

**S**umatran  
**R**hino  
**S**anctuary

Way Kambas National Park



**S**uaka  
**R**hino  
**S**umatera

Taman Nasional Way Kambas

# **CURATOR'S REPORT 2000**

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, 15 July 2001*

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**THE SUMATRAN RHINO SANCTUARY FIELD PERSONNEL:**

Site Manager : Marcellus Adi C.T. Riyanto, DVM

Animal Curator/Veterinarian: : Dedi Candra, DVM

Facilities Supervisor: : Sumadi

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

Household Staff : Suratno

Cook : Cecep

Guards :  
1. Sukarna  
2. Ummarudin  
3. Ekke Rezky Fajar

Driver/food collector : Surono

Part 1

**FOOD and WEIGHT TABLES**

# JANUARY 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	17.0	7		19.5	7		6.0	7	
2	15.5	7		21.0	7		30.5	7	
3	22.5	7		24.0	7		10.0	7	
4	30.0	7		22.0	7		30.0	7	
5	19.0	7		22.0	7	546.5	24.0	7	718
6	20.0	7	652	22.0	8		23.5	7	
7	19.0	5		20.0	5		20.5	5	
8	19.0	7		17.0	7		0.0	7	
9	23.5	7		16.5	7		12.5	7	
10	25.5	7		18.0	7		25.0	7	
11	13.0	7		25.0	6		17.0	6	
12	16.0	5		15.0	5	-	16.0	5	-
13	19.5	4	-	17.0	7		22.0	4	
14	23.0	4		19.5	5		20.0	5	
15	18.5	5		18.0	5		20.5	5	
16	23.0	5		20.5	5		23.0	5	
17	28.0	7		20.5	7		28.0	7	
18	21.5	5		20.0	7		21.5	5	
19	20.5	7		17.0	7	-	20.5	7	-
20	33.5	7	-	18.0	7		33.5	7	
21	21.0	7		20.5	7		23.0	7	
22	24.5	7		15.5	7		23.0	7	
23	19.5	7		15.5	7		21.0	7	
24	19.0	7		17.5	7		14.5	7	
25	20.0	5		17.0	5		29.5	5	
26	22.0	5		14.0	8	-	24.0	5	-
27	17.0	3	-	24.0	5		29.0	3	
28	24.0	4		32.0	5		27.0	5	
29	23.5	5		24.0	5		27.5	5	
30	29.0	5		17.0	5		27.0	5	
31	20.0	5		25.0	5		25.0	5	
Mean	21.5	5.9	652.0	19.8	6.3	546.5	21.8	6.0	718.0

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability). **Note about the weights:** On 12 January 2000, the weighing scale broke down. It's being repaired in Jakarta.

# FEBRUARY 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	20.0	5		24.5	5		29.5	5	
2	23.0	5		24.5	5		20.5	5	
3	33.0	5		20.0	5		34.0	6	
4	35.0	5		20.0	5		28.5	5	
5	34.0	5		19.0	5		32.0	5	
6	29.0	5		25.0	5		29.0	5	
7	27.0	5		23.5	5		36.5	5	
8	31.5	5		14.0	3		36.0	5	
9	40.0	5		14.5	3		40.0	5	
10	31.0	5		13.0	3		31.0	5	
11	27.5	5		20.0	3		27.5	5	
12	28.5	5		13.0	3		28.5	5	
13	28.0	5		19.0	3		38.0	5	
14	27.0	5		13.0	3		35.5	5	
15	37.0	5		17.0	3		30.0	5	
16	35.0	5		15.0	3		29.0	5	
17	30.0	5		15.0	3		32.0	5	
18	32.0	4		15.0	3		25.5	5	
19	36.0	2		15.0	3		25.0	2	
20	31.0	5		19.0	4		23.5	5	
21	22.0	4		18.0	4		31.5	4	
22	35.0	5		17.0	5		28.0	5	
23	28.0	5		20.0	5	545	40.0	5	690
24	43.0	5	636	13.0	5		43.0	5	
25	35.5	4		20.5	4		35.5	4	
26	38.0	5		20.0	5		38.0	5	
27	36.0	5		19.0	5		31.0	5	
28	33.0	5		19.5	5		30.5	5	
29	28.0	5		17.0	5		20.0	5	
Mean	??	??	??	??	??	??	??	??	??

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

**Note about the weights:** The scale was repaired and used from 20 February 2000

# MARCH 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Browse	Fruits	Weight	Browse	Fruits	Weight	Browse	Fruits	Weight
1	28.5	5		14.0	4	542	29.5	4	689
2	25.0	5	647	18.0	5		28.5	5	
3	25.0	5		16.0	5		21.0	5	
4	27.0	5		17.0	5		31.5	5	
5	15.5	5		12.0	5		30.5	5	
6	30.0	5		23.0	5		35.0	5	
7	28.0	5		18.5	5		27.0	5	
8	25.0	5		20.0	5	543	34.0	5	661
9	30.0	5	642.5	12.0	5		26.0	5	
10	26.0	5		8.0	5		31.0	5	
11	17.0	5		13.0	5		37.5	5	
12	19.0	5		25.0	5		27.5	5	
13	25.0	4		25.5	4		26.5	4	
14	32.0	6		18.0	5		30.5	5	
15	18.0	6		20.0	5	543	31.0	5	679
16	27.0	6	643.5	27.0	5		43.5	5	
17	163.5	6		17.0	5		23.5	5	
18	25.0	5		19.0	5		54.0	5	
19	33.5	5		16.5	5		36.0	4	
20	13.0	5		18.0	5		42.0	5	
21	22.5	5		18.0	5		25.0	5	
22	35.0	7		19.0	5	562	32.0	5	682
23	32.0	5	641	22.0	5		47.0	5	
24	24.0	7		13.0	5		42.5	5	
25	34.0	5		18.0	4		40.5	5	
26	32.0	5		17.0	5		41.5	5	
27	32.0	6		23.0	5		33.0	5	
28	32.5	5		13.0	5		37.5	5	
29	30.0	6		19.0	5	546.5	30.0	5	667.5
30	35.0	6	628.5	16.0	6		39.5	5	
31	23.0	5		17.0	5		30.0	5	
Mean	31.1	5.3	640.5	17.8	4.9	547.3	33.7	4.9	675.7

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# APRIL 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA		♀ DUSUN			♂ TORGAMBA			Weight
	Browse	Fruits	Browse	Fruits		Browse	Fruits		
1	28.0	5		14.5	5		36.0	5	
2	28.0	6		17.5	5		37.5	6	
3	31.0	6		18.0	5		32.5	6	
4	31.5	6		23.0	5		36.5	6	
5	35.0	6		16.0	5	547.5	38.0	6	688.5
6	33.5	6	642	22.0	5		39.5	6	
7	34.0	6		17.0	5		31.5	6	
8	32.5	5		20.0	5		44.5	6	
9	33.5	6		13.5	5		24.0	6	
10	31.0	6		17.0	5		36.5	6	
11	39.0	6		20.5	5		38.0	6	
12	28.5	6		23.5	5	538.5	29.0	6	698.5
13	38.5	6	631	20.5	5		38.5	6	
14	38.0	6		17.0	5		38.0	6	
15	36.0	6		18.5	5		36.0	6	
16	33.5	6		27.0	5		33.5	5	
17	33.0	6		17.5	5		34.5	6	
18	30.0	6		28.5	6		30.0	6	
19	37.0	6		33.5	4	535.5	35.5	6	704.5
20	38.5	6	651.5	24.0	5		42.5	6	
21	29.0	10		25.0	5		34.5	6	
22	30.0	6		22.0	5		38.5	6	
23	28.0	6		22.0	6		37.0	6	
24	34.5	6		24.0	4		38.0	6	
25	42.0	6		20.0	6		34.5	6	
26	38.5	6		15.0	4	538.5	36.5	6	704.5
27	28.0	6	638.5	19.0	5		32.5	6	
28	30.0	6		14.5	6		35.5	6	
29	27.5	6		15.5	6		33.5	6	
30	32.0	6		18.0	6		32.0	6	
31									
Mean	33.0	6.1	640.8	20.1	5.1	540.0	35.5	5.9	699.0

PRINCIPAL FOOD ITEMS (in order of importance): BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).



MAY 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Browse	Fruits	Weight	Browse	Fruits	Weight	Browse	Fruits	Weight
1	31.5	6		21.5	6		32.0	6	
2	27.0	6		22.5	5		33.5	7	
3	26.0	6		18.5	5	530	26.0	6	-
4	30.0	6	-	19.5	5		30.0	6	
5	36.5	6		22.5	5		26.5	6	
6	23.0	6		21.0	5		26.0	6	
7	28.0	6		19.5	5		33.5	6	
8	31.5	6		24.0	5		26.0	6	
9	22.0	6		18.0	7		23.5	6	
10	17.0	6		21.0	5	-	21.5	5	-
11	21.5	6	-	19.0	5		34.0	6	
12	26.5	6		13.0	5		30.5	6	
13	27.5	6		24.0	5		29.0	6	
14	28.0	6		23.0	5		26.0	6	
15	35.0	6		16.0	5		39.5	6	
16	28.5	6		22.0	5		45.0	6	
17	27.0	6		15.5	5	-	27.0	6	-
18	27.5	6	-	16.0	5		32.5	6	
19	58.5	6		18.5	5		58.5	6	
20	32.0	6		29.0	5		32.0	6	
21	30.0	6		16.0	5		40.0	6	
22	28.5	4		24.5	5		36.5	6	
23	32.5	6		17.5	5		28.0	6	
24	21.0	6		18.5	5		34.0	6	
25	24.0	6		6.5	5		29.0	6	
26	19.5	6		18.5	5		33.5	6	
27	33.5	6		19.0	5		34.0	6	
28	24.5	6		24.0	5		33.5	6	
29	24.5	6		23.0	5		31.0	6	
30	31.0	6		20.0	5		31.5	6	
31	26.5	6		24.5	5	531.5	29.5	6	688.5
Mean	28.4	5.9	0.0	19.9	5.1	530.8	32.0	6.0	688.5

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas in a local name: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability). **Note about the weights:** On 3 May 2000, the weighing scale broke down again, when weighing Torgamba. The scale was repaired in Jakarta and operated again from 31 May 2000.

