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A review of WWF-International projects planned, managed and co-ordinated by IUCN, and a selection of reports from WWF Affiliate Organizations.

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“Conservation is the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.”

World Conservation Strategy



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be sustainable in Kibale Forest. As a result of this analysis, alternative harvesting techniques are suggested which would be more compatible with forest conservation.

Preliminary results of the primatological surveys support the conclusions of the treefall analysis. In forest plots where the rate of natural treefalls has been seriously disrupted by logging, five of seven diurnal primate species exhibit densities which are statistically lower than in undisturbed forest. In several cases, such as the endangered l'hoesti monkey and the threatened chimpanzee, the declines are so drastic that the future survival of the species in Kibale would be unlikely were all of its habitat heavily logged. However, in plots where logging was light enough not to disrupt the natural rate of treefalls, only two of seven primate species showed a statistically significant decline in densities, and even those species that declined could probably still maintain viable populations over large areas of lightly logged forest.

When the analysis of all the data is completed, it is hoped to be able to recommend specific actions that would mitigate the effects of timber harvest on rainforest primates, while still satisfying the demand for an immediate economic return from forest resources.

**Rhinoceros,
African** **Project 1730**
 African Rhinoceros Conservation Project
 WWF Funding 1982/83 — \$6,062
 (Total since 1979 — \$89,589)

See also under Mammals — Elephant. African: Project 1930

Project Initiated 1979

Project Executant Dr Kes Hillman.

Objectives To survey the status of rhinos in Africa to identify ways in which their decline could be halted.

**Participating
Organizations** New York Zoological Society; African Wildlife Foundation;
 Frankfurt Zoological Society; FAO; UNEP; Institut Zaïrois
 pour la Conservation de la Nature (IZCN).

Africa has two races of white rhino, the northern subspecies (*Ceratotherium simum cottoni*) and the southern subspecies (*Ceratotherium simum simum*). Northern white rhinos, distinguished by the shape of their skull, were discovered for the western world in 1900. At that time the only previously known white rhinos belonged to the southern race, south of the Zambezi, over 2,500 km away, and these had been reduced to relict populations once said to number only 10 individuals. Now the situation is reversed. There are over 3,000 southern white rhinos redistributed throughout their former range, while the northern white rhino is on the verge of extinction.

At the start of this century, the northern white rhino probably occurred west of the Nile from the northwestern corner of Uganda and northeastern corner of Zaire, north through Sudan to just above Shambe and west to the present Central African Republic and southern edge of Chad. Throughout this range it had a very patchy distribution, probably determined negatively by the presence of people and positively by the burned riverine grasslands associated with areas of savanna woodland and available water.

Areas that were given theoretical conservation status included: Ajai Sanctuary and the forest reserves of Mt. Kei and Otze in Uganda; Parc National de la Garamba in Zaire; Nimule and Southern National Parks and Shambe and Numatina Game Reserves in Sudan; Réserve de Zemonga and Parc National de Goz Sassoulka in C.A.R. and Chad.

The placid white rhino, grazing in open grasslands and blissfully unaware of what is happening downwind, is easy prey for man. The conservation forces of these countries have often had inadequate resources to protect their vast areas and wars have taken their toll. White rhinos are now extinct in seven, probably eight of the above 'sanctuaries'. Parc National de la Garamba has generally offered the best protection; it was well protected after its establishment in 1928 and the reported 100 rhinos that existed then had increased to an estimated 1,000 to 3,000 before Simba guerilla forces occupied the park in 1963. In 1972, Curry-Lindahl estimated that 900 to 1,000 had been killed during the disturbances. With regained control of the park, numbers increased again and 490 were estimated to be present by an FAO aerial survey in 1976.

The civil war in Sudan also eliminated many rhinos there. The famous rhinos of Nimule were wiped out and most of those near Juba and in Yei district and Numatina have been destroyed. In Uganda, all those in West Nile Province were killed during Amin's time and the subsequent liberation war, and only the odd one or two remain of those translocated to Murchison Falls National Park in the 1960s. In 1969/70 Corfield and Hamilton were unable to confirm the existence of white rhinos in eastern C.A.R. though they have since been found in the west. They have almost certainly been lost from Chad.

