

BLACK RHINO CONSERVATION IN KENYA

"A HISTORICAL BACKGROUND"



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KENYA - BLACK RHINO CONSERVATION

"In my belief there is no animal in the world to-day so greatly in need of skilled and sympathetic care and conservation. We must not neglect, nor unduly delay, the provision of such treatment. If we do, we shall be too late, and Nature will not forget, nor posterity forgive, our dereliction."

These words, written almost five decades ago by the late Captain Archie Ritchie, one time Chief Game Warden of Kenya, are a salutary warning regarding the status of the Black Rhinoceros (*Diceros bicornis L.*).

1. THE DECLINE - HISTORICAL BACKGROUND

In every country in Africa where the Black Rhinoceros occurs there has been a most serious decline of the species since the beginning of this century. In most countries it is now bordering on extinction. Kenya is no exception.

In 1970, the Rhino population for the whole of Kenya was considered to be in the order of 20,000 (Western-IUCN/WWF Black Rhino Survey - 1970). By 1990 the population had decreased to under 400 (Goss-Survey of Black Rhino in Kenya WWF/US-May 1990). This must represent the most appalling example in history of the destruction of a large mammal.

For centuries Rhino horn has been prized in the Far East for its medicinal properties, as well as a powerful aphrodisiac (two myths long since exploded). This steady, but relatively small demand, used to be satisfied by the village poacher primitively armed with his bow and poisoned arrows.

In the mid-1970's the new found wealth in the Middle East gave rise to a new menace. For centuries the magnificently wrought djambia dagger, whose handle is made of Rhino horn, has been a symbol of wealth and power; possession of these daggers had been the prerogative of the exalted few. With the advent of the petro-dollar such daggers are now within the reach of many. It is principally in the North Yemen where these weapons are so highly prized. From around \$35 a kilo, the price of Rhino horn rocketed to over \$500 in 1979. A single dagger was fetching as much as \$15,000. A new and devastating market had been established.

This price explosion caused the relatively harmless village poacher to be replaced by well organised gangs of Shifta, or Bandit, poachers armed with modern automatic military weapons. These gangs are dangerous and extremely aggressive and do not flinch at a shoot out with the law.

In a few years these bandit gangs had succeeded in virtually wiping out the Rhino in Kenya. Undoubtedly, unscrupulous Wildlife Department personnel climbed on the killing band wagon as well, but because of the obvious secrecy in which this was done it is not possible to quantify their contribution to the demise of the species, suffice it to say that in some areas it was considerable.

By the mid-1980's the surviving Rhino were generally too few and too scattered to breed successfully; when they did, the poaching threat still remained. Even if the killing could have immediately stopped, for the Rhino it had become too late, unless effective and alternative action was taken (P.R.Jenkins-Black Rhino Management Plan - November 1983).

International and local concern began to gain momentum and in early 1979 the "Kenya Rhino Action Group" was formed. K.R.A.G. was a loose body of concerned individuals, who met from time to time and debated the plight of the Rhino with the aim to try and pressurise the Wildlife Conservation and Management Department into taking the situation more seriously. They had no terms of reference from the W.C.M.D. and, consequently, were largely ineffective. At one of their early meetings the Working Group tabled information gathered on numbers and status by area, which estimated that the Rhino population for the whole country was in the region of 1500 (Dr.J. King - Minutes of Meeting of Rhino Working Groups-Nairobi 27th April, 1979). It is not known how this figure was arrived at. In actual fact, as it turned out it was considerably less.

ESTIMATES OF RHINO NUMBERS 1982 (WCMD Rhino Census)

Rhino are notoriously difficult to count, even with the use of aircraft. However, at the beginning of 1982 the W.C.M.D. finally decided that before any future long term management plans could be formulated, a country wide survey had to be carried out to obtain an up-to-date assessment of numbers and status of the remaining population. Additional funds were allocated to the Provincial Wildlife Head Quarters and personnel in all the Provinces were mobilised for this census, which took about 4 months to complete.

The results of this census clearly revealed a situation that was far more critical than generally realised in the various National Parks and Reserves, when compared with population estimates for the same areas as recent as 10 years earlier.

TSAVO PARK

Research work by Goddard in the late 1960's had indicated that the population for the entire Park was in the order of 6000 - 9000 (Goddard 1969). Thus Tsavo was the largest strong-hold of Black Rhino in Africa. These figures might have been on the high side, never-the-less they were arrived at after there had been a considerable die off from starvation and malnutrition along the Tsavo-Athi-Galana rivers in the 1960/61 and 1965/66 droughts, when over 300 died (Sheldrick/Jenkins field notes.)

By 1982 the remaining animals had become so few, and so scattered over the Park's 20,820 Km² that it was impossible to effect even a reasonably reliable census, and it was guess-timated that there were no more than 100-150 left. (Woodley pers. comm. 1983). In fact, it is now known the actual number was less than 50.

AMBOSELI PARK

In the 1940-'50's Amboseli was the most famous area in East Africa for Rhino, and was considered to support one of the highest known densities. It was usual to see anything from 20 - 30 Rhino within a couple of hours in the acacia woodlands and swamp area. (Kenya National Parks' reports 1951). At that time the population

was thought to be in the region of 150 in an area of approximately 200 Km². Furthermore, up to the mid-1950's Rhino were in enormous numbers in the entire periphery areas - from Bisil, Namanga, Selengai and through to the western slopes of the Chyulu Hills and Tsavo West. (Jenkins pers. diaries 1948 - 1956).

By 1982 the Amboseli Park population was given as 17. (Western - pers. comm. 1983).

ABERDARE PARK

Up to the mid-1970's Rhino were very numerous, especially in the Salient area. The population for the entire Aberdare Park was estimated at that time to be in the order of 600. (Woodley pers. comm. 1983). It was not unusual to see up to 15 together at the Treetops' Lodge water hole as recently as the early 1970's.

An accurate population figure in this type of forested terrain is impossible to obtain, but the 1982 census figure was given as 132 for the whole Park, and the decline in nightly sightings at Treetops and The Ark indicated a dramatic reduction in numbers. In 1979, 20 fresh carcasses were recorded in one month in the Salient area. (Weller pers. comm. 1983).

Interestingly, the Bandit poacher never touched this area. The decline can be attributed to local meat hunters with dogs and Wildlife personnel.

MOUNT KENYA PARK

Apart from several corridors in the forested area, most of the Park lies above the 11,000 foot contour line and never has been a significant Rhino habitat. Population figures for the bamboo belt and lower forest zones are impossible to obtain. However, up to the late 1950's a considerable number of Rhino did occur in the lower forests on the eastern and southern side of the Mountain - especially in the Gathiuru, Naro Moru and Ragati areas. (Jenkins pers. diaries). They had become virtually extinct in these areas by the late 1970's and the 1982 census figure for the whole Mountain area was given as 30. Again, later surveys showed this was seriously over optimistic.

NAKURU PARK

In the early part of this century Rhino were abundant throughout the Rift Valley, but had disappeared completely from the Nakuru/Elementeita area as far back as the mid-1930's (Simon 1962) apart from a few small pockets on the eastern Mau escarpment. This can be attributed to farming practises. Increasing settlement in the lower Mau forced 2 animals to move into Nakuru Park just prior to it being ring fenced in the late 1970's. The 1982 census recorded 2 in the Park.

NAIROBI PARK

There were no Rhino in this Park when it was gazetted in 1946. They did occur in some numbers a few miles away to the south in the Kitengela area, and were very numerous up to the 1950's in the Rift Valley between the Ngong Hills and Lake Magadi; it was common to see anything from 10 - 15 when driving to Magadi. None were recorded in that area during the 1982 census.

During 1963 and 1964, 12 Rhino were translocated into the Nairobi Park from threatened areas and a further 22 between 1966-1968.

The 1982 population was recorded as 21. (Warden-Nairobi Park pers. comm. 1983).

It was revealed a few years later that this was a gross under estimate, never-the-less it did not effect the overall numbers. (Oloo pers. comm.)

MERU PARK

This area was gazetted as a National Park in 1967 and, thereafter twice yearly aerial counts were carried out as a management policy by the Warden. At that time the Park, and immediate periphery areas, held the biggest concentration of Rhino remaining in northern Kenya - estimated to be in the order of around 200. Serious poaching began in 1975 and by 1978 was totally out of hand. In 1978 a "known" 56 Rhino were killed in a 4 month period.

By 1982 a maximum of 25 Black Rhino remained. In addition there were also 6 White in semi-captive conditions.

