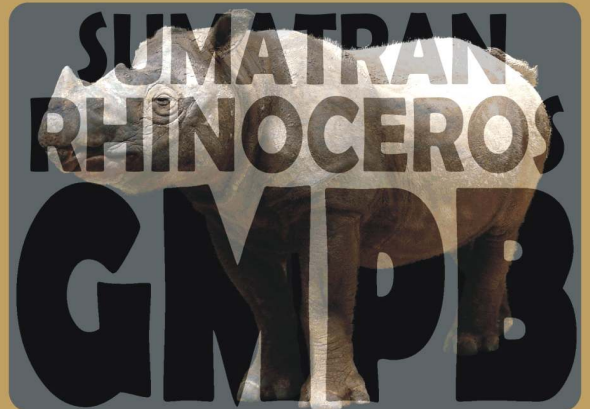


**Sumatran
Rhinoceros
Managed
Breeding
GLOBAL
MANAGEMENT
AND
PROPAGATION
BOARD**



**REPORT OF THE
FIRST GMPB
MEETING, 20 AND 21
MARCH 2005,
JAKARTA,
INDONESIA**

**GMPB Technical Committee
25 May 2005**





REPORT OF THE FIRST GMPB MEETING,
20 AND 21 MARCH, JAKARTA,
INDONESIA

GMPB Technical Committee
25 May 2005

INTRODUCTION



The purpose of the Sumatran Rhino Managed Breeding **GLOBAL MANAGEMENT & PROPAGATION BOARD (GMPB)** is to develop and manage a Global Sumatran Rhino Propagation Program, involving all the countries and institutions maintaining Sumatran Rhino in Managed Breeding Centers, and the major sponsors of the centers and programs.

The Yayasan Suaka Rhino Sumatera (Sumatran Rhino Sanctuary Foundation - YSRF) in cooperation with the Yayasan Mitra Rhino (Indonesian Rhino Foundation - YMR) and the International Rhino Foundation (IRF) hosted the first GMPB meeting in Jakarta on 20 and 21 March 2005, at The Hotel Century Atlet, Senayan.

All invited institutions and organizations were represented at the meeting. Overviews of the current status of the rhinos in the managed breeding centers were presented, the function and structure of the GMPB was discussed, and the representatives of the institutions in the GMPB and the members of the Technical Committee were identified. All the options for improvement of the Managed Breeding program were reviewed, including the possibilities of recruiting additional rhinos from unviable situations in the wild and relocating rhinos already in captivity among the managed breeding facilities.

Finally the Points of Agreement and Recommendations were drafted and adopted by the meeting. The Technical Committee (TC) was instructed to prepare the report of the meeting and to formulate a Charter of the GMPB, based on the outline presented and the discussions that occurred. Additionally the TC was requested to develop a cost-benefit analysis for the future management and protection of Rosa, the habituated rhino in BBS.

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Agenda

Time	Topic	Guidance
Sunday 20 March 2005		
09.00 - 09.30	Introduction by PHKA	Marcellius Adi MC
09.30 - 12.00	Report on current situation	<i>Speakers:</i>
	- YSRS, Way Kambas	Alikodra
	- Assessment at SRS	Radcliffe
	- Peninsula Malaysia	Kadir/Khan
	- Sepilok, Sabah	Bosi
	- Cincinnati Zoo, USA	Roth
	- Los Angeles Zoo, USA	Briscoe
	- Kerinci-Seblat National Park	Widodo/Waladi
	- Rosa, Bukit Barisan Selatan National Park	Waladi
	Questions and Discussion	Moderator: Agil
12.00 - 13.00	Lunch	
13.00 - 14.00	Inventory of Current and Potential Availability and Fertility of Rhino for the Global Managed Breeding Program	<i>Chair:</i> Widodo <i>Facilitators:</i> Khan & Roth
14.00 - 15.00	Discussion on Structure and Function of GMPB	<i>Chair:</i> Soemardja <i>Facilitator:</i> Van Strien
15.00 - 15.30	Coffee break	
15.30 - 18.30	Discussion on Recommendation for Future Global Management to Maximize Breeding Success	<i>Chair:</i> Widodo <i>Facilitator:</i> Foose
18.30	Day Closing	Widodo Ramono

