

THE POSITION OF NATURE CONSERVATION IN SOUTH AFRICA.

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INTRODUCTION

The need has arisen to know exactly what is being done in the field of nature conservation in South Africa and which organisations, divisions and departments are concerned in this task. It is for this reason that this publication has been undertaken.

The compiler has endeavoured to arrange the data in such a manner that the publication is merely a factual report, in other words, a picture of the present state of affairs.

The author is indeed pleased to be able to express his sincere gratitude to the following persons who furnished information and who also read the chapters dealing with their organisations, in order to ensure that all the facts given are correct :-

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The Secretary for South-West Africa, Windhoek;
The Secretary, Divisional Council, Cape Town;
The Secretary, Divisional Council, Port Elizabeth;
The Town Clerk, Gonubie; and
The Secretary, Divisional Council, Knysna.

The first chapter, dealing with the history of nature conservation, is largely a summary of the contents of certain chapters in "60 Years Kruger Park" by R. J. Labuschagne. The compiler is deeply indebted to the author for his kind permission to make use of the facts in that publication.

The compiler also wishes to express his sincere gratitude to Mr. R. Knobel, Director of the National Parks Board, for his advice and encouragement.

THE HISTORY OF NATURE CONSERVATION IN SOUTH AFRICA

1. 1652 - 1902.

From old documents, diaries and other similar sources it is evident that wild animals abounded at the southern point of Africa when Commander van Riebeeck set foot on shore at Table Bay in 1652. A mere four years later a Swede by the name of Nils Matson Kiöping sent a large collection of birds and mammals to the University of Uppsala.

Lions, leopards, elephants, hippopotami, rhinoceri and larger antelope such as eland and red hartebeest were present in large numbers in the immediate vicinity of the first settlement, and it was not until 1702 that the last elephant was killed near Cape Town. All the interesting books of travel only served to attract adventurers to the country, and the United East India Company became so concerned at this state of affairs that for a time it was reluctant to allow scientists and travellers to enter the country, with the result that for a certain period the rest of the world was deprived of interesting facts in this connection.

There were, however, two Swedes, Sparrmann and Thunberg, medical practitioners in the service of the Company, and these two scientists were the precursors of the series of famous botanists and zoologists who visited the Cape during the 18th century. Thus, for example, the country was visited at the beginning of the 19th century by such men as Andersson, Wahlberg, Burchell, A. Smith, Chapman and Gray.

The big-game hunters followed in the wake of the scientists, and during the 19th century we find such names as Patterson, Burrow, Lichtenstein, Selous, Kirby, Cornwallis Harris, Baldwin, Bain and a host of others who visited the country. Many boasted about the number of animals they had shot, and there were men such as Major Pretorius who shot 557 elephants alone in his lifetime. Fortunately, however, there were men who gave vivid descriptions of the animal-life at that time, such as Gordon Cummings, S. C. Cronwright-Schreiner and W. C. Scully, and these descriptions are valuable historical sources today.

The question may well be asked: What has become of the game whose praises are so loudly sung in these works?

The blame for the ultimate destruction is to often laid at the door of our ancestors, both English and Afrikaans-speaking. It is, of course, true that

there were many hunters among them, and as better fire-arms became available, large numbers of animals were killed at times.

For the most part, however, wild animals were simply ousted by man. By reason of the fact that more and more farms were laid out and because there was not sufficient room for both farming activities and wild animals on the same piece of land, it was usually the animals which were either driven off the land or destroyed. Such wild animals did not always find it easy to adapt themselves to a new environment, and the inevitable result was extinction. The bloubok (*Hippotrachus leucophaes*) was the first species of buck to disappear completely, and the reason referred to above might well have been the cause.

On more than one occasion strange diseases, to which the wild animals were not resistant, because these diseases were carried by farm animals imported from other countries, spread across southern Africa like wildfire, destroying game everywhere. One need only recall the disastrous consequences of the rinderpest in 1896 to get a clear picture of such a catastrophe. On this occasion buffaloes and eland were almost completely exterminated.

In all probability these three influences, namely indiscriminate hunting, agricultural expansion with fencing and diseases (including parasites) were jointly responsible for the rapid decrease in numbers and the true zebra (*Equus quagga quagga*) — the wild horse of the old Colonists — and the typical form of Burchell's zebra (*Equus burchelli burchelli*) suffered the same fate as the bloubok. The Cape lion (*Felis leo melanochaitus*) was completely exterminated.

At the beginning of the present century the Knysna and Addo elephants, bontebok and mountain zebra were on the verge of extinction, but thanks to determined action it is today only the Knysna elephant which is threatened by this fate, and it is in all probability too late at this stage to do anything about it. The tragic part of this state of affairs is the fact that in 1931 when the National Parks Board undertook the protection of the Addo elephants, there were more elephants in the Knysna than in the Addo bush.

However, not only animal-life had to make way for civilisation. Timber and firewood were required, and thus many of our natural forests on the slopes of our mountains vanished in the course of time. All kinds of plants and shrubs simply had to be uprooted to make way for lands and orchards.

It should be realised, however, that it was essential to harvest crops from the soil, that meat and skins were required, that timber and firewood were essential items for maintaining life, and the biologist who would put the conservation of veld life before human welfare, would create a most unfavourable impression. Nature conservation obviously implies the wise utilisation of what Nature may offer. Malpractices only should be guarded

against, and this was indeed a knotty problem in the days when communication was still rather primitive.