MAASAI MARA RESERVE

In 1958 Dr. Fraser Darling estimated that the Rhino population in the Mara-Talek-Sand River triangle was in the order of 100 (Simon 1962). A survey done by Mukenya in 1973 produced a figure of 180 for the entire Reserve. (Western pers. comm.).

This population rapidly declined due to poaching in the mid-to late 1970's, and by 1982 the total known animals remaining in the Reserve was given as 28. (Goss pers. comm. 1983). Most of these were widely dispersed, and extremely shy. Undoubtedly a few remained in the Loita Hills and Nguruman escarpment further east, but there were no records from these areas.

OTHER AREAS

Undoubtedly there were a few scattered Rhino which still existed in some remote areas. Either due to the furtive habits they had adopted for survival, or due to extremely difficult terrain - or both - they were not revealed in this census.

PRIVATE LAND

Two viable Rhino populations existed on privately owned Ranches.

Laikipia Ranch - 98,000 acres. The owner reported a population of 70; however, the W.C.M.D. survey only revealed 32, but the nature of the terrain made an accurate census difficult so the owner's figure was accepted.

Solio Ranch - held between 65 - 70 Black and 26 White Rhino inside a 15,000 acre ring-fenced private game Reserve.

This was the first time a Rhino census covering the entire country had ever been attempted by W.C.M.D. It is now known from subsequent follow up surveys that in practically every area the figures were seriously inflated.

The fact that some Senior Field Wardens had been expressing grave concern about the Rhino situation over a number of years (Sheldrick/Jenkins-written reports to WCMD HQ.), the figure of ONLY 545 Rhino remaining in the entire country came as a serious shock to complacent authorities.

At this point in time actual numbers were of little relevance. It was the "distribution" that was the important issue, and the Survey showed that, with the exception of the Aberdares and the

two privately owned ranches, the remaining Rhino were so widely fragmented and scattered the situation had reached a crisis level.

This desperate situation attracted much attention both locally and internationally. Various international conservation organisations became involved, and others were created specifically for Rhino conservation. Much debate ensued, and the range of ideas and proposals were as numerous as the "experts" who suddenly appeared on the scene. Undoubtedly, all were genuinely concerned but ideas and efforts were not co-ordinated, there was much duplication and some bodies were operating in isolation. Inevitably, main issues became clouded by sentiment and personalities, resulting in essential management requirements becoming confused.

MERU NATIONAL PARK - DECLINE OF RHINO TO EXTINCTION

Short "Case History of Poaching"

This Park is singled out as a "classic example" of what happened between 1968 and 1979 in a small, and what became, a well developed National Park. Furthermore, it was the first Park to receive the undivided attention of Bandit gangs.

1967: The area changed status from a County Council Game Reserve and was gazetted a National Park, under the jurisdiction of the Board of Trustees of the Kenya National Parks. At that time the new Park and its peripheries were regarded as the last and major stronghold of Black Rhino in Northern Kenya.

1968: Up until the end of June, the entire area to the north - including the Park - was under Security Restrictions due to the Somali-Shifta conflict with the Kenya Government. These restrictions were lifted with effect from 1st. July. There were NO resident inhabitants living in the dispersal area from the Park's eastern boundary to Garba Tulla. Kinna village had been vacated. To the west local people, who had cultivated along the boundary of the Park had evacuated the area and moved high up into the Nyambeni Hills.

It soon became obvious that, inspite of the lifting of the Security Restrictions, large gangs of ex-Shifta (Bandits) were roaming the area in groups of up to 60 strong - they were well armed with rifles but had few automatic weapons. They lived off the land, concentrating on poaching Leopard - which they succeeded in virtually exterminating in the entire District, using Jaw Traps.

The Park Ranger Force consisted of 10 ill equipped Rangers. The strength was increased to 20 men and all were sent to the Kenya Army in Nanyuki for 6 weeks' training.

1969 - 1971: Poaching incidents were few and confined to local Tharaka tribesmen from the south with bows and poisoned arrows.

Opening up of new roads and patrol tracks was carried out.

1972: Small groups of well armed Bandits became active in the so-called Bisanadi Conservation Area, lying to the immediate east of the Park. This area came under the jurisdiction of the Kenya Game Department, whose nearest presence was 80 miles away.

These gangs started killing Elephant in significant numbers and, for the first time, posed a security threat when one of the entrance Gates to the Park was raided in broad daylight - a Ranger killed and his rifle taken.

1973: Somali tribesmen moved into the Bisanadi Conservation Area in increasingly large numbers, and for the first time started grazing illegally inside the Park. Over 2000 head of cattle were impounded.

Known Rhino killings were insignificant, but Elephant killings increased outside the Park.

The Ranger Force was strengthened and brought up to 30 men.

1974: Illegally grazing pressure increased - over 4000 head were impounded between June and August.

Rhino killings started to escalate. To contend with this the Field Force strength was increased again, to 40 men.

1975: The increase in the Force obviously paid off - illegal grazing declined almost nil and poaching incidents dropped.

1976: The Kenya National Parks and Kenya Game Department were amalgamated in an ill conceived, and badly planned, merger and the new organisation became the Wildlife Conservation and Management Department.

Up to the end of 1976, 98% of all poaching incidents, inside the Park were committed by gangs with bows and poisoned arrows.

1977: In 1977 this changed - the ratio was approximately 60% of poaching incidents committed by poisoned arrow gangs and 40% by Bandits with weapons.

At the end of September, 3 newly released free ranging White Rhino were "herded" across the Park boundary and shot together. A few days later, 5 Black Rhino were shot in two days just inside the Park in the same area. The follow-up investigation revealed an active connivance with some of the Rangers, who had become "compromised", and provided information to a Bandit gang on Rhino whereabouts through an "agent" in Kinna.

At this time the strength of the Force had been reduced to 24 men, due to W.C.M.D. postings with no replacements.

Shoot outs with Bandit Gangs increased and Rangers started to be killed in these contacts.

1978: Elephant numbers in the Bisanadi Conservation Area had been dramatically reduced (data from aerial counts - ratio of live-to-carcass figures.)

Poisoned arrow poaching ceased - 100% of all killings were now done by gangs armed with weapons.

By the end of the year, after allowing for stepping up of Guards at the Park H.Q. for security reasons, there were only 6 Rangers available for anti poaching operations.

From January 1978 to 16th March 1979 53 Rhino were "known" to have been shot.

1979: In January, a TOTAL count carried out in the main area of concentration revealed only 14 Rhino.

In March the same area was recounted and revealed only 7.

SUMMARY OF RECORDED RHINO KILLINGS

1968 - 1972	NIL recorded carcasses
1973	NIL recorded carcasses
1974	15 recorded carcasses
1975	5 recorded carcasses
1976	18 recorded carcasses
1977	34 recorded carcasses
1978 - 16.3.1979	53 recorded carcasses

TOTAL of 125 KNOWN Rhino killings in the period detailed. By no means were all carcasses located.

Between January 1976 and 21st. February 1978, no less than 15 different reports had been submitted by the Senior Warden, Meru Park, to W.C.M.D. Head Quarters, Nairobi, expressing grave concern over a deteriorating situation. Not one was answered or even acknowledged.

(Jenkins-Warden's Reports - for the period discussed.)

Aerial Counts revealed the same situation. Between August 1976 and March 1979 the Biologist, Meru Park Research Section, carried out 8 sample counts of the Park, using a radar altimeter equipped aircraft, flying from 9 to 44 regularly spaced parallel transects at 300 ft. above ground level. Sample intensity varied from 4% to 31%. The summarised results showed -

<u>DATE</u>	<u>LIVE ESTIMATES</u>
Aug. '76	127
June '77	113
Oct. '77	40
Jan. '78	72
Aug. '78	61
Sept. '78	33
Jan. '79	0

These were sample estimates and the confidence limits⁺ (−), precision and accuracy are irrelevant. The interesting factor was the trend indicator. Between August 1976 and June 1977 there were sufficient Rhino to produce consistently high estimates. This was no longer so by October 1977. Indeed, in that count a low live estimate was accompanied by a high dead (carcass) estimate of 40.

(Report - Meru Park Biologist to Senior Warden - 5.3.1979).

It is probably no coincidence that the general poaching situation deteriorated after the 1976 amalgamation of the National Parks and Game Department. In fact, this state of affairs effected all the National Parks. There were many reasons, some of which were -

the new Wildlife Conservation and Management Department never became a cohesive organisation;
the specially recruited and well trained National Parks' Field Forces were reduced in strength, with postings to new National Reserves of dubious benefit to the country; for example - 116 Officers' movements occurred between August 1977 and August 1978 -
575 Ranger movements occurred in the same period;
there was a breakdown of discipline, resulting from the cumbersome Government methods of disciplinary procedures;
vote heads, under the Government system, were totally inadequate for the management of National Parks;
inexperienced, and often incompetent, Wardens were placed in charge of important National Parks;
inefficiency, laziness and corruption became rife throughout the organisation;

This breakdown, coming at a time when prices for Rhino horn and Ivory were rising sharply, played a major contribution to what happened to both the Rhino and Elephant populations.

