

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

MONTHLY REPORT

SEPTEMBER 2002

BY

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&

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INTRODUCTION

There was breeding between Ara and Seputeh on September 28, about sixteen minutes. Based on the level of progesterone, Seputeh was mixed with Ara starting on September 26. Good breeding behavior was observed in the morning without any successful mounting. Later, the rhinos were paired again in the afternoon and breeding was achieved. However, no breeding occurred on other females although they were also paired with Ara.

During the first week of September, Minah, Mas Merah and Rima were mixed with Ara on daily basis after the prostaglandin treatment. However, no good behavior was observed during the mixing. On September 13 and 14, Mas Merah was given another dose of prostaglandin and was mixed for two weeks but no breeding occurred.

Bleeding procedure was carried out as usual, twice weekly and the samples were sent to UPM for hormonal analysis. Blood was also sent to Veterinary Research Institute, Ipoh was routine checking.

As for Minah, she was weighed weekly to monitor her weight. Her weight has been up and down despite her normal behavior. She was also given rice bran and cattle pellet to increase her weight. The other rhinos are in good health and they were weighed once a month.

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 inspect 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

Minah, Mas Merah and Rima were mixed from September 1 to 6 following their prostaglandin treatment but no breeding occurred. Later, Mas Merah was given another treatment on September 13 and 14 and this also failed to initiate breeding.

Starting September 23, Panjang was paired with Ara to stimulate her to cycle. Good behavior was observed on September 26 to 30 without any breeding occurring. Ara was observed following Panjang and occasionally tried to mount but the female refused to be mounted and walked away.

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.

C) HEALTH STATUS

Generally, all rhinos are in good condition. Minah still has a weight problem and she was given rice bran and cattle pellet to increase her weight. Her weight is being monitored on a weekly basis and the result is shown in Table 4. The other rhinos were weighed once a month.

Table 3: Rhinos' Body Weight (Kg), September 2002

Month/ Rhino ID	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
RIMA	552	542	542	554	580	576	562		558			
MAS MERAH	612	590	578	586	595	594	584		602			
MINAH	462	450	476	476	480	450	458		442			
SEPUTIH	738	752	742	736	*	724	764		776			
PANJANG	532	*	523	512	538	514	528		526			
ARA	610	588	574	574	613	592	634		630			

REMARKS:

* In the 10 acres enclosure

Table 4: Minah's Weekly Body Weight (Kg), Sept to Oct 2002

Rhino ID / Date	17/9	24/9	1/10	8/10
Minah	450	442	456	461

Table 1: Blood Collection from the Rhinos, September 2002

Date	Rhino ID	Area taken	Remarks
Sept 1	Mas Merah Rima	Tail Tail	Samples were taken from two females for P4 analysis.
Sept 2	Panjang Seputeh Minah	Tail Tail Tail	Samples were taken from the females for P4 analysis.
Sept 5	Rima Seputeh Minah Mas Merah Panjang	Tail Tail Tail Tail Tail	Blood was taken for P4 analysis
Sept 10	Minah Seputeh Panjang Mas Merah Rima	Tail Tail Tail Tail Tail	Samples were taken from all rhinos for P4 analysis.
Sept 12	Mas Merah Rima Minah Seputeh Panjang	Tail Tail Tail Tail Tail	Samples were taken from the females for P4 analysis.
Sept 16	Minah Seputeh Panjang Mas Merah Rima	Tail Tail Tail Tail Tail	Samples were taken from the females for P4 analysis.
Sept 18	Minah Mas Merah Panjang Rima Seputeh	Tail Tail Tail Tail Tail	Blood was taken for the P4 analysis
Sept 23	Minah Mas Merah Panjang Rima Seputeh	Tail Tail Tail Tail Tail	Blood was taken for the P4 analysis

Date	Rhino ID	Area taken	Remarks
Sept 27	Mas Merah Seputeh Panjang Minah	Tail Tail Tail Tail	Blood was taken for the P4 analysis
Sept 28	Rima	Tail	Blood was taken for the P4 analysis
Sept 30	Minah Mas Merah Rima Seputeh Panjang	Tail Tail Tail Tail Tail	Samples were taken from these females for P4 analysis.

