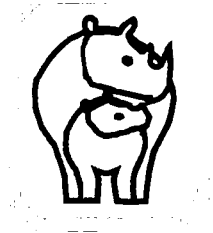


Sumatran  
Rhino  
Sanctuary

Way Kambas National Park



Suaka  
Rhino  
Sumatera

Taman Nasional Way Kambas

## DUSUN DOSSIER



**YAYASAN SUAKA RHINO SUMATERA**  
**DIRECTORATE GENERAL OF FOREST PROTECTION AND NATURE CONSERVATION,**  
**INTERNATIONAL RHINO FOUNDATION,**  
**TAMAN SAFARI INDONESIA,**

~~1998~~ 2001

## **LIFE HISTORY OF DUSUN - Female Sumatran Rhino (*Dicerorhinus sumatrensis*) at the Sumatran Rhino Sanctuary in Way Kambas National Park, Sumatra, Indonesia**

<b>Captured:</b>	9 September 1986	In the Sungai Dusun Wildlife Reserve, Peninsula Malaysia, by the Department of Wildlife and National Parks
<b>Moves:</b>	9 September 1986	To Melaka Zoo, Melaka, Malaysia
	13 January 1987	To Sungai Dusun Rhino Conservation Centre
	6 March 1987	To Melaka Zoo, Melaka, Malaysia
	25 April 1987	To Ragunan Zoo, Jakarta, Java, Indonesia. In exchange for Napangga - male, captured under agreement between PHPA and the Howletts & Port Lympne Foundation, signed 24 May 1985.
	9 January 1998	To the Sumatran Rhino Sanctuary (SRS), Way Kambas NP Lampung, Sumatra

**Estimated age:** The March 2000 Workshop estimated Dusun's age as 18+ years, or her year of birth at 1982 or earlier. Dusun has well-developed udders, indicative of a previous pregnancy. This may have developed in 1992 when she was allegedly bred, but it may also be the result of a pregnancy from before she was captured. In the latter case she was probably at least 5-7 years old when captured and her age estimate should be increased to 21+.

### **Breeding history:**

During Dusun's stay in Jakarta one male was housed at the same facility:  
Jalu was moved to Jakarta on 24 May 1986 and he died on 15 June 1994.

Dusun and Jalu were housed in adjacent yards and starting December 1990 the animals were paired whenever the male showed interest in the female. There were some mounts and in February 1991 a 30 minutes copulation was observed. Staff reported that Dusun appeared to stop cycling, In October 1991 an increase in size of the udder was reported and starting June 1992 a discharge from the udder ('milk') was observed. In March 1992 some discharge from the vulva was reported. At that time it was assumed that Bina was pregnant. Eventually no young was born, nor are there indications of a premature loss of pregnancy.

Until the male died in 1994 there appear to have been no more introductions.

## CHRONOLOGY OF DUSUN'S POSTERIOR PARALYSIS

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### 28 January 2001

Several weeks ago, one tooth (pre-molar) fell out and was found by the keeper.

**Dusun is not well.**

**Clinical signs :** Can not move, both hind leg are paralyzed. Laying down on the ground since 08.00 PM, reflexes are good except reflexes in the hind leg. The right hind leg is a little bit stiff. Vulva has a small wound.

Body temperature has been stable good /normal ( 37.6 Celsius) since she got ill. Appetite is good, no defecation and urination.

**Diagnose: Paralysis Posterior**

**Differential Diagnose:** - Hypocalcemia

**Medication :**

- Multi vitamin (ardivit) 10 tabs PO
- Anti bloat/tympani (dhimeticon) 1 dose PO
- Neurotrophic vitamin with vit. B1, B6, B12 (15 tabs PO)
- Amphoprim (sulfamethoxypyridazine and trimetrophim), 10 tabs PO
- Kalzana D (calcium and Vitamin D) 10 tabs PO and
- Phenylbutazone (anti inflammation) 2 tabs PO.

