

THE STATUS OF NORTHERN WHITE RHINOS
(Ceratotherium simum cottoni) IN ZAIRE, 1992

DISTRIBUTION

The only known viable wild population of the northern sub-species of white rhinoceros (Ceratotherium simum cottoni) is at Garamba National Park in north eastern Zaire. There are 31 in 1992. Their total range is approximately 1,300 km² in the south central part of the park, which is the most secure from poaching.

These are also the only Rhinocerotidae extant in Zaire. Black rhinos (Diceros bicornis) have not been seen, in their previous range, the region of L'Upembe National park, since the 1940s.

A few northern white rhinos may still exist in Sudan. In all other parts of their previous range they are probably extinct (Edroma 1982, Hillman and Smith 1983, Hillman et al 1985, Froment J.M.pers.comm.)

STATUS

The white rhinos at Garamba National Park are increasing. Since 1984 an aid project funded largely by World Wide Fund for Nature (WWF), Frankfurt Zoological Society (FZS) and United Nations Educational and Scientific Organisation (UNESCO) and co-ordinated by the World Conservation Union (IUCN) has been working with the Institut Zairois pour la Conservation de la Nature (IZCN) to rehabilitate the park and conserve the ecosystem. During this time the anti-poaching capabilities have been vastly improved. The rhino population has doubled and the elephant population has increased.

In 1992 there are 31 known individuals at Garamba. The present population structure is given in Table 1. The sex ratio is 1:0.94. The adult to combined juvenile and sub-adult ratio is 1:1.4. The average annual rate of increase between 1984 and the present has been 9.7% (Fig.1). Mean inter-calf interval has been 2.5 years, with one female averaging less than 2 year intervals. Age of first parturition was 7 years for the first known age female to reproduce.

SECURITY SITUATION

There are two main threats to the population:

1. Poaching, which is by far the most important, and had decimated the population twice between 1960 and 1983.
2. Assuming poaching can be controlled there exists the potential for future in-breeding problems. The population passed through a bottleneck of 15 individuals, with a maximum N_e of 11 in 1983. This question is considered under research and monitoring.

The park is about 100 km long north/south and less than 50 km wide. The head-quarters is on the southern boundary, while the northern boundary abuts Sudan. Security is therefore far better in the south. The rhinos and most of the elephants are concentrated there.

The combination of the aid project and the IZCN staff has been largely successful in controlling the poaching since 1984. One factor contributing to the success has been the fact that poaching immediately prior to the project had largely been internal. Minor poaching has continued to occur for meat in the north of the park, but this has not affected the south or the rhinos.

Patrolling consists of sequential 15 day foot patrols of 4-6 men each in the south and 8-10 men each in the north, giving a continual patrolling presence in the park. Placement is by vehicle or aircraft and patrols are backed up by aerial support, observation posts and radio communication. In the south, this is complemented and guided by aerial monitoring of the rhinos, other aerial reconnaissance flights and by a presence in the area, particularly in the short grass period for research and monitoring. These activities make a vital contribution to the rhino conservation. 85% (N=150) of all rhino observations in 1991 were made during our monitoring and research activities. 18% (N=32) were made by guards.

But since mid 1991 poaching pressure has increased following a major influx of arms and ammunition with refugees from Sudan. Over 300 arms and 10,000 rounds of ammunition were recovered by parks staff. 20,000 refugees settled in the town of Dungu on the western border of Domaine de Chasse Azande. Inevitably arms and ammunition are more readily available than previously. This, exacerbated by the plunging economy of Zaire has led to an increase in poaching in the park in 1992. So far this has not, to our knowledge directly affected the rhinos. The poaching is still mainly for meat, and so far confined to the north and the Reserves, but the incidences of elephant poaching have increased. 28 elephant tusks were recovered in the first half of 1992, compared with 16 in the whole of 1991, 14 in 1990 and 23 in 1989.

The increase in poaching is not so far on a large scale, revisions to the strategy have been planned and moves are underway to improve anti-poaching efficiency, but at the same time certain factors threaten to decrease anti-poaching capability:

1. Anti-poaching and monitoring vehicles are at the stage where more time is spent on rescue and repair than on use.
2. Numbers of effective guards have been reduced in recent years by retirements, deaths and desertions and have not been replaced. This leads to a ratio of 8,750 ha. per guard in the south, compared with the 5,000 recommended by the IUCN AERSG and only 8.8 patrol days/ 5x5 km/year in the core rhino area and 2.5 patrol days/5x5km/year in the perimeter.
3. Project budgets have had to be cut due to the world recession and concern about political instability in Zaire, but to combat the current threats, more rather than less money is needed.

