



CURATOR'S REPORT 2004

Dedi Candra, M. Agil, Marcellus Adi, Nico Van Strien (eds)

Yayasan Suaka Rhino Sumatera, Way Kambas & Bogor, 1 November 2005

COURTSHIP ACTIVITIES 2004



Sumatran
Rhino
Sanctuary
Way Kambas National Park



Suaka
Rhino
Sumatera
Taman Nasional Way Kambas

CURATOR'S REPORT 2004

A Compilation of the materials published in the monthly Curator's Reports from the Sumatran Rhino Sanctuary (SRS) Managed Breeding Facility in Way Kambas National Park, Lampung Province, Indonesia.

Way Kambas, 1 November 2005

Author: **1. drh. Dedi Candra**, SRS Rhinos Curator/Veterinarian
Editors: **1. drh. Muhammad Agil**, SRS Veterinarian Consultant
2. drh. Marcellus Adi CTR, SRS Site Manager
3. Dr. Nico van Strien, IRF SE Asia Coordinator

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

TABLE OF CONTENTS	Page
THE SUMATRAN RHINO SANCTUARY FIELD PERSONNEL	3
Part 1 FOOD and WEIGHT TABLES	4
JANUARY	5
FEBRUARY	6
MARCH.....	7
APRIL	8
MAY	9
JUNE.....	10
JULY	11
AUGUST	12
SEPTEMBER	13
OCTOBER.....	14
NOVEMBER	15
DECEMBER.....	16
Part 2 GENERAL OBSERVATIONS and TREATMENT RECORDS	17
JANUARY	18
FEBRUARY	22
MARCH.....	23
APRIL	24
MAY	26
JUNE.....	27
JULY	29
AUGUST	32
SEPTEMBER	34
OCTOBER.....	35
NOVEMBER	37
DECEMBER.....	38
Part 3 GENERAL DAILY & DURING COURTSHIP ACTIVITY PATTERN	31
BINA.....	42
TORGAMBA	45
Part 4 FOOD CONSUMPTION AND WEIGHT	46
AVERAGE DAILY FOOD CONSUMPTION	46
WEIGHTS of RHINOS AT SRS.....	48
Part 5 SEXUAL BEHAVIOR OBSERVATION	49
BINA'S ESTROUS CYCLE 2004.....	50
REPRODUCTION DATA 2004	51
MATING BINA AND TORGAMBA.....	52
Part 6 ULTRASOUND RECORD	53
BINA ULTRASOUND EXAMINATION.....	54
RECORD ON ULTRASOUND, COURTSHIP AND MATING 2004.....	60
Part 7 BLOOD ANALYSIS RECORD	61
TORGAMBA BLOOD ANALYSIS (FEB-JULY 2004).....	62
TORGAMBA BLOOD ANALYSIS (AUG-DEC 2004)	63

THE SUMATRAN RHINO SANCTUARY FIELD PERSONNEL:

Site Manager : **drh. Marcellus Adi C.T. Riyanto**

Animal Curator/Veterinarian: : **drh. Dedi Candra**

Facilities Supervisor: : **Sumadi**

Keepers : **1. Dede Nurdin
2. Lamijo
3. Rakimin
4. Rois Subadri
5. Sugiono
6. Sarno
7. Sunarto
8. Yuhadi**

Household Keeper : **Suratno**

Cooker : **Temporary**

Driver/food collector : **Surono**

Guards : **POLHUT**

Part 1

FOOD and WEIGHT TABLES

PRINCIPAL FOOD ITEMS (in order of importance) :

SUPPLY : Collected in villages and outside SRS

Nangka (*Artocarpus heterophylla*),
Various *ficus sp*, various forest
Akar merah (*Mussaenda frondosa*),
Akar jitan (*Strophantus caudatus*),
Akar mencret (*Meremia peltata*),
Mahang hijau (*Macaranga triloba*),
Pulai (*Alstonia scholaris*),
Waru (*Mallotus mollucanus*),
Keputihan (*Clibadium surinaraense*),
Kasapan (*Croton caudatus*),
Torop (*Artocarpus elasticus*),
Luwungan (*Ficus hispida*)

BROWSE : SRS paddock

Anggrung (*Trema orientalis*)
Berasan (*Symplocos stenocephala*)
Teluntum (*Lumnitzera racemosa*)
Nangi (*Adina polycephala*)
Gandaria (*Bouea macrophylla*)
Salaman (*Eugenia sp*)
Puspa (*Schima wallichii*)
Melati Hutan (*Jasminum multiflorum*)
Sulangkar (*Lacoequata sp*)
Tiga Urat (*Cinnamomum sp*)
etc.... about 120 species of trees and lianas

FRUITS :

Banana,
Carrot,
Sweet-potato,
Pineapple,
Papaya,
Watermelon,
Rose apple,
Pumpkin,
Mango.

JANUARY 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Browse	Fruits	Weight kg	Browse	Fruits	Weight kg
1	24.0	6	-	36.0	5	-
2	20.0	7	-	24.0	7	-
3	20.0	6	-	28.0	5	-
4	0.0	0	-	29.0	5	-
5	18.0	7	-	51.0	5	-
6	0,0	6	-	37.0	5	-
7	30.0	6	-	30.0	6	-
8	21.0	6	-	21.0	6	-
9	0,0	0	-	21.0	6	-
10	10.0	6	-	22.0	6	-
11	19.0	6	-	11.0	6	-
12	12.0	4	-	31.0	4	-
13	11.0	0	-	14.0	2	-
14	10.0	6	-	21.0	4	-
15	16.5	4	-	29.0	4	-
16	8.0	4	-	30.0	4	-
17	11.0	4	-	19.0	4	-
18	23.0	4	-	23.0	1.5	-
19	17.0	4	-	25.0	3.5	-
20	19.0	3	-	26.0	2	-
21	18.0	4	-	23.0	3	-
22	31.0	4	-	24.0	3	-
23	23.0	4	-	20.0	5	-
24	16.0	4	-	24.0	5	-
25	19.0	5	-	25.0	5	-
26	16.0	5	-	23.0	6	-
27	14.0	6	-	21.0	4	-
28	35.0	4	-	35.0	4	-
29	14.0	4	-	21.0	3	-
30	19.0	4	-	20.0	4	-
31	16.0	6	-	20.0	3	-
Mean	16,5	4,5	-	25.3	4.4	-

Note: Weighing scale not functioning

FEBRUARY 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	22.0	4	-	24.0	4	-
2	17.0	6	-	23.0	5	-
3	0.0	0	-	21.0	5	-
4	20.0	4,5	-	31.0	5	-
5	12.0	4	-	19.0	4	-
6	14.0	3	-	52.0	3	-
7	14.0	3	-	39.0	5	-
8	19.0	4	-	30.0	3	-
9	16.0	4	-	32.0	5	-
10	14.0	5	-	28.0	4	-
11	20.0	4	-	16.0	5	-
12	17.0	4	-	38.0	5	-
13	20.0	5	-	32.0	4	-
14	31.0	4	-	33.0	5	-
15	23.0	5	-	33.0	5	-
16	21.0	2,5	-	35.0	2	-
17	29.0	5	-	20.0	1	-
18	13.0	6	-	48.0	7	-
19	21.0	6	-	32.0	5,5	-
20	23.0	6	-	28.0	5,5	-
21	21.5	5	-	18.0	5	-
22	24.0	6	-	28.0	6	-
23	21.0	5	-	43.0	6	-
24	15.0	6	-	32.0	6	-
25	18.0	6	-	27.0	4	-
26	20.0	6	-	43.0	5	-
27	14.0	5	-	38.0	4	-
28	0.0	7	-	36.0	4	-
29	19.0	5	-	17.0	4	-
30	0.0	0	-	0.0	0	-
31	0.0	0	-	0.0	0	-
Mean	21.1	4.3	-	28.3	4.2	-

Note: Weighing scale not functioning

MARCH 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	9.0	5	-	30.0	4	-
2	13.0	6	-	32.0	5	-
3	17.0	5	-	28.0	5	-
4	25.0	6	-	27.0	6	-
5	28.0	6	-	28.0	6	-
6	24.0	6	-	32.0	5	-
7	23.0	9	-	40.0	6	-
8	21.0	6	-	38.0	3.5	-
9	16.0	8	-	28.0	5	-
10	18.0	4	-	29.0	6	-
11	21.0	6	-	29.0	5	-
12	17.0	5	-	24.0	5	-
13	15.0	7	-	35.0	6	-
14	22.0	6	-	31.0	6	-
15	19.0	6	-	28.0	6	-
16	26.0	6	-	28.0	6	-
17	16.0	4	-	23.0	5	-
18	24.0	4	-	27.0	4	-
19	22.0	4	-	31.0	4	-
20	21.0	5	-	27.0	5	-
21	27.0	6	-	38.0	5	-
22	19.0	5	-	23.0	6	-
23	20.0	6	-	23.0	6	-
24	23.0	5	-	26.0	4	-
25	23.0	5	-	23.0	4	-
26	22.0	4	-	31.0	4	-
27	20.0	3	-	28.0	4	-
28	22.0	4	-	27.0	4	-
29	14.0	5	-	32.0	5	-
30	13.0	7	-	34.0	5	-
31	0.0	4	-	0.0	6	-
Mean	19.4	5.4	-	28.4	5.0	-

Note: Weighing scale not functioning

APRIL 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	15,0	4	-	33,0	6	-
2	7,0	4	-	20,0	5	-
3	18,0	5	-	25,0	3	-
4	15,0	4	-	29,0	4	-
5	29,0	6	-	25,0	3	-
6	24,0	3	-	27,0	6	-
7	17,0	6	-	32,0	5	-
8	18,0	4	-	49,0	4	-
9	27,0	4	-	27,0	4	-
10	23,0	4	-	38,0	4	-
11	22,0	4	-	31,5	4	-
12	13,0	5	-	30,0	5	-
13	20,0	4	-	31,5	4	-
14	23,0	5	-	25,0	0	-
15	30,0	5	-	23,0	4	-
16	25,0	5	-	23,0	5	-
17	33,0	4	-	33,0	4	-
18	27,0	5	-	27,0	5	-
19	22,0	3	-	27,5	5	-
20	24,0	5	-	23,0	3	-
21	28,0	3	-	21,0	6	-
22	23,0	6	-	24,0	5	-
23	21,0	5	-	30,0	5	-
24	24,0	4	-	32,0	5	-
25	26,0	5	-	34,0	4	-
26	17,0	5	-	34,0	5	-
27	21,0	4	-	31,0	5	-
28	16,0	5	-	31,0	4	-
29	21,0	4	-	31,0	4	-
30	24,0	4	-	31,0	5	-
31	0,0	0	-	0,0	0	-
Mean	21.1	4.3	-	28.3	4.2	-

Note: Weighing scale not functioning

MAY 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	20.0	5	-	27.0	5	-
2	24.0	5	-	27.0	4	-
3	22.0	5	-	32.0	5	-
4	28.0	5	-	34.0	5	-
5	31.0	5	-	22.0	5	-
6	31.0	6	-	27.0	6	-
7	31.0	5	-	24.0	5	-
8	31.0	5	-	30.0	5	-
9	25.0	4	-	41.0	5	-
10	26.0	4	-	26.0	4	-
11	20.0	3	-	27.0	3	-
12	28.0	4	-	26.0	5	-
13	20.0	5	-	28.0	4	-
14	19.0	7	-	16.0	7	-
15	39.0	7	-	29.0	7	-
16	22.0	5	-	23.0	5	-
17	22.0	4	-	27.0	6	-
18	26.0	5	-	22.0	5	-
19	21.5	4	-	17.0	4	-
20	18.0	4	-	19.0	3	-
21	17.0	5	-	24.0	5	-
22	9.0	4	-	23.0	5	-
23	18.0	5	-	27.0	5	-
24	15.0	5	-	19.0	6	-
25	36.0	5	-	33.0	6	-
26	20.0	5	-	33.0	4	-
27	27.0	4	-	24.0	4	-
28	18.0	4	-	29.0	4	-
29	19.0	6	-	23.0	3	-
30	12.0	5	-	21.0	7	-
31	33.0	2	-	27.0	3	-
Mean	23.5	4.7	-	26.0	4.8	-

Note: Weighing scale not functioning

JUNE 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	14.0	4		26.0	5	
2	21.0	4		7.0	4	
3	10.0	5		39.0	6	
4	25.0	6		21.0	6	
5	23.0	5		39.0	5	
6	17.0	5		29.0	5	
7	23.0	7		27.0	7	
8	19.0	4		33.0	4	633.0
9	19.0	4		23.0	3	
10	17.0	5		36.0	4	
11	22.0	3		28.0	5	
12	27.0	5		32.0	3	
13	13.0	5	638.0	31.0	5	
14	14.0	4		27.0	4	
15	24.0	2		29.0	4	
16	21.0	2		25.0	2	
17	24.0	4		21.0	4	
18	18.0	4		22.0	4	641.0
19	26.0	7.5		37.0	5	
20	24.0	2	642.0	25.0	5.5	
21	19.0	2		24.0	5	
22	26.0	2		21.0	4	
23	28.0	3		20.0	4	
24	18.0	2		22.0	4	
25	41.0	2		41.0	2	
26	24.5	3		24.5	5	
27	28.0	4		21.0	6	
28	29.0	3		23.0	5	
29	20.0	1		24.0	6	
30	18.0	2		26.0	9	
31	0.0	0		0.0	0	
Mean	21.1	3.6	640.0	25.9	4.5	637.0

