

Historical review of the Etosha Region and its subsequent administration as a National Park

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ABSTRACT

Etosha's political history is reviewed, from its discovery by Europeans in 1851, through the German occupation of South West Africa, until its proclamation as Game Reserve No. 2 in 1907. The effects of boundary changes between 1907 and 1970 are described. Estimates of animal numbers on Etosha's plains in 1913 were between 20 000 and 30 000. From 1961 onwards, fencing affected animal migrations to and from Etosha, culminating in the intentional enclosure of Etosha National Park in 1973 by a 2,6 metre game-proof fence along most of its 850-kilometre boundary. This was supplemented by 130 kilometres of elephant-proof cable fencing and, later, electric fences at strategic sections. Some major research investigations done on the flora and fauna of Etosha are summarised and the changing abundance of large mammal species are mentioned. The development of tourism and the accompanying effects of human interference in the natural systems of the Park are discussed.

POLITICAL HISTORY

Wambos described it as "bare place", and so gave the name Etosha to the vast depression now commonly called the Etosha Pan (Jaeger 1926-27). Explorers Charles Andersson and Francis Galton were the first Europeans to record the existence of Etosha Pan on 29 May 1851 when they reached Omutjamatunda (variously known as Great Onamotoni, Amutoni, now Namutoni), which they described as a cattle post (Andersson 1856). They were in the company of Owambo traders who had bought copper ore from Hei//om-people near Lake Otjikoto. Andersson (1856) gave an impression of lushness at Namutoni, writing: *"there is a most copious fountain situated on some rising ground and commanding a splendid prospect of the surrounding country"*. He estimated there were herds of 3 000 to 4 000 cattle, as well as zebra and springbok in the vicinity.

Leaving Namutoni, Andersson travelled north, traversing *"an immense hollow, called Etosha"* and adding *"Such places are in Africa designated 'salt pans' "*. He continued: *"At night we bivouacked on the southern extremity of a boundless savannah, called Otjihako-tjaMuteya, totally destitute of trees and even bushes"* (probably referring to the Andoni plains). Not only the Owambo were active in the Etosha region: but also the resident Hei//om-people recognised the Owambo chief at Ondonga (Ondangwa), while the Hereros disputed his authority (Triimpelmann 1948).

When entrepreneur W. Jordan bought a huge tract of land from the Owambo chief Kambonde in 1885, such springs as Okahakana, Okaukuejo and Ombika in the west were included. Onzila (Fischer's Pan) marked the tract's eastern extremity, with Etosha Pan forming its northern boundary, giving an area of about 2 500 km². It was said to require four days of wagon-trekking to travel from Okahakana to Namutoni, a distance of approximately 170 kilometres by road. The purchase price was 300 Pounds Sterling, paid for with 25 firearms, one salted horse, and a cask of brandy (Triimpelmann 1948).

Andersson's trade route to Owamboland lay east of the main Pan; it was soon matched by other traders who opened routes to the west. McKiernan (in Serton 1954) travelled northwards from Ocho (Outjo) and Ompica (Ombika) via Okoqea (Okaukuejo) in August 1876. He graphically described the abundance and variety of wild animals he encountered, stating: *"all the menageries in the world turned loose would not compare to the sight I saw that day"*.

Further northwards McKiernan entered a vast plains area, probably the southern "pan veld" of Owambo, where he saw wildlife in such abundance that he was moved to say: *"...we fell in with immense numbers of animals beyond anything I had yet seen. I would scarcely be believed, if I should state that there were thousands of them to be seen at a sight. Gnus in herds like the buffalo on the plains (viz. of North America), hundreds of zebras, beautiful in their striped coats, springboks by tens of thousands, ostriches, gemsboks, steenbok, hartebeeste and elands. Water and grass were plentiful and they seemed to be having an easy time of it..."*.