# JUNE 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Browse	Fruits	Weight	Browse	Fruits	Weight	Browse	Fruits	Weight
1	33.5	4	651.0	23.0	4		32.5	4	
2	34.5	6		26.5	5		29.5	6	
3	27.0	7		20.0	5		22.5	6	
4	21.5	6		20.5	5		28.0	6	
5	27.0	6		31.5	5		37.5	5	
6	21.0	6		18.5	5		29.0	6	
7	27.5	6		27.5	5	536	26.0	6	697.5
8	61.0	6	642.5	24.5	5		66.0	6	
9	43.0	6		24.0	5		42.5	6	
10	25.5	6		16.5	5		23.0	6	
11	43.0	6		19.0	5		28.0	6	
12	36.5	6		20.0	5		36.5	6	
13	38.0	6		24.0	5		28.0	6	
14	37.0	6		27.0	5	551.5	36.5	6	
15	23.0	6	635.5	22.5	6		24.5	6	
16	25.0	6		22.0	5		32.0	6	
17	29.5	6		21.5	5		34.0	6	
18	26.5	6		28.0	5		34.5	6	
19	18.5	6		25.5	4		32.0	6	
20	19.5	6		25.0	4		35.0	6	
21	26.5	6		27.5	4	531.5	41.5	5	668.5
22	38.5	6	653.5	18.5	6		35.5	6	
23	22.5	6		27.5	5		28.0	7	
24	24.5	6		26	5		32.0	7	
25	29.0	6		28	6		35.0	6	
26	21.5	6		23.5	6		29.0	6	
27	33.5	6		20.0	5		42.5	6	
28	30.0	6		20.5	5	528.5	43.5	6	683.5
29	27.0	5	655.5	27.5	5		29.0	6	
30	36.0	6		19.5	5		33.0	6	
Mean	??	??	??	??	??	??	??	??	??

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# JULY 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	43.0	6		19.0	5		43.0	6	
2	30.5	6		23.5	5		25.5	6	
3	24.5	5		19.0	3		24.0	5	
4	49.5	6		30.0	5		39.0	6	
5	36.0	5		24.0	5		36.0	5	701.5
6	37.0	6	658	24.0	5		37.0	6	
7	30.5	5		29.0	5		30.5	5	
8	33.0	6		21.5	5		33.5	6	
9	17.0	6		20.0	5		27.0	6	
10	21.0	6		14.0	5		26.5	6	
11	16.5	6		17.5	5		35.5	6	
12	28.0	6		15.0	5	529	33.0	6	685.5
13	24.0	6	636	24.5	5		41.0	6	
14	32.0	6		19.0	5		38.0	6	
15	26.0	6		25.5	5		29.0	6	
16	19.0	7		17.0	5		27.5	6	
17	27.0	6		20.5	5		27.0	5	
18	19.0	5		20.0	5		45.0	5	
19	20.0	6		23.0	5	534	36.5	6	686.5
20	39.0	5	635.5	23.0	5		38.0	5	
21	19.0	5		19.0	7		32.0	6	
22	27.0	6		24.5	5		30.5	6	
23	35.0	6		19.0	6		33.0	6	
24	27.0	6		16.0	5		35.5	5	
25	50.0	6		13.0	5		55.5	6	
26	34.0	6		13.5	5	539	34.0	6	687
27	39.5	6	636	20.5	5		36.5	6	
28	35.0	6		16.0	5		27.5	6	
29	41.0	6		17.0	5		41.0	6	
30	55.0	6		24.0	6		52.0	6	
31	43.5	6		22.0	5		36.0	6	
<b>Mean</b>	<b>31.6</b>	<b>5.8</b>	<b>641.4</b>	<b>20.4</b>	<b>5.1</b>	<b>534.0</b>	<b>35.0</b>	<b>5.8</b>	<b>690.1</b>

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# AUGUST 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	26.5	5		28.5	5		33.5	5	
2	35.0	6		35.5	5	544.5	34.0	6	697
3	38.0	6	646	23.0	5		34.0	6	
4	17.0	6		30.5	5		30.0	6	
5	29.5	6		20.0	6		34.0	6	
6	25.0	6		21.5	5		40.0	6	
7	24.5	6		34.5	5		40.0	6	
8	35.0	6		21.0	5		36.0	6	
9	27.0	5		22.5	5	533.4	47.5	6	685.5
10	30.0	5	630	12.0	5		48.0	5	
11	29.0	5		24.0	6		41.5	5	
12	32.0	5		23.0	4		32.5	6	
13	30.5	6		20.5	5		41.5	6	
14	42.5	6		21.0	6		38.5	6	
15	27.0	6		18.0	6		51.5	6	
16	30.0	6		28.0	5	545	32.0	6	686.8
17	58.0	6	642.5	22.0	5		47.0	5	
18	40.5	6		25.0	5		40.5	6	
19	34.0	5		27.5	5		44.5	6	
20	41.5	6		22.0	6		41.5	5	
21	34.0	6		20.5	6		34.0	6	
22	33.0	6		31.0	6		34.0	6	
23	38.0	6		24.5	5	534.5	38.0	6	687
24	41.0	5	637	33.0	5		46.0	5	
25	34.0	6		32.5	5		48.0	6	
26	30.5	6		24.0	6		46.5	6	
27	39.5	6		22.0	6		34.5	6	
28	32.5	6		29.0	5		47.0	6	
29	44.0	6		21.5	6		51.5	6	
30	30.5	6		29.0	5	543	35.5	6	682.5
31	35.5	6	643	26.0	5		46.0	6	
Mean	33.7	5.8	639.7	24.9	5.3	540.1	40.3	5.8	687.8

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# SEPTEMBER 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Browse	Fruits	Weight	Browse	Fruits	Weight	Browse	Fruits	Weight
1	45.0	3		17.0	4		37.5	5	
2	44.0	4		25.0	4		41.0	4	
3	33.0	6		27.0	6		30.0	6	
4	34.0	6		31.5	6		32.5	6	
5	28.0	6		29.0	6	550	37.0	5	692.5
6	32.0	6	663	31.0	6		43.5	6	
7	25.0	6		27.0	6		29.0	6	
8	38.0	6		26.0	6		49.5	6	
9	39.8	6		23.0	6		39.0	6	
10	40.5	6		31.0	6		40.5	6	
11	43.5	6		28.0	6		43.5	6	
12	45.0	6		18.5	6		45.0	6	
13	38.0	6		23.0	6	640	38.0	6	702
14	46.0	6	646.5	26.0	6		45.0	6	
15	40.5	6		22.0	6		48.5	6	
16	33.5	6		23.0	6		41.5	6	
17	32.0	6		21.5	6		43.0	6	
18	28.0	6		20.5	6		49.0	6	
19	11.0	6		25.0	6		45.0	7	
20	29.5	6		18.0	6	555	41.0	6	688
21	37.0	6	641	26.0	6		30.5	6	
22	22.0	6		20.0	6		33.0	6	
23	36.0	6		29.5	6		45.0	6	
24	41.0	6		26.0	6		32.0	6	
25	43.0	6		25.0	6		54.0	6	
26	59.0	6		30.0	6		38.0	6	
27	41.5	4		22.5	6	539	46.0	4	691
28	41.0	6	651	17.0	6		42.0	6	
29	34.0	6		15.0	5		45.5	6	
30	39.5	5		24.0	5		29.0	5	
31									
Mean	36.7	5.7	650.4	24.3	5.8	571.0	40.5	5.8	693.4

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# OCTOBER 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	45.0	6		27.5	5		45.0	6	
2	43.0	5		32.0	5		43.0	5	
3	57.5	6		24.0	5		57.5	6	
4	33.0	6		15.0	5	543	41.5	6	706
5	34.0	6	647.5	21.5	5		34.0	6	
6	64.0	6		21.5	6		64.0	6	
7	24.0	6		26.0	5		39.0	6	
8	33.0	6		17.0	5		33.5	6	
9	37.0	6		24.0	5		37.5	6	
10	31.0	6		31.5	5		41.5	6	
11	30.5	6		19.5	5	530.5	39.0	6	695
12	39.5	6	640	25.0	5		36.0	6	
13	31.0	6		23.0	5		51.5	6	
14	41.0	6		23.0	5		38.5	6	
15	36.0	6		23.5	5		36.0	6	
16	33.0	6		25.5	5		29.5	6	
17	27.0	6		26.0	5		35.0	6	
18	40.0	6		20.5	5	539.5	43.5	6	693
19	37.5	6	638.5	28.0	5		42.5	6	
20	36.0	6		23.5	5		42.0	6	
21	46.5	6		18.0	5		46.5	6	
22	47.0	7		25.0	6		47.5	7	
23	55.0	7		17.0	5		55.0	6	
24	37.5	6		28.5	5		37.5	6	
25	42.0	6		17.5	6	540	42.0	6	712
26	53.0	6	650.5	13.0	4		53.0	6	
27	49.5	6		30.0	5		49.5	6	
28	38.5	6		23.0	5		37.0	6	
29	31.0	6		24.0	6		27.0	6	
30	29.5	6		28.5	5		33.5	6	
31	25.0	6		27.0	5		33.5	6	
Mean	39.0	6.0	644.1	23.5	5.1	538.3	41.7	6.0	701.5