JULY 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	25.0	5.0	-	33.0	8.0	-
2	32.0	5.0	-	33.0	6.0	-
3	28.0	3.0	-	32.0	7.0	-
4	24.0	5.0	-	255.0	7.0	-
5	25.5	5.0	-	29.0	6.0	-
6	24.0	5.0	-	22.0	4.0	-
7	23.0	5.0	-	34.0	6.0	-
8	26.0	4.0	-	28.0	5.0	-
9	25.5	4.0	-	215.0	6.0	-
10	19.5	6.0	-	23.0	7.0	-
11	21.5	4.0	-	21.0	7.0	-
12	32.5	4.0	-	39.0	7.0	-
13	29.0	5.0	-	27.0	7.0	-
14	29.0	5.0	-	17.0	4.0	-
15	26.0	4.0	-	29.0	4.0	-
16	29.0	5.0	-	30.0	5.0	-
17	30.0	4.0	-	29.0	4.0	-
18	25.0	4.0	-	39.0	4.0	-
19	21.0	5.0	-	26.0	4.0	-
20	31.5	4.0	-	23.0	4.0	-
21	27.5	6.0	-	47.0	6.0	-
22	28.0	6.0	-	30.0	6.5	-
23	35.0	6.0	-	29.0	5.0	-
24	21.0	6.0	-	25.0	5.0	-
25	26.0	7.0	-	38.5	6.0	-
26	26.0	7.0	-	15.0	6.0	-
27	20.0	6.0	-	45.0	6.0	-
28	22.5	7.0	-	35.0	6.0	-
29	31.0	4.0	-	29.0	4.5	-
30	34.0	6.0	-	16.0	4.0	-
31	28.0	7.0	-	30.0	4.0	-
Mean	26.7	5.1	-	29.1	5.5	-

Note: Weighing scale not functioning again

AUGUST 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	15.0	5.0	-	5.0	6.0	-
2	27.2	6.0	-	30.5	6.0	-
3	34.0	6.0	-	36.0	6.0	-
4	18.0	4.0	-	32.0	6.0	-
5	31.0	4.0	-	30.0	7.0	-
6	21.0	6.0	-	14.5	6.0	-
7	23.0	6.0	-	19.0	8.0	-
8	25.5	6.0	-	26.0	8.0	-
9	22.0	6.0	-	23.5	9.0	-
10	22.5	6.0	-	32.0	6.0	-
11	24.5	6.0	-	24.0	7.0	-
12	21.0	7.0	-	23.0	5.0	-
13	24.0	4.0	-	23.0	6.5	-
14	27.0	7.0	-	21.0	5.0	-
15	20.0	4.0	-	20.0	8.0	-
16	25.0	5.0	-	26.0	5.0	-
17	29.0	5.0	-	22.0	5.0	-
18	18.0	5.0	-	33.0	3.0	-
19	19.0	5.0	-	25.0	5.0	-
20	27.0	4.0	-	23.0	4.0	-
21	22.0	7.0	-	27.0	5.0	-
22	18.0	4.0	-	26.0	5.0	-
23	26.0	6.0	-	27.5	5.0	-
24	26.0	5.0	-	23.5	6.0	-
25	31.0	5.0	-	26.5	6.0	-
26	25.0	6.0	-	22.0	5.0	-
27	25.0	6.0	-	23.0	5.0	-
28	33.0	5.0	-	27.0	5.0	-
29	20.0	5.0	-	34.0	5.0	-
30	34.0	6.0	-	34.0	5.0	-
31	22.0	5.0	-	25.0	5.0	-
Mean	24.4	5.4	-	25.3	5.8	-

Note: Weighing scale not functioning

SEPTEMBER 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	33.0	4.0	-	32.0	4.5	-
2	27.0	5.0	-	29.0	5.5	-
3	32.5	5.0	-	35.0	6.0	-
4	26.0	6.0	-	34.0	7.5	-
5	37.0	6.0	-	26.0	6.0	-
6	24.0	6.0	-	20.0	6.0	-
7	29.0	5.0	-	29.0	8.5	-
8	23.0	6.0	-	45.0	5.0	-
9	30.0	6.0	-	37.0	5.0	-
10	30.0	5.0	-	33.0	6.0	-
11	29.0	5.0	-	41.0	4.0	-
12	24.0	4.0	-	40.0	4.5	-
13	27.0	6.0	-	33.0	4.5	-
14	26.0	5.0	-	34.0	4.0	-
15	25.0	5.0	-	32.0	4.0	-
16	28.0	3.0	-	28.0	4.0	-
17	31.0	3.0	-	44.0	4.0	-
18	34.0	4.0	-	47.0	4.0	-
19	27.0	6.5	-	38.0	4.0	-
20	22.0	6.0	-	46.0	2.0	-
21	24.0	5.0	-	44.0	5.0	-
22	26.0	4.0	-	28.0	3.0	-
23	24.0	5.0	-	30.0	8.0	-
24	34.0	5.0	-	37.0	5.0	-
25	34.0	7.0	-	28.0	5.0	-
26	28.0	8.0	-	35.0	6.0	-
27	21.0	6.0	-	34.0	5.0	-
28	27.0	6.0	-	31.0	0.0	-
29	26.0	6.0	-	39.0	7.0	-
30	30.0	7.0	-	26.0	6.0	-
31	0.0	0.0	-	0.0	0.0	-
Mean	27.1	5.2	-	33.4	4.8	-

Note: Weighing scale not functioning

OCTOBER 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	24.0	6.0	-	46.0	5.0	-
2	19.0	6.0	-	34.0	5.0	-
3	23.0	6.0	-	22.0	5.0	-
4	18.0	6.0	-	30.0	5.0	-
5	21.0	6.0	-	32.0	5.0	-
6	28.0	6.0	-	27.0	5.0	-
7	26.0	5.0	-	32.0	7.0	-
8	36.0	6.0	-	33.0	7.0	-
9	23.0	7.0	-	36.0	7.0	-
10	32.0	5.0	-	29.0	6.0	-
11	34.0	6.0	-	29.0	5.0	-
12	30.0	5.0	-	28.0	5.0	-
13	29.0	5.0	-	27.5	5.0	-
14	31.0	6.0	-	25.0	5.0	-
15	31.0	4.0	-	26.5	6.0	-
16	22.0	6.0	-	17.0	8.0	-
17	26.0	6.0	-	29.0	6.0	-
18	29.0	5.0	-	25.0	6.0	-
19	27.0	6.0	-	27.0	6.0	-
20	29.0	5.0	-	29.0	5.0	-
21	37.0	6.0	-	34.0	5.0	-
22	44.0	6.0	-	31.0	6.0	-
23	53.0	5.0	-	40.0	7.0	-
24	33.0	6.0	-	28.0	6.0	-
25	32.0	4.0	-	32.0	4.0	-
26	39.0	4.0	-	40.0	4.0	-
27	43.0	6.0	-	39.0	5.0	-
28	36.0	5.0	-	28.0	5.0	-
29	30.0	6.0	-	29.0	5.0	-
30	30.0	7.0	-	30.0	5.0	-
31	30.0	6.0	-	33.0	5.5	-
Mean	30.5	5.6	-	30.6	5.5	-

Note: Weighing scale not functioning

NOVEMBER 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	26.0	8,0		26.0	6.5	
2	23,0	4,0		37.0	3.5	
3	24,0	6,0		26.0	6.0	
4	33,0	9,0		41.0	5.5	
5	26,0	6,0	660.0	20.0	6.0	
6	28,0	7,0		35.0	8.0	
7	14,0	5,0		24.0	9.0	660.0
8	28,0	6,0		24.0	5.0	
9	33,0	7,0		29.0	6.0	
10	29,0	6,5		28.0	8.0	
11	30,0	5,5		32.0	6.0	
12	20,0	5,0		32.0	6.0	
13	35,0	7,0		29.0	6.0	
14	33,0	7,0		25.0	6.0	
15	30,0	7,0		23.0	5.0	
16	28,0	4,0		36.0	4.0	
17	21,0	4,0		27.0	4.0	
18	22,0	2,0		26.0	4.0	
19	33,0	6,0		35.0	5.0	
20	37,0	8,0		28.0	6.0	
21	27,5	7,0		29.0	6.0	
22	31,0	6,0		33.0	7.0	
23	31,0	6,0	652.0	31.0	6.0	
24	30,0	6,0		31.0	6.0	667.0
25	36,0	5,0		35.0	5.0	
26	17,0	5,0		33.0	5.0	
27	33,0	6,0		39.0	5.0	
28	31,0	4,0		31.0	4.0	
29	13,0	5,0		39.0	4.5	
30	29,0	4,0		34.0	4.0	
31	0,0	0,0		0.0	0.0	
Mean	26,8	5,6	656.0	29.6	5.4	663.5

DECEMBER 2004

FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight
	Browse	Fruits	kg	Browse	Fruits	kg
1	38,0	6,0		28.0	4.0	
2	34,0	6,0		30.0	4.0	
3	35,0	5,0		34.0	9.0	
4	21,0	5,0		26.0	7.0	
5	33,0	10,0		41.0	8.0	
6	35,0	7,0		33.0	8.0	
7	35,0	7,0		31.0	8.0	
8	31,0	5,0		39.0	8.0	
9	26,0	6,0		25.0	7.0	
10	27,0	7,0		31.0	9.0	
11	36,0	5,0		26.0	4.0	
12	23,0	4,0		36.0	4.0	
13	24,0	4,0		42.0	6.0	
14	31,0	8,0		34.0	7.0	
15	26,0	7,0		37.0	6.0	
16	29,0	6,0		35.0	4.0	
17	28,0	5,0		29.0	4.0	
18	34,0	4,0		36.0	6.0	
19	28,0	4,0		27.0	3.0	
20	30,0	5,0	659,0	40.0	4.0	
21	25,0	3,0		26.0	5.0	639.0
22	29,0	8,0		33.0	5.0	
23	25,0	6,0		38.0	6.0	
24	26,0	6,0		40.0	5.0	
25	32,0	6,0		32.0	6.0	
26	31,0	6,0		30.0	6.0	
27	31,0	6,0		40.0	6.0	
28	33,0	7,0		41.0	6.0	
29	32,0	5,0		21.0	6.0	
30	39,0	4,0		31.0	4.0	
31				29.0	4.0	
Mean	30,4	5,7	659.0	32.9	5.7	639.0

Part 2

GENERAL OBSERVATIONS and TREATMENT RECORDS

JANUARY 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - 1, 2, 5, 16 and 31 January Ultrasound examination. Result : details on attachment - Joined with Torgamba on 7 January - 9 January : did not come to the stall as always but still active in the forest - Joined with Torgamba on 27-28 January - Activities pattern attached on graphic
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 7 January and 27-28 January - 5 January : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with The Zink Sulfate (ZnSO₄) <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 4 January, treated with : Ambo and W for fertility (1x1) for 30 days <p>The Head (Scratch during courtship) 27 January</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Torgamba - Possibly stabbed by Torgamba's horn but no serious wound - Treated with Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition, the wound become healed
♂ TORGAMBA	<p>The Eye,</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 4 January treated with : BKK for kidney (2x1/2), Bilo, origin and Fit for stamina (2x1) for 30 days <p>The Head (Scratch during courtship)</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Bina - Possibly stabbed by Bina's horn but No serious wound - Treated with Hydrogen peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition, the wound become healed

REPRODUCTION♀ **BINA****Period of 7 January**

- Estrus signs was observed with detected a redness but no swollen or discharge
- Bina showed interest to be mounted; she did some behavior courtship (standing Heat) on 7 January: 08.19, 08.25, 08.35, 08.47 and 08.51. Good response from Torgamba only showed this day
- Separating on 8 January

Period of 26-28 January**26 January**

- Change of vulva : reddish and little swollen but no discharge
- 08. 47: Bina entered the center area and met Torgamba. Short time courtship without more interest from Torgamba
- 10.20 and 13.04 Bina mount Torgamba for 1 minute

27 January

- Morning: Bina was meeting close to the centre gate, an estrus signs was observe but unclear, only detected a slight redness of the vulva.
- 07.20 : joined in the center area and directly do serious courtship till Bina mount Torgamba (08.10 for 1 minute and 14.50 for 1 minutes)
- Bina showed interest to be mounted, she did some courtship behavior (standing Heat) at : 09.38, 09.50, 14.50, 23.27, 23.41 and 00.30)
- Keepers separating them because no respond after that

28 January

- From morning till afternoon, no more sexual activities and keepers separating them (15.32)

♂ **TORGAMBA****Period of 7 January**

- There were some serious courtship,
- Most of the mounting occurred in the morning
- Torgamba **mount** Bina 5 times : 08.19 for 3 minutes with penis erection, 08.25 for 5 minutes with penis erect 08.35 for 7 minutes with penis erection and flaps **intromission** (4 minutes), 08.47 for 2 minutes with full erection, and 08.51 for 33 minutes with full erection, **Full intromission** (31 minutes) and **ejaculation**.

Note :

There was **2 times full intromission/penetration** occurred on **7 January** hour 08.38-08.42 (flaps) and 08.53-09.24 (full)

Period of 26-28 January**26 January**

- No respond from Torgamba

27 January

- 07.20 Joined in the center area and directly do serious courtship, Torgamba show strong interest in courtship and mounting
- Torgamba mount Bina (09.38 for 1 minute, 09.50 and 14.50 for 1 minute) but no penis erection
- Afternoon until evening Torgamba shows very good interest but Bina mostly avoid. Lately Torgamba mount Bina at 23.27 for 5 minutes and 23.41 for 18 minutes with penis erection but no intromission. 00.30 Torgamba mount B for 5 minutes with penis erection and flaps intromission for 2 minutes but no ejaculation.