Between 1876 and 1879, the Dorstland ("Thirstland") Trekkers, who first stayed at Namutoni and Rietfontein where they fell ill with malaria and their cattle suffered lung sickness (de la Bat 1982), moved into Angola via the early trader routes. Forty-six Trekker families returned in 1885, settling in Etosha on 2 500 hectare farms which Jordan had bought and given to them at no charge. They named the area Upingtonia after the First Minister of the Cape Colony, Lord Upington, but they soon abandoned the settlement following clashes in 1887 with neighbouring Heil//om-people who attacked them, murdering some and stealing their cattle (Triimpelmann 1948).

German troops occupied Namutoni, Okaukuejo and Zesfontein (Sesfontein) in 1896. The German Reich ordered them to shoot migrating wild animals in an attempt to curb the spread of rinderpest virus to cattle. Fischer (1914) describes how the German cavalry built the first fort in 1889 on slightly elevated ground near the Namutoni spring. In 1904 raiding Owambos burnt and totally destroyed the fort. It was replaced the following year and later became a police station (Fischer 1914).

Similarly, a fortified military post was established at Okaukuejo in 1901. Both these military outposts eventually fell into disuse despite periods of occupation by the South African Police. Finally, in 1955 Okaukuejo opened as a tourist rest camp, followed in 1957 by the reconstructed Namutoni fort, whose Beau Gets profile became symbolic of tourism in Etosha (Nature Conservation S.W.A. 1982). The fort subsequently was proclaimed a National Monument.

DEFINITION OF BOUNDARIES

The Governor of German South West Africa, Dr F. von Lindquist proclaimed Etosha as a game reserve on 22 March 1907 (Ordinance 88 of 1907). At first the reserve, encompassing a vast expanse from the Kunene and Hoar sib river mouths on the Skeleton Coast eastwards to Namutoni

(Fig. 1) was known simply as "Wildschutzgebiet Nr. 2". The total area of approximately 80 000 km²* made it then the largest wildlife reserve in the world. In 1958 "Game Reserve No. 2" became the Etosha Game Park and received the status of a National Park in 1967 by an Act of Parliament of the Republic of South Africa. Its size had decreased to about 55 000km², with different boundaries to those in 1907 (Fig. 1).

Ordinance 88 (1907) allowed private ownership of farms within Etosha's boundaries and for trading rights on that land. Private land ownership lapsed in 1935 with the exception of one surveyed plot measuring 4 000 m² near Okaukuejo which legally is still private property (J. Lenssen, Chief Conservation Officer, pers. comm. 1992). During a severe drought in the early 1960s, farmers gained emergency grazing rights for their livestock within Etosha (Executive Committee of South West Africa, Minute 334 of 1962) when an 8 to 16 km strip inside Etosha's southern boundary was opened to farmers. De la Bat (1962) estimated 110 000 livestock grazed in the corridor under this provision.

Since its proclamation, Etosha has survived many minor and two major boundary alterations, *vide* Ordinance 18 (1958) and Ordinance 21 (1970), as depicted in Fig. 1. The decisions of the Odendaal Commission (1963) demarcated

Etosha's present boundary in 1970. Known as the Odendaal Plan for South West Africa, it reduced the Park to 22 270 km². This action deproclaimed 72 % of the former area of Etosha and created a furore among conservationists, both nationally and internationally. The frustration and bitterness caused by this draconian measure, despite well-documented scientific evidence against it (Tinley 1971), caused the then Director of Nature Conservation and Tourism to remark: "*After Odendaal, Etosha resembled a plucked fowl*" (de la Bat 1982).

