State of Protected Areas in Namibia

A review of progress and challenges

2010

Ministry of Environment and Tourism
Directorate of Parks & Wildlife Management

Republic of Namibia

State of Protected Areas in Namibia:

A Review of Progress and Challenges

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CAMEL
CAR HIRE
NAMIBIA

Ministry of Environment and Tourism

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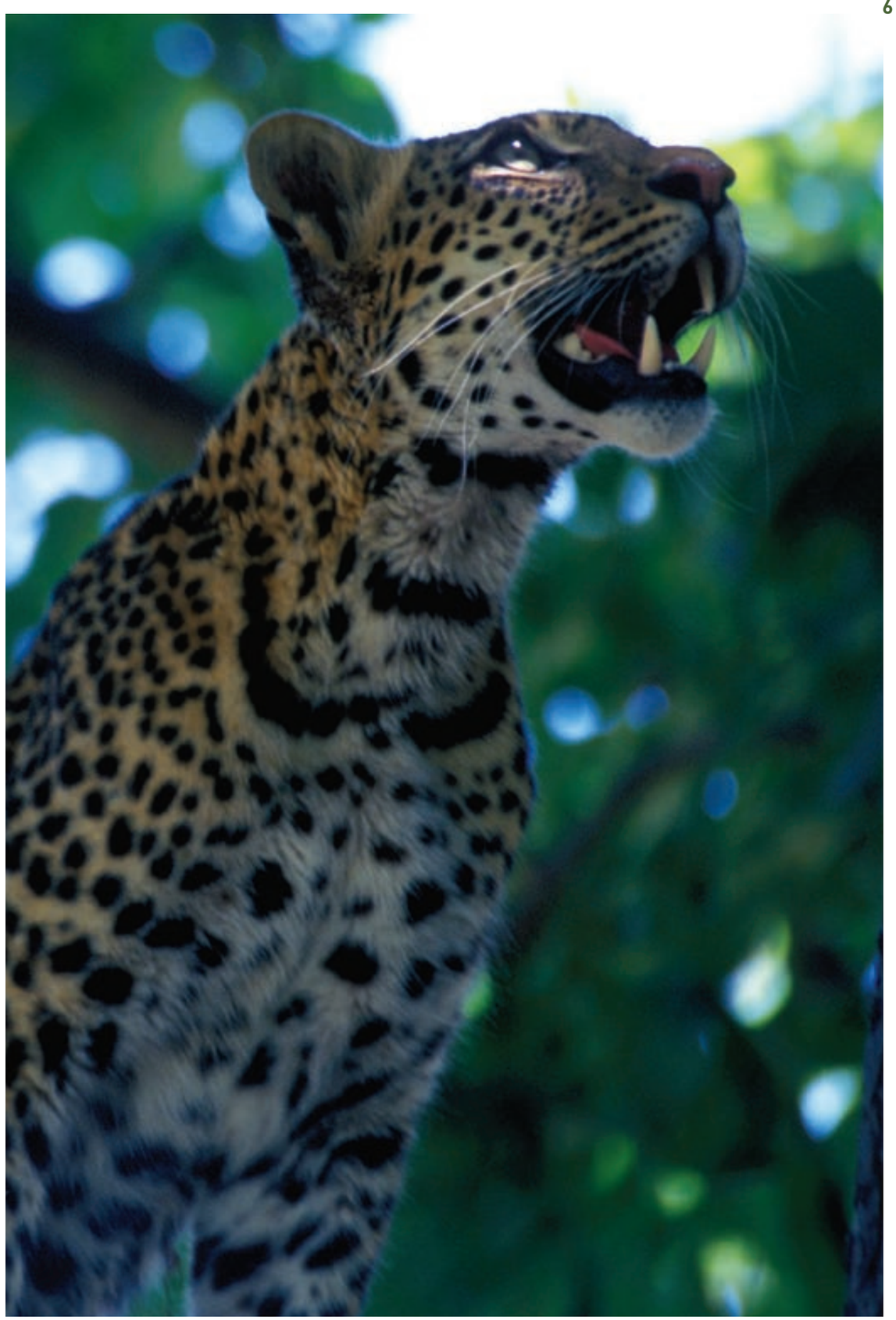


Foreword

More than a hundred years have passed since the establishment of the first Namibian parks in 1907. It is truly impressive how conservation areas have grown since then. In this International Year of Biodiversity (IYB), we are in the happy position of possessing one of the largest and most dynamic protected-area networks on the African continent, including the well-advanced community-based conservation areas and private conservation areas. We all depend on diversity of life on Earth – plants, animals, micro-organisms, their genetic variations, as well as the habitat they live in and ecosystems they create. Biodiversity provides us with food, medicine, fuel and other essentials, including water and climate regulatory services. It also provides us with education, joy and the potential for discovering and developing new materials for improving our lives. Furthermore, it provides opportunities for income generation to sustain people's livelihoods.

Our protected areas are vital tools for conserving Namibia's essential biodiversity. By managing our protected areas properly, we will leave the irreplaceable assets and the unlimited potential they possess to future generations. Our protected areas also draw hundreds of thousands of tourists to Namibia. The international fascination with Namibia's parks is growing annually and, as more visitors arrive, they generate employment and stimulate development, not just in the parks, but nationwide.

Why are our national parks so special? Why the excitement?
Well, who wouldn't be excited? We are sitting on a natural treasure trove.

The Fish River Canyon is the second-largest canyon in the world; grandiose, a geological marvel carved over millennia. Etosha, once a lake the size of Switzerland, is now a salt pan clearly visible from space and surrounded by abundant populations of plains game and predators. Namibia's approximately 1 570 km of windswept Atlantic coast is mostly under the national protected-area network. The wild and harsh coast, wreathed in sea fog, aptly named Skeleton Coast, is scattered with the remains of marine animals and shipwrecks, and is home to the world's largest South African (Cape) fur seal colony. These colonies, patrolled by lonely brown hyaenas and jackals, present a true wildlife spectacle.

Red sand dunes tower high in the Namib Desert and are inhabited by intriguing vegetation and wildlife that have adapted in the harsh environment over millions of years. Spring rains trigger dazzling carpets of flowers in the Sperrgebiet National Park, one of the world's last great wildernesses. The ghost towns, once thriving mining communities, offer fascinating glimpses into the history of diamond mining, which, inadvertently, protected the vast southern wilderness for over a century.

The north-east offers lush greenery, wetlands, grand rivers, the thunderous chortle of hippos, the swirl of crocodiles, the rapid strike of tiger fish, and the jewel-like gleam of birds.

Our 20 national parks are a living natural history museum displaying amazing geological marvels and diverse ecosystems, in many cases found nowhere else on Earth. They are sources of our knowledge of nature, and serve as the irreplaceable depositories of our natural resources. They also are sources of inspiration and energy, and places for enjoyment and rejuvenation. Namibia celebrates the IYB with this publication, documenting a comprehensive account of our parks – the keepers of our wondrous biodiversity. They are our national treasures.

Hon Netumbo Nandi-Ndaitwah, MP
Minister of Environment and Tourism

Preface

Namibia has a proud record of biodiversity conservation. Since Independence in 1990, the Government has become signatory to the Convention on Biological Diversity (CBD) and other strategic conventions. We have extended our formal Protected Area (PA) network to cover about 17 per cent of the country. With the 59 communal conservancies and other forms of conservation areas, the national Protected Areas (PAs) are the Government's key strategy for safeguarding our biodiversity and heritage. The national PAs also have another critical role – they are tools for national development. The PAs attract nearly one million tourists annually, thus generating income and employment, and reducing poverty in line with national development policies and Vision 2030. These in turn contribute directly to achievement of CBD global targets and the Millennium Development Goals (MDGs) at both national and global levels.

Given the important nature of the national PAs, there is a need to document the contribution of our PAs and the recent progress of PA management in one publication, which has not, until now, been done. For this reason, the Ministry of Environment and Tourism (MET), with the support of the UNDP/GEF-supported Strengthening the Protected Area Network (SPAN) Project, has compiled the first-ever State of Protected Areas in Namibia report. This will provide the Government, parliamentarians, donors, Namibian public and other interested parties with a comprehensive picture of the status of Namibia's PA network.

It provides a snapshot of up-to-date information about our 20 formal PAs, drawing largely on data collected over the past five years. The eight chapters outline the history of PAs, from the proclamation of the Etosha and Namib-Naukluft parks more than a century ago, to recent trends, achievements, challenges and future plans.

This report showcases our magnificent PAs, the efforts of our PA managers and their staff, and how this is contributing to achieving the Ministry's Mission and the national goal of sustainable development.

At the dawn of a new decade, with pressing global environmental challenges, it is ever vital to ensure that decision-makers are equipped with a sound knowledge base to guide future planning.

Dr Kalumbi Shangula
Permanent Secretary
Ministry of Environment and Tourism

Overview of the PA Network

chapter 1

Introduction

Namibia has a proud conservation record, which is recognised internationally. This reputation rests partly on conservation outside parks and reserves on freehold and communal land. It also rests on the country's commitment to the conservation of biological diversity (biodiversity) through the establishment and management of Protected Areas (PAs).

Namibia's state-run PAs cover about 17 per cent of the country's land surface, which exceeds the mean PA coverage per nation of 12.2 per cent. The PAs conserve biodiversity by protecting some of the country's most important habitats and species of national and global significance. The country's commitment to biodiversity conservation is reflected in the Constitution. Article 95 (1) provides the foundation for the formulation of policies, legislation and programmes aimed at safeguarding the country's biodiversity and ecosystems for the benefit of current and future generations.

The role of PAs in biodiversity and ecosystem conservation is clearly recognised in the Strategic Plan for 2007–2008 and 2011–2012 of the Ministry of Environment and Tourism (MET). In Strategic Plan Theme 3 it is stated that the MET will:
Manage and develop protected areas, critical habitats and animal species to preserve biological diversity and ecosystems for use by present and future generations of Namibians and to generate global benefits.

In addition National Development Plan III recognises the role of PAs in biodiversity conservation and sets targets for PA management. These include an increased number of management plans approved and implemented, an increased number of parks being managed well, an increased number of parks with improved infrastructure and an increased number of wetland and/or marine parks. Chapter 2 explores in more detail the importance of the PA system in conserving biodiversity, while Chapter 4 looks at how parks are managed and how management can be improved.

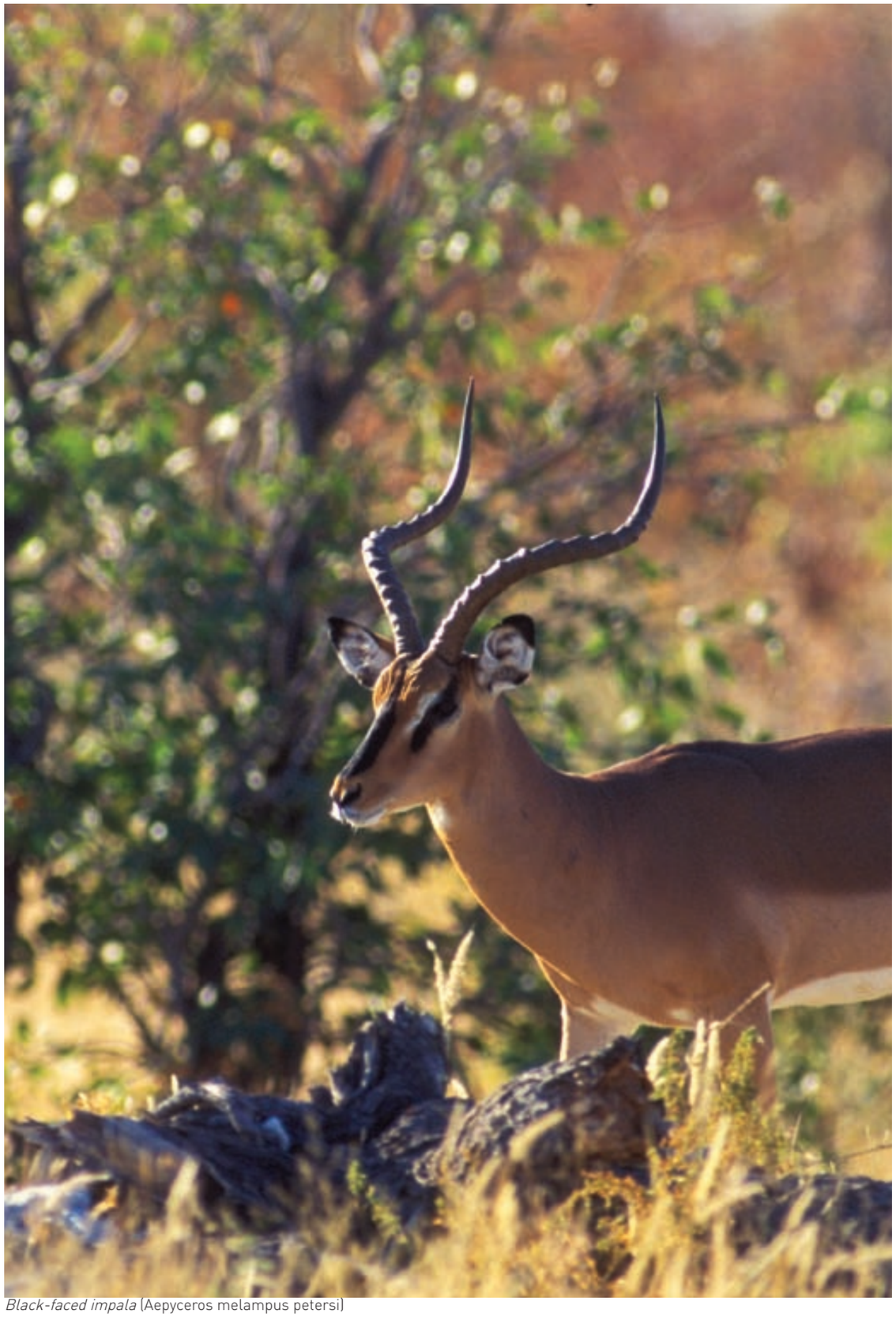
Changes in thinking about the role of PAs in recent years have led to the recognition that they also need to contribute to national economic development and to benefit the communities that live in or near them. As a result the MET's Strategic Plan Theme 5 notes that Namibia's PAs provide an opportunity to stimulate local-level economic development and assist in poverty alleviation.

The contribution of PAs to the economy is also recognised in NDP III, which calls for an increase in the number of parks retaining their own income and stimulating regional development. The economic importance of PAs is considered in Chapter 3, which indicates that parks and game reserves have a much larger impact on the economy than most people would imagine. The chapter shows how increased investment in parks can lead to an even greater economic impact.

Another shift in thinking about PAs concerns their relationship with local communities. In Namibia traditional leaders made land available for the establishment of some PAs, but in other cases land was expropriated without agreement. Many local communities have strong cultural and spiritual ties to what are now national parks. Namibia's park management policies acknowledge these links as well as the need to have supportive neighbours next to the PAs. One of the objectives of the MET's Strategic Plan Theme 5 is to 'Develop management partnerships between parks and neighbours to promote compatible land-use and generate economic activity via tourism and resource use'. NDP III also calls for an increased number of management partnerships between parks and neighbours. Chapter 5 looks at how some of these management partnerships are being developed and at the role of Environmental Education inside parks.

Namibia's wilderness and wide-open spaces are its key attraction, with nearly one million tourists visiting the country in 2007. Chapter 6 examines the tourism product, markets, top destinations and what is required to maximise returns while minimising environmental impact. It also looks at how park entrance fees and concessions in PAs are vital sources of revenue. The establishment of Transfrontier Parks (TFPs) and Transfrontier Conservation Areas (TFCAs) is an exciting new development that Namibia is involved in. TFPs are aimed at creating larger formal PAs across international boundaries and promoting co-operation in conservation between the conservation authorities in more than one country. TFCAs include other landholders including farmers and local communities. Namibia's contribution to transboundary conservation is considered in Chapter 7.

Namibia's 20 PAs are proclaimed under the Nature Conservation Ordinance of 1975, enacted by the previous South African colonial administration. This Ordinance set a framework for establishing state-protected areas, and for regulating hunting and other wildlife uses both within and outside conservation areas. It is outdated and suffers from a number of shortcomings including, among others, a weak classification framework for parks that is not guided by clear management objectives; a weak framework for the management of tourism and hunting concessions in PAs; and an inadequate basis for assuring co-operative and harmonised management of PAs and adjacent land units. Prompted by these shortfalls, the MET is in the process of preparing a new Parks and Wildlife Management Bill to strengthen the legislative framework.



Black-faced impala (Aepyceros melampus petersi)

Extent of PA network

The 20 state-run PAs cover an area of 135 906.29 km². Namibia has taken its own approach to the designation of its PAs and does not strictly follow PA categories recommended by the International Union for Conservation of Nature (IUCN). The IUCN categories are based on a hierarchy of protection levels, so for example National Parks have the second-highest level of protection.

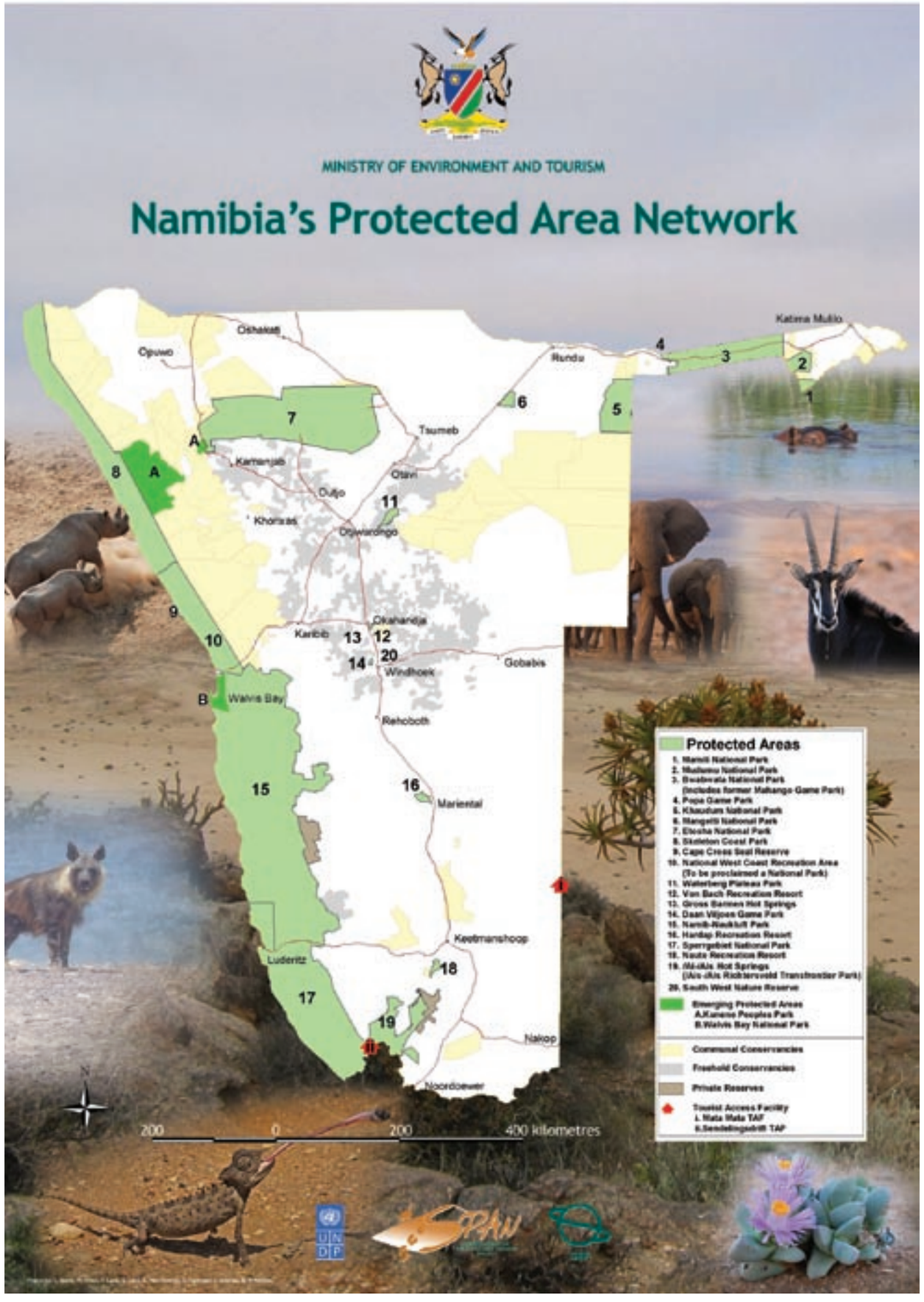
The Nature Conservation Ordinance establishes only two types of state-run PAs: game parks and nature reserves. Both are set aside for the same conservation and recreational purposes. There is no further delineation between the two categories in terms of protection status and management objectives. However, in order to indicate that some parks have a higher conservation importance than others, Namibia has named six of its 20 PAs as national parks. Although allowing considerable flexibility in what may be permitted in different PAs, including national parks, this system can be confusing and is under review.

Tourist recreation areas are created to offer recreational opportunities for the public, and despite the sensitivity of some areas such as the lichen fields in the National West Coast Recreation Area (NWCRA), they are less intensively managed for biodiversity conservation. The MET plans to designate the NWCRA as a national park to increase the level of management and the protection of sensitive areas.

The latest additions to the state-run PAs are the Sperrgebiet and Mangetti national parks, both proclaimed in 2008. The 22 000 km² Sperrgebiet helps to fill one of the major gaps in the PA system that existed in the past (see Chapter 2). It brings to 90 per cent the area of the biodiversity-rich Succulent Karoo Biome that is protected, compared to less than two per cent previously. Off-shore is Namibia's first Marine Protected Area (MPA). The Mangetti National Park is an example of the MET's new approach to PA management through the sharing of income with the local community and the establishment of an advisory committee to involve stakeholders in development and benefit sharing for/from the park (see Chapter 5).

A noteworthy shift in international thinking regarding PAs is the recognition that private and community conserved areas can also play a strategic role in biodiversity conservation and should be incorporated in national PA networks. The Namibian Government has demonstrated the importance it attaches to non-state conserved areas through its rhino custodianship programme through which black rhino are placed in private game reserves and communal conservancies.

There are 59 gazetted conservancies on communal land, covering an area of more than 120 000 km². These have rights and responsibilities over the consumptive and non-consumptive use and management of wildlife. Consumptive uses include use of game for trophy hunting, human consumption, commercial sale of meat, or the capture of game for live sale. Non-consumptive uses include various tourism ventures.



The map shows the location of Namibia's Protected Areas and the table on the following pages provides a brief summary of each Protected Area.

A brief summary of Namibia's Protected Areas

Name	Gazetted size (km²)	Proclaimed	Biome/ vegetation type	Important features
1. /Ai-/Ais Hot Springs / Huns Mountains	4 611	1968 (/Ai-/Ais) 1988 (Huns Mountains)	Succulent Karoo and Nama Karoo biomes Desert/ Dwarf Shrub Transition, Succulent Steppe, Dwarf Shrub Savannah, Karas Dwarf Shrubland, Riverine Woodland	Includes the Fish River Canyon and the Huns Mountains where a number of endemic succulent plants are found. Apollo 11 rock paintings, among the oldest in the world.
2. Bwabwata National Park	6 274	1963 (Caprivi Nature Park) 2007 (including the former Mahango Game Park and formerly un-proclaimed Kwando Core Area)	Tree and Shrub Savannah Biome North-eastern Kalahari Woodland, Caprivi Mopane Woodland, Riverine Woodlands and Islands, Okavango Valley, Caprivi Floodplains	Bounded by the Okavango River to the west and the Kwando River to the east. Important migration route from Botswana to Angola for elephant and some other species. About 5 500 people live in the park. 420 bird species in Mahango Core Area.
3. Cape Cross Seal Reserve	60	1968	Namib Desert Biome Central Desert	World's Cape fur seal colony. Two replicas of Diego Cão's Cross (Heritage Site). Remnants of Namibia's first railway.
4. Daan Viljoen Game Park	40	1968	Tree and Shrub Savannah Biome Highland Shrubland	Hiking trails and overnight trail. 250 bird species.
5. Etosha National Park	22 270 (22 935 including Kaross and Koabendes)	1907 last changes in 1975	Lakes and Salt Pans, Nama Karoo and Tree and Shrub Savannah Biomes Karstveld, Pans, Western Kalahari, Mopane Shrubland, Etosha Grass and Dwarf Shrubland, North-eastern Kalahari Woodlands, Western Highlands, Cuvelai Drainage	Includes the 4 590 km² Etosha Pan. World-famous park important for the conservation of black rhino, elephant, leopard, cheetah, black-faced impala, and blue crane. Namutoni Fort (National Monument). Celebrated centenary in 2007.
6. Gross-Barmen Hot Springs	1	1968	Tree and Shrub Savannah Biome Highland Shrubland Western Highlands, Cuvelai Drainage	Mainly a tourist resort known for its thermal baths. Ruins of Rhenish mission station.

Name	Gazetted size (km²)	Proclaimed	Biome/ vegetation type	Important features
7. Hardap Recreation Resort	252	1968	Nama Karoo Biome Dwarf Shrub Savannah	Hardap Dam is a main feature that provides habitat for a variety of water birds. It is one of only two breeding sites in Namibia for white pelicans. 300 bird species. Small game reserve with black rhino. Water sports, shore and boat angling.
8. Khaudum National Park	6 274	1989	Tree and Shrub Savannah Biome North-eastern Kalahari Woodland, Eastern Drainage	A wilderness park that is accessible only by 4x4. Tall broad-leafed woodlands with fossil drainage lines (omurambas). Elephant, lion, leopard, cheetah, roan. African wild dog often move through the park. Tourism concession shared by two conservancies and traditional authority.
9. Mamili National Park	320	1990	Tree and Shrub Savannah Biome Caprivi Floodplain	Extensive wetland park covering part of the floodplain of the Kwando/Linyanti River. Habitat for red lechwe. Large buffalo population. 430 bird species..
10. Mangetti National Park	420	2008	Tree and Shrub Savannah Biome North-eastern Kalahari Woodlands	Former game camp allocated for conservation by the Ukwangali Traditional Authority. Large eland population, sable, roan.

Name	Gazetted size (km²)	Proclaimed	Biome/ vegetation type	Important features
11. Mudumu National Park	1 010 (737 cutline)	1990	Tree and Shrub Savannah Biome North-eastern Kalahari Woodlands Riverine Woodlands and Islands Caprivi Mopane Woodland and Caprivi Floodplains	Conserves part of the Kwando River floodplain and adjoining mopane woodland. Migration route for elephant and buffalo from Botswana.
12. Namib-Naukluft Park	49 768	1907 (Namib Desert Park) 1979 (Amalgamated with the Naukluft Mountain Zebra Park, part of Diamond Area 2 and unoccupied public land and re-proclaimed)	Namib Desert, Succulent Karoo and Nama Karoo biomes Southern Desert, Central Desert, Desert/Dwarf Shrub Transition, Central-western Escarpment and Inselbergs, Succulent Steppe, Dwarf Shrub Savannah	Conserves spectacular desert landscapes, desert-dwelling species such as gemsbok, mountain zebra, springbok, ostrich, brown hyaena, the endemic Dune Lark and breeding sites for Lappet-faced Vultures. Highest dunes in the world at Sossusvlei. Topnaar people live along the lower Kuiseb River. Gobabeb Research & Training Centre. Naukluft hiking trail and 4x4 route.
13. National West Coast Recreational Area (National Park)	7 800	1973 To be re-proclaimed as a National Park	Namib Desert Biome Central Desert	Namib Desert Biome Central Desert Conserves important lichen fields and Damara Tern breeding sites along the Namib Coast. Angling and camping sites.

Name	Gazetted size (km²)	Proclaimed	Biome/ vegetation type	Important features
14. Naute Recreation Resort	225	1988	Nama Karoo Biome Dwarf Shrub Savannah, Karas Dwarf Shrubland	Includes the Naute Dam, which provides habitat for water birds. Mainly a tourist resort for angling and water sports.
15. Popa Game Park	0.25	1989	Tree and Shrub Savannah Biome Okavango Valley	Mainly a tourist resort but conserves a small area of riverine vegetation on the Okavango River and includes part of the rapids known as Popa Falls. Excellent bird watching. Two rare fish – broadhead catfish and oscillated spiny eel.
16. Skeleton Coast Park	16 390	1971	Namib Desert Biome Northern Desert, Central Desert, North-western Escarpment and Inselbergs	Conserves gravel plains and dune areas of the Namib coast and protects the Kunene River Mouth. Famous for the 'coastal' lions, which sometimes visit the beach to scavenge for food. Shipwrecks including the *Dunedin Star*.
17. South West Nature Park	0.04	1970	Tree and Shrub Savannah Biome Highland Shrubland	Managed by the National Botanical Research Institute as part of the National Botanical Gardens.
18. Sperrgebiet National Park	22 000	2008	Succulent Karoo, Namib Desert and Savannah Biomes Succulent Steppe, Southern Desert, Riverine Woodland	Conserves spectacular desert landscapes, endemic succulent plants, and the near endemic Barlow's Lark. Famous as a 'forbidden area' because of the diamond workings along the coast, but guided tourism into the park is now possible. Bogenfels rock arch, Kolmanskop and other 'ghost' towns. First marine PA in Namibia.

Name	Gazetted size (km²)	Proclaimed	Biome/ vegetation type	Important features
19. Von Bach Recreation Resort	43	1972	Tree and Shrub Savannah Biome Thornbush Shrubland	Includes the Von Bach Dam, an important water supply for Windhoek, and habitat for water birds. Mainly a tourist resort for water sports and angling.
20. Waterberg Plateau Park	405	1972	Tree and Shrub Savannah Biome Northern Kalahari Thornbush Shrubland	50 km-long porous sandstone mountain massif with guided and unguided hiking trails. Breeding area for species such as black rhino, roan and sable, surplus numbers of which are translocated elsewhere. Last known breeding colony of Cape Vultures in Namibia. Historic site of fighting between German colonial troops and Herero.

Sable (Hippotragus niger). *Waterberg Plateau Park is a breeding area for species such as black rhino, roan and sable.*

History of PA network

The history of conservation and PAs in Namibia is inextricably linked to the history of the country itself – from pre-colonial times through the colonial period to the present day – 20 years after Independence. Although the first formal protected areas were proclaimed during German colonial rule, various cultural and spiritual practices served to conserve wildlife and habitats well before the first settlers arrived. Some well-known areas that are national parks or part of communal area conservancies today were once the special hunting grounds of chiefs – these include the Mamili National Park in the Caprivi Region and the core wildlife area of the Salambala Conservancy, also in the Caprivi Region.

During the German colonial period the first official hunting regulations were gazetted in 1892 in an attempt to end the indiscriminate shooting of game. This included restrictions on the hunting of elephants.

In 1907, the German Governor, Dr Friedrich von Lindequist, proclaimed the region south, north and west of the Etosha Pan as a game reserve on 22 March 1907. This area was referred to as Game Reserve No 2 and encompassed the Etosha Pan and the Kaokoveld from the Kunene River in the north to the Hoarusib River in the south – a total area of about 90 000 km². Lieutenant Adolf Fischer became the first Game Warden in the park. Elephants, black and white rhino and lions were absent from the park. At the time, this was the largest nature reserve in the world.

Game Reserve No 2 was proclaimed to protect the wildlife in recognition that game meat and products were a crucial resource for the colony of German South West Africa. The idea was that the reserve would help replenish the wildlife populations and since these reserves were unfenced, the wildlife would spill over into the surrounding farm areas where they could be harvested for meat and commercial products. In addition the reserve served as a veterinary buffer zone protecting the livestock of the settlers following the 1896/97 outbreak of rinderpest. In this way the early Etosha National Park, while protecting wildlife, also protected the political interests of the German settlers.

During the same period the German colonial government established Game Reserve No 3 in the Namib Desert (now incorporated in the Namib-Naukluft Park) and Game Reserve No 1 to the east of Etosha.

Namibia entered a new colonial period after the end of World War 1 when German colonial rule was replaced by South African administration. During this period the size and shape of the reserves changed mainly in response to political decisions, rather than for conservation reasons. In 1947 the Kaokoveld portion of Game Reserve No 2 was set aside for people living in this area. During the same year, 3 406 km² was cut off from the Etosha portion and sectioned into farms, an area which is today known as the Gagarus block.

For some years there was no dedicated wildlife department to manage parks and the South African Police and Bantu affairs commissioners enforced game laws while managing parks. In 1956, Game Reserve No 1 east of Etosha was de-proclaimed and exchanged for land south-west of Etosha to re-establish the link to the Atlantic Ocean. The size of Game Reserve No 2 increased to about 80 000 km².

In 1958, Game Reserve No 2 was officially named Etosha National Park. Three years later, a series of boreholes were drilled in western Etosha along the 19th latitude, principally to draw elephants into the park from farms in the Outjo and Kamanjab districts. Construction began on a high game fence along the southern border of the park in the same year.

The present boundaries and size of Etosha were created in response to the South African apartheid policy of developing ethnic homelands in Namibia. In 1970, on recommendation of the Odendaal Commission, the boundaries of the Etosha National Park were reduced to make it almost a fifth of its original size. Most of the excised land became part of the Damara homeland. The park currently extends over 22 935 km².

During the South African colonial period, the PA network in the country was enhanced by the addition of more game parks. The Caprivi Game Reserve was proclaimed in 1966 and later upgraded to Caprivi Game Park in 1968. Also proclaimed in 1968 were the /Ai-/Ais Hot Springs Resort, Cape Cross Seal Reserve, Daan Viljoen Game Park, Gross-Barmen Hot Springs and Hardap Recreation Resort. In 1970, the South West Nature Park in Windhoek was proclaimed, while the Skeleton Coast Park was added in 1971. This was followed in 1972 by the Waterberg Plateau Park and Von Bach Recreation Resort, while the National West Coast Recreation Area was proclaimed in 1973.

However, some PAs were deeply affected by the country's political history. In the early 1970s the Caprivi Game Park was taken over by the South African military to launch raids into Angola against SWAPO freedom fighters and to support the Angolan rebel movement UNITA. Not until Independence in 1990 were the conservation authorities again able to manage the park. Re-proclamation of the area as the Bwabwata National Park in 2007 represents a new era and identity for the Caprivi Game Park, free of its former associations with South African military occupation.

Tourism to parks in the early days of South African rule was virtually non-existent and the infrastructure was poor. But following World War II, the scenario changed. In 1946, the first organised coach tour to Etosha took place, pioneered by SA Railways during the Easter weekend. A total of 137 visitors travelled to Etosha in open 10-ton trucks. During the same year, elephants were seen at Ombika and Gobaub. The Okaukuejo Rest Camp opened its doors to tourists in 1955 and a total of 6 210 tourists stayed in the park that year. Work began the following year on developing Namutoni as a tourist destination and its gates opened to tourists in 1957. Etosha and other parks provided affordable holidays for the minority white population. No attempt was made to attract tourists from the black majority.