28 January

- From morning till afternoon, no more sexual activities and keepers separating them (15.32)

Note : Torgamba Mount 6 times on 27 January

There was **once intromission /penetration** occurred on **28 January**, hour 08.38-08.42 (flaps)

Details of courtship behavior between Bina (B) and Torgamba (T) on 7 January 2004

- 07. 00** Signs of estrous was observe on 7 January (morning): vulva looks redness but no swollen and discharge
- 07. 05** **B** and **T** joined in the centre area. Intense courtship occurs. **B** urine spray (07.41) and **T** urine spray (07.20, 07.26, 07.34, 07.49 and 08.10)
- 08. 18** **T** chin rest and **B** SH (standing Heat)
- 08. 19** **T** Mounting for 3 minutes, penis erect but no intromission
- 08. 24** **T** chin rest and **B** SH
- 08. 25** **T** Mounting for 5 minutes penis erect
- 08. 30** **T** urine spray
- 08. 34** **T** chin rest and **B** SH
- 08. 35** **T** Mounting for 7 minutes, penis erect and intromission (4 minutes) but only till flaps
- 08. 43** Courtship again for 3 minutes
- 08. 46** **T** chin rest and **B** SH
- 08. 47** **T** Mounting for 2 minutes and penis erect but no intromission
- 08. 50** **T** chin rest and **B** SH
- 08. 51** **T** Mounting for 33 minutes with penis erect, Full intromission (31 minutes) and ejaculation. Keeper was success collect semen from penis post mating but can't observation because mix with mud

Note:

- **T** mount **B** 5 times on 7 January : There was 2 times intromission/penetration occurred on January 7 hour 08.38 – 08.42 (Flaps), and 08.53 – 09.24 (Full)
- Semen Collect Examination on 7 January, Keepers was success collect **T**' semen (dropped from penis a little), but can't observation because to dirty with mud

F E B R U A R Y 2 0 0 4

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Joined with Torgamba on 28 February - 3 February : normal activities in the forest, did not back to her stall today but keepers follow and monitoring in the forest - 13, 16, 24 and 28 February Ultrasound examination : Result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - 22 February : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Joined with Bina on 28 February - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄)
♂ TORGAMBA	<p>The Eye</p> <ul style="list-style-type: none"> - Discharge in the left but no serious - Treated with Erlamycin (antibiotic eye ointment) and Zink Sulfate (ZnSO₄)

REPRODUCTION

♀ BINA	<p>Period of 28 February</p> <ul style="list-style-type: none"> - Estrus Signs was observed with detected a reddish and swollen but no discharge - Bina interest to be mounted but no response from Torgamba - Separating on 28 February
♂ TORGAMBA	<p>Period of 28 February</p> <ul style="list-style-type: none"> - During this period Torgamba did not show any strong interest in courtship and mounting - Separating on 28 February

MARCH 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Blood sample examination on 7 March (with leeches method by DR. Robin WR), Analysis in the SRS Laboratory. Result on the attachment - Joined with Torgamba on 11, 17, 21, 22 and 23 March - 7,13, 16 and 20 March Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - 8 March : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Joined with Bina on 11, 17, 21, 22 and 23 March - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄) <p>Allergic Skin,</p> <ul style="list-style-type: none"> - 13 March. Signs : looks so wet with red color, skin on foot and lips hyperemia, T 37.1 °C, mucous reddish and swollen - Hand feeding : Jackfruit (<i>Artocarpus heterhopyllus</i>), akar mencret (<i>Merremia peltata</i>) and lamtoro (leafs) and Papaya, sweet potato and banana fruits) - Diagnose : Allergic leaf or fruits - Treated with : Bekarbon/Norit 40 tabs and fresh fruit (banana 3 kg) and Ara Lebar (<i>Ficus sp</i>), whole body shower. - Latest condition : about a hour after become normal
♂ TORGAMBA	<p>Supplement (vitamin),</p> <ul style="list-style-type: none"> - 10 and 22 March (Neurobion 10 tablets)

REPRODUCTION

♀ BINA	<p>Period of 11 March</p> <ul style="list-style-type: none"> - No reaction <p>Period of 17 March</p> <ul style="list-style-type: none"> - No clear Signs of vaginal change except a slight redness - Bina mount Torgamba for 1 minute - Separating on 17 March <p>Period of 21-23 March</p> <ul style="list-style-type: none"> - 07.31 B approaching center and entered 08.07 signs of vulva : reddish and swollen but no discharge - No serious mating
♂ TORGAMBA	<p>Period of 11 March</p> <ul style="list-style-type: none"> - No reaction <p>Period of 17 March</p> <ul style="list-style-type: none"> - During this period, Torgamba did not show any strong interest in courtship and mounting. - Separating on 17 March <p>Period of 21-23 March</p> <ul style="list-style-type: none"> - No serious mating

APRIL 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Joined with Torgamba on 16 - 18 April - 2, 10 and 16 Ultrasound examination: result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 16 - 18 April - 16 April Ultrasound examination (testicle structure monitoring) - Success collect semen dropped from penis post mating on 16 April and found several spermatozoa under microscope (details on attachment) - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄)
♂ TORGAMBA	<p>The Eye</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>The Head (Scratch during courtship) on 16-18 April,</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Bina - Possibly stabbed by Bina's horn - No serious wound - Treated with Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition (2 days), the wound become healed

REPRODUCTION

♀ BINA	<p>Period of 16 - 18 April</p> <ul style="list-style-type: none"> - Estrus signs observed with detected a redness but no swollen or discharge - Bina showed interest to be mounted, she did some courtship behavior (standing heat) on 16 April: 20.04, 20.21 and 20.35
♂ TORGAMBA	<p>Period of 16 - 18 April</p> <ul style="list-style-type: none"> - There were some serious courtship on 16 April - Most of the mounting happened in the Night. - Torgamba mount Bina 3 times 16 April : 20.04 for 6 minutes with penis erection and flaps intromission (3 minutes), 20.21 for 6 minutes with penis erect and flaps intromission (3 minutes) and 20.35 for 20 minutes with penis erection and Full intromission (18 minutes) and ejaculation. <p>Note : There was 3 times intromission/penetration occurred on 16 April, hour 20.07-20.10, 20.23-20.26 (flaps) and 20.37-20.55 (full)</p>

Details of courtship behavior between Bina (B) and Torgamba (T) on 16 April 2004

- 08. 00** Estrus signs was observe on 16 April (morning) with detected a redness and little swollen but no discharge. Result of Ultrasound examination: Found one big active follicle (23 mm) in right ovary. Advice by Veterinarian: Mix **B** and **T** today.
- 14. 21** **T** entered to the center area first
- 14. 25** **B** entered to the centre area
- 14. 26** until 20.00 activities are normal (foraging, feed by keeper, urination, wallowing) and no courtship in this times.
- 17. 55** **T** wallowing for 5 minutes
- 18. 11** **B** wallowing for 4 minutes
- 19. 28** **B** urine
- 20. 03** **T** chin rest and **B** SH (Silent Heat)
- 20. 04** **T** Mounting for 6 minutes, penis erect and intromission (3 minutes) but only till Flaps
- 20. 20** **T** chin rest and **B** SH
- 20. 21** **T** Mounting for 6 minutes penis erect and intromission (3 minutes) but only till Flaps
- 20. 34** **T** chin rest and **B** SH
- 20. 35** **T** Mounting for 20 minutes with penis erect, full intromission (18 minutes) and ejaculation. Keepers ware success collects semen from penis post mating and found several spermatozoa under microscope.

Note:

- **T** mount **B** 3 times on 16 April : There was 3 times intromission/penetration occurred on April 16 hour 20.07 – 20.10 (Flaps), 20.23 – 20.26 (Flaps), and 20.37 – 20.55 (Full)
- Semen Collect Examination on 16 April, Keepers success collect **T**' semen (dropped from penis a little) and found several spermatozoa when monitoring under microscope (4 – 5 spermatozoa per object glass)

MAY 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Joined with Torgamba on 9,10, 21,22, 23 and 29 May - 4, 8 and 23 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 9,10, 21,22, 23 and 29 May - 27 May : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄)
♂ TORGAMBA	<p>The Eye, No discharge from both eyes</p> <p>Right Ear Wound (out side), on 21 May</p> <ul style="list-style-type: none"> - A wound 1 cm wide and about 1 cm long found in Torgamba ear in the morning of 21 May in the stall. - There was infection and inflammation - Cause : possibly stabbed by broken tree or Bina's teeth when courtship in the center area on 10 May - Treatment : Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment, SWAT (fly repellent ointment), Antibiotic tablets (Sulfamethoxazole and Trimethoprim 10 tablets for 5 days) and Anti inflammatory (Phenylbutazone 3 tablets for 3 days) - Latest condition: the wound healed too slow and still inflamed. Most possibility because the ear is rub too much and easy to hit by branches of trees or browse <p>Supplement (vitamin),</p> <ul style="list-style-type: none"> - 28 May (Hemaviton 10 tablets) <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 29 May : Bilo, G, Ambo and Fit (2x1)

REPRODUCTION

♀ BINA	<p>Period of 9 May</p> <ul style="list-style-type: none"> - No clear Signs of vaginal change accept a slight redness of the vulva. Separating on 9 April <p>Period of 29 May</p> <ul style="list-style-type: none"> - Bina was already approaching to the center area and did not want to move from gate to the center area. - 16.04 together with Torgamba and serious courtship from Bina but no response from Torgamba - Bina mount Torgamba 4 times for 1 minutes (16.35,16.49,18.42 and 20.45) - Separating on 29 April
♂ TORGAMBA	<p>Period of 9 May</p> <ul style="list-style-type: none"> - During this period, Torgamba did not show any strong interest in courtship and mounting. - Separating on 9 April <p>Period of 29 May</p> <ul style="list-style-type: none"> - No serious courtship, No reaction from Torgamba, he is always avoid. Separating on 29 April

JUNE 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Body weight 13 June : 638 kg and 20 June : 642 kg - Joined with Torgamba 24 June - 6, 9, 13, 19 and 24 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Body weight on 8 June : 633 kg and 9 June : 660 kg - Joined with Bina 24 June - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄)
♂ TORGAMBA	<p>Right Ear Wound (out side), On 25 June</p> <ul style="list-style-type: none"> - A wound still inflamed (swollen and dropped pus). This infection becomes heavy. Torgamba become very sensitive and stress when cleaning the wound. - Cause : possibly stabbed by broken tree or Bina teeth when courtship in the center area on June - Treatment : Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment, SWAT (fly repellent ointment), Antibiotic tablets (Sulfamethoxazole and Trimethoprim 10 tablets for 5 days) and anti inflammatory (Phenylbutazone 3 tablets for 3 days) and supplement (Hematopan and Biosalamin @ 5 ml) - Latest condition : Still inflamed

REPRODUCTION

♀ BINA	<p>Period of 24 June</p> <ul style="list-style-type: none"> - Since morning, Bina was already approaching and did not want to move from gate to the center area. - No clear Signs of vaginal change except a slight redness of the vulva. - Bina showed interest to be mounted, she did some Courtship Behavior (Standing Heat) on 24 June : 16.46, 17.21, 17.28, 18.12 and 18.17 - Separating on 25 June
♂ TORGAMBA	<p>Period of 24 June</p> <ul style="list-style-type: none"> - Some serious courtship occurs - Most of the mounting happened in the Night. - Torgamba mount Bina 5 times 16.46 for 2 minutes with penis erection, 17.21 for 2 minutes with penis erect, 17.28 for 2 minutes with penis erection, 18.12 for 2 minutes with penis erect and flaps intromission (1 minute), and 18.17 for 32 minutes with full erection, Full intromission (30 minutes) and ejaculation. <p>Note : There was 2 times intromission/penetration occurred on 24 June hour 18.13-18.14 (flaps) and 18.19-18.53 (full)</p>

Details of courtship behavior between Bina (B) and Torgamba (T) on 24 June 2004

- 09. 00** Estrus signs not clear in this period. Result of Ultrasound examination: right ovary found one big active follicle (25 mm). Advice by Veterinarian: Mix **B** and **T** to day.
- 14. 15** **B** entered to the centre area
- 14. 21** **T** entered to the centre area and direct interest to mating with running **B**
- 14. 30** **B** urine spray (and 14. 46)
- 15. 10** until 16. 35 to do serious courtship
- 16. 08** **B** urine spray
- 16. 45** **T** chin rest and **B** SH (Silent Heat)
- 16. 46** **T** Mounting for 2 minutes, penis erect but no intromission
- 17. 20** **T** chin rest and **B** SH
- 17. 21** **T** Mounting for 2 minutes, penis erect but no intromission
- 17. 27** **T** chin rest and **B** SH
- 17. 28** **T** Mounting for 2 minutes, penis erect but no intromission
- 17. 11** **T** chin rest and **B** SH
- 18. 12** **T** Mounting for 2 minutes, penis erect and intromission (1 minute) but only till Flaps
- 18. 16** **T** chin rest and **B** SH
- 18. 17** **T** Mounting for 32 minutes with penis erect, full intromission (30 minutes) helped by keeper and ejaculation. Keepers was success collect semen from penis post mating but can't observation because mix with mud
- 18. 57** Feed by keeper, together in front centre gate. After that, **B** urine spray entered to the centre cage for observation post mating. In this cage **B** we make condition still standing up (don't sleeping)

Note:

- **T** mount **B** 5 times on 24 June : There was 2 times intromission/penetration occurred on June 24 hour 18.13 – 18.14 (Flaps), and 18.19 – 18.53 (FULL)
- Semen Collect Examination on 24 June, Keepers success collect **T**' semen (dropped from penis a little) but can't monitoring because semen mix with the mud

JULY 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Body weight 9 July : 631 kg - Joined with Torgamba on 14 July - Joined again with Torgamba on 21 July - 2, 10, 14, 20 and 31 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 14 July - 17 and 18 July Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Body weight 19 July (631 kg) - Joined again with Bina on 21 July - Success collect semen dropped from penis post mating but can not observation under microscope because was mixed with mud - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄) <p>Supplement (vitamin),</p> <ul style="list-style-type: none"> - Neurobion 10 tablets <p>The Head (Scratch during courtship) on 21 July</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Torgamba - Possibly Stabbed by Torgamba's horn - No serious wound - Treated with Hydrogen peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition (2 days), the wound become healed <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 26 July. Treated with : Q for blood, Fit for stamina and W for fertility (2x1) for 30 days
---------------	--

♂ **TORGAMBA****The Eye,**

- No discharge from both eyes

Right Ear Wound (inside), On 10 July

- A wound still inflamed (swollen and dropped pus). This infection becomes heavy. Torgamba become very sensitive and stress when cleaning the wound. Torgamba looked weakness
- Cause : outside ear wound not healing yet and than make new wound (inside ear)
- Treatment : Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment SWAT (fly repellent ointment), Antibiotic tablets (Sulfamethoxazole and Trimethoprim 10 tablets for 5 days), analgesic (Neurobion 10 tablets) and Anti inflammatory (Phenylbutazone 3 tablets for 3 days) and Supplement (Hematopan and Biosalamin @ 5 ml)
- Special treatment : make hole in the wound with massage method for pus drainage
- Latest condition : still inflamed

The Head (Scratch during courtship)

- Some scratch were found after hard courtship with Bina
- Possibly Stabbed by Bina's horn but No serious wound
- Treated with Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment)
- Latest condition, the wound become healed

Supplement (vitamin),

- 23 and 31 July (Neurobion and Hemaviton 10 tablets)

Traditional Medicine,

- 26 July. Treated with : 'I' for general infection, 'Q' for blood, 'HL' for liver, 'Bilo' for brain (2x1), 'SH' and 'G' for spermatozoa (1x1) for 30 days

REPRODUCTION♀ **BINA****Period of 21 July**

- Since 20 July, Bina was already approaching and did not want to move from gate to the center area.
- No clear Signs of vaginal change except a slight redness of the vulva.
- Bina showed interest to be mounted, she did some courtship behavior (Standing Heat) on 21 July : 18.27, 18.54 and 18.57
- Separating on 24 July

♂ **TORGAMBA****Period of 21 July**

- There were some serious courtship on **21 July**
- Most of the mounting happened in the Night.
- Torgamba **mount** Bina 5 times **21 July**: 18.27 for 19 minutes with penis erection, 18.54 for 1 minute with penis erect, and 18.57 for 15 minutes with full erection, **Full intromission** (14 minutes) and **ejaculation**.