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# NOVEMBER 2000

## FOOD AND WEIGHT (in Kg)

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Food taken		Weight	Food taken		Weight	Food taken		Weight
	Browse	Fruits		Browse	Fruits		Browse	Fruits	
1	30.0	6		21.5	5	534.5	40.5	6	689
2	19.0	6	637.5	32.0	5		31.0	6	
3	39.0	6		20.0	5		48.5	6	
4	30.0	6		26.0	5		36.5	6	
5	21.0	5		24.5	4		33.5	5	
6	27.0	3		25.5	3		47.5	3	
7	21.0	5		14.5	5		28.5	5	
8	35.0	5		23.5	5	533.5	34.5	5	684.5
9	35.5	4	651.5	23.0	5		34.5	5	
10	31.5	5		26.0	4		23.5	5	
11	35.0	5		24.0	5		34.5	5	
12	29.0	5		20.5	5		31.5	5	
13	21.5	5		25.0	5		26.0	5	
14	28.5	5		26.5	5		26.0	5	
15	24.5	5		24.5	3	522	27.5	5	697.5
16	18.0	6	649	25.5	5		25.5	5	
17	29.0	5		17.5	5		29.0	5	
18	28.0	5		19.5	5		27.5	5	
19	32.0	5		22.0	5		30.0	5	
20	29.0	5		25.0	5		29.0	5	
21	17.0	5		21.0	5		16.5	5	
22	28.5	5		18.0	5	531.5	31.0	6	695
23	25.0	5	645	19.5	5		28.0	5	
24	25.0	5		21.0	5		28.0	5	
25	35.5	5		23.0	5		33.0	5	
26	18.0	5		26.0	5		26.0	5	
27	24.0	5		17.5	5		24.5	5	
28	20.0	5		19.5	5		37.5	5	
29	21.0	5		28.0	5	535.5	32.0	5	682.5
30	33.0	5	651.5	19.0	5		32.0	5	
Mean	??	??	??	??	??	??	??	??	??

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).

# DECEMBER 2000

## FOOD AND WEIGHT (in Kg) - December 2000

Date	♀ BINA			♀ DUSUN			♂ TORGAMBA		
	Browse	Fruits	Weight	Browse	Fruits	Weight	Browse	Fruits	Weight
1	27.0	5		24.0	5		32.0	5	
2	37.5	4		14.0	5		47.5	2	
3	27.0	5		26.0	4		23.0	4	
4	63.2	5		15.0	4		63.5	5	
5	27.5	5		21.0	4		27.5	5	
6	30.0	5		13.0	5	535.5	32.5	5	692
7	26.5	5	657.5	22.0	5		29.5	5	
8	25.0	5		21.5	5		31.0	5	
9	34.0	5		29.5	5		28.0	5	
10	30.0	3		24.0	3		41.0	3	
11	26.5	4		31.5	4		30.0	5	
12	32.0	5		22.0	5		40.0	5	
13	38.5	5		30.5	5	535.5	27.0	5	686
14	29.5	4	648	23.0	5		23.5	5	
15	24.0	4		27.5	5		23.0	5	
16	21.5	5		27.0	4		25.0	5	
17	27.0	5		17.0	5		23.0	5	
18	31.0	5		20.0	6		31.5	5	
19	34.0	5		18.0	5		31.0	7	
20	24.0	5		31.0	5	518	20.5	5	676.5
21	22.0	5	650	21.0	5		28.0	5	
22	33.5	5		22.0	5		20.0	5	
23	33.5	5		22.0	4		33.0	4	
24	32.0	5		23.0	5		27.0	5	
25	40.0	5		19.0	5		40.0	5	
26	39.0	5		25.0	5		39.0	5	
27	38.0	5		28.0	5		37.0	5	
28	41.3	3	647.5	16.0	5	533	49.0	3	692.5
29	45.0	5		22.0	5		46.5	5	
30	25.0	5		19.0	5		32.0	5	
31	30.0	5		26.0	5		32.0	5	
Mean	32.1	4.7	650.8	22.6	4.8	530.5	32.7	4.8	686.8

**PRINCIPAL FOOD ITEMS (in order of importance):** BROWSE: Collected in villages and outside SRS: jackfruit (*Artocarpus heterophylla*), various *ficus sp*, various forest trees and lianas: pulai (*Alstonia scholaris*), waru (*Mallotus mollucanus*), mahang hijau (*Macaranga triloba*), akar jitan (*Strophantus caudatus*), akar merah (*Mussaenda frondosa*), keputihan (*Clibadium surinaraense*), akar mencret (*Meremia peltata*), kasapan (*Croton caudatus*), and torop (*Artocarpus elasticus*). FRUITS: banana, carrot, sweet-potato, pineapple, papaya, watermelon, roseapple, pumpkin, mango (depending on availability).



Part 2

**GENERAL OBSERVATIONS  
and  
TREATMENT RECORDS**

# JANUARY 2000

EVENTS AND ACTIVITY	
♀ BINA	<ul style="list-style-type: none"> <li>• Together with Torgamba 14 - 21 January</li> <li>• Daily activities pattern attached as graphics</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• 24 January: Dusun was trapped in her wallow and could not get out for one hour. She had difficulty with breathing, was coughing and had hind leg tremor. Details below.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Together with Bina 14 January. Details will be in next report.</li> <li>• Daily activities pattern attached as graphics</li> </ul>
MEDICATION and SPECIAL TREATMENTS	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Tremor in the hind leg</b> <ul style="list-style-type: none"> <li>- Treated with Neurobion<sup>®</sup> 20 tabs/day (neurotropic vitamins) to restore nerve and muscle functions. It was give for three days.</li> <li>- Dusun's activities were back to normal in third day.</li> </ul> </li> <li>• <b>Conjunctivitis on both eyes,</b> <ul style="list-style-type: none"> <li>- Treated with ZnSO<sub>4</sub>.</li> </ul> </li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>
REPRODUCTION	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 14 - 21 January.</b> <ul style="list-style-type: none"> <li>- Some courtship was observed at first day, but it seemed that Bina was not yet in the heat. The vulva did not show any change yet.</li> <li>- Sign of estrus observed 17 and 18 Jan. (vulva reddish, swollen, and some clear discharge was observed 18 Jan. when she slept in the ground)</li> <li>- Details below</li> </ul> </li> </ul>
♀ DUSUN	
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 14 - 21 January:</b> Torgamba showed aggressiveness 14 and 15 Jan. but did not try to mount, as Bina was also not yet ready.</li> </ul>

### The accident of Dusun.

Dusun was trapped for almost one hour in her own wallow, that she made. The wallow is too deep and narrow and she tried to get out from the wallow in an unusual direction. The wallow is very narrow and she could not turn her body. When she was found by the keeper 24 January, 07:05 A.M., her front leg was caught in a quite deep hole at the wallow edge. Because the wall is also high, her chest and abdomen were stuck and she had difficulty breathing and coughed many times. She could get out after the keepers removed part of the wall. For a half day the hind legs showed tremors and sometimes she still coughed. Her appetite seemed quite weak and she did not like to walk far and avoided walking around wallows. She slept on the ground, but foraged herself in the forest. The wallow was closed by the keeper after the accident and they made a new and wider one where she started to wallow 30 January.

# FEBRUARY 2000

EVENTS AND ACTIVITY	
♀ BINA	<ul style="list-style-type: none"> <li>• Together with Torgamba 8-13 and 23-28 Feb.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Dusun was back to normal. She ate lots of fruits in the forest. We reduced the amount of fruits provide in the stall.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Together with Bina 8-13 and 23-18 Feb.</li> </ul>
MEDICATION and SPECIAL TREATMENTS	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO4.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO4, garamycyn ointment or Terramycin ointment.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge.</li> </ul>
REPRODUCTION	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 8 - 13 February:</b> Some courtship was observed, but it never looked intense. On 10 and 11 Feb, Bina appeared aggressive and many times presented her back to be mounted by Torgamba. Only one time at 15:53 10 Feb Torgamba mounted. Actually the vulva showed no clear signs of estrus. But 10 and 11 Feb were the expecting days of estrus.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 8 - 13 February:</b> During this period Torgamba did not show any strong interest in courtship and mounting. Only some courtship but never very serious. On 10 Feb he tried to mounted one time, but only for a few seconds at 15:53. For the rest Torgamba always avoided Bina.</li> </ul>

