

**SUMATRAN RHINO CONSERVATION CENTRE
DEPARTMENT OF WILDLIFE AND NATIONAL PARKS
SUNGAI DUSUN, SELANGOR
MALAYSIA**

MONTHLY REPORT

FEBRUARY 2003

BY

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&

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INTRODUCTION

Two breeding were recorded between Ara and two females; Rima and Seputeh this month. The first breeding occurred on February 4 & 5, which lasted 10 and 52 minutes respectively. Rima was bred on Feb 23 for 19 minutes.

From February 16 to 28, Drs. Robin and Rolfe Radcliffe visited Sg. Dusun to do surgery on Seputeh and also to evaluate the reproductive status of all females. The surgery was carried out on February 17 and 5 masses were removed from Seputeh. Ultrasound was conducted on all females and hormonal therapy was carried out on selected females based on their reproductive status.

Blood sample were collected as usual, twice weekly and the samples were sent to UPM for hormonal analysis. Dr. Robin also brought back some samples for analysis.

RHINO MANAGEMENT

A) Daily Management

i) Night stall

Daily work

Starting this month, Mohd Noor will manage the night stalls together with Shariff and Umor. Shariff and Umor will clean the night stalls daily while Mohd. Noor inspected the food supply when it arrived around 9.30 a.m. The browse and fruits were weighed and cleaned before giving to the rhinos. About 40 to 50 kg of browses and 7kg of fruits including papaya, banana and sweet potatoes were given daily. The rhinos were also given horse pellet about 2.0kg every morning. Every Monday and Thursday morning, blood samples will be collected from all rhinos.

The rhinos

The rhinos were let out first before cleaning the night stalls. After cleaning, the browses were put in the feed trough and the rhinos were let in for their morning meal. The drinking water was changed daily and stress vet (multi-mineral powder) was mixed inside it. Daily observation was made and recorded in the workbook for each rhino. The rhinos were fed twice daily: 9.00 a.m. and 3.00 p.m.

ii) Ten acres enclosure

Daily Work

Adam will inspects the electric fencing every morning. The fencing will be cleaned from any foreign objects such as spider web, dried leaves or creepers to avoid short circuit. Voltmeter was used to ensure that the voltage of the fencing is about 7.0 kV. They will also inspect the fencing for any damages.

During the inspection, the ranger will look for the rhino inside the enclosure and call the rhino for their morning meal. The rhino was confined in the quarter acre first before putting their browse in the feeding trough. The amount given was about 100kg for each rhino per day.

B) Breeding Program

i) Breeding Introduction

a) Rima

Ara bred Rima on February 23 for 19 minutes. Ultrasound was conducted on February 17 and she was given 15mg Prostaglandin to induce ovulation. On February 22, Rima was scanned again and a 19mm ovulatory follicle was observed on her right ovary. She was mixed with Ara and Ara followed her closely but she kicked when Ara tried to mount. She was bred the next day.

b) Seputeh

Ara bred Seputeh on two occasions; February 4 and 5 for 10 and 52 minutes respectively. They were mixed based on progesterone profile.

c) Panjang

Panjang was mixed on a daily basis to stimulate to cycle but positive behaviour observed. After the hormone treatment, good behaviour was observed on Feb 21, Ara mounted her but aggression occurred when the male dismounted. The following day, mounting was observed again. On Feb 23, Ara mounted Panjang with erection and searching but no intromission. The male looked tired after breeding Rima in the morning.

d) Mas Merah

Mas Merah progesterone profile is irregular. She was mixed with Ara daily but she blowing and vocalizing during the mixing. She was given FSH but did not respond to the treatment and was sent to 10 acres.

e) Minah

Minah was also mixed on a regular basis but no breeding occurred. She was scanned on February 17 and a big follicle sized about 27mm was observed, indicating that she started to cycle. She was given HCG to induce ovulation and ovulation occurred on February 20. Mixing was conducted on a daily basis but no breeding occurred. Some followings were observed but it seems both rhinos wanted to play together.

ii) Bleeding Program

a) Blood Collection

The blood collection was carried out twice weekly, every Monday and Thursday. The bleeding procedure was summarized in Table 1.

b) Progesterone Hormone Profile

Blood samples were sent to UPM for hormonal analysis and the latest blood result was attached below (Table 5).

C) HEALTH STATUS

Minah showed an improvement and her weight is being monitored on weekly basis. The result is tabulated in Table 4. The other rhinos were weighed once a month.