Note :

There was **once intromission /penetration** occurred on **21 July** hour 18.58.19.15(full)

Details of courtship behavior between Bina (B) and Torgamba (T) on 21 July 2004

- 09. 00** Estrus signs very clear in this period with detected a redness, little swollen and discharge. Result of Ultrasound examination: Found one big active follicle (32 mm) in left ovary. Advice by Vet: paired **B** and **T** to day
- 14. 13** **T** entered to the centre area
- 18. 19** until 18. 25 to do serious courtship
- 18. 26** **T** chin rest and **B** SH (Silent Heat)
- 18. 27** **T** Mounting for 19 minutes, penis erect but no intromission because location and position no good
- 18. 50** Hand feeding by keeper
- 18. 53** Courtship
- 18. 53** **T** chin rest and **B** SH
- 18. 54** **T** Mounting for 1 minute, penis erect but no intromission
- 18. 56** **T** chin rest and **B** SH
- 18. 57** **T** Mounting for 15 minutes with penis erect, full intromission (14 minutes) helped by keeper and ejaculation.
- 19. 19** Hand feeding by keeper
- 19. 48** **T** urine spray
- 19. 53** **T** foraging
- 19. 57** After that **B** can't entered to the center cage for observation post mating because pipe to this cage was broken. Only observation in the centre area, **B** we make condition still standing up (don't sleeping or wallowing)

Note:

- **T** mount **B** 3 times on 21 July : There was once intromission/penetration occurred on July 21 hour 18.58 – 19.15 (Full)
- Semen collect examination on 21 July, Keepers was success collect semen from penis post mating but can't observation because dirty with mud

AUGUST 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Body weight 2 August : 648 kg and 3 August : 631 kg - Joined with Torgamba on 15 August - 7, 12, 14, 20 and 31 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - 3 August : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Joined with Bina on 15 August - Body weight 15 August : 631 kg - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with The ZnSO₄ <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 28 August. Treated with : Origin, Fit for stamina, W and WL for fertility (2x1) for 60 days
♂ TORGAMBA	<p>The Eye</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 8 August. Treated with : I for general infection, HL, 2222 for liver and stress, G for spermatozoa, Bilo for brain, Origin, Top for stamina and sari for stress (2x1) <p>Right Ear Wound (inside), On 3 August</p> <ul style="list-style-type: none"> - Ear wound still inflamed (skin eruption, swollen and have pus) - General signs : stress and weakness - Cause : inside ear wound not healing yet - Special treatment : Every morning, afternoon and evening cleaned the wound with massage method in the stall - Treatment : Hydrogen Peroxide (H₂O₂) Antibiotic topical ointment, SWAT (fly repellent ointment), Antibiotic tablets (Sulfamethoxazole and Trimethoprim 20 tablets for 5 days), analgesic (Neuralgin 10 tablet) and Anti inflammatory (Phenylbutazone 3 tablets for 3 days), Tonophosphan compositum 5 ml for weakness - Treated also with Chinese Medicine special for wound (Double Prawn Herbal Oil for skin eruption and swelling) and Ichtiol for abscess - Latest condition, the wound slowly dry, healed and No inflammation - 25 August complete healed <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Sangobion 10 tablets (1,2,4,6,9 and 20 August) - Hemaviton 10 tablets (5 and 22 August)

REPRODUCTION	
♀ BINA	Period of 18 August - No mating in this month. Bina have Corpus Luteal Persistent (CLP) and delayed the estrus
♂ TORGAMBA	Period of 18 August - No mating in this month

SEPTEMBER 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Joined with Torgamba on 15 September - 6, 13 and 19 Ultrasound examination: result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 15 September - 22 September : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄) <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Hemaviton 10 tablets (16 September)
♂ TORGAMBA	<p>The Eye,</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Hemaviton 10 tablets (6 and 19 September)

REPRODUCTION

♀ BINA	<p>Period of 15 September</p> <ul style="list-style-type: none"> - No mating in this month, Bina have Corpus Luteal Persistent (CLP)
♂ TORGAMBA	<p>Period of 15 September</p> <ul style="list-style-type: none"> - No mating in this month

OCTOBER 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - On 2 October (24 hours): did not come to the stall as always but still active in the forest - Joined with Torgamba on 22 October - 9 and 16 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 22 October - Activities pattern attached on graphic

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄) <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 2 October, treated with Origin (2x1), Fit for stamina (2x1), W and WL for fertility (2x1), Fibri for normal cycle of oestrous (3x2) for 30 days
♂ TORGAMBA	<p>The Eye,</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>Traditional Medicine (Radiesthesi),</p> <ul style="list-style-type: none"> - 2 October, treated with I for general infection, HL for liver, G for spermatozoa (2x1), XN (1x1), Bilo for brain, Origin, vitamin/nature E (2x1) and Super for stamina (2x1) for 30 days <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Hemaviton and sangobion 10 tablets (17 October)

REPRODUCTION

♀ BINA	<p>Period of 22 October</p> <ul style="list-style-type: none"> - No clear Signs of vaginal change except a slight redness of the vulva. - Bina showed interest to be mounted, and some courtship behavior (standing Heat) at 17.45, 18.18, 18.36 and 22.17 - Separating on 22 September
♂ TORGAMBA	<p>Period of 22 October</p> <ul style="list-style-type: none"> - There were some serious courtship - Most of the mounting happened in the Night. - Torgamba mount Bina 4 times: 17.45 for 4 minutes without penis erection, 18.18 for 7 minutes with full erection, Full intromission (3 minutes), 18.36 for 19 minutes with full erection, Full intromission (15 minutes) and ejaculation. Torgamba mount Bina again 22.17 for 6 minutes but penis no erection <p>Note : There was 2 times intromission/penetration occurred on 22 October hour 18.22-18.55 and 18.39-19.54 (full)</p>

Details of courtship behavior between Bina (B) and Torgamba (T) on 22 October 2004

13. 29	B entered to the centre area
15. 01	T entered to the centre area and directly sprayed urine, walk and snores
15. 34	until 17. 25 to do serious courtship
17. 44	T chin rest and B SH (Silent Heat)
17. 45	T Mounting for 4 minutes, no erection penis. T was chasing B just after down from mounting.
18. 17	T chin rest and B SH
<u>18. 18</u>	T Mount B for 7 minutes, penis erect and full intromission (3 minutes) but no signs of ejaculation
18. 35	T chin rest and B SH
<u>18. 36</u>	T Mounting for 19 minutes with penis erect, full intromission (15 minutes) helped by keeper and ejaculation. Keepers could not succeed to collect semen from penis post mating
18. 57	Hand feeding by keeper
19. 48	T urine spray
19. 52	T foraging
19. 57	B was brought to center stall for observation post mating and might collect semen dripped from B vagina, but she did not want to enter the stall. We make condition for Bina to still standing (not sleep or wallowing for several hours) to make observation.
22.16	T chins rest and B SH
22.17	T Mount for 6 minutes but penis no erect

Note:

- **T** mount **B** 4 times on 22 October: There were two full intromission/penetration occurred on October 22 hour 18.22 – 18.55 (3 minutes) and 18.39 – 19.54 (15 minutes)
- There was not succeeded to do semen collection.

NOVEMBER 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - Body weight 5 November : 660 kg - Joined with Torgamba on 12,13 and 18 November - 4, 9 and 20 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - 7 November : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Joined with Bina on 12,13 and 18 November - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	Conjunctivitis on both eyes, <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄)
♂ TORGAMBA	The Eye <ul style="list-style-type: none"> - No discharge from both eyes

REPRODUCTION

♀ BINA	Period of 12 – 13 and 18 November <ul style="list-style-type: none"> - No mating in this month
♂ TORGAMBA	Period of 12 – 13 and 18 November <ul style="list-style-type: none"> - No mating in this month

DECEMBER 2004

EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> - 6 December : Blood collection for analysis in Mardi Waluyo Hospital (result on attachment) - Joined with Torgamba on 11 December - 1, 5 and 25 Ultrasound examination : result details on attachment - Activities pattern attached on graphics
♂ TORGAMBA	<ul style="list-style-type: none"> - Joined with Bina on 11 December - Success collect semen dropped from penis post mating but did not found spermatozoa (details on attachment) - Body weight 21 December : 639 kg - 28 December : Blood collection for analysis in the Mardi Waluyo Hospital (result on attachment) - Activities pattern attached on graphics

MEDICATION and SPECIAL TREATMENTS

♀ BINA	<p>Conjunctivitis on both eyes,</p> <ul style="list-style-type: none"> - Treated with the Zink Sulfate (ZnSO₄) <p>Vulva Wound,</p> <ul style="list-style-type: none"> - A wound 1 cm wide and about 2 cm long found on top of Bina's Vulva in the afternoon of 11 December in the center area. There was bleeding and inflammation but no infection yet. - It was serious wound and may stabbed by broken tree when Bina wallowing - Treatment : Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition, the wound become dry, healed and no inflammation <p>The Head (Scratch during courtship),</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Torgamba - Possibly Stabbed by Torgamba's horn - No serious wound - Treated with Hydrogen Peroxide (H₂O₂), Antibiotic topical ointment and SWAT (fly repellent ointment) - Latest condition, the wound become healed <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Hemaviton and sangobion 10 tablets (December)
♂ TORGAMBA	<p>The Eye</p> <ul style="list-style-type: none"> - No discharge from both eyes <p>The Head (Scratch during courtship)</p> <ul style="list-style-type: none"> - Some scratch were found after hard courtship with Bina - Possibly Stabbed by Bina's horn - No serious wound - Treated with Hydrogen peroxide, Antibiotic topical ointment and SWAT (fly repellent) - Latest condition, the wound become healed <p>Supplement (Vitamin and mineral),</p> <ul style="list-style-type: none"> - Hemaviton (3 and 5 December) and sangobion 10 tablets (5, 20 and 22 December)

REPRODUCTION	
♀ BINA	<p>Period of 11 December</p> <ul style="list-style-type: none"> - No clear Signs of vaginal change except a slight redness of the vulva. - Bina showed interest to be mounted, she did some courtship behaviour (standing heat) at : 08.07, 08.15, 08.23, 10.31, 11.21, 11.23, 15.51, 16.19, 16.36, 18.50, 19.27 and 19.43 - Separating on 12 December
♂ TORGAMBA	<p>Period of 11 December</p> <ul style="list-style-type: none"> - There were some serious courtships. Most of the mounting happened in the morning. - Torgamba was mount Bina 12 times 11 December: 08.07 for 6 minutes with penis erection, 08.15 for 3 minutes with penis erect, 08.23 for 39 minutes with full erection, Full intromission (35 minutes) and ejaculation, 10.31 for 22 minutes, 11.21 for 1 minute, 11.23 for 6 minutes, 15.51 for 6 minutes, 16.19 for 2 minutes, 16.46 for 8 minutes, 16.50 for 27 minutes, 19.27 for 13 minutes and 19.43 for 5 minutes (all without penis erect) <p>Note : There was once intromission/penetration occurred on 11 December hour 18.27-19.02 (full)</p>

Details of courtship behavior between Bina (B) and Torgamba (T) on 11 Dec 2004

07. 20	T had activities in the centre area since a day before
07. 58	B entered to the centre, 08.05 met with T and directly did serious courtship
08. 06	T chin rest and B SH
08. 07	T Mounting for 6 minutes with penis erect but no intromission
08. 14	T chin rest and B SH
08. 15	T Mounting for 3 minutes with penis erect but no intromission
08. 22	T chin rest and B SH (Silent Heat)
<u>08. 23</u>	T mounting for 39 minutes with penis erect, full intromission (35 minutes), helped by keeper and occur ejaculation. Keeper was success collect semen from penis post mating. After that, B cannot enter to the centre cage for observation post mating. Only observation in the centre area, B we make condition still standing (don't sleeping or wallowing for several times)
09. 36	T Wallowing 2 minutes
09. 44	T and B Feed by keeper
10. 30	T chin rest and B SH
10. 31	T Mounting for 22 minutes but penis no erect
10. 54	T Urine spray
11. 20	T chin rest and B SH
11. 21	T Mounting for 1 minute but penis no erect
11. 22	T chin rest and B SH
11. 23	T Mounting for 6 minutes but penis no erect
11. 33	T Urine spray (and 11.36, 11.43). B urine spray 11.36
11. 53	Feed by keeper
12. 03	T Urine spray
13. 02	T and B Wallowing till 14. 49 and 14.52 Feed by keeper
15. 27	B defecation
15. 28	T Foraging
15. 30	T Urine spray
15. 35	T defecation
15. 37	T Urine spray again
15. 50	T chin rest and B SH
15. 51	T Mounting for 6 minutes but penis no erect
15. 57	T Urine spray
16. 18	T chin rest and B SH
16. 19	T Mounting for 2 minutes but penis no erect
16. 26	Foraging
16. 35	T chin rest and B SH
16. 46	T Mounting for 8 minutes but penis no erect
16. 57	No courtship only normal activity likes a foraging, wallowing, etc until 18.45
18. 49	T chin rest and B SH
16. 50	T Mounting for 27 minutes but penis no erect
19. 26	T chin rest and B SH
19. 27	T Mounting for 13 minutes but penis no erect
19. 42	T chin rest and B SH
19. 43	T Mounting for 5 minutes but penis no erect
20. 00	After that T and B , no sexual activity