# MARCH 2000

<b>EVENTS AND ACTIVITY</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were only put together in the second period (24-28) to see more carefully the signs and behavior of reproduction. Unfortunately there were no significant vaginal signs of Bina.</li> <li>• Daily activities pattern in Part 4</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Daily activities pattern in Part 4</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Daily activities pattern in Part 4</li> </ul>
<b>MEDICATION and SPECIAL TREATMENTS</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with The ZnSO<sub>4</sub>.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycyn ointment or Terramycin ointment.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>
<b>REPRODUCTION</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 3- 5 March:</b> No clear signs of vaginal change except slight redness of the vulva, but it was observed that Bina was willing to go to central area more often than previous.</li> <li>• <b>Period of 23-28 March :</b> Again, no clear signs of vaginal change. When she was together with Torgamba 27-28 there was no intense courtship and no standing heat by Bina. They were separated immediately because it seemed that the period had passed and some chasing by Torgamba occurred. It was also observed that Bina was afraid to stay together with Torgamba.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 3- 5 March:</b> It was observed that Torgamba also was willing to go to central area more often than previously.</li> <li>• <b>Period of 23-28 March:</b> When they were put together 27-28 there was no intense courtship and no standing heat by Bina. They were separated immediately because it seemed that the period had passed and some chasing by Torgamba occurred</li> <li>• <b>Next period:</b> It is planned to observe very carefully to see the signs of Bina, and to let Torgamba come to central area whenever he wants. The period is expected 12-15 April 2000</li> </ul>

# APRIL 2000

<b>EVENTS AND ACTIVITY</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 12-20 April to see an expected time of estrus at 15-16 April. Then again 30 April - 5 May to see the heat in the second period.</li> <li>• Daily activities pattern in part 4</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Daily activities pattern in part 4</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Daily activities pattern in part 4</li> </ul>
<b>MEDICATION and SPECIAL TREATMENTS</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with The ZnSO<sub>4</sub></li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycyn ointment or Terramycin ointment.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>
<b>REPRODUCTION</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 12-20 April:</b> No clear signs of vaginal chance except slight redness of the vulva. She even did not show any willingness to be mounted (standing heat) by Torgamba, but it was observed that Bina was willing to be together with Torgamba. No intense courtship was observed during this period.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 12- 20 April:</b> It was observed that Torgamba was also willing to go to central area, but once he met Bina, he did not show strong interest to mate and there was no intense courtship.</li> </ul>

# MAY 2000

<b>EVENTS AND ACTIVITY</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 30 April - 5 May and again 18-23 May to see day/time of estrus.</li> <li>• Daily activities pattern in part 4.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Daily activities pattern in part 4.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 30 April - 5 May and again 18-23 May to see day/time of estrus.</li> <li>• Daily activities pattern in part 4</li> </ul>
<b>MEDICATION and SPECIAL TREATMENTS</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Transient loss of Senses:</b> 24 May; 13:15, Dusun was found walking uncoordinated, hitting trees and bushes that she usually avoids. It was observed that she could not smell, see and hear very well. Treated with Neurobion (neurotrophic vitamin), berkarbon (carbon adsorbent) and Ardivit (multi vitamin and mineral). Dusun become normal after 2-3 hours.</li> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycin ointment or Terramycin ointment.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>
<b>REPRODUCTION</b>	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 30 April - 4 May:</b> No clear signs of vaginal change could be observed during this period because Bina was always together with Torgamba. It's dangerous for the keeper to approach them. But it was observed that Bina was receptive for Torgamba and standing heat occurred 30 April, 1 and 2 May. Intense courtship was observed during this period, specially on 30 April - 2 May.</li> <li>• <b>Period of 18 - 23 May:</b> Bina showed interest to be mounted and standing heat throughout the period. No signs of vulva changes could be observed properly, but it was clear that on 21 May, the vulva looked reddish and swollen.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 30 April - 4 May:</b> It was observed that Torgamba was willing to be close to Bina and he showed intense courtship. But no mounting was observed.</li> <li>• <b>Period of 18 - 23 May:</b> Torgamba also showed interest in mounting and courtship. Two times mounting with erection occurred 21 May in the morning. Mounting without erection was observed just before dark at 19 (1x) and 22 May(2x). Possibly there was some mounting in the night but it is difficult to observe. No penetration was observed.</li> </ul>

# JUNE 2000

## EVENTS AND ACTIVITY

♀ <b>BINA</b>	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 8-15 June.</li> <li>• Daily activities pattern in Part 4.</li> </ul>
♀ <b>DUSUN</b>	<ul style="list-style-type: none"> <li>• Daily activities pattern in Part 4.</li> </ul>
♂ <b>TORGAMBA</b>	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 8-15 June.</li> <li>• Daily activities pattern in Part 4.</li> </ul>

## MEDICATION and SPECIAL TREATMENTS

♀ <b>BINA</b>	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>.</li> </ul>
♀ <b>DUSUN</b>	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycin ointment or Terramycin ointment.</li> </ul>
♂ <b>TORGAMBA</b>	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>

## REPRODUCTION

♀ <b>BINA</b>	<p><b>Period of 8 - 15 June:</b> Intense courtship occurred 11-14 June. Also standing heat by Bina occurred at:</p> <ul style="list-style-type: none"> <li>• June 11 (15:43, 16:19, 20:17),</li> <li>• June 12 (01:34, 17:08, 17:11, 17:26),</li> <li>• June 13 (21:51, 21:57, 22:11, 22:32, 22:55, 23:05, 23:16, 23:20, 23:57) and</li> <li>• June 14 (00:04, 00:15, 00:48, 01:09, 01:16, 01:55, 02:13, 06:49, 07:13, 07:27).</li> <li>• The changes of vulva were difficult to observe except at 14 when Bina was laying under the observation post at 18:58. The vulva showed redness and swelling, but no discharge.</li> </ul>
♀ <b>DUSUN</b>	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ <b>TORGAMBA</b>	<p><b>Period of 30 April - 4 May.</b></p> <ul style="list-style-type: none"> <li>• <b>17 times</b> mounting by Torgamba occurred at 13 (21:51, 21:57, 22:11, 22:32, 23:05, 23:18, 23:20, 23:57), and 14 (00:05, 00:16, 00:50, 01:16, 01:55, 02:15, 07:03, 07:14, 07:30).</li> <li>• Starting at 13 midnight Torgamba showed continued erection. After the third mounting, Torgamba allowed his keeper to stand beside him when he was mounting. They even try to help holding the penis to make an intromission.</li> <li>• <b>5 - 10 centimeters</b> of the penis could penetrate till the flaps, but it could not enter further. Torgamba always has difficulty to find a good position when mounting.</li> </ul>

# JULY 2000

EVENTS AND ACTIVITY	
♀ BINA	<ul style="list-style-type: none"> <li>Bina and Torgamba were put together 30 June - 8 July, and 25 - 31 July Daily activities pattern in Part 4.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>Daily activities pattern in Part 4.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>Bina and Torgamba were put together 30 June - 8 July, and 25 - 31 July Daily activities pattern in Part 4.</li> </ul>
MEDICATION and SPECIAL TREATMENTS	
♀ BINA	<ul style="list-style-type: none"> <li><b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub></li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li><b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycin ointment or Terramycin ointment</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li><b>The Eye:</b> No discharge</li> </ul>
REPRODUCTION	
♀ BINA	<ul style="list-style-type: none"> <li><b>Period of 30 June - 8 July.</b> Courtship occurred occasionally but not really intense. Bina showed vulva changes on 5 June with swelling and redness of the vulva and discharge at 16:50. Interest to mate by standing heat occurred at 5 (18:22 and 18:28).</li> <li><b>Period of 25 - 31 July</b> Changes of vulva with production of a clear discharge, swelling and redness were observed at 25 and 26 July and 28 but without discharge. Standing heat occurred at 25 (15:33), 26 (05:38), 27 (02:53, 03:02), 28 (07:20, 16:30, 16:32, 16:37, 16:39, 16:40, 17:00, 17:30, 17:43), 29 (06:01, 06:09, 06:13, 06:16), 31 (16:26)</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li></li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li><b>Period of 30 June - 8 July.</b> Courtship occurred occasionally but not really intense. Torgamba did not show any good interest. There was no mounting by Torgamba in this period.</li> <li><b>Period of 25 - 31 July</b> Some interest was shown by Torgamba. He did mount once on 28 (16:40; unsheathed penis, no erection), and again once on 29, but for a longer time (06:16 until 06:24, with erection, but no intromission).</li> </ul>



# AUGUST 2000

## EVENTS AND ACTIVITY

♀ BINA	• Bina and Torgamba were put together 16 - 23 Aug
♀ DUSUN	• Daily activities pattern in Part 4.
♂ TORGAMBA	• Bina and Torgamba were put together 16 - 23 Aug

## MEDICATION and SPECIAL TREATMENTS

♀ BINA	• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO <sub>4</sub>
♀ DUSUN	• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO <sub>4</sub> , garamycin ointment or Terramycin ointment
♂ TORGAMBA	• <b>The Eye:</b> No discharge

## REPRODUCTION

♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 16 - 23 Aug.</b> Courtship occurred since they first met, and more intense on 19, when Bina showed standing heat 4 times (08:09, 18:03, 18:09 and 18:28). On 20 the courtship was not very intense. Then on 21 it become more intense when Bina again showed standing heat 3 times (09:57, 15:11, 16:29), and on 22 2 times (03:55 and 04:42).</li> </ul>
♀ DUSUN	•
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 16 - 23 Aug.</b> Torgamba mounted Bina 2 times on 19 (18:09) without erection and on 21 (09:58-10.02) with erection, but without intromission.</li> </ul>