Table 3: Observation on the Rhinos During Introduction, September 2002

Date	Rhino ID	Observation
Sept 1	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Mas Merah blows and Ara moved towards her but she ran away, screaming.
	Rima & Ara	Good behaviour observed, Ara followed Rima but the female seem not ready.
Sept 2	Minah & Ara	No interest observed between the two rhinos.
	Mas Merah & Ara	Mas Merah blows and Ara moved towards her but she ran away, screaming.
	Rima & Ara	Good behaviour observed, Ara followed Rima but the female seem not ready.
Sept 3	Minah & Ara	Ara walked away after eating the fruits and Minah followed him. The rhinos were side-by-side and later pushing each other head to head.
	Mas Merah & Ara	Mas Merah started to scream when she saw Ara. She blows a lot and the pair was separated.
	Rima & Ara	Eating together, Ara sniffed Rima but no interest. Rima walked away, Ara ignored her.
Sept 4	Minah & Ara	The rhinos were eating side by side. Minah pushed her head against Ara, Ara turned and sniffed her but no positive response.
	Rima & Ara	Eating together, spraying. Ara sniffed Rima but no response when she walked away.
	Mas Merah & Ara	Side by side eating together. Mas walked away and came back to eat. Ara sniffed her, no response. Mas walked away, blowing and screaming.
Sept 5	Minah & Ara	No interest.
	Rima & Ara	Eating together, Ara sniffed her and she vocalized. Fighting for fruits and Rima walked away.
	Mas Merah & Ara	Mas come to feeding area and eating beside Ara. Ara sniffed her but continue eating. Head butting, Mas screamed and walked away.

Date	Rhino ID	Observation
Sept 6	Minah & Ara	Eating together, Ara sniffed Minah but ignored her. Minah walked away, Ara continued eating.
	Mas Merah & Ara	Both rhinos were eating together. Ara sniffed her but no interest. Mas Merah blows and screaming. Separated
Sept 7	Minah & Ara	Minah pushed her head, Ara continued eating. Ara spraying then sniffed Minah but no interest. Minah walked away, Ara ignored her.
	Mas Merah & Ara	Side by side, eating. Ara sniffed Mas, she blows and then walked away. Mas come back for fruits; Ara approached her, Mas screamed and blows, walked away from Ara.
	Rima & Ara	Eating together, side by side. Ara sniffed, Rima walked away and Ara ignored her.
Sept 10	Minah & Ara	No interest observed.
Sept 11	Minah & Ara	Minah pushed her head, Ara continued eating. Ara spraying then sniffed Minah but no interest. Minah walked away, Ara ignored her.
Sept 12	Minah & Ara	Minah pushed her head, Ara continued eating. Ara spraying then sniffed Minah but no interest. Minah walked away, Ara ignored her.

Date	Rhino ID	Observation
Sept 13	Minah & Ara	Eating together, Minah put her head under Ara's belly. Ara spraying and walked away, Minah followed. Flanking and sniffing, no response. Minah walked away, Ara ignored her.
	Mas Merah & Ara	Eating together for a while, Mas blows searching for fruits. Mas walked away and turned back, screaming and blowing. Ara blows, separated.
Sept 14	Mas Merah & Ara	The rhinos were eating together, side by side. Ara sniffed Mas but no response. Ara blows and mas walked away to the gate
Sept 15	Mas Merah & Ara	Both rhinos were eating together. Ara sniffed Mas Merah but no positive response.
Sept 16	Mas Merah & Ara	Side by side, eating. Ara sniffed Mas, she blows and then walked away. Mas come back for fruits; Ara approached her, Mas screamed and blows, walked away from Ara.
Sept 17	Seputeh & Ara	Eating together, side by side. Ara sniffed, Seputeh walked away and Ara ignored her.
	Mas Merah & Ara	Mas Merah blows and then come to the feeding area, eating beside Ara. Mas Merah walked away and Ara ignored her.
Sept 18	Seputeh & Ara	Eating together, side by side. Ara sniffed, Seputeh walked away and Ara ignored her.
	Mas Merah & Ara	Mas Merah blows and then come to the feeding area, eating beside Ara. Mas Merah walked away and Ara ignored her.
Sept 19	Minah & Ara	Minah followed Ara and later head butting was observed. She pushed the male too much and the rhinos were separated after 15 minutes to avoid aggression.
	Mas Merah & Ara	Both rhinos eating side by side. No response from Ara when Mas walked passed him.
	Rima & Ara	No interest observed.
	Seputeh & Ara	No interest observed