Monday 21 March 2005

09.00 - 12.00	Points of Agreement and Recommendations	<i>Chair:</i> Khan <i>Facilitator:</i> Foose
12.00	Workshop closing	Mohd Khan
12.00 - 13.00	Lunch	
13.00 - 15.00	Departure for SRS, Lampung, Sumatra	

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(In alphabetical order)

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POINTS OF AGREEMENT & RECOMMENDATIONS



1. A. Form the Sumatran Rhino Global Management and Propagation Board (GMPB) and appoint its initial Technical Committee(TC) as proposed in the original draft document and amended by the GMPB Meeting 20 March 2005.
B. a. Develop through the TC, the Charter for the GMPB.
b. Invite the GMPB Member Organizations to appoint their representatives.
c. Seek endorsement from the IUCN/SSC Asian Rhino Specialist Group.
2. Proceed immediately with the attempt to rescue the doomed rhino in the Bengkulu part of Kerinci-Seblat National Park and move them to the Way Kambas SRS.
3. A. Assign the TC to perform A cost-benefit analysis for the possible move of Rosa from BBS to the SRS. The cost benefit analysis will include:
 - a. Security Risks
 - b. Long-Term Costs & Benefits for both the In Situ (in BBS) & Ex Situ (in SRS) conservation of Rosa.
B. Conduct an expeditious and thorough analysis of Rosa's condition, including the possibility of pregnancy, as a basis for developing a protocol for possible movement. This assessment will include:
 - a. A non-invasive, abdominal ultrasound examination.
 - b. Analysis of fecal samples for progesterone in the IPB lab.
4. Encourage and Assist (i.e. by participation in seminars and other public awareness and advocacy activities) Malaysia (both Peninsula and Sabah) to capture doomed animals as soon as possible for incorporation into the managed breeding program.
 - A. In Peninsula Malaysia, these rhinos should be moved initially to Way Kambas. Future placement, in the short term could include remaining at Way Kambas or moving to the Cincinnati zoo depending on the sex and assessed fertility of animals at these two facilities. In the longer term, when Peninsula Malaysia has developed its new managed breeding facilities (2007 or soon thereafter), the animals from Peninsula Malaysia or an equivalent number of other animals (as recommended by the GPMB) would be returned to Peninsula Malaysia.
 - B. In Sabah, move the animals into the breeding center at Sepilok, but on the condition that this facility is improved according to recommendations of the GMPB.
5. Attempt to optimize reproduction of the existing rhino in captivity based on a number of objectives and activities:
 - A. Only one pair of rhinos (Ipuh and Emi) is currently reproducing at a single facility (Cincinnati Zoo). It would be imprudent and widely criticized by the conservation community to propose any

action that would disrupt or jeopardize this success at this time. For example, Ipuh is of an advanced age and is the only proven fertile male in captivity. Attempts to move this animal intercontinentally should be considered with great caution. It will be optimal to get at least one more pregnancy in Emi and perhaps in another female before there would be any consideration to move Ipuh.

- B. A number of possibilities for achieving reproduction in other animals in captivity exist and should be assessed by a cost benefit analysis, the factors of which may change significantly over the next several months as the Kerinci-Seblat and perhaps Peninsula Malaysia rescue operations proceed.
- C. One Set of Options to Consider at this time.
 - a. Permit the efforts by Mr. Radcliffe, Mr. Agil and their teams employing some newer methods to continue at Way Kambas for the next several months. Hopefully they will succeed in achieving reproduction by Bina and Torgamba.
 - b. If by the end of May, 2005 Bina is not pregnant, Initiate the lengthy US Permit process (3-4 months minimum) to move Bina to Cincinnati for attempted breeding. This would merely be a preparatory step and might or might not be implemented depending on changing circumstances, i.e.
 - Bina becoming pregnant by Torgamba at the SRS
 - Animals of appropriate sex and apparent fertility becoming available through the Kerinci-Seblat and/or Peninsula Malaysia rescue.
 - Possible sexual maturation of Andalas at the Los Angeles Zoo.
 - c. Decide, i.e. through the GMPB, in September 2005, the GMPB on the next most appropriate steps based on circumstances at that time.