Even the first colonists were alive to the fact that some measure of protection was necessary, and four years after the establishment of the Dutch settlement at the Cape, Commander van Riebeeck drafted the first hunting instructions.

In 1669 Governor Borghorst issued colonists with the first permits for hunting certain types of game. Unfortunately, however, it was also at this time that the first compensation for the extermination of certain harmful animals was paid. So, for example, an amount of 27/9 was paid for killing a leopard. Today the price is R10-00 and there are still leopards doing damage. This system only gave rise to malpractices and never achieved its object.

Governor Simon van der Stel, in 1677, was the first person to proclaim certain buck species as protected game, but the numbers of hippopotami, rhinoceri, eland and buffalo declined at such an alarming rate that further protective measures were promulgated in 1753. As early as the year 1742 it already became necessary to prohibit the shooting of mountain zebra. A fine of R20-00, a large amount at that time, was imposed for such an offence.

In 1734 Governor Jan de la Fontaine issued instructions aimed at protecting the national forests and trees in the vicinity of Swellendam.

Unfortunately, after the British Government took over the Cape, interest in conservation flagged and coupled with the rapid development of the Colony, it led to the large-scale disappearance of wild-life.

The Voortrekkers who, from 1836 onwards, migrated northward, regarded firewood and venison as essentials, and skins and ivory were used for bartering other essentials such as candles, soap, clothing, etc.

As far back as 1837 the "Vry Verkose Volksraad" of the inhabitants of the Free State included a section in connection with game protection in its Act of nine sections and in 1846 the Volksraad (Legislative Council) of Ohristad adopted drastic measures in connection with the protection of game. These made provision for the confiscation of fire-arms, ammunition and wagons.

Comdt. A. H. Potgieter issued a notice in 1848 prohibiting all strangers from hunting in his area in Lydenburg.

That there were indeed offenders who killed off game on a large scale, is evident from the fact that in 1858 an Act was passed in the Transvaal which laid down that no person was allowed to kill in any manner whatever more game than that required by him for his own consumption or which he was able to load on one wagon; furthermore, no person was allowed to shoot game merely for the skins.

As early as 1870 the Transvaal Republic took the lead by appointing game rangers and at the same time introducing open and closed seasons for the hunting of game. As from 1891 elephants and hippopotami and as from 1893 buffalo, eland, giraffe and rhinoceri were fully protected.

Predators responsible for losses among livestock, and elephants, hippopotami and rhinoceri which caused damage to lands and orchards, made complete protection very difficult, however, and it was the President who summed up the position correctly in 1884 and who offered a solution. He proposed that the protection of fauna and flora could be carried out best in areas specially reserved for this purpose, and thus the first game reserve, the Pongola, was proclaimed on the 13th June, 1894, followed by the Fountains Valley near Pretoria on the 1st February, 1895. Unfortunately, however, the Pongola was deproclaimed in 1921, and so one of the historical institutions disappeared.

Game has been protected by strict legislation in Natal since 1892, and on the 27th April, 1897, the Hlululuwe and Umfolozi Reserves were proclaimed.

The rôle played by President Paul Kruger in connection with nature conservation in the Transvaal is deserving of greater attention, because he was actually the first nature conservator in South Africa. He appreciated the rôle played in nature by beasts of prey and the other so-called harmful animals such as elephants, hippopotami, etc. and it was clear to him that these animals would not always be able to make way for rapidly approaching civilisation. Sooner or later a breaking-point would be reached. He considered it essential to set aside areas or reserves where these animals, together with other valuable game species, could continue to exist without any disturbance.

When his first representations to the Volksraad in 1884, barely a year after assuming office as President for the first time, were not successful, he made more vigorous efforts in 1889, but with this modification, namely, that if no special areas could be reserved for this purpose, complete protection should be afforded on State-owned land. In a speech made on this occasion, he specifically referred to the Pongola area and part of the Lowveld which more or less corresponded with the Shingwidzi area.

Taking into account that at this stage large-scale hunting was the order of the day in Swaziland, South-West Africa, Bechuanaland and the Cape Province, one should appreciate all the more the wisdom of this Statesman. He chose the two areas referred to for the very reason that the animals were still present in sufficient numbers to warrant proper protection. The President's motion was adopted but the first reserve, the Pongola, was proclaimed much later.

In the meantime, in the years 1891 and 1892, the game laws were brought to the attention repeatedly, and more species of game were afforded State

protection and fines were raised. In 1893 the shooting of buffalo, eland, rhinoceri and giraffe was entirely prohibited, and offenders were liable to a fine of R300.

As early as 1895 the establishment of a Lowveld reserve was approved by the Volksraad, but trouble with foreigners, and particularly the Jameson Raid, resulted in the actual proclaiming and surveying of the Sabi Game Reserve being postponed until 1897. The President himself favoured the area round Shingwidzi, but by reason of the fact that to the south the Sabi River important developments were taking place in the fields of agriculture and mining, he agreed that the area between the Crocodile and Sabi Rivers was the area meriting urgent attention in order to prevent the elimination of game in that area.

The report by the Surveyor-General was completed on the 2nd December, 1897, and on the 26th March, 1898, the Executive Committee of the Volksraad proclaimed the Sabi Game Reserve. Unfortunately, however, the Anglo-Boer War broke out soon after, and during those years nothing could be done to further game conservation.