Game Reserve No 2 – later to become the Etosha National Park – was proclaimed in 1907. Early patrols were conducted using camels.

This period saw the translocation of game from communal areas to the parks, as officials believed the wildlife to be under threat. Between 1967 and 1977, 56 black rhino were successfully moved to Etosha from areas outside the park and 74 roan and later sable were caught in the Khaudum area of today's Kavango Region. Members of communities from where the animals were removed still speak of the day their wildlife was stolen from them. Today, however, rhino are being moved back into communal areas under the conservancy programme.

Conservation successes included the establishment of the Kaross Sanctuary for endangered species to Etosha in the early 1970s to preserve and raise rare animals such as black rhino, black-faced impala and roan antelope. Fledgling flamingos were rescued on several occasions when the Etosha Pan prematurely dried up and were successfully hand-reared and relocated to more suitable habitat. A successful black-faced impala programme saw these endemic animals rescued from the brink of extinction, largely through the establishment of several populations in Etosha. In addition the Etosha Ecological Institute was established, complete with up-to-date research equipment. Game numbers had increased along with diseases such as anthrax. Main tasks included the study of game diseases, the development of game-catching techniques, ecological surveys, grazing and the study of problem animals.

In 1977 the National Diamond Coast Recreation Area was added to the protected area network, with the Naukluft Mountain Zebra Park, a section of Diamond Area 2 and unoccupied public land added to the Namib Desert Park in 1979 to create the Namib-Naukluft Park. The boundary was again altered in 1986 and 1989, adding the rest of Diamond Area 2 to the park.

The Huns Mountains were added to /Ai-/Ais in 1988, to create the /Ai-/Ais Hot Springs/Huns Mountains Game Park. Naute Recreation Resort came into being in 1988, while the Mahango and Khaudum game parks were added in 1989. The proclamation of the Mamili and Mudumu national parks was rushed through by the South African administration three weeks prior to Namibia's Independence in 1990 without final agreement from the traditional authorities concerned.

During the post-Independence period the Namibian Government has continued to establish PAs, but has taken steps to address the social and human aspects of PA management. In recognition of the problems raised by the rushed proclamation of Mudumu and Mamili, the MET is negotiating income-sharing arrangements with neighbouring conservancies. In other parks the MET is providing communities with concessions, and developing collaborative management arrangements (see Chapter 5).

The Bwabwata, Sperrgebiet and Mangetti national parks were all proclaimed by the Namibian Government. There are plans to proclaim the current Hobatere, Etendeka and Palmwag tourism concessions in Kunene Region as a PA. This will restore the link between Etosha and the Skeleton Coast Park.

The Independence of Namibia and the abolition of apartheid in South Africa in 1994 paved the way for regional governments to co-operate formally in transboundary conservation initiatives. Namibia's post-Independence Government has committed its support to the Kavango-Zambezi (KAZA) Transfrontier Conservation Area, which includes Angola, Zambia, Zimbabwe and Botswana; to the /Ai-/Ais/Richtersveld Transfrontier Park with South Africa; and to the development of a transfrontier park between the Skeleton Coast Park and Iona National Park in Angola (see Chapter 7).

Challenges and the way forward

Namibia's PA system has evolved over time, being influenced by political processes and also reflecting these processes in the way parks have been run and in whose interests they have been promoted. Despite these influences, colonial and post-Independence governments have provided a state PA system that is a strong foundation for biodiversity and ecosystem conservation in Namibia. Namibia is seen as a leader in Africa in terms of PA and environmental management, and has received international recognition for its visionary policies and legislation.

As various chapters in this publication indicate, there are several major challenges facing the state PA system we have inherited. These include the need to ensure that important biomes and vegetation types not currently covered by the PA system are brought under some form of conservation. They include the need to ensure that PAs are effectively and efficiently managed to provide not only national and global conservation benefits, but economic and social benefits to Namibians, now and in the future. In addition continued attention to the human and social impacts of PAs is needed. The chapters that follow show how the MET is meeting these and other challenges.

But what sort of future can we imagine for our PAs? It is useful to move the focus away from individual parks and problems and think about a bigger-picture vision for the future. Namibia's Vision 2030 calls for an 'extended and well-managed PA network to include biodiversity hotspots and trans-boundary areas'. One way to help achieve this vision is to transform the protected areas patchwork that we now have into a real PA network that links land under different ownership and uses, and creates benefits for all Namibians, with the MET, conservancies, private landowners and tourism operators working together towards a common goal.

A rousing call for this was made at the Etosha Centenary Celebrations in 2007, when the President of the Republic of Namibia, His Excellency, Hifikepunye Pohamba, stated:

"With the help of a new generation of protected areas in the form of communal and freehold conservancies and private game reserves, Namibia should gradually transform the present parks from a patchwork into a larger protected area network. This will create wildlife corridors and ecosystem management units that will improve the habitat for our game species while benefiting biodiversity management."

"Namibia should gradually transform the present parks from a patchwork into a larger protected area network." The President of the Republic of Namibia, His Excellency Hifikepunye Pohamba, officiating at the Etosha Centenary Celebrations in 2007.

Parks as cornerstones of biodiversity conservation and ecosystem services

chapter 2

Introduction

Does it matter if a plant, animal, or insect becomes extinct? Most of us would be concerned if animals such as gemsbok disappeared – they are beautiful animals, which we like to see and, if we're honest, they make good biltong. But what about flies? We probably wouldn't mind too much if there were no flies. We tend to think of plants, animals and insects in terms of whether we like them or whether they are useful to us or not. But all life on earth has an important place and function in the overall ecological or ecosystem. Flies, while being irritating to us, play a necessary role, along with hyaenas and vultures, in cleaning up the carcasses of dead animals. Because each species of plant, animal or insect has a place in the system, we should make sure that no species becomes extinct.

Biodiversity conservation

It is the role of biodiversity conservation to make sure that this doesn't happen. Biodiversity is the sum total of the variety of life forms around us – in other words all animal, plant and insect life on earth. It also refers to ecosystem variation and the genetic variety within individual species. Genetic variety helps to ensure that a species remains strong, and can survive. Our national protected areas (PAs) are a critical cornerstone of biodiversity conservation. They are aimed at protecting the full variety of life within a specific area of land. This doesn't necessarily mean protecting every individual animal or plant, but means making sure that populations are large enough to ensure that species do not disappear and that there is sufficient genetic variety within the population. A major aspect of biodiversity conservation is protecting endemic species, that is species that occur only in one particular place or country.

Ecosystem services

We depend on our environment for our life support system. As a result we can think of the components of the environment that support us as 'ecosystem services'. These services include the production of air, water, soil and the natural resources that they sustain and that are necessary for our sustained survival on planet earth. Our quality of life and long-term economic growth depend on maintaining clean air, clean water, productive soils and a healthy and diverse natural resource base.

Increasingly important, due to the effects of climate change, is the maintenance of woodlands and forests to ensure continued carbon sequestration and to avoid the loss of carbon dioxide into the atmosphere. Human activities interfere with ecosystem services in many ways – through pollution of the air and water, through the damming of rivers, soil erosion, destruction of forests, the unsustainable utilisation of a component of an ecosystem, and so on. PAs can provide units of land where there is no pollution, water catchments are conserved, and forests and woodlands are maintained, helping to uphold crucial ecosystem services for land outside the PAs themselves.

The global significance of Namibia's biodiversity

Namibia has remarkable species diversity and a high level of endemism. It has been an evolutionary hub for certain groups of organisms, such as melons, succulent plants, solifuges, geckos and tortoises. There are around 4 350 species and subspecies of vascular plants[1], of which 687 species or 17% are endemic. In addition, a further 275 species or more are Namib Desert endemics shared between northern Namibia and southern Angola and between southern Namibia and north-western South Africa.

Six hundred and forty-four avian species have been recorded, of which over 90 are endemic to Southern Africa and 13 to Namibia. Furthermore, 217 species of mammals are found in Namibia, 26 of which are endemic. They include the Hartmann's mountain zebra, rodents and small carnivores, as well as unique desert-dwelling rhino and elephants. The country also hosts the world's largest population of cheetah (with a healthy gene pool). About 35% of the roughly 100 000 known Southern African insect species occur in Namibia. Twenty-four per cent of the insect species are endemic. Among the arachnids, 11% of spiders, 47% of scorpions and 5% of solifuge species are endemic. Finally, 28% of the 256 species of reptiles in Namibia are endemic.

This means that the conservation of biodiversity in Namibia does not only have a national but also a global significance.

[1] Vascular plants are those plants that have lignified tissues for conducting water, minerals and photosynthetic products through the plant. They include trees, grass, flowering plants, ferns and many others. Non-vascular plants are species such as algae and mosses.

Namibia has remarkable species diversity and a high level of endemism. Pictured is a red velvet mite.

Contribution of PAs to biodiversity conservation

Although the main objective of many national PAs is biodiversity conservation, few PAs in Namibia were originally proclaimed for conserving biodiversity. Rather they were proclaimed for protecting large game for hunting by the colonial rulers or for recreational purposes. As a result there are key parts of the country that are not covered by the PA network in terms of biodiversity. However, the national PAs have a fundamental role for biodiversity conservation for many reasons. They protect larger blocks of habitat (currently 17% of the total land surface) and enjoy higher long-term tenure security. In addition they allow more intensive biodiversity management than is normally possible in other forms of land. However, in order to cover some of the critical habitat gaps in the national PA network, promotion of an integrated PA system incorporating areas with other forms of conservation, including conservancies and private reserves, will be essential to safeguard Namibia's biodiversity.

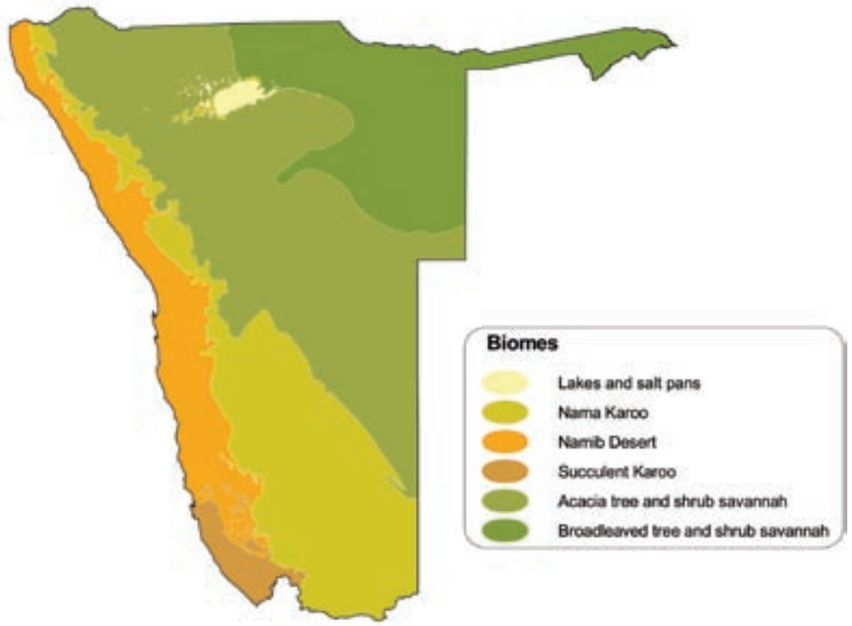
Protection of biomes and vegetation types

There are six main biomes or ecosystems in Namibia: Desert (the Namib); Nama-Karoo (much of the shrubland in the south), Lake and Salt Pans (Etosha Pan), Succulent Karoo (the extreme south-west of the country) and Tree-and-shrub Savannah (the rest of the country including the woodlands of the north and north-east). Tree-and-shrub Savannah is divided into two sub-biomes, namely the Acacia Tree-and-shrub Savannah and the Broadleaved Tree-and-wood Savannah. Within these biomes, 29 main vegetation types have been identified. However, the biomes most protected by our parks are the Desert and Lake and Salt Pans, although the recent proclamation of the Sperrgebiet National Park means that more than 90 per cent of the Succulent Karoo is now under protection. But some vegetation types are hardly represented within the PA system, while the unique Mountain Savannah is not represented at all.

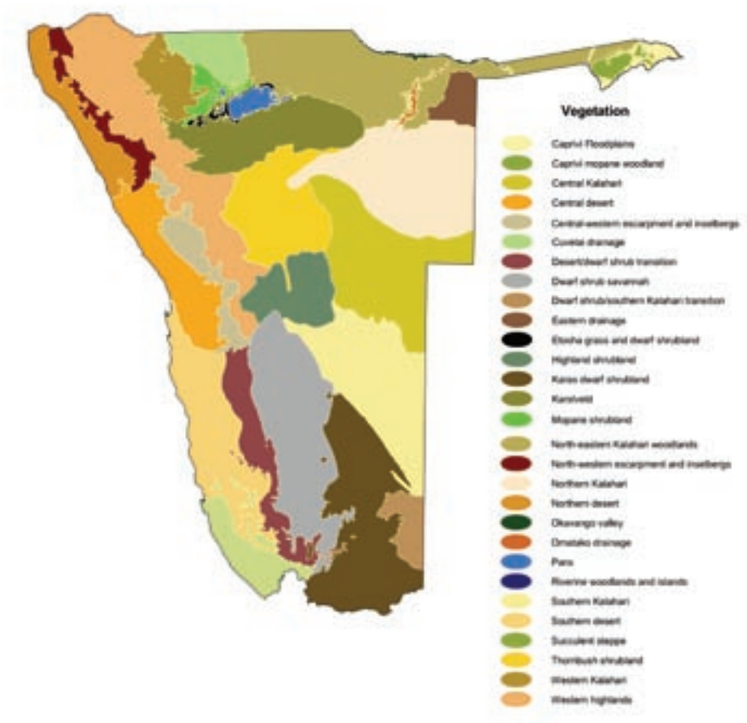
Percentage representation of biomes in the national PA network

Biome	2004	2005
Namib Desert	69.43	75.32
Nama Karoo	5.03	5.03
Lake and Salt Pans	95.76	95.76
Acacia Tree-and-shrub Savannah	4.50	4.50
Broadleaved Tree-and-wood Savannah	7.79	7.91
Succulent Karoo	11.01	90.34

Biomes in Namibia



Vegetation types in Namibia



Source: Atlas Namibia

Other significant habitats including wetlands are not well represented within the PA network. For example, only small sections of our perennial rivers form part of PAs, and in some cases only one bank of a river is fully protected. Apart from the Etosha Pan and associated smaller pans within the Etosha National Park, ephemeral pans are not well represented. These temporary wetlands provide stopovers for migratory birds and the oshanas of the Cuvelai system north of Etosha provide fish and other wetland resources for people living there.

Protection of endemic species

For many years a large gap in the PA system was the small extent to which areas with high numbers of endemic species were protected. The recent proclamation of the winter-rainfall Sperrgebiet National Park has rectified this situation to some extent. This area is home to a large number of different insects, spiders and succulent plants, many of which are endemic. However, the other main priority area for endemics, the northern Namib escarpment, remains without any formal protection. Localised areas of endemism not within PAs include Brukkaros Mountain and the karst caves and sinkholes of the Mountain Savannah vegetation type.

Protection of threatened species

Namibian PAs provide refuges for a number of threatened wildlife species. These include animals such as the African elephant, pangolin, and lesser flamingo, which are near threatened, lion and blue crane, which are vulnerable, African wild dog, which is endangered, and black rhino, which is critically endangered. It is noteworthy that with the exception of the pangolin and black rhino, these species regularly leave protected areas and cover larger areas of territory. While PAs are important for their conservation, they cannot guarantee full protection to many species.

Biodiversity conservation outside PAs

If PAs do not cover all the major vegetation types, biodiversity 'hot spots' or the main concentrations of endemic species, does this mean that Namibia's biodiversity is threatened outside of PAs? Not necessarily. There are several conservation initiatives on freehold and communal land that help protect our biodiversity. For example, in freehold conservancies individual farmers combine their land and resources to manage wildlife over a much larger unit of land than their own farms. This is particularly important for migratory game species such as hartebeest and eland. Several private game reserves have been established on freehold land. They are run much like state-proclaimed PAs and conserve habitats and their associated wildlife.

There are now nearly 60 communal area conservancies, in which the sustainable use and management of wildlife is one of their main objectives. These conservancies are unfenced and allow free movement of wildlife between PAs, helping to ensure genetic diversity in different sub-populations of large mammals such as elephants and lions. Several conservancies border PAs and provide additional land for conservation. Some are located along the northern Namib escarpment in the Kunene Region and so potentially help to provide protection for endemic species in this area.

However, not all wildlife-related initiatives outside PAs are good for biodiversity. On some game ranches, for example, large predators are eliminated so that they don't prey on expensive game animals that have been bought and translocated to the farm. Some private game ranches import species alien to Namibia or bring in sub-species that can breed with Namibian sub-species and dilute their genetic integrity. Communal conservancies tend to focus their conservation efforts on high-value species important for trophy hunting and photographic tourism and pay less attention to other species and habitat protection.

Contribution of PAs to ecosystem services

It is difficult to measure the extent to which our PAs contribute to the maintenance of ecosystem services. Generally we can assume that large PAs are contributing to the production of clean unpolluted air, are maintaining a healthy soil cover and maintaining woodlands and forests. However, the PAs are not isolated islands; they are connected to surrounding land units with different forms of land use, which impact on the ability of the PAs to provide high-quality ecosystem services. For example, fires started in neighbouring communal land often rage through the north-eastern PAs, damaging woodland and grazing and polluting the air.

The role of Namibian PAs in conserving watersheds and water supplies does not appear to have been researched, but based on the flow characteristics, location of PAs and main dams and river basins, it is likely to be minimal for the country as a whole. Locally, in northern-eastern areas such as Caprivi where larger rivers and substantial wetland systems do exist, PAs may act as strategic areas for water supply to local communities and livelihoods.

The PAs have a vital role to play in mitigating the effects of climate change. One of the main causes of climate change is the release of so-called greenhouses gases into the atmosphere, including carbon dioxide. By maintaining healthy woodlands and forests, PAs help ensure that carbon dioxide is not lost to the atmosphere through the cutting and burning of trees. In Namibia, climate change is expected to result in lower rainfall and higher temperatures. It is likely that it will no longer be possible to grow crops in the major crop-growing areas of the country and livestock farming will become more difficult. Under this scenario, wildlife and wildlife-based tourism and indigenous biodiversity-based production systems will become more important as land uses because much of our wildlife is already adapted to arid conditions. As a result, the role of PAs in providing wildlife to other landholders could grow, along with the promotion of the fair and equitable access to the benefits derived from the functions of biological diversity in ecosystems and from the use of its components with all stakeholders, in particular local and indigenous communities. Benefits could be derived from activities such as biotrade and bioprospecting.

In addition it is recognised that achieving connectivity among habitats across the landscape represents one of the best ways of adapting nature conservation to climate change. Connectivity can be achieved by building on the existing links between PAs and communal conservancies or even private game reserves. This requires PAs to work with other landholders to develop joint conservation strategies.

PAs can also mitigate the negative impacts of loss of productivity of the land through desertification. Large tracts of land in Namibia have become unproductive due to land degradation and this also leads to loss of biodiversity.

Challenges and the way forward

Namibia's PAs are clearly vital for the conservation of biodiversity nationally and internationally. They also provide ecosystem services that contribute to our overall environmental health. For these reasons alone, the parks need to be well managed, well funded and staffed with skilled and enthusiastic personnel. It is hoped that the changes outlined in Chapter 4 on the way the parks are planned and budgeted for will ensure that the PA network remains a cornerstone of biodiversity conservation in Namibia. However, as we have seen, the existing PA network is not sufficient to ensure adequate protection of all our biodiversity. In addition, the ability of the parks to deliver ecosystem services can be compromised by activities outside the parks on neighbouring land. Furthermore, the likely effects of climate change require the linking of habitats and ecosystems to help ensure adaptation to the expected changes.

One option for promoting improved biodiversity conservation, improved ecosystem functioning and climate-change mitigation is to proclaim more PAs. In this regard Government is currently exploring the proclamation of a new PA covering the existing tourism concessions in the Kunene Region. It is likely to prove difficult, however, to proclaim many more formal conservation areas, as many of the priority areas for biodiversity conservation are under private ownership. This makes it imperative for the development of collaborative approaches that link PAs in larger landscape and ecosystem level initiatives in partnership with other landholders.

Namibia's Protected Areas are vital for the conservation of biodiversity nationally and internationally. Photographed is an armoured ground cricket.

Red Data List

Internationally biodiversity is monitored by the International Union for Conservation of Nature (IUCN). This organisation maintains what it calls a Red Data List, which contains all the species in the world that are in some way threatened by extinction. The IUCN uses different categories to indicate the level of threat, such as near threatened, vulnerable, endangered and critically endangered. Species are put into these categories based on their status globally. It is possible therefore that a particular species might not be threatened within one country but is threatened globally. This is the case, for example, with cheetah, which are relatively abundant in Namibia but are categorised as 'vulnerable' by the IUCN because their numbers are few and they are declining in other parts of the world.

Cheetah, which are relatively abundant in Namibia, are categorised as 'vulnerable' by the IUCN because their numbers are few and they are declining in other parts of the world.

Convention of Biological Diversity and PAs

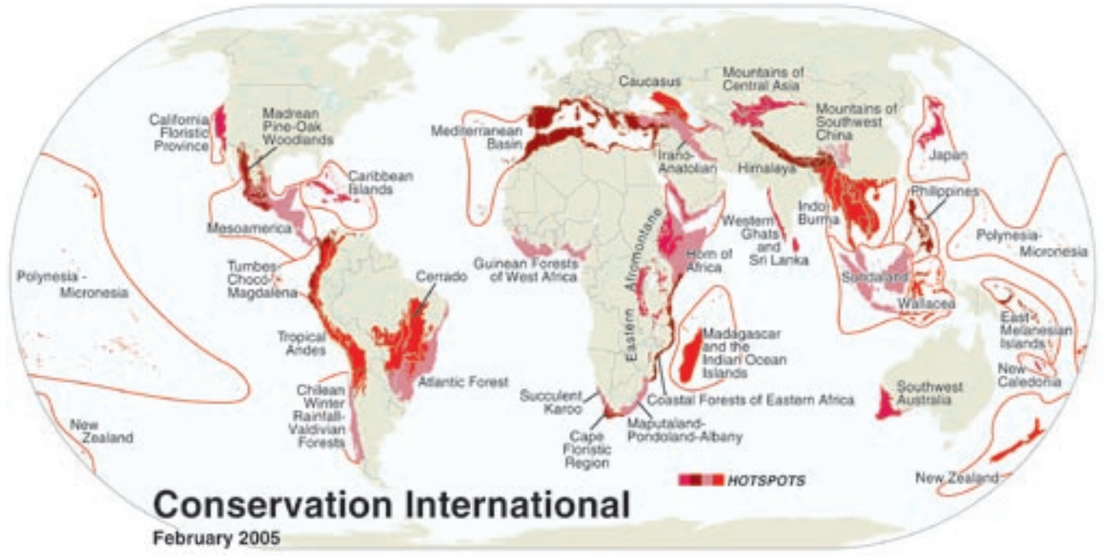
The Convention on Biological Diversity (CBD) came into force in 1992, with international consensus on the need to address 1) conservation, 2) sustainable use and 3) equitable sharing of benefits arising out of the use of biodiversity. Globally, development of new PAs and enhancement of management effectiveness are seen to be critical for achieving CBD goals. The Global Environment Facility (GEF), which is an official funding mechanism for developing countries to fulfil obligations under various environmental conventions, has been the largest investor in the creation and effective management of PAs around the world. In addition, the CBD programme of Work on PAs was established in 2004 to establish and maintain, by 2010 for terrestrial areas and by 2012 for marine areas, 'comprehensive, effectively managed and ecologically representative systems of PAs' that, collectively, will reduce the rate of loss of global biodiversity significantly. The programme addresses various elements, from planning, establishing, strengthening of PAs, governance, participation and benefit sharing, to setting of standards, assessment, and monitoring of PAs.

In northern-eastern areas such as Caprivi where large rivers and substantial wetland systems do exist, Protected Areas may act as strategic areas for water supply to local communities and livelihoods.

The Succulent Karoo biodiversity hotspot is known for its endemic plants, such as this aloe (Aloe gariepensis).

Global Biodiversity Hotspot

A biodiversity hotspot is a bio-geographic region with a significant reservoir of biodiversity that is threatened with destruction. To qualify as a hotspot, a region must meet two strict criteria: 1) it must contain at least 1 500 species of vascular plants as endemics, and 2) it has to have lost at least 70% of its original habitats. Globally, 34 hotspots have been identified, including eight hotspots in Africa. The Succulent Karoo biodiversity hotspot, acclaimed for the high number of endemic succulent plants, covers south-western Namibia (mainly the Sperrgebiet National Park) and north-western South Africa. Information can be obtained from www.conservation.org.



The economic value of protected areas

chapter 3

Introduction

Our protected areas (PAs) play an important role in conserving our wildlife, important habitats and landscapes, and they are visited by large numbers of tourists each year. But what are they worth to Namibia? And why should we want to know?

Whether you're managing, researching or simply visiting a park, it is very hard to estimate the value of the place you're in. But this information is crucial to so many decisions: managers need to know where to invest their scarce funds, researchers need to prioritise research, and tourists need to feel that their money is being well spent. A government agency complaining about insufficient funding to carry out their job properly is far from unusual in any country and the Ministry of Environment and Tourism (MET) in Namibia is no exception.

However, unlike other agencies, the MET has been proactive in seeking ways to demonstrate the value of increased investment. Rather than simply assuming that PAs are valuable because they conserve biodiversity, the MET commissioned studies in 2003 and 2008 to determine the level of contribution the parks make to Namibia in dollar terms. By comparing what the PAs contribute to the national economy with what it costs to run them, the MET has been able to build a strong case for increased government funding for protected areas, which can only be good for the country and good for the environment.

The most important reason for us wanting to know the value of parks is that they are central to the national tourism industry. This industry is seen as an engine of growth in Namibia's economy. For the realisation of Vision 2030 and the National Development Plan, tourism is expected to experience a multifold increase in its contribution to the gross national income (GNI). This brings a special urgency to knowing how much investment in the development and management of parks is going to contribute to economic growth and employment.

How to put a value on our parks

At the simplest level, we could count up all the entry fees collected at park gates, add the fees collected for park trophy hunting and add the income from other park tourism activities, arrive at an amount, and assume that this is what the parks are worth, since it is the amount of revenue they produce for Government. However, these revenues are only a tiny part of the income that makes up the value of Namibia's PAs. Parks also generate wages and salaries for their employees and for employees of park tourism enterprises, profits for hunting and tourism operators, profits for banks and other investors in tourism and hunting activities, dividends for shareholders, and income and company taxes for Government. All these together make up the use value or the gross national income, measured as GNI, generated directly by the parks.

There are also some indirect use values of PAs that can be measured. These usually include the knock-on effects that the protected areas have in the wider economy, such as the income earned by the businesses supplying food and fuel to tourism facilities. The value that these linked businesses generate can be measured by economists and is sometimes called the multiplier effect. Another indirect economic impact of PAs is the extent to which performance of businesses is supported by the ecosystem protection that the PAs provide. This could be in the form of catchment conservation that ensures a clean water supply or the provision of wildlife to communal area conservancies or private game reserves. Sometimes economists are able to put a figure to these types of use values resulting from PAs, and this helps to provide a picture of how much they are worth in economic terms.

It is more difficult though, to put a figure to the more intangible elements, or what are known as non-use values of protected areas. For example an important non-use value is having the option to use the resources of the park in the future. It is valuable to us to know that there might some genetic resources that in future might be used in medicine or for some other important purpose that we are not aware of now. So we want to keep open the option of being able to use such resources in future.

Another important non-use value is the value of knowing the park will be protected for future generations and a third is the value of simply knowing that the park and its wildlife and habitats will be protected and will continue to exist. A feature of these non-use values is that those who perceive them are willing to pay for the protection involved. Thus they are often manifested through donations aimed at conservation.

Current value

The team carrying out the studies for the MET focused mainly on the direct uses (people paying for park-related tourism services), but significantly widened their investigation to include all income linked to these direct uses. This was based on the assumption that if the parks were not there, all the expenditures made by park tourists, and all the income linked to their expenditures, would also not be there. Thus, since nature-based tourism activities are the top stated reasons for visitors coming to Namibia, if tourists visited a PA, then all their expenditures in the country that were linked to their park visit could be attributed to the protected area system.

Using tourism statistics, the team estimated that some 918 000 visitor days were spent in parks during 2008. From tourism surveys it was found that the average individual visitor spends several days in parks, and makes more than one trip to parks each year. This meant that the number of park trips made by individual tourists in 2008 could be estimated at 160 000.

Then the team used data on trip expenditures, collected from surveys of tourists to determine the total expenditures made by tourists on their park visits and the expenditures linked to these. They estimated that the park-related expenditures made in Namibia by the average park visitor in 2008 amounted to N$19 000 per trip. Then it was possible to use data from tourism operations to estimate the proportion of tourism expenditures that was made up of income, in other words, the direct contribution to gross national income (GNI). This was about N$9 000 per trip.

A multiplier effect operates in all economies, to varying degrees. Calculating for this multiplier effect, the team used figures from a model of the whole economy in Namibia to estimate that for each dollar of this direct income generated, a further N$0.85 in indirect income would be generated. The total economic value of each park tourist trip was thus estimated at some N$7 600.

The table shows economic values associated with park-related tourism as extracted from the 2003 and 2008 studies. PA tourism generated direct gross national income amounting to N$1.0 billion in 2003 and this increased to an estimated N$1.4 billion in 2008. Calculations of the multiplier effect indicate that the indirect contribution of PA tourism to gross national income was around N$860 million in 2003, increasing to about N$1.2 billion in 2008. From these figures the table indicates that the total economic impact of PA tourism increased from approximately N$1.9 billion in 2003 to some N$2.5 billion in 2008.

Parks provide between 55% and 65% of the total tourism-sector contribution.

Estimated contributions of protected-area tourism to national income in 2003 and 2008 (N$ million at constant 2003 and 2008 prices)

Value	2003	2008
Direct use value		
Direct protected area tourism gross output[1]	2 150	2 884
Direct contribution to gross national income	1 009	1 355
Economic indirect use value		
Income multiplier (factor)	1.85	1.85
Indirect contribution to gross national income	858	1 152
Total economic impact		
Total contribution to gross national income	1 867	2 507
Protected-area tourism share of gross national income in 2003		
Direct-use value (%)	2.2%	2.1%
Total economic impact (%)	4.1%	3.8%

[1] Direct tourism expenditure attributable to protected areas

Park tourism directly contributes some 2.2% of the total national income of Namibia. This is significant considering that the whole tourism sector contributes 3.5% of the total national income, which means that parks provide between 55% and 65% of the total tourism-sector contribution. It is also significant when one considers that the contributions of important sectors such as commercial agriculture, commercial fishing, and mining are only around 3.6%, 4.4% and 10.5% of the total national income respectively.

The comparison between values for park-related tourism between 2003 and 2008 is difficult because methods differed slightly between the two studies, but the numbers suggest that park tourism grew over the period at about 6% per annum. This would make sense as the overall tourism sector grew by about 8% over that period, and parks have considerable potential that has not yet been used.

The team also looked at the amount that Government was spending on PAs. The budget total for 2008/09 for spending by the Directorate of Parks and Wildlife Management (DPWM) on PA management was around N$92 million. This made up about 44% of the Ministry's budget. A careful analysis of what expenditure is really needed to ensure that the PAs are able to continue providing income in line with the Vision 2030 and national development plan targets was done by the team using management plans and data from elsewhere. The team determined that N$157 million per annum was needed, showing that the amounts currently being invested in parks is indeed too little. A simple comparison between what Government would put into the parks, and what it would get back in terms of fee and tax revenues, including income tax, shows that annual revenues attributable to parks would exceed annual costs significantly.

Benefits for poverty reduction

The studies of park value allowed the examination of not only how much money was generated, but also where that money went. The conclusions in this respect are extremely valuable when looking at PAs as a mechanism for poverty alleviation. Roughly 16% of the wealth generated by PAs goes directly to unskilled labour, and with rents and royalties to traditional authorities and the contribution to traditional agriculture, the proportion rises to around 23%. While it's well understood that reducing the levels of poverty is one of the core aspects of community conservation approaches, state-managed conservation is rarely credited with this. However, this analysis shows that any increase in government spending for PAs will have a significant direct impact on the wealth of the poorest in society.

The donation of game species to communal area conservancies from state Protected Areas enhances biodiversity, restores game population and creates a development platform for the generation of long-term benefits to communities.

Willingness to pay for conservation

It is also important to try to put a value on the intangible elements of the contribution that PAs make to society. However, it is very difficult to put this value into a dollar amount. One way of doing this is to consider whether society is willing to pay for keeping open future options for using resources and maintaining biodiversity and ecosystem functioning for future generations. We can also try to measure the extent to which some people are willing to pay for the existence value of wildlife and wild places. Some studies have been carried out to try to measure the willingness of people to pay for conservation in addition to their normal tourism fees. A survey carried out in 1996 found that 72% of tourists to wildlife-based tourism areas in Namibia were willing to contribute towards conservation in the form of trust funds. Such donations would amount to N$71 million in 2008 prices.

These figures represent the willingness to pay by visitors to Namibia, but it is clear that internationally many people are willing to pay for conservation elsewhere in the world even if they don't visit the areas being conserved. This willingness to pay is often expressed by donations to international conservation organisations and by the donor funding which is aimed at biodiversity conservation.

International conservation organisations and donor agencies have provided considerable support to environmental projects in Namibia. Some N$54 million in donor funding was raised for conservation-related projects in 2003–2004 (N$75 million in 2008 prices), some of which was channelled through the budget for the MET.

It is difficult to calculate the exact amount, and relatively little of this funding was specifically for use in PAs – probably less than N$3.5 million in 2008 prices. This probably reflects a strong preference in the donor community for projects that contribute to poverty alleviation, possibly coupled with a lack of realisation of the important links between PA status and poverty alleviation. It must be noted that donor funding for conservation can reflect values other than the non-use values, such as willingness to pay for development. As such it is an imperfect measure of non-use value.

Intangible values of protected areas

Some values of PAs are likely to remain unaccounted for in dollar terms. For example, the cultural services of the PA system include its contribution to education, scientific knowledge and the spiritual well-being of Namibians and the global population. Although you could possibly quantify the amount of use of these areas by educational groups, scientists, and so on, it would never be possible to quantify the true contribution that this makes to society. This is because the cultural services of protected areas generally relate to human well-being, but also because, for example, the educational experience afforded by a PA area might influence the way in which new generations treat their environments far from protected areas.

Some values requiring further research

Ecological indirect use values generated by PAs in Namibia are not well known and require further research. They might include values for carbon sequestration, water supply and regulation, and wildlife refuge values.