Initially, the definition of Etosha's boundaries made little impact on the movement of wild animals, except for the legal nicety that after crossing a mapped line they were not protected. Physically the boundaries consisted of surveyed points and, later, cleared fire-breaks along some of them. Migratory herds were therefore unrestrained in their movement along traditional routes. The first farm fences to be erected by white farmers on the southern boundary of Etosha during 1955-60 were of minor consequence because they were discontinuous and easily broken. However, an epidemic of foot-and-mouth disease during 1961 sparked the erection of a game-proof fence as a veterinary measure along the eastern and southern borders of Etosha. It was 2,6 m high with 17 strands of smooth wire, reinforced by 1,5 m wire mesh embedded in the ground. The Park was completely enclosed by 850 km of fencing in 1973. The fence proved inadequate for warthog, lions and elephant and subsequently "elephant-proof" cable fortified 130 km of fence (Berry 1980) while electrified fencing strengthened other strategic sections (Master Plan for Etosha 1985).

THE FAUNAL STATUS OF ETOSHA UP TO 1953

Lieutenant Adolf Fischer became the first "game warden" of the as yet unproclaimed Etosha. Also the first person to publish on this phenomenon, Fischer (1914) described the migration of wild animals in the precincts of Etosha, but he did not quantify his observations. He nevertheless made the interesting observation that the last herd of elephants in the area was shot in 1881 after being driven into a marshy area. Lions also had been destroyed because Fischer (1914) mentioned that after a long period of absence, he heard the roar of a lion again at Namutoni in 1912.

Table 1: Ground census of selected species in the Etosha Pan - Owamboland regions during 1926, based on data contained in reports to the Secretary for South West Africa (File A.201/10).

Species	Region		Total
	Etosha Pan	Owamboland	
Burchell's zebra	20 000	1200	21 200
Springbok	16000	5000	21 000
Wildebeest	15 000	2500	17 500
Steenbok	11 000	5000	16000
Grey duiker	7000	3000	10 000
Kudu	7000	350	7350
Gemsbok	6000	1200	7200
Ostrich	6000	600	6600
Hyaena, brown & spotted	4000	300	4300
Kori bustard	3000	600	3600
Wild dog	2000	200	2200
Red hartebeest	1500	600	2100
Eland	600	500	1100
Leopard	1000	?	1000
Cheetah	900	80	980
Warthog	300	250	550
Black-faced impala	0	400	400
Roan antelope	0	250	250
Hartmann's zebra	150	100	250
Caracal & Serval	?	250	250
Lion	200	10	210
Bush pig	100	100	200
Klipspringer	30	150	180
Damara dik-dik	150	15	165
Giraffe	60	40-50	100-110
Oribi	30	40-50	70-80
Elephant	0	40-50	40-50
Buffalo	0	5	5
Southern reedbuck	0	5	5
Black rhinoceros	0	2	2
Hippopotamus	0	2	2

The earliest census of large animals in South West Africa was undertaken in 1926 by the magisterial districts under the instruction of the Secretary for the Territory (Table 1). It must be remembered that the fauna of Etosha and Owambo were integrated at the time, and furthermore, the game warden, who was stationed at Namutoni patrolled the eastern part of "Game Reserve No. 2" more extensively, thereby biasing the counts. The census was limited to ground counts and large areas of Etosha were inaccessible. The resultant approximation of the numbers of conspicuous species may therefore be taken as the minimum. However, in the case of nocturnal or secretive species such as leopard, cheetah, hyaena, steenbok and common duiker, the relatively high numbers given must be treated with caution as they can be little more than enlightened guesses. Similarly, the figure of 2 000 wild dogs seems extraordinarily high.

Jaeger (1926-27), who mentioned that in 1913 between 20 000 and 30 000 animals could be seen on the plains of Etosha,