As a result of the 1970/80 survey of the status of rhinos in Africa, the northern white rhino was identified as the most endangered of the African rhinos and projects were developed for its conservation in the then relatively high density areas of Shambe Game Reserve in Sudan and Parc National de la Garamba in Zaire. Funds were not immediately available, however, and a new wave of poaching took hold of both countries around 1979/81 as the commercial value of the horn became more widely realised and arms more easily available. An 'Emergency Mission' went to Kinshasa and Garamba in October/ November 1982, consisting of Ian Hughes, Kes Hillman and Paul Dutton, as well as Pat Rogers of FAO and Mankoto ma Mbaelele. Directeur Scientifique et Technique of the Institut Zairois pour la Conservation de la Nature (IZCN). It was ascertained that rhinos still exist in Garamba, although in low numbers, and immediate aid for anti-poaching as well as long-term assistance was proposed.

In 1983, a more detailed survey was carried out by Kes Hillman, in conjunction, for the aerial work in Garamba, with Markus Borner of Frankfurt Zoological Society (FZS) and with members of IZCN and the Wildlife Department, Southern Sudan. Funding for the ground work was from World Wildlife Fund. The aerial work was carried out with the support of FZS and the Global Ecological Monitoring System (GEMS) of UNEP.

Sudan

In Sudan four areas worth investigation were identified:

The area between Tonj and Meshra: There have been no confirmed reports of white rhino since 1976. An aerial reconnaissance is considered necessary.

Proposed Lantoto National Park: The Lantoto area, south of the Yei-Maridi road was covered as part of the Garamba aerial census. It is an attractive, gently hilly area with moderate to thick cover of broadleaved woodland, but very limited availability of water. Almost no animals were seen, apart from an occasional duiker or warthog. Its main value is as a buffer zone to Garamba.

Southern National Park: The situation in Southern National Park represents Southern Sudan's biggest immediate conservation problem. Since the 1980 dry season, the Southern Region has been invaded annually by poachers from the north. Well-armed and mobile, with horses, camels and pack donkeys, they have caused havoc for wildlife and people alike. They concentrate mainly on elephants but kill anything of value and have almost certainly eliminated the white rhino in the west of the region. Each year the poachers have moved further south and east and this year are in greater force than before. They have completely occupied Southern National Park and in March there were estimated to be between 15 and 30 camps in the Park with 10 to 300 men in each. They are far better armed than the Southern Region Wildlife Department staff that are trying to combat them and are equipped with new G3 automatic weapons, radio communications and helicopter support.

It has not so far been possible to carry out a systematic count over this war zone, which in 1980 was estimated to hold 168 white rhinos, but an intensive count over the rhino area is planned when rains have moved the poachers out. So far 220 elephants tusks have been captured from poachers, but it is estimated by one source that 5,000, and by another source that 30,000 elephants have been killed each year. Average tusk weight of elephants shot by one safari company fell from 49 lb to 36 lb from 1980/81 to 1981/82. The large elephants that were easily found four or five years ago have long gone.

Organized poaching has political and military links. Unless stopped, there is no hope for Sudan's northern white rhinos and very little hope for the wildlife as a whole. A well organized, equipped and maintained anti-poaching effort is needed in the south, but it will have minimal effect unless the central government takes action to stop the poaching and the export of ivory.

Shambe Game Reserve and adjacent areas: Most of the ground work in February 1983 was in the Shambe and Alliab Dinka areas. Rhino poaching only started in these regions in the last two or three years, but in that time it has eliminated most of the rhinos.

Preliminary conclusions are that:

- The Shambe region no longer contains enough northern white rhinos to justify a major investment for their conservation but limited help is still badly needed and will be productive.
- The proposed full Game Reserve area should be officially gazetted as soon as possible with an initial compromise on limited grazing and watering rights in the south east, but total human exclusion in the north west.
- The best hope for the area is for an agreement to be made between the Government and a reputable safari company for the long-term tourist development and conservation of the Reserve. There has been a preliminary acceptance of this idea and one meeting has been held.

Zaire

Garamba National Park (4,900 sq km) in Zaire is now the best hope for conservation of the northern white rhinos in the wild. Aerial and ground surveys were carried out there in March 1983.