The increased worldwide effects of climate change make it important to understand the extent to which our PAs are contributing to mitigating these effects. They do this by storing or sequestering carbon in natural vegetation, taking it out of the atmosphere, but carbon sequestration in Namibian protected areas has not been studied. While it is relatively straightforward to determine the standing stock of carbon in a landscape, the change-over time of this stock is a more complex issue. As plants grow, they store carbon, but as they die and rot or get burned, they release it. What is of interest is the net change in or rate of carbon storage, and also to how permanently the carbon is stored. While long-lived indigenous trees are typically considered as good carbon sinks, faster-growing vegetation may result in high levels of soil carbon sequestration, even if biomass carbon is not stored for long. Carbon storage tends to increase as organic soil content and vegetation cover increase, suggesting that woodland and savannah areas in the north-east would have higher value than the coastal desert regions.

Regarding water supply and regulation, Namibia is an arid country with limited water resources, with 50% of the population dependent on groundwater and ephemeral rivers. The role of Namibian protected areas in conserving watersheds and water supplies does not appear to have been researched, but based on the flow characteristics, location of protected areas and main dams and river basins, it would be expected to be minimal for the country as a whole. Locally, in north-eastern areas such as Caprivi where larger rivers and substantial wetlands systems do exist, protected areas may act as important areas for water supply to local communities and livelihoods.

In Namibia, PAs provide a refuge for a number of species, including several red-data species that might otherwise be faced with imminent extinction. They also provide a source area for genetic material and biota that are to be found outside of PAs. This service is very much linked to other services such as the provision of raw materials, genetic diversity and cultural services, especially where consumptive use of species, such as mammals or medicinal plants, may depend on reproductive outputs from PAs. Its value is largely reflected in the national and international funding that is directed at maintaining the area, as discussed above.

Another aspect that requires more research is the extent to which the existence of a PA and its wildlife helps to stimulate the development of tourism and conservation-related activities on land adjoining or close to parks. In general, areas which generate high values from the use of natural resources, as well as high potential for increasing their contribution to the national economy, tend to occur outside and directly adjacent to protected areas, but the extent of this needs to be further researched and quantified.

Challenges and the way forward

The research carried out on the value of Namibia's PAs indicates that their contribution to the national economy is very significant, much more than was realised in the past. It is clear that the PAs are the core of a significant component of the tourism industry and they contribute very significantly to income and employment in the economy.

Namibia has ambitious economic development growth targets, aimed at significantly increasing incomes and employment in the next 20 or 30 years. Vision 2030 is a case in point. If these targets are to be met, it will be essential that the high economic values of the park system are not only maintained, but also increased significantly over this period.

For this to happen, the parks will need to be adequately funded. This will involve much higher investments in maintaining the conservation value of the parks in park infrastructure (for example fencing, water installations for wildlife) and tourism infrastructure. It will also involve the implementation of key policies relating to parks, including the full development of concessions according to the concessions policy, and the full implementation of a parks and neighbours policy removing barriers to building economic links between state parks and surrounding areas. It will also require improved park planning, particularly park business planning, and the development and implementation of a financing plan for the parks, and further physical and economic planning of park development.

In both the 2003 and 2008 park valuation exercises, the team carried out detailed cost-benefit analysis of the investments that will be needed. They looked at the future capital and recurrent costs needed for maintaining and growing the capacity of the parks to generate income and conservation values, and measured these against the future increases in value which could be expected to result from these investments. In both cases and using slightly different approaches, the team found that providing the necessary investments and implementing the right policies would yield very significant positive returns. Internal rates of return of between 20% and 40% were measured, making it clear that investment in PAs is economically efficient and will lead to positive returns and substantial benefits in terms of overall economic growth and poverty alleviation.

Although in the past, Namibia's PAs have been under-funded, the research into the value of the parks is already starting to yield results. Based on the projected rates of return on investment in the parks, the Millennium Challenge Corporation of the United States has committed to funding a number of activities to improve the management of the Etosha National Park. Namibia's tourism sector is one of its fastest-growing sectors, and the one most likely to experience sustained growth. Increased investment in the PAs is crucial for ensuring that the benefits of this growth can be realised.

Protected Area Management

chapter 4

Introduction

The role of Protected Areas (PAs) has changed considerably since the first parks were proclaimed in Namibia in 1907. These first parks were created essentially to protect large game for hunting by the colonial rulers. Later, PAs were created for public enjoyment and to preserve spectacular landscapes and fauna and flora. More recently, parks have been recognised as one of the cornerstones of biodiversity conservation – the conservation of the variety of species of fauna and flora that exists on earth and the maintenance of genetic diversity within these species.

The important role that PAs can play in supporting national economic development goals and poverty reduction through job creation, financial benefits to the state, and local and national economic benefits is now recognised. PAs have also become sources of wildlife that is translocated to other conservation areas such as communal conservancies to restore their wildlife. Game from PAs is also sold at official wildlife auctions.

Many PAs exist near human settlements and park neighbours interact with the parks in different ways.

Our PAs therefore have to be carefully and effectively managed to achieve their objectives. PA management is guided by a park management plan. These plans set out the vision, objectives and guidelines for the management and development of a PA. These plans are working documents that are reviewed and revised periodically.

Modern-day park management covers an exceptionally wide range of activities, requiring a number of skills. Routine activities range from law enforcement, water provision for game, fence and road/firebreak maintenance, fire management, research and monitoring, to tourism and park resident and neighbour relations including human wildlife conflict management. In addition, development activities, including the establishment of park management and tourism infrastructure, also make up an important part of the park staff's duties. Within the Ministry of Environment and Tourism (MET), the Directorate of Parks and Wildlife Management (DPWM) is chiefly responsible for carrying out these activities.

Legislative and policy environment for park management

Management of PAs is governed by the Nature Conservation Ordinance (Ordinance 4 of 1975). Since the 1990s, the MET has been working on a new Protected Areas and Wildlife Management Bill to replace the somewhat outdated Ordinance. The bill is expected to provide an improved classification system for various PAs, adequate safeguards to prevent impacts from mineral prospecting and mining, and a framework for co-operative and harmonised management systems with adjacent land. As this bill impacts on a large number of people and groups, including conservancies, regional and local authorities, wildlife and livestock farmers, private tourism and hunting operators, park residents and neighbours, it seeks to ensure that every consideration is made to safeguard parks and their biodiversity while providing for the sustainable use of park resources and enabling them to realise their full economic potential.

In recent years, new PA management-related policies have been developed. The National Policy on Tourism and Wildlife Concessions on State Land was approved by Cabinet in 2007. It sets out a framework for developing, awarding and managing tourism, hunting and other concessions in PAs that are compatible with government conservation objectives. The National Policy on Human Wildlife Conflict Management (HWCM) was approved by Cabinet in 2009 to provide an official framework and guidelines for HWCM. A Policy on Protected Areas, Neighbours and Resident People has also been drafted to recognise the plight and rights of people living inside or adjacent to state PAs.

The National Policy on Tourism and Wildlife Concessions on State Land was approved by Cabinet in 2007.

Budget and finance planning for park management

Budget and business planning approach

The government budget for park management has grown nearly three-fold since 2004, when a total of $45 million was allocated to the Directorate of Parks and Wildlife Management (DPWM). Particularly noteworthy is the growth in the development budget for infrastructure; see below the budget allocated to DPWM from 2007–08 to 2011–12. In 2004, the capital budget for park infrastructure was less than $3 million, but now averages around N$50 million.

The operational budget has not, however, benefited from a comparable increase. Although there has been growth, this has not matched salary increases (12–14% for all civil servants in 2009 and 2010), as well as annual inflation rates averaging 10%, which means that the operational budget remains under-funded. Over half of the DPWM's budget is used for personnel costs and nearly a quarter for vehicle and travel costs, leaving only a tiny fraction of the budget for actual park management activities.

The MET is trying to move away from the old-fashioned way of budgeting, which is based on taking existing budget items and then asking for an annual increase on each. This approach leads to reactive thinking rather than needs-based budgeting aimed at achieving park objectives.

Starting in 2004, the MET developed park business plans for several PAs, including the Sperrgebiet National Park, /Ai-/Ais Hot Springs, Bwabwata National Park, Mudumu National Park and Mamili National Park. A framework for a business plan for the Etosha National Park was also developed in 2007. These business plans clearly document unit and total costs for different park management activities, providing necessary information for budget planning and for ensuring cost-efficiency of park-management operations. A business plan is also a tool for park managers to motivate for adequate amounts of funding.

Trend in budget for the Directorate of Parks and Wildlife Management (DPWM)[1]

Fiscal year	Operational budget for park management	Capital budget for park infrastructure	Total
2007/08	75 688	14 783	90 471
2008/09	71 200	27 479	98 679
2009/10	74 657	49 200	123 857
2010/11	79 472	56 000	135 472
2011/12	82 808	48 960	131 768

Unit: Namibia Dollars

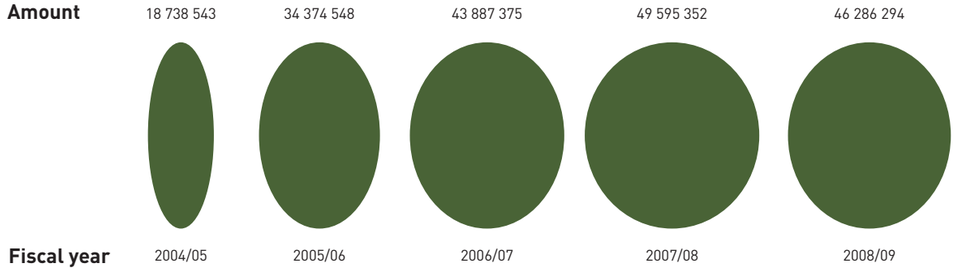
[1] Directorates such as the Directorate of Scientific Services, the Directorate of Administration and Support Services and the Directorate of Environmental Affairs also have a budget for activities in parks, which are not counted here.

Revenues from PAs

Government revenue from park entrance fees has seen a remarkable increase over the last five years, from N$18.7 million in 2005 to N$46.3 million in 2009.

Trends in park revenue from FY

Unit: Namibia Dollars



This increase is due mainly to 1) an increase in the number of park visits from an estimated 382 439 in 2003/04 to 540 955 in 2008/09; and 2) an increase in park entrance fees that took effect in July 2005. The 'Big Five', namely Etosha National Park (45%), Namib-Naukluft Park (20%), Hobas-/Ai-/Ais Hot Springs (10%), Cape Cross Seal Reserve (6%) and Waterberg Plateau Park (4%) together generate 85% of park entrance fees collected by the MET.

A slight dip since 2007/08 could be attributed to the global economic downturn. There is also a trend for visitors to visit fewer parks and concentrate on famous destinations such as Etosha, Sossusvlei and the Fish River Canyon View Point.

'Big Five' with their visitor numbers and collected amounts in 2008/09

Unit: Namibia Dollars

Park Name	2008/09 Revenue (N$)[2]
Etosha National Park	19 173 875
Namib-Naukluft Park	8 008 750
/Ai-/Ais Hot Spring Park	3 889 280
Cape Cross Seal Reserve	1 824 900
Waterberg Plateau Park	1 721 701

[2] A total of N$9 855 698 was collected in MET offices in Windhoek, Swakopmund and Walvis Bay. However, currently there is no summary breakdown for the amount. Therefore, the actual revenue for each park is greater than shown here.

In the past, all income from PAs went to central government funds and was then re-allocated in the annual government budget round. Since 2004, 25% of park entrance fees has been transferred by the Ministry of Finance to the Game Products Trust Fund (GPTF)[3]. This income is reinvested in park management, providing a supplementary budget of more than N$13 million for park management each year.

[3] The GPTF is a special fund originally established in 1997 by the MET to receive income from ivory sales that could then be ploughed back into conservation.

Income from wildlife auctions has increased dramatically since the first auction in 1993. The 1994 auction generated N$2 429 800 from the sale of 282 animals, while the 2008 auction generated N$19 057 000 from 175 animals. The 2008 auction included eight black rhino, each fetching N$500 000. Auction proceeds are paid into the GPTF, and are reinvested into conservation activities.

In 2009, the MET auctioned trophy-hunting concessions for the first time since 2003. This included five parks, namely Bwabwata (Mahango Core Area), Mangetti National Park, Waterberg Plateau Park, Daan Viljoen and Von Bach game parks, and three black rhino. The auction generated a total of N$13 265 000, which will be reinvested into conservation activities via the GPTF.

Another funding source which grew tremendously in recent years is donor support for park management. More than US$100 million will have been invested in park management between 2004 and 2012, ranging from support for policy and legislation, institutional capacity building, to park infrastructure development and consolidation. Co-ordination between donor-supported projects has been excellent with each project augmenting the others.

More than US$100 million will have been invested in park management between 2004 and 2012. Here staff of the Mangetti National Park, proclaimed in 2008, attend to park fencing.

Donor support for parks since 2004

Donor	Project	Main focus areas	Duration	Amount (US$)
United Nations Development Programme (UNDP) / Global Environment Facility (GEF)	Strengthening the Protected Area Network (SPAN) Project	Park legislation and policies, institutional capacity development, field demonstration site activities in /Ai-/Ais, Sperrgebiet, Bwabwata-Mudumu-Mamili Complex and Etosha Skeleton Coast Link	2004–2006 (preparatory phase), 2006–2012 (full phase)	8.55 million
KfW – German Development Co-operation	Bwabwata-Mudumu-Mamili (BMM) Parks Project	Park management infrastructure development, park management and tourism plans, park neighbour relations, KAZA	2006–2010	17 million
KfW – German Development Co-operation	KAZA support	Support for the KAZA co-ordinator post within the MET for three years	2010–2012	0.1 million
Millennium Challenge Account (MCA)	MCA Tourism Project	Park management infrastructure development and change management support in Etosha National Park, tourism concessions development, marketing support	2009–2014	67 million
World Bank / GEF	Namibian Coast Conservation and Management (NACOMA) Project	Improvement in management of coastal parks, integrated coastal zone planning	2007–2009	0.16 million
WWF – UK	Consolidating communal land conservancies in Namibia: Diversification, harmonisation and sustainability	PA buffer zone management activities in communal conservancies adjacent to PAs through IRDNC in North East and North West	2006–2010	1.49 million
USAID	Co-financing to the SPAN Project to address HWCM	Provision of a vehicle and equipment for HWCM in Etosha, study on HWC	2004–2006	0.17 million
GTZ	Biodiversity and Sustainable Land Management	Support for Sperrgebiet NP regulations, MET's restructuring and SEA at regional level	2006–2011	0.742 million
European Union (EU) Rural Poverty Reduction Programme (RPRP)	Enhancing Wildlife-based Economy in Rural Areas Project (EWERAP)	Infrastructure and tourism development in Mangetti NP and wildlife translocation	2008–2010	2 million
Conservation International (CI)	Succulent Karoo Ecosystem Programme (SKEP), Transfrontier Conservation Support, Park Neighbour Support	Management and Tourism Planning, biodiversity management planning and information centre feasibility study for the Sperrgebiet NP	2008–2012	2 million
Peace Parks Foundation (PPF)	Succulent Karoo Ecosystem Programme (SKEP), Transfrontier Conservation Support, /Ai-/Ais-Richtersveld Transfrontier Park and TFCA Facilitation Park Neighbour Support	Support for International Co-ordinator for the /Ai-/Ais-Richtersveld Transfrontier Park, TFCA facilitation including pontoon at Sendelingsdrift and park gate construction	2003–2012	4.7 million
US Fish and Wildlife Services African Elephant Conservation Fund	Support for Mamili NP, Etosha NP and Kunene People's Park	Mamili NP vehicle and equipment, overhaul of the MET Cessna based in Etosha, KPP support	2008–2009	0.2 million
TOTAL				**104.112 million**

The UNDP/GEF-supported Strengthening the Protected Area Network (SPAN) Project places a strong emphasis on ensuring the financial sustainability of PAs. In an attempt to achieve financial sustainability, the project has supported an economic valuation and financing plan for the PA system, development of business plans for individual parks and support for use of business plans and improvement.

Park infrastructure maintenance and management

PA and associated wildlife management functions are the largest functions within the MET. More than 1 000 MET personnel are working in parks or in divisions that support park management and four existing directorates of the MET are physically present within the PAs. The DPWM is responsible for overall planning and management; the Directorate of Scientific Services (DSS) is in charge of research and scientific monitoring activities; the Directorate of Administration and Support Services (DASS) maintains roads and infrastructure and co-ordinates construction activities under the Development Budget; and the Directorate of Environmental Affairs (DEA) runs environmental education centres within the PAs.

In comparison with many other countries, Namibia's PAs are managed by relatively junior civil servants. Most parks are managed by wardens, with most Chief Wardens and Chief Control Wardens managing more than one park. For instance, in South Africa, a national park manager position is equivalent to the director position or higher in Namibia. Responsibilities of park managers in Namibia tend to exceed the level of their job grade, and they have insufficient authority to take many important decisions. This will, however, be addressed in the restructuring process currently being undertaken by the MET.

The day-to-day work of park management differs from park to park. However, the following is a generic list of management activities.

Repairs to water installations is a major activity that requires a dedicated water-maintenance team.

Fence Maintenance

Parks are fenced for different reasons. For example the fence on the northern border of Etosha is designed to prevent cattle from entering the park, while the southern and eastern border fences serve as part of the Red Line veterinary fence that crosses almost the whole of northern Namibia. Cable fences and electrified sections are designed to prevent wildlife such as elephants and predators from leaving the park, but establishing and maintaining elephant and predator-proof fencing is extremely expensive, costing as much as N$100 000 per km. The Etosha NP alone has a perimeter fence exceeding 800 km in length. This makes it the largest fenced-off area in the world.

Park fences require constant monitoring for breaks, most of which are caused by elephants. Other species such as warthog specialise in digging under fences, allowing opportunists such as lions and hyaenas to escape from the park. Some lions have mastered the art of climbing fences.

The MET is using funding from the GPTF to upgrade Etosha's 210 km northern boundary fence to high game-proof fencing. In some cases it could be beneficial to actually remove fences around parks. Such action would make sense where park neighbours have developed private game reserves. Removing fences would allow wildlife to move freely between different land units and would create a larger combined conservation area. This approach has been successfully applied elsewhere in the Southern African region where private game reserves adjoin parks such as Hwange in Zimbabwe and Kruger in South Africa.

Water installation and maintenance

Most of Namibia's PAs rely on artificial waterholes and a few natural springs to satisfy wildlife's need for water. Boreholes are either powered by wind or solar energy, with diesel engines supplementing windmills or solar pumps during windless and cloudy days. Etosha NP has over 40 artificial boreholes, many of which are essential tourism resources offering high-quality game-viewing experiences for visitors. Service and repairs to water installations is a major activity, with a dedicated water-maintenance team.

Roads

Most of the parks have public roads. These are under the jurisdiction of the Roads Authority. However, the rest of the main roads and tracks are maintained by the MET. For example, the Etosha NP alone has a total road surface distance of 3 551.2 km (firebreaks 1 804.4 km; gravel roads 1 111 km; tar road 28.7 km and two-track roads of 607.1 km). Of these, only 28.7 km – the two tarred roads – are under the Roads Authority. The maintenance responsibility for the rest of the roads is with the MET. Not all roads in PAs are accessible to tourism. Some of the roads serve as access routes for park management and act as firebreaks, which are graded once a year after the rainy season.

Fire is seen by most park managers as an important natural phenomenon that maintains the natural system. The management of each Protected Area has a different approach to fire control.

Fire management

The occurrence of fire in Namibia's PAs is influenced by rainfall. PAs in the north-east of the country that receive up to 700 mm of rainfall a year have more frequent fires, while parks in the desert with rainfall below 100 mm per annum seldom have any fires. Fire is seen by most park managers as an important natural phenomenon that maintains the natural system. However, the timing of a fire and its intensity is vital. Early fire or very hot fires could be destructive to the environment. Each PA, therefore, has a different approach to fire control.

The Etosha National Park is one of the few parks with a well-developed firebreak network. Most fires in the park are caused by lightning. Although the occurrence of fire is seen as natural, fire management is vital, as uncontrolled fire could be detrimental to wildlife populations and ecosystems. The park is divided into blocks, and graded firebreaks and tourist roads serve as firebreaks.

The fire policy used in the past to carry out controlled burning is no longer practised. Fire control is usually done by back-burning in order to contain fires within a block of the park. The occurrence of fire in the park varies from year to year depending on the amount of vegetation. During the 2006/2007 season about 24 different fires occurred in Etosha, with nearly one million hectares burnt. This was probably the largest in the park's recorded history. However, the 2009 fire season is likely to be the worst due to exceptional rainfall resulting in an abundance of grass.

The 25 fire blocks of the Etosha NP

Wildlife crime prevention and law enforcement in PAs

Law enforcement in PAs is an essential component of park management. Law enforcement is carried out by MET personnel who have passed special law-enforcement courses and who are appointed as peace officers. Investigations involving species such as rhino and elephant as well as their products are carried out by the Police Protected Resources Unit.

The main focus of law enforcement is anti-poaching, which includes patrols to prevent poaching from occurring and the apprehension of poachers who have illegally killed wildlife. Law enforcement officers have to be skilled at gathering evidence and presenting this in court in order to help secure a conviction. The conviction of offenders and the handing down of heavy prison sentences is one of the best deterrents against poaching and the illegal use of ivory and rhino horn.

Generally in Namibia, wildlife crime levels are low for a country with such high wildlife densities. Reasons for these low levels include the successful Community-based Natural Resource Management (CBNRM) Programme outside PAs, and effective crime prevention and law-enforcement patrols. Parks such as the Etosha National Park (Etosha NP) have not had significant illegal hunting of either elephant or rhino in over ten years. Between 2003 and 2008 fourteen rhino horns were seized. Increased poaching in neighbouring states has led MET to review and step up anti-poaching measures to prevent a possible increase in poaching incidents in the country.

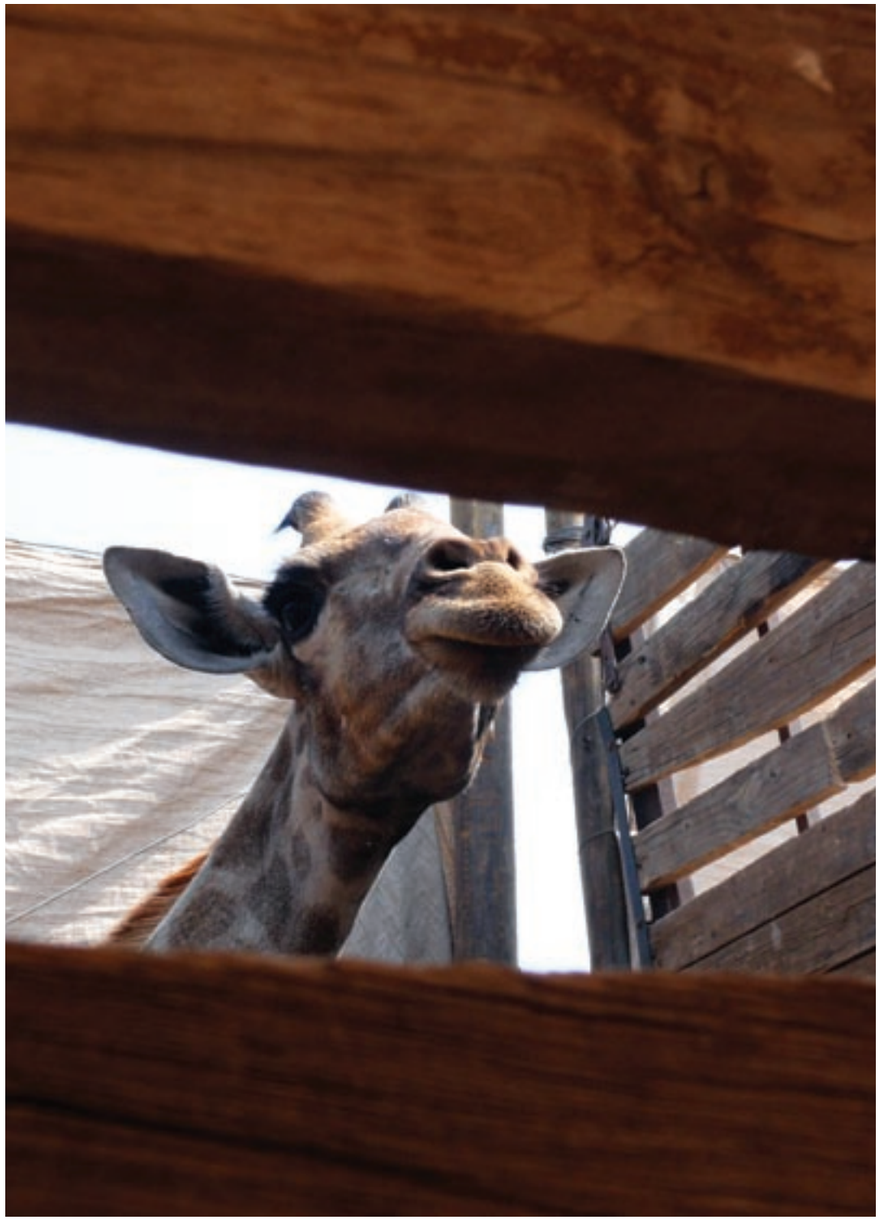
Most law-enforcement patrols in parks are conducted on foot, in vehicles or by air, while boat patrols are common in the north-eastern parks. Although crime-prevention patrols are carried out by all field staff in parks, the Etosha NP has a Wildlife Protection Services unit exclusively dedicated to this kind of work. Patrolling teams in most cases comprise five to seven staff members. Patrols are also used to collect data for different purposes, including for the international data base on Monitoring the Illegal Killing of Elephants (MIKE), game condition, human wildlife conflict and fence conditions. Crime prevention, particularly in larger parks, demands high mobility and a constant presence in the field. A lack of reliable vehicles, limited field equipment and insufficient budgets are some of the major constraints.

The MET recognises that Namibia is not immune from the poaching that increased in frequency and scale in Southern Africa over the last few years. During the Rhino and Elephant Security Group and the Interpol Working Group on Environmental Crime meetings held in Swakopmund during 2008, an increase in rhino poaching and other wildlife crime was reported by most of the participating countries. Namibia therefore recognises the importance of being proactive and remaining vigilant. As a result, the MET continues to place considerable emphasis on law enforcement while continuing to provide incentives for rural people to support wildlife conservation and PAs through communal area conservancies.

Another form of law enforcement that demands attention from park staff relates to tourist offences, often involving habitat destruction and disturbing other visitors' experiences. For example, in fragile environments such as the gravel plains in the Skeleton Coast Park, the Namib-Naukluft Park and the Sperrgebiet, off-road driving can lead to the destruction of rare lichens and succulents. The most common offences are driving faster than the indicated speed limit, driving off-road and getting out of vehicles. In order to control excessive speeding, the Etosha NP recently acquired two speed-monitoring machines.

Wildlife translocation

Namibia's PAs generate a source of wildlife for farmers, communities and others wishing to have wildlife on their land. Between 1999 and 2009, for example, more than 7 300 animals (14 species) were translocated by the MET to 27 communal conservancies. These translocations were supported mainly by the MET's Integrated Community-based Ecosystem Management (ICEMA) Project, which is funded by the Global Environment Fund (GEF) and the MET's Enhancing the Wildlife-based Economy in Rural Areas (EWERAP) Project funded by the European Union. The Waterberg Plateau Park plays the role of rare-species breeding camp, with a state-of-the-art rhino boma having been constructed with a GPTF grant in 2004. In Etosha there are two rare-species breeding camps, namely Khoabendes for sable antelope and Karros for black rhino, roan antelope and black-faced impala.



One of the main objectives of wildlife conservation is to reinstate animals where they formerly occurred. Between 1999 and 2009, for example, more than 7 300 animals (14 species) were translocated by the Ministry of Environment and Tourism to 27 communal conservancies.

Namibia's Black Rhino Custodianship Programme

Namibia has adopted an approved National Black Rhino Strategy, of which the Rhino Custodianship Programme forms one component.

This programme is aimed at increasing the numbers and range of the subspecies *Bicornis bicornis bicornis* within Namibia. It focuses on establishing new rhino populations on suitable communal and freehold land for safekeeping.

Custodianship involves commercial farmers and communities meeting criteria on the conservation and protection of this flagship species.

One criterion for rhino relocations is to restore the species to areas where it historically occurred. The custodianship scheme has 25 farms in the Namibian regions of Erongo, Hardap, Karas, Khomas, Kunene, Omusati and Otjozondjupa. Ten communal-area conservancies have become members of the scheme. In return, rhinos loaned to farmers and conservancies are a draw card for tourists, creating revenue non-consumptively.

The programme started in 1993 with two freehold farms with a combined size of 21 300 ha, and now covers a range of 2 463 300 ha. More rangelands are to be added in the near future, with emphasis on communal conservancies.

Namibia's Black Rhino Custodianship Programme focuses on establishing new rhino populations on suitable communal and freehold land for safekeeping.

Survey and monitoring activities

Incident Book Monitoring System

To carry out good management, park managers need good information. They need to know whether game numbers are increasing or decreasing, the status of grazing, how many animals have been removed for sale or for hunting, and so on. Collection of data such as these for management purposes is known as monitoring. In order to carry out good monitoring, park managers have adopted an approach called the Incident Book Monitoring System (IBMS). This is a simple system that is being used to collect data on items such as gate-entry statistics, patrol efforts, poaching incidents, off-takes (hunting, culling and mortalities), rainfall and veld conditions. Using this information, park managers can decide whether there are problems that require some form of management action. The system is also designed to assist park wardens to report to Head Office on a monthly basis and to evaluate the performance of their field staff. The IBMS was adapted for parks from a similar system being used in the communal area conservancies.

Following the success of the 2003–2006 pilot phase in the north-eastern parks, which was supported by the WWF LIFE Programme, the IBMS has been introduced to 11 PAs in Namibia with support from the SPAN Project. Support includes the development of modules for routine and incidental data collection and a monthly reporting system where data flows from parks to Head Office. The MET's main wildlife and PA data base, CONINFO, was also expanded to house the incident book database and generate official reports containing aggregated information in map, graphs and other formats.

To carry out good management, park managers need to know whether game numbers are increasing or decreasing, what the status of grazing is, how many animals have been removed for sale or for hunting, and so on.

Aerial surveys

Within the constraints of its human and financial resources, the MET conducts regular surveys and monitoring of wildlife in and around PAs. The Survey Unit, housed in the Directorate of Scientific Services, is in charge of highly specialised aerial surveys, which require experienced pilots and crew. A fixed-wing aircraft is flown at low level and data such as species sightings, altitude and GPS readings are recorded for each counting block.

There are seven aerial survey areas, with the most recent survey schedules decided in 2004. However, schedules have been hampered by insufficient funding and slow payments to service providers.

Survey area	Area size (km²)	Planned survey frequency	Next survey
Etosha NP	22 151	Every two years	2011
Hunsberg – /Ai-/Ais Hot Springs Game Park and surrounding private game reserves such as Kochas and Gondwana Canon Park	7 806	Every five years	2010
Naukluft – Naukluft portion of the Namib-Naukluft Park	1 156	Every five years	2010
North East – Bwabwata, Mudumu and Mamili national parks, Khaudum National Park, all communal conservancies in the area of some communal land	46 603	Every two years	2010
North West – All communal conservancies, tourism concession areas, Skeleton Coast Park and the northern part of Namib-Naukluft Park	102 157	Every two years	2011
Small Parks – Daan Viljoen, Hardap, Naute and Von Bach Game Parks	39 240 220 and 41 respectively	Every year	2010
Southern Namib – Diamond Area (Sperrgebiet) and southern part of Namib-Naukluft Park	23 509	Every five years	2012

Each area was chosen with a particular rationale. For example, regular surveys in Etosha are critical because the park is one of the most important tourism destinations in Namibia. Trends of animal numbers need to be known so that any irregularities can be detected in time to ensure appropriate interventions. The park is home to a large elephant population and requirements under the Convention on International Trade in Endangered Species (CITES) stipulate that trends in elephant populations must be known. The park also serves as a donor for most game translocations in Namibia and animal numbers need to be monitored to pick up any deleterious effects the translocations may have. The Huns and Naukluft mountains are strongholds for Hartmann's mountain zebra, and regulations under the CITES convention stipulate that mountain zebra numbers must be monitored.

Aerial censuses have been conducted in Etosha since 1968. The park is divided into 17 census areas and animal sightings are recorded using Cessna aircraft. The population is estimated from sighting records using an established formula. Game numbers are relatively stable, although there is a slight decline in blue wildebeest, gemsbok and plains-zebra populations. Elephant, rhino and ostrich populations seem to be on the increase.

Aerial censuses have been conducted in the Etosha National Park since 1968. The park is divided into 17 census areas and animal sightings are recorded using Cessna aircraft.

Aerial census data for the Etosha NP in August 2005

Blue wildebeest	4 244
Eland	1 103
Elephant	2 611
Gemsbok	5 690
Giraffe	3 143
Ostrich	3 345
Plains zebra	12 982
Red hartebeest	1 527
Springbok	15 550

Game counts

The Ministry of Environment and Tourism and partners organise game counts every year in various parks, including the Bwabwata National Park where staff work with the Kyaramachan Association and local NGOs.

The MET organises other forms of game census in collaboration with partner organisations. Waterhole game counts take place every year in the Khaudum National Park, Waterberg Plateau Park and Mangetti National Park. Waterholes are monitored for 72 hours for wildlife coming to drink water. A line transect count is conducted in conjunction with neighbouring conservancies and park resident associations in the Bwabwata and Mudumu NPs, to complement aerial surveys.

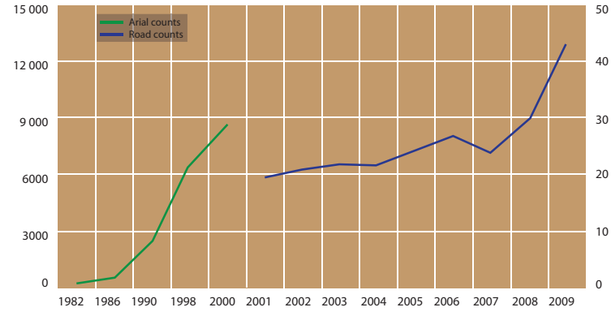
The North-West Vehicle Count is conducted every June by the WWF-Life Project, communal conservancies and the MET. It covers 26 registered communal conservancies and three emerging conservancies, three government tourism concession areas, the Skeleton Coast Park and the northern section of the Namib-Naukluft Park. Game is observed from an open vehicle along demarcated routes every year. Game numbers observed are extrapolated with a correction factor for each route to compensate for areas not covered. The method is relatively accurate for plains game species but is less reliable for species that are habitat specific or nocturnal.

The MET uses results from these game censuses to determine the annual conservancy utilisation quotas. The graphs on the next page show the general population trends for three key species in the north-west based on the results of the recent vehicle counts.