supported the numbers given for large herbivores in Table 1. In the same publication Jaeger and Waibel drew a map showing some interesting name changes from sketches made in 1914. For example, the present Leeunes, situated at the tip of a peninsula which juts into Etosha Pan north of Namutoni, was called Uitsab. Likewise, Ondongab lying on the southern shores of the Pan to the east of Okaukuejo was known as Ondeka, whilst the present Okondeka was spelled Okandeka. Jaeger (1926-27) told of an ambitious plan developed in 1904 by E. Schwarz to divert the Kunene River into Etosha Pan in the hope it would overflow, pushing water into the Omuramba u Ovambo at Namutoni. From there, Schwarz reasoned, the flood water would feed the Omatako River and supplement the Kavango river. This in turn would strengthen the Okavango basin's flow to the extent that it would eventually drain into Lake Ngami, thence into the Botetle River and the Makarrkarri and Soa Pans to the Molopo and would ultimately supplement the Orange River. The reasoning behind his plan was to effect a climatic change in this semi-arid region, increasing rainfall and making irrigation possible. This ill-conceived, irrational scheme never materialized because some of the drainage systems flowed in the opposite direction.

Although Shortridge (1926-27, 1934) drew attention to seasonal movements of animals around Etosha Pan, no quantitative data of its fauna could be traced for the period 1927-52. De la Bat (1978-79) records that Etosha lay unnoticed from the First to the Second World Wars. The National Archives in Windhoek confirm very few relevant records exist for Etosha during that period (W. Hillebrecht, Senior Archivist, pers. comm. 1992). Gaerdes (1977) compiled a selection of published and unpublished reports from his experiences with wildlife in South West Africa from 1910 onwards, but these refer only briefly to Etosha, mentioning that lion prides there sometimes exceeded 20 members. Anecdotal records exist, however, (*vide* MacLean 1931-32) which describe Etosha from casual visits. Anon. (1946) told of *"the road (from Okaukuejo to Namutoni) though little more than a track, provides fair going "* and continued to say: *"On the way Bushmen, some settled at waterholes and others nomadic, will be encountered. For a small token they will provide the traveller with an experience to remember in the form of a superb display of archery"*.

The Afrikaans author A. Pienaar, better known as "Sangiro", was appointed game warden in 1947 with the intention that he would publish a book on the wildlife of the Territory. Living in Windhoek and visiting Etosha only for brief periods, he never wrote the book. He was succeeded in 1951 by another writer, Prof. P. Schoeman, who resided in Otjiwarongo, not Etosha. Schoeman (1952) estimated numbers of Burchell's zebra (10 000 - 15000), wildebeest (7 000 - 10 000), springbok (5 000 - 7 000), gemsbok (800 - 1 200), kudu (600 - 800), eland (200 - 300), giraffe (100150), elephant (50 - 60), red hartebeest (40 - 60), ostrich (300), lion (150), and mentioned that 500 Hei//om-people inhabited the Park. Schoeman considered the grasslands of Etosha severely overgrazed and recommended the culling of 1 000 zebra and 500 wildebeest to counteract this. He erected a bone meal plant at Rietfontein to process the carcasses (the ruins are still visible close to the present waterhole). However, there was a public outcry about both the culling and the appearance of the site. When culling ceased in 1952, the official records listed 293 zebra and 122 wildebeest were shot, but conservationists in the country questioned these figures, believing several thousand animals were culled. Schoeman said there were too few lions in Etosha at the time and wanted more (Green 1981), possibly to control what he thought was an over-abundance of ungulates.

THE PERIOD 1953 TO 1964

Collection of reliable information and quantitative data were facilitated by two events: the appointment at Okaukuejo of Bernabe de la Bat as Chief Game Warden in 1953, and the creation of the Nature Conservation section in 1955. De la Bat served in Etosha for 10 years before being transferred to Windhoek as the first Director of Nature Conservation. His successor, C. Rocher, was transferred from Namutoni where he had been the first Warden-cum-Tourist officer of the restored historical fort. "Oom Stoffel" Rocher, as he became widely known, served in Etosha for 12 years.

Estimates of wildebeest numbers in the 1950's ranged from 25 000 (de la Bat 1982) to 30 000 (Viljoen 1967). De la Bat (1960) mentioned an aggregation of 18 000 wildebeest on the Andoni plains alone. During the same period, van der Spuy (1960) recorded mass mortality on the southern plains of Owambo when an estimated 4 000 wildebeest died in the drought during August 1959.

