

# Sumatran Rhinoceros Captive Management in Sg. Dusun Rhino Centre, Selangor

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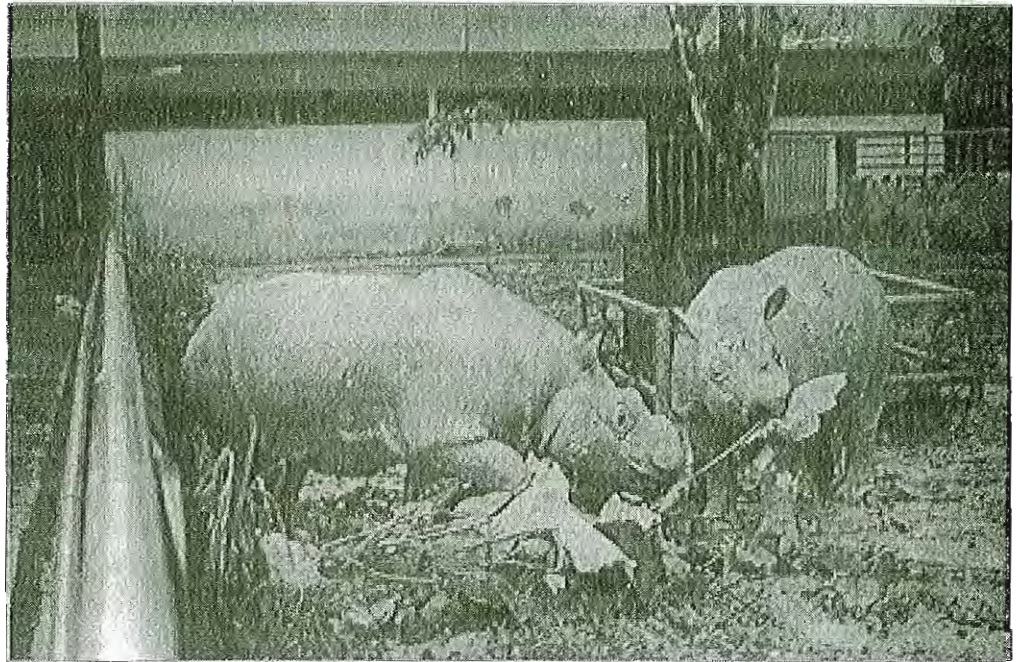
## Introduction

The Sumatran Rhino Conservation Center is situated within Sg. Dusun Wildlife Reserve, located about 120km from Kuala Lumpur. The reserve is about 10,400 acre in size comprising of peat swamp and lowland dipterocarp forest. The center is home to six endangered *Dicerorhinus sumatrensis*, almost half of the world's captive population. Both the center and the reserve are under the jurisdiction of the Department of Wildlife and National Parks (DWNP), Malaysia.

The capture of a female rhinoceros in 1984 initiated the captive management program particularly in Peninsula Malaysia. Later, the capture of a few displaced rhinos created the opportunity to study this endangered species in captivity and it was based at Malacca Zoo. Following a salmonellosis outbreak in 1985, all the rhinos were then transferred to Sg. Dusun Wildlife Reserve. A wooden enclosure was built and later, the DWNP decided to build a captive facility permanently in the area. In 1990, a new facility was built and completed in 1991. The Sumatran Rhino Conservation Centre (SRCC) was established and all the captive rhino were managed there.

## The Rhino Centre

This centre has a captive population of one male and five females. These animals were housed in a pie-shaped enclosure with 8 night stalls; each connected to a paddock. One paddock is connected to a quarter-acre electric fence enclosure and



Introduction with food for male to check female for breeding.  
Photo by Steve Romo.