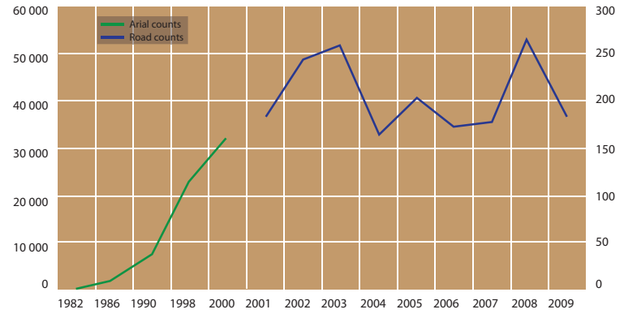
Trends for other key species such as elephant, black rhino and lion also indicate a major recovery over the past 10 to 15 years. The recovery of game in the north-west is due to a combination of the communal area conservancy programme, increased conservation activities of the MET and NGOs and better rainfall in recent years.

General trend for the populations of three key species in the north-west based on vehicle count results

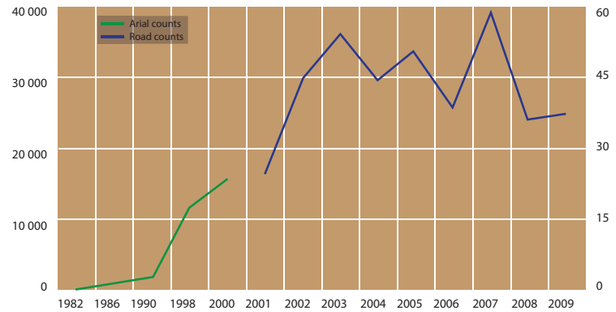
Hartmann's mountain zebra (*Equus zebra hartmannae*)



Springbok (*Antidorcas marsupialis*)



Gemsbok (*Oryx gazella*)



These graphs represent the general population trend for each species using estimated numbers extrapolated from the animals actually seen and using a number of correction factors. Fluctuations in numbers can occur in the north-west that do not necessarily indicate an increase or decrease in numbers of a particular species in a given year. Species such as springbok are highly mobile in response to rainfall and grazing availability. As the figures are based on road counts, it is possible that in a particular year at the time of the count, animals have dispersed and are in more remote areas not so accessible by vehicle.

The methodology does not yield good results for smaller secretive animals, nocturnal animals and animals in mountainous areas where roads are often non-existent. It is also recognised that other monitoring methods (aerial census, foot patrols, specialist species monitoring) and local knowledge are additional sources of data.

Wetland counts

In more than 100 countries, millions of water birds are counted each year. The international NGO, Wetlands International, assembles this data and provides information on the global state of birds and analyses changes in their populations.

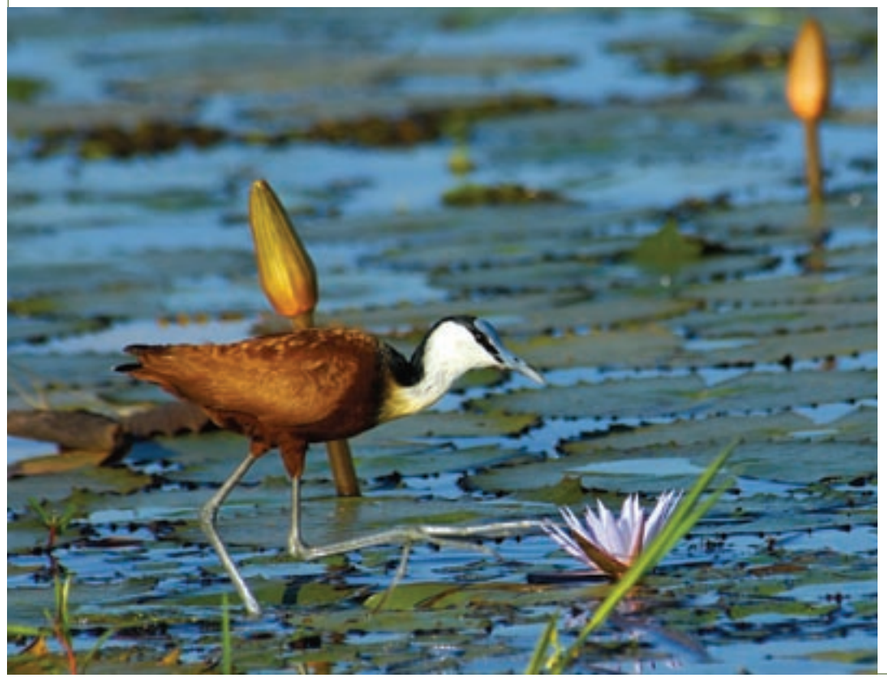
There are currently three international RAMSAR[1] sites in Namibia's protected areas, situated in the Etosha National Park, at Sandwich Harbour in the Namib-Naukluft Park and at the Orange River Mouth in the Sperrgebiet National Park. A fourth site, the Walvis Bay Lagoon, is expected to be added when the area is proclaimed a national park in 2010.

Namibia has one of the most comprehensive data sets in Africa for wetlands counts in PAs, dating back to 1992, with counts conducted twice annually at 15 sites. This helps track trends and, if measurable declines in species are evident, counteractive measures can be enacted.

As of September 2008, in Namibia, data is on hand for 1 496 water-bird counts at 160 sites. A large amount of data has been collected on local and international Red Data species, which is fed into international status reports. Most sites are concentrated along the coast, in the Etosha National Park and at the Hardap and Naute game parks. Since a peak in 1997, the number of counts has declined due to a lack of volunteers.

In future, efforts will be made to ensure that valuable data from the counts is fed into knowledge management systems and is accessible to a range of local and international stakeholders.

[1]The Convention on Wetlands of International Importance especially as Waterfowl Habitat – commonly referred to as the Ramsar Convention from its place of adoption in Iran in 1971 – provides a framework for international co-operation and was established following concern about the serious decline in populations of waterfowl (mainly ducks).

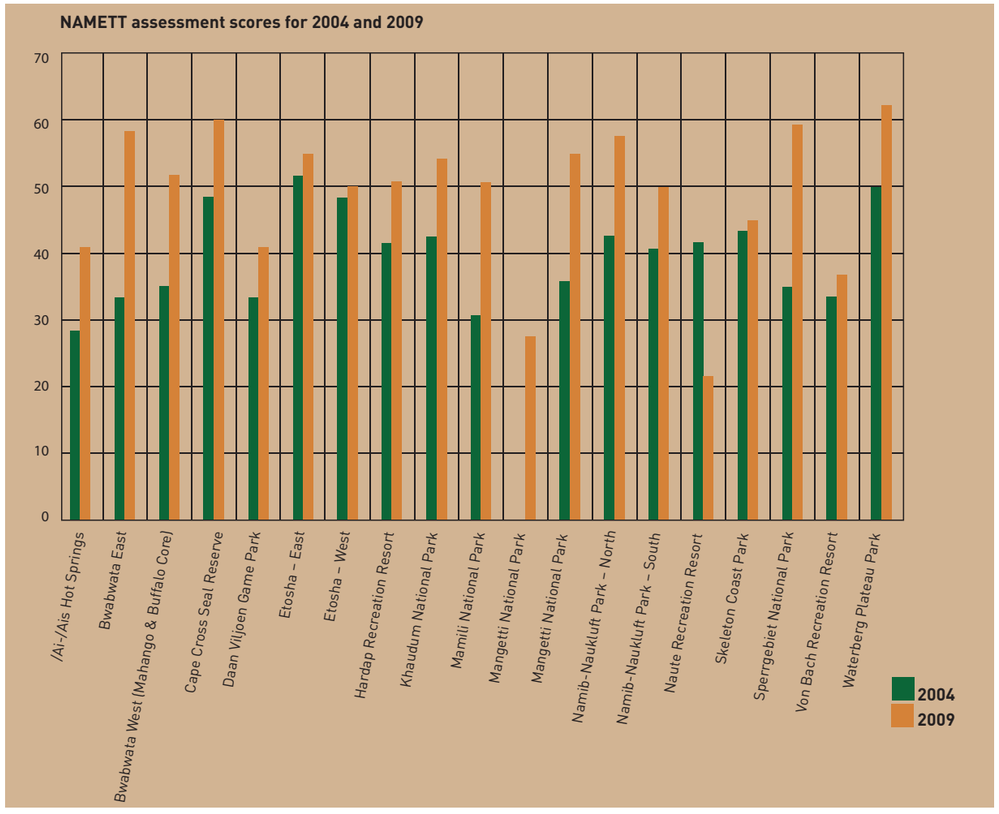


Namibia has one of the most comprehensive data sets in Africa for wetlands counts in Protected Areas, dating back to 1992, with counts conducted twice annually at 15 sites. Pictured is an African Jacana (Actophilornis africanus).

Tracking management effectiveness of PAs

Monitoring can also help measure the effectiveness of PA management. To carry this out, Namibian PAs are using the Management Effectiveness Tracking Tool (METT), which was developed by WWF and the World Bank based on the World Commission on Protected Areas (WCPA) framework to help track and monitor progress in PAs.

The METT is a rapid assessment based on a scorecard questionnaire. The scorecard includes six elements of management identified in the WCPA framework, namely context, planning, inputs, process, outputs and outcomes, as well as 31 questions under the elements. The system identifies needs, constraints and priority actions to improve the effectiveness of PA management. It is designed to be easily answered by PA managers without any additional research.



Namibia METT (NAMETT), a modified version of the tool, is being used for local conditions. An initial assessment was conducted in 2004 for 15 parks (18 stations). The assessment was also conducted in 2009 for 16 parks (19 stations). The Namibian Coast Conservation and Management (NACOMA) Project also conducted an assessment for coastal parks using NAMETT in 2007 and 2008. The results of these assessments show there is a general upward trend in PA management effectiveness as shown in the figure above.

During 2009 many PAs saw improvement in regular work plans, staff numbers and training, equipment, traditional authority involvement in PAs and economic benefits to communities. Issues with less improvement included the development of operational budgets, law enforcement and maintenance of equipment. Although the METT assessment may be prone to the subjectivity of both the assessors and the assessed, it provides a quick way of measuring progress on some key issues for effective park management. It is a useful tool for identifying issues and areas for inputs and improvement and for tracking park-level progress. As it cannot adequately gauge park performance towards its objectives, particularly the biodiversity objectives, it is recommended that this tool be used in tandem with a set of indicators that monitor the condition of biodiversity in each park.

Research in parks

Research functions in PAs are chiefly the responsibility of the Directorate of Scientific Services (DSS). Research projects are conducted by DSS scientists and external researchers, many of whom are affiliated to the Etosha Ecological Institute (EEI) in Okaukuejo, Etosha NP, and the Gobabeb Research and Training Centre (GRTC) in the Namib-Naukluft Park, both of which were established in 1974. The MET issues from 100 to 125 research permits annually to external researchers, with most research projects in Etosha and the Namib-Naukluft Park.

Since the discovery of anthrax in Etosha in 1964, the EEI has become one of the world's centres for anthrax research. Many of the earlier research activities in Etosha were aimed at supporting park management, as due to the enclosed nature of the park, it was necessary to have information for management decisions. These research activities included classification of vegetation, behavioural and eco-physiological studies on wildebeest, population dynamics of elephants and demography of lions.

In recent years, research has focused on the ecology of wildlife with high conservation and economic value such as black rhino, buffalo and elephant. Research on movement patterns of elephant, lion and vultures has also been conducted in PAs to establish and fully understand the ecology of human-wildlife conflict and foraging patterns of threatened birds of prey.

The GRTC has both long-term and more intensive research programmes. Long-term programmes include the Biodiversity Monitoring Transect Analysis in Africa (BIOTA), the Flood Water Recharge in Alluvial Aquifers of Dry Environment (WADE) and Gobabeb's Environmental Observatories Network (Gbb-EON) programmes. Recent research topics range from dryland vertebrate ecology to investigation into the role of atmospheric and underground water and its relationship with animals and plants.

The EEI and GRTC have developed local and international partnerships with academic institutions and regularly receive visiting researchers. Local capacity for ecological research is being built through training programmes and linking young researchers with external and visiting researchers.

PAs require co-ordinated research and monitoring activities to effectively address priority issues identified for park management and biodiversity conservation. Data gathered by individual researchers completing projects should be readily accessible to park management through a central database.

The DSS has actively sought to make research more management focused by appointing species co-ordinators for elephant, rhino and high-value species such as roan, sable, tsessebe and black-faced impala. Specialists are responsible for co-ordinating research on these species in and outside of PAs.

The DSS also plans to strengthen co-ordination of research activities in north-eastern Namibia. Plans include research on the relationship between elephant density, change in structure of vegetation and its effect on rare, highly valuable species such as roan and sable and density and distribution of lions and African wild dogs in north-eastern parks.

In the north-west, priority research should focus on establishing wildlife corridors that will restore biological links between Etosha and the Skeleton Coast Park.

Research and support for ongoing monitoring in the breeding success and conservation of the Lappet-faced Vulture and other large birds of prey are needed in the central Namib and Namib-Naukluft Park. The proclamation of the Namibian Islands Marine PA off the Sperrgebiet NP by the Ministry of Fisheries and Marine Resources (MFMR) creates an opportunity for collaborative research between the terrestrial and marine PAs.

Greater focus is required in the PA network into the role and function of wetlands in the ecosystem and how wetlands contribute to the well-being of rural communities. Research into endemic species, in particular in the Succulent Karoo and the Kunene Escarpment, is also critical. Furthermore, climate change impacts on wildlife and their habitat needs to be investigated.

Research on movement patterns of elephant in Etosha through collaring helps determine movement patterns to better understand the ecology of human wildlife conflict.

Wildlife diseases

Disease in wildlife is a factor in park management and comes in a variety of forms, some of which are less obvious than others. Arguably the most significant is Foot and Mouth Disease (FMD), a viral infection of cloven-hoofed animals. There is a national need to keep at least three quarters of the country free from the disease to allow the export of beef to Europe.

Buffalo, a significant carrier of FMD, are not allowed south of the Veterinary Cordon Fence (Red Line) except in the Waterberg Plateau Park. Several of these 'disease-free' buffalo are caught and sold on auction every second year, attracting many interested buyers due to their status. In 2004 a staggering N$230 000 was the average price paid for each disease-free buffalo

The Etosha NP, a significant potential source of wildlife for translocation to other parts of the country, sits north of the Red Line. Thus, while game can be moved easily to northern communal conservancies, all species, except for zebra and ostrich, have to go through a very costly quarantine and testing period if they are to be moved south, as is the case in the Wildlife Breeding Stock Loan Scheme (an MET initiative to assist newly emerging farmers to look at wildlife as an alternative form of land use).

All translocation of game to, from and within Caprivi Region was stopped during the latter half of 2008 and the first part of 2009 due to an outbreak of FMD. Samples collected from buffalo from four sites in the Caprivi Region during 2007 indicated that 96% had the disease. Ongoing work is aimed at clarifying the current risk buffalo may pose to cattle in the region, and the impact disease may have on the planned Okavango-Zambezi (KAZA) Transfrontier Conservation Area (see Chapter 7).

In recent years anthrax has become a disease of much interest and has been studied extensively, particularly in Etosha. A ubiquitous bacterium, it is likely to have a regulatory role in wildlife populations of, for example, elephant. Control of the disease is difficult and indeed in most cases 'nature will run its course'. However, it may be that as more is learnt about its epidemiology, its impact will become more predictable, along with the ability to intervene should the disease get out of control.

Rabies, a fatal disease in humans if untreated, is traditionally believed to use the jackal as its reservoir. Control of jackal and domestic pets in and around major camps within parks, where positive cases are frequently diagnosed, is essential to protect tourists and staff from exposure. Namibia is home to the unique 'kudu rabies'. First recognised in the 1970s, an initial outbreak from 1977 to 1985 reportedly resulted in 30 000 to 50 000 kudu deaths. In 2008 a further outbreak reportedly caused an estimated 20 000 kudu deaths. Although most of the country's kudu population is found outside of PAs, the risk of the spread of rabies in parks is ever present.

Many other diseases have the potential to impact on park management. For example, a recent survey of zebra in Daan Viljoen Game Park found 21% to be positive for African Horse sickness. Although this disease has no clinical effect on zebra, it poses a potential threat, through a midge vector, to domestic horses in the area.

Similarly, the debate continues as to whether or not to enforce a double-fence policy between wildebeest and cattle, to protect the latter from the possible infection of the fatal Bovine Malignant Catarrhal Fever.

Finally, some diseases may spread from domestic animals to wildlife, possibly with catastrophic results. For example, domestic dogs caused an outbreak of distemper that decimated the robust lion population in Serengeti National Park, Tanzania, and could prove devastating should a similar outbreak occur among Etosha's much smaller lion population.

Anthrax is endemic to Etosha and is accepted as part of the system. Active research and monitoring is undertaken to ensure its impact will become more predictable, along with the ability to intervene should the disease get out of control.

Mining in parks

Namibia's mineral wealth has long provided income and employment for the nation. Diamonds, gold, copper and, more recently, uranium, are mined and sold internationally, and are the largest income earner for the country.

Yet mining and the environment are uneasy bedfellows, particularly in PAs, where prospecting and mining is permitted. A balance is being sought to ensure that, in keeping with the Namibian Constitution, our natural resources can be used for the benefit of all with the minimum impact on the environment.

Namibia is one of a handful of African nations to have environmental legislation in place that requires all mining projects to undertake an environmental impact assessment. The Minerals Act (1992) is the principal legislation governing prospecting and mining activities in Namibia.

The Environmental Management Act (2007) further improves legislative safeguards already in place. It makes provision for the Environmental Commissioner and environmental officers. It provides clear mandates for the MET to approve mining and prospecting operations, inspect and monitor the operations, and issue a compliance order to close operations as necessary.

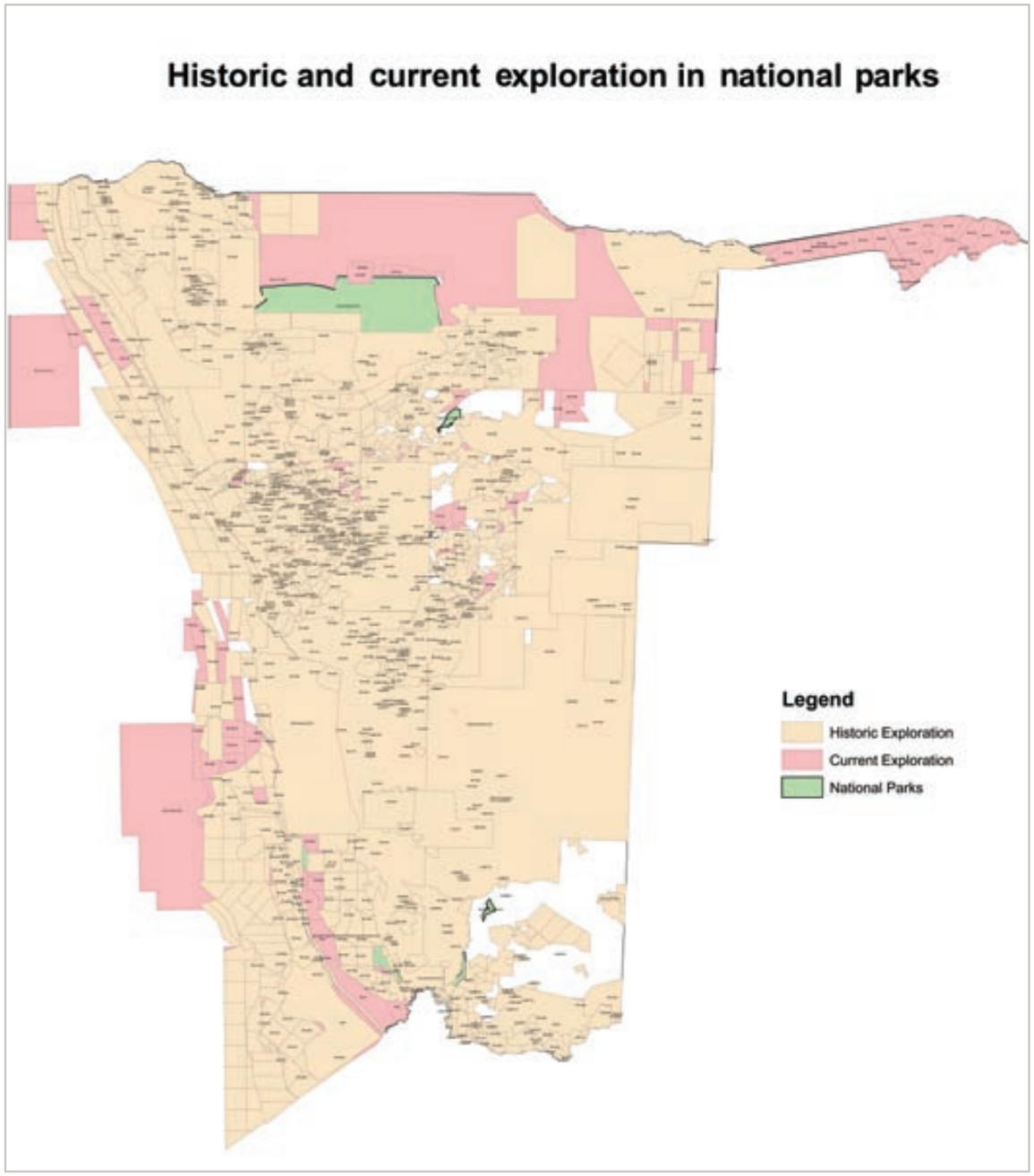
Namibia's Environmental Assessment Policy (1995), the MET's Policy on Mining and Prospecting in Protected Areas and National Monuments (1999), and the Minerals Policy of Namibia (2003) provide consistent and useful guidance for prospecting and mining in PAs. The 1999 Policy urges the Ministry of Mines and Energy (MME) not to encourage the exploitation of low-value minerals and dimension stones in parks. It reflects on Namibia's Environmental Assessment policy and calls on inter-sectoral collaboration where prospecting and mining is allowed in parks. Accordingly, all prospecting and mining applications are reviewed by the Minerals Prospecting and Mining Rights Advisory Committee (MPMRAC) whose membership includes MET officials.

Currently, there are four active mining licences inside PAs, namely the Langer Heinrich Uranium Mine in the Namib-Naukluft Park, Igneous Mining in the Skeleton Coast Park and Skorpion Mines and the Namdeb diamond mining operations within the Sperrgebiet NP.

The number, however, is expected to increase, as Namibia is the world's fifth-largest uranium producer with large uranium deposits being prospected in the Namib-Naukluft Park.

Concerns have been expressed for many years that prospecting and mining in PAs causes adverse and often irreversible impacts upon the environment and undermines the 'sense of place' of these PAs.

The map of sites that are demarcated for exclusive prospecting licences (EPLs) is almost synonymous with a map of the national PAs. In 2009, more than 85 active or inactive EPL sites existed in parks (see map on the right). More than 30 of these are located in the Namib-Naukluft Park.



The draft Protected Areas and Wildlife Management Bill includes a section on prospecting and mining in PAs, which is consistent with the Policy for Prospecting and Mining in PAs and National Monuments (1999). The section includes requirements for an environmental impact assessment (EIA), an environmental management plan and a rehabilitation plan, and payment of a rehabilitation deposit as prerequisites for commencing prospecting and mining activities.

The common threads that run through the existing policies and laws are:

- Sufficient safeguards exist (for example conducting EIAs) to ensure that prospecting and mining operations are properly assessed before prospecting and mining may commence;
- Sufficient safeguards exist (for example Environmental Management Plans) to ensure that the suggestions made in the EIAs are transformed into operational procedures;
- Provision is foreseen in the emerging legislation to establish a rehabilitation fund;
- Government (the MME in collaboration with the MET) may close down an operation if conditions are not being met;
- Institutional arrangements are in place to enable inter-sectoral collaboration to take place between the MME, MET and other sectors such as fisheries, lands, agriculture, water, national monuments and finances, and to enable joint decision-making relating to prospecting and mining in parks and national monuments.

However, it is a challenge for Government to keep the fine balance between mining and conservation interests. Efforts are ongoing to achieve this. In 2006, the MET was requested by the MME to submit maps and motivations for declaring certain areas in PAs as 'no-go' for prospecting and mining. The MME has also commissioned a thorough Strategic Environmental Assessment (SEA) for the so-called Uranium Province in the Namib. In addition, the MET, in collaboration with the MME, is planning to commission a landscape level biodiversity assessment for the Uranium Province, to look scientifically at biodiversity and tourism values, as well as investigating options for biodiversity off-set.

In the Sperrgebiet, Namdeb is implementing an extensive rehabilitation plan. This covers the components of pollution, infrastructure, landscape and biodiversity. Detailed management actions for the different components adapted to site-specific conditions ensure that redundant infrastructure is demolished safely and in accordance with accepted waste management procedures, polluted soil and water are treated, artificial landforms are stabilised and made visually acceptable, and vegetation is restored in areas of biodiversity importance.

Another measure to minimise the impacts of mining which is worth exploring is the establishment of an off-set policy and the implementation of biodiversity off-set. This is aimed at ensuring that the biodiversity loss in a mining site will be compensated through conservation measures to protect an area or species of similar or higher values. Strengthened collaboration between the MET and the MME and better harmonisation of park and mining legislation are vital for ensuring sound planning and win-win results.

Currently, there are four active mining licences inside Protected Areas, namely the Skorpion Mines (pictured above); the Namdeb diamond mining operations within the Sperrgebiet National Park; Langer Heinrich Uranium Mine in the Namib-Naukluft Park; and Igneous Mining in the Skeleton Coast Park.

Challenges and the way forward

Since the dawn of the 21st century, much progress has been made towards improving PA management in Namibia. In particular, increased awareness and understanding of the economic value of PAs and increased availability of finance for PA management are noteworthy. The MET has secured a capital budget of nearly N$100 million in the last six years, and a US$40.5 million infrastructure investment in the Etosha NP and a €12-million investment in the infrastructure of the Bwabwata, Mudumu and Mamili national parks. To a large extent, these investments should solve the problem of an inadequate park-management infrastructure. However, many challenges still remain.

The largest challenge facing PA management is probably the MET's weak human resource base. As the government agency in charge of park management, there are a number of constraints in human resource and financial management.

Addressing the human resource base is critical, as it affects every aspect of PA management including the most basic infrastructure and equipment maintenance. It also impacts severely on the sustainability of any improvements that may be made at any time. Staff turnover is high, due to insufficient incentives in the workplace and lack of prospects for career advancement. The human-resource problem can often result in the ineffective deployment of staff, and is compounded by the high mortality and morbidity rates of PA staff from suspected HIV and AIDS-related illnesses. Although staff numbers in PAs are considered sufficient, there is a shortage of capable wardens and rangers in many PAs.

Staff positions in park management are divided between rangers and wardens. The qualification for warden, the more senior position, is at least a three-year diploma in nature conservation from a polytechnic. This is intended to ensure a certain level of theoretical and practical knowledge regarding nature conservation. However, this leads to a difficult situation, whereby a young graduate with little practical experience in park or game management is expected to supervise rangers who have years of experience and accumulated knowledge, but no prospects for promotion due to the academic qualification barrier. This often leads to discipline problems that can undermine the work ethic. This situation, combined with the fact that the MET has lost key experienced personnel in recent years, means that there is a lack of strong leadership at field level.

The MET is aiming to address these critical issues through ongoing restructuring and associated change management and human resource transformation supported by the SPAN Project and funding from the United States Millennium Challenge Account (MCA). These activities include improvement in the MET's human resource management system, devolution of financial and other administrative accountability to field level and more effective staff recruitment and retention strategies.

Monitoring and research functions need strengthening with priorities set and co-ordinated, while capacity is needed among junior researchers. This will ensure that essential elements of biodiversity are safeguarded and optimise the use of scarce financial resources.

The MET is currently establishing national and park-level biodiversity indicators, a long-term monitoring mechanism and a knowledge management system to ensure that data and information are accessible to both internal and external users. Where possible and where there are compatible land uses around PAs, monitoring systems and research should be carried out beyond PAs with neighbours to monitor processes across the larger landscape and across artificial park boundaries.

Strengthened capacity and resources for monitoring, prospecting and mining activities in PAs are needed to ensure the balance between long-term biodiversity conservation and potential short-term financial and economic benefits. The current restructuring process and the establishment of the Environmental Commissioner's Office within the MET under the Environmental Management Act are expected to increase the MET's influence in mining issues.

The enactment of the new Protected Area and Wildlife Management Bill and the creation of an enabling legal and policy environment are expected to further ensure that Namibia leaps forward towards establishing a cohesive PA network, in collaboration with other land managers, to safeguard its rich biodiversity and natural resources, while unleashing the economic potential of the PAs for the generations to come.

Addressing the human resource base is critical for the future management of Namibia's Protected Areas. Staff of Bwabwata National Park can look forward to improved infrastructure and an improved human resources management system.

Protected areas and people

chapter 5

Introduction

Most people think of protected areas (PAs) as pristine places where nature has been undisturbed for hundreds of years. In some cases this scenario is true, but in others, and particularly in Africa, people have often lived in what we now think of as our national parks and game reserves. In order to create many African PAs, the people already living there were removed. Very rarely were these people compensated for this forced acquisition of their land and they have benefited little from the creation of the PA. Often they have had to put up with problems caused by elephant and other animals that raid their crops and predators that kill their livestock. The result has often been that the people living adjacent to many African PAs are hostile towards conservation and towards PAs. This hostility leads to poaching, setting of fires that sweep through PAs, encroachment of settlements and/or livestock into the park and conflicts with park staff.

In recent years conservationists have begun to recognise that the human and social dimensions of PA management require more attention than they were given in the past. They have realised that the people removed from protected areas still have strong cultural links to the land they or their forefathers once lived on and that there is a need to recognise these links. PA managers have also realised that parks cannot be managed as isolated areas of biodiversity conservation in a sea of surrounding land uses that conflict with conservation objectives. Furthermore, PAs need to contribute to local economies and help combat poverty.

These new approaches have been crystallised in international policy towards PA management. For example, in its Programme of Work on Protected Areas, the United Nations Convention on Biodiversity includes the following targets:

- Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas.

- Full and effective participation by 2008 of indigenous and local communities in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, and the participation of relevant stakeholders in the management of existing, and the establishment and management of new, protected areas.

This chapter shows how the Ministry of Environment and Tourism (MET) is addressing some of the human and social dimensions of park management and is developing partnerships with park neighbours.

Park resident and neighbour relations

The MET has adopted several strategies to engage with people living inside PAs or on their boundaries. These include the establishment of park advisory committees, collaboration with neighbours, awarding of concessions to local communities and the conclusion of agreements for co-operation and benefit-sharing with residents and neighbours.

The awarding of concessions to local communities brings benefits to residents and park neighbours. In March 2010 several conservancy and communities received tourism concessions from the Ministry of Environment and Tourism.

Bwabwata National Park

The Bwabwata National Park (formerly the Caprivi Game Reserve and Mahango Game Park) is an interesting example of how protected-area managers have engaged with local communities in these different ways. The Caprivi Game Park was proclaimed in the late 1960s. However, it was soon taken over by the South African Defence Force as a military area. After Independence and the withdrawal of the South African military, the then Ministry of Wildlife, Conservation and Tourism carried out a survey to establish the status of wildlife in the park. The survey found that there were about 4 000 San people living in the park who had either worked in the military or as civilians at the military bases. The survey also established that people living on the eastern bank of the Kwando River had been removed from the park within living memory. There was considerable hostility towards protected areas and conservation officials.

Since the survey in 1990, the MET has taken steps to address the needs of people living within and outside the Bwabwata National Park. In the early 1990s, the San people were given permission to develop a campsite within the park from which they could earn some income from tourism. The San appointed their own game guards, who helped reduce poaching and confiscated illegal firearms at a time when ministry resources were inadequate.

In more recent times the San, through their representative body, the Kyaramacan Association, have been awarded a hunting concession in the multiple-use area of the park. The income is shared with the MET and in 2007 the Association received N$1.18 million (US$175 000) and 30 tonnes of game meat from trophy hunting. In addition the MET has agreed to formalise the campsite agreement as a new concession, which will include the existing campsite and a lodge at a prime location on the Okavango River.

The community game guards carry out joint patrols and monitoring with MET personnel inside the multiple-use area where people are living. In addition, the MET is negotiating an agreement with the Association that will clarify how resident communities will be involved in the development and benefit-sharing in the Bwabwata National Park.

The MET has also recognised the need to involve the many stakeholders of the Bwabwata National Park in management issues. The Minister has appointed a park Technical Committee consisting of representatives from the MET, the Kyaramacan Association, line ministries that provide services to residents such as the ministries of Lands and Resettlement and Defence, the Kavango and Caprivi Regional councils, neighbouring communal conservancies and conservation NGOs supporting the Kyaramacan Association and the conservancies. The committee provides advice to the MET on park management, particularly regarding the management and development of settlements and infrastructure, as well as livestock, veterinary matters and tourism development. One of the main purposes of the technical committee is to ensure better co-ordination of services to the people living in the park and that development takes place in a sustainable way.

The MET has further recognised the links that people living on the eastern bank of the Kwando River have with the park. The right to develop a campsite at a prime location along the river in the park was awarded to the Kwando and Mayuni Conservancies, both of which border the park. The campsites provide employment for local people and income which can be used for community benefit. The Nambwa Campsite in the Mayuni Conservancy, for example, has an annual turnover of around N$200 000 and the profits are used by the conservancy to help cover the conservancy running costs and provide benefits to residents. Park staff also work closely with a large number of stakeholders in what has become known as the Mudumu North Complex, a grouping of protected areas, conservancies and community forests between the Mudumu and Bwabwata national parks. The MET and other stakeholders collaborate in a number of different ways within the Mudumu North Complex, promoting larger landscape conservation across land areas bigger than single parks.

The Mudumu North Complex

The Mudumu North Complex is a cluster of communal area conservancies, community forests and state-run protected areas in eastern Caprivi that co-operate in the management of wildlife, forests and other natural resources.

The components of the Mudumu North Complex are the following:

Conservancies	Community Forests	Protected Areas
Kwandu	Kwandu	Bwabwata NP
Mashi	Lubuta	Mudumu NP
Mayuni	Masida	State Forest
Sobbe		

It brings together park officials, other government departments such as Forestry, local communities, traditional leaders and non-governmental organisations. It represents the first time in Namibia that so many different stakeholders have come together to co-operate formally in managing the shared natural resources between the protected areas and adjoining communal conservancies.

The Mudumu North Complex was formed for a number of reasons. Three conservancies were already sharing a hunting concession and co-operating over wildlife management and monitoring. Then community forests were formed in the same areas and there was a need to integrate forest management, wildlife management and tourism activities with local agriculture. Park staff saw opportunities to reduce poaching through collaboration with the conservancies and an opportunity to reduce the fires that were set by people and that would sweep through the parks.