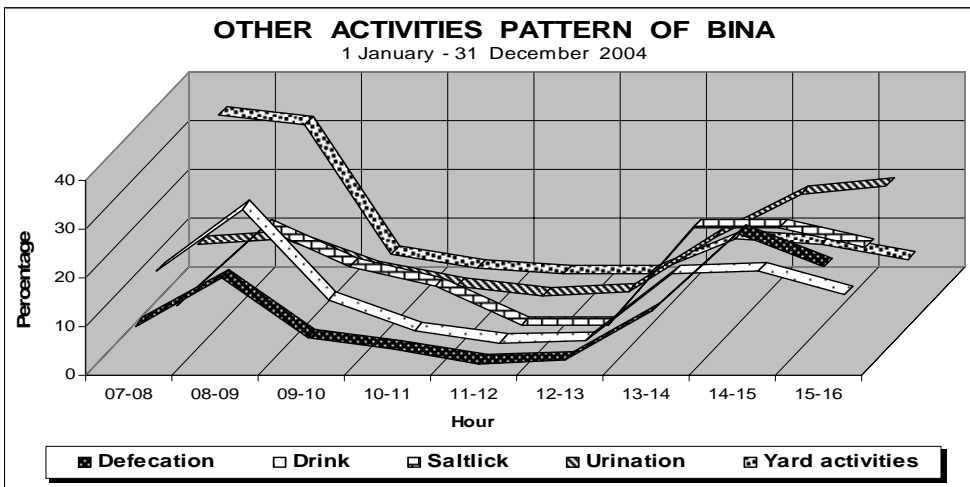
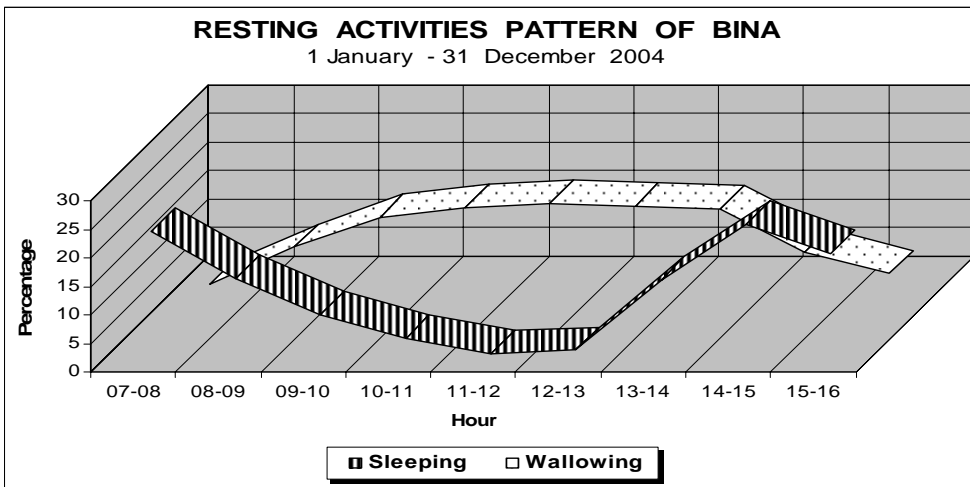
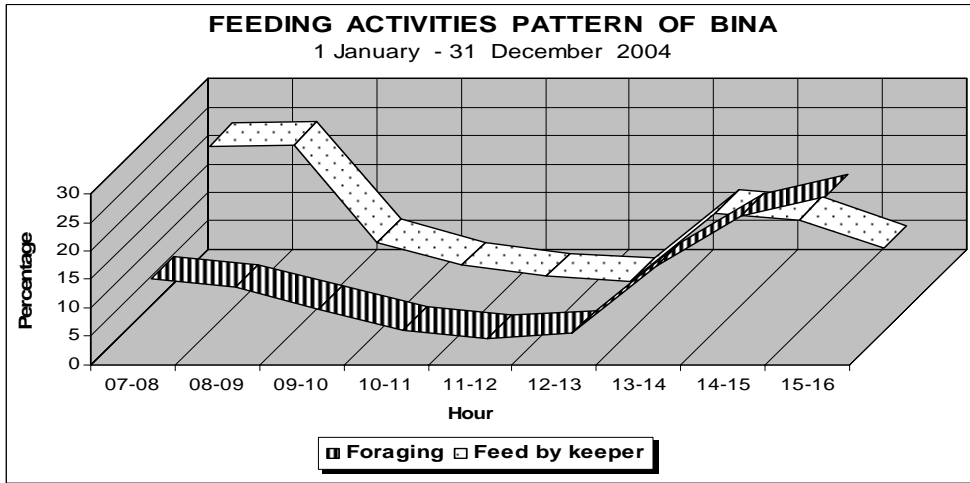
Note:

- **T** mount **B** 9 times on 11 December : There was once full intromission/penetration occurred on December 11 hour 08.27 – 09.02 (35 minutes)
- Semen collect examination on 11 December, keepers was success collect **T**' semen (dropped from penis, 10 cc) but can't monitoring because semen mix with the mud

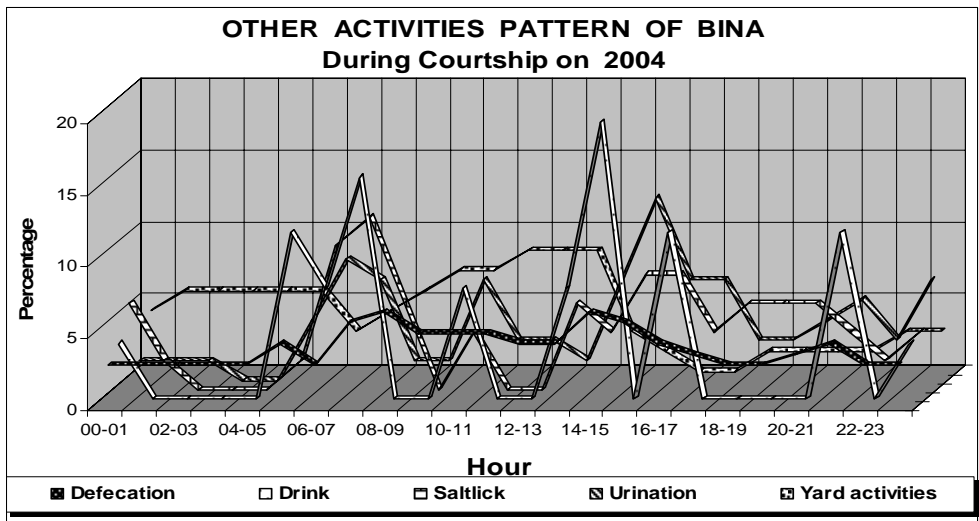
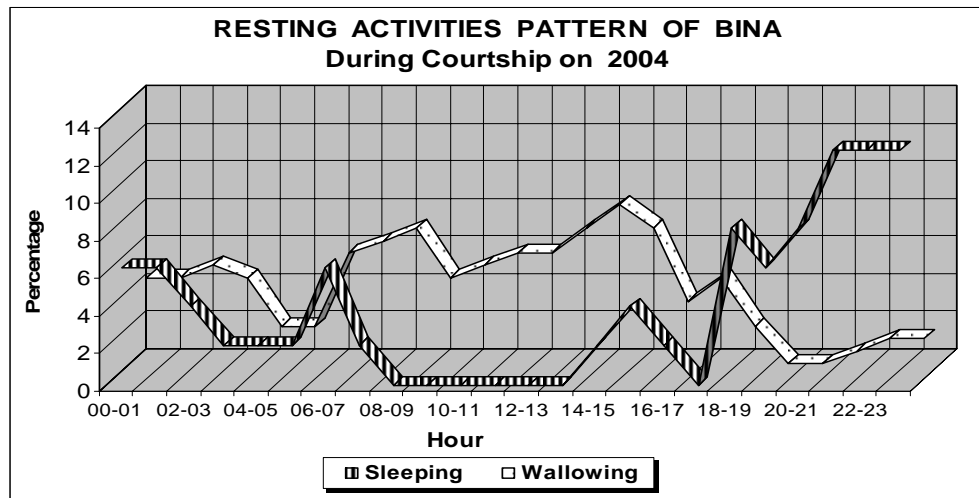
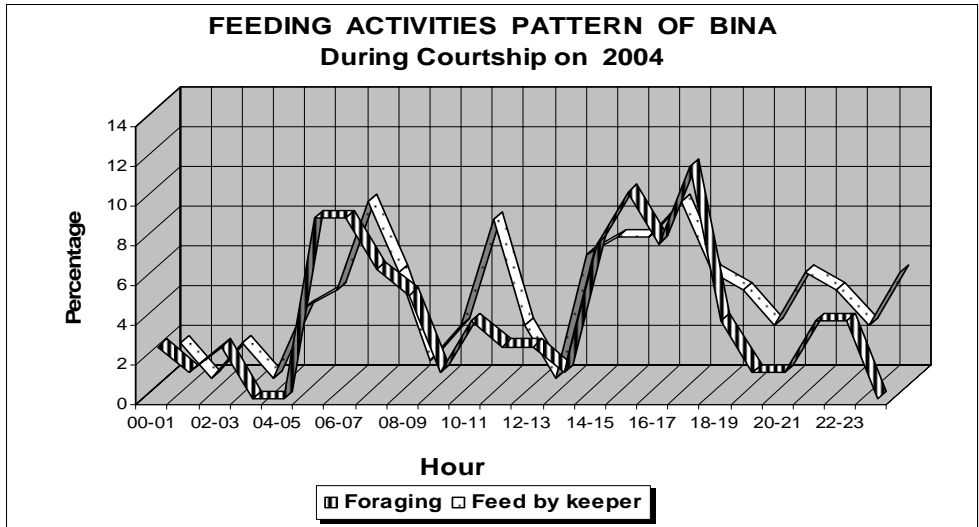
Part 3

GENERAL DAILY AND DURING COURTSHIP ACTIVITY PATTERN

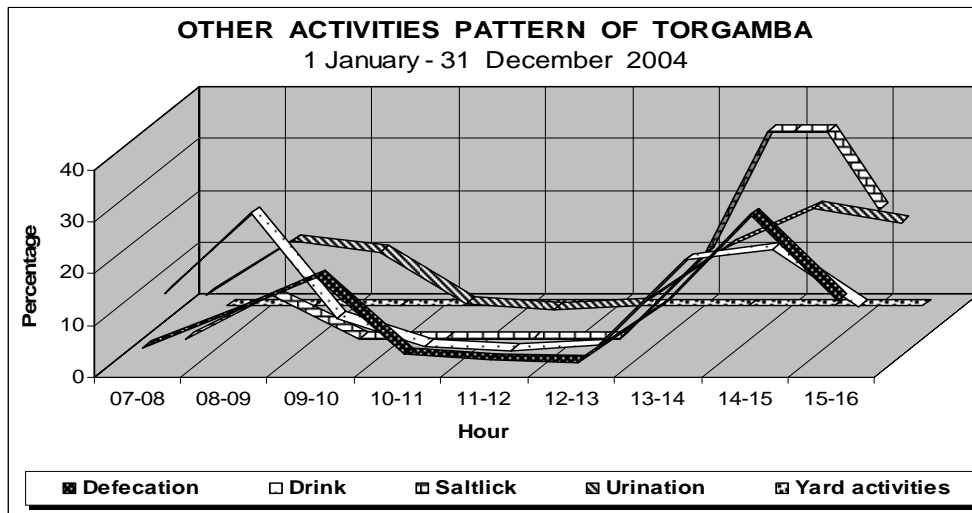
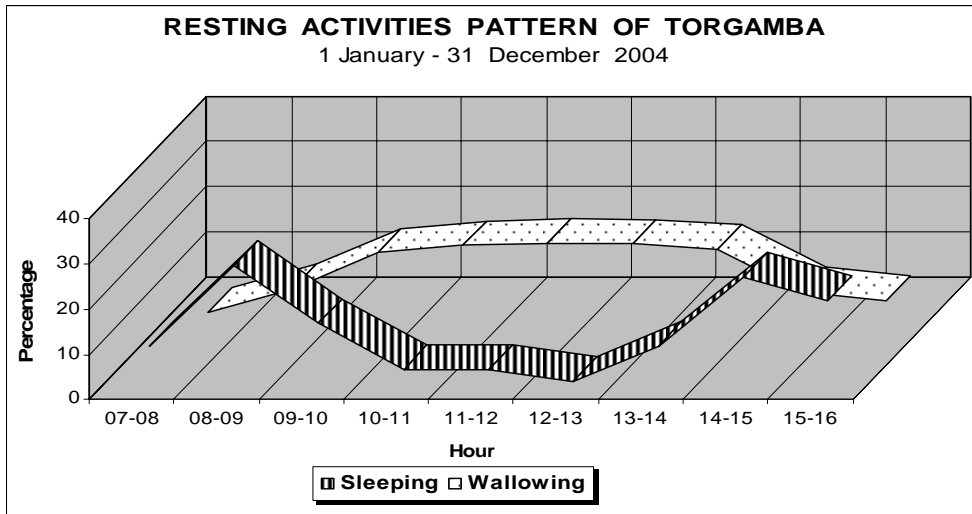
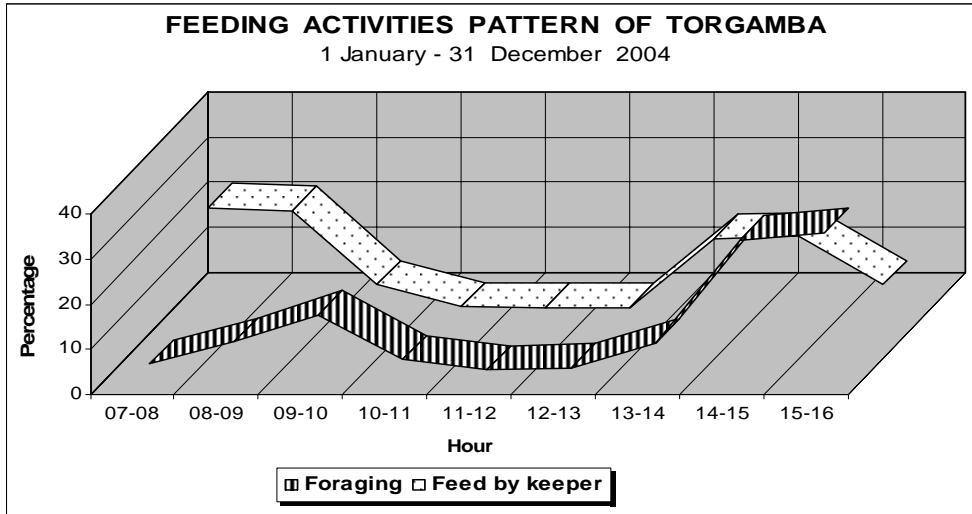
BINA