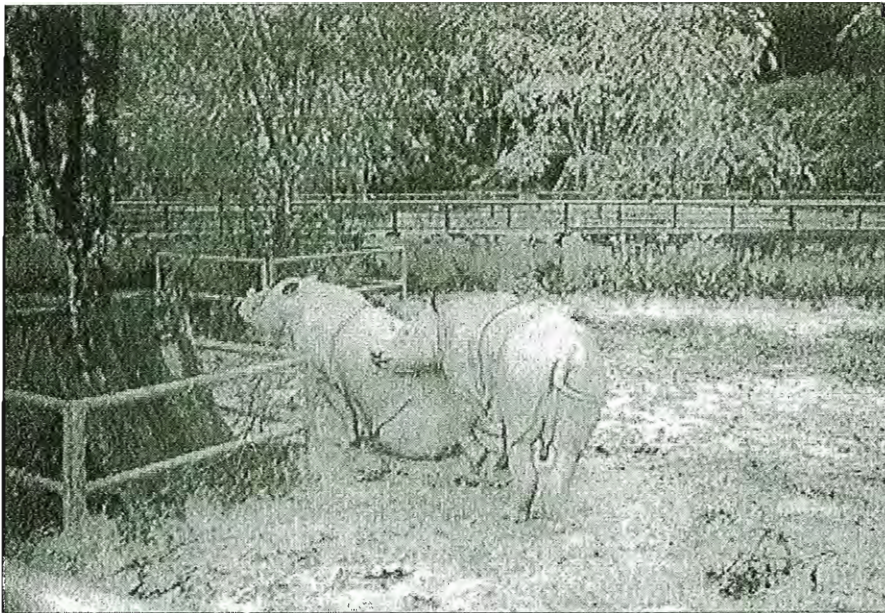


Behaviour before breeding. Photo by Steve Romo

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Behaviour before breeding. Photo by Steve Romo



Breeding. Photo by Steve Romo.

**Table 1: The daily captive diet of the Sumatran rhinoceros in SRCC**

Type of Food	Weight (kg.)
<b>Concentrates:</b>	
Horse pellets (Cargill (M) Sdn. Bhd.)	2.0 – 3.0
<b>Browsets:</b>	
Nangka / Jackfruit leaves ( <i>Artocarpus rigidis</i> )	40.0 – 50.0
Pulai ( <i>Alstonia specilata</i> )	
Mahang ( <i>Macaranga triloba</i> & <i>M. gigantea</i> )	
Kelompong ( <i>Ficus variegata</i> & <i>F. glossolariodus</i> )	
<b>Produces/Fruits:</b>	
Banana	2.0
Papaya	2.0
Sweet potatoes	2.0

subsequently shifted to 10-acre enclosure, fenced up in the forest. An additional education centre and another 100 acres fenced natural enclosure was built up in 2000.

The main objectives of this centre included providing shelter for displaced rhinos captured from threatened areas in Peninsula Malaysia and also to breed this species in captivity. The centre also provides a lot of information on this species especially in captive management. Another role is to create public awareness especially on the conservation efforts of the rhinoceros and its ecosystem.

#### Captive Management

At the centre, the daily husbandry includes cleaning the stalls, feeding the rhinos and health care. Every morning, the rhinos are let out into the paddock and the barns are cleaned. Later, the browse and fruits are weighed and cleaned and then fed to the rhinos.

Weighing and deworming programmes are also carried out in the center. Once a month, the rhinos are weighed and their weights are monitored. As for the deworming procedure, all rhinos are given Mebendazol every three months.

#### Captive Diet

In the center the rhinos are fed browse and fruits to ensure a good health. Pellets are also given and the daily captive diet is summarized in Table 1.

#### Breeding Program

The rhinos are paired either based on the result of progesterone hormone profile or by daily introduction. If the female has a regular oestrus cycle, she will be paired with the male based on her progesterone level. The female will be mixed if her progesterone level goes down until breeding occurred.

As for daily introduction, the procedure is carried out on females with irregular estrus cycles to establish breeding. Fruits are used to control aggression during the procedure. In some occasions, plywood is used as baffle boards to separate the rhinos if fighting occurs.

Once breeding is achieved, the bred females are monitored using progesterone profile either to confirm pregnancy or oestrus day. If pregnancy



did not occur, the female will be mixed with the male and usually the oestrus interval is about 21 days.