The Poacher-Bandit elements, through their Agents and Masters, would have been well aware of the total disarray and incompetence

within the Wildlife Department at that time.

THE POACHER

Up to the early 1970's killing of Rhino had been confined to the bush poacher, with his bow and poisoned arrows. Some local communities were more efficient than others -

Meru Park

Tharaka

Tsavo Park

Waliangulu

Wakamba

to a much lesser extent - the Teita.

The Somali Shifta, or Bandit poacher, arrived on the scene in the early 1970's. Their arrival was almost certainly partly political. Not only are they extremely tough and provocative, they are well armed and many have either had military training or combat experience, or both. Their presence not only destabilises large areas, but they chased the traditional bush poacher out of the area. Although in relatively small numbers, they cover huge distances, have a highly organised intelligence system of their own, and their life style - as Bandits - makes them an adversary to be reckoned with.

The extent of involvement by corrupt, disillusioned Rangers - and, in some cases, behind the scenes their Officers - cannot be quantified because of the massive cover ups that are inevitably used. In some areas it was considerable.

The involvement of Wildlife personnel can be directly attributed to lack of leadership, lack of motivation, poor conditions of service and indifferent selection and training. Unless these matters are properly addressed Wildlife Conservation will fail in the long term.

2. RHINO SANCTUARIES - HISTORICAL BACKGROUND

A Memo. to the Director, Wildlife Conservation and Management Department, had already been submitted by the Senior Warden, Meru Park, in 1980 recommending the creation of Special Sanctuaries. This was followed by another one in 1981.

Surprisingly, in view of the fact that the seriousness of the situation was already clearly apparent, there was luke warm response to these proposals. Many conservationists were either sceptical or outright opposed to the idea, and produced all sorts of reasons why they would not work.

In fact, a senior expatriate Planner, attached to W.C.M.D. at that time, was doubtful IF the situation was even serious enough to warrant such radical forms of management! (Dr. J. Thorsell - pers. comms. - Jenkins May 1981).

Anti poaching measures were stepped up and surveillance increased over some populations. Inspite of this, Rhino continued to decline, especially in the remoter areas. For example:

<u>Early 1983:</u>	Meru Park	-	down to 5
	Amboseli Park	-	down to 8
	Maasai Mara Reserve		down to 15 "known".

The Director instructed the Senior Warden Planning (Northern) to devote his full time attention to the Rhino situation. A report "Rhino Situation" was sent to the Director (Ref.SW/PL/N.W.Rhino - dated 5th May 1983). Resulting from this, instructions were given to examine the feasibility, and make recommendations, for creating "Special Rhino Sanctuaries" in suitable National Parks and Reserves. Surveys were carried out in the following areas -

Maasai Mara National Reserve
Luonyek LMD Holding Ground
Bogoria National Reserve
Hell's Gate National Park
Amboseli National Park
Lake Nakuru National Park
Aberdare National Park
Tsavo National Park
Meru National Park
Lewa Downs Ranch.

A "BLACK RHINO MANAGEMENT PLAN" was drawn up (Jenkins-November 1983) and accepted by W.C.M.D. as a broad policy document.

On the 23rd. May, 1984, the Director W.C.M.D. announced the creation of the "SAVE THE RHINO PROJECT", in a circular to all Department heads and N.G.O.s (Wildlife Conservation and Management Department - Save the Rhino Committee - D..M.Sindiyo-Director). This confirmed the policy of the Kenya Government to establish well protected, ring-fenced, Rhino Sanctuaries in certain selected areas as a priority. A working Committee was formed and Terms of Reference identified at the first meeting on 29th May, 1984.

The declared objectives were -

1. To develop Special Rhino Protection/Management Sanctuaries in National Parks/Reserves and any other suitable area.
2. To capture and translocate isolated, and/or threatened, Rhino into these Sanctuaries.

3. To protect and manage these Sanctuaries (both Rhino and habitat) with the view to breeding adequate stocks for the eventual restocking of Parks and Reserves.
4. To improve and develop management skills necessary for the management of these Sanctuaries through Research and Training.

The timing period was -

1st. July 1984 through to December 1988.

The declared target was -

1. To have developed fully three (3) Rhino Sanctuaries AND to have up-graded two National Parks to the status of fully protected Rhino Sanctuaries.
2. To have captured and translocated all known and threatened Rhino.
3. To have developed new management skills and also trained special surveillance units.

(D.M. Sindiyo-Director W.C.M.D.-Department circular 23rd. May 1984.)

Resources and the necessary personnel were identified. Budget estimates were drawn up, with indicators of what the Government of Kenya could provide, and what Aid would be needed.

Certain criteria were taken into account when planning the future Rhino Sanctuaries -

The National status of the area for the long term future.
Suitability of habitat.

Security potentials.

Accessibility - Feasibility for electrified fencing.

Permanent water.

The following priority areas were then identified - namely:

NAKURU NATIONAL PARK	The entire Park to be up-graded to Special Rhino Sanctuary status.
NAIROBI NATIONAL PARK	The entire Park to be up-graded to Special Rhino Sanctuary status and surveillance intensified. No additional Rhino translocation required.
ABERDARES NATIONAL PARK	The Salient Area to be ring fenced and surveillance intensified.
MERU NATIONAL PARK	An area of approximately 40 Km. ² to be ring fenced adjacent to the western boundary of the Park.
TSAVO NATIONAL PARK	To be considered as a Sanctuary area at a later date, when populations can be translocated from built up populations in the smaller Sanctuaries. A surveillance team to be established.
MAASAI MARA RESERVE	Re-organise and improve the Surveillance Team.
NGENG VALLEY	Improve and intensify surveillance.

WILDLIFE CONSERVATION AND MANAGEMENT DEPARTMENT

"SAVE THE RHINO PROJECT"

PROJECT STEERING COMMITTEE

Chairman	-	Director, W.C.M.D.
Vice Chairman	-	Deputy Director - Research
N.G.O.s		W.C.I.
		A.W.F.
		A.F.E.W.
		E.A.W.L.S.
		Elsa Trust
		Sheldrick Trust
		I.U.C.N.

<u>OPERATIONS SECTION</u>		<u>MANAGEMENT SECTION</u>	<u>TECHNICAL SECTION</u>	<u>VETERINARY SECTION</u>
<u>Functions:</u>		<u>Functions:</u>	<u>Functions:</u>	<u>Functions:</u>
i.	Programmes Co-ordination	i. Collection/analysis data	i. Technical matters.	Veterinary
ii.	Capture-Translocations	ii. Monitoring Populations	ii. Design/Specs.-Fences	
iii.	Security	iii. Habitat	iii. Construction-Supervision	
iv.	Distribution Surveys	iv. Reports-Management Papers	iv. Management Techniques.	

Rhino Management Areas

Meru N.P.	Aberdare N.P.
Mara N.R.	Solio
Amboselei N.R.	Laikipia
Nairobi N.P.	Lewa Downs
Tsavo N.P.	Marsabit N.R.
Wamba Stn.	Ngeng
Nakuru N.P.	Loita

WORK PROGRAMME:

The order of activities in the Development needed for Special Rhino Sanctuaries was laid down as:

Fencing:

Clearing and preparation of boundaries, construction and electrification of fence with monitoring systems, construction of fence maintenance camps at approximately every 7.5 km. intervals.

Water:

Development of permanent water supplies in the form of boreholes where necessary, windmills, artificial waterholes and dams.

Security:

Construction of sub-Head Quarters and patrol outposts where necessary. Improvement of security radio system.

Holding Pens:

Construction of holding pens where necessary to a uniform design.

Patrol Tracks:

Construction of patrol tracks where necessary for routine patrolling, surveillance and monitoring.

Vegetation Surveys:

Vegetation surveys will be carried out for each Sanctuary on implementation with an on-going monitoring of vegetation trends for feasibility studies to improve rhino browse.

Staff:

Deployment of appropriate staff for management of each area. Implementation of appropriate management considerations in section 4 prior to translocation.

Translocation:

Translocation of Rhino will be effected as necessary-programmed by the Rhino Management Section.

Research:

A research unit set up to monitor Rhino behaviour prior to and after translocation to determine density patterns, feeding preferences for each area and carry out general ecological surveys of each Sanctuary in detail.