MEMBERS OF THE GMPB

Chairman Pro Tem: Mr. Mohd Khan Momin Khan

Range State Representatives:

Indonesia: PHKA Director of Biodiversity Conservation and ex-officio Rhino Conservation Officer (Currently Mr. Widodo Ramono)
Peninsula Malaysia: Director of Dept. of Wildlife and National Parks (Currently Mr. Musa Nordin)
Sabah: Director of Wildlife Department (Currently Mr. Mahedi Patrick Andau)

Institutional Representatives:

Yaysan SRS	Mr. Hadi Alikodra
YMR- Indonesian Rhino Foundation	Mr. Soemarsono
U.S. Zoos	Ms. Terri Roth
International Rhino Foundation	Mr. Tom Foose
Malaysia Rhino Foundation	Mr. Mohd Khan Momin Khan
Asian Rhino Project	Ms. Kerry Crosbie
SOS Rhino Borneo	Mr. Edwin Bosi
SOS Rhino	Ms. Nan Schaffer

GMPB Technical Committee:

Mr. Nico van Strien (Chair)
Mr. Muhd Agil
Mr. Marcellus Adi
Mr. Edwin Bosi
Mr. Tom Foose (International Studbook Keeper)
Ms. Siti Hawa
Mr. Robin Radcliffe
Mr. Terri Roth
Ms. Nan Schaffer
Mr. Widodo Ramono

DRAFT CHARTER

Sumatran Rhino Managed Breeding GLOBAL MANAGEMENT & PROPAGATION BOARD (GMPB)



Tasks

- 1 To recommend and decide on the management of the Global Sumatran Rhino Captive Population as a truly global population to maximize the options for reproduction and to improve its vitality and viability in a **Global Sumatran Rhino Propagation Program**.
- 2 To prepare and facilitate exchange of animals between all locations if indicated for the purpose of the Program.
- 3 To facilitate exchange of experience and transfer of knowledge.

Composition of the GMPB

The GMPB will consist of:

- 1 Representatives of the Countries or Institutions holding Sumatran Rhino in Managed Breeding Centers;
- 2 Representatives of Donor Agencies; and
- 3 Sumatran Rhino Experts.

The membership will be reviewed bi-annually and the GMPB will bi-annually elect a chairman from among the members

The Sumatran Rhino Expert members will form a Technical Committee (TC) that will function as the secretariat of the GMPB

Operation of the GMPB

The GMPB will convene at least once every two years review the membership, elect a chairman and discuss current issues.

Normal operations will be conducted by electronic correspondence, but members may request a special meeting if urgent and crucial matters arise.

All members can request the GMPB to review issues relating to the Global Sumatran Rhino Propagation Program.

On all issues placed before the GMPB the TC will produce an Opinion Paper for review by the members.

If the issue(s) require a decision by the GMPB the TC will prepare a Resolution Paper for approval by the GMPB.

Further details on the procedures and formats will be prepared by the TC for approval by the GMPB

A proposal for a GMPB CHARTER, based on the draft amended and approved by the meeting and the comments from the participants, will be made by the Technical Committee for endorsement by the GMPB Members.



INTRODUCTION

Mr. Widodo S. Ramono - PHKA

Considering the amount of captive and wild Sumatran rhino population in the world, a good global propagation program is needed.

REPORT ON CURRENT SITUATION (09.30-12.00)

A - SUMATRAN RHINO SANCTUARY

Prof. Hadi Alikodra

The Sumatran Rhino Sanctuary (SRS) was built in 1998 in Way Kambas National Park with a total of 125 hectares of land and a population of two (initially three) captive rhinos. The establishment of this sanctuary is for semi in-situ rhino conservation, serving as a center for breeding, research, education and preservation of Sumatran Rhinos, in cooperation with Yayasan Mitra Rhino and Taman Safari Indonesia. The site manager of this facility is Marcellus Adi. In the future hopefully the management capacity and breeding can be improved.

Discussion on Rhino Breeding Activities

Muhammad Agil

Currently there are one female rhino named Bina and one male rhino (Torgamba) sited in SRS. Bina was captured in early 1990 and sent to Taman Safari Indonesia. She was then transferred to the SRS in 1998 and now inhabits 30 ha of forest in the SRS. Torgamba on the other hand was captured earlier than Bina in 1985, then sent to Howletts & Port Lympne Zoos (United Kingdom). He was transferred to the SRS in 1998 and currently inhabits 50 ha of forest in the SRS. The SRS was designed to have big enclosures and has a capacity of 5 rhinos.

