are kept in a specially constructed house consisting of a barn-like exterior but divided up into two main "yards" inside and several loose-boxes. The loose-box favoured by the female measures 15 x 30 ft. and that of the male about 15 x 15 ft. The indoor yard has a small pool, which is empty of water as neither animal has ever shown any interest in using it other than to dung in. There is an outside concrete yard covered with a thick layer of peat and wood-chippings and then access to two wooded paddocks, each about 4 acres in size. The paddocks are simply fenced-in blocks of healthy deciduous woods, which give the animals an opportunity to browse on the vegetation. The rhinos often spend several days and nights in a row outdoors in summer, though in other seasons their time there is limited by the weather.

FEEDING

The black rhinos are supplied with large quantities of freshly-cut browse such as birch, willow, hawthorn, elder and chestnut several times a week. They are also fed clover and lucerne hay, and more recently, peavine hay. The more common hay made from timothy grass etc. they ignore completely. Minimal amounts of fruit such as apples and bananas, and some vegetable such as celery, parsnips, carrots, potatoes, cabbages and spring greens are offered daily. Pelleted concentrate is offered daily at the rate of approx. 2kgs per adult.

The Sumatran rhinos have access to both browsing and grazing outdoors in their paddocks. Additional browse is supplied, from the same sources as those for the black rhinos. Equally they will eat clover and lucerne hay but refuse grass hay. They are not fed fruit except very occasionally, but do receive parsnips, carrots and celery. They also each receive 2kgs pelleted concentrate for ungulate daily.

BREEDING

Oestrus in black rhino cows is monitored by both changes in the cow's behaviour, such as characteristic urinating patterns and vocalisation, and the reaction of adult bulls. We try to ensure that non-pregnant, non-suckling cows who we believe are likely to cycle are kept beside bulls indoors at night or with them outdoors during the day. It has proved impossible to collect urine samples from the cows in a satisfactory manner on a regular basis to be of any reliability as a test technique. Bulls may remain with cows overnight outdoors in the summer. On one occasion two adult cows were immobilised with 0.9mls Immobilon for examination for pregnancy using an ultrasound scanner with a rectal probe.

We are able to collect urine from the female Sumatran rhino in a reliable manner and this has shown that she did cycle in the first half of 1990. In May 1990 she was mated on two occasions by the bull and then urinary progesterone levels rose significantly. Urine samples from the months after July, however, showed no detectable levels of progesterone at all. This has led to considerable speculation as the cause and possible remedy of the situation.

BEHAVIOUR

During August 1990 a small observational study* was done on the two Sumatran rhinos to establish whether there was any reproductive behaviour between the male and female. The study comprised continuous observation of the pair from 8:00 a.m. until 7:00 p.m. each day for 25 days.

We found that the pair were virtually inseparable. A typical day outdoors in their paddock would consist of both animals wallowing together in the early morning until 9:00 a.m. when they would begin to browse on the vegetation in the paddock. During this time they would constantly call to each other and stayed within a few yards distance of each other. At about 10:00 a.m. the male would urinate by squirting at the ground, or against a plant, in a random manner, and the female would then urinate as well. They did not use the same bush or tree nor did they actively investigate the other's urine. There appeared to be no significance in the choice of urinating on the ground or onto a tree etc. Vocalisation was most evident from both animals just prior to feeding at 1:00 p.m. or after drinking, usually at about 10:00 a.m.

The afternoon saw more physical activity with both animals walking the perimeter fence of the paddock while browsing between 1:00 p.m. and 6:00 p.m. They were fed between 3:00 and 4:00 p.m. and this prompted a lot of head-to-head contact, often in competition for food items. Much more urination by both was evident at this time and defaecation would occur during the feeding period, one animal stimulating the other to do so.

Generally we saw no sexual interest by the male in the female, though the short study time was insufficient to reach a conclusive decision. They were almost always side by side, but did not always wallow together. The male wallowed more than the female. When separated for short periods of time the female became distressed and wailed more than normal, constantly seeking her mate. The male, in contrast, become more aggressive. On re-introduction both animals took about two days to settle down if kept indoors or on their concrete yard, but when put together again in their paddock only hours elapsed before normal behaviour was resumed.

The observation of these two animals both compliments and contrasts with those of other workers. Hubbaack (1939) described the constant squeaking of Sumatran rhinos when feeding in the forest, even when alone. We did not hear the low humming of rhinos made when wallowing (Thom, 1943). The vocalisation prior to feeding, presumably when hungry, confirms similar behavioural observations noted by Sanyal (1892) on a female in the Calcutta zoo.

Failure to provide adequate wallowing facilities for Sumatran rhinos has lead to the severe skin disease and deaths recorded in previous captive animals (Antonius, 1937; Hubback, 1939; Anderson, 1961). Van Strien (1974) concluded that observations on rhinos in the wild show that the pair bond is fairly strong, and this would appear to be the case for this pair.

MEDICAL PROBLEMS

The most significant event during the last five years has been the unfortunate death of the first female Sumatran rhino to arrive from Indonesia, and the details of this case are presented separately. Otherwise the Sumatran rhinos have been in excellent health. The

only problems have been some apparent abdominal discomfort in Meranti on 22 June 1988, when she refused to feed for one night. She was given 15 ml Genebile im and promptly recovered. The male, Torgamba, has suffered mild conjunctivitis in both eyes during the summer, largely due to attention by flies.

Among the black rhinos the most serious case has been suppurative mastitis in a lactating cow. This was due to infection of the teat canal by urine running down the perineum from the vulva and dripping off the teat. The infection was successfully treated with Tribissen boluses given in the ration. One young adult female became dull and lethargic after eating a large amount of oak browse, though recovered in 48 hours without treatment. Acute diarrhoea in a calf a few months old, of unknown aetiology, was successfully treated using Tribissen given orally.

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LITERATURE CITED

- Anderson, S. (1961) Sumatran rhinoceros at Copenhagen Zoo. *Int. Zoo Ybk.* 3:56-57.
- Antonius, O. (1937) Bilder aus dem fruheren und jetzigen Schonbrunner Tierbestand. *Zool. Gart.* 9:18-26.
- Hubback, T.R. (1930) The two-horned Asiatic rhinoceros, *Dicerorhinus sumatrensis*. *J. Bombay Nat. Hist. Soc.* 40:594-617.
- Sanyall, R.B. (1892) A hand-book of the management of animals in captivity in Lower Bengal. Calcutta, Bengal Secretariat Press.
- Thom, W.S. (1943) A few notes about the five rhinoceros of the world. *J. Bombay Nat. Hist. Soc.* 44:257-274.
- Van Strien, N.J. (1974) *Dicerorhinus sumatrensis* (Fischer). The Sumatran or two-horned Asiatic rhinoceros. Nature Conservation Dept. Agricultural Univ., Wageningen. The Netherlands. 78th Comm. H. Veenman & Zonen BV Wageningen.