During the war and the years immediately following, Steinacker's Horse played an interesting rôle in the Sabi Game Reserve. In this regiment there was an adjutant, Major Greenhill-Gardyne, who was an ardent protector of game and who had the welfare of the game at heart. He punished all offences severely, and should indeed be regarded as the first honorary game warden of this area.

Towards the end of the war, Mr. R. K. Loveday, ex-member for Barberton in the Volksraad of the Transvaal Republic, entered into negotiations with Lord Milner regarding the reproclamation of the Sabi Game Reserve and the game laws as they were in Republican days. His negotiations were successful and were followed by reproclamation.

The rôle played by the State in the protection of fauna and flora in Southern Africa was an important one, and the statesmen of that period are worthy of praise, but legislation alone would not have saved the situation. We are deeply indebted to the farmers who, from the very beginning, displayed a keen interest in the protection of game and controlled their farms as wild-life sanctuaries. The fact that four of our rarest animal species are to-day still in existence we owe entirely to the protection accorded them by generations of various families. The bontebok was protected on the farms of the Albertyn, van Breda, van der Byl and Uys families. The mountain zebra was saved from extinction by the Heins and Lombard families. If the Harveys had not taken it upon themselves to look after the Addo elephants, these animals would today have existed in name only. Furthermore, we owe the continued existence of

the black wildebeest to the interest shown by the Hertzog and Hoffmann families.

Of these people William T. Hornaday, Director of the New York Zoological Gardens, wrote: "It has been well known to American and British zoologists and sportsmen that many of the Boer farmers of South Africa were zealously and successfully preserving on their farms many valuable herds of game that otherwise would have been exterminated — We wish that all the game-inhabited farms on the earth were theirs!"

The people of South Africa are indeed fortunate in having had such forebears, but it places a great responsibility on the present generation, particularly those actively engaged in nature conservation.

2. 1903 — THE PRESENT.

From the establishment of the first White settlement at the Cape until the advent of Union, the conservation of wild-life was the function of either the Colonies or of the Republics. The South Africa Act of 1909 left the power in the hands of the provinces, and each adapted its ordinances to the legislation which previously applied in the province concerned, or amended them as the need arose. With the passing of time these, too, became obsolete, with the result that they were replaced by entirely new ordinances.

With the establishment of Union in 1910 the existing reserves in Natal and the Transvaal were entrusted to the care of the respective Provincial Administrations, but since developments in the industrial and agricultural fields became a serious threat to the existence of the Sabi Game Reserve, Col. J. Stevenson-Hamilton and Dr. A. K. Haagner did everything in their power to have the reserve proclaimed a National Park.

In 1912 large flocks of sheep grazed in the Sabi Game Reserve and farmers simply burnt the veld and indulged in the indiscriminate shooting of beasts of prey. This state of affairs lasted throughout the years of the First World War and large-scale poaching occurred.

It was not until 1916 that a Commission under the chairmanship of Mr. J. F. Ludorf was appointed to investigate the whole question of game reserves. This Commission, in its report which was published in 1918, also proposed that the Game Reserve be accorded national status. But the years up to 1923 were dark ones in the history of that area. Farmers demanded more grazing rights and mining institutions more concessions, and the Land Board ultimately suggested that the area be taken over and be divided into farms. In 1921 the Pongola Reserve was deproclaimed, because the State had evinced no interest in this project and by this action nature conservation in South Africa took a

great step backward. Fortunately, however, this was the lowest level ever in the history of nature conservation in this country.

In 1923 Col. Stevenson-Hamilton once more put to Col. D. Reitz, the then Minister of Lands, his request that the Sabi Reserve be proclaimed a national park. After a visit to the area, the Minister gave his full support to the idea.

In an effort to assist the South African Railways, which were in financial straits at that time the so-called "round tours" were introduced in 1923, and one lasting 9 days, which included a visit to the Sabi Reserve, was soon very well supported. Moreover, it was evident that it was indeed the Reserve which made the tour so popular.

Col. Reitz wished to finalise the matter and duly instructed the Chairman of the Land Board, Major Scott, and the Surveyor-General, Mr. Schoch, immediately to determine the boundaries of the Game Reserve and, in addition, to investigate all grievances and claims by land-owning companies. Dr. A. Schoch, brother of the Surveyor-General, drafted legislation to nationalise the Reserve, and this was subsequently passed with almost no amendment.

When a new Government assumed office in 1924, Mr. P. G. W. Grobler became Minister of Lands, and gave the matter his personal attention. He called a meeting of representatives of the land-owning companies and clearly stated that if they were not prepared to negotiate he would exercise his rights of expropriation. As a result of his action, an area of 100,000 morgen of land was exchanged and the rest purchased for R80,000. This brought the total area of the Sabi Game Reserve to 7,000 square miles. An additional 40,000 morgen were subsequently added.

On the 31st May, 1926, Minister Grobler introduced the National Parks Act in Parliament. This Act gave national status to the reserve and changed its name to the Kruger National Park.

It is, however, important to point out here that one of the amendments to the Schoch Draft, which was included in the Act on the insistence of Mr. P. G. W. Grobler, was that provision should be made for the creation of other national parks.