MANAGEMENT/RESEARCH/MONITORING PROGRAMMES

The population has been monitored since 1984, with data also from 1983. In addition more detailed studies are underway. Rhino monitoring and research are part of a broader programme of ecosystem monitoring and research projects, orientated towards conservation and management questions.

Objectives of the rhino work are as follows:

Monitoring:

1. Feed-back on anti-poaching success, population dynamics, movements, habitat use, inter-individual relationships.

Research:

2. Investigation of the genetic variability of the population and inter-individual relationships to assess the potential for in-breeding problems.
3. Communication in this low density population
4. Feeding ecology in relation to the seasonal habitat limitations
5. Juvenile/sub-adult/adult behaviour relative to inter-individual relationships.

Genetic variability (2. above) is being investigated using the technique of remote biopsy sampling developed by Karesh et al (1987). Thirteen different individuals have so far been sampled using this technique and the analysis is being carried out at the Dept. of Molecular Genetics, National Museums of Kenya. The rhinos have shown no sign of infection or other ill-effects from the darting. (Smith et al 1992a & Mbayma et al 1992).

In June 1992 three of the rhinos were radio-collared. The broad objectives were

- a) To improve their protection by facilitating their monitoring and follow up by the guards, (1. above)
- b) To facilitate the detailed studies 3 to 5 above.
- c) To profit from the immobilisations by sampling for genetic and disease analysis and by marking sub-adults for long term identification. (2 and 1 above). (Smith et al 1992b)

Radio-collaring and follow-up will be continued in the 1993 dry season. The collars used originated from Telonics but were modified with elastic inserts to ensure safety for the rhinos. Immobilisations were carried out by Dr Pete Morkel of International Wildlife Veterinary Services. (Smith et al 1992b).

NEEDS

In order to be able to respond to the current threats, the following support, complementary to the existing project is required:

1. New vehicles and equipment.
2. Financial support towards research.
3. Back up in the IZCN negotiations to employ more guards.

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NORTHERN WHITE RHINOCEROS (Ceratotherium simum cottoni)

POPULATION STRUCTURE, APRIL 1992

ADULT MALES

		STATUS
M2	'Eletti'	dominant, territory changed in 09.88.
M3	'Kondo akatani'	prior to 09.88 classed as old sub-adult, took over territory of M2
M4	'Bac'	probably dominant.
M5	'Bawesi'	dominant
M6	'Longuecorne'	dominant
M7	'Moitier'	young male
M9	'Notch'	dominant

ADULT FEMALES

F1	'Mama Moke'	with JF
F3	'Kunalina'	with JM
F4	'Boletina'	with IF
F5	'Mama Giningamba'	with JM
F6	'Pacque'	with JM and SF
3aF	'Kuni'	born c.9-10/83, with JM

SUB-ADULTS

1aM	'Moke'	S2, male, born mid 1983
4aM	'Bolete moke'	S2, male, born c. 08-09.1983
5aM	'Giningamba'	S2, male, born 02.85
4bF	'Mai'	S2, female, born 05.85
3bF	'Juillet'	S2, female, born 07.85,
6aF	'Oeuf de Pacque'	S1, female, born 03.86
4cF	'Noel'	S1, female, born 10-11.87 (M2 sire?)
5bF	'Grizmek'	S1, female, born 10.87 (M4 sire?)
6bM	'Elikya'	S1, male, born 06.88
1bM	'Mpiko'	S1, male, born 03-04.89
4dF	'Minzoto'	S1, female, born 08-09.89
5cM	'Molende'	S1, male, born 08.89 (M3 sire?)
3cM	'Solo'	J3, male, born 12.89, partially independent

JUVENILES

3aaM	'Bonne Annee'	J2, male, born 12.90 (M6 sire?)
1cF	'Nawango'	J2, female, born 02.91
5dF	'Jengatu'	J1, female, born 07.91 (M3 sire?)
3dM	'Mamu'	J1, male, born 09.91
4eF	'Sifa'	I2, female, born 01.92

TOTAL KNOWN INDIVIDUALS

Male adults (MA)	7
Female adults (FA)	6
Male sub-adults (SM)	7
Female sub-adults (SF)	6
Male juveniles (JM)	2
Female juveniles (JF)	2
Female infant (IF)	1