A detailed development and management plan/work programme was drawn up for each area on the lines of the Nakuru Rhino Sanctuary Development and Management Plan prior to implementation. Each area would have different requirements and would require its own infrastructure in the form of personnel, transport, equipment and recurrent funding allocations.

BUDGET ANALYSIS:

NAKURU SANCTUARY - DEVELOPMENT FUNDS:

a) Fencing	K.£155,000
b) Water	50,000
c) Security	50,000
d) Holding Pens	5,000
e) Patrol Tracks	4,000
f) Vegetation Survey	1,000
g) Staff	-

<u>Nakuru Sanctuary cont.:</u>	c.fwdK.£	265,000
h) Translocation		55,000
i) Research		-
j) Bridges		10,000
k) Radios		20,000
		<u>350,000</u>
20% Contingencies		<u>70,000</u>
	TOTAL: K.£	420,000
		=====

NAIROBI SANCTUARY - DEVELOPMENT FUNDS:

a) Fencing		138,000
b) Water		20,000
c) Security/Radios		30,000
d) Holding Pens		-
e) Patrol Tracks		-
f) Vegetation Survey		1,000
g) Staff		-
h) Translocation		-
i) Research		-
j) Bridges		-
		<u>189,000</u>
20% Contingencies		<u>37,800</u>
	TOTAL K.£	226,800
		=====

ABERDARES SANCTUARY SALIENT - DEVELOPMENT FUNDS:

a) Fencing		190,000
b) Water		-
c) Security/Radios		40,000
d) Holding Pens		-
e) Patrol Tracks		3,000
f) Vegetation Survey		2,000
g) Staff		-
h) Translocation		40,000
i) Research		-
j) Bridges		-
		<u>275,000</u>
20% Contingencies		<u>55,000</u>
	TOTAL K.£	330,000
		=====

MERU SANCTUARY - DEVELOPMENT FUNDS:

a) Fencing		120,000
b) Water		-
c) Security/Radios		40,000
d) Holding Pens		3,000
e) Patrol Tracks		1,000
f) Vegetation Survey		1,000
g) Staff		-
h) Translocation		30,000
i) Research		-
j) Bridges		-
		<u>195,000</u>
20% Contingencies		<u>39,000</u>
	TOTAL K.£	234,000
		=====

SPECIAL RHINO SURVEILLANCE UNITS:

<u>ABERDARE NATIONAL PARK</u>		<u>DEVEOPMENT</u>	<u>RECURRENT</u>
a) 2 Land Rovers @ £10,560	K.£	21,120	-
b) Radio Equipment		10,450	-
c) Rangers Accommodation		6,000	-
d) 20% Contingencies		<u>7,500</u>	-
		45,070	
		=====	
e) Vehicle Running & Maintenance @ £4000 p.a. x 4 yrs.	K.£	32,000	=====
<u>NAIROBI NATIONAL PARK</u>			
a) 1 Land Rover		10,560	
b) Radio Equipment		3,680	
c) 20% Contingents		<u>2,850</u>	
		17,090	
		=====	
d) Vehicle Running & Maintenance @ £3000 p.a. x 4 yrs.		12,000	=====
<u>BOTH TSAVO NATIONAL PARKS</u>			
a) 4 Land Rovers @ £10,560		42,240	
b) Radio Equipment		20,900	
c) Rangers Tentage & Accommodation		8,000	
d) 20% Contingents		<u>14,200</u>	
		85,340	
		=====	
e) Vehicle Running & Maintenance @ £16,000 p.a. x 4 yrs.		64,000	=====
<u>BRITISH TECHNICAL AID</u>			
Operating Costs for 3 donated vehicles @ £12,000 p.a. x 3 yrs.		36,000	=====
<u>RESEARCH</u>			
a) IBM Computer system		7,000	
b) External rhino translocation study		=====	40,000
		=====	
<u>VETERINARY SERVICES</u>			
Capture, treatment & after care of rhinos, plus transport expenses for Honorary Veterinarian services		50,700	=====
	<u>TOTALS:</u>	K.£ 1,365,300	234,700
		=====	=====
<u>SUMMARY</u>			
a) Nakuru Sanctuary		420,000	
b) Nairobi Sanctuary		226,800	
c) Aberdare Sanctuary		330,000	
d) Meru Sanctuary		<u>234,000</u>	
		1,210,800	
		=====	

<u>RHINO SURVEILLANCE UNITS</u>		<u>DEVELOPMENT</u>	<u>RECURRENT</u>
a) Aberdare National Park	K.£	45,000	32,000
b) Nairobi National Park		17,090	12,000
c) Both Tsavo National Parks		<u>85,340</u>	<u>64,000</u>
		147,500	108,000
		=====	=====
<u>BRITISH TECHNICAL AID OFFICERS</u>			
Vehicle Operating costs			36,000
<u>RESEARCH</u>		7,000	40,000
<u>VETERINARY</u>			<u>50,700</u>
	<u>TOTALS</u>	K.£ 1,365,300	234,700
		=====	=====
<u>TOTAL BUDGET</u>	K.£	<u>1.6 Million</u>	

	<u>IMPLEMENTATION SCHEDULE: (4 years)</u>	1985	1986	1987	1988
a) Nakuru Park	(Rhino Sanct.)	X	X		
b) Nairobi Park	(Rhino Sanct.)	X	X	X	
c) Aberdare Park	(Rhino Sanct.)		X	X	
d) Meru Park	(Rhino Sanct.)			X	X
e) Maasai Mara Reserve	(Surveillance Unit)	X	X	X	X
f) Ngeng Valley	(Surveillance Unit)	X	X	X	X
g) Tsavo Park (East & West)	'Surveillance Unit)	X	X	X	X
h) Aberdare Park	(Surveillance Unit)	X	X	X	X
i) Nairobi Park	(Surveillance Unit)	X	X	X	X

(KENYA RHINO RESCUE PROJECT" Document-Min. of Tourism & Wildlife-WCMD. - August 1985)

(Budgets are given in K.£ - equivalent in US \$ as at 1985 not known)

3. POPULATION NUMBERS and TRENDS - HISTORICAL BACKGROUND

A re-assessment of Rhino numbers and distribution was made at the beginning of 1985 and submitted to the Director, W.C.M.D. (PROPOSALS FOR FUTURE RHINO SANCTUARIES - Jenkins February 1985).

From available information at that time this showed -

1. NATIONAL PARKS and RESERVES:

1.1 Meru Park	5	Black
	6	White
1.2 Tsavo Park	100	Black - guess-timate
1.3 Nairobi Park	28	
1.4 Aberdare Park	120	- guess-timate
1.5 Mount Kenya Forest	30	- guess-timate
1.6 Amboseli Park	8	
1.7 Marsabit Reserve	5	- guess-timate
1.8 Maasai Mara Reserve	15	
1.9 Nakuru Park	2	

2. OTHER AREAS:

2.1 Eldama Ravine	2
2.2 Kiplambe	1
2.3 Rimoi	3
2.4 Nanyuki	2
2.5 Sirimon	3
2.6 Mwea	2
2.7 Karawa	1
2.8 Sericho	1
2.9 Londiani	1
2.10 Wamba	1
2.11 Kibwezi	3
2.12 Ngeng	18
2.13 Lolokwe	5

3. PRIVATE LAND:

3.1 Solio Ranch	71	Black	34	White
3.2 Lewa Downs Ranch	9	Black	1	White
3.3 Ol Jogi Ranch	6	Black		
3.4 Laikipia Ranch	60	Black		

4. TOTAL (January 1985)

	<u>BLACK RHINO</u>	<u>WHITE RHINO</u>
4.1 Parks and Reserves	313	6
4.2 Other Areas	43	-
4.3 Private land	146	35
	<u>502</u>	<u>41</u>

Tsavo East and West
Aberdares
Mt. Kenya
Marsabit

The numbers for these areas were given as guess-timates, and, therefore, by implication "questionable". There might have been more - equally there could have been less. The Steering Committee expressed dissatisfaction with this form of Rhino reporting. Directives were issued to all Wardens in charge of Parks/Reserves and other Areas where Rhino were known to exist that monitoring, surveillance and more precise reporting of numbers had to be given

3. top priority. Monthly details of all Rhino had to be submitted to the Steering Committee. In order to provide this information Special Surveillance and Monitoring Teams were created. In some of the remote "Other Areas" what became known as "Rhino Watchers" were employed from the local people, and paid by various N.G.O.s. Ironically, on the whole they proved more reliable than Wildlife Department personnel! A reward system was also started to pay local people for any information regarding scattered Rhino.