The newly-created National Park soon gained in popularity, but lack of funds considerably hampered development. The main task was the provision of water for game, and periodic droughts were so bad that in 1947 the Parks Board introduced its "Water for Game" Fund and in 1954 launched a special water-supply programme. Today there are already more than a dozen large dams and some 63 windmills in the watering points in the Kruger National Park, but the programme has not yet been completed.

Since 1903 the western boundary of the Kruger National Park has been a thorny problem, and in 1935 Mr. James H. Orpen undertook to survey this boundary for the Parks Board free of charge. He was accompanied by his wife, and they then saw how hunting parties were simply burning large areas on the other side of the boundary and digging dams to entice the game from the Park. This enabled them to hunt the animals at their leisure. These two benefactors then simply bought an area comprising 31,000 morgen which they presented to the Parks Board.

In an effort to straighten this boundary, land has during the past few years either been purchased by the Government or exchanged for adjacent farms, but it was not until 1960 that the question of the western boundary was finally settled, when the Government on the recommendation of the Department of Agricultural Technical Services erected a game-proof fence along this boundary. The southern boundary has also been fenced and work is progressing along the northern boundary. The eastern boundary will be attended to in due course, but meanwhile the Lebombo Range affords a natural barrier. Now, at last, the Kruger National Park is indeed an ecological unit and can be conserved for posterity as such.

In 1931 three new National Parks were established, namely, the Kalahari Gemsbok Park, the Addo Elephant Park and the Bontebok Park at Bredasdorp. The latter Park, however, was transferred to Swellendam in 1960, as the area, despite every effort to improve it, was not suitable for the bontebok.

The Mountain Zebra National Park was established at Cradock in 1937, and although there was talk of also establishing other national parks and although representations were even made in that connection, the Parks Board decided that the time had arrived to consolidate its forces and to develop the parks which it had before embarking on any new projects. Now that the period of consolidation is past, the Board is busy making a thorough study of the areas which may lay claim to national status and negotiating for the acquisition of this land.

During the years of consolidation troubled times were also experienced, and honour is due to yet another statesman of vision, the late Mr. J. G. Strydom, then Minister of Lands, for indicating yet another step forward. Through steps taken by him in 1951 the Parks Board commenced with research work in the national parks, and trained scientists were accordingly appointed in the service of the Board for the first time.

It was soon evident that it was also essential to make a start with educational work, and in 1952 an Educational Information Section was established.

Beyond the boundaries of the national parks, nature conservation also did not come to a halt. The various provinces had to see to the protection of

fauna and flora within their borders, as well as to the control of animals causing damage to lands or predators responsible for losses to sheep and cattle farmers. Various rivers and dams were stocked with exotic fish species by private concerns and here, too, control had to be exercised over anglers.

The passing of the Financial Relations Consolidation and Amendment Act No. 38 by Parliament in 1945, empowered the Provincial authorities to establish reserves for the promotion of wild-life. It had become essential to reserve areas for the conservation of certain plants or certain animals. As a result of this concession nature conservation divisions were established in three of the four provinces.

In the Cape Province a Department of Inland Fisheries had been in existence since 1940, and it was converted into a Department of Nature Conservation in 1951.

In Natal a special Board for the Control of the Parks and the protection of fish and game was established in 1950, and a Division was created in the Administration to handle the conservation work as well as the affairs of the Board.

In 1945 the Transvaal Provincial Administration appointed a Commission of Inquiry to investigate all aspects of nature conservation in that Province. On its recommendation a Division of Nature Conservation was established in 1949.

Although the establishment of a similar Division in the Administration of the Orange Free State was approved in principle several years ago, this work is still being done by the Provincial Inspection Branch.

NATIONAL PARKS

1. *Legal Status :*

Act No. 56 of 1926 in connection with national parks provides for the establishment of national parks and the preservation of wild animal life, wild vegetation and objects of geological, ethnological, historical or other scientific interest therein and for matters incidental thereto, in the interest and to the benefit and for the enjoyment of the inhabitants of the Republic of South Africa.

2. *Organisation :*

A. Section 5 of this Act provides for the appointment of a Board of Trustees for the control and management of national parks.

This Board consists of twelve members appointed by the State President, of whom

- 7 are appointed by the Minister of Lands,
- 1 by the Administrator of the Transvaal,
- 1 by the Administrator of the Orange Free State,
- 1 by the Administrator of the Cape Province,
- 1 by the Administrator of Natal, and
- 1 by die Wild Life Protection Society of South Africa.

The Board has four meetings per annum and meetings are attended by the following staff :

Director,
Chief Nature Conservation Officer,
Chief Administrative Officer, and
Secretary.

If necessary any other staff member may be called upon to attend the meeting should information on a particular subject be required.

B. *Staff :*

At the head of the organisation is a director assisted by two heads of departments.

(i) *Department of Nature Conservation :*

Head Office :

Chief Conservation Officer.

(a) *Division of the Liaison officer :*

Liaison Officer,
Educational Officer,
Librarian (stationed at Skukuza),
Photographer,
Publications Clerk,
Shorthand-typiste,
1 Non-white Messenger.

(b) Division of Scientific Research (Cape Parks) :
Biologist.

Kruger National Park.

