

# REPORT ON HEALTH AND REPRODUCTIVE CONDITION OF “RATU” (NEW RHINO IN SRS WAY KAMBAS)

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## General Condition

On the 20<sup>th</sup> of September 2005 a young, estimated 6-7 year old female Sumatran rhinoceros (*Dicerorhinus sumatrensis*) was translocated to the Sumatran Rhino Sanctuary (SRS) inside Way Kambas National Park in Lampung Province Sumatra. The rhino was compromised upon arrival in the SRS from the stress of capture. Her movement was slow with a marked hind-limb lameness characterized by both tremors and ataxia.

The rhino was initially reluctant to eat although she did drink well. The keepers provided fresh food and water while she was in the wallow. The rhino could only eat forage in small amounts of about 2 kg/day and drink only about 5 litres/day until day-2. The rhino was in relatively good body condition. However, she is of small stature and low body weight (478 kg.).

There appeared to be no recent fecal production indicating she had not eaten regularly in the previous few days. The rhino's oral and nasal mucosa was hyperemic. The urine was dark red and turned brown upon exposure to the air indicating myoglobin muscle pigments in the urine. The above signs are consistent with acute myopathy (exertional rhabdomyolysis) associated with the stress and running at the time of capture.

While there are certainly some "lessons" to be learned about the best way to capture a wild Sumatran rhino, we also think that these lessons must be viewed within the context of the realities of working in a remote field-setting like Sumatra. A separate document has been prepared that specifically details field capture recommendations should this event occur again in Indonesia.

## Medical Evaluation

Clinically the rhino appeared to be suffering from:

1. Stress
2. Dehydration
3. Myoglobinuria with kidney disease
4. Muscle disease with lameness

Blood analysis revealed a rather low white blood cell count (~3,700 wbc/ul) and alterations in the wbc differential suggesting the possibility of infectious disease agents. Serological analysis for a spectrum of common diseases was conducted in the laboratory in Bogor. The rhino also had significant elevations in SGPT/SGOT levels up to 2,000 IU, and CPK up to 25,000 IU, findings consistent with a diagnosis of capture or exertional myopathy. Please see addendum at the conclusion of this summary for specific clinical findings including summaries of laboratory data.

## Age Estimation

Age was estimated from the condition of the teeth. She is estimated to be about 6-7 years old. The incisors are about 1.5 cm in length and bright in colour. The pre-molars and molars are very sharp with minimal evidence of wear consistent with a young animal.

## Diagnosis

According to the symptoms observed and clinical findings, the rhino was diagnosed with **Capture Myopathy** (Exertional Rhabdomyolysis).

## Treatment

1. Electrolytes drinking *ad libitum*
2. Provide preferred forages and fruits
3. Antibiotics (Trimethoprim sulfa; 15 g PO SID) per oral for ten days
4. Antiinflammatories as indicated
5. Tonic (Biosalamin<sup>®</sup>) plus Vit. B1, B6 and B12 twice weekly
6. Tetanus toxoid 1 ml with 2 week booster

## Habituation

Since there will be a need to carefully observe and medicate the new rhino regularly, the rhino is being trained and habituated to enter the observation cage and chute. Training has been done without any handling or restraint which are probably harmful to the rhino at this early stage. Training is conducted by simply attracting the animal to come for the forage and fruit by hand in the cage. The rhino tolerates hand feeding well and enters the chute and observation cage for training.

## Chronicle of Progress & Improvement in Condition at the SRS

1. The rhino has started to move and walk better since day-3. No tremors are noted, but she still shows lameness most prominent on the left hind limb during ambulation.
2. The rhino's urine improved by day-3; the urine was not reddish anymore but it was still slightly brown.
3. The rhino started to eat and drink much better since day-3, she already has been browsing regularly by herself.
4. Ratu began to defecate normally by day-3
5. She began to explore more and browse in the boma (40 x 30 m<sup>2</sup>) by day-6
6. Urine returned to normal by day-7; the urine was clear and yellowish in color
7. The rhino's lameness problem was improved by day-7, but is still noticeable at a walk. She can walk better with only minimal difficulties in hind leg movement.
8. She now eats more fruits and more varieties of forage.
9. The rhino is now under habituation process naturally to stay in the paddock and under intensive management in SRS.
10. ***The rhino has a normal reproductive tract with several small follicles in both ovaries.***
11. The rhino tolerates hand examination well while she is in the observation cage or in the chute.

NOTE: Day-0 is the day when the rhino was captured and arrived at the SRS (20<sup>th</sup> of September, 2005)

## Monitoring and Management

The rhino will be monitored for 3 to 4 months to document any changes. During that period, the rhino will be habituated to the SRS condition naturally. In order to get the rhino in prime condition, the rhino will stay in her new boma for at least 3 months or until the rhino makes a full recovery. This is critical in order to ensure that the rhino does not suffer post-capture complications. A detailed breeding plan will also be required in order to be fully prepared for controlled introductions and managed breeding in the Way Kambas situation which is quite different from other more traditional zoo settings.

## APPENDIX

### Sumatran Rhino Health Examination "RATU" or "Queen"

Date: 26 September 2005

Sedation: Butorphanol IM (see anesthesia record for details of procedure)

#### *Physical Exam*

General: Good body condition. Normal dentition typical of a young ~ 6-7 year old Sumatran rhinoceros.