Prior to the restriction of animal movement by game-proof fences erected between 1961-73, Etosha supported very large, temporary influxes of migratory animals during the rainy season. For instance, de la Bat (1962) estimated the large herbivores numbered 100 000 individuals and mentioned that approximately 3 000 eland migrated to the Park annually from the areas east of Etosha (de la Bat 1982). Visiting researchers contributed substantially to knowledge of Etosha during this period, notably Bigalke (1961), who published the first scientific account of the area's general ecology. His observations from 1956-58 defined a "dry season concentration area" south of the Pan and a "wet season dispersal area"

west of it. Although he provided detailed road and water-hole counts of animals (Bigalke 1961), population totals for each species during 1953-64 were sketchy and only approximations are available (viz. 10 000 migrant zebra, wildebeest and springbok west of Etosha Pan in February 1957). A light aircraft was seconded to Etosha in this time, but regular, detailed aerial surveys were not possible (B. de la Bat, pers. comm. 1977).

Early tourism to Etosha was, of necessity, a rigorous experience: at Namutoni, people slept in open-air bomas; at Okaukuejo, visitors camped at the fountain, where they often were forced to seek protection inside their vehicles (and sometimes underneath them) when lions approached. In 1946 South African Railways organised the first "coach" tour to Etosha for the Easter weekend. The group comprised 137 visitors transported in open 10-ton trucks with 2 five-tonners carrying their provisions (de la Bat 1982). When Nature Conservation initiated a service for tourists in 1955, a total of 6 210 people visited Etosha that year (Table 2). One visitor published an account, including photographs, of how dangerously close tourists on foot approached elephant herds with calves (Heck 1955).

Table 2. Total number of persons visiting three rest camps in the Etosha National Park annually, given at five-year intervals from the inception of a Tourism Section, 1955 to 1990. Since Independence in 1990 the yearly totals are given. Statistics provided by the Directorate of Tourism.

Year	Total **	Percentage increase/decrease
1955	6210	
1960	12491	+ 101
1965	33346	+ 166
1970	62016	+86
1975	94784	+ 53
1980	# 65753	- 31
1985	79988	+22
1990	89856	+ 12
1991	100689	+ 12
1992	122611	+22
1993	127713	+4
1994	139052	+9
1995	144360	+4

decrease due to a combination of political uncertainty and drastic increases in fuel prices.

** The figures are likely to be an over-estimate because they represent the combined totals of 3 rest camps. Persons staying in more than one rest camp will therefore be recorded more than once. The over-estimate factor may be as high as 3:1 (J. Scheepers, pers. comm. 1995).

Together with fences, artificial watering places increased human influence on the natural system at Etosha. One example was Leeubron, which later became famous for its "lion restaurant" when wildebeest or zebra were shot to attract lions at night for tourists. From 1956 onwards, numerous bore-holes were drilled throughout the Park and borrow pits for road building were constructed so they could hold water for game (de la Bat 1982).

The Nature Conservation section in the 1950s decided to move the estimated 400 to 500 Hei//om-people living in the veld to alternative places. This was considered necessary because they begged from tourists and disturbed game and tourists at water-holes. Some Hei//om-people trekked of their own accord to Owambo or took jobs on farms bordering Etosha. In the 1960s, European farmers, aided by Hei//om-people who knew Etosha intimately, organised hunting in the south-eastern sector of the Park, near Txai-Tkab sink-hole. Etosha's Chief Nature Conservator, Peter Stark, countered this effectively by rounding up the poachers, prosecuting the leaders, and taking the Hei//kom aides into service as trackers. The descendants of these Hei//kom are among Etosha's present personnel.