**Notes:**

**Defecating:** First time at 09.40 PM, but not as much as usual.

**Last situation:** Until 24.00 h. no movement of hind legs and no urination. **Cucumber and water melon (4 Kg)** was given to stimulate urination. Temperature, gas and feces normal. Occasional rectal palpation is needed to remove the feces. Rectum slightly prolapsed. No signs of tympani. Appetite normal. Keepers change her position every hour.

**Suggestions:**

- Muhammad Agil, D.V.M. recommended to give **biosalamine (ATP source)** and additional **Calcium** to overcome the paralyzed of muscle.
- Change Dusun position time to time to avoid decubitus problem.

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### 29 January 2001

Good appetite but still looks weak. Starting to urinate, but very little. Appetite normal. Move hind legs more but no stand. There are no signs of tremor or stiffness of muscle. No signs of Tetanus, no general paralysis like in Hypocalcemia in cattle or horse. Flatus many time.

**Medication :**

- Lasix (diuretic), 5 tabs PO
- Neurologic vitamin (neurofort), 15 tabs PO
- Phenylbutazone (anti inflammation), 2 tabs PO
- Multi vitamin (ardivit), 10 tabs PO
- Anti bloat (dhimeticon) 1 dose PO
- kalzana D (calcium and Vitamin D) 10 tabs PO

**Advice :** - Blood Collection for Blood Analysis (CARITAS Bogor)  
- Urine Collection for Urine Analysis

**Differential Diagnose:** - Parasite (Brain Worm) ?  
- Spinal Diseases (Tumor/cancer) ?  
- Pituitary Tumor (the past history of staggering and blindness with persistent lactation)  
- Nerve disorder

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### 30 January 2001

Urinating a lot, small amounts but many times. Feces still normal (about 2-3 balls per defecation, till 10 times a day). Flatus a lot, more relaxed when asleep and eats as usual. Reflexes on both hind legs are also better. The right leg has a more progressive reflex than the left one, but still she can not stand up.

**Medication:** - Biosalamin (ATP and vitamin), 20 cc IM  
- Amphoprim (antibiotic) 10 tabs PO  
- Cucumber (diuretic), 4 kg  
- Neurologic vitamin (neurofort), 15 tabs PO  
- Phenylbutazone (anti inflammation), 2 tabs PO

**Treatment:** - Blood Collection (2 cc)

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### 31 January 2001

Not much progress but also not worse than yesterday. Appetite normal. Urinating many times, sometimes with a reddish color (like the color the urine changes to outside). Defecation only once and she needed help to remove the rest. But it was a lot. Temperature normal (37.5 Celsius). Deep sleep laterally on both side.

**Medication:** - Biosalamin (ATP and vitamin), 20 cc IM  
- Amphoprim (antibiotic) 10 tabs PO and  
- Ardivit (multi vitamin), 10 tabs PO

**Treatment:** - Blood Collection (3 cc) for Blood analysis.

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### 1 February 2001

No progress. Just like yesterday.

**Medication:** - Biosalamin (ATP and vitamin), 20 cc IM  
- Neurologic vitamin (neurofort), 10 tabs PO

- Amphoprim (antibiotic), 10 tabs PO and
- Ardivit (multi vitamin), 10 tabs PO

**Treatment:** - Urine collection and blood collection (CARITAS Bogor)  
 - Feces collection (FKH-IPB Bogor)

## 2 February 2001

Showed more reflexes and pushing down on the hind legs when it is pushed up and moved. Swings the head left and right, making sounds and snorting. Heart beat is 52-56 per minute, respiration 12-24 but usually 15-18 per minute, body temperature 36.4-39.1 Celsius, mostly 37.3-37.6 Celsius. Urine is thick and colored with some very tiny white particles. Eating, drinking and defecation are normal

Warm compresses are applied to the legs every few hours since the beginning.

**Medication:** - Amphoprim (antibiotic), 10 tabs PO  
 - Equuform (amino acid, vitamin and mineral), 10 cc IM

## 3 February 2001

No progress. Urine is normal.