Division of the Nature Conservator :

- 1 Nature Conservator,
- 1 Biologist,
- 1 Asst. Biologist,
- 1 Veterinary Surgeon (seconded by the Division of Veterinary Services),
- 2 Technical Assistants,
- 1 Senior Ranger,
- 3 District Rangers,
- 9 Rangers,
- 1 Clerk,
- 1 Shorthand-typiste,
- 2 Non-White Office Boys,
- ±172 Non-white Rangers,
- ±106 Temporary Non-white Labourers.

Addo Elephant National Park :

- 1 Nature Conservator,
- 1 Tourist Officer,
- 8 Non-white Rangers,
- 7 Temporary Non-white Labourers.

Mountain Zebra National Park :

- 1 Nature Conservator,
- 2 Temporary Non-white Labourers,
- 4 Non-white Rangers.

Bontebok National Park :

- 1 Nature Conservator,
- 2 Non-white Rangers.

Kalahari Gemsbok National Park :

- 1 Nature Conservator,
- 2 Rangers,
- 1 Technical Officer,
- 1 Temporary Assistant Tourist Officer,
- 1 Temporary Non-white Labourer,
- 4 Non-white Rangers.

(ii) *Department of Administration:*

Head Office:

Administrative officer.

(a) *Administrative Division:*

Secretary,
Correspondence Clerk,
Administrative Clerk,
Senior Shorthand-typiste,
Typiste,
Record Clerk/typiste,
Telephonist/typiste,
2 Non-white Messengers.

(b) *Tourist Reservation Division:*

Chief Reservation Clerk,
Senior Reservation Clerk,
18 Reservation Clerks.

(c) *Accountant's Division:*

Accountant,
Senior Accounts Clerk,
Senior Buying Clerk,
Buying Clerk,
2 Accounts Clerks,
4 Junior Accounts Clerks.

Kruger National Park:

(a) *Trading and Tourism Division:*

Trading Manager,
Assistant Trading Manager.

(1) *Office staff:*

2 Accounts Clerks,
2 Junior Accounts Clerks,
Telephonist/clerk.

(2) *Trading store:*

Chief Trading Storekeeper,
Senior Trading Storekeeper.

(3) *Shops:*

2 Shop Managers,
2 Shop Assistants.

(4) *Restaurants:*

Chef,
Receptionist,
Restaurant Manager,
2 Restaurant Assistants.

- (5) Tourism:
6 Tourist Officers.
 - (6) Camps:
4 Rest Camp Supervisors.
 - (7) Relief Staff:
2 Relief Officers.
 - (8) Temporary staff for the winter season:
1 Accounts Clerk,
1 Storekeeper,
8 Shop Assistants,
1 Laundry Officer,
11 Tourist Officers,
15 Assistant Tourist Officers,
6 Restaurant Officers.
 - (9) Temporary Non-white staff:
±255 Non-whites are employed as labourers, shop and rest camp servants, office boys, etc.
- (b) Engineer's Division:
- Engineer.
- (1) Office and store:
Engineer's Clerk,
Senior Storekeeper,
Storekeeper,
2 Junior Accounts Clerks,
Typiste/Clerk.
 - (2) Building Section:
Clerk of Works,
Assistant Engineer,
Building Artisan,
General Artisan.
±30 Temporary building artisans.
 - (3) Roads Section:
Roads Foreman.
 - (4) Mechanical Section:
Chief Mechanic,
7 Mechanics,
Electrician,
Temporary Assistant Electrician,
Power Station Supervisor.
 - (5) Temporary Non-white Assistants:
±332 Labourers, office boys, lorry and road machine drivers, etc.

3. *Research:*

Since the field is so tremendously wide and the existing staff too small, it has been decided to obtain the co-operation of various other organisations and the co-operation is overwhelming. At present the work is being undertaken by the following:

Soil:

Department of Agricultural Technical Services (Division of Chemical Services).

Water:

C.S.I.R. — Hydrological Survey.

Department of Mines (Division of the Geological Survey).

Department of Water Affairs.

Limnological studies:

University of Pretoria.

C.S.I.R. and others.

Botanical Surveys:

Department of Agricultural Technical Services (Division of Botanical Survey).

University of Pretoria (Department of Botany).

Pest Research:

Department of Public Health.

Animal Diseases and Parasites:

Department of Agricultural Technical Services (Division of Veterinary Services).

Department of Public Health (Medical Ecological Centre).

Zoological Surveys:

(Invertebrates):

Department of Agricultural Technical Services (Division of Entomology).

Department of Public Health (Medical Ecological Centre).

Transvaal Museum.

University of Potchefstroom (Department of Zoology).

C.S.I.R. (National Institute for Water Research).

(Fish):

University of Rhodes (Department of Ichthyology).

The Natal Parks, Game and Fish Reservation Board (Fish Research Division).

Department of Nature Conservation, Transvaal (Provincial Fisheries Institute, Lydenburg).

(Amphibia):

University of Natal (Department of Zoology).

(Birds):

Transvaal Museum.
Port Elizabeth Museum and Snake Park.

(Mammals):

Transvaal Museum.
Department of Public Health (Medical Ecological Centre).

Animal Ecology:

University of Pretoria (Department of Zoology).
University of the Witwatersrand (Department of Zoology).
Department of Public Health (Medical Ecological Centre).

Palaeontological Surveys:

Bernard Price Institute (Palaeontological Survey).

Weather Surveys:

Department of Transport (Weather Bureau).

Encroachment Shrubs:

African Explosives and Chemical Industries (Klipfontein Organic Products).