At the same time as Etosha developed for tourism, the northern district of Outjo, as well as the north-western district of Grootfontein and the western district of Tsumeb became available for settler farming. These so-called "Red Line" farms lay immediately south and east of Etosha's veterinary ("Red Line") fence. The government subsidised land prices, and consequently farmers bought huge tracts of undeveloped bushland for unbelievably low prices of 2 to 5 shillings an acre

H. van Wyk, Farm Tiervlei, pers. comm. 1978). This advantage was often offset by damaged livestock, farm fences and water installations due to vagrant lions, spotted hyenas and elephants.

THE PERIOD 1965 TO 1974

A permanent Research Section under the Director of Nature Conservation and Tourism was created in Etosha in 1965 when R. Ebedes became the first wildlife veterinarian, and K. Tinley and E. Joubert were the ecologists. In the same year a nature conservation camp replaced the existing veterinary control post at Otjovasandu with a new purpose, protecting the integrity of western Etosha. In the same period, Kaross and 3 other adjoining privately -owned farms were bought by the South West Africa Administration to form a rare animal enclosure adjacent to the main Park. The addition of the government-owned farm Khoabendes as a quarantine camp completed this phase of Etosha's development. Of interest is the naming of "Qoabendes, S. Kaokoveld" as the "Topotype (an ear, in the Kaffrarian Museum)" of an Kaokoveld elephant *Loxodonta africana zukowskyi* (Shortridge 1934). A less desirable development for Park authorities occurred a few years later when the Etosha Petroleum Company staked its claim to a huge area, including the north-western sector of Etosha and extending into Owambo all the way to the east of Namutoni. A series of drill holes for oil yielded negative results and, to the relief of conservationists, the company abandoned the project.

Tinley's (1971) well-motivated proposal for a contiguous area comprising the Etosha, Kaokoveld and Kunene National Parks received a negative response from the South African Ministry of Bantu Administration and Development (1970). It stated, "*Your recommendations cannot be accepted with a view to the drastic deviating nature thereof and also viewed against the background of all the relative considerations and Government decisions which emanated from the report of the Odendaal Commission*".

On the veterinary front, Ebedes (1976) drew attention to the effect of anthrax on large herbivores from 1966-74, when at least 1 635 animals, 89 % of which were zebra and wildebeest, died of the disease. Other early research and conservation projects included an ecological study of the black rhinoceros in Etosha and the adjacent Kaokoveld by Joubert (1969), who also underlined the need for conserving these areas as an ecological unit. In 1970 a dramatic capture and airlift of 74 roan antelope from the Khaudum region of the Kavango, where their existence was threatened, to Etosha made game capture history (Hofmeyr 1974).

Artificial drinking places for animals in Etosha proliferated until, by 1970, there were at least 134 "mini-dams" created by gravel borrow pits with a capacity of more than 700 000 cubic metres of water (le Roux 1980) plus 54 cemented water troughs supplied by bore-holes (Berry & Siegfried 1991). Many were constructed to facilitate game viewing for the growing tourist trade. To accommodate the increase in tourism, a third rest camp, Halali, midway between Okaukuejo and Namutoni, opened in 1967.

THE PERIOD 1974 TO 1990

The Etosha Ecological Institute, formally opened on 1 April 1974 by Mr. Adolf Brinkmann, member of the Executive Committee of the SWAA, is located in Okaukuejo. It heralded an era of adaptive management based on scientifically conducted research. Whereas previous management of Etosha was reactive and largely *laissez faire*, the policy became one of pro actively intervening to translocate, cull, burn, and close or rotate artificial water-holes. In 1974 H. Berry became biologist until 1988, when M. Lindeque (1988-94) succeeded him. Intensive management-related research ensued in this period, and a classification of the vegetation (le Roux 1980), behavioural and eco-physiological studies on wildebeest (Berry 1980), population dynamics of elephants (Lindeque 1988), contraception, reproduction and demography of lions (Orford *et al.* 1988) were among the major topics investigated. In the veterinary field, studies yielded progress in understanding anthrax (Turnbull *et al.* 1989). The severe drought which began in 1980 necessitated the capture, sale and culling of 2 235 Hartmann's zebra and the capture of 450 Burchell's zebra in western Etosha (Berry 1984), making it the biggest single operation of its kind ever launched in southern Africa. In two separate operations related to this drought a total of 525 elephants were culled in western Etosha (Lindeque 1988). Their carcasses were processed at a field abattoir near Olifantsrus water-hole and transported by refrigerated vehicles to meat canning factories outside Etosha.