The stakeholders formed a Management Committee in 2005, developed a work programme, and established a number of working groups on issues such as law-enforcement, enterprise development, zonation of land, and wildlife monitoring. The Integrated Rural Development and Nature Conservation (IRDNC) NGO acts as the secretariat to the management committee.

Joint management activities include an early burning regime that is applied in conservancies and parks around the same time of the year, joint game counts between conservancy game guards and MET rangers, and joint anti-poaching patrols between the game guards and rangers. In the Kwandu, Mayuni and Mashi conservancies, wildlife corridors have been established to enable wildlife in the hinterland to have access to water at the Kwando River. People have agreed to move away from the floodplains so these can be left as secure habitats for wildlife. Resource harvesting is allowed in the corridors, but no cropping or human settlement. Conservation farming is applied within the complex so that the need for shifting agriculture is reduced and conservancies are beginning to adopt holistic range management techniques. These co-management activities have enabled the MET to re-introduce game into the conservancies in the complex.

"Working together is very good and makes my job easier. In the past we were separated, but now the community game guards, IRDNC and MET all have one goal. The community brings its problems to us rangers and we go on joint patrols for the protection of wildlife and community benefits." Matambo Singwangwa, Ranger, Mudumu National Park

These sentiments are echoed by Beavan Munali of IRDNC, who said: "The MET is now a good friend to all the communities here – in the past rangers would have been chased away, but now we work together."

Mangetti and Khaudum national parks

Protected area managers in the Kavango parks are also collaborating with their neighbours. Although the Mangetti Game Camp has now been declared a national park, the MET has entered into a Memorandum of Understanding (MOU) with the Ukwangali Traditional Authority and the Kavango Regional Council to recognise that in the past the land was provided for conservation by the Traditional Authority. In terms of the agreement the Minister appoints a management committee drawn from representatives of the parties to the agreement. The management committee advises the MET on the management of the park and manages the income from the park. Fifty per cent of income from trophy hunting will go to the management committee and 50% to the Game Products Trust Fund (GPTF). In addition, all the income from a tourism concession will go to the management committee. The committee will decide on the way the income is distributed amongst the community via the traditional authority, the regional council and park management.

In addition the MET has awarded a joint tourism concession to the George Mukoya and Muduva Nyangana conservancies and the Gciriku Traditional Authority to the north of the Khaudum National Park. The conservancies have gone into partnership with a leading lodge operator for the development of the concession. The two conservancies also co-operate with MET personnel in what is now being called the Khaudum North Complex, with the aim of establishing a similar type of co-management approach as that practised in the Mudumu North Complex in the Caprivi Region. Joint monitoring and anti-poaching patrols between the MET and conservancy staff have started in the conservancies and there are plans to extend this to the park itself. The MET has also introduced game into the two conservancies.

A campsite concession in the Mahango Core Area of the Bwabwata National Park is in the process of being awarded by the MET to the neighbouring communities through the Hambukushu Traditional Authority.

The Ministry of Environment and Tourism has awarded a joint tourism concession to the George Mukoya and Muduva Nyangana conservancies and the Gciriku Traditional Authority to the north of the Khaudum National Park.

Etosha National Park and the Hai||om

San hunter-gatherers have occupied parts of present-day Etosha for centuries. When the park was first established in 1907, remnant groups of Hai||om continued to live within the park and were allowed to hunt with bow and arrow, as long as they did not poison water or trespass on surrounding farmlands. The Hai||om were restricted to hunting without firearms and dogs, and were not allowed to shoot giraffe, kudu, eland, and elephant.

Later, once tourism to Etosha started to become popular, the San became tourist attractions in the park until they were forced out in the 1950s. The removal came as a result of the findings of a Commission for the Preservation of the Bushmen appointed in 1949. The commission recommended the expulsion of the Hai||om from Etosha and most families were removed in 1954. The remaining Hai||om were given jobs in the park and were no longer able to hunt traditionally. Since then, San people who were employed in the park have retired there with nowhere else to go.

In recognition of past injustices to the San living in Etosha, the Government has developed plans to provide land and socioeconomic development opportunities for the Hai||om. The aim is to resettle the San remaining in the park but not employed by the MET and those living at Oshivelo to the east of the park, on land purchased adjacent to Etosha. The Government will then assist the resettled people to develop sustainable livelihoods on the land through a diversity of land uses, particularly involving wildlife and tourism, based on the communal-area conservancy approach. The Hai||om will establish some form of partnership with private-sector tourism operators to develop tourism facilities on the resettlement land. Three farms have been bought close to Etosha in the Okaukuejo area and 300 Hai||om have been settled there.

Hai||om elders visit the 'forgotten' waterhole ||Nububes in the Etosha National Park.

Environmental education

It is imperative that the nation's youth grows up with an understanding of the natural environment, the main problems facing our environment and the possible solutions. Protected areas provide ideal venues for environmental education (EE) and the MET has two EE centres within its parks: the Namutoni EE Centre at the Von Lindequist Gate in the Etosha National Park and the Okatjikona EE Centre in the Waterberg Plateau Park. The centres are aimed at increasing environmental awareness and knowledge among the public and encouraging and promoting the sustainable use of Namibia's natural resources for present and future generations.

The Namutoni EE Centre accommodates up to 40 people including supervisors and caterers. Facilities include a lecture hall, 10 bungalows with four beds each, a kitchen and two ablution blocks with hot showers. Activities are conducted from the centre only, although in the past staff conducted outreach to schools and extension work to the neighbouring communities.

The centre mainly targets primary and secondary schools, student teachers and out of school youth. The number of groups that visited the centre in the past two years is as follows:

2007 – 40 school groups with a total of 1 191 people
2008 – 39 school groups with a total of 1 261 people

The above figures include some groups that are day visitors. While the centre receives groups from all over the country, most participants are from the regions of Oshana, Oshikoto, Omusati and Ohangwena, especially day visitors who make use of the King Nehale Gate situated on the northern side of the park.

The EE Centre has a centre-based programme that takes place over a period of two full days and is developed around the syllabus of grades 7–12. This includes topics such as understanding the term environment and major local and global environmental issues, the interaction between people and the environment, the main ecosystems and biomes of Namibia, and issues such as sustainable development and the need for renewable energy.

There are five staff members at the EE Centre. The warden is in charge of the centre and the supervision of staff members and conducts the centre-based programme and administration. A ranger assists the warden. Three other staff members are responsible for cleaning the centre's facilities and taking care of a nursery and any other maintenance work required.

The Okatjikona EE Centre, situated on the edge of the Waterberg Plateau Park below striking sandstone cliffs, is aimed at establishing environmental programmes that will promote environmental education as a continuous process occurring in and out of school, emphasising the compatibility of conservation and sustainable development.

Schools and institutions such as university groups, girl guides and environmental organisations are hosted by the centre. Educational tours of the park are hosted in conjunction with park staff.

The centres face a number of challenges. Neither has its own budget, so it is difficult to plan activities and buy office equipment and basic materials. The buses used at the centres to transport students into the parks are old and need replacing. The EE staff in the Ministry require additional training to equip them properly for their important task.

However, the centres are well situated for providing nature-based hands-on environmental education to a variety of groups. As a result many school groups are visiting the centres because they want to see the parks and their wildlife. The prices are affordable to all groups.

EE centres

Bookings for the EE centres should be made as early as possible. A booking sheet will be sent to the group for completion. Bookings should be confirmed at least two to three weeks before date of arrival. A free entrance permit will be issued to each group visiting the centre. The following fees are payable per person per night for both teachers and learners:

Rural schools including charity groups	N$10.00
Urban schools	N$15.00
Private schools	N$20.00
Institutions	N$25.00

Contact details:

The Warden
Namutoni EE Centre
P/Bag 2014

Tsumeb
Tel +264 67 22 9201
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The Warden
Okatjikona EE Centre
P/Bag 2506

Otjiwarongo
Fax: 067 303 6320

It is imperative that the nation's youth grows up with an understanding of the natural environment, the main problems facing our environment and the possible solutions.

Challenges and the way forward

Namibia's PA managers are working hard to develop good relationships and management of shared resources with people living inside parks and with park neighbours. Often, however, the wardens and rangers at the forefront of working with different stakeholders such as communities, traditional leaders, regional councillors and NGOs have little training for working with people, as they have been principally trained to manage wildlife. To meet the challenges of addressing the human and social aspects of park management better, staff members need adequate training to complement their existing skills and expertise. It is also costly to carry out the additional activities required for engaging with communities living in parks or with park neighbours. Adequate human and financial resources are needed to ensure that these additional functions can be carried out effectively.

Out of necessity many of the management activities carried out by PA personnel have grown from the ground up. PA managers have realised that consultation and co-operation make sense and have got on with the job of forging partnerships with other stakeholders to ensure the continued conservation of PAs and their wildlife. However, policy and legislation have not kept pace with the developments on the ground.

Armed with good training, adequate resources and strong policy and legislation, our PA managers will be placed in a good position to enable our parks to meet national conservation and development goals, and to meet the targets of the Convention on Biodiversity regarding the sharing of the costs and benefits of PAs and the involvement of local communities in park management.

The role of EE in preparing the youth for understanding the problems facing our environment and seeking solutions is often underestimated. Well-resourced EE centres with well-trained staff in more than just two of our parks is the vision of the EE staff in the MET.

Namibia's Protected Area managers are working hard to develop good relationships and collaborative management of shared resources with people living inside parks and with park neighbours.

Protected areas and tourism

chapter 6

Introduction

Evocative desert landscapes, ancient geology, diverse, iconic and abundant wildlife, rich and authentic cultures, natural beauty, sunny weather, brilliant night skies and uncluttered landscapes all harmonise to create the foundation of Namibia's tourism product. These assets allow visitors to experience wilderness and interact with nature in ways that are rare in other parts of the world. Many of these attractions are protected in our national protected areas (PAs). Etosha, Sossusvlei, the Fish River Canyon, Cape Cross and others are all-powerful draw cards for visitors. The combination of 'nature' and 'culture' are a winning formula for a vibrant and competitive tourism industry.

In order to understand our strengths and weaknesses it is critical to understand how the world sees us. The independent and popular *Lonely Planet* guidebook introduces Namibia as follows:

> *"Wedged between the Kalahari and the South Atlantic, Namibia enjoys vast potential as one of the youngest countries in Africa. In addition to having a striking diversity of cultures and national origins, Namibia is a photographer's dream – it boasts wild seascapes, rugged mountains, lonely deserts, stunning wildlife, colonial cities and nearly unlimited elbow room."*

The emphasis in the above quote is on the sense of wilderness and wide-open spaces that Namibia presents to the tourist, so Namibia should not attempt to attract the world. Mass tourism, the infrastructure needed to support it, crowds and the impact they would have on Namibia's sensitive environment would destroy the very essence of why people want to visit.

Namibia should continue to target the high-value, high-yielding and robust backpacker market so as to minimise the impact of tourism on the natural environment but maximise returns to PAs, communities and the state. Ecotourism is the form of tourism that focuses on recreational, aesthetic, spiritual, religious, and other non-material activities in natural areas, and it can make a major contribution to protecting biodiversity since tourists are willing to pay a premium for experiences with unique species and intact ecosystems.

Tourism as a whole is a huge industry, capturing 10% of the global economy and earning more than US$3 billion each day in 2007, while international tourism receipts grew to US$856 billion in 2007. Today, the export income generated globally by international tourism ranks fourth after fuels, chemicals and automotive products. For many developing countries, it is one of the main income sources and the number one export category, creating much-needed employment and opportunities for development.

Visitors are clearly recognising what Namibia and our protected areas have to offer. In 1993 there were just over 300 000 visitors to Namibia. Since then visitor numbers have quadrupled. Nearly a million foreign arrivals are recorded annually (928 912 in 2007). The average length of stay is 19 days. The direct and indirect impact of tourism on the GDP equated to 14.2 per cent and accounted directly and indirectly for 74 911 jobs or 18.7 per cent of total employment.

We have good reason to be optimistic about the future potential of this industry. If the current growth rates are sustained, by 2015 visitor numbers will have doubled again from present levels. Tourism will continue to provide Namibia with a positive economic outlook provided conservation is further supported, quality of service and facilities are improved and an engaging and enriching visitor experience is provided.

Visitor characteristics

Wildlife, tranquillity and landscapes are the features that are ranked as most important by visitors to our national PAs. From a survey of 631 domestic and international visitors the most popular locations for visitors while in Namibia were the Etosha, National Park, Sossusvlei/Sesriem, (in the Namib-Naukluft Park), Swakopmund, Windhoek, Fish River Canyon, Waterberg Plateau Park, Cape Cross, Twyfelfontein, Namib-Naukluft Park and Lüderitz; highlighting again just how central our national PAs are to the success of tourism in Namibia.

Highlights from this same study tell us more about our visitors:

- The average visitor from elsewhere in Africa spent five times as much (N$15 000) as Namibian visitors (N$3 500). Overseas visitors spent 28 times more (N$58 000).
- Most visitors stayed for only one day in a national park.
- Based on 2005–2006 park entry statistics, 25 per cent of visitors were Namibian, 21 per cent were from other African countries and 54 per cent were from overseas.
- From August 2005 to July 2006, 362 411 people visited our national PAs.

A breakdown per national park is provided below:

Visitor numbers to parks (2005–2006)

Park	Number of visitors
Total visitors	**362 411**
Etosha	117 257
*Sesriem	58 813
Cape Cross	47 709
/Ai-/Ais	28 195
Daan Viljoen	20 333
Waterberg Plateau	17 324
Von Bach	13 783
Hobas	13 031
Hardap	12 807
Gross-Barmen	10 220
Mahango	9 370
Popa	4 260
*Khaudum	2 769
Caprivi/Babwata	2 589
*Skeleton Coast	1 819
*Mudumu	1 175
Mamili	957

*In the absence of data at the Khaudum, Mudumu, Sesriem and Skeleton Coast gates, 2003 data was used.

Understanding how visitors come to our PAs provides insight into how we can attract further visitors to Namibia's PAs and what type of information and facilities they may need. Again the 2007 study highlighted that:

- 94 per cent of Namibians visited as free independent travellers, while 6 per cent visited as part of an organised tour
- 91 per cent of people from other African countries arrived as free independent travellers with 9 per cent on an organised tour; and
- 59 per cent of overseas visitors arrived as free independent travellers with 41 per cent on an organised tour.

Figure 1 illustrates the important role of park entry fees and how this revenue increased over the previous four years. During this period both fees and visitor numbers increased to realise this potential (refer to Chapter 4). The key challenge facing the success or decline of tourism in Namibia is to enhance the quality of the visitor experience in our PAs. This means improving our infrastructure, service and the ability of visitors to interact meaningfully with nature. Visitor expectations should continually be exceeded so that tourists will return and bring their friends. Reinvestment back into PAs, the foundation of our tourism product, is vital if we are to achieve this.

Figure 2 highlights that visitation to PAs is seasonal and occurs over a peak period. The challenge for tourism and park managers is not to increase numbers during the peak, as this increases strain on already stressed park infrastructure, but to find ways to attract visitors in the non-peak periods and to extend the length of the peak season.

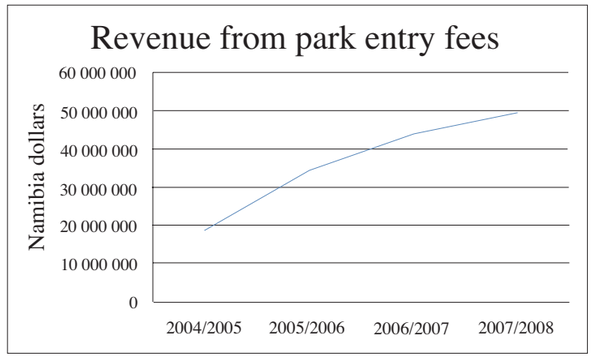


Figure 1: Park entry fees have increased with price adjustments and are an increasingly important source of revenue for parks and the state.

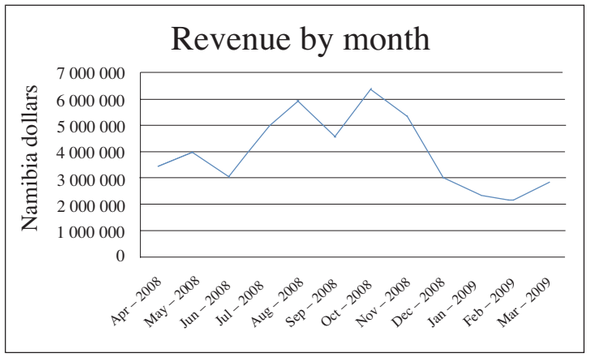


Figure 2: Park entry fees for the 2008/09 financial year highlight the winter season – June–October – as the peak season in our PAs.

Tourism and wildlife concessions

The Ministry's relatively new concession function is an exciting initiative that can add further economic, community development and environmental benefits to Namibia. Formally established in 2007 with the foresight of the Namibian Cabinet, it is a unique function because the benefits from this innovative system can be extended beyond the state to the tourism industry, conservation and rural populations living in and around PAs.

Prior to 2007, the Ministry had little or no capacity to deal with concessions; there were about 22 existing operators generating about N$2 million dollars annually. In recognition of the potential to earn more income from concessions and to promote the involvement of rural communities, the state developed its Policy on Tourism and Wildlife Concessions on State Lands that was approved by Cabinet in 2007. This policy and its approach combine a number of concession best practices from around the world, including tendering, direct awards to communities, auctions and being able to deal with innovation and enterprise.

Concessions in Namibia are not only used as a protection mechanism and tool to provide valuable visitor services in PAs. They are also used as an economic development tool to empower previously disadvantaged communities living in or around PAs, who would otherwise have to live with the negative effects of wildlife. The far-sighted goals of Namibia's concession policy are to:

- enhance and promote conservation;
- control and monitor commercial activities;
- increase the economic value of parks;
- promote economic empowerment of formerly disadvantaged Namibians;
- use concessions to promote sustainable development, poverty alleviation and employment creation; and
- support the development of capacity, skills and access to capital for Namibians.

To achieve these goals, concessions can be awarded directly to a local community. The Ministry can then assist that community to find a joint-venture partner. Concessions may be awarded directly to a tourism operator who has a new and innovative idea; or a concession may be awarded via a tender or auction process.

Progress so far (2009) includes the establishment of the Concessions Unit to process applications; gathering and reconciling all concession files; a revenue audit and formation of a database; staff recruitment and training; the establishment of the Concessions Committee to consider applications; publication of the policy and support material in hard copy and on the Ministry's website; processing and awarding of fourteen new concessions; tourism planning in the Sperrgebiet National Park, Bwabwata National Park and tourism concessions in Kunene Region, and an auction to award valuable trophy-hunting concessions in designated parks.

Thirty-one existing or new concessions will generate more than 600 jobs. These support many others in rural areas where alternative income sources are difficult to secure.

Implementation of the policy supported through the MET's Strengthening the Protected Area Network (SPAN) project started very well. However, much work is still needed to fully support and institutionalise this function within the Ministry. In order for the allocation of concessions by the Ministry to be successful in meeting the Government's stated policy objectives it needs to be efficient, speedy, and above all fully transparent. In order for it to function in this way, there needs to be a high level of integrity at every level of the process. Without transparency and integrity public confidence in the system and investment decisions will be undermined. The foundation for a dynamic and exciting concessions system has been put in place and its potential to assist the development of a strong and vibrant tourism industry has been proven.

The Cabinet approved the Policy on Tourism and Wildlife Concessions on State Lands in 2007. The policy is an economic development tool to empower previously disadvantaged communities living in or around Protected Areas, which would otherwise have to live with the negative effects of wildlife.

Key concession facts

Number of concessions	31 (including hunting)
Income from concessions	N$15 million per annum
Staff employed (FTE)	Three (1xMET, 2xSPAN)
Processing time frames for small concessions	3–12 months
Processing time frames for large concessions	12–24 months
Preferred allocation method	Direct award to communities, tender, auction and direct award to applicants for new and innovative proposals

Case study: Khaudum National Park

Ministry awards first concession to communities in Khaudum National Park

This concession was signed by the Minister of Environment and Tourism, the Honourable Netumbo Nandi-Ndaitwah, and representatives of the Gciriku Traditional Authority (TA) and the George Mukoya and Muduva Nyangana conservancies at a ceremony held on 7 May 2008 in the Kavango Region. These communities have been awarded concession rights as compensation for the loss of their lands to the park immediately prior to Independence. The park was proclaimed in 1989.

The awarding of this concession and others will contribute to rural development, employment creation and economic growth. "It's an exciting time for tourism in Namibia. We want to grow this industry so that we can achieve our conservation, development and economic outcomes," the Minister said.

The 20-year agreement will enable the concession holders to establish accommodation facilities at the Khaudum and Sikeretti camps within the Khaudum National Park. They may also undertake activities such as day and night game drives, guided nature walks, annual moonlight game counts, horseback trails and mountain biking.

The Khaudum National Park is one of Namibia's most wild, rugged and pristine wilderness areas. The concession stipulates that development must be sustainable and in keeping with the natural values and wilderness experience provided in this park.

The TA and conservancies advertised for a joint-venture partner to develop tourism facilities. A well-established and experienced Namibian operator, Namibia Country Lodges, was selected. After a good deal of effort and assistance an agreement was reached between the communities and the tourism operator. Communities will share in the ownership, income, concession fees, employment and training benefits from this joint venture, the park will gain increased revenue from park entry fees, visitors will be better able to access the park and have places to stay and activities to undertake and the operator will have the opportunity to profit and extend the product range in the area.

This partnership has been made possible by the state, local communities, tourism operators, NGOs and development agencies working together. Building on the two sites is expected to commence in 2010.

The Khaudum National Park is one of Namibia's most wild, rugged and pristine wilderness areas.

Tourism infrastructure and activities

The state, through Namibia Wildlife Resorts (NWR) and the private sector, has invested considerably in new infrastructures throughout the country in Namibia's national PAs. However, while the hotels, lodges, restaurants and campsites are essential, visitors do not travel overseas for a nice meal or a comfortable bed. Tourism is an experience-based industry and the core attractions in Namibia are its open spaces, landscapes, wildlife and cultures. While the private sector is the best provider of services, the state has a responsibility for maintaining the key attractions such as its national PAs. This implies that the best way to ensure that tourism can thrive is through public/private partnerships in protected areas, promoting the development of well-managed, efficient, tourism facilities and services, and products that keep the tourists coming. Namibia's success in growing this sector requires ongoing investment from the state so that the quality of the visitor experience is enhanced and the pristine resources that people come to see and experience are not damaged. Managed correctly Namibia can continue to increase visitor numbers and reap the benefits these resources provide to the national economy and to the economic upliftment of all Namibians.

However, growth is already placing strain on aging infrastructures in PAs. In some PAs, the growth of tourism is outstripping the ability of the environment to cope – consider the road and sewage systems in PAs such as Etosha and the picnic, toilet and refuse facilities at Sossusvlei.

In future, good planning and management could address the need for improvements to facilities for overnight walking trails on the Waterberg Plateau; the impact of quad-bikes and 4x4s on the coast and in sensitive wildlife areas such as the Hoanib River; delays and queues for access at Sesriem; improved PA visitor information, interpretation and centres, and friendlier services at some park entry gates. Some recent examples aimed at addressing these concerns include:

- The recently completed brochures for each of the PAs, representing a great initiative aimed at profiling the PAs to Namibians and international visitors alike. The objective is to inform visitors about national PAs so they can plan their activities better and ultimately stay longer and spend more. These are available in MET offices and on the MET and NWR websites.

- The recent and innovative development of improved seal viewing and camping facilities at Cape Cross, illustrating what can be done at key sites to cater better for visitors

- With support from the SPAN Project, two visitor information centres have been developed in the Namutoni and Halali camps in the Etosha National Park, providing high-quality interactive displays about the history, wildlife and attractions of the park, and about tourism to surrounding areas.

- The MET has upgraded the Fish River Canyon View Point, in collaboration with the SPAN Project. The new View Point will have permanent displays of interpretive information about history, geology, landscape and wildlife, excellent views of the canyon and environmentally friendly toilets.

Namibia has excellent natural resources with magnificent potential but needs to improve the experience, service and facilities offered to visitors and our environmental protection if current successes are to be sustained and expanded into the future.

Challenges and the way forward

Namibia has the natural and cultural capital to become a world leader in profitable, high-yield, low-impact ecotourism. Namibia's national PAs already provide the foundation for success to date. For the country to reach its full tourism potential, some current shortfalls must be addressed now and new challenges need to be overcome in the future.

The burgeoning concession system is already showing tremendous potential, contributing significantly to the development of PAs, formally disadvantaged Namibians and the national economy. A key challenge in this area is to create a vibrant and competitive industry for a large number of competitive small, medium and large enterprises. Transparent business practices, clear and efficient decision-making, investment in staff training and capability building are needed.

There are opportunities to offer a suite of new adventure activities for visitors who are no longer satisfied with sitting in a vehicle or lodge but who want to interact more readily with nature. There are challenging overnight hiking trails in PAs such as Namib-Naukluft, Waterberg and /Ai-/Ais. More trails, particularly leisurely short day walks, could be developed and marketed. Horse trekking, guided self-drive 4x4 tours, mountain biking, hunting, dune boarding and ballooning are examples of activities provided by concessionaires. Further, and preferably uniquely Namibian, activities are needed to broaden the product base and encourage visitors to stay longer. There are many new opportunities within or adjacent to protected areas, and these activities must not only be compatible with the protection of the park, but should also enhance the protection of the park surrounds.

Greater attention and resources should be devoted to maintenance of picnicking areas and toilets in keeping with tourist expectations. The service industry needs to focus on improving service at food and accommodation outlets, in particular within PAs. Current marketing efforts are aimed at encouraging visitors to stay longer (and spend more). The push by the NWR to upgrade facilities and charge higher prices is a sound and positive strategy. The NWR's discounted pricing for Namibians in the off-season is a positive step towards enabling continued access for Namibians and needs to be extended wherever possible.

Visitor and interpretation centres are valuable tools used in national PAs around the world to promote the values and special nature of each park. They inform visitors of the activities they can undertake and provide information that assists visitors to minimise their impact on the area. More showcase centres that also promote other PAs in Namibia should be established.

Accurate data on customers is essential for running any business and a national park is no exception. The data in this report highlights how little we actually know about our visitors – who they are and what they do and do not like. Long-term trend data on visitation to each park is essential for planning and resource allocation. Most PAs already collect this information through entry fees. Customer satisfaction surveys should be undertaken in each park every three years so that managers can determine what issues are causing visitors concern and what can be improved.

Visitors need to leave the country with positive memories of an experience that exceeded their expectations and stories they can relay to anyone who will listen. Word-of-mouth advertising is still the best marketing tool. No matter how sensational the marketing is, a product needs to live up to the image for a destination to have a sustainable life in the market place. The visitor experience is not about new hotel rooms it's about meaningful and engaging experiences with nature and culture. However, if a room, food or the service at the park entry gate is substandard, it will detract from the visitor's overall experience.

It is critical that we invest further in looking after our wildlife, vegetation, scenery, landscapes and cultures, as their continued protection is linked to our own economic prosperity, through tourism, both now and into the future.

Transfrontier Conservation Areas

chapter 7

Introduction

Wildlife does not recognise international boundaries. Birds are obviously not confined by the artificial national boundaries that cut across ecosystems. However, some land-based species, such as elephant, also move over large areas of land and often across international borders. There are many instances of protected areas (PAs) adjoining each other in neighbouring countries, but with little formal co-operation between the PA authorities. To address the need for closer transboundary co-operation over conservation, several countries in Southern Africa have signed formal agreements to establish transfrontier conservation areas (TFCAs).

This is part of an international trend in conservation. The world's first TFCA, the Waterton-Glacier International Peace Park, was formally established in 1932 as a union of two adjoining national parks in Canada and the USA. Over the past fifty years TFCA numbers have increased gradually, with a dramatic increase since the early 1990s. There are currently around 200 TFCAs in the world.

TFCAs have the potential to contribute significantly to (i) regional biodiversity conservation; (ii) regional, national and local-level economic development, mainly through tourism development; (iii) social and cultural cross-border contacts and co-operation; (iv) information and experience sharing; and (v) building of a culture of peace and co-operation between neighbouring countries and communities.

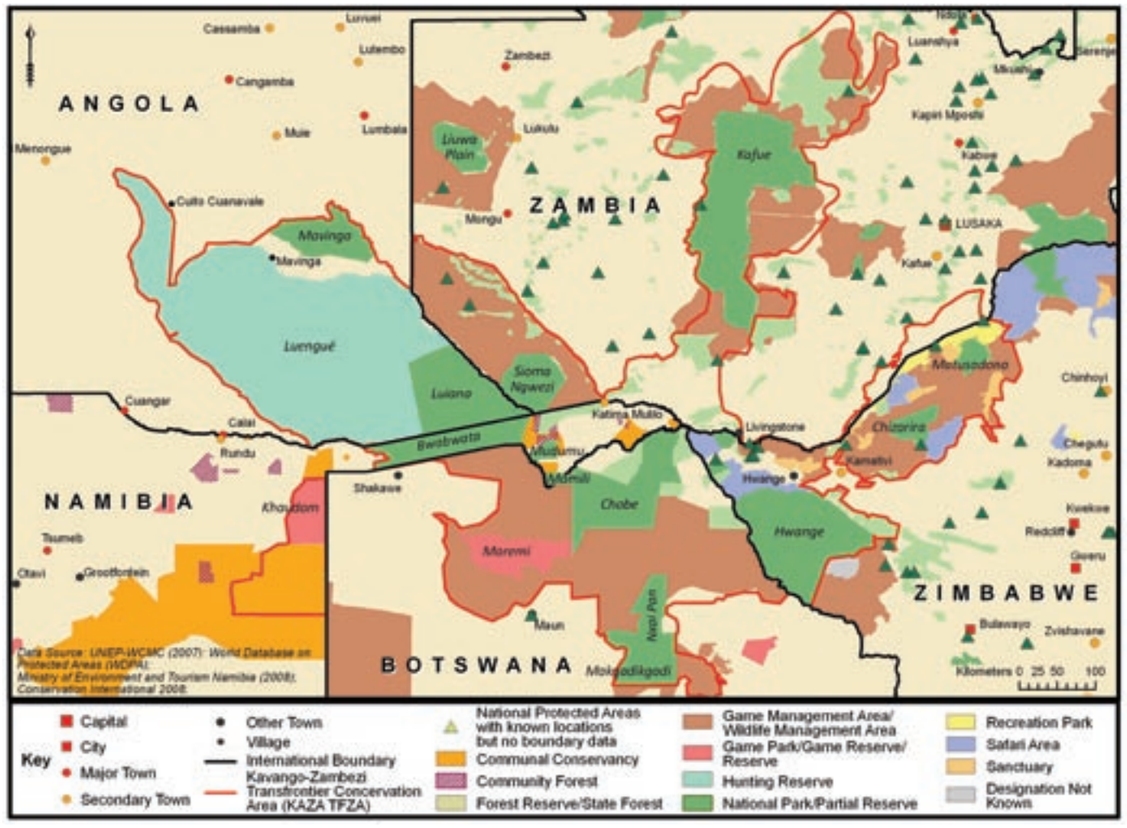
There are different types of transboundary conservation co-operation. Transboundary Natural Resource Management (TBNRM) is where different stakeholders (not necessarily governments) co-operate to manage a resource that is shared across national boundaries. Transfrontier Parks (TFPs) are established where governments formally co-operate to manage adjoining parks across international boundaries. A Transfrontier Conservation Area is where not only PAs, but also other land users and landholders combine to manage a large area of land for conservation across international boundaries. Such areas might include private or communal land.

Namibia is involved in three transfrontier conservation initiatives: The Kavango-Zambezi (KAZA) TFCA; the /Ai-/Ais-Richtersveld Transfrontier Park (ARTFP), and the Iona-Skeleton Coast Transfrontier Park.

KAZA

The governments of the Republics of Angola, Botswana, Namibia, Zambia and Zimbabwe have agreed to work towards the establishment and development of a major Transfrontier Conservation Area (TFCA) and premier tourism destination that straddles their international boundaries. *A key objective of the proposed Kavango-Zambezi Trans-Frontier Conservation Area is to join fragmented wildlife habitats into an interconnected mosaic of protected areas and transboundary wildlife corridors, which will facilitate and enhance the free movement of animals across international boundaries.* The KAZA TFCA is expected to include no fewer than thirty six formally proclaimed national parks, game reserves, forest reserves, game/wildlife management areas as well as intervening conservation and tourism concessions set aside for consumptive and non-consumptive uses of natural resources.

In December 2006 the governments of the five countries signed a memorandum of understanding (MOU) regarding the establishment of the KAZA TFCA. The MOU commits the governments to ensure co-operation between all stakeholders in managing natural resources sustainably in the KAZA area and to the promotion of cross-border tourism as a means of fostering socioeconomic development.



The KAZA TFCA (Source: KAZA Secretariat 2008)

One of the main objectives of the TFCA is to join fragmented wildlife habitats into an interconnected mosaic of PAs and transboundary wildlife corridors, which will facilitate and enhance the free movement of animals across international boundaries. The KAZA area incorporates the largest contiguous elephant population in Africa. The number of elephants in northern Botswana alone is estimated at more than 130 000. The area includes at least 3 000 species of plants, 100 of which are endemic to the sub-region, as well as more than 600 bird species.

The KAZA TFCA also includes two of the world's premier tourism destinations – the Victoria Falls in Zimbabwe and the Okavango Delta in Botswana. The Caprivi area of Namibia plays a pivotal role in the TFCA, providing migration routes for wildlife from Botswana into Angola and Zambia.

The overall policy guidance for the operation of the TFCA is provided by a joint ministerial committee, supported by a technical committee that is responsible for the implementation of action plans. A Project Steering Committee includes permanent secretaries and directors general from the five countries, and representatives from the SADC secretariat, donors and the major implementing NGO, the Peace Parks Foundation. The technical committee is supported by a KAZA Secretariat, which manages day-to-day operations. Working groups have been established to address key issues such as community involvement, conservation, tourism, defence and security and communication.

Involvement of all key stakeholders is ensured by the establishment of national steering committees. The Namibian national steering committee includes the MET, other relevant line ministries, NGOs, conservancies and community forests. This committee met for the first time in November 2009. Overall co-ordination of activities is rotated between the five countries and this role is being played by Namibia until the end of 2010.

The main focus of activity at the policy level is the development of a treaty, which should be ready for signing by the five governments at a ceremony to be held in Namibia in August 2010. Work has also started on indicative development plans that will lead to the implementation of specific management and tourism plans.

The KAZA project is an exciting one that offers many opportunities for improving conservation and economic development. However, there are also challenges. One of these is the need to harmonise policy and legislation between the five countries to facilitate co-operation on conservation, to provide similar conservation incentives to communities, and to enable the free flow of tourists across borders. In addition, KAZA is the largest TFCA in the world and consultation is difficult. Means need to be found to ensure that all stakeholders are informed and engaged in the various activities that concern them. A major effort is furthermore required to remove landmines from large areas of south-eastern Angola if the free movement of wildlife between the countries is to be achieved.