Program: Observation and Monitoring

Husbandry observation (feed intake, activity, body weight).

Health monitoring (Blood analysis 2-3 /years)

Daily: physical inspection

Yearly: ectoparasites, endoparasites and blood parasites inspection

USG examination of the female twice a week, and when close to estrous the ovarium is monitored daily for follicle development.

Backup cycle: progesterin in feces, samples collected 2-3 times a week

Daily: monitoring by keeper

Research : Nutrition, Behavior and Habitat, Reproductive Biology

Other activities: support Wildlife education

Wildlife conservation management support info for student

Problems in the SRS:

- ! Early Stage: 1998-1999 ? the rhinos can't breed properly showing dismounting behavior.
- ! In 1999 a hormone analysis was conducted showing an irregular cycle in the female. Hormonal treatment were attempted and showed improvement by occurrence of regular estrous cycle in the end of 1999.
- ! After mating can occur, Torgamba experienced intromission failure into the female's vagina. This happened during the year 2000-2001, the furthest he can do is partial penetration of about 10 cm deep. In September 2001, Bina was examined and a persistent hymen was found, thus being the cause of intromission failure. This also leads to the conclusion that Bina has never been pregnant.
- ! Bina regularly produces a prolonged Corpus Luteum which once conducted for 26 days, causing the estrous cycle to be as long as 40 days.
- ! Male sperm collection showed that Torgamba's sperm were oligospermia with poor motility.

Progress in breeding process:

- ! Year 2000 Torgamba can mate properly.
- ! February 2002, first successful intromission, but no pregnancy occurred.
- ! Reproduction Monitoring Program
- ! Regular USG examination of the ovarium.
- ! Hormone monitoring
- ! Basic monitoring
- ! Physical inspection
- ! Weight : weekly
- ! Blood inspection 3-4 times a year.
- ! Surveillance
- ! Protozoa infection
- ! Helminthes infestation
- ! Ectoparasites, direct infestation and disease vectors
- ! Domestic and surrounding animals. Dr Robin found that the elephants surrounding SRS has a Trypanosoma infection.

Current situation of reproduction:

- ! Male: poor sperm quality (oligospermia and low motility) without proper ejaculate
- ! Female: regular cycle and sometimes CLP
- ! Health
- ! Male: low blood Phosphor level dan high creatinine level in urine
- ! Courtship: poor stamina
- ! Female: Good performance

Suggestions:

- ! Determine the right time for mating
- ! Continue health and reproduction analysis
- ! Determine the reproductive potency
- ! Provide new fertile male
- ! Protect animals and investigate diseases in rhino's

Recent Assessment at SRS

Robin Radcliffe

A Video is shown of the rhino breeding (15 March 2005)

The video was taken 7 days after Bina received prostaglandin treatment. Torgamba showed great interest in Bina but the courtship only lasted for a few hours, showing poor stamina. During the mating, intromission was successful and breeding occurred for 5 minutes. Actually, there were two breedings observed, the breeding in March being the second. The first one happened on 12 February 2005. During this one, Torgamba showed lack of interest and very brief intromission. After treatment of prolonged Corpus Luteum, there was rapid follicle growth which showed good courtship behavior, the estrous being better. Ovulation was determined by inspection of the female follicle 18 hours after mating.

B - SEPILOK RHINO CENTER, SABAH

Edwin Bosi

- ! SOS Rhino started in Sabah in November 2000.
- ! There is an In situ and ex situ program, a community program (with villagers), a research and development program
- ! The captive female rhino in Sabah is blind, causing problems when the male is aggressive during courtship.
- ! Studies conducted: Behavior study, hormone analysis, semen collection

C - PENINSULA MALAYSIA

Hashim Kadir

The goal of Peninsula Malaysia is to conserve wildlife. The major problem is poaching and encroachment, thus Rhino Protection Units (RPU) were established. These units patrol the area and collect various data concerning the distribution of wildlife and poaching and encroachment activities.