# SEPTEMBER 2000

EVENTS AND ACTIVITY	
♀ BINA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 8 - 14 September</li> <li>• Daily activities pattern in part 4.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Since 22 September it is observed that there is a changes of behavior of Dusun. She did less foraging in the forest. She also looks a little bit lazy and slower when walking in the forest. But her appetite in the stall is still good. A <b>general healthy check</b> for Dusun is needed. It is also important to make a diagnosis for the problem in her mammae and her uterus as was recommended in the reproduction workshop</li> <li>• Daily activities pattern in part 4.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 8 - 14 September</li> <li>• Daily activities pattern in part 4.</li> </ul>
MEDICATION and SPECIAL TREATMENTS	
♀ BINA	<b>Conjunctivitis on both eyes:</b> Treated with ZnSO4
♀ DUSUN	<b>Conjunctivitis on both eyes,</b> <ul style="list-style-type: none"> <li>• Treated with ZnSO4, garamycyn ointment or Terramycin ointment.</li> <li>• There is a good improvement on the right eye; the cloudy spot starts to disappear. The left eye is good, no more cloudy spot.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>The Eye:</b> No discharge</li> </ul>
REPRODUCTION	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 8 - 14 September:</b> Redness and swelling of the vulva of Bina was observed clearly on 7 September in the evening. This was actually too short after the previous period. They were put together starting on 8 Sept. and courtship occurred but it was not really intense. Bina immediately showed standing heat (SH) starting at 8: at 09:17 just after meeting Torgamba, and at 17:43, and 17:54, but no mounting from Torgamba. No more courtship and standing heat until 11 September when they started intense courtship in the morning. SH occurred at 08:46 and 08:49. At 12, Bina showed SH at 02:32, 02:51, 03:26 &amp; 04:07 with some courtship. On 13, SH occurred at 00:30 and 01:05</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 8 - 14 September:</b> Two mountings by Torgamba were observed: on 12 at 04:07 with full erection for only 2 minutes and no intromission. Then on 13 at 00:30 for 22 minutes with full erection but no intromission.</li> </ul>

# OCTOBER 2000

## EVENTS AND ACTIVITY

♀ BINA

- Bina and Torgamba were put together 8 - 14 September.
- Daily activities pattern in part 4.

♀ DUSUN

- During October Dusun was still not foraging intensively in the forest. But her appetite in the stall was good.
- Daily activities pattern in part 4.

♂ TORGAMBA

- Bina and Torgamba were put together at 8 - 14 September.
- Daily activities pattern in part 4.

## MEDICATION and SPECIAL TREATMENTS

♀ BINA

- **Conjunctivitis on both eyes:** Treated with ZnSO<sub>4</sub>.

♀ DUSUN

- **Conjunctivitis on both eyes,**
- Treated with ZnSO<sub>4</sub>, garamycin ointment or Terramycin ointment.
- There is a good improvement on the right eye; the cloudy spot starts to disappear. The left eye is good, no more cloudy spot.

♂ TORGAMBA

- **The Eye:** No discharge

## REPRODUCTION

♀ BINA

- **Period of 30 Sept - 7 Oct 2000**  
Redness and swelling of the vulva was observed but not clear enough on 30 and 31 September. It seemed that Bina was in heat as she showed standing heat (SH) and she mounted Torgamba after intense courtship. She showed SH 2 times (8:53 and 9:40) on 30 September. She also mounted Torgamba at 9:06 and 9:44. Most of the time Torgamba avoided Bina. No more SH was observed but some redness and swelling of the vulva could still be observed until 4 October.
- **Period of 20 - 28 Oct 2000**  
Redness and swelling of the vulva was observed on 26 - 27 October, but not so clear. Bina also showed standing heat on 26 (17:33) after some intense courtship, but there was no mounting by Torgamba. SH also occurred on 27 (5:54 and 6:11).

♀ DUSUN

•

♂ TORGAMBA

- **Period of 30 Sept - 7 Oct 2000**  
Intense courtship was observed, initiate by Torgamba on 30-31 September, but without mounting. Later there was no more intense courtship and Torgamba mostly avoided Bina. He even fled when Bina mounted him.
- **Period of 20 - 28 Oct 2000**  
Intense courtship initiate by Torgamba on 21, 22, 26 and 27. But mostly Torgamba avoided Bina when Bina started to respond. No mounting by Torgamba.

# NOVEMBER 2000

EVENTS AND ACTIVITY	
♀ BINA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 17 - 21 November.</li> <li>• Activities pattern in part 4.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• Dusun foraged more in the forest but still not as frequently as usual. Her appetite was good</li> <li>• Activities pattern in part 4.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• Bina and Torgamba were put together 17 - 21 November.</li> <li>• 20 November: Torgamba seemed to have a problem when eating. Masticating big branches appeared to be painful.</li> <li>• Activities pattern in part 4.</li> </ul>
MEDICATION and SPECIAL TREATMENTS	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>• <b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycyn ointment or Terramycin ointment.</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Problem of Mastication</b></li> <li>• 20 November, 13:00, it was observed that Torgamba could not masticate big branches. He could only eat young leaves. It was difficult to locate the painful part of the mouth; teeth, gums or the tongue. Treated with:                             <ul style="list-style-type: none"> <li>• Neurobion 10 tab,</li> <li>• Ardivit 10 tab</li> <li>• Phenylbutazone 3 tab,</li> </ul>                             for 3 days. He started eating normal at the third day.                         </li> <li>• <b>The Eye</b></li> <li>- No discharge</li> </ul>
REPRODUCTION	
♀ BINA	<ul style="list-style-type: none"> <li>• <b>Period of 17 - 21 Nov 2000</b></li> <li>Redness and swelling of the vulva was observed on 17 and 18 but not very clear. Some courtship was observed on 17 - 19 but not so intense. Torgamba was sick on 20 and they were separated.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li>•</li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li>• <b>Period of 17 - 21 Nov 2000</b></li> <li>There was no strong interest from Torgamba to approach Bina. Mostly he avoided Bina. He was sick on 20 and they were separated.</li> </ul>

# DECEMBER 2000

## EVENTS AND ACTIVITY

♀ BINA	<ul style="list-style-type: none"> <li>Bina and Torgamba were put together 2 - 6 December and 24 - 28 December.</li> </ul>
♀ DUSUN	
♂ TORGAMBA	<ul style="list-style-type: none"> <li>Dusun was more active and walked deeper into the forest and into the central area on 28 Dec (18.00).</li> <li>She was angry and aggressive when meeting Torgamba. She also tttacked and snorted loudly. After about 15 minutes Dusun was driven away by the keeper to avoid injuries.</li> </ul>
	<ul style="list-style-type: none"> <li>Bina and Torgamba were put together 2 - 6 December and 24 - 28 December</li> <li>Semen collection experiment on 18 Dec (2x) and 19 Dec (1x)</li> <li>When met Dusun on 28 Dec Torgamba was angry and aggressive and attacked and hit the fence.</li> </ul>

## MEDICATION and SPECIAL TREATMENTS

♀ BINA	<ul style="list-style-type: none"> <li><b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>.</li> <li><b>Wound on stomach skin:</b> probably wounded by a broken off branch in the central area. Treated with Betadine, antibiotic ointment, Peroxide and SWAT.                             <ul style="list-style-type: none"> <li>Healed in two weeks</li> </ul> </li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li><b>Conjunctivitis on both eyes:</b> Treated with ZnSO<sub>4</sub>, garamycyn ointment or Terramycin ointment.</li> <li><b>Wound on upper Lip:</b> <ul style="list-style-type: none"> <li>treated with betadine and antibiotic cream.</li> <li>Healed in five days</li> </ul> </li> </ul>
♂ TORGAMBA	<ul style="list-style-type: none"> <li><b>The Eye:</b> No discharge</li> </ul>

## REPRODUCTION

♀ BINA	<p><b>Period of 2 - 6 December</b></p> <ul style="list-style-type: none"> <li>The vulva was reddish and swollen on 2-4 Dec but no discharge was observed.</li> <li>Bina showed interest to be mounted throughout this period, and she showed standing heat on 2 Dec (9:54, 14:36, 14:39, 15:12, 15:15, 15:36, 15:53, 18:56, 20:24, 20:34, 21:32, 22:45), 3 Dec (6:44), 4 Dec (5:49) and 5 Dec (16:30). Only on 2 and 3 Dec was there a good response from Torgamba.</li> </ul> <p><b>Period of 24 - 28 December</b></p> <ul style="list-style-type: none"> <li>The estrus signs from vulva changes were observed only on 24 - 26 Dec. Redness and some swelling of the vulva was observed on 24 Dec. On 25 it was present but not very clear, and on 26 it was clearer. Bina showed standing heat on 24 Dec 6 times (09:51, 09:53, 10:00, 10:35, 11:14, 15:17). Serious courtship was observed only on 24 Dec at around 9:00-11:00, 13:00-15:00. Some courtship was also observed on 25 (around 8:00) but not intense.</li> </ul>
♀ DUSUN	<ul style="list-style-type: none"> <li></li> </ul>
♂ TORGAMBA	<p><b>Period of 2 - 6 December</b></p> <ul style="list-style-type: none"> <li>There was serious courtship on 2 and 3 December. Torgamba mounted Bina 4 times on 2 December: 14:38 for 1 minute without erection, 15:37 for 3 minutes, 20.35-20:38 and 22.46-22:53. The last three mountings with full erection but without intromission. Later there was light courtship but no mounting from Torgamba. He mostly avoided Bina after these mountings.</li> </ul> <p><b>Period of 24 - 28 December</b></p> <ul style="list-style-type: none"> <li>Serious interest from Torgmba was only observed on 24 Dec around 9:00-11:00. But he only once mountet at 11.14 for 1 minute without erection and he seemed not to be interested in doing more.</li> </ul>