/Ai-/Ais-Richtersveld Transfrontier Park

The /Ai-/Ais-Richtersveld Transfrontier Park (ARTFP) jointly conserves a large part of the Succulent Karoo Biome, which is an international biodiversity hotspot. It was established by the governments of Namibia and South Africa and provides for joint management of the Richtersveld National Park (South Africa) and /Ai-/Ais Hot Springs Park (Namibia). The area is well known for its rugged landscapes, including Namibia's Fish River Canyon, and unique plant life such as the quiver tree (*Aloe dichotoma*), maiden's quiver tree (*Aloe ramosissima*), the rare giant quiver tree (*Aloe pillansii*) and the halfmens (*Pachypodium namaquanum*). The Orange River is a major feature of the transfrontier park. The ARTFP is the furthest developed of the three transboundary conservation initiatives in which Namibia is involved. The Directorate of Parks and Wildlife Management leads the MET's efforts in this bilateral initiative.

Preparatory work for establishing the ARTFP started back in 2000 and gained momentum with the signing of an MOU on 17 August 2001 by the respective ministers responsible for the environment at the time (the Honourable Malima Filemon Malima and the Honourable Vali Moosa).

Significant progress has been made since 2001. A major milestone was the signing of the bilateral treaty by presidents Thabo Mbeki and Sam Nujoma as Heads of State on 1 August 2003. This treaty, which is essentially a legal agreement between two sovereign states, provides a legal framework for the establishment of the ARTFP and an institutional framework for its implementation. A Bi-lateral Ministerial Committee (BMC) responsible for overall policy guidance and a Joint Management Board (JMB) have been established in terms of the treaty and are fully operational.

The JMB is the technical body that co-ordinates the implementation of the transfrontier park. It consists of Namibian and South African officials of relevant ministries/departments.

The area is well known for its rugged landscapes, such as the Fish River Canyon.

Apart from the respective ministries responsible for the environment and tourism (including PAs), police services, immigration services and ministries/departments responsible for water management serve on the JMB. A need for involvement of the ministries/departments responsible for finance, lands and mines was identified recently and representatives are presently being appointed onto the JMB Technical Working Groups. Technical Working Groups have been created and are operational for Safety and Security, Tourism, Conservation and Water Resources. These working groups are producing strategic documents on financial management, tourism development strategy, matters of safety and security, conservation matters and issues related to water (the use of the Orange River).

Another major milestone was the opening on 16 October 2007 of the Sendelingsdrift border post on the Orange River as a joint port of entry. Police and immigration services have been provided on both sides of the river. A pontoon, donated by Namibian mining companies (NAMDEB, Rosh Pinah Zinc and Scorpion Zinc), has been refurbished with funding from the same companies and started operating after the opening of the port of entry. The pontoon allows tourists to move between the two countries – across the Orange River – through the constituent parks.

South African National Parks (SANParks) currently operates the pontoon on a three-year agreement with the JMB. The table on the next page, extracted from SANParks' report to the JMB meeting of 6 August 2008, presents statistics on the use of the pontoon between October 2007 and June 2008. SANParks reports that the costs of operating the pontoon (fuel, lubricants, services of outboard engines, spare parts and general maintenance) and the salaries of two qualified skippers as pontoon operators are higher than the income generated. SANParks is subsidising these costs at present until a proper business plan is in place.

The /Ai-/Ais-Richtersveld Transfrontier Park conserves a large part of the Succulent Karoo Biome, which is an international biodiversity hotspot.

Use of the pontoon at Sendelingsdrift, October 2007–June 2008

Month	Number of vehicles	Number of people	Income
October 2007	43	179	R6 025.00
November 2007	80	253	R11 839.00
December 2007	161	392	R20 781.00
January 2008	125	235	R22 627.00
February 2008	69	152	R8 380.00
March 2008	282	688	R24 824.00
April 2008	229	555	R23 735.00
May 2008	273	640	R30 125.00
June 2008	247	608	R32 225.00
TOTAL	1 509	3 702	R180 561.00

Since 2007, the JMB has been investigating the feasibility of expanding the ARTP into a larger TFCA that will include other areas of land. To this end, three studies were completed at the end of 2008. These are the Integrated Conservation and Development Plans (ICDPs) for sections of the Karas Region and Northern Cape respectively, and the Orange River Management Study for the shared sections of the river. In these studies it was found that it was feasible to expand the reach of the ARTP from the Augrabies National Park up to the Orange River Mouth Ramsar Site in the west – see map below. The studies found that there were social, environmental and biodiversity imperatives for such an expansion. The JMB approved these recommendations and is presently in the process of seeking approval from the two ministers responsible for the environment through the Bilateral Ministerial Committee.

Proposed expansion of the ARTFP into the Lower Orange Transfrontier Conservation Area

In Namibia the TFCA would incorporate the Sperrgebiet National Park, areas of private and communal land and the //Gamaseb and Gawachab conservancies.

The quiver tree (Aloe dichotoma)

Iona-Skeleton Coast Park

In the far north-western corner of Namibia, the Skeleton Coast Park and Angola's Iona National Park (Parque Nacional do Iona) meet at the Kunene River. The Namibian and Angolan governments have agreed to work together to develop a transfrontier park in much the same way as the South African and Namibian governments co-operate in the management of the /Ai-/Ais-Richtersveld Transfrontier Park many kilometres to the south.

Iona, Angola's oldest and largest national park, covers 15 150 km² and is known for its harsh desert scenery and spectacular mountains. The Namib Desert extends northwards into Iona and similar species to those found in Namibia's Skeleton Coast Park and surrounding areas are found in Iona. These include the *Welwitschia mirabilis* plant and the black-faced impala. However, as is true for most Angolan national parks, Iona has suffered from illegal poaching and the destruction of infrastructure. Much needs to be done to restore wildlife populations and improve roads and tourist facilities for the park to become an attractive tourist destination. The Government needs to restore control over the park to prevent poaching and encroachment by people.

Increased co-operation between Namibia and Angola in developing the Iona-Skeleton Coast Transfrontier Park could lead to the establishment of a much larger TFCA that spans three countries along the Namib coast. Known as the Three Nations Namib Desert Transfrontier Conservation Area (TNND TFCA), this would include the /Ai-/Ais-Richtersveld TFCA to the south, the proposed Namib-Skeleton Coast National Park (NSCNP) in Namibia and Iona in Angola. The NSCNP would consist of the current Sperrgebiet National Park, the Namib-Naukluft Park, the proposed Walvis Bay/Swakopmund conservation area, the National West Coast Recreation Area upgraded to national park status, and the Skeleton Coast Park. The NSCNP would be the eighth-largest protected area in the world, and the sixth-largest terrestrial protected area and largest park in Africa, covering an area of 10.754 million hectares, or 107 540 km². Further, the proposed NSCNP is bordered by a new Marine Protected Area, and several private game reserves and communal area conservancies, which would add another 14 million hectares of land and sea managed for some form of conservation.

In order to bring these land units and different landholders together, the challenge for all stakeholders is to develop effective, constructive and efficient co-management mechanisms across these sea- and landscapes. This will enable the optimisation of both the environmental (including biodiversity) and socioeconomic values, while using these open systems to mitigate and buffer the impacts of climate change, and create incentives for neighbouring landowners and custodians to become part of this conservation landscape.

Challenges and the way forward

Transboundary parks and conservation areas have great potential to support biodiversity conservation and to promote the growth of tourism, often in areas where there is little other economic development. In order for this potential to be realised, much work still needs to be done in the /Ai-/Ais-Richtersveld, KAZA and Iona/Skeleton Coast Park initiatives. Good progress has been made in developing co-operation between the South African and Namibian conservation authorities in the ARTFP. The challenge now is to expand the partnership forged by the two governments for other stakeholders, land units and landholders to move from a transfrontier park to a transfrontier conservation area, ensuring that the natural resources and cultural heritage along the lower Orange River as a whole are safeguarded and development in the area will be integrated with conservation activities.

The development of a TFCA in the Kavango/Zambezi area is also making good progress. Once all countries sign the treaty as proposed for August 2010, it will be in the position to take off. KAZA presents an opportunity to build real partnerships between government agencies and other stakeholders. Rural communities that manage land between PAs and which suffer from human/wildlife conflict will be crucial in the success of KAZA. There are community-based conservation programmes in each of the KAZA countries except Angola. Support to these will need to be strengthened so that communities can join governments and the private sector at the decision-making table.

The Iona/Skeleton Coast Transfrontier Park will require considerable investment to develop it into a functioning and effective transboundary conservation initiative. Tourists are already beginning to trickle through the park in low numbers, but control over access needs to be established by the Angolan authorities.

Conclusions on status and future prospects for Namibian PAs

chapter 8

Conclusions and future prospects for Namibian PAs

Namibia can be proud of its protected area (PA) network. Since 2007, Namibia has expanded its national PA network from 13.8% to 17% of the country's land surface, through the proclamation of three new national parks, namely the Sperrgebiet, Bwabwata and Mangetti national parks. The network meets international targets for the percentage of land that each country should have under formal conservation.

The PAs contribute to biodiversity conservation and the maintenance of ecosystem services at a national and a global scale. The PA network includes world-famous parks that draw international visitors each year. Poaching is low in our PAs, particularly for key species such as elephant and black rhino. In addition the PAs are increasingly engaging with neighbouring communities, recognising that community support is crucial for the successful operation of the parks. Innovative approaches to collaborative management between park staff and neighbouring landholders have been pioneered. Through concessions and other means, park neighbours benefit directly from the PAs, which are increasing their contribution to poverty alleviation in accordance with national development goals.

This is a sound record that needs to be maintained and built upon to ensure that the PA network continues to provide these services to society in future. The PA economics study in 2004 proved that the PAs contribute tremendously to national and local economies, while safeguarding the country's biodiversity and ecosystem services. PAs are indeed one of the critical tools Namibia has for national development and poverty alleviation. In order to maintain the conservation value of the parks and their direct and indirect contribution to economic growth, there is clearly a need to ensure that they receive adequate investment. This means not only investment in infrastructure, roads, fences boreholes and offices, but also investment in the human resources required to carry out the day-to-day management of the PAs. Training, skills development, recruitment of specialists, incentives for hard work and initiative, are all required to create a skilled, motivated cadre of park managers. In addition new ways of funding parks are required, allocating individual budgets to each park based on sound costing of activities and programmes, as well as on business-planning principles. Devolution of decision-making to park managers is required to enable flexibility and innovation.

Over the past few years the MET has begun addressing many of these key issues, often in collaboration with donor-supported projects for which the MET has mobilised funding. Financing for PA management increased substantially and management effectiveness indices have improved. Park neighbours and residents derive more tangible benefits from PAs than in the past through tourism and wildlife concessions, which simultaneously provide an alternative livelihood for local communities. Management plans have been developed for the larger parks, tourism scoping and planning has been carried out, and business-planning principles are beginning to be applied for park management. New ways of budgeting are being developed, linking budgeting to business plans to improve planning capacity and cost efficiency, and ensuring that budget holders have a greater control over their own budget. New monitoring systems for parks have been introduced and efforts are ongoing to improve human resource management.

There is still much to do. The flow of experienced personnel out of the park system needs to be curbed. New motivated talents have to be attracted and retained. Investment in infrastructure, plans and processes will not yield dividends unless motivated and skilled personnel are in place. Innovative and flexible means are needed to ensure that the PA network secures a representative sample of Namibia's biodiversity. This will require building on the partnerships that the MET is already developing to transform the current patchwork of parks into a true network. Such partnerships between Government, communities and private landowners can provide an important foundation for future adaptations to climate change,

minimising the negative effects of lower rainfall, higher temperatures and increased aridity on both biodiversity and people's livelihoods. Increased co-operation with neighbouring PAs across international boundaries will also help strengthen Namibia's own PA system. It will be important to move from co-operation between parks and governments to transfrontier conservation arrangements that include communities and other landholders, in order to create transboundary large landscape conservation areas.

As the custodian of Namibia's PAs on behalf of the citizens of the country, the aim of the MET is to ensure that the parks are secured for the future with appropriate funding, well-trained and skilled personnel, and good infrastructure that continues to attract tourists from around the world and educate and enchant visitors, both from Namibia and abroad.

MET staff are the custodians of Namibia's PAs on behalf of the citizens of the country. Here Bwabwata National Park staff are repairing the tourist road to Susuwe Station.

/Ai-/Ais Hot Springs

Africa's largest natural gorge, some of the world's oldest rock paintings, one of the richest botanical hot spots on earth and Namibia's most popular hiking trail – it's all at /Ai-/Ais Hot Springs.

Proclaimed in 1968, the rugged and relatively unexplored Huns Mountains were added in 1988, vastly extending the boundary of the park. The park borders directly on the Richtersveld National Park in South Africa. A treaty was signed in August 2003 between Namibia and South Africa, creating the /Ai-/Ais-Richtersveld Transfrontier Park (ARTFP).

/Ai-/Ais means burning water in the local Nama language and refers to the sulphurous hot-water springs found in the park along the Fish River. The park is dominated by the Fish River Canyon – the second largest in the world – that took over 600 million years to evolve. It also contains some hidden treasures such as the little-known Apollo 11 Cave, containing animal images more than 25 000 years old.

Park size 4 611 km²

Proclamation /Ai-/Ais Hot Springs in 1968

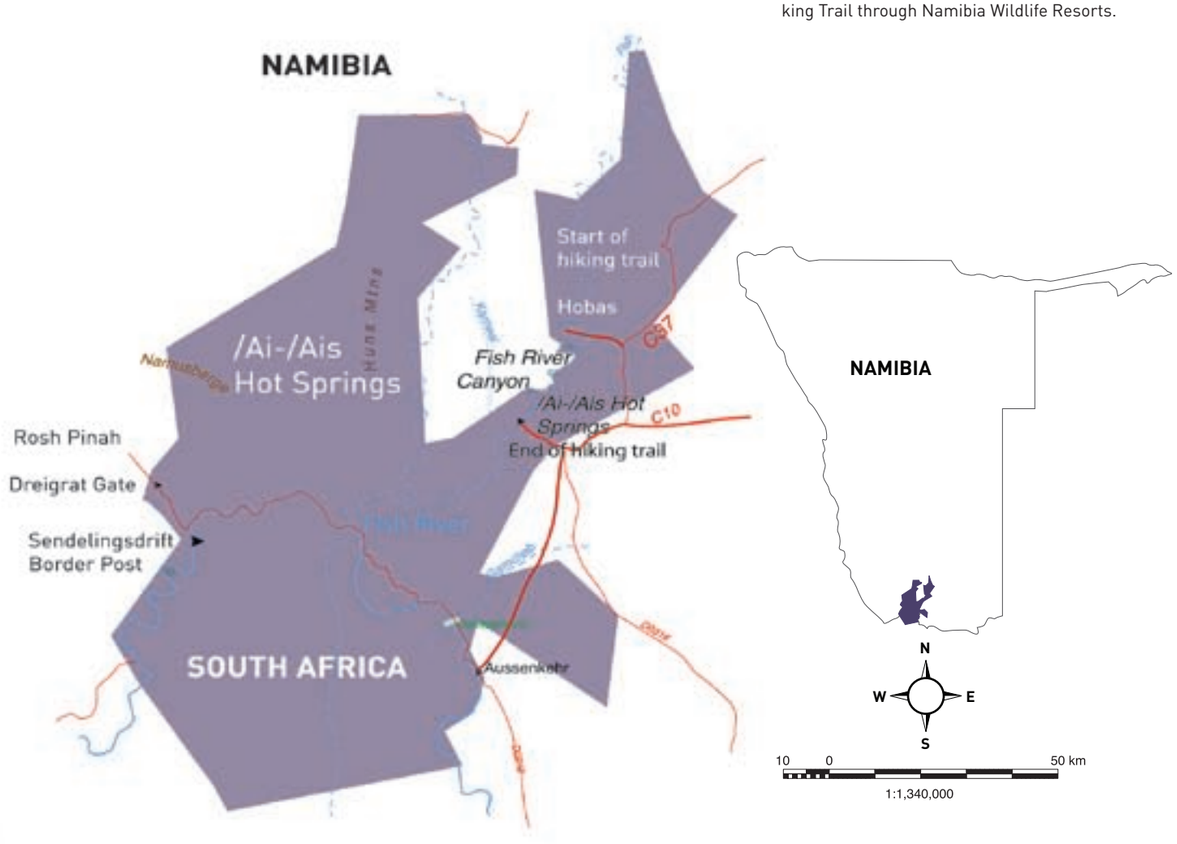
Natural features Mountainous terrain in the west all the way to the Orange River, which forms the southern boundary between Namibia and South Africa, and /Ai-/Ais and Richtersveld national parks. The Fish River Canyon dominates in the eastern section of the park.

Vegetation Succulent Karoo and Nama Karoo Biome. Vegetation type: Desert/Dwarf Shrub Transition, Succulent Steppe, Dwarf Shrub Savannah, Karas Dwarf Shrubland, Riverine Woodland. Quiver tree (*Aloe dichotoma*) maiden's quiver tree (*Aloe ramosissima*), giant quiver tree (*Aloe pillansii*) and halfmens (*Pachypodium namaquanum*).

Wildlife Hartmann's mountain zebra, klipspringer, kudu, leopard, brown hyaena, grey rhebok (rare). The 202 bird species recorded in the park include Little Bittern, Black Stork, Black Harrier, Malachite Sunbird and African Pied Wagtail.

Tourism Hiking. Birding. Spa retreats. Newly renovated accommodation at /Ai-/Ais: Double rooms, premier chalets and camping. Restaurant, bar, spa facilities and swimming pool. Hobas: camping, kiosk, swimming pool. Booking and fitness test essential

king Trail through Namibia Wildlife Resorts.



Key management issues

Mining is the largest challenge to biodiversity in the park, with several areas along the river under Exclusive Prospecting Licences (EPLs). The Ministry of Environment and Tourism is working towards strategies to enforce regulations for rehabilitation and reclamation of mining areas.

Invasive alien species, particularly *Prosopis glandulosa* and wild tobacco (*Nicotiana glauca*), are another challenge. The MET is working with partners to develop plans to control the species.

Other problems include illegal livestock grazing, fishing and park entry.

Future plans

A feasibility study for the development of the Apollo 11 Cave as a tourist attraction is being undertaken. The main viewpoint at the Fish River Canyon is receiving a facelift, with more shade, seating, picnic areas and an information display expected to be completed in mid-2010.

New park gates will soon be opened. The park is set to be part of the larger !Gariep Transfrontier Conservation Area between Namibia and South Africa, aimed at conserving biodiversity in protected areas and on private land.

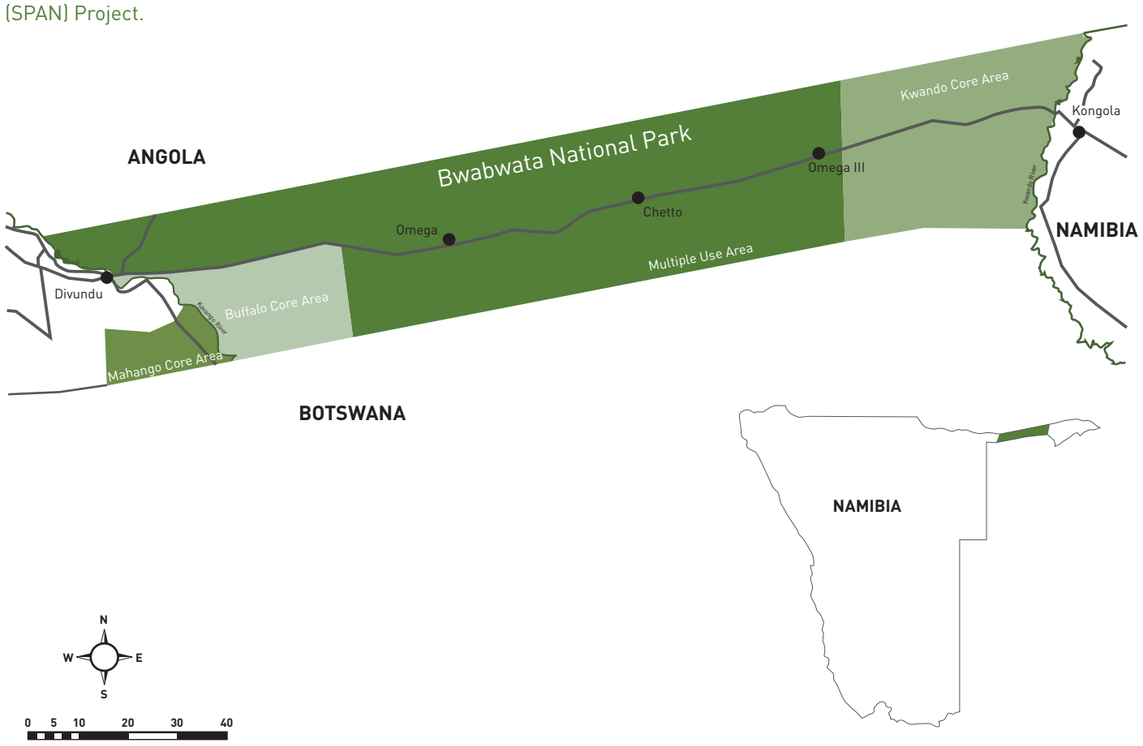
The /Ai-/Ais-Richtersveld Transfrontier Park is dominated by the Fish River Canyon, which took over 600 million years to evolve.

Bwabwata National Park

The park was first proclaimed as the Caprivi Game Reserve in 1966 and upgraded to the Caprivi Game Park in 1968. It was gazetted as the Bwabwata National Park in 2007 and incorporated the former Mahango Game Reserve. The park has had a chequered history as it was declared a military area by the South African Defence Force during Namibia's war of liberation. It was not until after Independence in 1990 that the park could be properly run as a conservation area.

A survey was conducted in the park at Independence to investigate the status of the fauna and flora after the military occupation and to assess the circumstances of the 5 000 people living in it. This survey laid the foundation for the current management approach in the park, which incorporates the needs of the people living there. The survey also laid the foundation for the zoning of the park, which has a core conservation area in the west along the Okavango River, a multiple use area in the central part of the park and a core conservation area in the east along the Kwando River.

Development of infrastructure, provision of equipment and park planning is being supported by the German Development Bank (KfW) through the Bwabwata, Mudumu, and Mamili (BMM) Parks Project and by the Global Environment Fund through the Strengthening the Protected Area Network (SPAN) Project.



The Bwabwata National Park is bordered by the Okavango River to the west and Kwando River to the east where water lilies abound.

Park size 6 100 km²

Proclamation Bwabwata National Park in 2007

Natural features Low vegetated sand dunes with old drainage lines (omurambas) in between. The Okavango River in the west and the Kwando River in the east.

Vegetation Broad-leafed Kalahari woodland with trees such as Zambezi teak and false mopane on the sandy areas, and camel-thorn and leadwood in the omurambas. Reeds and papyrus on the floodplains, which are lined with trees such as jackal-berry, mangosteen, knob thorn and makalani palm.

Wildlife Large concentrations of elephant and buffalo, also sable and roan antelope. Main predators such as lion, leopard, cheetah and hyaena. One of the last refuges of the wild dog in Namibia. Common reedbuck, red lechwe, sitatunga and hippo along the rivers. Birds include Wattled Crane, African Skimmer Western-banded Snake Eagle, Wood Owl, Pel's Fishing Owl, Narina Trogon, Cape Parrot, and both Red-billed and Yellow-billed Oxpeckers.

Tourism Most tourism facilities are outside the park, run by private operators who offer day trips into the park. Two conservancy-operated campsites on the Kwando River: Nambwa (Mayuni Conservancy) and Bum Hill (Kwando Conservancy). The Kyaramacan Association runs N//goabaca Campsite at Popa Falls on the east bank of the Okavango River. Namibia Wildlife Resorts operates the Popa Falls Rest Camp on the west bank of the river. Most tourists are self-drive campers from overseas or within the region or mid-market tourists who stay in lodges outside the park.

Key management issues

One of the main aspects of park management is dealing with the presence of about 5 000 people living in the main village of Omega in the central part of the park and in a number of smaller settlements. Several other ministries operate in these settlement areas, providing services to the residents. The MET is committed to working with the residents in terms of joint wildlife management and benefit sharing. A Technical Committee has been formed consisting of all the main stakeholders in order to advise the MET on management issues. Park residents have formed their own representative body, the Kyaramacan Association. Apart from the N//goabaca Campsite, the association has a concession to build a small lodge and shares the income from a trophy-hunting contract with the Ministry. The association's own community game guards work with MET staff to prevent poaching. Park staff work closely with conservancies, community forests, NGOs and other government departments to jointly manage a larger area of land known as the Mudumu North Complex, which includes the Bwabwata and the Mudumu national parks and the communal land in between.

The park is partially fenced and these fences have to be maintained, particularly because of veterinary controls on the southern boundary that forms the border with Botswana. Tourism needs to be controlled, particularly as there are few tracks, which mostly follow the rivers and which can become congested if there are large numbers of visitors. Poaching is low in the park due to the joint efforts of the MET and the community game guards, although there are sometimes incursions from neighbouring countries. The park is part of the Kavango/Zambezi (KAZA) Transfrontier Conservation Area and co-operation in transboundary conservation management is being promoted, particularly as the park forms a corridor for elephant movement from Botswana into Angola and Zambia. The large concentrations of elephants are opening up the riverine vegetation and destroying habitat for species such as the Chobe bushbuck, the number of which are declining.

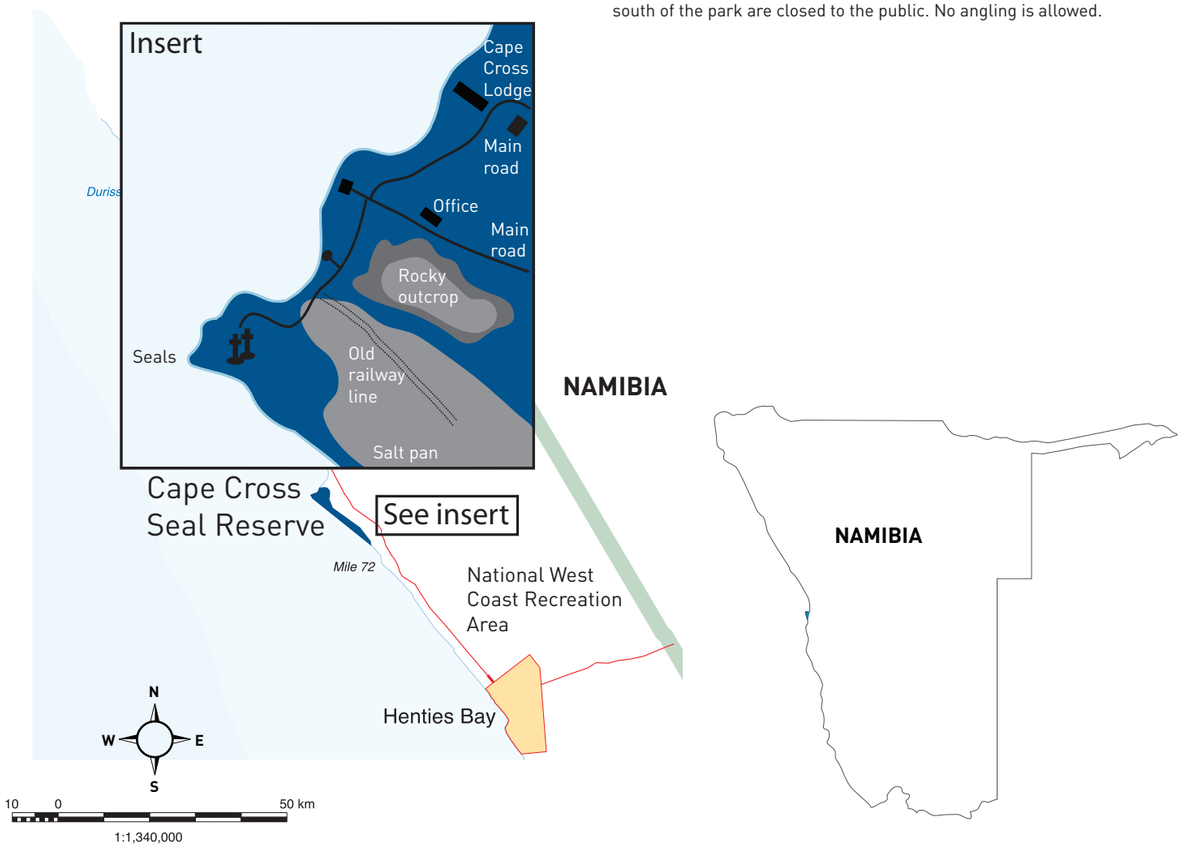
Future plans

Further tourism planning and development supported by the BMM Project will lead to better tourism facilities in the park and better tourism management.

Cape Cross Seal Reserve

Cape Cross has both historic and biological significance and is a popular tourist attraction. The Portuguese navigator, Diego Cão, landed here in 1486 on his second expedition south of the equator and planted a stone cross (*padrão*) to mark his journey. A replica is visible here today. Inclusive of a second replica, the area has been listed as a National Heritage Site. In the late 1800s, thousands of tons of guano (dried excrement of fish-eating birds used as fertiliser) were collected and exported to Europe. South African (Cape) fur seals were also harvested. About 100 workers lived at Cape Cross and a police station, customs and post office were established at the settlement, while a railway – the first in the country – was built to cross the salt pan and transport workers. Many men lost their lives due to the harsh conditions on the Skeleton Coast.

This reserve is a sanctuary for the world's largest breeding colony of South African fur seals, with up to 210 000 seals present during the breeding season in November and December. Sustainable seal harvesting takes place in the reserve annually under the auspices of the Ministry of Fisheries and Marine Resources, which also sets the quota of animals to be harvested.



Park size 60 km²

Proclamation Cape Cross Seal Reserve in 1968

Natural features Rocky bay, sandy beaches, salt pan

Vegetation Central Desert in the Namib Desert Biome. Vegetation: Sparsely vegetated, with dollar (*Zygophyllum stapfii*) and pencil bushes (*Arthraerua leubnitziae*) dominating. A variety of lichens.

Wildlife Brown hyaena, South African fur seal, black-backed jackal. At the guano platforms, Greater and Lesser Flamingo, Grey Phalarope, Damara Tern, Cape Teal, Caspian Tern, Black-necked Grebe and African Black Oystercatcher.

Tourism One of Namibia's most visited parks. New facilities include a walkway enhancing viewing of the seals, information signs along the walkway, renovated picnic areas, five campsites with fireplaces, and timber-plastic wind shields. Accommodation available at a private lodge bordering the park; camping available at Mile 72 and Mile 108. Gateway to the Messum Crater and the Brandberg Mountain to the east and Skeleton Coast Park to the north. Bird platforms in the south of the park are closed to the public. No angling is allowed.

Key management issues

Management discourages visitors from leaving the walkway or wandering beyond the wall between the seals, as the animals take fright and can trample pups during the breeding season. Lichens found on the brittle gypsum crust are easily destroyed by off-road drivers, whose tracks leave long-lasting scars. Visitors are not permitted to enter the reserve from Mile 72 – only the entrance gate from the C34 may be used.

Future plans

Several partnerships with Namibian associations are envisaged to further upgrade facilities. An updated information display is planned for the office. The historic graveyard will be renovated and signage is to be replaced.

The Cape Cross Seal Reserve is a sanctuary for the world's largest breeding colony of South African (Cape) fur seals (Arctocephalus pusillus), *with up to 210 000 seals present during the breeding season in November and December.*

Daan Viljoen Game Park

Just 24 km west of Windhoek lies a sanctuary for a relatively large population of game species typical of Namibia's highlands. Proclaimed before Independence to preserve the ecosystem of the Khomas Hochland, the park was named after a former Administrator, Mr Daan Viljoen, who played a major part in establishing the park.

The convenient location of the Daan Viljoen makes the park an ideal venue for day visits and a perfect stopover for tourists seeking the tranquillity of the bush.

Park size 40 km²

Proclamation Daan Viljoen Game Park 1968

Natural features Khomas Hochland Plateau, scenic views of the Windhoek valley

Vegetation Highland shrubland, with various *Acacia* species, kudu bush (*Combretum apiculatum*) and buffalo-thorn (*Ziziphus mucronata*).

Wildlife Mammals are springbok, kudu, eland, gemsbok, blue wildebeest, Hartmann's mountain zebra, leopard and klipspringer. Of 200 bird species, endemics include Ruppell's Parrot, White-tailed Shrike and Monteiro's Hornbill.

Tourism Rest camp with bungalows, campsite and picnic sites. Game drives, three- and nine-kilometre hiking trails. Booking necessary for a 32-kilometre overnight trail. Accommodation and restaurant currently closed for renovations, but the park is open to day visitors.

Key management issues

Poaching is problematic due to Daan Viljoen adjoining a high-density residential area. The Augeigas River, which runs through the park, is polluted.

Future plans

The park is currently under renovation as a Public Private Partnership (Namibia Wildlife Resorts). Plans include the upgrading of accommodation, camping facilities and the restaurant, while a health and wellness centre and conference facilities are being developed.