Feeding record of Dusun since the first day :

	<b>Browse (kg)</b>	<b>Fruits: banana, carrot and water melon (Kg)</b>
28 Jan 2001	19	9 (extra cucumber is given to stimulate urination)
29 Jan 2001	22.5	7 (idem)
30 Jan 2001	28	3 (carrots only)
31 Jan 2001	15	5 (carrots and bananas)
01 Feb 2001	30.5	4 (idem)
02 Feb 2001	18.5	4 (idem)

For comparison: monthly average feeding

October 2000	23.5	5.1
November 2000	22.6	4.8
December 2000	22.7	4.8

**Medication:** - Neuroboran (neurologic vitamin), 20 cc IM  
 - Delamidon (anti inflammatory and analgesic), 20 cc IM  
 - Menorox (norfloxacin/antibiotic), 12 cc IM  
 - Equuform (amino acid, vitamin and mineral), 10 cc IM

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## 4 February 2001

No progress. As the day before.

**Medication:**

- Biosalamin (ATP and vitamin), 20 cc IM
- Menorox (norfloxacin/antibiotic), 12 cc IM
- Equuform (amino acid, vitamin and mineral), 10 cc IM
- Delamidon (anti-inflammatory and analgesic), 20 cc IM
- Neuroboran (neurologic vitamin), 20 cc IM

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## 5 February 2001

Dusun's condition appears weaker. Appetite, defecation and urination are normal.

**Medication:**

- Menorox (norfloxacin/antibiotic), 12 cc IM
- Equuform (amino acid, vitamin and mineral), 10 cc IM
- Delamidon (anti-inflammatory and analgesic), 12 cc IM
- Neuroboran (neurologic vitamin), 20 cc IM

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## 6 February 2001

More active and appetite better than the day before. Eating and drinking normal. Temperature normal. Urinating many times.

**Decubitus** Left leg has a lesion/wound. Mammary glands and legs also show lesions, because she is always in the same position.

**Medication:**

- Menorox (norfloxacin/antibiotic), 12 cc IM
- Equuform (amino acid, vitamin and mineral), 10 cc IM
- Delamidon (anti-inflammatory and analgesic), 20 cc IM
- Neuroboran (neurologic vitamin), 20 cc IM
- Biosalamin (ATP and vitamin), 20 cc IM
- Infus Calcidex (calcium, dextrose), 700 cc SC

After receiving the Calcidex infusion, Dusun is more lively and stronger. She tries to get up but can only get to a 'sitting dog' position.

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## 7 February 2001

Midnight at 01.40 h. Dusun looks weak, then she is suddenly hyperactive and seems out of control. The body is stiff and there are tremors over the whole body.

At 01.50 PM Dusun dies.

Early in the morning at about 05.00 h. the body is carried out of the forest by about 40 people, staff and villagers, and loaded on a truck to be carried to Bogor for the necropsy at the IPB anatomical laboratory. During the travel the body is kept cool with ice blocks.

At about 20.00 h the body arrives at the IPB laboratory in Bogor where the necropsy is conducted till about 04.00 h the next morning. Samples are preserved for further study and the carcass is buried to clean the skeleton.

## LABORATORIUM PATOLOGI VETERINER

Jurusan Parasitologi dan Patologi, Fakultas Kedokteran Hewan – Institute Partanian Bogor

Jalan Taman Kencana No. 3 BOGOR – 16151

Tel dan Fax: (0251) 329539; E-mail : [patolpb@indo.net.id](mailto:patolpb@indo.net.id)

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February 07<sup>th</sup>, 2001

No : P/04/01

### Anamnesis:

Sumatran Rhinoceros, 35 year-old, Female  
Dead on February 07<sup>th</sup>, 2001 at 01.50 local time.

### Clinical history:

Paralysis for 10 days, appetite was normal.