In due course more precise monitoring did show that the "guess-timates" for the above areas had been seriously inflated and the corrected numbers, therefore, revealed a situation that was borderline.

Black Rhino have a notoriously bad reputation and surveillance duties in some types of terrain is not only tedious, but can be an extremely hazardous occupation, not generally popular. In the final analysis, the effectiveness of these Teams depended very much on the attitude and dedication of the local Wardens. Inspite of the publicity the Rhino Situation was attracting from all over the world, some of the Officers continued to display a remarkable indifference - an indifference which naturally percolated into the Other Ranks. Furthermore, poaching still continued in the remote areas, and by the end of 1985 most of the Rhino listed in "Other Areas" had gone.

Between 31st. January and 20th February, 1989, all areas, with the exception of Ngeng Valley, that had been placed under active Rhino conservation were visited.

The objective was -

- a) Obtain an up-date on all areas, particularly with regard to:
 - i. management;
 - ii. security;
 - iii. personnel;
 - iv. transport;
 - v. equipment.
- b) Assist with, and assess, the effectiveness of the new Card Index system for management monitoring - introduced in October 1988.
- c) Determine and advise on what additional data is needed for improved management.
- d) Determine an optimum stocking level for each area.
- e) Determine a management level for each area.
- f) Consider where translocation might be needed in the future.
- g) Consider if improvements in (a) - (c) are needed and make recommendations as necessary.

Brief on areas visited:

a. NGULIA SANCTUARY - TSAVO

Approximately 20 Km.² - Ring fenced.
Extension of a further 20 Km.² about to start.

Black Rhino	Adult females	8
	Calf	1 (sex not known)
		9 TOTAL

Security 10 Armed Rangers
Transport 1 WCMD Land Cruiser - very old

3. Ngulia cont:

Transport General One Bedford 4 x 4 lorry-British High Commission
Recurrent operating costs being largely met by Sheldrick Wildlife Appeal & British High Comm.

b. AMBOSELI PARK

Black Rhino	Adult males	5	
	Adult females	2	
	S/adult male	1	8 TOTAL

Transport All very old-none available for full time surveillance.

General The long term future of this isolated population with a heavy bias on males, will need consideration. Detailed observations are needed, and a small team must be created for this.

C. NAIROBI PARK

Approximately 70 Km.² - fenced on three sides.

Black Rhino 50 - 55 (Goss latest WWF census)

Security No full time team.

Transport One Land Cruiser recently provided by NYZS for surveillance & fence maintenance.

General The routine maintenance and monitoring of the new fence is not yet effective.

The Park has the second most important Rhino population in the country.

A detailed study of this population & the habitat is urgently required.

d. MAASAT MARA RESERVE

Approximately 1690 Km.²

21 TOTAL

Security/ divided between WCMD & Narok County Council
Surveillance providing 10 Rangers each. All armed.

Transport One WCMD Land Cruiser very old & unreliable.
One NCC Land Rover.

One KEE Land Rover
One WWE Land Rover

General A full time aircraft would be a

General

A full time aircraft would be a major contribution towards improving security overall & would greatly improve the Rhino surveillance efficiency. One has been pledged by WCMD but not yet released. Much effort has been made to record Rhino data- requires streamlining with additional information. This population has the potential for recruitment & could become significant in the future IF security can be maintained.

e. NAKURU PARK

Approximately 142 Km.²-discounting Lake surface.

Black Rhino Adult males 11
 Adult females 7
 Calf 1 (sex not known)
 (1 s/adult female relocated to
 Ngare Sergoi (Iewa Downs) 16.1.89)

e. Nakuru cont:

Security	<p>10 Rangers No N.C.O's with the unit. Security force is under strength for size of area. Shortage of firearms. Discipline has been poor. Unit needs re-organisation.</p>
Transport	<p>One old WCMD 4 x 4 Isuzu lorry. All tyres U/S. Needs refurbishing. Rhino Rescue Trust provide 6 vehicles. 2 will be disposed of.</p>
General	<p>Access to Rhino files could not be obtained as they were locked in the Trust's office! Identification & monitoring of the activities of different Rhino is lacking & must be improved. The Terms of Reference for in-put by the Rhino Rescue Trust need to be redefined. The Water Project is seriously behind schedule. 3 Additional Out posts (as per Man. & Dev. Plan) are needed if security/monitoring is to be improved.</p>

f. MERU PARK SANCTUARY

Approximately 10 Km.² - ring fenced.
Rhino-White NIL - all killed 29.10.1988.
Black Warden claims Adult males 2
 Adult females 1
 S/Adult 1 (sex un known)
NOTE: There has been NO SIGN of these Rhino
for at least 5 months either from the air or on the
ground. It is very probable that they no longer
exist.

Security	Routine foot patrols inside the Sanctuary are clearly inadequate & seriously lacking. It is reported that at least 7 Elephant were killed inside the Sanctuary in late 1988.
General	The majority of recurrent funding for this Sanctuary is provided by the Eden Wildlife Trust. This donor cannot be expected to continue funding the maintenance of the fence & infrastructure if these 4 Black Rhino no longer exist. The uncertainty about their fate must be established one way or another as an immediate priority. IF they no longer exist, it is recommended that the entire fence & infrastructure be removed & sent to the Ngulia Sanctuary, Tsavo West. Restocking of White Rhino cannot be contemplated owing to FLY.

g. ABERDARE SALIENT - ABERDARE PARK

Approximately 70 Km.².

Black Rhino 31 - 37 - sex ratio not known.

Security Inadequate in strength.

Transport No vehicle available for full time surveillance.

General Reports of 4 Rhino in N.Aberdares.

Personnel, transport, radios & equipment is seriously lacking & must be given attention if the Salient is to be up-graded to National Sanctuary status.

h. SOLIO RANCH RESERVE Private land
Approximately 55 Km.² - ring fenced.

Rhino - Black 80 - 85
White 40 - 45

There is considerable debate about the true number of Black Rhino. Four consecutive counts carried out in November 1988 averaged 52.2 animals. A correction factor applied by Dr. Western (Amboseli data) brings it to 84 - closely agreeing with the figure provided by the ex-Warden (Maj. Elliot 1981). The land owner will not accept this figure & considers it far lower - 60?

Security A G.S.U. of 30 is based on the Ranch within .2 Km. of the Reserve but carry out NO patrolling inside the area. The inside security is considered inadequate. (Two Rhino-1 white/1 black have been shot in the Reserve No.'87, Feb.'88).

General This reserve has the largest & most important population of both Black & White Rhino in the country. At the moment, & into the foreseeable future, it is the "key" area for supplying animals of both species, for new populations. No management monitoring is being carried out. The effects of over utilisation of the browse habitat is now very noticeable. There is no reliable data on the numbers of other wildlife in the Reserve - Rhino figures are vague. The level of surveillance inside the Reserve is the lowest of any area in the country. If anything goes wrong in this Reserve - either from lack of management or lack of surveillance it would spell the end of the Rhino in Kenya.

i. NGARE SERGOI. (Lewa Downs) Private land.

Approximately 20 Km.² - ring fenced.

Rhino - Black Adult male 1
Adult females 5
S/Adult " 1
Calves-male 2
female 4 13 TOTAL

White Adult male 1
Adult females 3 4 TOTAL

Security 28 Guards - 7 armed
Excellent - but firearms inadequate
In addition - 12 Police A.P.s.

Transport Three vehicles.

General The level of security & management is of a very high order. Training & practise alarms are in continual practise. Monitoring of ALL Rhino effected every day. Data collection covers wide spectrum of information. A highly efficient & well run Sanctuary which could be a "model" for all others.

j. OL JOGI RANCH RESERVE - Private land

Approximately 29 Km.² - ring fenced.

Rhino - Black	Adults male	1	
	Adults female	2	
	S/Adults-male	2	
	-female	1	
	Calves male	2	8 TOTAL

White	S/Adult male	1	
	S/Adult female	1	2 TOTAL

(One 6 yr. old male Black moved to
Ngulia Sanctuary, Tsavo. 28.2.89)

Security 20 Guards, 15 armed - 8 with .303 rifles.
Transport 2 Land Cruisers, Tractor & trailer.

Access to other vehicles when needed.

General Possible in-breeding of this population needs
to be considered. The Reserve is heavily over-
stocked; certain species are having a major
effect on some types of habitat (Giraffe &
Buffalo in particular.)

The land owner will have to consider this if
far reaching repercussions are to be avoided.

k. MOUNT KENYA GAME RANCH - Private land

Approximate size - ring fenced.