Date	Rhino ID	Observation
Sept 20	Seputeh & Ara	Eating together, side by side. Ara sniffed, Seputeh walked away and Ara ignored her.
	Mas Merah & Ara	Mas Merah blows and then come to the feeding area, eating beside Ara. Mas Merah walked away and Ara ignored her.
Sept 21	Seputeh & Ara	Eating together, side by side. Ara sniffed, Seputeh walked away and Ara ignored her.
	Mas Merah & Ara	Mas Merah blows and then come to the feeding area, eating beside Ara. Mas Merah walked away and Ara ignored her.
Sept 22	Seputeh & Ara	Eating together, side by side. Ara sniffed, Seputeh walked away and Ara ignored her.
	Mas Merah & Ara	Mas Merah blows and then come to the feeding area, eating beside Ara. Mas Merah walked away and Ara ignored her.
Sept 23	Minah & Ara	Minah followed Ara and later head butting was observed. She pushed the male too much and the rhinos were separated after 15 minutes to avoid aggression.
	Mas Merah & Ara	Both rhinos eating side by side. No response from Ara when Mas walked passed him.
	Rima & Ara	No interest observed.
	Seputeh & Ara	No interest observed
Sept 24	Mas Merah & Ara	Both rhinos eating side by side. No response from Ara when Mas walked passed him.
	Rima & Ara	No interest observed, Rima spraying a lot and walked away from Ara.
	Panjang & Ara	Eating together for a while. No interest observed
Sept 25	Panjang & Ara	No interest observed.

Date	Rhino ID	Observation
Sept 26	Seputeh & Ara	The rhinos were mixed based on low P4 level. Head butting was observed during the introduction.
	Panjang & Ara	Ara followed Panjang but the female vocalized a lot. Separate after 20 minutes.
Sept 27	Seputeh & Ara	Head butting observed and later Seputeh turned and Ara started to follow her. The female seem not ready and the rhinos were separated to avoid fighting.
	Panjang & Ara	Ara followed Panjang but the female vocalized a lot. Ara attempted to mount but Panjang walked away.
Sept 28	Seputeh & Ara	Good behaviour observed in the morning. A few mounting observed but Seputeh walked away. They were paired again in the afternoon and Ara bred Seputeh for about 16 minutes.
Sept 29	Panjang & Ara	Ara followed Panjang but the female vocalized a lot. Ara attempted to mount but Panjang walked away.
Sept 30	Panjang & Ara	Ara followed Panjang but the female vocalized a lot. Ara attempted to mount but Panjang walked away.

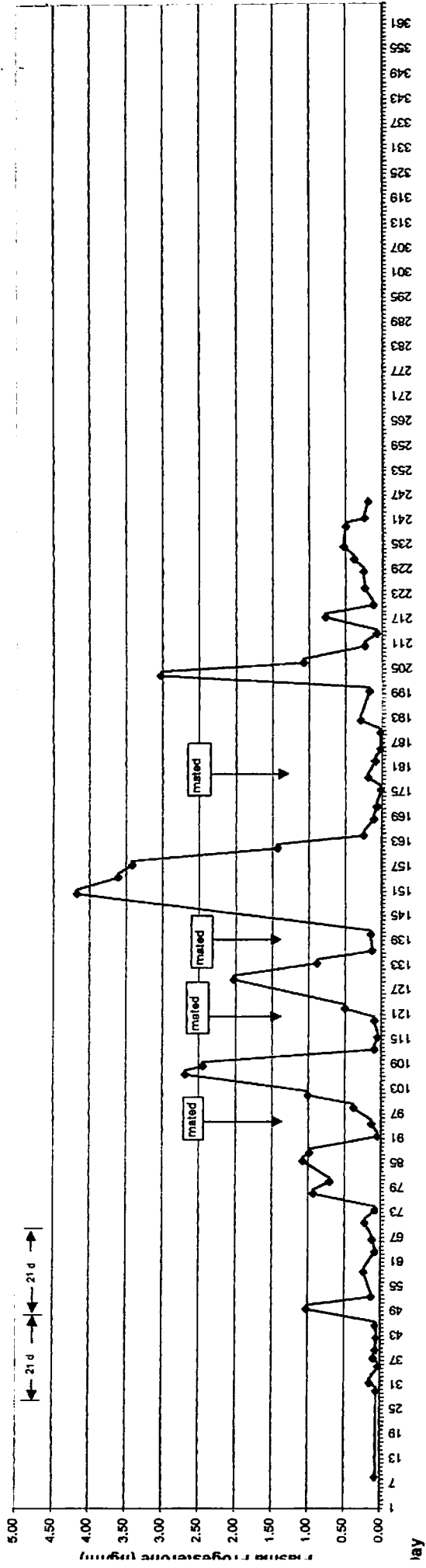
SUMATRAN RHINO BICHEMISTRY RESULT, SEPTEMBER 2002