### Necropsy Findings:

There were decubitus lesions at hind leg and mammary skin, inflammation of mammary gland, subcutaneous edema with serous atrophy of the fat. Tracheal mucosa was hemorrhagic with mucous exudate. The lungs were congested with multifocal calcification; a bullet was found attached to the inner site of bronchi; there was an adhesion of the pleura and diaphragm. The heart showed serous atrophy of the depo of fatty tissue, dilation of the left ventricle with thickened valves, and the myocardium was pale. There were multifocal raised plaques over the surface of aorta and left atrium. The stomach was full of normal ingesta, the mucosa was reddish and ecchymotic. Inflammation with catarrhal exudate was found in the intestines. The liver lobulations were accentuated and there was one white cyst 0.5 cm in diameter. Nodular hyperplasia (1cm in diameter) were found in the spleen. Both kidneys have multiple brown cysts (0.5-1 cm in diameter); the cysts contain black and gritty like materials. The urinary bladder contain deposit of greyish white sandy materials, with some ecchymotic hemorrhage on the mucosa. Pancreas was red and diffusely nodulated. The wall of the uterus has a focal thickened nodule of 2 cm in diameter.

### Diagnose:

Decubitus, Mastitis, Oedema, Tracheitis, Pneumonia, Corpus alienum, Pleuritis, Dilatatio cordis sinistra, Artherosclerosis, Gastroenteritis catharalis et hemorrhagica, Spleen hyperplasia and kidney cyst.

Histopathological examination of all organs is in progress.

Pathologist

Bambang Pontio Priosoeryanto, DVM, MSc, Ph.D.  
Nlp. 131 578 839



## **LABORATORIUM PATOLOGI VETERINER**

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### **Microscopical Findings:**

#### **Lung:**

Congestion and severe fibrosis of alveolar wall with multi focal granuloma. leukocytes were found within numerous alveolar lumen.

#### **Tongue:**

Lymphocytes infiltration were found at lamina propria accompanied with multi focal area of necrosis with calcification.

#### **Stomach and Intestine:**

Surface and cryptal epithelium desquamation were prominent due to autolysis change. Some lymphocytic inflammatory cells were observed within the lamina propria.

#### **Liver:**

Hepatocytes were enlarged with variable degree of degeneration. Bile pigment depositions were observed within some hepatocytes cytoplasm. Numerous macrophages which phagocytosed brown pigment (probably bile pigment?) were found at portal hepatic. The space of Disse was dilated due to edema.

#### **Pancreas:**

There were autolysis lesion within acinar cells of pancreas. proliferation of fibrous connective tissue between lobes and atrophied acinar cells were observed.

#### **Heart:**

Mild lymphocytic infiltration of epicardium. Lipofuchsin pigment depositions were observed within myocytes.

#### **Spleen:**

Lymphoid follicle were depleted, numerous hemosiderin - containing macrophages were observed within red pulp.

#### **Kidney:**

There were diffuse infiltration of fibrous connective tissue and chronic inflammatory cells within interstitial tissue. The cysts were contained proteinaceous fluid with numerous macrophages phagocytosed light brown pigment (probably hemosiderin?). Some glomerulus showed atrophy, dilated space of Bowman with proteinaceous fluid and thickened capsule. Numerous tubules showed flattened epithelium. the lumen was dilated and filled with proteinaceous fluid or occasionally mineral sedimentation.

**Uterus:**

Lamina propria of uterus wall showed edema. The mass which observed grossly within uterus wall was composed of proliferation of spindle cells resemble smooth muscle cells. There was low mitotic figure and no atypia cells observed.

**Mammary Gland;**

There were remnants of glands surrounded by fibrous tissue proliferation. Congestion and mild hemorrhage were observed diffusely. Numerous macrophages which phagocytosed brown pigment (probably hemosiderin?) were observed within area of fibrosis.

**Brain:**

Almost all neuron were enlarged. lipofuchsin pigment was accumulated within cytoplasm. Mild gliosis were observed.

