

# **ECOLOGICAL MANAGEMENT PLAN FOR THE MAREMANI NATURE RESERVE**

## **INTRODUCTION**

The new political dispensation in South Africa, ushered in with the first free democratic elections in 1994, has had two major impacts on wildlife conservation. These are:

- the free flow of tourism has confirmed the full potential of South Africa's natural attributes as major attractions for overseas visitors, and
- the above trend has also implied economic opportunities of very considerable proportions.

Most of the extreme northern and north-eastern regions of South Africa, commonly referred to as Bushveld and Lowveld, are notoriously drought prone and consequently high-risk areas for dryland farming and, at best, marginal for domestic stock farming. Dependable irrigation farming is limited to relatively small, localised areas. On the other hand, the highly diversified range of attractions provided by wildlife – especially in remote wilderness areas - has opened new opportunities of land-use. The natural fauna and flora are adapted to the highly variable and oscillating climatic patterns and in their most pristine state offer the greatest potential in terms of sustainable land-use practises.

In South Africa national and provincial parks are well established and largely provide for the local population. From the early 1970's private game lodges have steadily increased, with sharp increases during the 1990's. This development has been widely welcomed, both from an economic and conservation point of view and is especially attractive due to the highly diversified potential of nature-based opportunities it offers.

The major attractions offered by natural surroundings are their biodiversity and wilderness ambience. In terms of their economic importance these attributes may be seen as the products on offer. In this respect and as a general rule, the wilderness atmosphere and biodiversity qualities of an area are enhanced by its size. Consequently, this has prompted the consolidation of fragmented land into larger, uniformly managed areas, either by way of multi-owner contractual agreement or single owner land purchases.

These developments have been hailed in South Africa as one of the major economic cornerstones of the future!

The Aage V Jensen Foundation, based in Copenhagen, Denmark, identified the opportunities on offer in South Africa and in 1999 purchased the first nucleus properties, comprising some 14 000ha to the immediate east of Musina in the northern extreme of the Limpopo Province. Since then more land has been acquired and at present (October 2003) the total area is approximately 40 000ha in extent and includes 16 farms. These farms have a chequered history of land-use practises but the ultimate objective is to rehabilitate them as closely as possible to their once pristine state.

## **CONSERVATION PHILOSOPHY**

The essential point of departure underpinning the future development and management of the MNR is to ensure that the qualities of its natural attributes conform to the highest conservation standards. However, it is also accepted that the MNR forms an integral part of a much more extensive society and that it has an obligation to contribute towards the

prosperity of its surrounding communities. In terms of these guiding objectives the vision and mission of the MNR may be defined as follows:

***Vision:*** *The rehabilitation and management of the natural assets of the MNR to enhance their most pristine qualities and to contribute meaningfully towards the prosperity of the surrounding communities.*

***Mission:*** *The MNR is committed to the rehabilitation of the negative impacts of past injudicious land-use practises and to return the area to its most natural state possible and to seek active engagement in ventures aimed at contributing towards the social and economic interests of the region.*

In acceptance of the vision and mission statements for the MNR the guiding principles dictating the ecological management are the following:

- the integrity of the interdependent and interactive components of the natural ecosystems is acknowledged as the highest priority and forms the basis for the adoption of a holistic approach towards management, and
- the maintenance of the pristine nature of the three components of biodiversity, i.e. composition, structure and function, is acknowledged.

Individual living organisms are comprised of various systems (e.g. circulatory, respiratory, alimentary and nervous systems) that are specifically structured to facilitate the harmonious interactions between the various body organs to sustain the health of the organism.

Ecosystems are no different: they are also comprised of various systems that function in similar fashion to those of the individual organism. The harmonious interaction of the climate, soils, geomorphology, vegetation and faunal communities is essential to ensure the health of the ecosystems.

Furthermore, the attributes of biodiversity (i.e. composition, structure and function) are present at all levels of life, from unicellular organisms through the entire range of higher organisms to ecosystems. What is of particular importance to the MNR is the recognition, and clear understanding, of these attributes at the population and ecosystem levels as they will guide all management considerations.

At the ecosystem level it is readily acknowledged that the climate, soils and geomorphology determine the species composition and structure of the vegetation. Of these two attributes structure may be cyclically variable due to seasonality, grazing pressure, fire regime and other impacts. Composition is considerably more stable but may also be subject to changes, primarily imposed by medium to long term climatic changes (cycles) and utilization pressures. Such changes are usually manifested in the shift of the relative abundances of species in association with a gradual disappearance of some species and the appearance of others.

The structure of animal populations is determined by their social organisation and ecological adaptations. In terms of their social organisation some species are solitary or only associate in small family units for some time of the year, others are semi-gregarious while some are highly gregarious. In some species there is a segregation of the sexes at a certain age with distinct 'bachelor' groups and breeding herds while in other species there are no sub-groups determined on the basis of age or sex. Ecological adaptations are reflected in different kinds

of feeding strategies, habitat preferences and range utilization (i.e. species ranging from sedentary through nomadic to fully migratory).

In a holistic sense the course of all these variations in ecological and social patterns are guided by natural processes, which include climatic cycles (low and high rainfall), fire and disease. This implies that natural ecosystems are not rigid entities but are in a constant state of flux. Water resources and the condition of the vegetation (primarily production) vary with the rainfall, while herbivore and carnivore populations fluctuate in harmony with the environmental variables.

In spite of the fluctuations referred to above there is an innate stability and resilience in ecosystems that ensures that they maintain their characteristic features.

In more pristine times Man also played a role in moulding and maintaining the intrinsic attributes of ecosystems. However, the time of unlimited space and the influence of primitive Man – the two essential factors in maintaining fully natural ecosystems - are long past and which necessitates managerial intervention to perpetuate the natural intrinsic qualities.