Table 3: Rhinos' Body Weight (Kg), February 2003

Month/ Rhino ID	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
RIMA	*	565										
MAS MERAH	610	*										
MINAH	522	530										
SEPUTIH	762	762										
PANJANG	572	566										
ARA	614	615										

*Inside the 10 acres enclosure

Table 4: Minah's Weekly Body Weight (Kg), February 2003

Rhino ID / Date	3/2	15/2	19/2	26/2	28/2
Minah	516	515	534	532	530

Table 5: Summary of Blood Progesterone (P4) Profile February 2003

Date	Mas Merah	Minah	Panjang	Rima	Seputeh
3/2	0.40	0.19	1.45	1.70	0.09
6/2	0.32	0.07	0.78	1.07	0.09
10/2		0.13	0.16	0.20	0.61
13/2	0.40	0.13	2.06	0.62	1.58
17/2	0.40	0.33	0.27	1.26	2.56
20/2	0.19	0.33	0.13	0.12	
21/2			0.12		
24/2		1.24	0.38	0.05	
25/2	0.24				0.44
26/2		2.08	1.01	0.06	

Notes:

Seputeh was bred on Feb 4 & 5

Rima was bred on Feb 23

Minah P4 level corresponds with her ultrasound result

Table 1: Blood Collection from the Rhinos, February 2003

Date	Rhino ID	Area taken	Remarks
Feb 3	Mas Merah Rima Minah Panjang Seputeh	Tail Tail Tail Tail Tail	Samples were taken from two females for P4 analysis.
Feb 6	Panjang Minah Mas Merah Rima Seputeh	Tail Tail Tail Tail Tail	Samples were taken from the females for P4 analysis.
Feb 10	Rima Minah Panjang Seputeh	Tail Tail Tail Tail	Blood was taken for P4 analysis
Feb 13	Minah Panjang Mas Merah Rima Seputeh	Tail Tail Tail Tail Tail	Samples were taken from all rhinos for P4 analysis.
Feb 17	Mas Merah Minah Seputeh Panjang Rima	Tail Tail Tail Tail Tail	Samples were taken from the females for P4 analysis.
Feb 20	Minah Panjang Mas Merah Rima	Tail Tail Tail Tail	Samples were taken from the females for P4 analysis.
Feb 21	Panjang	Tail	
Feb 24	Minah Seputeh Rima Panjang	Tail Tail Tail Tail	Blood was taken for the P4 analysis
Feb 25	Mas Merah	Tail	
Feb 26	Rima Panjang Minah	Tail Tail Tail	Samples were taken from the females for P4 analysis

Table 2: Observation on the Rhinos During Introduction, February 2003

Date	Rhino ID	Observation
Feb 1	Seputeh & Ara	Head butting a lot. Seputeh wanted to fight. Separated to avoid aggression.
	Panjang & Ara	Ara sniffed Panjang & followed her for a while. Panjang went into the wallow & Ara approached her but she screamed and vocalized.
Feb 2	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Vocalized and blowing, then walked away.
	Panjang & Ara	Ara checked Panjang, followed her for a while and then lost interest.
	Seputeh & Ara	Headbutting, Seputeh turned and Ara followed. Seputeh turned back and series of headbutting was observed.
Feb 3	Seputeh & Ara	Some following but she turned back and headbutting observed.
	Panjang & Ara	Ara checked Panjang, followed her for a while and then lost interest.
	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Come & eat then walked away, blowing a lot.
Feb 4	Panjang & Ara	Some interest, Ara followed for a while.
	Minah & Ara	Headbutting a lot
	Mas Merah & Ara	Blowing & vocalizing, wanted to fight.
	Seputeh & Ara	Ara bred her for 10 minutes in the afternoon.
Feb 5	Minah & Ara	Not much interest.
	Panjang & Ara	Ara checked Panjang, followed her for a while and then lost interest.
	Seputeh & Ara	Ara bred Seputeh for 52 minutes. Aggression after breeding.

Date	Rhino ID	Observation
Feb 7	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Vocalized and blowing, then walked away.
	Panjang & Ara	Ara checked Panjang, followed her for a while and then lost interest.
Feb 8	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Vocalized and blowing, then walked away.
	Panjang & Ara	Ara checked Panjang, followed her for a while and then lost interest.
Feb 9	Rima & Ara	Rima wanted to fight with Ara, she blowing and charging.
Feb 10	Panjang & Ara	Ara checked Panjang but no further response. Panjang walked away & Ara ignored her.
	Minah & Ara	No interest observed.
	Mas Merah & Ara	Mas blowing and vocalizing.
	Rima & Ara	Good behaviour, Ara followed & tried to mount but she jumped and walked away. Ara followed her but she turned around and head butting occurred.
Feb 11	Panjang & Ara	Ara checked Panjang but no further response.
	Minah & Ara	No interest observed.
	Mas Merah & Ara	Mas blowing and vocalizing.
	Rima & Ara	Ara followed Rima and tried to mount but Rima did not stand, she wanted to fight.
Feb 12	Rima & Ara	Some following but Rima wanted to fight. Head butting was observed during the period.
Feb 13	Rima & Ara	Ara followed her, Rima turned back and head butting occurred. After 20 minutes, Rima wanted to fight and the rhinos were separated.
Feb 14	Rima & Ara	Some following but Rima wanted to fight. Head butting was observed during the period.