The Daan Viljoen Rest Camp is currently being developed as a health resort

Monteiro's Hornbill (Tockus monteiri)

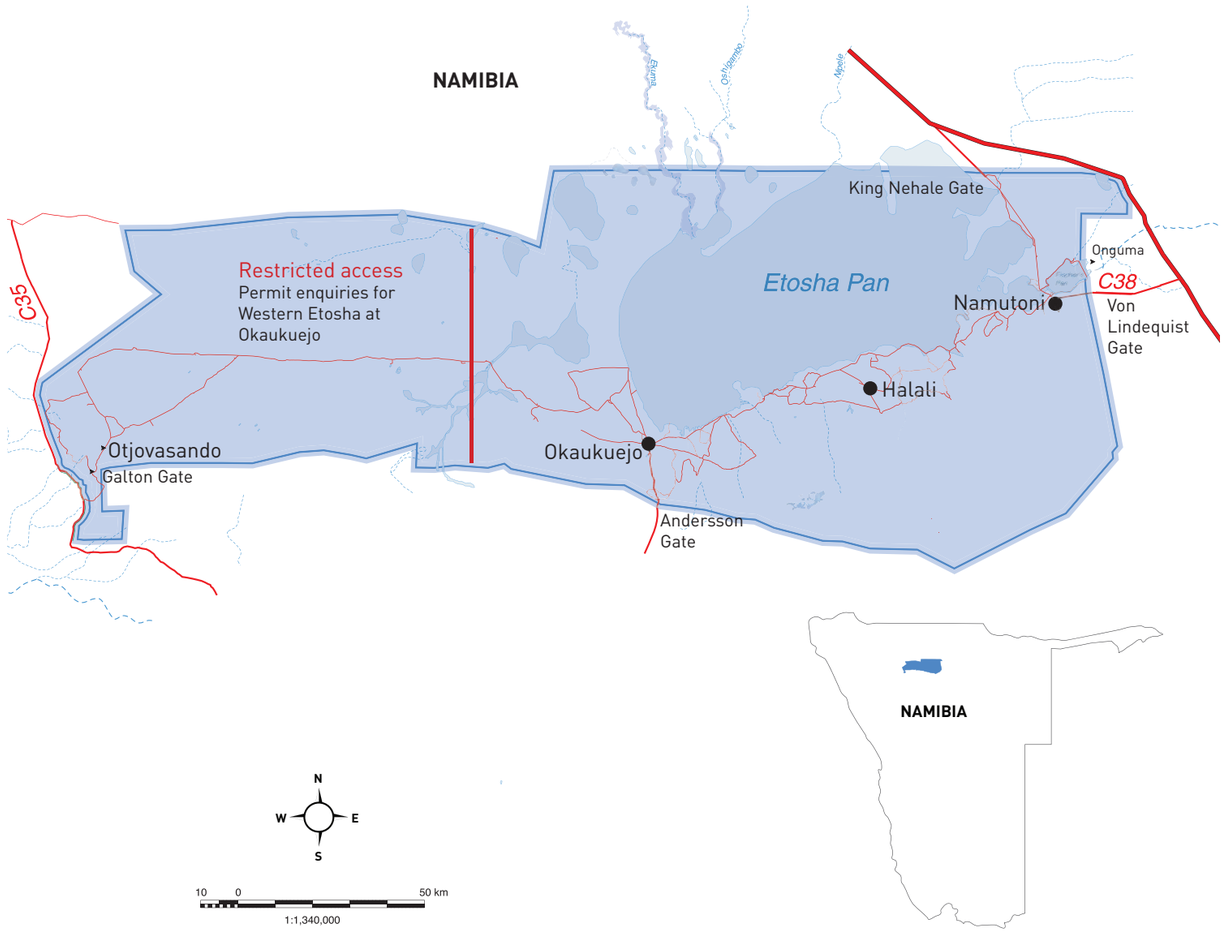
Etosha National Park

One of the greatest game parks in Africa – and one of the oldest – is also Namibia's number-one tourist destination. Home to 114 large and small mammal species, more than 400 recorded bird species, scores of reptiles and even a fish species, Etosha is the country's flagship park. The size of the park has been reduced considerably since it was first proclaimed in 1907, but it still remains larger than several European countries.

The Ondonga name for the pan was *Etotha*, meaning 'the place where no plants grow', but early European traders, unable to pronounce the name, called it 'Etosha'. The pan was once part of the massive Lake Kunene fed by the Kunene River, which at some time in the distant past dried up, leaving the current pan system. Newly excavated fossils belonging to marsh-dwelling antelopes such as sitatunga, lechwe and tsessebe, and a 90-cm long catfish, are testament to much wetter periods.

Etosha has a proud record of black-rhino conservation, and white rhino were recently re-introduced. The park has also played a major role in the recovery of the endemic black-faced impala. The Etosha Ecological Research Institute attracts scientists from around the world.

Etosha's waterholes are famous among international tourists for spectacular game viewing and at the Okaukuejo waterhole at night it is possible to see black rhino, lion and elephant.



Lion (Panthera leo)

Park size 22 935 km² (including Kaross and Khoabendes)

Proclamation Etosha National Park in 1907

Natural features The park is dominated by an expansive salt pan and several smaller pans. Scenic waterholes have abundant game. The veld is flat and open, with the only hills around Halali Rest Camp and in the extreme west of the park.

Vegetation Lakes and Salt Pans, Nama Karoo and Tree and Shrub Savannah biomes. Vegetation type: Karstveld Pans, Western Kalahari, Mopane Shrubland, Etosha Grass and Dwarf Shrubland, North-Eastern Kalahari Woodlands, Western Highlands, Cuvelai Drainage. African moringa tree (*Moringa ovalifolia*) at Fairytale Forest, water-thorn (*Acacia nebrownii*), trumpet-thorn (*Catophractes alexandri*), mopane (*Colophospermum mopane*), purple-pod terminalia (*Terminalia prunoides*).

Wildlife Elephant, black and white rhino, black-faced impala, lion, giraffe, leopard, eland, Burchell's zebra, springbok, blue wildebeest, gemsbok, Damara dik-dik. The 407 bird species recorded include Woolly-necked Stork, Lappet-faced Vulture, Hartlaub's Spurfowl, Carp's Tit, White-tailed Shrike, Ruppell's Parrot, Meyer's Parrot.

Tourism Game viewing. Bird-watching. Photography. Okaukuejo: Premier waterhole chalets, waterhole, family and bush chalets, double rooms. Camping. Restaurant. Bar, kiosk, shop, post office, swimming pool. Flood-lit waterhole, guided morning, afternoon and night game drives. Halali: Family and bush chalets, double rooms. Camping. Restaurant, bar, kiosk, swimming pool. Flood-lit waterhole, guided morning, afternoon and night drives. Nature walks within the camp. Namutoni: Bush chalets, double rooms. Camping. African fusion restaurant, steakhouse, bar, curio shop, jewellers and bookstore within the renovated fort. Swimming pool, flood-lit waterhole. Onkoshi: Low impact, environmentally friendly, only 15 units. No entry without a booking. The western part of the park is restricted to Namibian-registered tour operators only.

Key management issues

Water provision is probably the most important activity in the park. Apart from the few natural springs, most waterholes are artificial and need maintenance. Boreholes are either powered by wind or solar energy. The biggest challenge is usually during spring when game concentration at waterholes is high and it is cloudy, reducing the effectiveness of solar panels. Diesel engines are used to supplement windmills or solar pumps during windless and cloudy days respectively.

At present, poaching levels are low due to community involvement in the Community-based Natural Resource Management Programme. Anti-poaching patrols are conducted by the Wildlife Protection Services by vehicle, on foot and via aerial patrols. Tourist patrols are also conducted, with speeding and not obeying other park regulations problematic.

Fencing teams are constantly challenged to keep up with maintenance and to repair new breaks in the over 800-km perimeter fence.

Maintenance of the gravel roads and firebreaks is carried out by the maintenance team within MET. Firebreaks are graded once a year after the rainy season.

Despite the fencing, animals such as lion, hyaena and elephant leave the park and cause problems on neighbouring farms and communal areas. Staff spend a lot of time trying to resolve human wildlife conflict and holding problem-animal forums with neighbours to share ideas on minimising these conflicts.

Future plans

A business plan, developed during Etosha's centenary year, will be developed and implemented further. Staff will start implementing the recently approved National Policy on Human Wildlife Conflict Management.

Interactive information centres at Halali, Namutoni and Okaukuejo with specific themes will be developed further. These will include interpretive displays, touch screens, auditoriums and other tourist information. The centre at Namutoni will incorporate a museum. Namibia Wildlife Resorts will develop a fifth camp in western Etosha.

Gross-Barmen Hot Springs

A Rhenish mission station was established here in 1844 as one of Namibia's earliest mission stations. The German missionaries named it Neo Barmen after Barmen, the headquarters of the Rhenish Mission Society in Germany.

Situated 25 km west of Okahandja and 100 km from Windhoek, Gross-Barmen is a popular day resort for Namibians and a stopover for tourists. Water from the mineral-rich spring has a temperature of about 65 degrees Celsius, which is cooled to about 40 degrees for the revitalising indoor thermal pool.

Key management issues

Reeds around the dam attract rats and become thick, hampering bird viewing. The area is too small to manage effectively as a game park.

Future plans

Namibia Wildlife Resorts plans to renovate this resort.

Park size 1 km²

Proclamation Gross-Barmen Hot Springs in 1968

Natural features Hot springs

Vegetation Tree and Shrub Savannah Biome.
Vegetation type: Highland Shrubland

Wildlife Kudu, warthog and baboon. The 191 bird species recorded include Rufus-bellied Heron, Dwarf Bittern, Macoa Duck, African Jacana and Palm Swift.

Tourism Thermal hall and outdoor pool. Bird-watching. Camping and bungalows. Conference facilities. Restaurant, kiosk and shop. Ruins of the original mission house still visible.

Gross-Barmen is a popular day resort for Namibians and a stopover for tourists.

Hardap Recreation Resort

Hardap is well known as an angler's paradise, with annual competitions held for enthusiasts. But few know that the small Hardap Game Reserve is a haven for black rhino and that the dam and surroundings accommodate one of Namibia's most strategic Great White Pelican breeding colonies and a thriving freshwater fish institute that is supporting the country's growing aquaculture industry.

Situated about 24 km from the town of Mariental, the Hardap Recreation Resort encompasses Namibia's largest dam, Hardap, which is on the Fish River. Although first investigations were carried out as early as 1897, construction commenced in 1960 and the dam was completed in 1963. It has a capacity of 320 million m³ and a surface area of 25 km².

There is a game park on the southern side of the dam. In 1990 black rhino were translocated from the Kunene Region into this reserve. The Hardap Freshwater Fish Institute provides fish farms, other state-controlled dams and aquaculture projects with fingerlings for breeding and conducts research.

Great White Pelican (Pelecanus onocrolatus)

Key management issues

People from settlements alongside the eastern boundary of the park associated with crop production leave snares in the park for small antelope.

Aging infrastructure (roads) and equipment (vehicles) hamper tourism and park maintenance. The park has a small budget and is not well marketed.

Future plans

There are plans to upgrade the entrance gate and to change the entrance to the game park. The hiking trails will be upgraded. A fact sheet will soon be produced for visitors to the game park.

Park size 252 km²

Proclamation Hardap Recreation Resort in 1968

Natural features Dominated by the Hardap Dam, the Fish and the Groot Komatsas rivers. Open savannah with mountainous areas such as the Gemsbok Plateau.

Vegetation Nama Karoo Biome. Vegetation type: Dwarf Shrubland. Shepherd's tree (*Boscia albitrunca*), camel-thorn (*Acacia erioloba*), green-hair tree (Parkinsonia africana) and buffalo-thorn (*Ziziphus mucronata*).

Wildlife Black rhino, kudu, gemsbok, Hartmann's mountain zebra, springbok, red hartebeest. The 284 bird species recorded here include the Great White Pelican, Yellow-Billed Stork, Osprey, Bradfield's Swift and Stark's Lark.

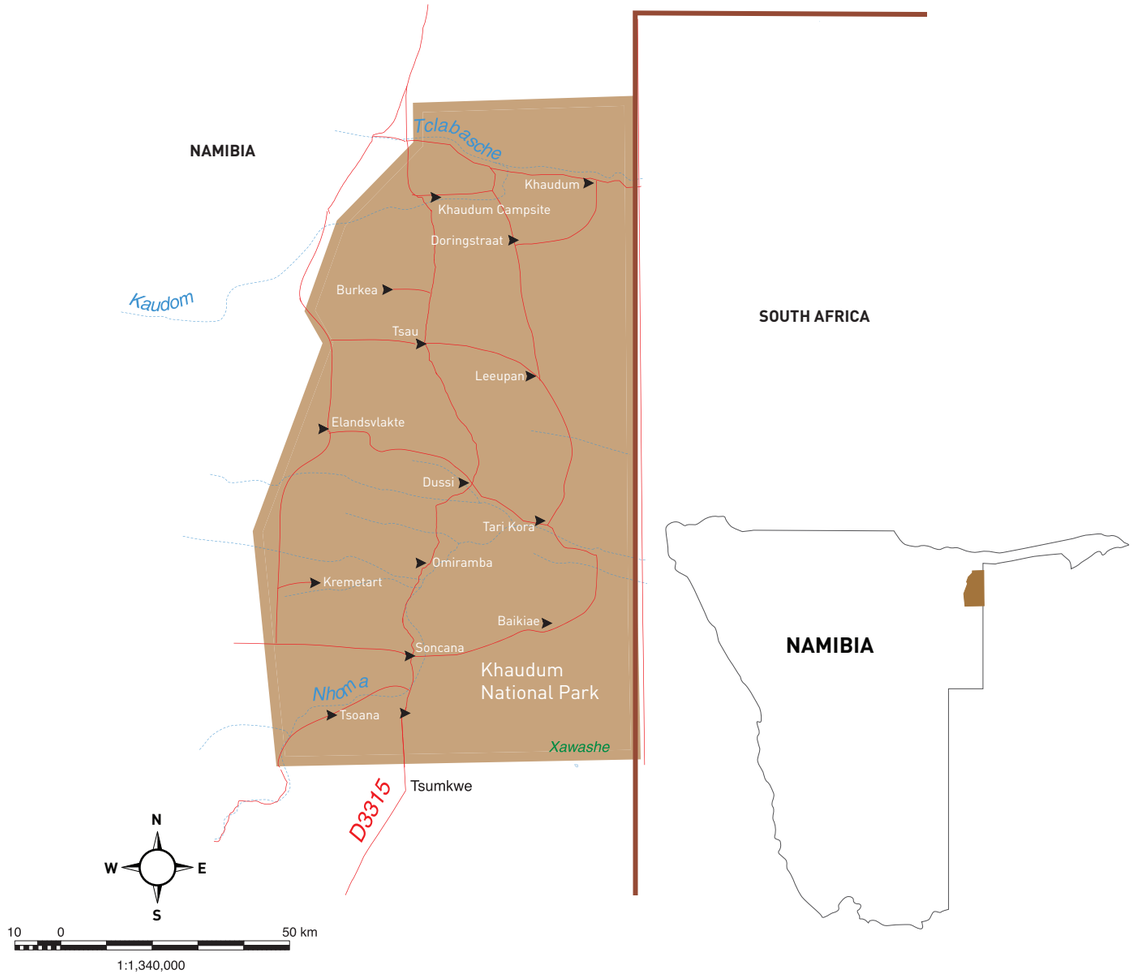
Tourism Fresh-water angling. Water sports and boating, 9-km and 15-km hiking trails. Game drives. Bird-watching. Rest camp with bungalows and caravan park. Restaurant and shop. Aquarium. Angling permits obtained at camp office.

Khaudum National Park

"Khaudum National Park was established with conservation in mind, and not for cash generation. This simple guiding characteristic gave birth to the true wilderness feel that embraces one's soul when visiting the park. It is wild, and we want to keep it like that." Dries Alberts, Warden

Wilderness is indeed the Khaudum's comparative advantage. The park, situated in north-eastern Namibia bordering Botswana, has less than 3 000 visitors annually and there are few tracks through the deep Kalahari sand. More elephants than people frequent the park. It is a refuge for African wild dog and roan antelope. Lion, cheetah and leopard are also found here.

The park is unfenced except along the Botswana border, so game is able to move into neighbouring conservancies. Park staff co-operate with the conservancies in the joint management of the wildlife that moves between the park and neighbouring land.



Roan (Hippotragus equinus)

Park size 3 842 km²

Proclamation Khaudum National Park in 1989

Natural features Kalahari sandveld with omurambas (fossil drainage lines) which act as ideal routes for wildlife.

Vegetation Tree and Shrub Savannah Biome. Dominant trees include leadwood (*Combretum imberbe*), evergreen false mopane (*Guibourtia coleosperma*), various acacia species including camel-thorn trees (*Acacia erioloba*), Zambezi teak (*Baikiaea plurijuga*), tamboti (*Spirostachys africana*) and baobab (*Adansonia digitata*).

Wildlife Elephant, roan antelope, giraffe, eland, tsessebe, reedbuck, lion, African wild dog, leopard, spotted hyaena, ostrich, blue wildebeest, red hartebeest, kudu, gemsbok, warthog, side-striped jackal and various other smaller species. A total of 320 bird species have been recorded, including Ground Hornbill, African Hobby Falcon, Racket-tailed Roller and Bradfield's Hornbill. Summer visitors are Abdim's Stork, Yellow-billed Kite, Steppe and Lesser Spotted Eagles, and African Golden Oriole.

Tourism Game viewing, bird-watching. New camps under construction at Sikeretti and Khaudum. No accommodation currently available due to renovations. Twelve artificial watering holes and two natural fountains. Several game-viewing hides. The MET recommends at least two 4x4 vehicles per party, at least three days' worth of food rations per person and 100 litres of water per vehicle.

Key management issues

Water is the main limiting factor in Khaudum, as underground water sources are limited. The park needs to deliver between 700 000 and 900 000 litres of water per day to meet game consumption needs. This amount will increase rapidly if the elephant population keeps on rising (currently around 3 500). This in turn could spell catastrophe, as antelope species will not be able to compete for water, making death due to thirst likely.

Seventy-two-hour full-moon game counts are conducted in September and October. Specially designed elephant cribs built at waterholes have increased water quality for wildlife, as less water is lost to evaporation and cleaner, better quality water is provided.

Fires enter the park from Botswana and neighbouring communities every year, causing devastating vegetation loss.

Future plans

A concession has been awarded to the Gciriku Traditional Authority and the Muduva Nyangana and George Mukoya conservancies to manage the new camps, to boost support for the park by the local community and to acknowledge that the land was first made available for conservation by the Traditional Authority.

Mamili National Park

Mamili was officially proclaimed on 1 March 1990, just days before Namibia gained Independence. The name of the park refers to the seven chiefs of that name who, since 1864, have ruled over the Mafwe people living in this eastern section of the Caprivi Region. Some refer to the area as Nkasa Lupala Park, in reference to the two dominant islands in the park.

This is the largest wetland area with conservation status in Namibia, and is a haven for wetland species. When the flood waters from the Kwando River are high, Mamili becomes like a mini Okavango Delta. There are close to 1 000 buffalo in Mamili, the largest concentration in the country. It is also an important corridor for elephants moving from Botswana to Angola and Zambia and is considered a core breeding area for wildlife that can disperse into neighbouring conservancies.

Park size 320 km²

Proclamation Mamili National Park in 1990

Natural features Most of the park consists of channels of reed beds, lagoons and termitaria islands. The Kwando River forms the western boundary and the Linyanti River the south-eastern border.

Vegetation Tree and Shrub Savannah Biome. Caprivi Floodplain. Reeds, sedges, and papyrus, wild date palms (*Phoenix reclinata*). Tall trees such as jackal-berry (*Diospyros mespiliformis*) and mangosteen (*Garcinia livingstonei*) along the water edges and on the termitaria.

Wildlife Hippo, crocodile, elephant, buffalo, lion, leopard, hyaena, African wild dog, roan antelope, common impala, red lechwe, reedbuck, sitatunga, kudu, warthog, spotted-necked otter, rock and water monitor lizard. The 430 species of birds recorded, include breeding pairs of rare Wattled Cranes; Slaty Egret, Stanley's Bustard, Rosy-throated Longclaw, Dickinson's Kestrel, Allen's Gallinule, Lesser Jacana, Black-winged and Red-winged Pratincoles, Long-toed Lapwing, Luapula Cisticola, Coppery-tailed Coucal and Black Coucal.

Tourism Mamili provides the ultimate wilderness experience. A 4x4 vehicle equipped with recovery equipment is required. No facilities, so visitors must be self-sufficient. Park fees must be either pre-paid at MET offices in Katima Mulilo or Windhoek or upon arrival. Two designated camping areas – Mparamura (known also as Nzalu), and Lyadura on the banks of the Kwando River. A recently constructed bridge has improved access to this park.

Key management issues

MET staff carry out game monitoring, game counting and anti-poaching patrols within the park. These are hampered by the terrain – during years of flooding, up to 80 per cent of the park is inaccessible by vehicle. Research is needed to ascertain why numbers of red lechwe have dropped. Possibilities include attacks by baboons or predators.

Disturbance of floodplain and grassland species by human activities, particularly those that breed here and disturbance of species using the islands as refuges during flood periods are red flags in management plans. Poaching sometimes occurs, although co-operation with neighbouring conservancies, conservancy game guards and local NGOs helps reduce illegal activities.

Future plans

In accordance with the Strategic Management Plan for Namibia's North-East Parks, Mamili is categorised as a Very Important habitat zone. Tourism activities and developments need to be carefully assessed and planned to retain the natural balance of this wetland eco-region.

A tourism concession will be developed in the park in partnership with neighbouring conservancies in order to boost local support for the park and assist local livelihoods.

A proposal has been put forward for a new, second MET office near Malengalenga that will allow personnel to monitor the east of the park more easily.

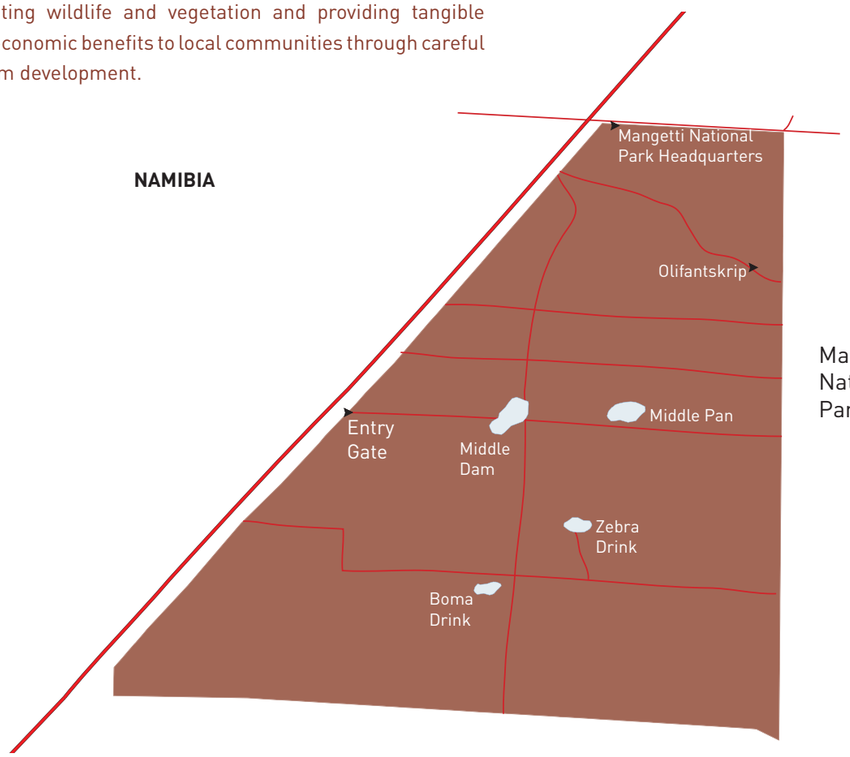
A group of hippopotamus (Hippopotamus amphibius)

Mangetti National Park

"I think it is great that the Mangetti National Park has been proclaimed. Finally it is a dream come true. We are ready to take up the challenges in the management of this new park." Charles Musiyalike, Chief Control Warden for Kavango and Caprivi Wildlife Management, MET

Mangetti is part of a new generation of parks aimed at reducing rural poverty through tourism development, joint management and benefit sharing with local communities. One of Namibia's latest national parks, it has the potential to become a new tourism highlight in the north, while protecting wildlife and vegetation and providing tangible socioeconomic benefits to local communities through careful tourism development.

Situated in the eastern Kalahari woodlands about 100 km south-west of Rundu, the area was previously managed as a game camp for breeding rare and endangered species. The land was originally set aside for conservation by the Ukwangali Traditional Authority.



Mangetti National Park

Sable (Hippotragus niger)

Key management issues

Much work lies ahead to develop the new park. This includes developing park infrastructure such as fencing, water points, park entrance and tourist accommodation.

A Memorandum of Agreement was signed between the MET, Ukwangali Traditional Authority and Kavango Regional Council. Representatives of all three formed the Mangetti Management Committee (MMC), which advises the MET on managing the natural resources sustainably and sharing the income from the park. Training workshops will be held to develop the management capacity of the MMC members and staff.

Future plans

Participatory development of new park management and business plans and the development of a tourism concession for the benefit of local communities are priorities for this park. Once the new infrastructure is completed, the park will be open to the public.

Park size 420 km²

Proclamation Mangetti National Park 2008

Natural features North-west/south-east aligned ancient dunes are a major topographical feature.

Vegetation Tree and Shrub Savannah Biome. Vegetation type: North-Eastern Kalahari Woodlands. Vegetation on dune crests markedly different to that in dune valleys. Kalahari woodland vegetation dominates Mangetti's dune crests, whereas mixed acacia savannah vegetation characterises the dune valleys. Mangetti tree (*Schinziophyton rautanenii*), silver terminalia (*Terminalia sericea*), variable combretum (*Combretum collinum*), *Commiphora* species, camel-thorn (*Acacia erioloba*) and black-thorn acacia (*Acacia mellifera*).

Wildlife Sable antelope, African wild dog, leopard, hyaena, blue wildebeest, gemsbok, kudu, duiker, steenbok, caracal, African wild cat. Occasional elephant and African wild dog. Lapped-faced Vulture, Bateleur, Tawny Eagle, Meyer's Parrot , Striped Kingfisher.

Tourism Currently not open to tourists but overnight facilities are being developed.

Mudumu National Park

Mudumu National Park, one of Namibia's least-known parks, is richly rewarding for adventurous visitors. The main attraction is the riverine habitat of the Kwando River, while inland the Mudumu Mulapo fossilised river course and the dense mopane woodland shelter woodland species. There is no formal entrance gate or park fence – the park is separated from neighbouring communal farmland by a graded cutline.

Mudumu is home to a large elephant population. The park acts as a corridor for these pachyderms as they migrate between Botswana, Zambia, Angola and Zimbabwe.

In recent years, Mudumu has become the model for co-operation between parks and neighbours. The parks, conservancies, community forests and traditional leaders work together on law enforcement, fire management (early burning), game monitoring and translocations. This evolved from the need to manage common resources across unfenced park and conservancy boundaries.

Park size 1 010 km² (737 on cutline)

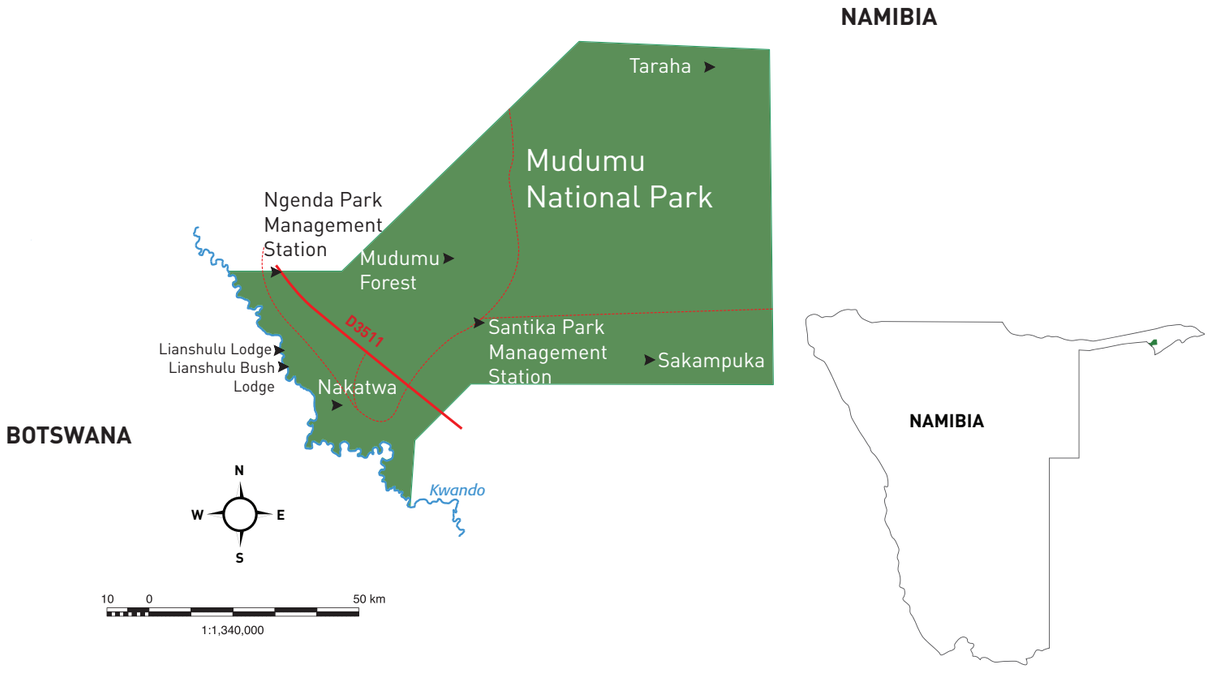
Proclamation Mudumu National Park in 1990

Natural features Kwando River floodplain and associated grasslands, and riparian woodlands. The area is completely flat.

Vegetation Tree and Shrub Savannah Biome. Vegetation type: North-eastern Kalahari Woodlands, Riverine Woodlands and Islands, Caprivi Mopane Woodland and Caprivi Floodplains. Mopane (*Colophospermum mopane*), leadwood (*Combretum imberbe*) and mangosteen (*Garcinia livingstonii*) trees.

Wildlife Elephant, buffalo, lion, leopard, spotted hyaena, cheetah, African wild dog, hippo, crocodile, spotted-necked otter, sitatunga, red lechwe, common impala, Burchell's zebra, sable antelope, eland, wildebeest and giraffe. Tiger fish and tilapia are common fish species. The 430 bird species recorded in Mudumu include African Fish-Eagle, African Skimmer and Western-banded Snake-Eagle.

Tourism Walking, bird-watching, game viewing. Camping at Nakatwa Camp. Visitors must provide their own water, food and fuel. Two privately managed lodges within the park with luxurious accommodation. Located within a high-risk malaria area. Precautions necessary. Note signs indicating 4x4 vehicles. Two vehicles recommended during rainy season. Permits obtainable at the MET offices in Windhoek, Katima Mulilo, Susuwe in Bwabwata National Park and Nakatwa in Mudumu National Park.



Key management issues

Poaching remains a threat due to poverty of surrounding neighbours. Staff conduct monthly anti-poaching patrols within the park, assisted by game guards from neighbouring conservancies.

Fire is a management tool but can be a destructive force. Much of the Caprivi burns each year. An early burning programme (May–July), creates firebreaks for fires in the hot season and provides a 'green bite' for important wildlife species. Increasing numbers of elephants and predators result in human-wildlife conflict, particularly as the park is unfenced.

Future plans

The Ngenda Ranger Station will be developed into park headquarters with a gate entrance and a visitor centre. The existing Nakatwa Ranger Station will be closed and staff relocated to Ngenda. Nakatwa will be developed as an upper/mid-market tourism concession.

Further campsites are to be developed at Mvubu, Balyerwa, Hippo Pool and Maziba.

A group of elephant (Loxodonta africana)

Namib-Naukluft Park

Namibia's largest conservation area contains some of the country's most iconic attractions: towering sand dunes at Sossusvlei, the imposing canyon at Sesriem, forgotten shipwrecks and ghost towns along the icy Atlantic coast, stark inselbergs and mountain ranges, and lichen-encrusted gravel plains.

Evidence of Stone Age life in the Kuiseb River dates back 200 000 years. Other archaeological finds indicate that the area was used by semi-nomadic communities when rain provided enough grazing for animals. The Topnaar people still live along the Kuiseb River inside the park and were guaranteed rights of residence by Queen Victoria more than a century ago.

Sandwich Harbour thrived as a harbour and guano collection station, while several settlements were established along the coast after the discovery of diamonds in 1908.

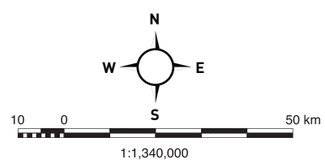
Shipwrecks to be found along the coast include the Otavi at Spencer Bay, the Eduard Bohlen at Conception and the Eagle at Sandwich Harbour.

The Namib Desert Park was proclaimed in 1907 as Game Reserve No 3 by German Governor Friedrich von Lindequist – initially as a buffer zone to restrict English sovereignty to Walvis Bay. The Naukluft section was created to serve as a sanctuary for Hartmann's mountain zebra, which are endemic to Namibia. The amalgamation of these two parks with state land was proclaimed as the Namib-Naukluft Park in 1979. The most significant change in boundaries occurred in 1986 when the old Diamond Area No 2 and a portion of Diamond Area No 1 were incorporated into the park.

Much research on the desert environment has been conducted in the Namib-Naukluft Park, due to the establishment of the Gobabeb Training and Research Centre on the banks of the Kuiseb River.

In recent years, the discovery of uranium has resulted in the issuing of exclusive prospecting licences in most of the western part of the park north of the Kuiseb River, while the Langer Heinrich Uranium Mine has been established within the park.

Celebrations were held in 2008 to mark the 101st birthday of the park. Rhino were long extinct at Namib-Naukluft and attempts to reintroduce them in the 1970s were unsuccessful. However, the park received several black rhino during its centenary year in 2007 and the population is thriving.



Much research on the desert environment has been conducted in the Namib-Naukluft Park.

Key management issues

Tourism management at Sesriem is a challenge, with an average of 70 000 visitors annually. There is one uranium mine in the park, and six prospecting concessions. These require monitoring and inspections, with rehabilitation of mined and prospected areas. Fifty-two campsites are maintained in the Central Namib section, presenting a constant challenge to staff. The newly introduced rhino population requires constant monitoring. Initial fencing of the park commenced in 1969. The park is currently fully fenced and requires much maintenance.

Future plans

The Tsondap Training Centre is currently being developed and will be used mainly as a centre for the Ministry of Environment and Tourism.

The 36 active water installations in the park are being upgraded to solar installations.