A critical examination of all results suggests that at least 15 to 20, possibly more, white rhinos still exist in Garamba. They are confined to a fairly localised area.

This dangerously low population should be viable if a major input is made in Garamba, and, if the northern white rhinos already in captivity are managed so as to improve breeding with potential for genetic exchange. Garamba is a beautiful, productive and well-watered area with large numbers of other animal species, particularly buffaloes and elephants (of which there are estimated to be 5,000 in 1,600 sq km). Another major advantage is the established infrastructure which can be re-developed.

Patrol bases are now being established in the rhino area for intensive surveillance. Radio-collaring is suggested as part of the future programme of intensive protection and management.

Good possibilities exist for tourist development of the Garamba, which has several unique features, in particular the only African elephant domestication project.

The results of the survey have emphasised how important it is to develop the breeding and management of the northern white rhinos already in captivity. It was believed that there were only 14 in captivity but recent information indicates that there are more. The possibility of consolidating these animals into two groups is being considered and the International Union of Directors of Zoological Gardens and American Association of Zoo Parks and Aquariums have agreed to oversee a programme. The largest group at present are the eight in Czechoslovakia which are breeding, but slowly. Artificial insemination is being developed and it is possible that semen could be collected from immobilised wild rhinos in Garamba.

South Africa

Between September 1981 and May 1982 eleven black rhinos (*Diceros bicornis minor*) were introduced into Pilanesberg Game Reserve. They were monitored part time after release to assess the success of their establishment and what factors effect it, and to collect data to be used towards working out a carrying capacity and stocking rates for black rhinos at Pilanesberg.

All the rhinos became successfully established, with consistent home ranges beginning to develop within a month after release, no major aggressive encounters or problems recorded, a mating having been observed two weeks after a release and a birth approximately 4.5 months after another release. Overall the observable condition of the rhinos improved after the releases.

The results from Pilanesberg and data from elsewhere indicate that release from holding bomas leads to less stress and risk, less post-release movement and more chance of establishing rhinos where required. Only small numbers of black rhinos should be released from any one point, and with temporal spacing between them. Thicket vegetation and cover are preferred habitat and should be considered in choosing release sites. Releases and release sites should be chosen to minimise the immediate presence of other black rhinos, particularly established males. High densities can build up within an established social system. But the social and psychological disruption caused by translocation greatly increases the risk from

encounters. It is estimated that the potential black rhino carrying capacity of the reserve is considerably in excess of 50 rhinos, possibly up to 100, but that initial stocking rates by translocation should be 30 to 35 rhinos.

It has been shown that to avoid loss of genetic material in small populations, they should build up fairly rapidly in generation times and an effective population (of breeding individuals) of 50 has been suggested as a workable minimum.

The overall density of the reserve is still so low that there are individuals that are too peripheral to be likely to be able to contribute to the gene pool. Increase of the current population is therefore recommended. There are currently six males, five females and a calf. A higher proportion of females than males is needed for further introductions.

Project 1757
Rhino Conservation in Luangwa Valley National Parks,
Zambia
WWF Funding 1982/83 — \$103,196
(Total since 1980 — \$437,891)

Project Initiated 1980

Project Executants Zambian Government; Save the Rhino Trust, Lusaka.

Objective To carry out anti-poaching field operations in the Luangwa Valley, so as to eliminate commercial poaching and benefit elephants, rhinos and other species.

Participating Organizations Norwegian Agency for International Development (NORAD); African Wildlife Foundation; New York Zoological Society.

The Save the Rhino Trust began operations in Zambia in 1980 to combat the escalating commercial poaching of rhino and elephant which had risen to unprecedented levels. With funds raised by a Save the Rhino Appeal, launched by WWF President, HRH the Duke of Edinburgh, during a visit to Zambia, the Trust was able to equip two mobile anti-poaching units with vehicles and radios to patrol the Luangwa and Zambezi Valleys, where there are still viable populations of black rhino.

Additional anti-poaching operations were needed in Zambia, over and above those carried out by the National Parks and Wildlife Services, because of the shortage of finance, transport and manpower, coupled with the world increase in demand for ivory and rhino horn and the subsequent rise in their value. In the five years preceding 1980, the elephant population of the Luangwa Valley had been reduced by about 50,000.