#### Blood Collection

Blood is collected twice weekly from all rhinos. The purpose is to establish the progesterone hormone profile on the females and to check testosterone level on the male. The blood is also collected to monitor their health. There are a few methods to collect blood including the ear marginal vein, the cephalic vein and the coccygeal vein. Blood could be collected at two sites via the coccygeal vein, i.e. at the base and the tip of the tail. In the centre, all rhinos respond well to the collection from the tip of the tail. The blood samples are pooled before sending them to Universiti Putra Malaysia (UPM) for analysis.

For bred females, blood will be collected 16 days after breeding to confirm pregnancy. If the level is high, the female could be pregnant and if it is low, the female will be paired with the male on day 21.

#### Progesterone Hormone Profile

The blood samples are analysed using the radio immunoassay (RIA) technique. The result is then used to tabulate oestrus cycle graph for each female rhino. Based on this information, the oestrus day for each female can be predicted.

Based on the profile, at least two females showed a regular oestrus cycle and breeding introduction usually occurred on 21 days interval. Another two females showed an irregular cycle and daily introduction is carried out on them to establish breeding.

The females are paired with the male when the progesterone level is low, below 0.50ng/ml. Breeding behaviour can be seen during this period followed by mounting and successful intromission. Usually, breeding occurs when the hormone level is below 0.10ng/ml. When the progesterone level is high above 1.50ng/ml, the female can be considered pregnant. However, the level will be decreased when the female is approaching oestrus.

#### Acknowledgement

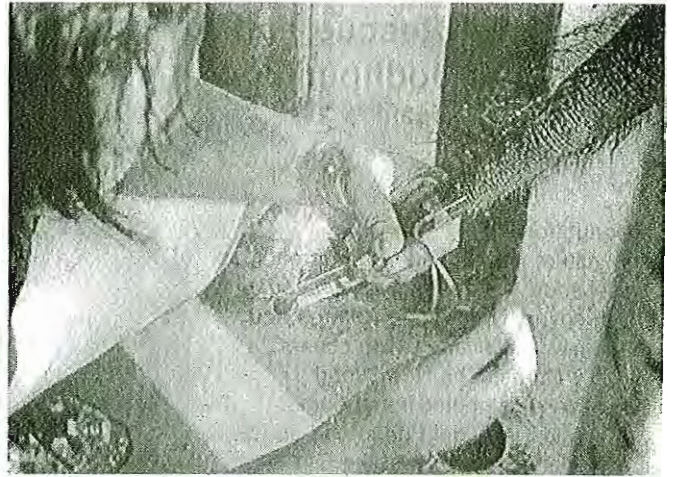
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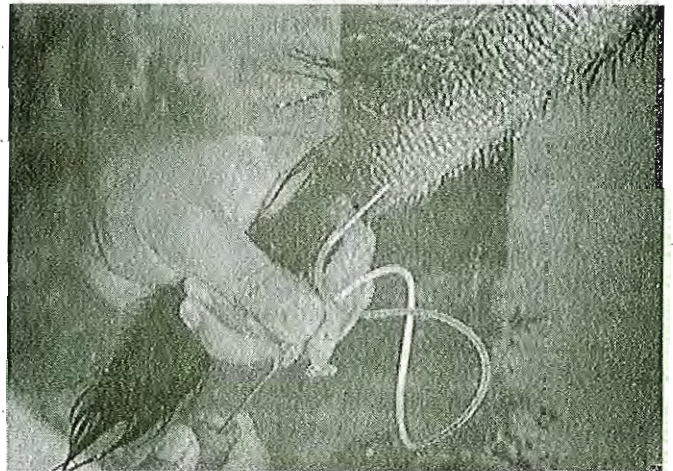
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Blood collection - Aidi Mohamad takes blood from the tail of the rhino . Photo by Steve Romo.



Blood collection - Aidi Mohamad takes blood from the tail of the rhino. Photo by Steve Romo.

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