The facilities offered by the National Parks Board to scientists from these institutions are:

- (a) Transport.
- (b) Free permit to enter national parks.
- (c) Free accommodation, and
- (d) free meals provided they are not entitled to the ordinary subsistence and transport allowances of their institutions.

The work already done by these scientists is of inestimable value, particularly if account is taken of the number of projects that would have had to be shelved if this assistance were not available.

The work done by these scientists is of course not only of interest to the Parks Board, but also of great value to the institutions from which these scientists are drawn.

At Skukuza there is a well-equipped research laboratory, with a herbarium and museum at Twee Rivieren in the Kalahari Gemsbok National Park there is the Rembrandt Field Laboratory. In the latter building accommodation is also provided for visiting scientists.

The research work conducted by the Board's own biologists consists of:

A. *Plant and Animal Surveys:*

Not only the biologists and technical officers collect specimens, but they also have the voluntary assistance of all rangers and other staff of the Board and it is this extra assistance which in fact contributes to building up the collections. Visiting scientists also assist in this connection.

B. *Research in connection with Veldburning:*

This research has been carried out for the past eight years, but has already progressed to such an extent that the Board can now lay down

a definite policy in connection with the burning in the Kruger National Park in respect of the provision of grazing, water conservation, erosion, and the prevention of accidental fires. This can be summarised as follows:

- (a) That all poor, stony, hilly veld, damaged areas (as a result of over-grazing, droughts or fire), catchment areas of rivers and springs, vleis and marshy valleys, mountain slopes, and areas noted for their profusion of flora should not be burnt.
- (b) That climatic conditions be taken into account and that at least 2 inches of rain shall immediately precede the burning of any area.
- (c) That areas be divided into smaller fire-blocks to localise accidental fires, as smaller blocks can be more readily controlled during controlled burning.
- (d) Where the nature of the vegetation necessitates such action, the periods between controlled fires be extended since burning may favour undesirable vegetation.
- (e) That where there is any danger of excessive accumulation of plant material, the case be thoroughly considered in the light of the declared policy.
- (f) That whenever a block is accidentally burnt, all possible attempts be made to extinguish the fire and that in the event of such area being burnt, it shall be rested for at least three years.
- (g) That as many fire-break roads as possible be graded on the boundaries of the Park in order to safeguard the Park.

C. *Grazing:*

- (a) Where research is being done in connection with the effect of burning on vegetation, special note is taken of the manner in which burning can be utilised to improve grazing.
- (b) An intensive survey is being undertaken in connection with all the vegetation or parts thereof such as seeds or fruits eaten by the various animals.
- (c) A study is being made of encroachment plants and particularly as to how they can be eradicated. With the assistance of the Klipfontein Organic Products Organisation trials are being conducted with plant killers.
- (d) Plant successions after burning are being studied to determine at what stage development should be allowed in order to provide suitable grazing.

D. *Predator control and predator-prey relations:*

An intensive study is being made of the presence of predators and the rôle played by them in the control of the numbers of their prey.

The biology of every species of predator is being studied and where necessary their numbers are also controlled. The study has already advanced to such an extent that the Board, on the recommendation of the Research

Division, could lay down a definite policy as regards the control of predators, as follows:

The old policy of inconsistent control could only lead to chaos, and for that reason control should be based on research.

The ecological composition of the Kruger National Park is such that it is imperative to keep lions out of certain areas in order to enable certain scarce species of game to breed.

Under present conditions of occurrence and distribution it is not necessary to control predators such as the brown hyaena, all jackal, caracals, serval cats, the small spotted genet and other smaller cat species, honey badgers and otters. On the other hand the control of cheetahs, leopards, spotted hyaena and wild dogs would only be justified where they constitute a real threat to rarer species of game.

Control measures may also be introduced in connection with lion and crocodiles which frequent new dams or isolated water holes thus preventing game from coming to such watering places.

In addition, lions may be destroyed when they are maimed, sick or exceptionally old and decrepit, form unnaturally large prides, or when an exceptionally large number are present in an area and the lion population itself suffers as a result.

On the other hand a large concentration of lions are allowed and encouraged in any area which is over-grazed in order to assist veld-management in this respect.

Baboon and other animals making a nuisance of themselves, may be controlled.

E. *Animal diseases, Parasites and Accidents:*

Due to a shortage of staff research in the field of animal diseases is left to the Division of Veterinary Services of the Department of Agricultural Technical Services. The staff, however, do participate in this respect by being continually on the look-out for outbreaks and they also collect data and specimens which may be necessary for examination. For the control of such outbreaks they are themselves responsible and various remedies are being tested. An important discovery was that of Tetramine which is distributed by means of drinking water in order to control anthrax.

Parasites are collected on a large scale as well as data on their life cycles, hosts and habits. Specimens are sent to Onderstepoort for research purposes.

Accidents and the nature and cause of such accidents are carefully recorded and also whether it was necessary to destroy the animal concerned.

F. *Reproduction and Breeding of Animals:*

A careful record is kept of the breeding habits of all species of game.

G. *Migration, Capture and Marking of Game:*

Records are kept of the migratory movements of species of game, not only in the Kruger National Park, but also in the Kalahari-Gemsbok National Park. Particularly in the last-mentioned Park the migration of game is a very great problem and the assistance by the Department of Zoology of the University of Pretoria in this connection is most valuable.