As a general rule it may also be accepted that the smaller the area the greater management input will be. This is further exacerbated where the objective is to accommodate a large variety of the larger herbivores and carnivores.

#### **FACTORES AFFECTING THE MANAGEMENT OF THE MNR**

In the case of the MNR the challenge to manage it to a more pristine state is complicated by two major issues. These are:

- recent past land-use practises, and
- ecological constraints.

For at least the past 50-60 years the entire area, at some stage and for varying lengths of time and intensities, was subjected to the impacts of agriculture. Most of this agriculture was in the form of stock, almost exclusively cattle, ranching with some goats and localised irrigation.

The impact of cattle ranching was mostly concentrated on the field layer, which was accompanied by the active abstention from burning and/or the inability to burn due to insufficient combustible material. The woody vegetation was not directly affected but was possibly impacted by the lack of fires and the effects on the field layer (e.g. denudation of the soil and the resultant poorer soil-water relationships). In localised areas bush clearing was also done to facilitate irrigation farming.

The problems related to the ecological constraints arise from the fact that the MNR is situated in an area with generally poor soils that vary from shallow and rocky to deep sands, with very restricted more productive loam and clay soils. The adjoining Malonga Plains, situated to the south-east of the MNR, have heavy and highly fertile clay soils derived from basalt. There is little doubt that in the past this area played an important role in providing greater ecological diversity and providing a larger measure of stability to the area encompassed by the MNR.

In spite of these constraints it remains the stated objective to rehabilitate and manage the MNR as closely as possible to its erstwhile pristine state.

### **NOTES ON SOME HISTORICAL ASPECTS OF THE MNR**

Interviews were held with two old pioneers to the area to the north of the Soutpansberg and their views are presented here as eyewitness accounts for the sake of posterity. The gentlemen were Mr Lallie Fourie, father of Mr Tommie Fourie, Manager of the Maremani Nature Reserve, and Mr Willem van der Walt. They were interviewed separately and in many respects their recollections corroborated one another.

#### *Water resources*

Limpopo River: Mr van der Walt stated that it maintained a perennial flow of water to the 1950's/early 1960's. After it ceased flowing it retained deep perennial pools on the farms Haddon and Aletta.

Sand River: Mr Fourie only knew the Sand River as a seasonal river with many perennial pools. However, Mr van der Walt mentioned that it was a perennial river as far as Waterpoort until the 1930's and that the pools in the river became perennial after the completion of the Njelele Dam in 19??.

Njelele River: Both gentlemen agreed that this river maintained a perennial flow of water until the 1960's.

Springs: Both gentlemen alluded to numerous springs in what is now the MNR. Udini Spring was the strongest and it maintained a flow of water throughout the acute drought of 1947 when most of the other springs dried up. It was also surrounded by sedges and bulrushes. There was also a salt spring on the farm Terblanchehoek.

#### *Vegetation:*

Both gentlemen expressed the opinion that the appearance (structure) of the vegetation has not changed though Mr Fourie held the view that several of the fruit bearing trees and shrubs succumbed to the drought of 1947. Examples mentioned were "wilde peertjies, rooi-bessies, kruisbessies (three kinds, i.e. yellow, brown and 'pods'), swartdop geelpit, bruin-ivoor, suurpruim, sneebessies, mispels, moepel, matoppie and geel bessies".

#### *Animal populations:*

The following herbivore species were considered abundant by both gentlemen: kudu, waterbuck, sable antelope, impala, warthog and bushpig. Mr Fourie also added blue wildebeest and zebra.

Sable antelope were especially common on Udini, Schrutton and Dover. The last sable was shot on Stoffel in the 1970's, according to Mr Fourie. Mr van der Walt confirmed the abundance of sable and referred to a herd of about 60 in the Esméfor- Haddon- Voorwaarts area until the 1950's. He ascribed the demise of the sable population to the erection of the Foot-and Mouth Disease control fence in 1965.

Rare species included the following: roan antelope and elephant (the opinion of both), eland, buffalo, zebra, wildebeest (Van der Walt) and impala (Fourie). Both knew of only two roan antelope that were shot, in 1952.

Van der Walt stated that elephant and buffalo were present in large numbers on the Malonga Plains, to the north of Pafuri, from where they siphoned northwards in small numbers to the MNR region. There were no buffalo herds in the area encompassed by the MNR, only scattered groups of bulls. Large herds were, however, present on the Malonga Plains. Nyala migrated up from the Pafuri region (Makuleke) in the 1950's.

Species reported as absent from the MNR region were: both species of rhinoceros and giraffe (both gentlemen), buffalo (Fourie) and hartebeest, tsessebe, reedbuck and ostrich (Van der Walt).

Of the carnivores both concurred that lion were numerous. Also numerous were wild dog, cheetah, brown hyaena and bat-eared foxes (Van der Walt).

*Comment:*

The information offered by the two gentlemen may differ from the presently perceived situation. However, the views on relative abundances and presence/absence conform closely to what may be expected by taking the broader ecological picture into consideration and allowing for the free movement of animals. This aspect will receive more attention in the chapter on management principles and policies.

### **STRUCTURE OF THE MANAGEMENT PLAN**

In these introductory paragraphs the broad vision and mission statements for the MNR have been defined. In the following chapters an overview is given of the cultural assets and natural resources of the MNR, these include a survey of the rock art sites of the first human occupants of the area, i.e. the San people, an inventory of the archaeological relicts – a project that will be expanded to distinguish between the inhabitants of the Stone and Iron Ages, and surveys of the geology, soils, vegetation, animal populations and animal diseases and parasites.

Finally, the management plan is concluded by a chapter on the ecological management principles and policies aimed at ultimately achieving the high ideals the Foundation nurtures for the MNR.