Histo pathological Diagnose:

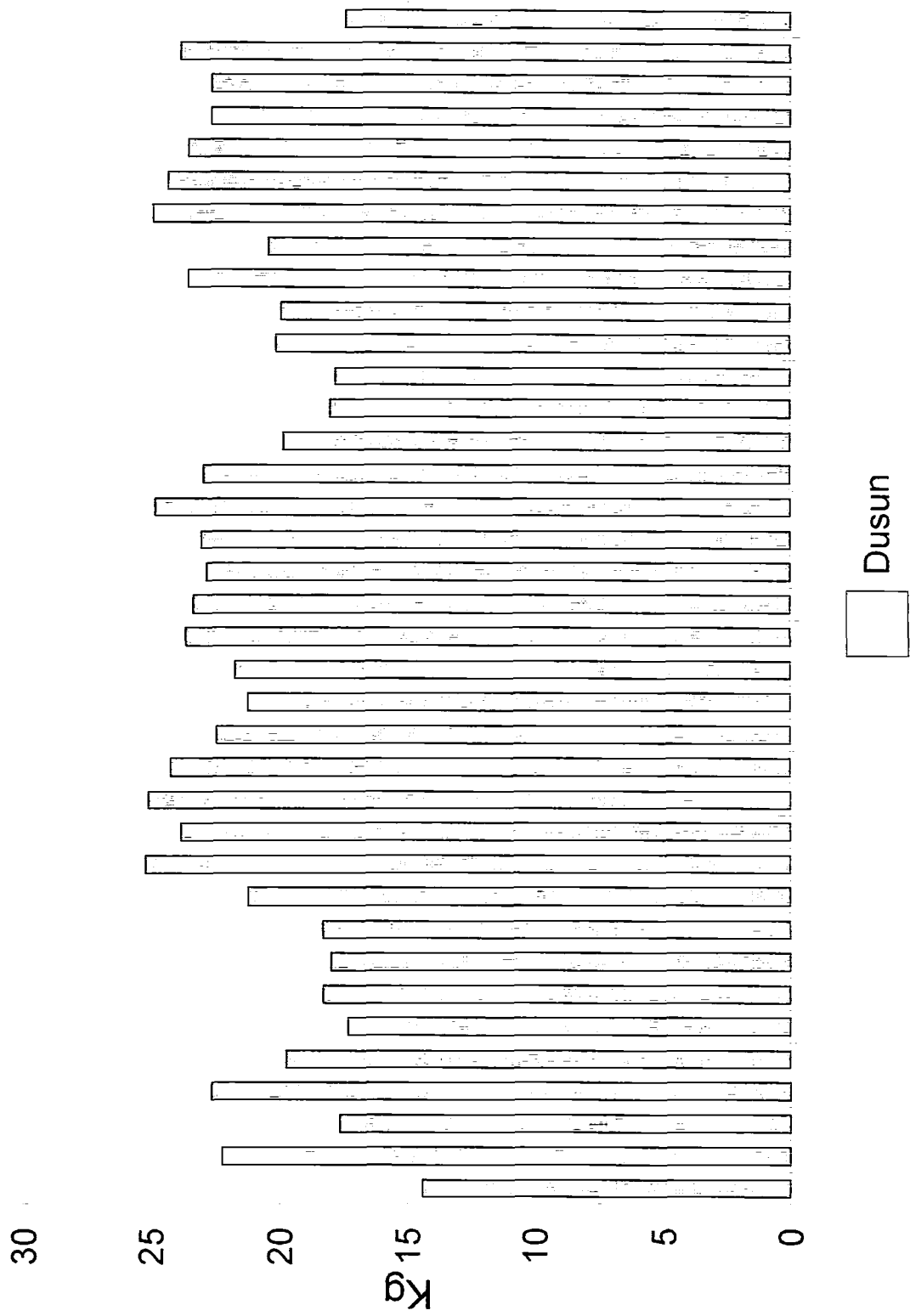
1. Fibrinous pneumonia with multi focal granuloma.
2. Epicarditis
3. Necrotic ulcerative cheilitis with calcification
4. Edema, degenerated hepatocytes with bile pigment stagnation
5. Interstitial fibrosis of pancreas
6. Nephrosis
7. Leiomyoma of the Uterus
8. Ceroid - lipofuchsin storage within myocardium and neuron