Part 3

**SUMMARY OF  
SEXUAL BEHAVIOR  
OBSERVATIONS**

**SEXUAL BEHAVIOR RECORDS of BINA AND TORGAMBA, 2000**

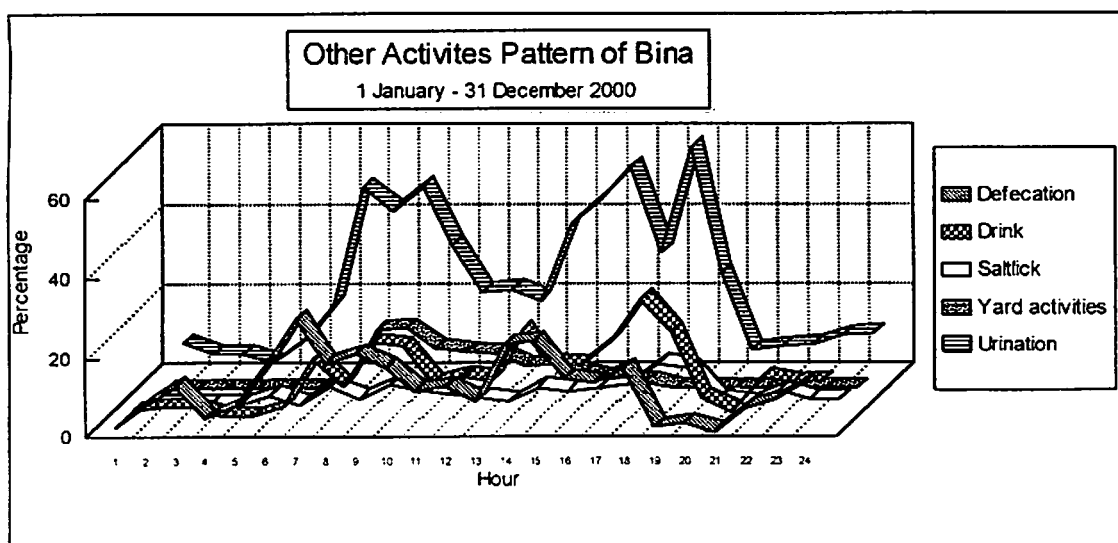
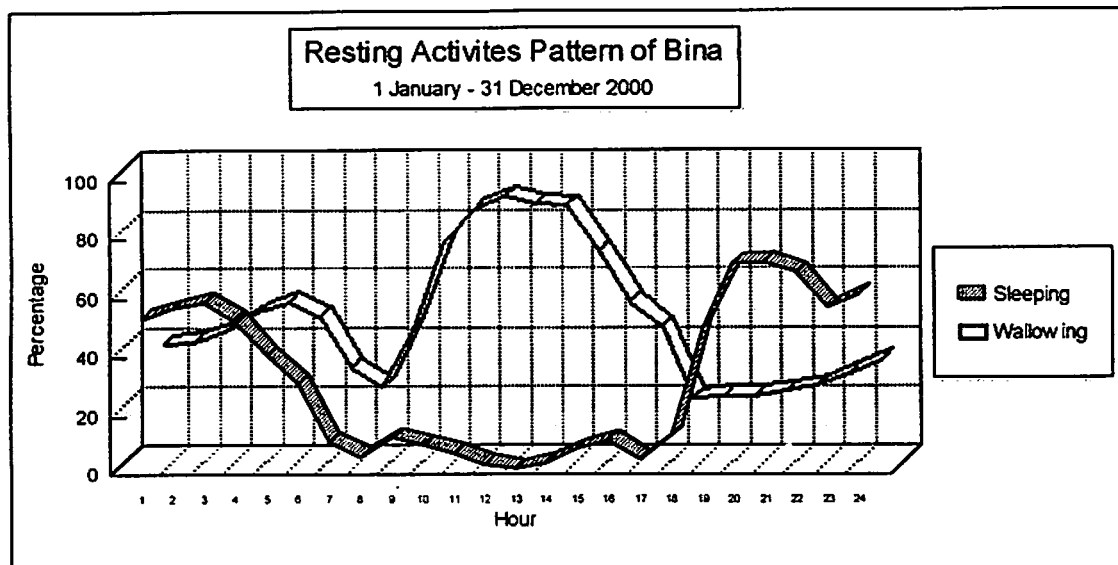
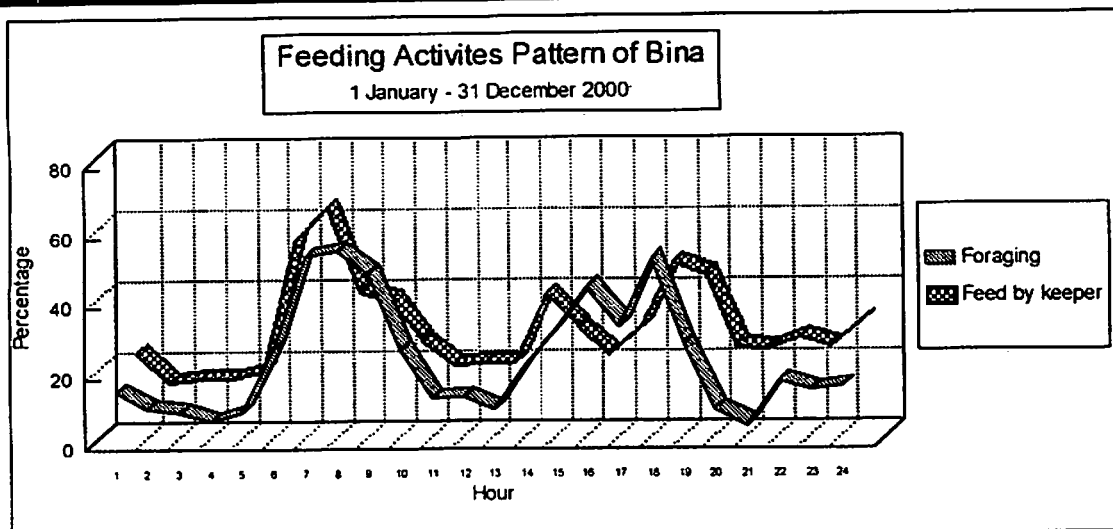
Month (date)	Days of Courtship	♀ Vaginal Oestrus Signs	Cycle length (days)	♀ Standing heat	♂ Mounting	♂ Erection	♂ Penetration	♂ Ejaculation
Jan (14-18)	1	+++	24	-	-	-	-	-
Feb (10-11)	2	++	22	10x	1x	-	-	-
Mar (3-5)	-	++	22	-	-	-	-	-
Mar (23-24)	-	+	17	-	-	-	-	-
Apr (11-12)	-	+	20	-	-	-	-	-
Apr (29-30)	1	++	17	1 x	-	-	-	-
May (17-23)	8	+++	23	10x	5x	2x	-	-
June (11-14)	4	+++	22	25x	17x	10x	1x (10 cm)	-
July (5-6)	1	+++	20	2x	-	-	-	-
July (25-29)	1	+++	25	18x	2x	1x	-	-
Aug (16-23)	7	+++	22	9x	2x	1x	-	-
Sep (7-13)	2	+++	21	11x	2x	2x	-	-
Oct (1-4)	1	+	21	3x	-	-	-	-
Oct (21-27)	4	+++	22	3x	-	-	-	-
Nov (17-19)	3	++	22	-	-	-	-	-
Dec (2-5)	2	+++	16	15x	4x	3x	-	-
Dec (24-26)	2	+++	20	6x	1x	-	-	-
<b>AVERAGE</b>			<b>21</b>					