Date	Rhino ID	Observation
Feb 15	Panjang & Ara	Ara checked Panjang but no further response. Panjang walked away & Ara ignored her.
	Minah & Ara	No interest observed.
	Mas Merah & Ara	Mas blowing and vocalizing
	Rima & Ara	Some following but Rima wanted to fight. Head butting was observed during the period.
Feb 17	Minah & Ara	Good behaviour with Ara following Minah but no further response.
Feb 18	Minah & Ara	No positive behaviour
Feb 19	Minah & Ara	No positive behaviour
Feb 20	Panjang & Ara	No interest by Ara
Feb 21	Panjang & Ara	Ara followed and then mounted (Panjang sat). Ara attacked at dismount, separated with plywood
Feb 22	Panjang & Ara	AM: Panjang sat & Ara mounted with partial erection, Dismount & aggression again, Panjang went into the wallow. PM: Ara mounted, no breeding, no aggression
	Rima & Ara	Ara followed closely and mounted but Rima kicked and walked away.
Feb 23	Panjang & Ara	AM: Ara mounted – erection and searching for 10 mins, no breeding. PM: Ara mounted + good searching but no breeding
	Minah & Ara	Minimal interest by Ara. Minah 'stood' on two occasions
	Rima & Ara	Mounting and intromission; bred for 19 minutes
Feb 24	Panjang & Ara	Some mounting by Ara then aggression
	Minah & Ara	No interest by Ara
	Rima & Ara	Ara followed her and tried to mount but Rima walked away.

Date	Rhino ID	Observation
Feb 25	Panjang & Ara	AM: Good interest by Ara PM: Following by Ara then no interest
	Minah & Ara	No interest by Ara
	Rima & Ara	No interest by Ara
Feb 26	Panjang & Ara	AM: Ara followed Panjang but she kept walking. Minimal interest.
	Minah & Ara	No interest by Ara
Feb 27	Minah & Ara	No interest, some aggression by Ara and have to separate the rhinos
Feb 28	Panjang & Ara	No interest
	Minah & Ara	No interest

Summary - Dr. Robin and Rolfe Radcliffe Visit (Feb 16 to Feb 28)

The main purpose of the visit is to do surgery on Seputeh, which is to remove the vaginal mass. Beside that, they also reevaluate the reproductive status of all females by doing ultrasound and carried out hormonal treatment on the rhinos. Their work and findings are summarized in the Table 1a below. They also came out with a short and long term plan for each female as summarized in the Table 1b

Table 1a: The Females Reproductive Status

Rhino ID	Situation Before	Situation Now	Plan
1) Minah	Acyclic (not cycling) Weight loss	Cycling normally	Breed when receptive
2) Rima	Cycling Possible EED*	U/S: 21mm Fo Breed with Ara on Feb 23	Confirm ovulation & Start Progesterone Supplement
3) Mas Merah	Acyclic	Acyclic No response to FSH	Mimic cycle with 15 days Progesterone & then Prostaglandin
4) Panjang	Acyclic since mass removal	Stimulate follicle growth with FSH Fo: 21mm + 19mm +17mm	Breed when receptive
5) Seputeh	5 cervical masses (uterine mass)	Removed 5 masses 6 weeks rest Try to breed on Apr 4 or 5	Breed when receptive