TOTAL	31
SEX RATIO	16M : 15F
ADULT:SUBAD.+ JUV.RATIO	1 : 1.4

OBSERVED AND PREDICTED NORTHERN WHITE RHINO POPULATION GROWTH
GARAMBA NATIONAL PARK

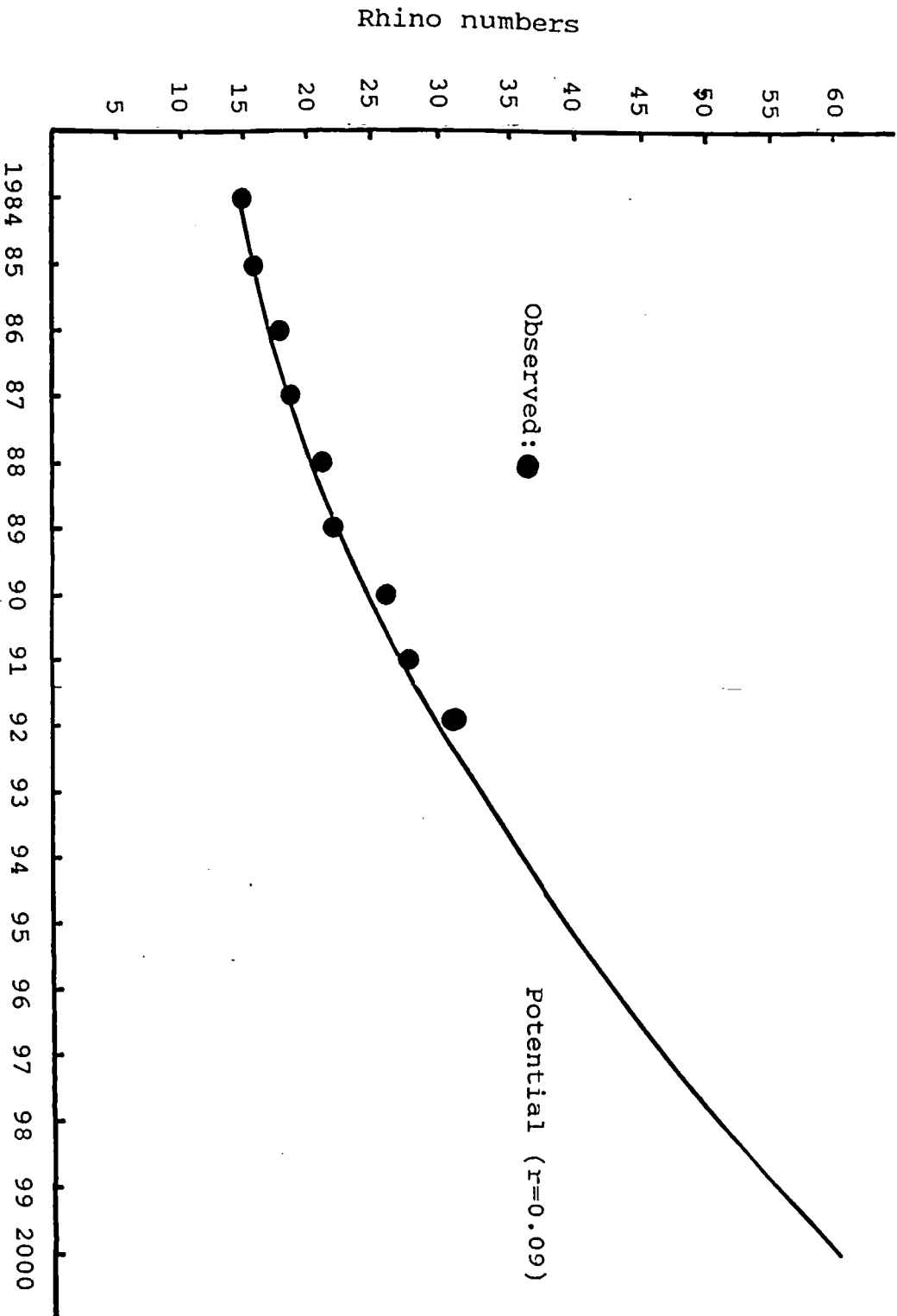


Table 2.

POPULATION DYNAMICS

A comparison between observed demographic parameters in populations of Ceratotherium simum cottoni and C.s.simum.

	C.s.cottoni GARAMBA N.P. 1984-1992	C.s.simum UMFOLOZI G.R. 1969-1973	C.s.cottoni CAPTIVE 1972-1992
Annual rate of increase	9.68%	9.5%	0
Inter-calf interval	2.5 yrs	2.4 yrs	9.2 yrs
Age at first parturition	7 yrs	7 yrs	15yrs
Adult : Sub-adult+juvenile ratio	1 : 1.4	1 : 1.4	1 : 0.8
Sex ratio	1 : 0.94	1 : 1.25	1 : 1.5
REFERENCES	Own data	Owen-Smith 73	Foose in CBSG 92