Pathologist,

Dewi Ratih Agungpriyono, DVM, Ph.D  
NIP. 131760 839

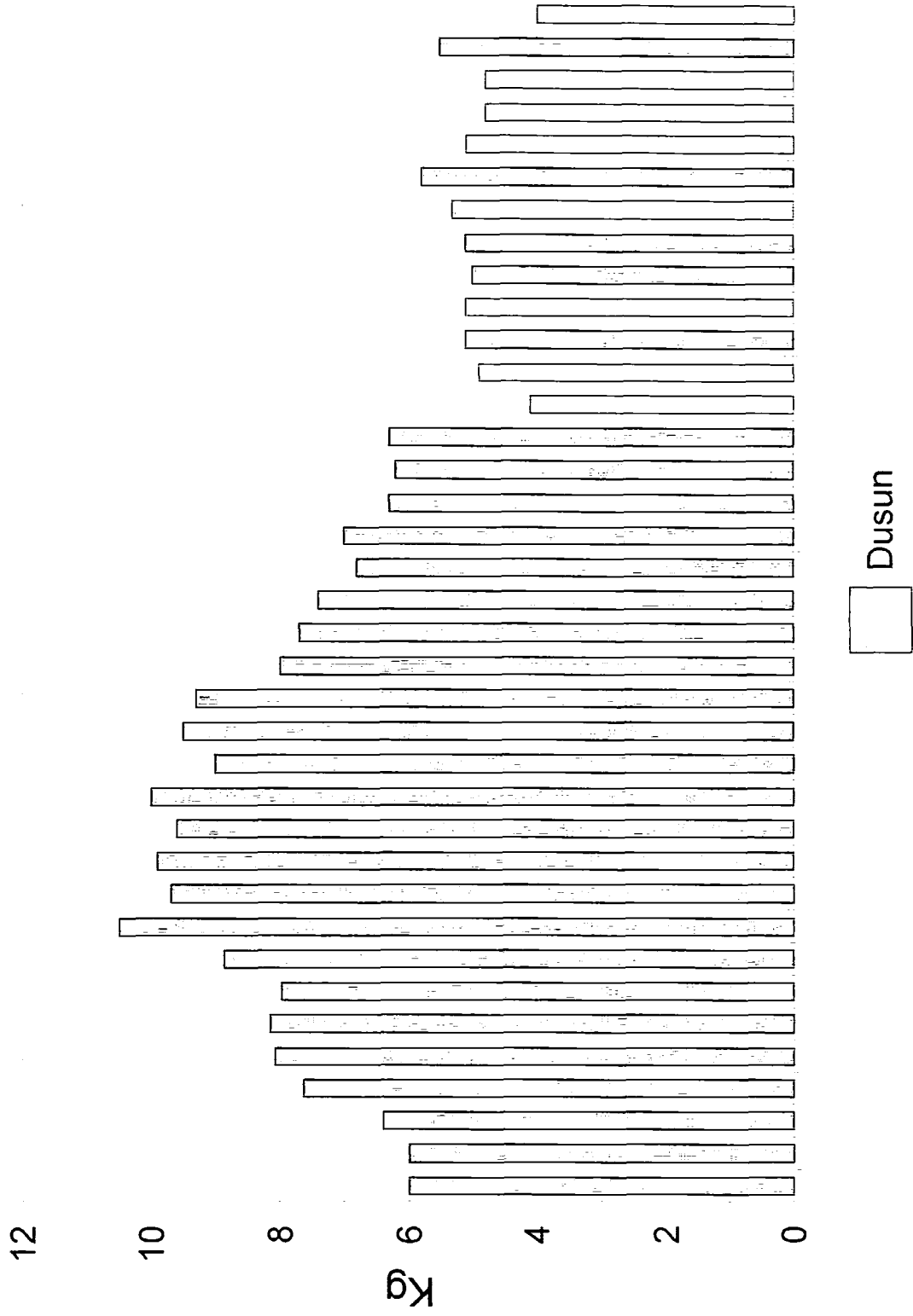
# Average daily food consumption

February 1998 - February 2001 - Browse

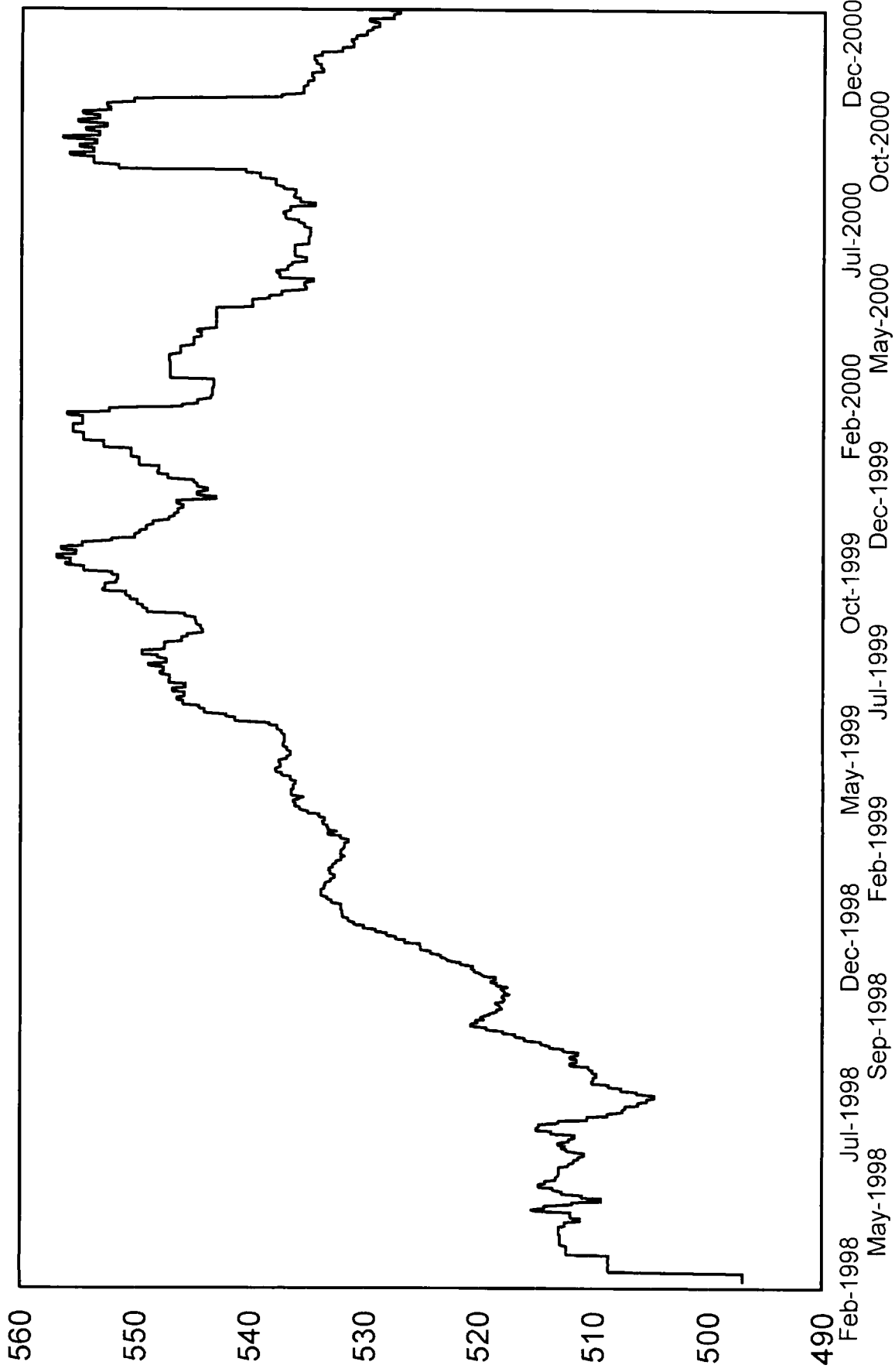


# Average daily food consumption

February 1998 - February 2001 - Fruits



**WEIGHT OF DUSUN AT SRS**  
*(Moving average - 60 days) - 1998/2001*



— Dusun

DUSUN - female Sumatran Rhino

DENTITION