Translocation of Isolated Rhinos

Mohd Khan

There are a few areas where isolated rhinos exist in unviable situation. Some of these rhinos may be rescued. Options for them include translocation into Taman Negara National Park or placement in a managed breeding facility. A new Managed Breeding facility modeled on the SRS may be constructed in Peninsula Malaysia under next development plan. In the meantime, there may be some rhinos that need to be rescued sooner and they could be considered for placement in existing captive breeding facilities as recommended by the GMPB.

D - CINCINATI ZOO

Terry Roth

There are a pair of male and female Sumatran Rhino in the Cincinnati Zoo which have been proven fertile by the conception and birth of two calves. The female, named Emi, is 14 years old and Ipuh, the male is approximately 25 years old. Because of the location of the zoo, no large enclosure can be provided for the rhinos, so an intensive management approach was chosen. Regular USG examination was done to observe the ovary and blood samples were collected to determine the progesterone level.

Breeding was later successful but then another problem occurred, early pregnancy loss. These losses happened 5 times within 3 years and all in the first three months of gestation. Later was then concluded that the progesterone level during pregnancy wasn't sufficient to maintain it. So in the next pregnancy, progesterone preparations were given and Emi successfully delivered a male rhino, later named Andalas. This calve was born healthy and rapidly gain weight. Andalas was weaned in the age of 1 year.

Emi showed estrous cycle again 6 months after giving birth, but no mating was attempted. Emi conceived again after 6 consecutive mating and this time no hormone preparation was given, hoping that whatever caused insufficient progesterone amount during the previous pregnancy have been solved. The pregnancy was successful delivering a female rhino named Suci.

Now that the reproduction of the rhinos has been successful, the Cincinnati Zoo is focusing on supportive facilities for the rhinos like providing more shades, adequate mud wallows and more pools. Even though the reproduction was successful but it wasn't easy for it took 30 mating of Emi and Ipuh to produce Andalas and Suci. There are many reproduction problems after mating that happen, for instant there was no ovulation or ovulation did occur but there was no conception.

E - LOS ANGELES ZOO

Jeff Briscoe

There is one male Sumatran rhino in Los Angeles Zoo named Andalas, the rhino borne from Emi and Ipuh in Cincinnati Zoo. LA Zoo has a long enclosure that enables enough exercise for the animal. There is also sufficient shading from the natural vegetation. Feed given are of high quality, cut within 5 days. So far, observation on sexual activity hasn't been conducted since Andalas is but just 2 years old. He is not yet mature sexually, there is no urine spraying or erection but these signs are closely observed. It is estimated that such sexual activity will naturally occur when he is 4-5 years old.

F - EVACUATION OF RHINOS IN KERINCI-SEBLAT

Waladi Isnan

Kerinci-Seblat National Park is located in 4 provinces, surrounding it are villages that are good trappers (high trapping activity). The population continues to shrink; there is no evidence of poaching but also no sign of breeding (maybe because of the wide distribution of rhino). Also there is no determination of the characteristic of the population (sex, age, maturity). The last resort is evacuation of all animals. The problem is that conservation started too late so there are already huge losses in the rhino population.

The Rhinos in Kerinci-Seblat NP are located in the province of Bengkulu (South part of the National Park). The topography of the land consists of flat land and mountains. The flat lands are used for agriculture which then forces the rhinos into the mountains. This causes fragmentation of the habitat and increases depression to the life of rhinos. Another problem is the use of snares and RPU so far has dismantled hundreds of them from the park.

The only resolve for this situation is to rescue the last remaining 2-3 animals because it's difficult to protect them with so much natural barriers. If the animals are to be moved to the north part of the National Park, there will be too much roads and villages to be crossed. Thus this possibility is eliminated. The benefit of this capture cannot be determined before the rhinos are caught and examined. The rhinos caught will be deposited in SRS for propagation program.

Based on the observation of April 2004, the number of rhinos remaining in the Bengkulu part of Kerinci-Seblat National Park is only 2-3. The conditions are very critical and an evacuation program of these rhinos was recommended and approved.