Part 4

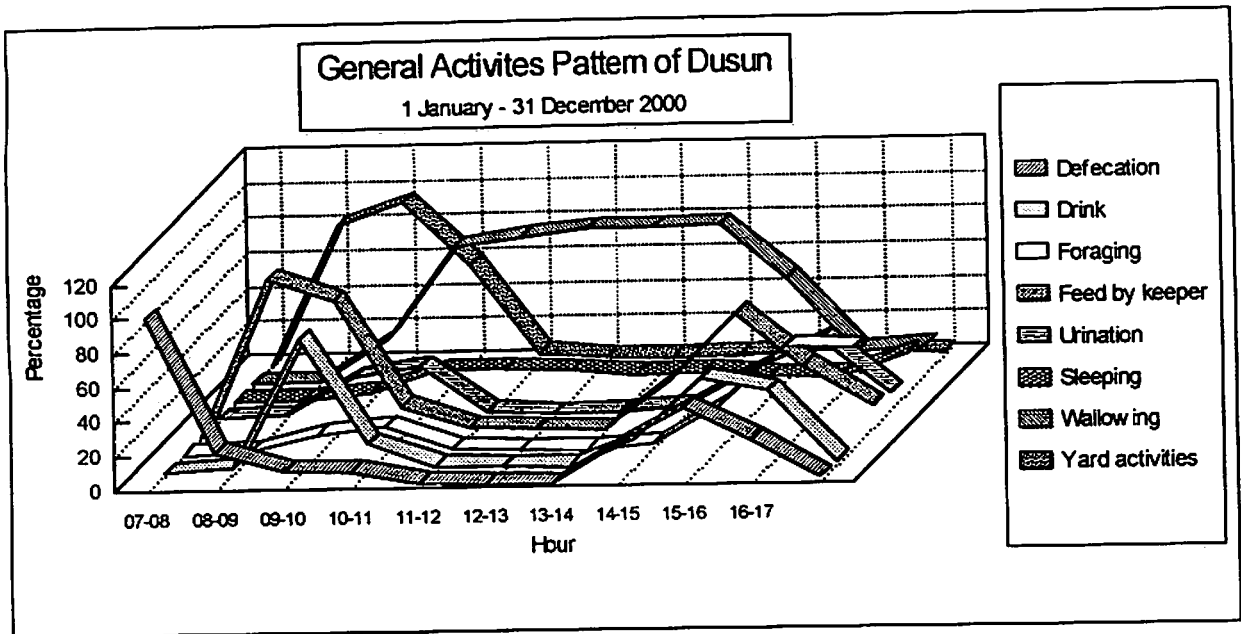
**DAILY ACTIVITY PATTERNS**



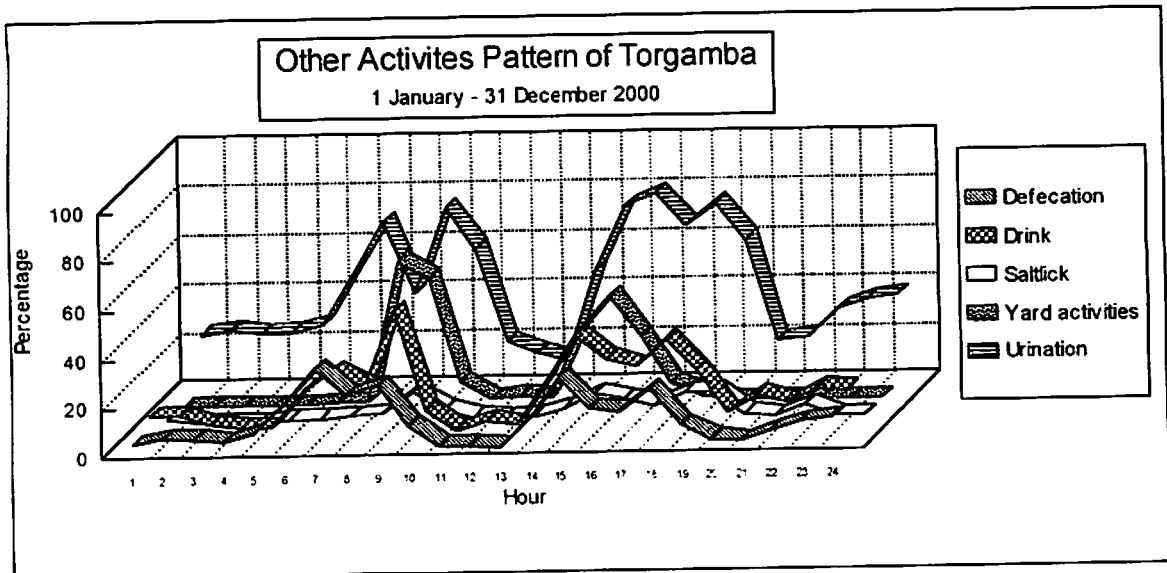
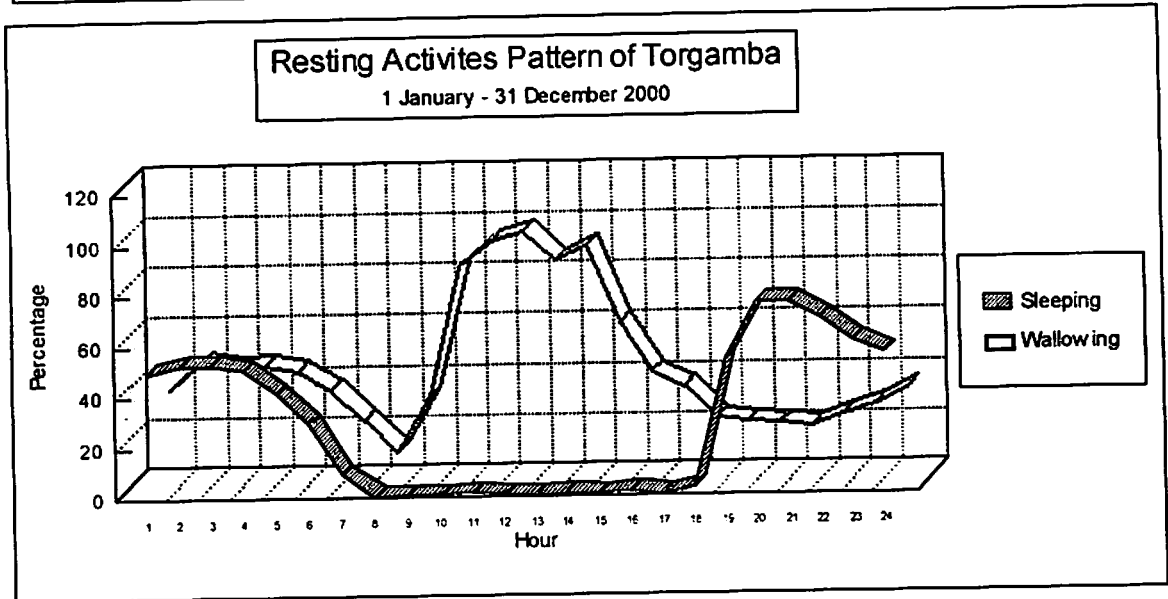
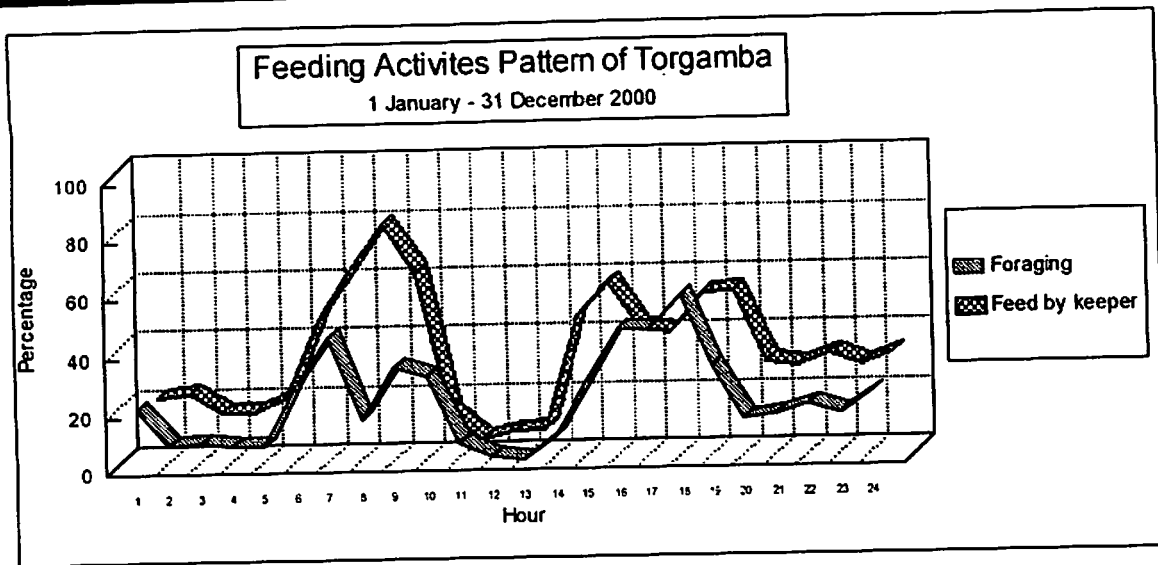
# BINA