On 1 June 1982 the Directorate of Nature Conservation suffered a severe setback to its expertise when a fixed-wing aircraft crashed at Halali killing 5 staff members plus the pilot. It was the first and worst fatal air accident in Etosha's history.

Successive aerial censuses of Etosha, including two total counts (Berry & de Villiers 1982, Berry 1984), and stratified, random sampling (Lindeque & Lindeque 1987) together with water-hole and ground counts showed conclusively that by 1987 some large herbivore species had declined drastically in numbers: Burchell's zebra from 22 000 (1969) to 5 000; wildebeest from 25 000 (1954) to 2 600; gemsbok from 5 000 (1982) to 2 200; and eland from 3 000 (pre-1960) to 250. Others, notably giraffe (1 400) and elephant (2 500), had increased significantly from historically low numbers to populations which were greater than the sustainable carrying capacity of Etosha in 1984. In contrast, opportunist predator-scavengers like lion fluctuated between 200 and 500 in the period 1978-87, when an average of 32 lions were shot annually as trespassers on adjoining farms (Berry and Siegfried 1991).

The mechanisms causing these changes in numbers are only partly understood. Among the major factors identified are the restrictive fence, artificial watering places, high levels of disease, abnormal predator-prey ratios, and a drought phase in the 1980's (Berry 1980, Lindeque 1988, Cloudsley-Thompson 1990, Berry and Siegfried 1991). These conclusions made it apparent that successful management of Etosha would require a "Master Plan". Research and management developed a final draft in 1985. The Master Plan unequivocally defined the two major objectives for Etosha: "the maintenance, and in special cases the increase, of indigenous biotic diversity, and the sustainable development and utilisation of the resources for the benefit of humanity"

Furthermore, it was recognised that these two objectives are equally important and are reliant on scientifically conducted research for their implementation. Whilst the objectives appear ethically unassailable in their approach to the conservation of Etosha, the Master Plan never reached fruition because the management strategies set out were unattainable. For example, the plan stated that in order to retain its integrity "Etosha will be fenced as a *closed unit* so as to *exclude the emigration and immigration of all large terrestrial animals*" (italics are the author's). Clearly, this is not feasible, as fence-breaking by elephants, trespassing by lions and hyaenas, and entry by domestic stock continued despite extremely costly operations to electrify large sections of the fence. (The biologist inspected the entire fence of 850 km by aircraft on 29 August 1984, a day taken at random. He recorded and mapped a total of 96 complete breaks and 134 partial breaks (Berry 1984). Thus the Master Plan for Etosha remained in theory only and with Independence for Namibia scheduled for 1990, decision makers suspended its implementation.

It is significant for the future of Etosha, presently Namibia's premier tourist attraction with more than 140 000 visitors recorded annually at the three rest camps (Table 2), that the Ministry of Environment and Tourism is affiliated with the World Conservation Union (IUCN). The Ministry therefore recognises the objectives for nature conservation in the Etosha National Park as stated by the World Conservation Strategy, Category II: National Parks (IUCN 1980). Reaffirming the role and function of Etosha after Independence, the Ministry has confirmed the integrity of the Park's boundaries and pledged to follow a policy of sustainable use in all the conservation areas under its protection. Accordingly, "sustainable use" for Etosha means use of a population or ecosystem at a rate within its capacity for renewal and in a manner compatible with conservation of the diversity and long term viability of the resource and its supporting ecosystems (IUCN 1992).