! Preparations:

- ! consultation process with local stakeholders in the society and the government
- ! Survey of location of rhino and site of capture

! Evacuation:

- ! Capture
- ! Evaluation
- ! Translocation
- ! Evaluation

The story of 'Rossa the Rhino':

- ! In 1994 a road was established across the BBS National Park through the area with high rhino activity
- ! Later, there were many Rhino sightings especially at km 32. These rhinos also change their feeding habit by feeding in the vegetation near villages.
- ! In January 2004 a rhino that could easily be approached was found. She was later named Rossa.
- ! By April 2004 Rossa appeared in villages more frequently and a wallow was also discovered nearby a village.
- ! Than it was decided that Rossa needed strict protection and a special camp was constructed to accommodate the rangers assigned to protect Rossa.
- ! Protecting Rossa requires the full-time input of 5-7 rangers and RPU's.
- ! Probably Rossa should be translocated for her own safety to a secure location, for instance the SRS in Way Kambas

CONCLUSIONS

- ! The success of the Global Sumatran Rhino Managed Propagation is very limited.
- ! More information sharing is necessary.
- ! New founders are needed.
- ! There is a need of improve rhino management.

DISCUSSION ON STRUCTURE AND FUNCTION OF GLOBAL MANAGEMENT ON PROPAGATION BOARD

A better organization is needed to expand the captive rhino population through improved reproduction and possible rearrangements of the animals in captivity. It was also reiterated that the purpose of the captive breeding was to enhance the wild populations.

It was agreed a Board was needed for this purpose. This Board should provide general guidance as well as specific recommendations. Major objectives should be improvement of information and methodology on reproductive status and management.

In discussion of the composition and operation of the GMPB agreement was achieved in the following terms.

- ! The issues to be addresses are those of ex-situ or semi-captive/semi in-situ conservation of the Sumatran Rhino.
- ! Donor agencies have a vote.
- ! The GMPB is composed of the donors and the owners of the rhinos and each party has a vote.
- ! The work of the GMPB is conducted by the Technical Committee (TC).
- ! The Technical Committee (TC) is composed of persons if that have adequate time and knowledge and are not a member of GMPB .
- ! The Technical Committee (TC) should be odd numbered.
- ! Membership determination and election of Chair of the GMPB will be conducted bi-annually.
- ! Issues to be discussed are brought up by the Technical Committee
- ! The term 'Country Representatives' is changed to 'Range State Representatives'.
- ! Range State Members represent Indonesia, Peninsula Malaysia and Sabah.
- ! Institutional Members represent Yayasan SRS, Yayasan Mitra Rhino (YMR - Indonesian Rhino Foundation), U.S. Zoos, International Rhino Foundation, Malaysia Rhino Foundation, Asian Rhino Project, SOS Rhino Borneo, SOS Rhino.

INVENTORY OF CURRENT AND POTENTIAL AVAILABILITY AND FERTILITY OF RHINO FOR THE GLOBAL MANAGED BREEDING PROGRAM

The term Insemination in the variables of male rhino reproductive status is changed to conception. The followings are a recent update on the reproductive status of the Sumatran Rhinos in Breeding Centers.

Torgamba (*Male, SRS-Way Kambas, Indonesia*)

- ! No longer suffering cloudy eyes.
- ! Low phosphor level in the blood.
- ! Renal disease, high creatinine in the urine.
- ! No proper ejaculate available until now, oligospermia, high abnormality (80%), low motility.

Ipuh (*Male, Cincinnati Zoo, USA*)

- ! High production of abnormal sperm (40%) and low motility, but he is fertile.

Andalas (*Male, Los Angeles Zoo, USA*)

- ! Body weight 630 kg.
- ! No sexual activity known until now.
- ! Suffering temporary cloudy eyes recently.

Tanjung (*Male, Sepilok and Tabin, Sabah*)

- ! Age is 17 years old.
- ! There has been sperm seen, ejaculate volume about 10 ml.
- ! Body weight 520 kg.
- ! Masturbates frequently on a log or the cement floor
- ! Suffered mild capture myopathy before but has recovered, last week he was introduced to a female and responded well.
- ! The female is blind so reproductive management of these rhinos were conducted similar to those of horse.

Bina (*Female, SRS-Way Kambas, Indonesia*)

- ! Regularly produces prolonged Corpus Luteum.
- ! The discovery of a persistent hymen leads to the knowledge that there has been no pregnancy in the past.

Emi (*Female, Cincinnati Zoo, USA*)

- ! Her body weight is currently 710 kg due to lactation.
- ! Her cloudy eyes has been resolved.
- ! There is no reproductive pathology.