* EED: Early Embryonic Death
FSH: Follicle Stimulating Hormone

Table 1b: Sumatran Rhino Females Plan – Summary

Rhino ID	Short Term Plan	Long Term Plan
Minah	Mix with Ara daily Ultrasound daily Blood 2x daily	Breed with Ara Pregnancy!
Rima	Ultrasound 2x weekly Start Regumate on Day 10 post breeding (Mar 5) through Day 30 (Mar 25)	If pregnant, leave on Regumate as Dr. Roth's protocol. Repeat PGF only if NOT PREGNANT
Panjang	Ultrasound 3x weekly Mix with Ara based on ultrasound findings	If no breeding after 30 days, then repeat FSH / PGF trial Mix with Ara based on ultrasound findings
Mas Merah	Start on 15 day Regumate trial – give 15mg PGF on Day 16 Ultrasound 3x weekly and mix with Ara based on ultrasound findings	If no change in Mas after Regumate trial, then move Mas to 10 acre enclosure Consider PMSG therapy
Seputeh	Give 6 weeks rest (Apr 1) Start ultrasound 1x per week on March 20 and mix with Ara based on ultrasound findings	Breed with Ara and monitor closely for early pregnancy

The Breeding Dates of Rhinos in Sg. Dusun, 2000 – 2003.

Date(s)	Rhinos	Remarks
5/10/00	Rima & Ara	Bred for 46 minutes.
14/10/00	Panjang & Ara	Bred for about 35 minutes.
19/10/00	Seputeh & Ara	35 minutes.
29/10/00	Rima & Ara	Rima was bred for about 35 minutes.
8/11/00	Seputeh & Ara	Intromission was observed and lasted about 23 minutes.
9/11/00	Seputeh & Ara	Seputeh was bred for about 30 minutes.
10/01/01	Rima & Ara	Bred for 20 minutes after assisted intromission.
26/01/01	Seputeh & Ara	Bred for 30 minutes in the afternoon.
31/01/01	Rima & Ara	Bred for 20 minutes.
01/02/01	Rima & Ara	Bred for 32 minutes.
16/02/01	Seputeh & Ara	Bred for 29 minutes.
17/02/01	Seputeh & Ara	Bred for 35 minutes.
22/02/01	Rima & Ara	Bred for 55 minutes.
15/03/01	Rima & Ara	Bred for 14 & 5 minutes.
16/03/01	Rima & Ara	Bred for 10, 5 & 13 minutes.
08/04/01	Seputeh & Ara	Bred for 32 minutes.
11/04/01	Rima & Ara	Bred for 25 minutes.
03/05/01	Rima & Ara	Bred for 36 minutes.
25/05/01	Rima & Ara	Bred for 25 minutes.
31/05/01	Panjang & Ara	Bred for 26 minutes.
08/06/01	Seputeh & Ara	Bred for 13 & 19 minutes.
16/06/01	Rima & Ara	Bred for 35 minutes.
17/06/01	Rima & Ara	Bred for 30 minutes.
30/06/01	Seputeh & Ara	35 minutes
21/07/01	Seputeh & Ara	30 minutes
22/07/01	Seputeh & Ara	23 minutes
23/07/01	Seputeh & Ara	30 minutes
30/07/01	Rima & Ara	35 minutes
13/08/01	Seputeh & Ara	30 minutes
29/08/01	Mas Merah & Ara	2 minutes
03/09/01	Seputeh & Ara	27 minutes
04/09/01	Seputeh & Ara	15 mins, 32 minutes
25/09/01	Seputeh & Ara	43 minutes
26/09/01	Seputeh & Ara	34 minutes
17/10/01	Seputeh & Ara	30 minutes
18/10/01	Seputeh & Ara	30 minutes
23/10/01	Rima & Ara	30 minutes
08/11/01	Seputeh & Ara	55 minutes
13/11/01	Rima & Ara	20 mins, 20 minutes
24/11/01	Mas Merah & Ara	20 minutes

Date(s)	Rhinos	Remarks
18/01/02	Mas Merah x Ara	Bred for 35 minutes
04/04/02	Seputeh x Ara	Bred for 40 minutes
26/04/02	Seputeh x Ara	Bred for 15 & 35 minutes
17/05/02	Seputeh x Ara	Bred for 25 minutes
06/07/02	Seputeh x Ara	Bred for 25 minutes
29/09/02	Seputeh x Ara	Bred for 16 minutes
19/10/02	Seputeh x Ara	Bred for 15 minutes
20/10/02	Seputeh x Ara	Bred for 23 minutes
22/10/02	Rima x Ara	Bred for 28 minutes
10/11/02	Seputeh x Ara	Bred for 30 minutes
04/12/02	Seputeh x Ara	Bred for 52 minutes
17/12/02	Rima x Ara	Bred for 7 & 15 minutes
20/01/03	Rima x Ara	Bred for 25 minutes
21/01/03	Rima x Ara	Bred for 17 minutes
04/02/03	Seputeh x Ara	Bred for 10 minutes
05/02/03	Seputeh x Ara	Bred for 52 minutes
23/02/03	Rima x Ara	Bred for 19 minutes