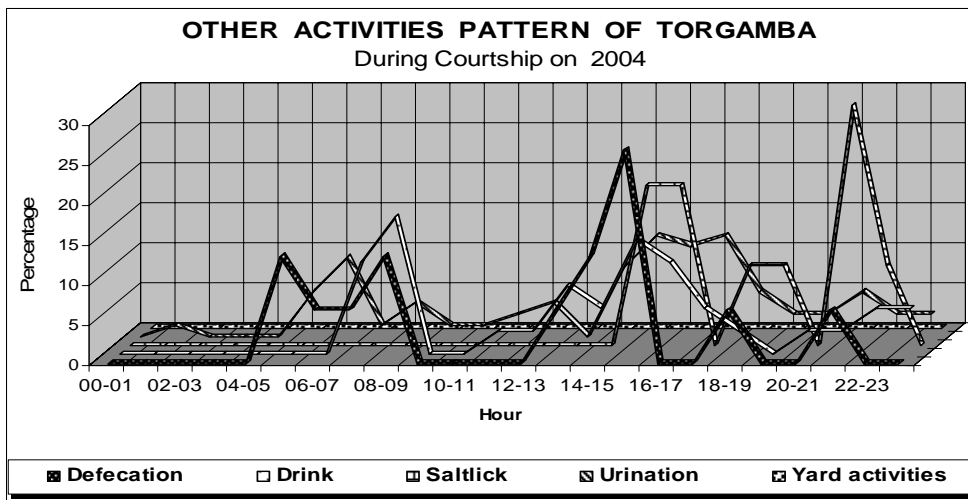
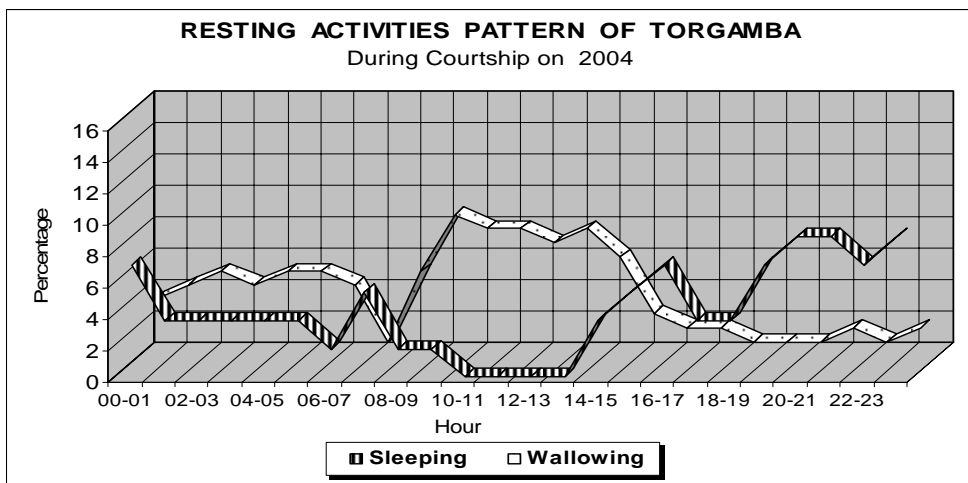
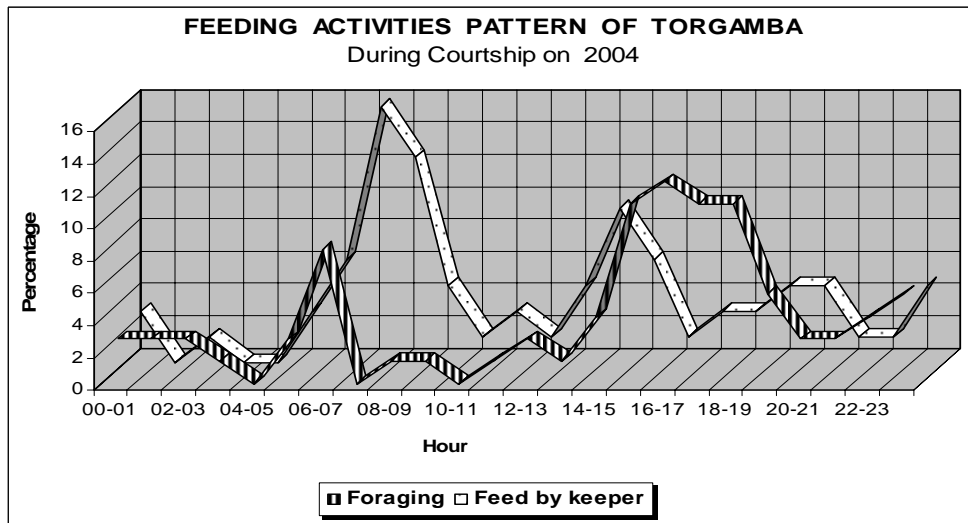
BINA



TORGAMBA



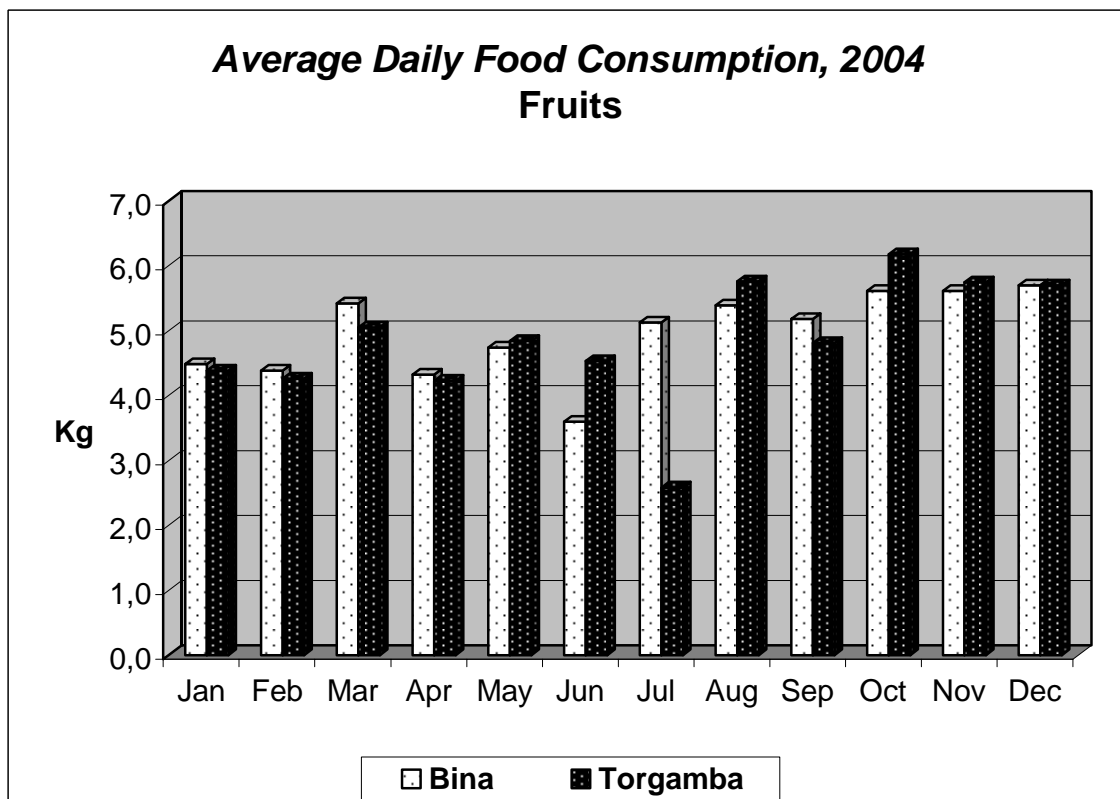
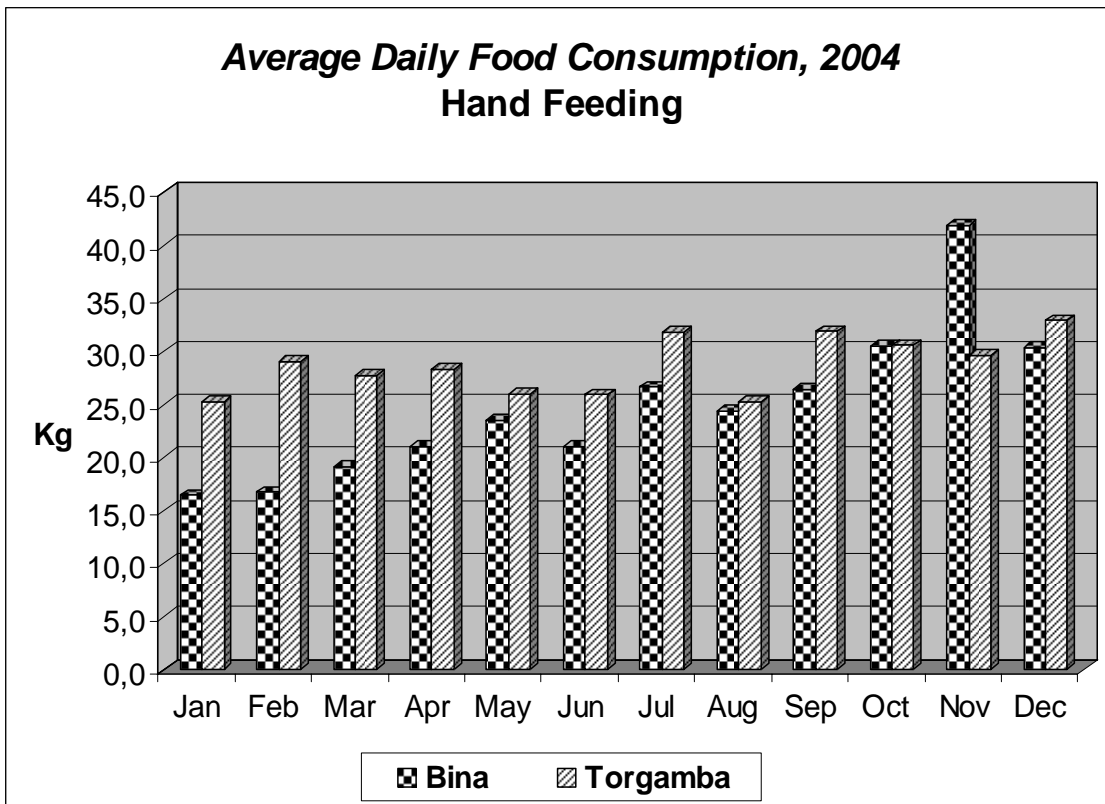
TORGAMBA

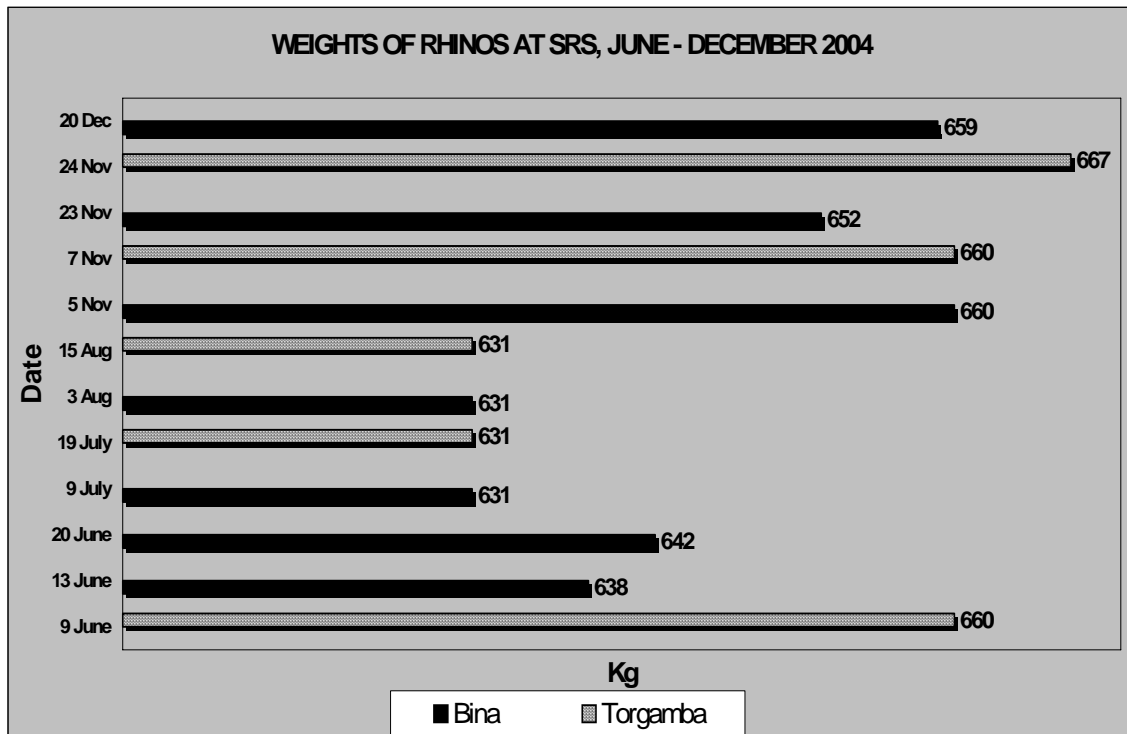
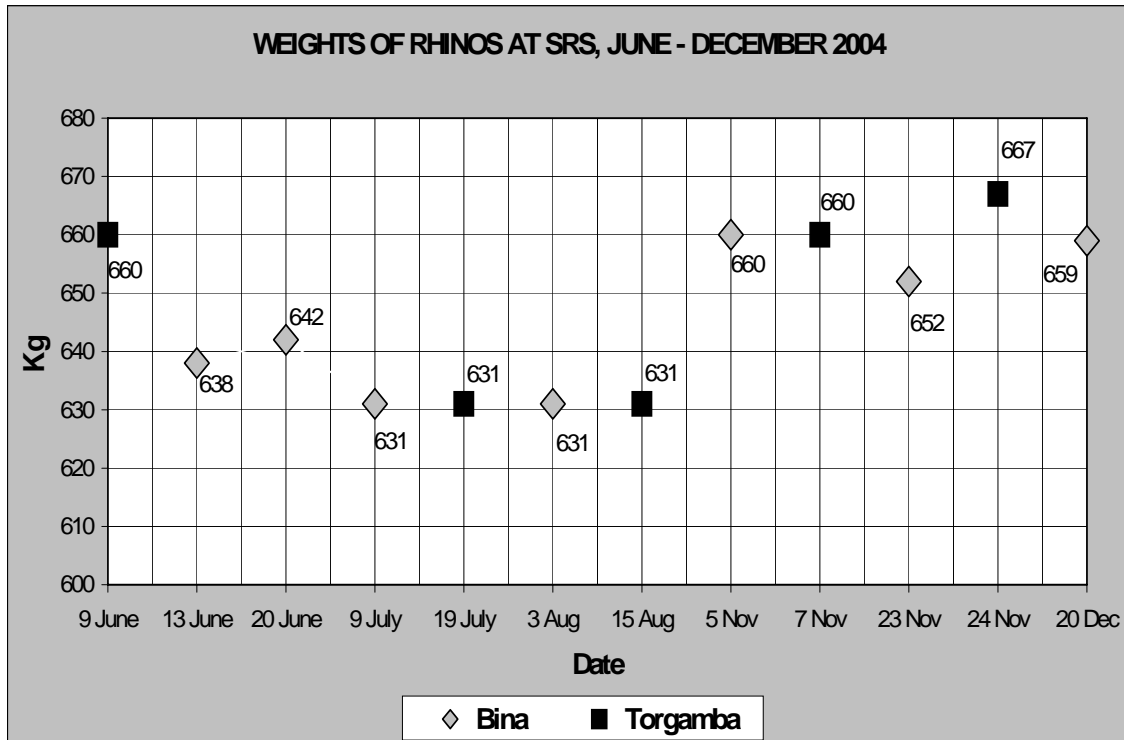