# DUSUN



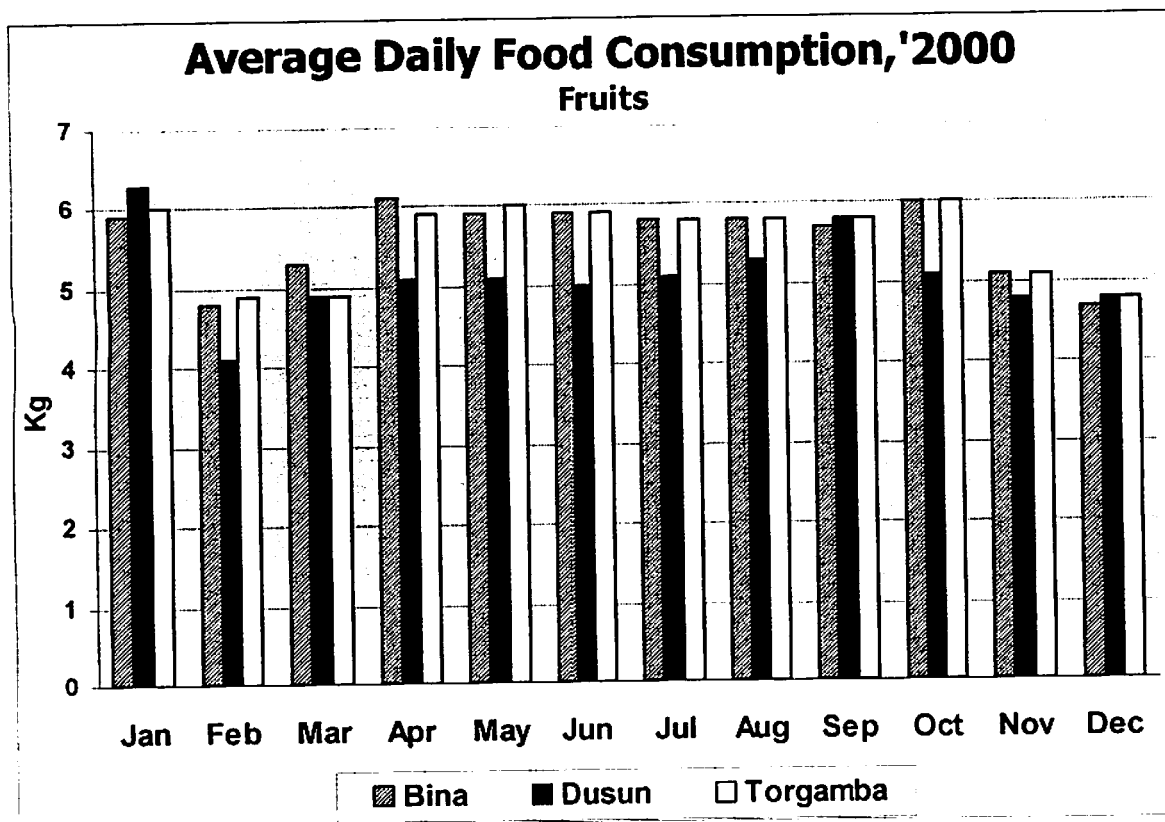
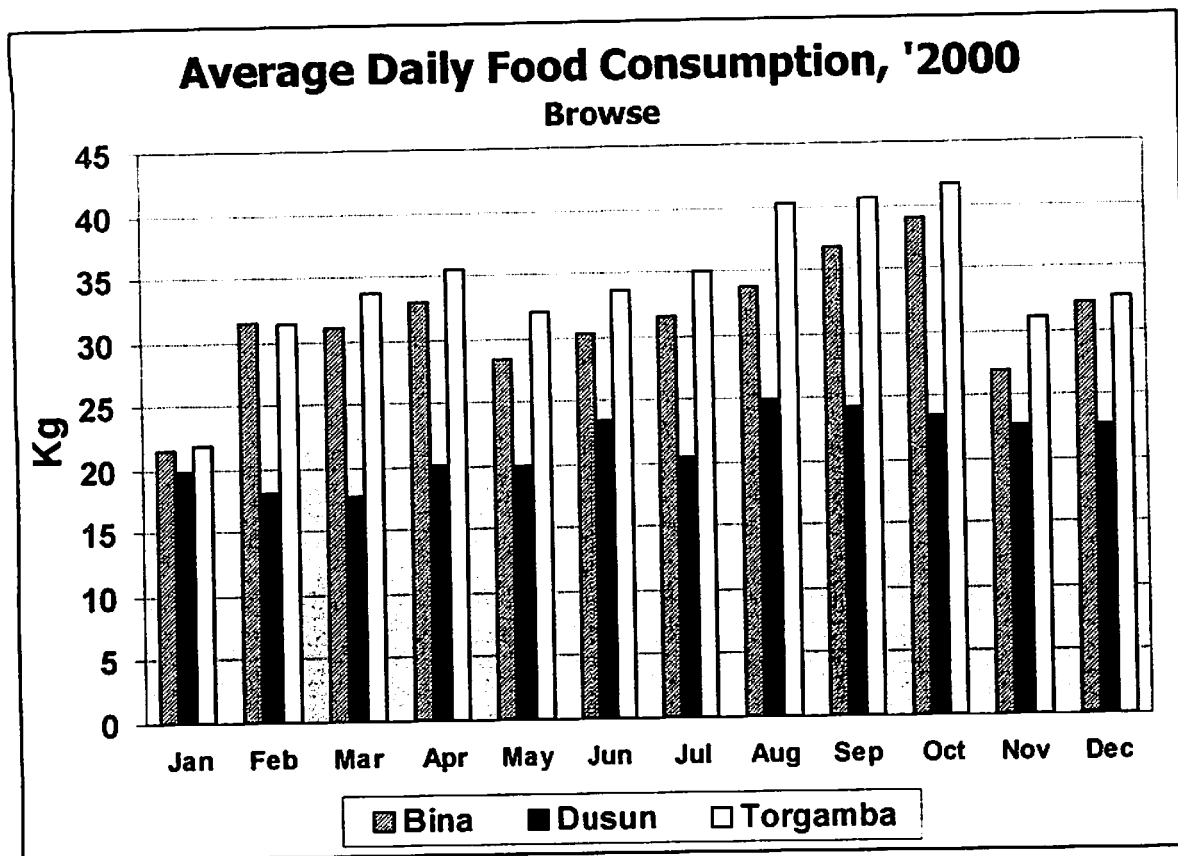
# TORGAMBA



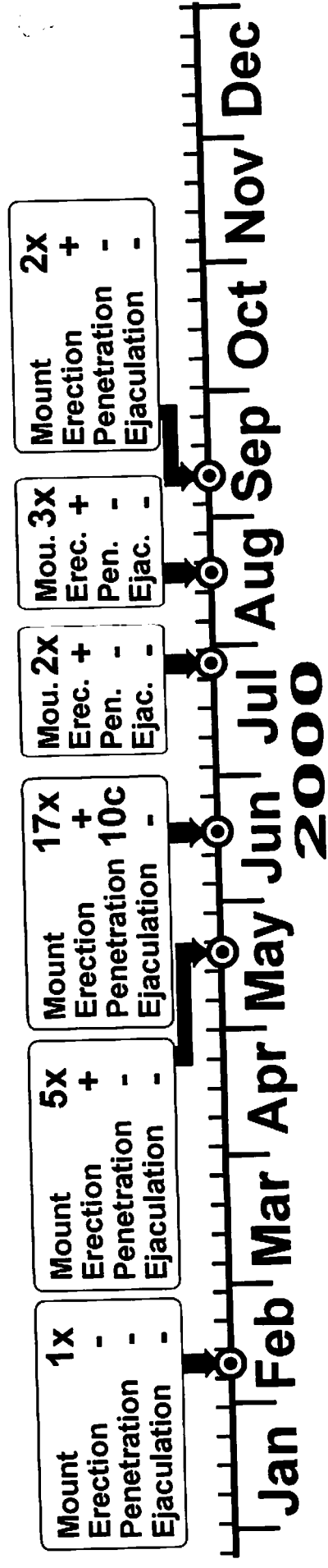
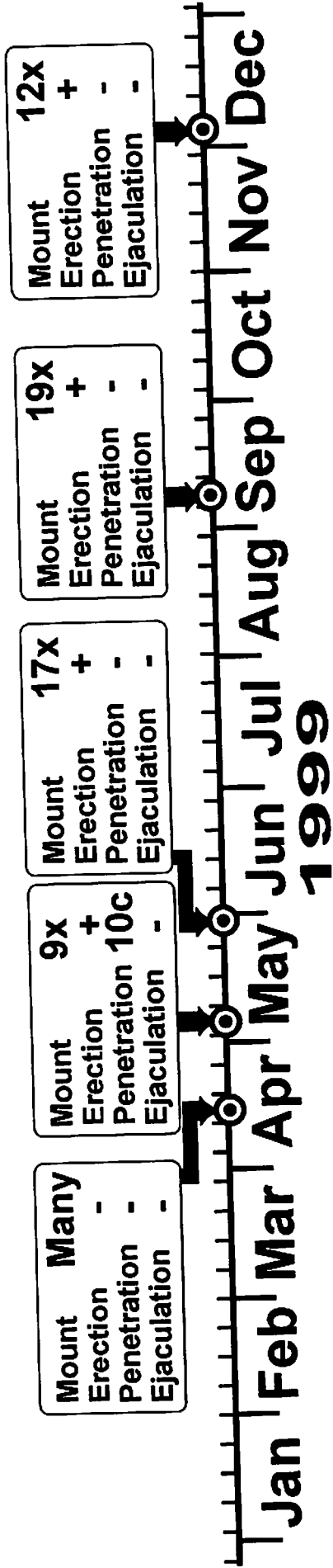
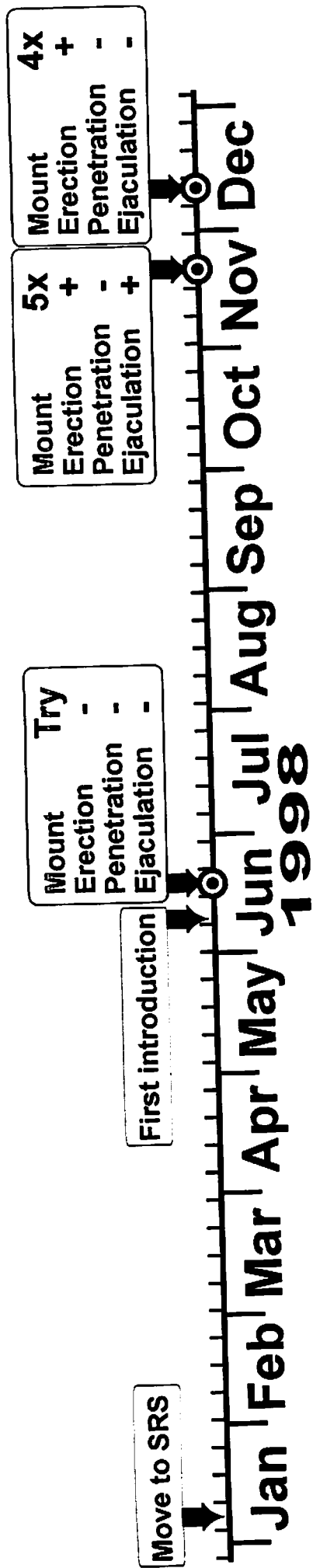
Part 5

**FOOD CONSUMPTION  
AND  
WEIGHT**

**AVERAGE DAILY CONSUMPTION (BROWSE and FRUIT**



# BREEDING CALENDAR TORGAMBA & BINA - SRS



F-H

$H \times 3 + (F-H)$