Suci (*Female, Cincinnati Zoo, USA*)

- ! Her current weight is 320 kg.
- ! There is no estrous cycle.

Rapunzel (*Female, Bronx Zoo, New York*)

- ! Geriatric. No changes.

Gologob (*Female, Sepilok and Tabin, Sabah*)

- ! Body weight is 520 kg.
- ! Better estrous cycle after hormone treatment.
- ! Eyes are blind.

REPRODUCTIVE STATUS FOR SUMATRAN RHINOS IN BREEDING CENTRES - SUMATRA FEMALES

March 2005

Dicerorhinus sumatrensis sumatrensis - Indonesia

Sex	Name	Captured/born	Ownership	Estimated age	Weight	Health	Estrous Cycling		Reproductive Pathology			Pregnancy			
							Cycling	How known	Pathology	Treatable	Tolerable	Mounting	Intromission	NOW	PAST
SRS -Way Kambas, INDONESIA															
♀	BINA	1991	* 1	21+	640		Y	All except PR	N			Y	Y	N	N
	Notes Regular prolonged CL formation														
Cincinnati Zoo, USA															
♀	EMI	1991	* 1	14	710		Y	PR	N			Y	Y	N	Y
	Notes Produced two calves in 2001 and 2004 - See Andalas and Suci. Lactating														
♀	SUCI	2004	* 1	1	320		N								
	Notes Born from Emi and Ipuh														
Bronx Zoo, USA															
♀	RAPUNZEL	1989	* 1	26+	520	Cloudy eyes	N	-US,-HO,+BE	Y	N	N	N	N	N	?
	Notes Showed some behavioral signs of estrous till '94. Pathology untreatable.														

Cycling: + = shown by, - = not shown by. BE = behavior, CO = copulation, MO = mounting, HO = hormonal assay, US = ultrasound, PR = pregnancy. VU = vulval discharge/swelling

REPRODUCTIVE STATUS FOR SUMATRAN RHINOS IN BREEDING CENTRES - SUMATRA MALES

March 2005

Dicerorhinus sumatrensis sumatrensis - Indonesia

Sex	Name	Captured/born	Ownership	Estimated age	Weight	Health	Mounting		Intromission			
							No Erection	+Erection	Partial	Full	Sperm	Conception
SRS -Way Kambas, INDONESIA												
♂	TORGAMBA	1985	* 2	26	700	Kidney problem	Y	Y	Y	Y	Y	N
	Notes Oligozoospermie and ~ 40% abnormal sperm. Proper ejaculation not yet observed											
Cincinnati Zoo, USA												
♂	IPUH	1990	* 1	26+	725		Y	Y	Y	Y	Y	Y
	Notes Sired two calves with Emi. ~ 40% of abnormal sperm.											
Los Angeles Zoo, USA												
♂	ANDALAS	2001	* 1	3.7			N					
	Notes Born from Emi and Ipuh. No sexual activity yet.											

REPRODUCTIVE STATUS FOR SUMATRAN RHINOS IN BREEDING CENTRES - BORNEO FEMALES

March 2005

Dicerorhinus sumatrensis harrissoni - Borneo

Sepilok & Tabin, SABAH

Sex	Name	Captured/born	Ownership	Estimated age	Weight	Health	Estrous Cycling		Reproductive Pathology			Pregnancy			
							Cycling	How known	Pathology	Treatable	Tolerable	Mounting	Intromission	NOW	PAST
♀	GOLOGOB	1994	* 3	24	520	Blind	Y	+BE,+VU, +HC	Y	?	Y	Y	Y	N	?
Notes															

Cycling: + = shown by, - = not shown by. BE = behavior, CO = copulation, MO = mounting, HO = hormonal assay, US = ultrasound, PR = pregnancy. VU = vulval discharge/swelling .

REPRODUCTIVE STATUS FOR SUMATRAN RHINOS IN BREEDING CENTRES - BORNEO MALES

Sex	Name	Captured/born	Ownership	Estimated age	Weight	Health	Mounting		Intromission						
							No Erection	+Erection	Partial	Full	Sperm	Conception			
♂	TANJUNG	1993	* 3	17	520				Y	Y	Y	N	Y	N	
Notes															

Frequently masturbating with log.