Part 4

FOOD CONSUMPTION AND WEIGHT

AVERAGE DAILY FOOD CONSUMPTION (BROWSE AND FRUITS)





Part 5

SEXUAL BEHAVIOUR OBSERVATIONS RECORDS

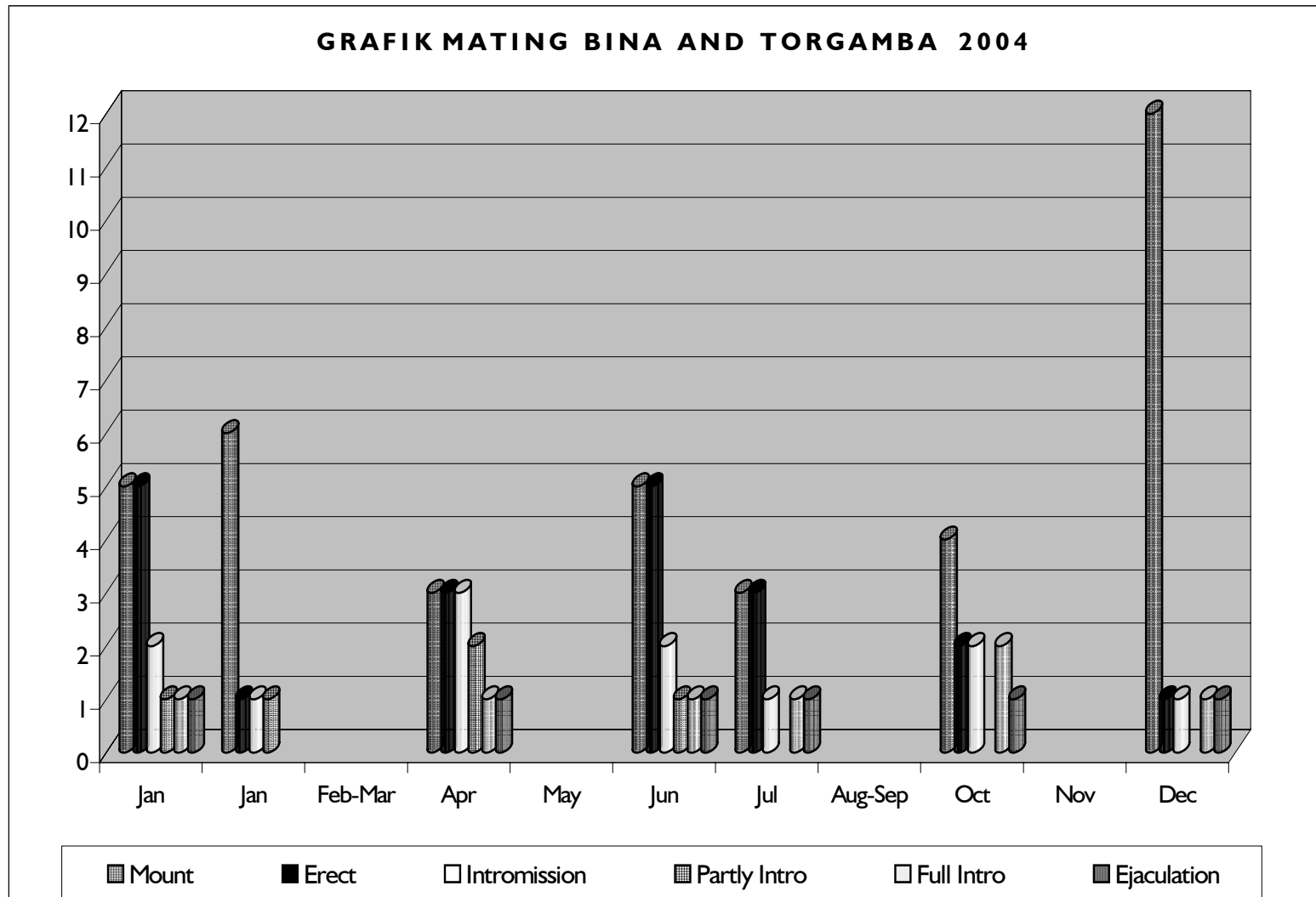
Bina's Estrous Cycle 2004

Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
1		1		1		1		1		1		1		1		1		1		1		1	
2		2		2		2		2		2		2		2		2		2		2		2	
3	23	3		3		3		3		3		3		3		3		3	Not Clear / Corpus Luteum Persisten (CLP)	3		3	
4		4		4		4		4	23	4		4		4		4		4			4		4
5		5		5		5		5			5		5		5		5		5		5		5
6		6		6		6		6		6		6		6		6		6		6	21	6	
7		7		7		7		7		7		7		7		7		7		7			7
8		8		8		8	26	8		8		8		8		8		8		8		8	
9		9		9		9			9		9		9		9		9		9		9		9
10		10		10	22	10		10		10		10	27	10		10		10		10		10	
11		11		11			11		11		11			11		11		11		11		11	
12		12		12		12		12		12	26	12		12		12		12		12		12	
13		13		13		13		13		13			13		13		13		13		13		13
14		14	31	14		14		14		14		14		14		14		14		14		14	
15		15			15		15		15		15		15		15		15		15		15		15
16	20	16		16		16		16		16		16		16		16		16		16		16	
17			17		17		17		17		17		17		17		17		17		17		17
18		18		18		18		18		18		18		18		18		18		18		18	
19		19		19		19		19		19		19		19		19		19		19		19	
20		20		20		20		20	20	20		20		20		20		20		20		20	
21		21		21		21		21			21		21		21		21		21		21		21
22		22		22		22		22		22		22		22		22		22		22	28	22	23
23		23		23		23		23		23		23		23		23		23		23			
24		24		24		24		24		24		24		24		24		24		24		24	
25		25		25		25		25		25		25		25		25		25		25		25	
26		26		26		26		26		26		26		26		26		26		26		26	
27		27		27		27		27		27		27		27		27		27		27		27	
28		28		28		28		28		28		28		28		28		28		28		28	
29		29		29		29		29		29		29		29		29		29		29		29	
30				30		30		30		30		30		30		30		30		30		30	
31				31				31				31				31				31			

Reproduction Data 2004

Month	Joined date	Estrous	Days of Courtship	Interval	Signs of Vulva	Mount	Erect	Intro	Intro. Partly	Intro Full	Times	Ejac	Semen
Jan	7-8	7	1	23	++	5	5	2	1	1	31	1	0
Jan	27-28	27	2	20	+	6	1	1	1	-	2	-	-
Feb	28	28	1	31	++	-	-	-	-	-	-	-	-
Mar	21-23	21	3	22	++	-	-	-	-	-	-	-	-
Apr	16-18	16	1	26	++	3	3	3	2	1	18	3	4-5
May	9-10	9	2	23	++	-	-	-	-	-	-	-	-
May	29-30	29	2	20	+	4 (B)	-	-	-	-	-	-	-
June	24-26	24	1	26	+	5	5	2	1	1	-	1	0
July	21-22	21	1	27	++	3	3	1	-	1	14	1	0
Aug-Sept	NC	NC	NC	Delay	NC								
Oct	22-23	22	1	NC	++	4	2	2	-	2	3 and 15	1	0
Nov	12	12	1	21	++	-	-	-	-	-	-	-	-
Dec	11-21	11	1	28	++	12	1	1	-	1	35	1	0

NC: No Courtship



Part 6

ULTRASOUND RECORDS

BINA ULTRASOUND EXAMINATION

JANUARY 2004

1 January, (morning)

- ✓ Right Ovary : Active follicle (small follicle 10 mm and medium follicle **14** mm)
- ✓ Left Ovary : Active follicle (medium follicle 12 mm)

2 January, (morning)

Result :

- ✓ Right Ovary : Active follicle (medium follicle 16 mm)
- ✓ Left Ovary : Active follicle (medium follicle 12 mm)

5 January, (morning)

Result:

- ✓ Right Ovary : Active follicle (large follicle **21** mm)
- ✓ Left Ovary : Active follicle (medium follicle 14 mm)

Planning : Joined B and T in the central area for mating

Result : No serious courtship in this day but they could not be separated and keepers continue monitoring

7 January,

Result: ESTRUS (Success Mating)

Result : ESTRUS

- ✓ T and B together in the center area for mating in this period
- ✓ T mount B 5 times with two intromissions (one full intromission) and ejaculation

27 January,

Result : ESTRUS

- ✓ T and B together in the center area for mating in this period
- ✓ T mount B 6 times with once intromissions (Flaps)

31 January, (morning)

Result:

- ✓ Right Ovary : Active follicle (several small follicles)
- ✓ Left Ovary : Active follicle (several small follicles)
- ✓ Uteri, left and right : vesicle/embryo not found

FEBRUARY 2004

13 February, (morning) and joined.

Sign of estrus: vulva redness and little swollen but no discharge

Result:

- ✓ Right Ovary : Active follicle (one small follicle with size 09 mm)
- ✓ Left Ovary : Active follicle (one big follicle with size 29x35 mm)
- ✓ Uteri left and right : vesicle/embryo not found

16 February, (morning) and 17 joined

Result:

- ✓ Right Ovary : Active follicle (one small follicle with size 10 mm)
- ✓ Left Ovary : Active follicle (one big follicle with size 29 mm)
- ✓ Uteri left and right : vesicle/embryo not found

24 February, (morning), no development

28 February, (morning) and joined

MARCH 2004**13 March, (morning)** no development**16 March, (morning)** no development

Result:

- ✓ Right Ovary : Active follicle (several small follicle, medium follicle with 15 and 16 mm) and CL?
- ✓ Left Ovary : follicle not found (no follicle development)

20 March, (morning)

Result:

- ✓ Right Ovary : Active follicle (several small follicles, large follicle with 17 mm) and CL?
- ✓ Left Ovary : follicle not found (no follicle development)

APRIL 2004**10 April, (morning)**

Result

- ✓ Right Ovary : Active follicle (large follicle **18 mm**)
- ✓ Left Ovary : Active follicle (small follicle) and corpus luteal

Planning : Joined B and T in the central area for mating

Result : Courtship have not been observed

16 April, (afternoon)

Result

- ✓ Right Ovary : Active follicle (large follicle **26 mm**)
- ✓ Left Ovary : Active follicle (small follicle)
- ✓ Planning : Joined B and T in the central area for mating

Result : ESTRUS

08. 20 T and B together in the center area for mating in this period

20. 04 until 22.55 T mount B 3 times with two intromissions (one full intromission) and ejaculation

MAY 2004**4 May, (morning)** no development**8 May, (morning)**. Signs of estrus was observed vulva redness and little swollen but no discharge

Result:

- ✓ Right Ovary : Active follicle (large follicle with size 20 mm)
- ✓ Left Ovary : Active follicle (small follicle with size 11 mm)
- ✓ Uteri left and right : vesicle/embryo not found

9 May, (morning) and paired because sign of estrus was observed vulva redness and little swollen but no discharge

Result:

- ✓ Right Ovary : Active follicle (several small and one small follicle with size 23 mm)
- ✓ Left Ovary : Active follicle (several small follicle with bigger size 11 mm)
- ✓ Uteri left and right : vesicle/embryo not found
- ✓ Planning : Joined B and T in the central area for mating. Courtship was observed but no successful mating

21 May, (morning) and Joined

Result

- ✓ Right Ovary : Active follicle (large follicle **23 mm**)
- ✓ Left Ovary : Active follicle (small follicle)
- ✓ Planning : Joined B and T in the central area for mating but no reaction

23 May, (morning) and Joined

Result

- ✓ Right Ovary : Active follicle (small follicle 15 mm and large follicle **26** mm)
- ✓ Left Ovary : Active follicle (several small follicle with bigger size 10 mm)
- ✓ Planning : Joined B and T in the central area for mating but no reaction

29 May, (morning) and joined again

Result

- ✓ Right Ovary : Active follicle (large follicle **29** mm)
- ✓ Left Ovary : Active follicle (several small follicle)
- ✓ Planning : joined B and T in the central area for mating but no reaction

JUNE 2004**6 June, (afternoon)**

Result

- ✓ Right Ovary : Active follicle (small follicle **14** mm)
- ✓ Left Ovary : Active follicle (very large follicle 32 mm): Cystic Follicle (?)