Rhino - White	S/Adult male	1	
	females	2	3 TOTAL

General These animals are kept in a semi-captive
situation-herded in a ring fenced paddock
during the day, under guard & stalled at night.

Summary:

- a. NATIONAL AREAS - have a number of problems common in various degrees to all:
 - i. Personnel for security/surveillance is under strength. Some areas have no teams specifically delegated for these tasks.
 - ii. Selection of personnel is generally poor.
 - iii. Discipline & morale are low - basic equipment, uniforms etc. lacking.
 - iv. Little incentive.
 - v. Transport is old, unreliable or not available.
 - vi. Recurrent operating costs for the management of these areas is non-existent.
- b. PRIVATE LAND - owners are taking security & management seriously. Generally, this is of a much higher standard than the National areas. However, their efforts are being restricted by lack of firearms and the difficulty of obtaining permission for these from the authorities. All expressed grave concern over the absence of a proper legal status for their Game Guards.

Recommendations:

1. MONITORING - This must be improved now in all areas. It must be standardised & appropriate techniques applied, if effective information is to be obtained for the proper management of small populations.

The following must be implemented:

Recommendations cont.

1. Monitoring:

- a. Population trends need to be assessed every year as densities and habitat conditions change.
- b. Optimum stocking rates for managing populations at maximum sustained yields must be determined.
- c. Age structures, sex ratios, calving intervals & recruitment rates for ALL populations need to be known.
- d. All animals must have personal history records, continually up-dated. Individual identification must be improved and any captured, unmarked animal should be either ear tagged or ear notched - preferably both.
- e. Habitats must be monitored &, if necessary, manipulated. Inventories of preferred browse should be compiled for each area & correctly catalogued & stored.
- f. Genetic factors must now be considered.
- g. Mortalities must be post mortemed and meticulously recorded. Skulls and lower jaw bones must be indexed, logged for record purposes and stored.

In the National areas an experienced Assistant Warden Biologist should be appointed to each area, specifically to carry out the above requirements.

2. SECURITY

This must be improved where necessary. Efficient and intensive ground surveillance is essential if illegal activities are to be promptly detected. Daily close monitoring of Rhino conservation areas is a vital part of overall security.

The following must be implemented for all National areas:

- a. An establishment determined for each area, and a specialised Ranger cadre created.
- b. Personnel should be carefully selected. Misfits should be removed immediately.
- c. Good discipline cannot be over emphasised.
- d. Some incentive must be offered.
- e. Uniforms & equipment needed for this specialised cadre must be provided.
- f. Transport must be adequate and reliable.
- g. An intelligence network for outside information is vital. Each area must create its own.
- h. A Patrol Log must be kept daily with detailed information.
- i. An experienced, reliable Sergeant should be appointed i/c each unit.

(RHINO RESCUE PROJECT" - Report to Director, W.C.M.D.- Jenkins/ Brett - 22nd. February 1989).

This Report revealed that, at the start of the fifth year the "Kenya Rhino Rescue Project" was still plagued by a number of management related issues, particularly in the National Areas.

1988 - 90 COUNTRY WIDE CENSUS

The Rhino Management Committee (formerly Steering Committee) decided that, in-so-far-as possible an up-dated country wide Rhino Census was needed. A Rhino Census Team commenced its work in July 1988, working through to 31st. March, 1990. A total of 20 areas were included in this Survey, most of which was done on foot. In some areas local people with a knowledge of the area, and of the Rhino, were used.

In addition this Survey provided, for the first time, useful information particularly of the scattered groups of animals, on breeding potential, security and possibilities for translocation.

The budget allocated for the Survey was US\$65,000, of which US \$ 13,056 remained unspent on completion of the task.

(Survey of Black Rhino in Kenya - WWF Project No.6397-E.C.Goss May 1990).

SUMMARY OF FINDINGS:

RING FENCED AREAS	No. OF RHINO	STATUS OF AREA
Nakuru National Park	20	Park/Sanctuary
Ngulia - Tsavo	10	Park/Sanctuary
Solio Ranch	58	Sanctuary/Private land
Lewa Downs - Ngare Sergoi	14	Sanctuary/Private land
Ol Jogi Ranch	10	Sanctuary/Private land
Ol Pejeta	4	Sanctuary/Private land
Sub-total	116	
<u>PART FENCED AREAS</u>		
Nairobi National Park	57	Park
Aberdares	41	Park
Laikipia	43	Private land
	144	
<u>UNFENCED AREAS</u>		
Maasai Mara	25	Game Reserve
Amboseli	9	Park
Ngeng Valley	21	Forest Reserve
Tsavo	10	Park
Loita Hills	12	County Council Forest
Mount Kenya	10	Forest Reserve
Jilori-Chakama	1	Local Reserve
Kiagü	1	Forest Reserve
Garsen	14	State land
Karisia	6	County Council Forest
Marsabit	Nil	National Reserve
	75	
TOTAL:	<u><u>366</u></u>	

Tsavo Park: With the exception of 10 Rhino in the small Ngulia ring fenced Sanctuary and 10 in a relatively small area between Mzima Springs and Kamboyo Hill, Rhino have been wiped out in the Park that held the largest population in Africa.

The results of this Survey vividly demonstrated how unwise it is to use speculative "guess-timates" on critical issues. Furthermore, in view of the fact that thereport considered security generally very poor covering much of Tsavo, it is surprising that the Director of Kenya Wildlife Services sanctioned the start of a restocking programme in Tsavo East with surplus Rhino from Solio Game Reserve and Nairobi Park in the latter part of 1993 - early 1994.

4. TRANSLOCATED POPULATIONS - HISTORICAL BACKGROUND

Several professional Trappers were licenced by the Kenya Game Department to capture Rhino in the late 1940's - 1950's for export to various Zoos in Europe and America. Most of these animals were caught in areas designated for new settlement, and the numbers sent overseas are not known. Drugs were unknown and, consequently, capture methods were primitive and rough, using a lasso and roping the animal. Surprisingly, mortality was relatively low.

In the 1950's the Game Department introduced the "one for One" scheme - i.e. for every animal exported, one had to be released into a National Park or Reserve.

TRANSLOCATIONS

4.1 Tsavo East:

The first large scale Rhino translocation to take place in Kenya involved a total of 12 Rhino caught by Carr Hartley at Makindu and released at Aruba Dam in Tsavo East in October/November 1959:

October	18th	Male	no marking
	19th	Female	red ear-tag No.71
	20th	Male	no marking
	20th	Female	no marking
	21st.	Female	red ear-tag No.73
	22nd	Female	no marking
	28th	Female	ear-tag - CH 14
	29th	Female	no marking
November	14th	Female S/A	no marking
	19th	Male	no marking
	23rd.	Female	no marking
	23rd.	Male	green plastic neck collar
TOTAL:	Adult Males	4	
	Adult Females	7	
	S/Adult Females	1	

On November 8th the adult female No.71 was found dead near Aruba Dam.

All these animals were translocated on the One for One scheme. They were captured early in the morning, given a tranquilliser (Largactil), held in a Holding Pen for a few hours, transferred to a travelling crate, moved to Aruba in Tsavo East - approximately a 3 hour drive - and free released the same evening. There was no monitoring-follow up after release. The only "known" mortality was No.71.

A few years later another 8 rhino from the same area were moved, under the same scheme. These were kept in holding pens near Voi for 2-3 weeks before being released. (No details available).

In the early 1960's the Game Department created its own Capture Unit and used the darting/drug method for the first time. There was the minimum amount of scientific background and a high mortality was known to have occurred from these "early" drugs. (Jenkins - field notes).

4.2 Meru Park

July 1976

2 Adult Rhino - male and female - which had been captured by the

4.2 Game Department in the Northern Grazing Area, near Isiolo, were free released in Meru Park at Mughwango Hill. These animals had been held in holding pens at Isiolo for 3 weeks prior to being relocated in Meru Park.

(Jenkins' Quarterly Report - July/September 1976)

August 1980

8 Rhino - 3 Males
4 Females
1 Calf - approximately 6 months old

which were resident outside Meru Park in the Kinna Duba Area, and considered threatened, were captured, by the W.C.M.D. Capture Team. They were held in Pens at the Park Head Quarters. One male died under the immobilising drug in the field. The female with 6 month old calf died on arrival at the holding pens.

The calf was handed over to the Animal Orphanage at the Mount Kenya Game Ranch and died a few days later.

Mortality in this operation was 3 out of 8.

(Jenkins' Quarterly Report - July/September 1980).