NOTES

- * 1 Agreement for a cooperative project between the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry of the Republic of Indonesia and the Sumatran Rhino Trust of the American Association of Zoological Parks and Aquariums for conservation of the Sumatran Rhino, signed 8 November 1990 by Ir. Sutisna Wartaputra and Dr. James Doherty.
Article 7. All the animals captured in Indonesia and their progeny will be jointly owned by PHPA and SRT.
- * 2 Agreement for a cooperative project between the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry of the Republic of Indonesia and Howletts and Port Lympne Foundation of the United Kingdom for Conservation of the Sumatran Rhino, signed 24 May 1985 by Prof. Dr. Ir. Rubini Atmawidjaya and Mr. Francesco Nardelli.
Article 6. All the animals captured in Indonesia and their progeny will be jointly owned by PHPA and HPLF.
- * 3 State Government of Sabah (Sabah Wildlife Department)

DISCUSSION ON RECOMMENDATION FOR FUTURE GLOBAL MANAGEMENT TO MAXIMIZE BREEDING SUCCESS

Comments and suggestions floored:

- ! To help mate Gologob (the blind Rhino, Sabah) and Tanjung, over aggressive behavior from the male can be reduced by distraction using food or the use of limited area and visible obstacles.
- ! The pair at Cincinnati Zoo remains together and continues to breed as long as possible. Disruption of the already productive pair (Emi and Ipuh) should be avoided because Ipuh is already old and each year counts. The breeding of Emi and Ipuh will be done again this late summer.
- ! The rhino Bina in Way Kambas will be observed by USG for evidence of conception within two weeks. Fertility of Torgamba (Male, Way Kambas) must be determined.
- ! New founders from Peninsula Malaysia and Kerinci-Seblat National Park can be useful in the propagation program.
- ! There are attempts to evacuate isolated rhinos from in Kerinci-Seblat National Park.
- ! For the rhino Rossa there are two available options. The first is the evacuation of the rhino from Bukit Barisan Selatan National Park hopefully to participate in the propagation program in SRS. The second option is translocation of the rhino to a location further away from the Park boundary.
- ! The potentials of different pairing between Bina-Ipuh and Emi-Torgamba should be considered. It is possibility to transport Ipuh to Indonesia or Torgamba to Cincinnati or Bina to Cincinnati or whichever way is possible to help determine the fertility status of both Bina and Torgamba, but much consideration should be taken concerning great stress problems that could occur due to sudden change of environment (from Cincinnati Zoo to SRS or the other way around).
- ! There should be consideration of the advanced age of Ipuh and Torgamba in any proposals for movement long distances.
- ! USA needs 3-4 month to process a permit of importing or exporting rhinos.
- ! Development of semen preservation and artificial insemination in rhinos.
- ! There must be an effort to convince the government of Malaysia to become involved in captive breeding again by emphasizing the success in Cincinnati Zoo as to ease the mobility of rhinos in Malaysia to captive breeding centers around the world.
- ! Malaysia is planning to do captive breeding plans next year but is estimated to be fully functional only after 3-4 years. Thus it is recommended that the Rhinos translocated from Peninsula Malaysia be included in the propagation program of captive breeding in available centers immediately. Later they will be returned to the new captive breeding center of Malaysia once it is established and functioning.
- ! Promoting rhino propagation through ecotourism.
- ! Research has been done in SRS on plants eaten by the rhinos, especially concerning the nutrition and antinutrition contents of the plants.

Conclusions

- ! Consider the evacuation of Rossa from BBS National Park to SRS for the propagation program. Before any movement is considered she must be physically examined for pregnancy.
- ! Determine whether Torgamba is fertile or not.
- ! Emi and Ipuh (Cincinnati Zoo) are to be paired again this late summer.
- ! Proceed with the rescue and translocation of rhinos in Malaysia.
- ! Support of efforts by DVMs. Radcliffe, Agil, Dedi, et al. to breed Bina and Torgamba in at least the next 6 months in Way Kambas.
- ! Human resource development in rhino propagation techniques in Indonesia and Malaysia.
- ! Run cost-benefit analysis on possible options for Bina and Torgamba if conception does not occur in 6 months time..
- ! Incorporate both in situ breeding centers and ex situ zoos and conservation centers in the propagation program.