In order to trace the migration it is necessary to mark animals and various methods are being tried.

In this connection the capture of game is also an important study project. It is sometimes necessary to capture game in order to transfer them to other areas, but it is also necessary to capture animals in order to mark them and in this respect trials are at present being conducted in order to determine the easiest and best method of capture for the animal in respect of each particular species of game:

- (a) Overtaking by means of vehicles and capturing by hand;
- (b) the use of crush pens and capturing by hand;
- (c) drugs administered at watering places;
- (d) drugs in projectiles fired at animals.

In addition, trials with sedatives, remedies for the treatment of pneumonia, drugs, crates, and boxes are being conducted in order to determine the best methods of transporting game.

H. *Water Supply and Distribution of Water :*

Natural water holes can very easily be a focus of disease infection (as was in fact found during the past outbreak of anthrax). For this reason it is necessary to make available artificial water supplies which may be easily controlled and disinfected. At the same time it is also a method of applying grazing control: by closing the water supply, animals are compelled to look for water elsewhere and in this way game is being compelled to rest over-grazed and trampled areas.

Research in connection with the best manner of building water troughs or dams is continually being conducted.

I. *Tourism :*

The influence of visitors on the habits and life of animals in the Park has as yet not been determined exactly, but it enjoys the attention of the staff.

J. *Library and Reference Works :*

Although still in its initial stages a fairly well-equipped library is housed in the Head Office at Pretoria and at Skukuza. Reprints and periodicals have been catalogued and can readily be referred to. A loan agreement has been entered into with the most important libraries.

Publications of various kinds are being exchanged with interested parties throughout the world.

4. Control :

(a) *Kruger National Park* :

The conservation work in this Park is entrusted to a Nature Conservator. Because of the size of the Park it has been subdivided into three districts: the southern, the middle and the northern districts. Each district is under the control of a District Ranger assisted by White and Bantu rangers. This section is responsible for the weal and woe of the wild life in respect of :

- (i) Water supply,
- (ii) control of grazing,
- (iii) predator control,
- (iv) the control of outbreaks of epidemic diseases,
- (v) control of tourists.

The duties falling under these headings are numerous, but this section is an important link in the collection of plant and animal specimens and promotes the work of research workers.

(b) *Addo Elephant National Park* :

A Nature Conservator, assisted by a tourist officer, who also does conservation work, looks after the wild life of this Park.

(c) *Mountain Zebra National Park* :

This Park is under the control of a Nature Conservator assisted by four Non-white rangers.

(d) *Bontebok National Park* :

It is under the control of a Nature Conservator/Biologist and two Non-white rangers.

(e) *Kalahari Gemsbok National Park* :

A Nature Conservator, 2 White rangers, one technical assistant and 4 Non-white rangers are responsible for the conservation work.

General :

In the national parks all plants and animals are protected but if an unhealthy predominance of some or other species should, however, occur, planned control is applied.

In the Kruger National Park one finds all the Lowveld species of game, with the exception of the black rhinoceros which has disappeared from this Park, and the Addo Elephant National Park contains those species formerly indigenous to that area.

The Kalahari Gemsbok National Park was established as a sanctuary for the remaining large herds of migratory game such as gemsbok, springbok, eland, red hartebeest and blue wildebeest. Control in this Park is most difficult since only the western boundary has been fenced and since the animals migrate as pasture becomes available.

The Mountain Zebra and Bontebok National Parks are species parks. They were established to protect the mountain zebra and the bontebok,

respectively. In all parks considerable progress has already been made with the work and research in connection with the improvement of grazing and the control of erosion.

It is the Board's policy to introduce into each park all game formerly indigenous to such a park, provided it is, of course, possible. It is, of course, impossible to reintroduce lion, elephant etc., in the Bontebok Park, the area being too limited.

5. Trade and Tourism :

The Parks Board has accepted responsibility for the provision of rest camps in two parks, namely the Kruger National Park and the Kalahari Gemsbok National Park. In the Kruger National Park, hut and tent accommodation for some 2,600 persons is provided and camping space for about 400, so that there are never more than 3,000 visitors per night in this Park. By building new camps or by reducing existing camps in order to establish other camps every attempt is being made to distribute visitors more uniformly throughout the Park.

In all camps as well as at the entrance gates shops are available where visitors can obtain all essential supplies. The two shops at Skukuza and Pretoriuskop are open throughout the year and are fully stocked with supplies which visitors may require. Since 1955 the Board has accepted the responsibility for the trading in the Park.

Kitchens equipped with stoves and open fires with grills make it possible to prepare meals, but at all rest camps there are restaurants where meals may be obtained.

Comparative figures give some idea of the phenomenal increase in the number of visitors since the Kruger National Park was opened to visitors in 1927.

	No. of visitors	No. of vehicles	Entrance fees paid
1927	10	3	£2
1939	32,603	8,533	£9,187
1949	66,080	17,017	£26,601
1959	135,740	34,501	£59,990

The Board had to keep pace with this tremendous rate of development as far the accommodation and other amenities were concerned. It therefore very soon became apparent that there could not be an unlimited increase in the number of visitors. Account had to be taken of roads, the game and accommodation and it was decided to restrict the number of visitors to the Park to 3,000 per night. At present there are 632 huts of various types, providing accommodation for about 1,800 persons. In addition 800 beds are

available in tents and camping space is provided for a maximum of 400 persons.