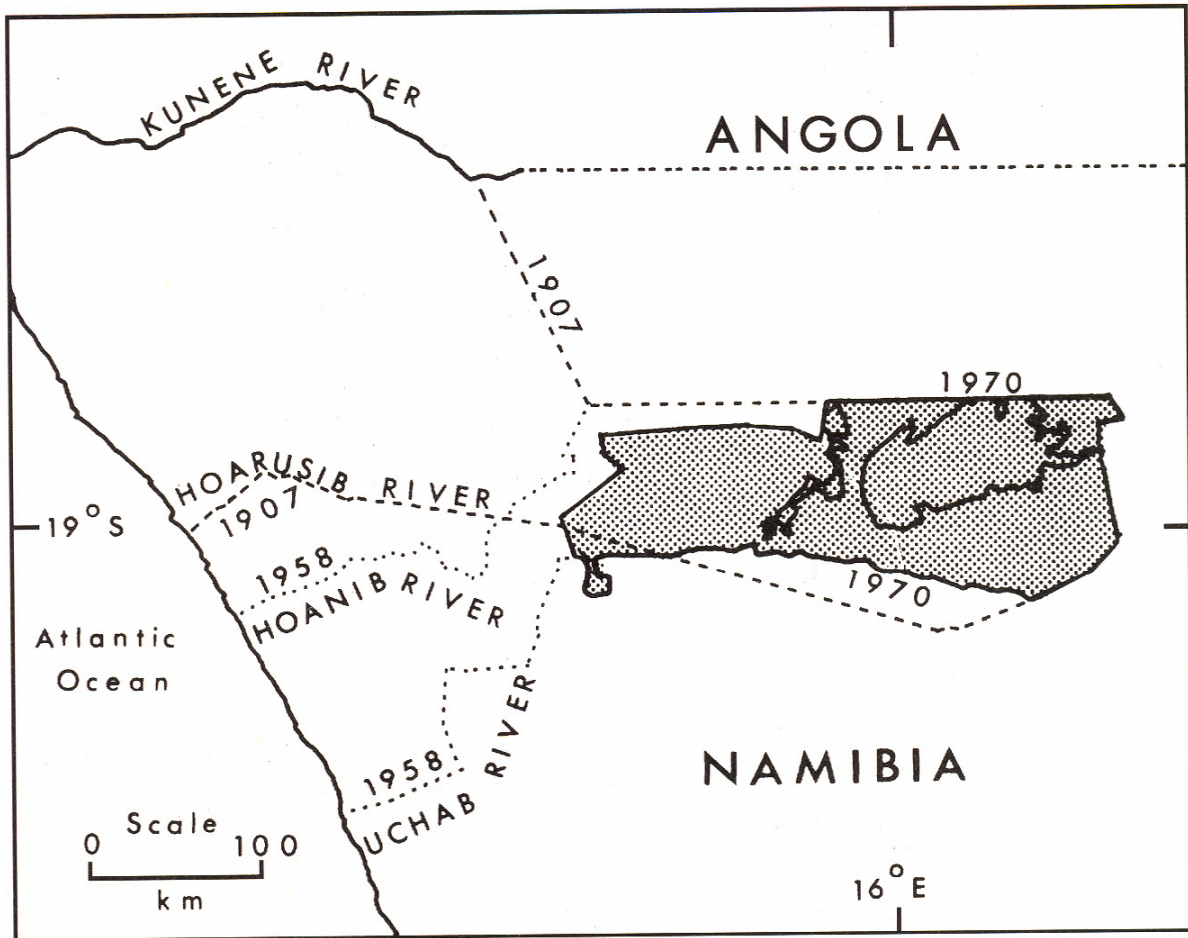


FIGURE 1: Major changes made to the boundaries of Game Reserve No. 2 and later to the Etosha National Park, between 1907 and 1970.

* The original area of Game Reserve No. 2 in 1907 was given as 99 526 km² (Nature Conservation S.W.A. 1982). This appears to be an error, as shown by measurement of maps.