Musculoskeletal: Bilateral swelling (edema?) of both lower rear limbs, especially cranioventral to hock region bilaterally. Also large obvious swelling to rear leg muscles (ie. gluteals, semimembranosus, and gastrocnemius). In addition, there is marked dermal and subcutaneous ecchymotic hemorrhages noted over both rear limbs and suggestive of deeper underlying muscle pathology.

Nervous: Depressed.

Urogenital: Urine is now a concentrated (S.G. = 1.032) yellow color with a faint green tint, but no gross red color indicative of hemorrhage.

Respiratory: NSF. Labored respirations noted for first 24 hours post-capture have now resolved.

Cardiovascular: NSF. Possible IHVS-like lesions in damaged muscles/vessels secondary to rhabdomyolysis.

Oral: NSF. Normal dentition.

Ocular: Eyes normal OU. No abnormalities noted.

Endocrine: NE.

Lymphatic: NSF.

Integumentary: Miscellaneous superficial scratches and scrapes. Ecchymotic hemorrhage on both rear limbs. Marked edema evident dependent and cranial to both hocks.

#### *Treatments given on 26 September 2005*

- 1) 1000 mg Ketoprofen IM
- 2) 600 mg Vitamin B complex IM
- 3) 3 g Naxcel (Ceftiofur Na) IM
- 4) Follow up with oral Trimethoprim-sulfa at 30 mg/kg PO SID for 10 days  
30 mg/kg x 500 kg = 15,000 mg TMS  
15,000 mg/960 mg/tab = 15 tablets  
Therefore, dose of TMS: Give 15 tablets of 960 mg TMS PO SID for 10 days

### Diagnostics

#### CBC (SRS)

Sample: Left Aurical Vein

Anticoagulant: EDTA

WBC: 3,700

PCV: 52%

Buffy Coat: 1%

T.P.: 7.6 g/dl

Platelets: Adequate

Urinalysis (SRS)

Source: Free Catch

Color: Yellow with light green tint

Turbidity: Cloudy

Specific Gravity: 1.032 (Refractometer) / 1.030 (Dipstick)

Blood: Moderate (80)

Urobilinogen: Normal

Biliruben: NEG

Protein: 3+

Nitrite: NEG

Ketone: NEG

Glucose: NEG

Leucocytes: NEG

PH: 7.5

WBC Differential:

Bands: 0%

Neutrophils: 74%

Lymphocytes: 10%

Monocytes: 14%

Eosinophils: 0%

Basophils: 2%

UA (RS Mardi Waluyo; Kota Metro)

Color: Yellow

Turbidity: Cloudy

SG: 1.030

Leucocytes: +

PH: 7.0

Protein: 2+

Glucose: -

Ketone: +

Bilirubin: -

RBC: +

Nitrite: -

Urobilinogen: -

CBC (RS Mardi Waluyo; Kota Metro)

WBC: 8,000

RBC:  $6.7 \times 10^6$

Hgb: 17.9 g/dl

HCT: 53.3%

MCV: 78.6

MCH: 26.4

MCHC: 33.6

AT: 86,000

Sediment:

Epithelial: 6-7 /hpf

WBC: 4-6 /hpf

RBC: 4-5 /hpf

Ca Oxalate: +

Ca Phosphate: 3+

Triple P: -

Serum Chemistry (RS Mardi Waluyo; Kota Metro)

Glucose 131 mg/dl

Bilirubin Total 0.77 mg/dl

Direct 0.17 mg/dl

Indirect 0.60 mg/dl

Ureum 12.26 mg/dl

Creatinin 0.84 mg/dl

Cholesterol 70 mg/dl

Trigliceride 69 mg/dl

Urate 2.94

Total Protein 6.22 mg/dl

Albumen 4.11 mg/dl

Globulin 2.11 mg/dl

AST (SGOT) 2,735 U/L

ALT (SGPT) 1,045 U/L

LDH 683 U/L

GGT 45 U/L

Additional Tests Performed in Jakarta Laboratory

CPK >23,000 U/L

Na 135 mmol/L

K 4.3 mmol/L

Cl 90 mmol/L

Ca 11.5 mg/dl  
Ph 4.0 mg/dl

*Urinalysis Timeline*

DATE	PARAMETER					
	Color	Turbidity	PH	Blood	Protein	Specific Gr.
21 Sep	red, coffee	cloudy	6.0	Large (200)	4+	1.020
22 Sep AM	red, brown	cloudy	6.0	Large (200)	3+	1.015
22 Sep PM	red, brown	cloudy	6.0	Large (200)	3+	1.017
23 Sep AM	red, brown	cloudy	6.5	Large	3+	1.018
23 Sep PM	yellow-green	cloudy	6.0	Large (200)	2+	1.023
24 Sep AM	yellow-green	cloudy	7.5	-?	-?	1.029
24 Sep PM	yellow-green	cloudy	6.0	Large (200)	3+	1.025
25 Sep	yellow-lt. green	clear-cloudy	6.0	Large (200)	3+	1.027
26 Sep	yellow	clear-cloudy	7.5	Moderate (80)	3+	1.032
28 Sep	yellow	clear	7.0	NEG	3+	1.025