A Trading Manager assisted by 28 permanent and 43 temporary White officers and 255 temporary Non-whites is responsible for the amenities of visitors in the Park.

Reservations are being done by means of a special reservation division at Head Office in Pretoria. A Chief Reservations Clerk with a staff of 19 deals with this work. In this manner the number of visitors to the Kruger National Park can be controlled.

An Engineer's Branch, consisting of a staff of 20 permanent White employees, 26 temporary White officials and 332 temporary Non-whites, is responsible for :

- (i) the building of new camps,
- (ii) the erection and maintenance of buildings,
- (iii) the building and maintenance of roads for visitors and the grading of fire and patrol paths.
- (iv) the provision of water for camps and animals,
- (v) maintenance of vehicles and road building machinery,
- (vi) the erection and maintenance of a radio communication system and electricity supply.

It is most essential, of course, that the sections of the nature conservator and the engineer work in close co-operation at all times, since it is not only essential for the sake of the animals but also of the visitors. When building camps, roads and dams the needs of both man and beast are duly considered.

Of the other parks where visitors are allowed, only the Kalahari Gemsbok Park has accommodation available for visitors.

At the southern entrance, Twee Rivieren, there is accommodation for 34 visitors and at the northern gate, Mata-Mata, on the border of South-West Africa, accommodation for 12. Camping space is almost unlimited. A family hut and 4-bedded rondawels are available. Petrol and the necessary provisions can be purchased at Twee Rivieren.

In the Addo Elephant Park there is a café where visitors can procure light meals.

The Department of Administration is at Head Office in Pretoria. The administrative officer is responsible for 3 divisions at Head Office.

- (i) Administrative Branch, consisting of 7 permanent White officers, plus 2 Non-white messengers,
- (ii) Tourist Reservation Branch (already described),
- (iii) Accounts Branch, consisting of 10 permanent White officers.

This Department is responsible for the trade, tourism and engineering work in the parks.

6. Educational Information :

A section, consisting of the liaison officer and 6 permanent White officers and one Non-white messenger, is responsible for this work.

Information is being disseminated by means of educational talks, slide and film shows, radio talks, articles in periodicals and newspapers, lecture tours and publications.

The photographer is responsible for the taking of photos and the maintenance and preparation of photographic aids, such as photos, colour slides and films.

The liaison officer, with the assistance of the educational officer, is responsible for the preparation of articles and manuscripts for talks and publications.

The publications clerk is responsible for negotiations with printers and bookshops.

The following is a list of publications of the Parks Board, which have already been issued :

- 60 Years Kruger Park,
- Our National Parks,
- The South African Animal Guide,
- Birds of the Kruger and other National Parks, Volumes 1 and 2,
- Mammals of the Kruger and other National Parks,
- Trees and Shrubs of the Kruger National Park,
- The Addo Elephants,
- Guide Map of the Kruger National Park,
- Guide Map of the Kalahari Gemsbok National Park,
- Koedoe Nos. 1, 2, 3 and 4,
- Souvenir of the Kruger National Park,
- Post cards.

In addition photos, colour diapositives and films depicting the wild life in the parks are sold or sometimes distributed free of charge.

The annual report of the Board is prepared, on behalf of the Director, by the Department of Administration and this Section. It has only a limited circulation amongst interested institutions, organisations and in exceptional cases, private persons.

In this Section there is a library consisting of a large collection of books, periodicals and reprints.

The scientific journal "Koedoe" is used for exchange purposes and, together with those periodicals subscribed to, the library receives :

- 92 Scientific journals,
- 28 Semi-scientific journals,
- 27 Annual reports.

The Board has its own monthly news letter "Uit ons Parke" which is published for internal circulation only.

This Section is also responsible for good liaison with the public press, visitors, allied organisations and co-scientists.

7. National Parks :

A. Kruger National Park :

- (a) This Park was established in its present form on 15 September, 1926, but developed from the Sabi Reserve proclaimed by Paul Kruger as far back as 26 March, 1898.
- (b) It covers an area of 7,340 sq. miles.
- (c) It is situated between 20° 55' and 25° 25' (latitude) and 31° and 32° (longitude).
- (d) All wild life in this Park is protected.

The main animal species are the following :

Vervet monkey (*Cercopithecus aethiops*)
Chacma Baboon (*Papio ursinus*)
Lion (*Panthera leo*)
Leopard (*Panthera pardus*)
Cheetah (*Acinonyx jubatus*)
Aard wolf (*Protelis cristatus*)
Spotted hyaena (*Crocuta crocuta*)
Brown hyaena (*Hyaena brunnea*)
Black-backed jackal (*Canis mesomelas*)
Side-striped jackal (*Canis adustus*)
Wild dog (*Lycaon pictus*)
Antbear (*Orycteropus afer*)
Elephant (*Loxodonta africana*)
Burchell's zebra (*Equus burchelli*)
Hippopotamus (*Hippopotamus amphibius*)
Warthog (*Phacochoerus aethiopicus*)
Bushpig (*Potamochoerus porcus*)
Giraffe (*Giraffa camelopardalis*)
Natal duiker (*Cephalophus natalensis*)
Grey duiker (*Sylvicapra grimmia*)
Steenbok (*Raphicerus campestris*)
Sharp's Grysbok (*Raphicerus sharpei*)
Suni (*Nesotragus moschatus*)