	Ara	Rima	Mas Merah	Panjang	Minah	Seputeh
Amylase (U/L)	22	26	30	31	25	36
Creatine Kinase (U/L)	737	323	315	739	428	606
Lipase (U/L)	409	400	896	200	839	1062
Magnesium (mmol/L)	1.07	1.19	1.58	1.50	1.19	0.99
NH3 (mmol/L)	200	90	91	125	134	73
Protein, Total (g/L)	88.15	78.11	84.87	82.91	63.27	78.55
Albumin (g/L)	34.4	37.26	27.87	30.93	30.58	37.16
Globulin (g/L)	53.75	43.84	57.01	51.97	32.69	41.39
A/G Ratio	0.64	0.78	0.49	0.60	0.94	0.90

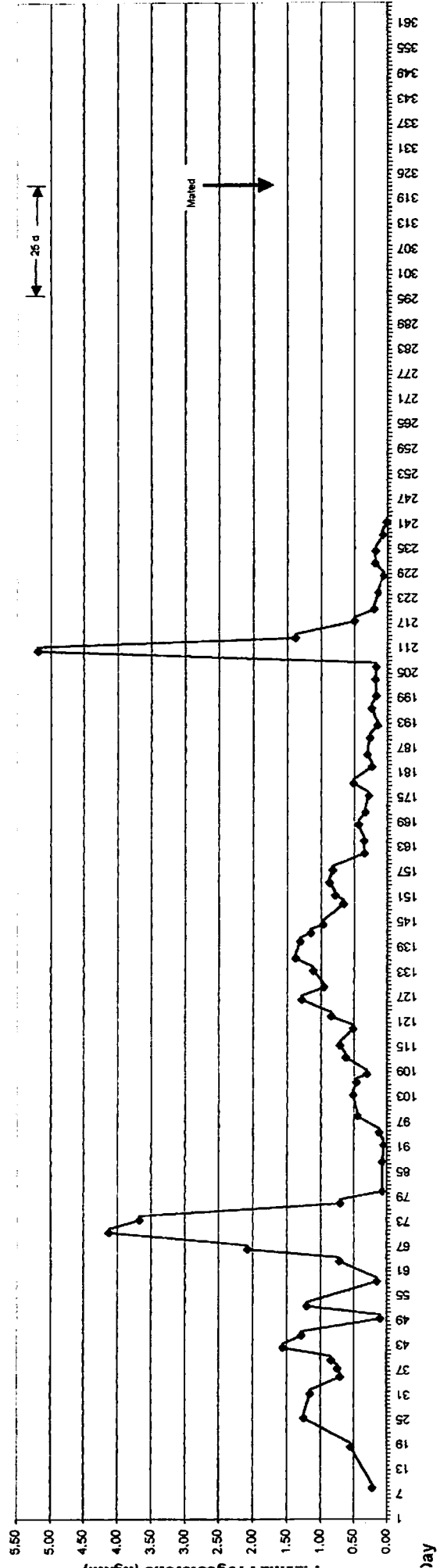
Sumatran Rhinoceros Hematology Summary; Sungai Dusun, September 2002

Hematology Parameter	Unit	MINAH	RIMA	ARA	MAS MERAH	SEPUTIH	PANJANG
White blood cell count	(x 10 ³ ul)	10.7	10.0	13.9	11.8	10.2	10.5
Red blood cell count	(x 10 ⁶ ul)	4.41	4.43	5.40	4.12	5.25	3.40
Hemoglobin	(g/dl)	12.6	12.0	14.7	11.1	15.6	10.3
PCV	(%)	34.8	33.1	40.1	31.1	42.8	27.6
MCV	(u ³)	78.8	74.8	74.3	75.5	81.6	81.3
MCH	(p.g.)	28.6	27.1	27.2	26.9	29.7	30.3
MCHC	(g/dl)	36.2	36.3	36.7	35.7	36.4	37.3
Neutrophils	(%)	78	73	56	67	61	64
Lymphocytes	(%)	21	17	40	21	32	30
Monocytes	(%)	4	6	3	0	1	0
Eosinophils	(%)	6	4	1	12	6	6
Basophils	(%)	0	0	0	0	0	0
Blood Protozoa		NEG	NEG	NEG	NEG	NEG	NEG