During the 1960's-70's and early 1980's the Kenya Game Department (later Wildlife Conservation & Management Department) carried out sporadic captures and translocations. The Capture Unit was ill trained and out of practise. Equipment and transport was seriously neglected, and the obvious result of this combination was that deaths from capture - either immediate or soon after - were excessive. Records are few - or nil. (Pers. comm.-Elliott).

In 1984 the W.C.M.D. Capture Unit was completely re-organised and re-equipped at great cost. (Technical Section-Rhino Project - Sheldrick Appeal/F.O.C.)

4.3 Lewa Downs - including Ngare Serqoi Sanctuary

4.3.1 Black Rhino as at 30.3.1994

DATE CAPTURED	SEX	HISTORY
6.4.84	F	From Shaba National Reserve
5.8.84	F	From Solio Reserve
	F	Born on Lewa- 28.6.86
10.8.84	F	From Solio Reserve
9.9.84	F	From Solio Reserve
	F	Born on Lewa 15.2.85
	F	Born on Lewa 9.3.88
16.2.89	F	From Nakuru
	F	Born on Lewa 11.2.88
	F	Born on Lewa 1.12.91
	F	Born on Lewa 23.8.91
	M	Born on Lewa 7.2.92
21.1.93	M	From Laisamis
4.5.84	M	From Mweiga
23.9.93	M	From Ol Jogi Reserve
22.9.93	M	From Ol Jogi Reserve
22.9.93	M	From Ol Jogi Reserve
22.9.93	M	From Ol Jogi Reserve
2.2.94	M	From Solio Reserve
22.3.94	M	From Solio Reserve
2.2.94	F	From Solio Reserve
1.1.94	F	From Solio Reserve

4.3.2 Black Rhino Deaths

YEAR	SEX	FROM	CAUSE
1984	M	ex-Solio	Drowned during capture
1985	M	ex-Wamba	killed in a fight
1990	M	Born Lewa	killed in a fight
1991	M	ex-Solio)	(fell off cliff fighting
1991	M	ex-Kikwar)	(" " " "
1991	F	ex-Mweiga	fell off cliff
1991	M	ex-Solio/Olpejeta	illness
1994	M	ex-Ol Jogi	result of capture
1986	F	ex-Sabatchi	illness
TOTAL:	MALES	7	
	FEMALES	2	

4.3.3 Black Rhino Moved out of Lewa

YEAR	SEX	ORIGINAL	TO
1986	M	ex-Nairobi Orphanage	Nairobi Orphanage
1986	M	ex-Mweiga	Nakuru Park
1988	M	ex-Nairobi Park	Meru Park- poached '89
1991	M	born Lewa	Olpejeta.
TOTAL:	MALES	4	

4.3.4 White Rhino as at 30.3.94

DATE CAPTURED	SEX	HISTORY
1.5.84.	M	Born Meru Park.
11.12.88	F	From Solio
8.12.88	F	From Solio
7.12.88	F	From Solio
	M	Born on Lewa
1.10.89	M	Born on Lewa
6.8.92	F	Natal Parks
6.8.92	F	Natal Parks
6.8.92	M	Natal Parks
6.8.92	M	Natal Parks
6.8.92	M	Natal Parks
TOTAL:	MALES	6
	FEMALES	5

4.3.5 White Rhino Deaths

YEAR	SEX	FROM	CAUSE
1990	M	ex-Solio.	killed in fight
	M	Born Lewa	died in drought- unweaned.
TOTAL:	MALES	2	

4.3.6 White Rhino Moved out of Lewa

YEAR	SEX	ORIGIN	TO
1992	F	ex-Solio	Mara-private land
1992	M	born Lewa	Mara-private land
TOTAL:	MALE	1	
	FEMALE	1	

4.3.7 Rhino Translocations:

i. Black Rhino

Black Rhino are State property and, therefore, there was no financial transaction for these animals.

ii. White Rhino

Reference 4.3.4.

Natal Parks - Five White Rhino were purchased in 1992 at a cost of S.A.Rands 20,000.00 each.

Funding provided jointly by 3 Donars & 2 Land owners.

Solio Reserve - Four White Rhino were purchased at K.Shs. 250,000.00 each.

Funding provided jointly by 3 Donars and 1 Land owner.

In the case of Lewa Downs, these purchases were primarily in the interests of Rhino Conservation.

The Ranch borders onto the Northern Frontier District and, by implication, is a high risk area, requiring an unduly large full time Security Force with all the attendant enormous costs for Security.

4.4 Nakuru Park

Stocking of the newly completed Nakuru Park Rhino Sanctuary commenced in May through to September 1987. The animals captured on Solio were held in Holding Pens (financed by Rhino Rescue Trust UK & the David Sheldrick Wildlife Trust) on the Ranch for approximately 2 weeks before translocation to Nakuru, where they were free released.

SEX	EAR I.D.	AGE	HISTORY
M	1	S/Adult	From Lewa Downs (4.3.3.) ex-Mweiga originally.
M	2	Adult-Age?	Nairobi Park/Kitengela
M	3	6 - 10	Solio
M	4	4 - 6	Solio
M	5	10-12	Solio
F	6	13 - 19	Solio-pregnant-held in special enclosure for 8 weeks.
F	7	3 - 5	Solio
F	8	6 - 8	Solio
M	9	5 - 7	Solio
F	10	6 - 8	Solio
F	11	7 - 9	Solio
M	12	3 - 5	Solio
M	13	10-13	Solio
M	14	8 - 9	Solio
F	15	8 - 9	Solio
F	16	7 - 8	Solio
M	17	6 - 8	Solio
TOTAL:		MALES 10	
FEMALES 7			

ONE Male (S/Adult) was lost in the field while immobilised. There were already two indigenous (Male & Female) Rhino in the Park. By 1993 the population had increased to 31. (Pers. comm. Brett.)

4.5 CAPTURE - TRANSLOCATION COSTS

The estimated AVERAGE cost per Rhino in 1987 was calculated at:		K.Shs.
i.	<u>Locating the animal:</u> 5 men x 10 days (this applied to the single animals in remote areas-referred to as "floaters")	5,000.00
ii.	<u>Mobilisation of Capture Unit to site:</u> Helicopter Vehicles Fuels/Subsistence etc.	20,400.00
iii.	<u>Capture:</u> (1 day) Helicopter Fuel Immobilising drugs Subsistence etc.	7,800.00
iv.	<u>Holding Animal in Pens x 2 weeks</u> Transporting browse Veterinary Subsistence etc.	19,000.00
v.	<u>Translocation to release site</u>	4,400.00
vi.	<u>Holding-if necessary-prior to release</u> Browse) Subsistence) x 3 days	4,625.00
vii.	<u>Wear and Tear</u> Capture equipment & crates	1,200.00
viii.	<u>Veterinary</u> Miscellaneous	700.00
	TOTAL K.Shs.	63,125.00

(Estimates Average Capture-Secretariat-Rhino Rescue Project-13.4.87)

The costs escalate if the animal is held for more than 2 weeks; distances exceed 400 Kms; if the animal is injured and requires repeated veterinary treatment.

It is very difficult to quantify Capture and Translocation costs, as there are many variables. Generally the cost of capturing one "Floater" animal in a remote area is far higher than capturing a number in areas such as Nairobi Park, Solio etc., where the "location time" is dramatically reduced.

Type of terrain plays a major part in escalating costs related to wear and tear to vehicles and equipment; flying times vary considerably with different captures, types of terrain; whether holding pens have to be constructed - and their maintenance; repairs and maintenance of crates.

Capture costs during 1985 - 1990 will, in any case, be totally irrelevant now.

(K.W.S. have carried out several relatively large scale Capture - Translocation operations over the last year. Only by averaging out these costs could a realistic present day figure be arrived at. (Rob Brett or Dr. Richard Kock could provide this.)

5. COST OF RHINO CONSERVATION. (Private land)

LEWA DOWNS RANCH - NGARE SERGOI RHINO SANCTUARY

This was the first Rhino Sanctuary specially created for Rhino conservation in Kenya.

In 1983 the Land owner (Mr. D.N. Craig) agreed to 5000 acres of his cattle ranch being ring fenced, with a High Security electric fence, as a Rhino Sanctuary. This was funded initially entirely by Mrs. A Merz, who took up residence in the Sanctuary and has been totally involved ever since.

(Jenkins - Planning Ngare Sergoi Rhino Sanctuary - 1983).

The Director, W.C.M.D. approved the project - on condition that it was clearly understood any expenditure incurred was entirely at the land owner's risk, and would have no bearing whatsoever on whether or not he would be permitted to introduce Rhino on to the property. (Director to Senior Warden Planning N/W - letter dated 27.1.1983). In short, the project was a "gamble" with no commitment by W.C.M.D.