13 June, (morning)

Result:

- ✓ Right Ovary : Active follicle (two small and one big follicle with size 29 mm) and small CL 11.9 mm
- ✓ Left Ovary : Active follicle (small follicle)
- ✓ Uteri left and right : vehicle/embryo not found

19 June, (morning)

Result

- ✓ Right Ovary : Active follicle (2 big follicle, one follicle with size **18** mm)
- ✓ Left Ovary : Active follicle and it is very large follicle 32 mm: Cystic Follicle (?)

24 June, (afternoon)

Result : Estrus

- ✓ Right Ovary : Active follicle (large follicle **25** mm) and corpus luteal (10 mm)
- ✓ Left Ovary : Active follicle (large follicle 21 mm)

Planning : Joined B and T in the central area for mating

16. 46 Until 18. 43 T mount B 5 times with two intromission (once full intromission) and ejaculation

JULY 2004**2 July, (morning)** no development**10 July, (morning)** no development**14 July, (morning) and joined until 17**

Result:

- ✓ Right Ovary : Active follicle (one small follicle)
- ✓ Left Ovary : Active follicle (one big follicle with size 22 mm)
- ✓ Uteri left and right : vehicle/embryo not found

19 July, (morning)

Result:

- ✓ Right Ovary : Active follicle (one medium follicle with size 18 mm) and CL/CA 12 mm
- ✓ Left Ovary : Active follicle (several small follicle)
- ✓ Uteri left and right : vehicle/embryo not found

20 July, (morning)

Result :

- ✓ Right Ovary : No follicle
- ✓ Left Ovary : Active follicle and again very large follicle 32 mm
- ✓ Interpretation : CLP or other
- ✓ Planning : joined B and T in the central area for mating

21 July, (afternoon)

Result : Estrus. Bina and Torgamba were joined in the center area

19. 30 Till 29.42 T mount B 2 times with two intromission (once full intromission) and Ejaculation

- ✓ Planning : 31 July, Ultrasound again for monitoring pregnancy (follicle, corpus luteal or vehicle/embryo)

31 July, (morning): day 10

Result :

- ✓ Right Ovary : No follicle
- ✓ Left Ovary : Active follicle (small follicle) and Corpus Luteal (CL) with size 22 mm x 25 mm but could not found vehicle/embryo
- ✓ Interpretation : Ovulation and there were possibility for pregnancy
- ✓ Planning : 7 August: Ultrasound for monitoring pregnancy (follicle, corpus luteal or vehicle/embryo)

AUGUST 2004**7 August, (morning): day 17**

Result :

- ✓ Right Ovary : Active follicle (small follicle)
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 10 mm) and still found corpus luteal (CL) with size 25 mm x 27 mm but no vehicle/embryo
- ✓ Interpretation : A possibility of pregnancy
- ✓ Planning : 10 - 13 August: Ultrasound for monitoring pregnancy and regular cycle (active follicle, corpus luteal or vehicle/embryo)

12 August, (morning): day 22

Result :

- ✓ Right Ovary : Active follicle (small follicle)
- ✓ Left Ovary : Active follicle (several small follicle with the biggest size is 10 mm) and CL still exist with size 22 mm x 26 mm but couldn't found vehicle/embryo
- ✓ Interpretation : big chance for pregnancy and if B estrous will delay (several days because left ovary have CL)
- ✓ Planning : 14 - 15 August: Ultrasound for monitoring pregnancy or regular cycle (active follicle, corpus luteal or vehicle/embryo)

14 August, (morning) :

Result :

- ✓ Right Ovary : Active follicle (14 mm)
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 10 mm) and still found corpus luteal (CL) with size 22 mm x 18 mm but could not found Vehicle/embryo
- ✓ Interpretation : Estrous will delay for several days because left ovary still have CL
- ✓ Planning : 18 August: Ultrasound for monitoring

18 August, (morning) : CL no development

21 August, (morning) : CL no development

31 August, (morning) : CL no development

SEPTEMBER 2004

6 September, (morning) : CL no development

13 September, (morning) : CL no development

Result :

- ✓ Right Ovary : follicle not found
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 16 mm) and still found corpus luteal (CL) with size 20 mm x 17 mm but couldn't found vehicle/embryo

19 September, (morning) : CL no development

OCTOBER 2004

9 October, (morning) : CL no follicle development

16 October, (morning) :

Result : ESTRUS (Success Mating)

- ✓ Right Ovary : not found follicle
- ✓ Left Ovary : Active follicle with size 21 mm) and still found Corpus Luteal (CL) there
- ✓ Success mating with 4 times mounting and 2 full intromission (3 and 15 minutes)

NOVEMBER 2004

4 November, (morning)

Result :

- ✓ Right Ovary : Active follicle (several small follicle)
- ✓ Left Ovary : Active follicle (12 mm) and still found CLP (21 mm)

9 November, (morning)

Result :

- ✓ Right Ovary : follicle not found
- ✓ Left Ovary : Active follicle (9 mm) and still found CLP (16 mm)
- ✓ Uteri : big (swollen)

20 November, (morning)

Result : No pregnancy

- ✓ Right Ovary : Active follicle (small)
- ✓ Left Ovary : Active follicle (15 mm)

DECEMBER 2004

1 December, (morning)

Result :

- ✓ Right Ovary : Active follicle (14 mm)
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 13 mm) and still found corpus luteal (CL) with size 08 mm x 16 mm
- ✓ Interpretation : Good possibility for mating if follicle developed
- ✓ Planning : 4 - 5 December: Ultrasound for monitoring follicle development

4 December, (morning)

Result :

- ✓ Right Ovary : Active follicle (14 mm)
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 13 mm) and still found corpus luteal (CL) with size 16 mm
- ✓ Interpretation : big chance for mating if follicle developed
- ✓ Planning : 10 - 15 December: Ultrasound again for monitoring active follicle

11 December, (morning)

- ✓ Estrus. Bina and Torgamba together in the center area
- ✓ 07.58 till 19.43 T mount B 9 times with once full intromission and ejaculation
- ✓ Result : Mating with 9 times mounting and 1 full intromission (35 minutes)

25 December, (morning)

Result :

- ✓ Right Ovary : Active follicle (14 mm), and found corpus luteal (CL) with size 30 mm
- ✓ Left Ovary : Active follicle (several small follicle with the bigger size 13 mm) and still found corpus luteal (CL) with size 16 mm
- ✓ Uteri : vehicle/embryo not found
- ✓ Interpretation : Ovulation was occurred December 11 in the right ovary (CL)
- ✓ Planning : 30-31 December: ultrasound again for monitoring follicle development

RECORD ON ULTRASOUND, COURTSHIP AND MATING 2004

Ultrasound	#																																			
Day	15					19					21					5					10					15					19 20 21					3
January	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E															E																				
Ultrasound	#																																			
Day	4				10				16				19				27				31															
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29							
	E																																			
Ultrasound	#																																			
Day	2		5			10					14			17			21 22			5			10													
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E																																			
Ultrasound	#																																			
Day	15					20					26					5					10					14										
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
	E																																			
Ultrasound	# # # # #																																			
Day	18					22 23					5					12					16					22										
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E															E																				
Ultrasound	#																																			
Day	5				10				15				21				26				5															
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
	E																																			
Ultrasound	#																																			
Day	8			11			16			20			25			27			5			10														
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E																																			
Ultrasound	#																																			
Day	10		17					22					24			28			31			35			41											
August	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
Ultrasound	#																																			
Day	42		47				54				60				65				70																	
September	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
Ultrasound	#																																			
Day	72		76			80			87			93			5			9																		
October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E																																			
Ultrasound	#																																			
Day	10		13		18			21 22		5			15																							
November	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
	E																																			
Ultrasound	#																																			
Day	18		21		28					5			10			14			20																	
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	E																																			
x Full Intromission x Mating x Paired # Ultrasound E Estrus																																				

Part 7

BLOOD ANALYSIS RECORDS

RHINOS BLOOD ANALYSIS (FEB - JULY 2004)

No.	Test	Units	Value	22-Feb		08-Mar		27-Mei		18-Jul		21-Jul	
				Torgamba	Torgamba	Torgamba	Torgamba	Bina	Torgamba				
	CHEMISTRY		Normal	Morning	Morning	Morning	Morning	Noon					
1	Glukose	mg/dl	70 + / - 25	71		73		60		80		80	
2	Bilirubin Total	mg/dl	0.3 + / - 0.2	0.32		0.38		0.44		0.64	H	0.67	H
3	Direc	mg/dl		0.08		0.16		0.31		0.20		0.21	
4	Indirec	mg/dl		0.24		0.22		0.13		0.44		0.46	
5	Ureum	mg/dl		30.8	H	22	H	27.6	H	23.9	H	33.2	H
6	Creatinin	mg/dl	1.5 + / - 0.5	1.91		2		1.81		1.89		1.45	
7	Cholesterol	mg/dl		48		31				36		38	
8	Trigliseride	mg/dl		21						40		13	
9	Uric Acid	mg/dl		1.38		1.2		1.73		1.87		1.02	
10	Total Protein	g/dl	7.5 + / - 1.0	7.31	L	6.32	L	9.49	H	8.04		6.67	
11	Albumin	g/dl	3.0 + / - 1.0	4.12	H	3.53		3.80		3.39		3.40	
12	Globulin	g/dl	5.0 + / - 1.0	3.21	L			5.69		4.11		3.27	
13	SGOT (AST)	IU/L	80 +/- 30	126	H	120	H	117	H	107		61	
14	SGPT (ALT)	IU/L	15 +/- 5	38		45	H	21	H	113	H	22	H
15	LDH	IU/L						212 - 328		1142	H	1012	H
16	HOL Cholesterol									11		4	
17	LDL Cholesterol									17		31	
18	Gamma GT												
19	Fosfatase Alkali	IU/L											
HEMATOLOGY													
1	Hemoglobin	gr / dl	13 - 14.1	12.7	L	13.3		14		12	L		
2	Lekosit (WBC)	x 10 ³ / uL	7.8 - 11	9.1		9.35		9.8		9.9			
3	Eritrosit (RBC)	x 10 ⁶ / uL	5.37 - 5.45	4.76	L	4.56	L	5.32	L	4.67	L		
4	Hct (PCV)	%	34 - 45	38.4		38		43.5		36.9			
5	MCV	FL (u3)	62 - 84	80.7		80.2		81.8		79			
6	MCH	P gr		26.7		27.1		26.3		25.7			
7	MCHC	gr / dl	31 - 38	33.1		33.8		32.2		32.5			
8	Trombosit (PLT)	x 10 ³ / uL		236				218		230			
9	LED	/ jam											
DIFFERENTIAL													
1	Limfosit	%											
2	Netrofil	%											
3	Monosit	%											
4	Eosinofil	%											
5	Basofil	%											
	Hepatitis			Negatif									

H : HIGH

L : LOW

RHINOS BLOOD ANALYSIS (AUG - DEC 2004)

No.	Test	Units	Value	03-Agust		22-Sep		07-Nop		06-Des		28-Des	
				Torgamba		Torgamba		Torgamba		Bina		Torgamba	
	CHEMISTRY		Normal	Noon	Morning	Morning	Morning	Morning	Morning				
1	Glukose	mg/dl	70 +/- 25	116	H	86		89		91		99	H
2	Bilirubin Total	mg/dl	0.3 +/- 0.2	0.50		0.34		0.80	H	0.71	H	1.02	H
3	Direc	mg/dl		0.25		0.18		0.31		0.29		0.31	
4	Indirec	mg/dl		0.25		0.16		0.29		0.42		0.71	
5	Ureum	mg/dl		21	H	-		30.5	H	9.47		56.62	H
6	Creatinin	mg/dl	1.5 +/- 0.5	1.62		1.8		1.86		1.10		1.90	
7	Cholesterol	mg/dl						57		74		80	
8	Trigiseride	mg/dl						50		11		42	
9	Uric Acid	mg/dl		0.73				1.6		0.5		3.2	
10	Total Protein	g/dl	7.5 +/- 1.0	7.77		7.2		8.53	H	7.89		8.97	H
11	Albumin	g/dl	3.0 +/- 1.0	3.87		4.0		4.04	H	3.66		3.99	
12	Globulin	g/dl	5.0 +/- 1.0	3.90		3.2		4.49	L	4.23		4.98	
13	SGOT (AST)	IU/L	80 +/- 30	96		96		86		85		97	
14	SGPT (ALT)	IU/L	15 +/- 5	38	H	21	H	36	H	11		25	H
15	LDH	IU/L		2854	H			785	H	1059	H	973	H
16	HOL Cholesterol												
17	LDL Cholesterol												
18	Gamma GT					17							
19	Fosfatase Alkali	IU/L				96							
HEMATOLOGY													
1	Hemoglobin	gr / dl	13 - 14.1	13.9		14.8	H	11.3	L	17.2	H	12.9	
2	Lekosit (WBC)	x 10 ³ / uL	7.8 - 11	8		8.9		12.2	H	10.6		11	
3	Eritrosit (RBC)	x 10 ⁶ / uL	5.37 - 5.45	5.32	L	5.64	H	4.33	L	6.65	H	4.87	L
4	Hct (PCV)	%	34 - 45	42.1		42.4		35.5		52	H	39.7	
5	MCV	FL (u3)	62 - 84	79.1		75.2		82.0		78		81.5	
6	MCH	P gr		26.1		26.2		26.1		25		26.5	
7	MCHC	gr / dl	31 - 38	33		34.9		31.8		33.1		32.5	
8	Trombosit (PLT)	x 10 ³ / uL		149		149		280		89		198	
9	LED	/ jam				115	H						
DIFFERENTIAL													
1	Limfosit	%				27						40	
2	Netrofil	%				60						56	
3	Monosit	%				7						0	
4	Eosinofil	%				6						2	
5	Basofil	%				0						0	

H : HIGH

L : LOW