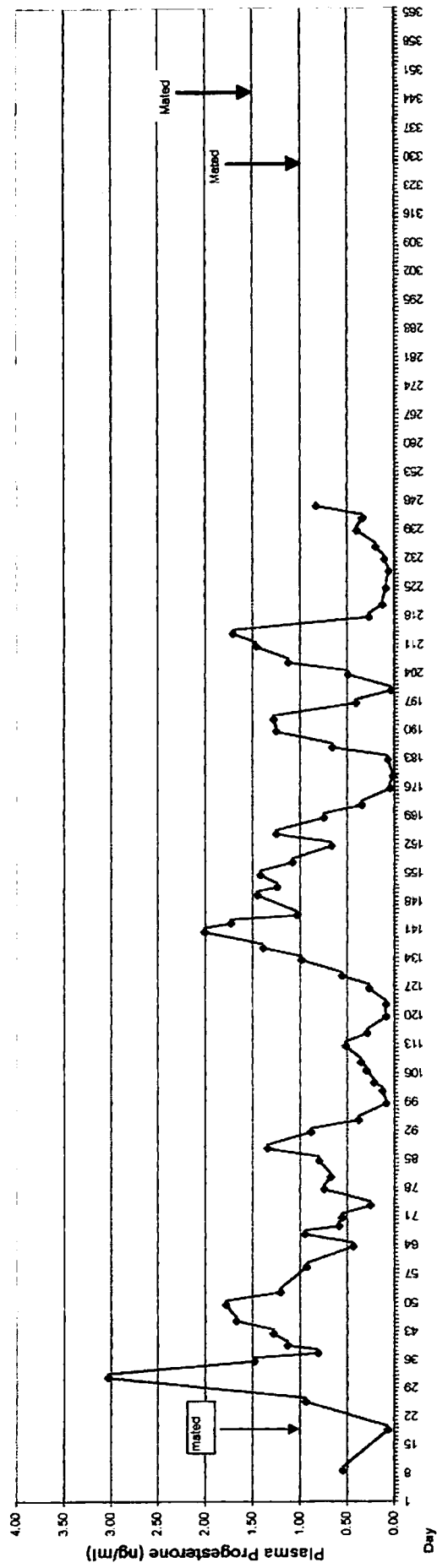
SUMATRAN RHINO - SEPUTIH Plasma Progesterone Profile - 2002



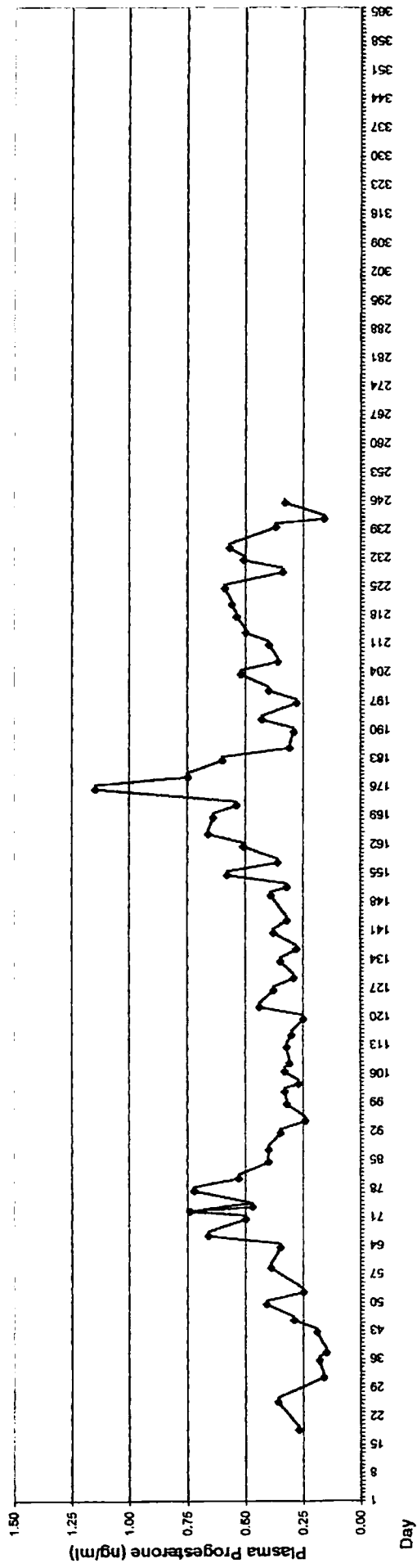
SUMATRAN RHINO - RIMA Plasma Progesterone Profile - 2002



SUMATRAN RHINO - MAS MERAH Plasma Progesterone Profile - 2002



SUMATRAN RHINO - MINAH Plasma Progesterone Profile - 2002



SUMATRAN RHINO - PANJANG Plasma Progesterone Profile - 2002