In the event - this became the "Pilot Scheme" project - and many lessons regarding electric fencing, fence monitoring, Rhino management in fenced situations were "pioneered" on Lewa Downs.

Inspite of misfortunes of deaths from drought, accidents and illnesses, the Owners have persisted with their declared aim of Rhino conservation. The initial fenced area has been steadily expanded - now embracing the entire ranch and the adjoining Ngare Ndare Forest Reserve as a Rhino Sanctuary. The security of the introduced Rhino and overall management has been consistently of a very high standard.

As the Sanctuary area has expanded so have the security requirements and attendant infrastructure.

There have been four distinct Phases to the development of this Sanctuary, clearly indicated by the increasing operating costs:

5.1 PHASE ONE

a) Area size: 5000 acres ring fenced - within 40,000 acre cattle ranch.

b) Fence: 20 Km. in length
Built by Contractor (M/s Elefence Ltd.)
Cost K.Shs.68.00 per meter.
Commenced Feb. '83
Completed April '84.

c) Development included:

Fence construction & electrification
Three Gate houses.
Staff houses
Workshops
Admin. Offices, Stores, Fuel storage.
Warden's house.
Mrs. Merz's house.
1 Tractor - tip trailer.
1 Bulldozer.
Generators.

d) Capital Costs - Phase One - S£385,758

5.2 PHASE TWO

- a) Area Size: 5000 acres - extended from original 5000 acres
- b) Fence:
 - 18.5 Km. in length
 - Built by Sanctuary staff
 - Cost - K.Shs. 68.00 per meter
 - Commenced - March '87
 - Completed - December '87
- c) Other development included -
 - 2 Additional Gate house
 - 10 Additional Staff houses
 - Additional radios weapons etc.
- d) Capital Costs - Phase Two - K Shs 1,500,000.00

5.3 PHASE THREE: NGARE NDARE FOREST RESERVE

- a) Area size: 52 Km.²
- b) Fence:
 - 52 Km. in length
 - Built by Contractor (M/s Sanyati Ltd.)
 - Cost - K.Shs. 184.00 per meter
 - Year of construction 1991 - 14 months to complete.
- c) Source of funding:
 - O.D.A.-Donars.
 - Kenya Army provided Plant to clear the line.

5.4 PHASE FOUR: LEWA DOWNS RANCH

- a) Area size: 30,000 acres approx.
- b) Fence:
 - 34 Km. in length
 - Built by Contractor (M/s Sanyati Ltd.)
 - Cost - K.Shs. 220.00 per meter
 - Year of construction 1992 - 9 months to complete
- c) Stone Wall: in some sections a STONE WALL was constructed complimentary to the fence. Labour costs were K.Shs. 28.00 per meter - PLUS hauling of rock directly proportional to distance involved.
(No figures available).
- d) Source of funding: Donars.

5.5 In May 1994 the eastern inner section of the Ngare Sergoi fence will be removed, in effect making the entire property (40,000 acres) plus the Ngare Ndare Forest Reserve, one large ring fenced Rhino Sanctuary
(Information from I H Craig F Dyer and Mrs A Merz)

5.6 EQUIPMENT - PROVIDED BY MRS. A. MERZ

- 1 Land Rover
- 2 Suzuki Jeeps
- Half share in cost of Super Cub aircraft for monitoring
- 2 Generators
- Third share in cost of Caterpillar 12F Grader
- Purchase of:
 - All radios
 - All weapons
 - All Security & Fence Equipment

5.7 EQUIPMENT DONATED:

2 Land Cruiser Pick Ups - donated by W.W.F. 1989
1 Suzuki "Seara"
1 Super Cub Aircraft - donated by AZAK (\$45,000) 1991
1 Mercedes 7 ton Tipper lorry - donated by AZAK 1991

5.8 RESEARCH

A Vegetation Study was carried out in 1986 under the direction of Dr. H. Lamphrey.

5.9 ANNUAL OPERATING CCSTS OF SANCTUARY (in K.Shs.)

1984	K.Shs.	1,156,180.00
1985		1,421,680.00
1986		1,600,800.00
1987		1,669,560.00
1988		1,928,400.00
1989		2,191,200.00
1990		2,311,800.00
1991		3,567,520.00
1992		4,062,900.00

Provided by Mrs. A. Merz - wages, fuel & oils, vehicle maintenance roads, buildings & water maintenance, rations, allowances etc..

5.10 PERSONNEL ESTABLISHMENT & COSTS

		<u>SECURITY</u>	<u>FENCING</u>	<u>OTHERS</u>
<u>No. of Employees</u>		11	6	30
<u>Yearly Wages</u>		74,766.10	32,979.75	144,672.70
<u>TOTAL:</u>	K.Shs.	<u>252,396.55</u>		
<u>1985</u>				
<u>No. of Employees:</u>		13	6	17
<u>Yearly Wages</u>		101,010.75	48,944.70	132,598.80
<u>TOTAL:</u>	K.Shs.	<u>282,554.35</u>		
<u>1986</u>				
<u>No. of Employees</u>		13	6	18
<u>Yearly Wages</u>		130,567.90	49,609.90	133,757.80
<u>TOTAL:</u>	K.Shs.	<u>312,935.60</u>		
<u>1987</u>				
<u>No. of Employees</u>		17	5	13
<u>Yearly Wages</u>		203,086.50	58,679.00	157,852.85
<u>TOTAL:</u>	K.Shs.	<u>419,618.35</u>		
<u>1988</u>				
<u>No. of Employees</u>		21	5	25
<u>Yearly Wages</u>		283,553.00	90,936.00	201,504.85
<u>TOTAL:</u>	K.Shs.	<u>575,993.85</u>		
<u>1989</u>				
<u>No. of Employees</u>		25	12	25
<u>Yearly Wages</u>		418,458.70	138,139.20	268,781.25
<u>TOTAL:</u>	K.Shs.	<u>825,897.40</u>		
<u>1990</u>				
<u>No. of Employees</u>		28	18	19
<u>Yearly Wages</u>		478,254.45	151,155.30	357,487.65
<u>TOTAL:</u>		<u>986,897.40</u>		

5.10 1991

No. of Employees	26	11	32
<u>Yearly wages:</u>	509,131.80	184,999.50	813,159.00
<u>TOTAL:</u> K.Shs.	<u>1,507,290.00</u>		

1992

No. of Employees	40	11	32
<u>Yearly wages</u>	849,044.55	314,991.45	562,570.40
<u>TOTAL:</u> K.Shs.	<u>1,726,606.40</u>		

1993

No. of Employees	49	14	46
<u>Yearly Wages</u>	1,355,770.00	374,242.40	1174,707.10
<u>TOTAL:</u> K.Shs.	<u>2,904,719.50</u>		

Others include: Mechanics, Artisans, Gate Keepers, General Labour.

5.11 VISITORS (Rhino Sanctuary) in K.Shs.

1985	1192 visitors-no fixed charge-donation of 50.00 suggested
1986	514 " " " " "
1987	444 visitors at 50.00 each
1988	483 visitors at 100.00 each
1989	358 visitors at 150.00 each
1990	550 visitors at 150.00 each
1992	453 visitors at 200.00 each

With effect from 1st. January 1994, Entrance Fees to the Sanctuary for Overseas Visitors have been "pegged" on the US \$ at 10 per head.

6. OTHER PRIVATE LAND RHINO CONSERVATION AREAS

- 6.1 Laikipia Ranch indigenous population
- 6.2 Solio Game Reserve ring fenced
- 6.3 Ol Jogi Game Reserve ring fenced
- 6.4 Ol Pejeta Game Reserve ring fenced.

7. EMPLOYMENT - LOCAL COMMUNITIES

It is very difficult to quantify this; every area differs

i. National - or Government - areas:

The staff for these areas will inevitably come from all over the country. As with all Government systems staff are continually being transferred from one place to another - often with no apparent reason other than the whim of the Head Quarters' Personnel Section

In consequence there is "usually" - though not always - a distinct lack of "dedication" or "affiliation" with the area where the men are employed. It becomes "just a job"

ii Private land Areas:

The majority of staff employed in these areas will be from local communities adjoining these Ranches. In many cases several generations will have served on the same property. There is a greater feeling of "affiliation" on the whole and more involvement of everyone

LITERATURE ATTACHED:

BLACK RHINO MANAGEMENT PLAN	- Jenkins November 1983..
DEVELOPMENT AND MANAGEMENT PLAN (Nakuru Rhino Sanctuary)	- Jenkins January 1985

P R Jenkins
Wildlife Adviser

12 4 1994