Park size 49 768 km²

Proclamation Namib-Naukluft Park in 1979 (amalgamation of the Naukluft Mountain Zebra Park, 1968, the Namib Desert Park, 1907, and state land)

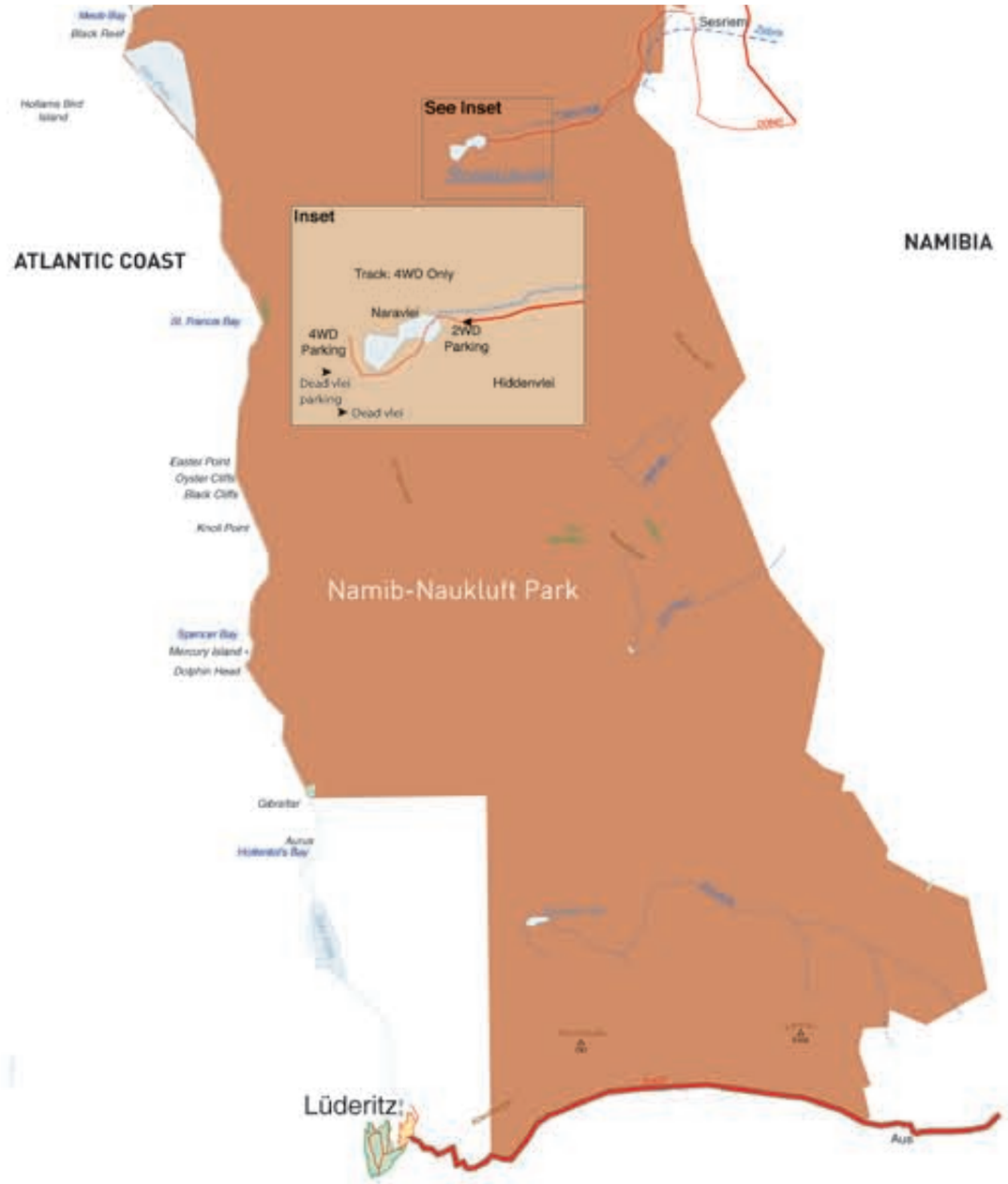
Natural features Sand dunes, Sesriem Canyon, gravel plains, Naukluft Mountains and inselbergs in the north, ephemeral rivers.

Vegetation Namib Desert, Succulent Karoo and Nama Karoo biomes. Vegetation types: Southern Desert, Central Desert, Desert/Dwarf Shrub Transition, Central-Western Escarpment and Inselbergs, Succulent Steppe, Dwarf Shrub Savannah. Welwitschia (*Welwitschia mirabilis*), camel-thorn (*Acacia erioloba*), shepherd's tree (*Boscia albitrunca*), lichens and *Commiphora* spp.

Wildlife Gemsbok, Hartmann's zebra, black rhino, giraffe, springbok, brown hyaena, leopard, baboon. The 348 bird species recorded include Lappet-faced Vulture, Ludwig's Bustard, Rüppell's Korhaan, Dune Lark, Herero Chat and African Black Oystercatcher.

Tourism Walking trails, 4x4 routes, photography, bird-watching, star-gazing, angling. Sesriem Camp: Campsite with kiosk, bar and swimming pool. Sossus Dune Lodge: desert chalets, honeymoon suites. Restaurant, bar, swimming pool. Sossusvlei sunset drives. Guided nature drives, stargazing and walks to the Sesriem Canyon. Naukluft Campsite: Campsites, 4x4 trail, hiking trails, nature walks, bird-watching. Central Namib: fifty-two campsites. Day trips to Sandwich Harbour.

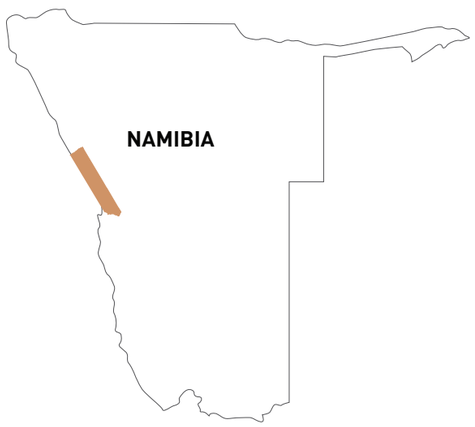

Arandis
Wlotzkasbaken
Swakopmund
Moon Landscape
Welwitschia plains
Pelican Point
Walvis Bay
Vogelfederberg
Gaub
Kuiseb Canyon
Kriess se Rus
Sandwich Harbour
Mirabib
Gobabeb
Zebra Pan
Homeb
Black Cliff
Conception Bay
Solitaire
Namib-Naukluft Park
Bullsport


See Inset
Inset
Track: 4WD Only
Naravlei
4WD Parking
2WD Parking
Dead vlei parking
Dead vlei
Hiddenvlei
ATLANTIC COAST
NAMIBIA
Namib-Naukluft Park
Gibraltar
Lüderitz
Aus

National West Coast Recreation Area

This area is known as an angler's paradise, with kabeljou, galjoen and steenbras the most prized species. But it also contains a few surprises. Extensive lichen fields are found north of Wlotzkasbaken and Cape Cross, while the Messum Crater in the north contains San rock paintings and archaeological sites from Damara nomads.

It is bordered to the north by the Ugab River and the Skeleton Coast Park. The Omaruru River bisects it, while the Swakop River is situated just south of its boundary. The towns of Henties Bay and Swakopmund are found within its boundaries, along with the hamlet of Wlotzkasbaken. The Cape Cross Seal Reserve is a separate reserve in the northern section of the area.



Park size 7 800 km²

Proclamation National West Coast Recreation Area in 1973

Natural features The Atlantic coastline, gravel plains, sandy beaches with dune hummocks. Extensive lichen fields.

Vegetation Namib Desert Biome. Vegetation type: Central Desert. Pencil bush (*Arthraerua leubnitzia*), dollar bush (*Zygophyllum stapfii*), lichens, shepherd's tree (*Boscia albitrunca*), welwitschia (*Welwitschia mirabilis*).

Wildlife Springbok, black-backed jackal, Cape fur seal, brown hyaena, gemsbok. The 270 bird species recorded)amara Tern, Ludwig's Bustard, Rüppell's :an Black Oystercatcher, Gray's Lark.

ng, camping, walking. There are four campsites :t at Mile 14, Jakkalsputz, Mile 72 and Mile 108. rently under renovation and development by a partnership through Namibia Wildlife Resorts. 'alking Trail (18 km) and 20- and 70-km walking trails in River. Contact the Henties Bay Municipality for further :ape Cross Seal Reserve (see Cape Cross profile).

Key management issues

Off-road driving is a major concern, particularly with regard to uncontrolled use of 4x4 vehicles and quad-bikes. This leads to physical degradation and the destruction of unique habitats, especially of highly fragile lichen fields and breeding areas of endangered species, such as Damara Terns.

Tracks leave scars that can remain for centuries, affecting the aesthetic qualities of the dunes and the surrounding gravel plains, reducing the attractiveness of the area as a recreational destination. Littering of the beaches and the desert due to increasing tourism is a general problem. Camping outside of designated areas occurs during peak holiday periods.

Future plans

The status of the area will be upgraded to that of a national park, and will be managed with the Walvis Bay and Swakopmund area, which will also be proclaimed. This will result in the creation of a mega-park, protecting the entire Namibian coastline.

Crustose lichen (Caloplaca elegantissima). *Over a hundred lichen species have been identified in the Namib Desert.*

Naute Recreation Resort

The Naute Recreation Resort surrounds Namibia's second largest dam, the Naute. The dam was constructed from 1970 to 1972 to capture the Löwen River and its tributaries, which later feed into the Fish River. The resort is situated about 42 km south-west of Keetmanshoop and supplies the town with water. A successful irrigation project was initiated below the dam wall in 1991 and date palms and grapes are currently cultivated here. A small game reserve surrounds the dam.

Key management issues

Littering, chopping of trees and disturbance to game and birds by humans is a problem. MET staff do not have jurisdiction in all areas of the park. People enter illegally to reach angling areas. Poaching has been a problem in the past due to secondary roads bordering the park. Snares and traps are sometimes found, but good law enforcement has controlled poaching. The staff infrastructure is limited. There is no permanent electricity supply and water is transported 15 km by vehicle.

Future plans

Possible management with the neighbouring Gawachab Conservancy is envisaged, as well as the development of a 600-hectare area on the southern bank for tourism purposes.

Park size 225 km²

Proclamation Naute Recreation Resort in 1988

Natural features Dominated by grassy plains with small shrub species. Trees grow in river washes. The dam has several sandy shores, shallow bays and islands.

Vegetation Nama Karoo Biome. Vegetation types: Dwarf Shrub Savannah, Karas Dwarf Shrubland. Camel-thorn (*Acacia erioloba*), sweet-thorn (*Acacia karroo*), water acacia (*Acacia nebrownii*), wild tamarisk (*Tamarix usneoides*), trumpet-thorn (*Catophractes alexandri*) and quiver tree (*Aloe dichotoma*).

Wildlife Gemsbok, springbok, klipspringer, steenbok, duiker. The 164 bird species recorded include African Spoonbill, South African Shelduck, African Fish-Eagle, African White Pelican.

Tourism Camping, angling and boating permits are obtained from the MET. Campsites with ablution facilities and a kiosk (under NamWater concession). With the exception of a small area along the southern bank of the dam, the game park is closed to the public.

The Naute Dam was constructed from 1970 to 1972 to capture the Löwen River and its tributaries, which later feed into the Fish River.

Popa Game Park

Namibia's smallest game park is big on birds, with more than 400 species recorded here.

The park conserves a small patch of riverine forest on the west bank of the Okavango River and on small islands. The course of the river is interrupted by a quartzite ledge, creating a four-metre-high series of rapids, known as the Popa Falls, before the river continues on its journey to Botswana and the Okavango Delta.

The Popa Game Park is a popular stepping-stone for tourists visiting nearby protected areas such as the Khaudum National Park, the Buffalo and Mahango areas of the Bwabwata National Park and, a bit further afield, the Mudumu and Mamili national parks in the Caprivi Region. A small rest camp and campsite provide the ideal base for visiting Mahango, just 14 km to the south.

Key management issues

Although proclaimed a game park, the area is extremely small and is managed by Namibia Wildlife Resorts.

Park size 0.25 km²

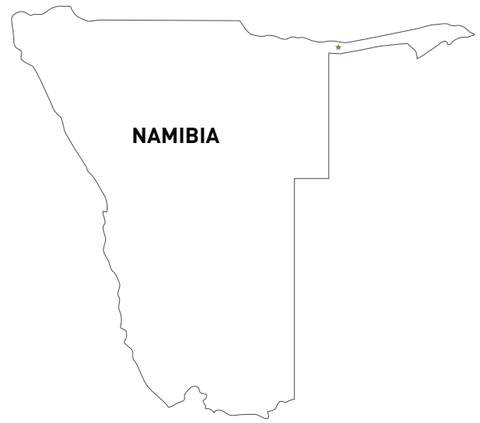
Proclamation Popa Game Park in 1989

Natural features Lush vegetation, extensive lawns, riverine forest, the Popa Falls (rapids) on the Okavango River.

Vegetation Tree and Shrub Savannah Biome. Vegetation type: Okavango Valley. Trees include jackal-berry (*Diospyros mespiliformis*) and knob-thorn (*Acacia nigrescens*).

Wildlife Crocodile, hippo, vervet monkey, broad-head catfish and oscillated spiny eel. The 417 bird species recorded here include Slaty Egret, Saddle-billed Stork, Bat Hawk, Western Banded Snake-Eagle, Collared Pratincole and Heuglin's Robin.

Tourism Bird-watching. Angling. Walking. Rest camp with bungalows. Day visits to Buffalo, Mahango. Communal kitchen and ablution facilities. Restaurant and kiosk. Several nearby lodges offer boat trips.



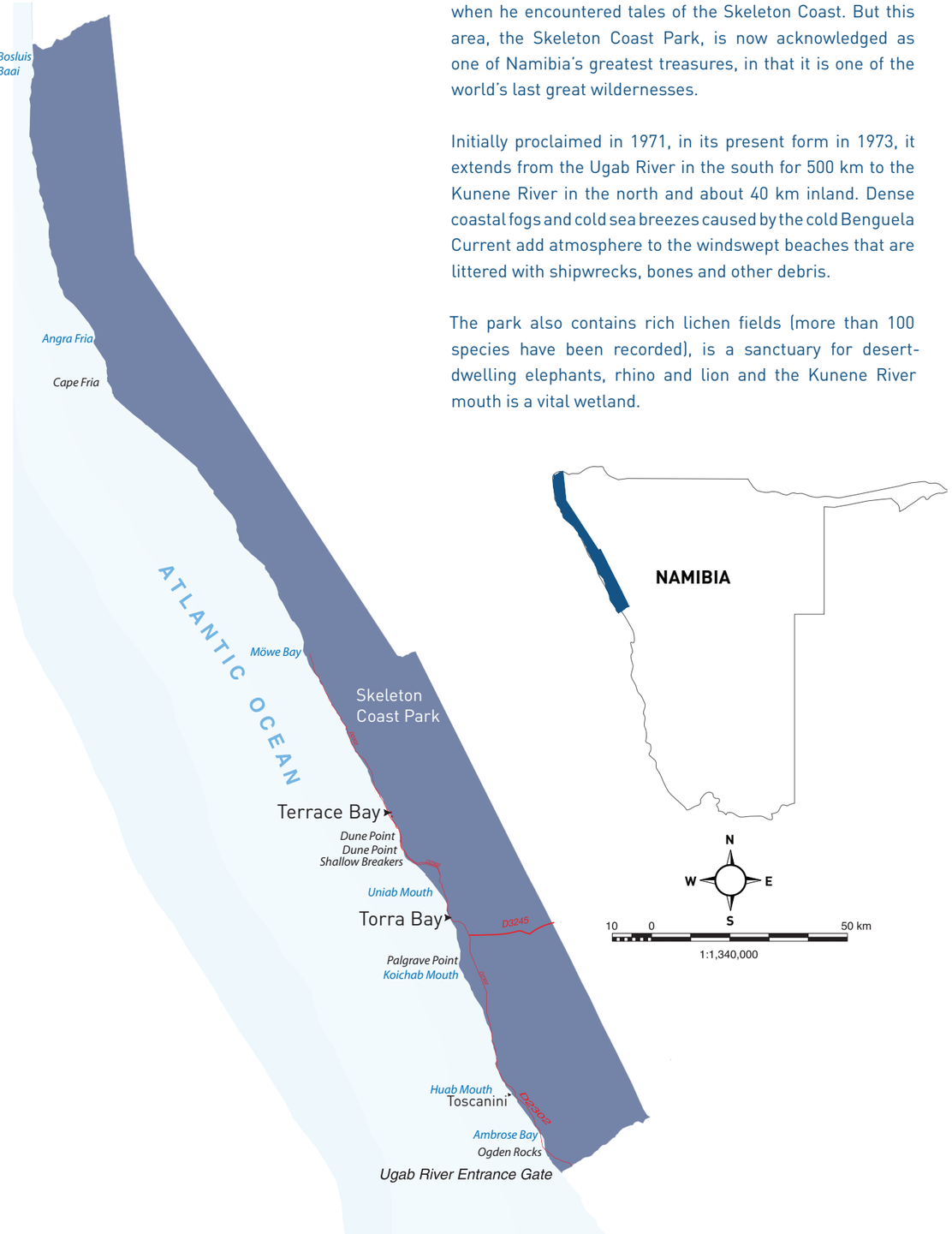
The Popa Game Park is a popular stopover for tourists visiting nearby protected areas.

Skeleton Coast Park

"Death would be preferable to banishment to such a country," declared the early Swedish explorer Charles John Andersson when he encountered tales of the Skeleton Coast. But this area, the Skeleton Coast Park, is now acknowledged as one of Namibia's greatest treasures, in that it is one of the world's last great wildernesses.

Initially proclaimed in 1971, in its present form in 1973, it extends from the Ugab River in the south for 500 km to the Kunene River in the north and about 40 km inland. Dense coastal fogs and cold sea breezes caused by the cold Benguela Current add atmosphere to the windswept beaches that are littered with shipwrecks, bones and other debris.

The park also contains rich lichen fields (more than 100 species have been recorded), is a sanctuary for desert-dwelling elephants, rhino and lion and the Kunene River mouth is a vital wetland.



Park size 16 390 km²

Proclamation Skeleton Coast Park in 1971

Natural features The Atlantic Ocean, with sandy and pebble beaches, sand dunes, ephemeral riverbeds and canyons to rugged canyons with walls of richly coloured volcanic rock and extensive mountain ranges.

Vegetation Namib Desert Biome. Vegetation type: Northern Desert, Central Desert, North-Western Escarpment and Inselbergs. Lichens, dollar bush (*Zygophyllum stapfii*), narra plant (*Acanthosicyos horridus*), vygies (*Mesembryanthemum* sp) on plains. In dry riverbeds makalani palm (*Hyphaene petersiana*), wild tamarisk (*Tamarix usneoides*) and mopane trees (*Colophospermum mopane*).

Wildlife Desert-dwelling elephant, lion and black rhino. Cheetah, crocodile, springbok, Hartmann's zebra, gemsbok, Heaviside's dolphin, green turtle. The 306 bird species recorded here include Greater Flamingo, Lesser Flamingo, Lappet-faced Vulture, Rüppell's Korhaan and Gray's Lark.

Tourism Photography. Game viewing. Angling. A fishing licence must be obtained before entering the Skeleton Coast Park. Double rooms and one beach chalet, restaurant, bar and freezing facilities at Terrace Bay. Entrance only with a booking. Camping at Terrace Bay is permitted only during December and January. Booking essential. An exclusive fly-in tourism concession for the northern section of the park is currently under review.

Key management issues

There are several mining concessions in the park and monitoring of activities by concession holders is problematic. Off-road driving leaves scars that can remain for centuries. Uncontrolled access into the park for angling is sometimes a problem.

Future plans

Much of the area was previously under the old borders of the Etosha National Park. Advanced negotiations are underway with neighbouring communal area conservancies and tourism concessions to form a larger conservation area that will link the Skeleton Coast Park with the Etosha National Park.

The Skeleton Coast Park is now acknowledged as one of Namibia's greatest treasures in that it is one of the world's last great wildernesses.

South West Nature Reserve

The South West Nature Reserve, better known as the National Botanical Garden, is located in the heart of Windhoek. The area was originally earmarked as a nature park, but lack of funding resulted in this project not materialising. In 1990, the National Botanical Research Institute (NBRI) moved into the buildings adjacent to the reserve and developed the area as a botanical garden funded by the Ministry of Agriculture, Water and Forestry (MAWF), to which the NBRI belongs.

The garden is aimed at protecting and promoting the sustainable use of Namibian flora, with an emphasis on education and recreation. Most of the garden has not been landscaped. This is to conserve water and present plants in their natural environment, allowing visitors to learn about indigenous vegetation and water-wise gardening.

The Desert House, where fascinating plants from the Namib Desert are displayed, was added in 2007. Other features include a dense stand of the Windhoek aloe (*Aloe littoralis*), the symbol of the city of Windhoek and the Lily Walk, which attracts visitors when the plants are in bloom during April.

Windhoek aloe (Aloe littoralis)

Key management issues

Funding is a challenge, as well as staffing. The gardens should be open to the public during weekends and have more flexible opening hours, but as a government entity, this is difficult to achieve.

Park size 0.12 km²

Proclamation South West Nature Reserve 1970

Natural features Koppies characteristic of Windhoek with indigenous vegetation.

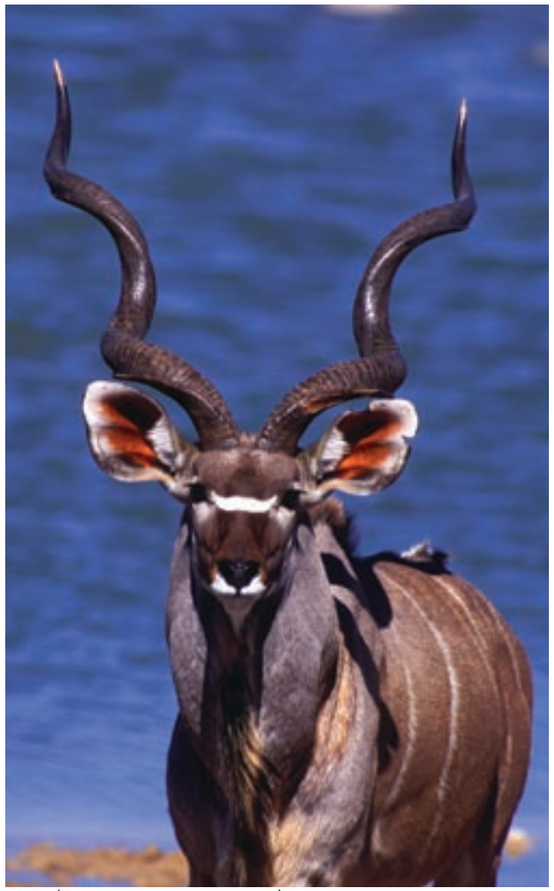
Vegetation Tree and Shrub Savannah Biome. Vegetation type: Highland Shrubland. More than 200 plants species in the gardens, and 365 plant species in the Desert House. Quiver tree (*Aloe dichotoma*), bottle tree (*Pachypodium lealii*), stone plants (*Lithops* spp) Bushman's candle (*Sarcocaulon patersonii*), halfmens (*Pachypodium namaquanum*).

Wildlife Rock hyrax, variety of small mammals and reptiles. Seventy-five bird species recorded, including White-tailed Shrike, Monteiro's Hornbill, Rockrunner.

Tourism Self-guided walking trails. Common plants are labelled. Bird and plant lists available at reception. Picnic area. Open Monday to Friday, from 8:00 until 17:00 plus every first Saturday of the month from 8:00 to 11:00.

Von Bach Recreation Resort

This is one of three resorts to be created around strategic dams in Namibia, and is also one of three gazetted resorts within 100 kilometres of Windhoek. Popular with water-sport enthusiasts and anglers, Von Bach is the country's third-largest dam and was proclaimed in 1972. It currently supplies the City of Windhoek with about half of its water for consumption purposes. A small game reserve surrounds the dam.



Kudu (Tragelaphus strepsiceros)

Key management issues

Poaching and firewood collection by residents of neighbouring informal settlements are problematical. Anti-poaching horse patrols have been introduced to help control poaching.

Future plans

A public private partnership is upgrading facilities such as the existing bungalows, shop, ablution facilities and employee's quarters and developing a wellness centre.

Park size 43 km²

Proclamation Von Bach Recreation Resort in 1972

Natural features Fringed by the Auas Mountains and belonging to the Swakop River drainage system.

Vegetation Tree and Shrub Savannah Biome. Vegetation type: Thornbush Shrubland, Highland Shrubland. Yellow-bark acacia (*Acacia erubescens*), black-thorn (*Acacia mellifera*), sweet-thorn (*Acacia karroo*) and red bushwillow (*Combretum apiculatum*).

Wildlife Hartmann's zebra, red hartebeest, gemsbok, common impala, giraffe, kudu and warthog. The 187 bird species recorded include Violet Wood-Hoopoe, Black Stork, Orange River Francolin, Rüppell's Parrot and Bradfield's Swift.

Tourism Water sports. Angling – permits necessary. Picnic sites. The overnight facilities are currently being upgraded.

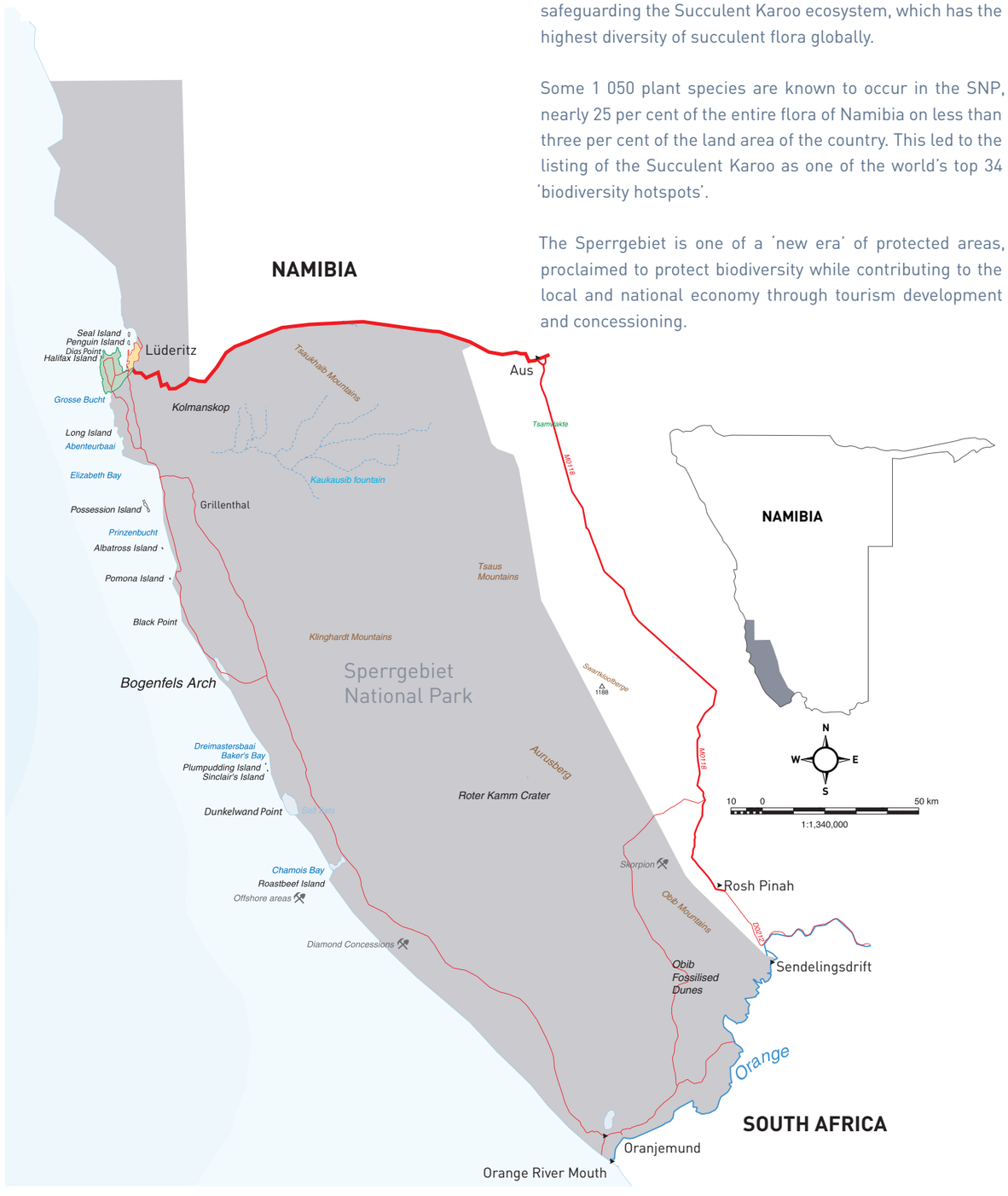
Sperrgebiet National Park

From giant rock arches, meteor craters, fossil and archaeological sites to Africa's most important shipwreck discovery and some of the most pristine and wild landscapes on the planet, the newly proclaimed Sperrgebiet National Park (SNP) is a jewel in Namibia's protected area network.

Closed to the public following the discovery of a diamond at Kolmanskop near Lüderitz by the railway worker, Zacharias Lewala, in 1908, large parts of the Sperrgebiet were left undisturbed for nearly a century. Although this was done to protect the mineral wealth of the area, it also contributed to safeguarding the Succulent Karoo ecosystem, which has the highest diversity of succulent flora globally.

Some 1 050 plant species are known to occur in the SNP, nearly 25 per cent of the entire flora of Namibia on less than three per cent of the land area of the country. This led to the listing of the Succulent Karoo as one of the world's top 34 'biodiversity hotspots'.

The Sperrgebiet is one of a 'new era' of protected areas, proclaimed to protect biodiversity while contributing to the local and national economy through tourism development and concessioning.



Park size 22 000 km²

Proclamation Sperrgebiet National Park in 2008

Natural features Sandy shores along the coast in the south and rocky headlands and inlets in the north. At least 17 'islands' occur off the coast adjoining the SNP. Sandy and gravel inland plains, sand dunes, mountain ranges and inselbergs and the Orange River valley.

Vegetation Succulent Karoo, Namib Desert and Savannah biomes. Vegetation types: Succulent Steppe, Southern Desert, Riverine Woodland. Quiver tree (*Aloe dichotoma*), many-stemmed quiver tree (*Aloe ramosissima*), vygies (*Mesembryanthemum* sp), *Hoodia* and *Euphorbia* spp. Sweet-thorn (*Acacia karoo*), camel-thorn (*Acacia erioloba*) along riverbeds.

Wildlife Brown hyaena, gemsbok, springbok, South African fur seal, grey rhebock, Heaviside's dolphin, southern right whale. Almost 60 wetland birds along the Orange River and 120 terrestrial bird species recorded. African Penguin, Cape Gannet, Bank Cormorant, Purple Heron, Lappet-faced Vulture, Karoo Korhaan, Ludwig's Bustard, Cape Francolin. Almost 100 reptile species; 16 frog species and a great number of insects and other invertebrates, probably 90 per cent or more of the invertebrates found in the park have not been described by science.

Tourism Restricted access. Museum at Kolmanskop Ghost Town open to the public. One concession to Pomona Ghost Town and Bogenfels Rock arch from Lüderitz (day tour).

Key management issues

Management and tourism plans for the park are at an advanced stage of development. The park has been zoned in accordance with IUCN guidelines for Protected Area Management Categories. Close ties have been forged with partners and stakeholders such as mining companies and the business community. The MET has established stations adjacent to the park, and patrol camps and radio repeater stations for easier communication between staff members.

Future plans

Tourism concessions have been identified and will be developed. These include desert-experience and ghost-town tours and Orange River boating and kayaking. All planned activities will be guided by the concession operators. A co-management strategy and forging of joint planning will be explored with the newly proclaimed Marine Protected Area off the coast of the park.

A spectacular feature in the Sperrgebiet National Park is the 55-metre-high Bogenfels rock arch.

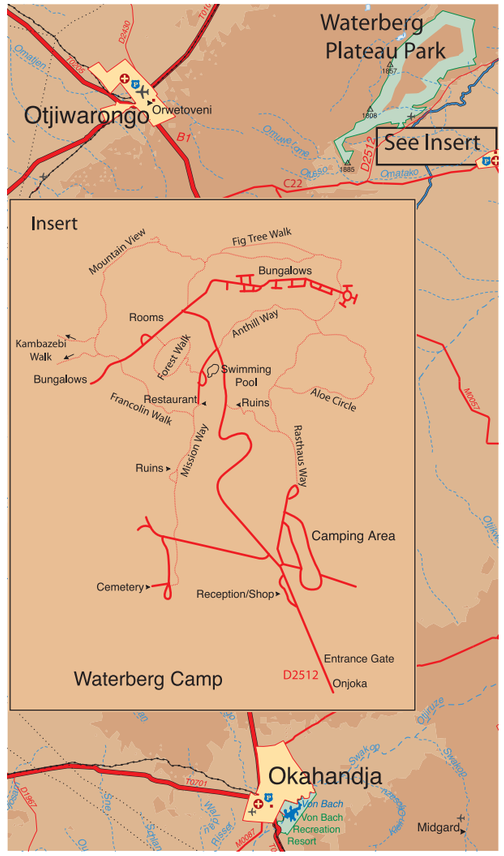
Waterberg Plateau Park

Towering sandstone cliffs, dinosaur footprints, mysterious rock engravings and some of Namibia's most rare and valuable game species are synonymous with the Waterberg Plateau Park.

In 1904, Waterberg was the scene of a battle between Herero warriors and German colonial forces. The Herero fighters suffered a bitter defeat against their oppressors and thousands of lives were lost in the ensuing retreat across the Omaheke Region into Botswana.

Proclaimed as a sanctuary for rare and endangered game species, Waterberg has played a vital role in breeding species for the restocking of other parks and conservation areas. The area is also home to the last remaining population of Cape Vultures in Namibia.

The park has been zoned into management areas for wilderness, trophy hunting and tourism. The Bernabé de la Bat Rest Camp is one of Namibia's most visited resorts, while thousands of surrounding community members receive training at the Okatjikona Environmental Education Centre annually.



Park size 405 km²

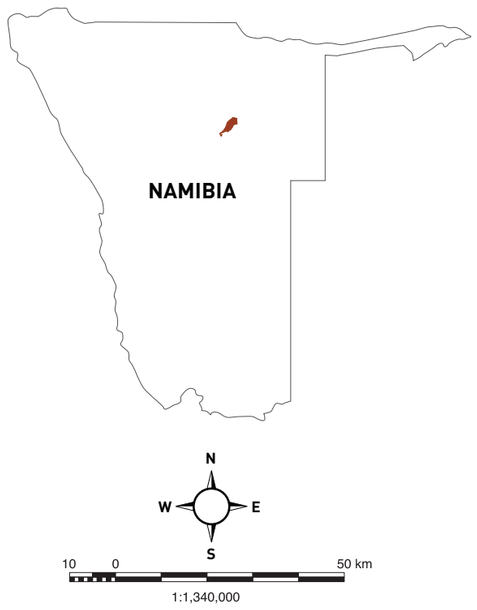
Proclamation Waterberg Plateau Park in 1972

Natural features A 50-km-long porous sandstone mountain with abundant game, unique vegetation and a series of permanent springs at the foot of the plateau.

Vegetation Tree and Shrub Savannah Biome. Vegetation type: Northern Kalahari, Thornbush Shrubland. Leadwood tree (*Combretum imberbe*), silver terminalia (*Terminalia sericea*), kudu bush (*Combretum apiculatum*), a variety of acacias (*Acacia erioloba, A. erubescens* and *A. tortilis*), laurel fig (*Ficus ilicina*) and about 140 lichen species.

Wildlife Black and white rhino, buffalo, roan and sable antelope, eland, tsessebe, leopard, side-striped jackal. More than 200 bird species, including Hartlaub's Francolin, Rüppell's Parrot, Bradfield's Swift, Monteiro's Hornbill, Bradfield's Hornbill, Carp's Black Tit, Rockrunner, Cape Vulture.

Tourism Rest camp with bungalows and camping. Restaurant, kiosk, shop and swimming pool. Guided drives on the plateau. A 48 km unguided hiking trail. Guided wilderness trails. Booking required for guided and unguided hiking trails on the plateau. Short walking trails within the resort.



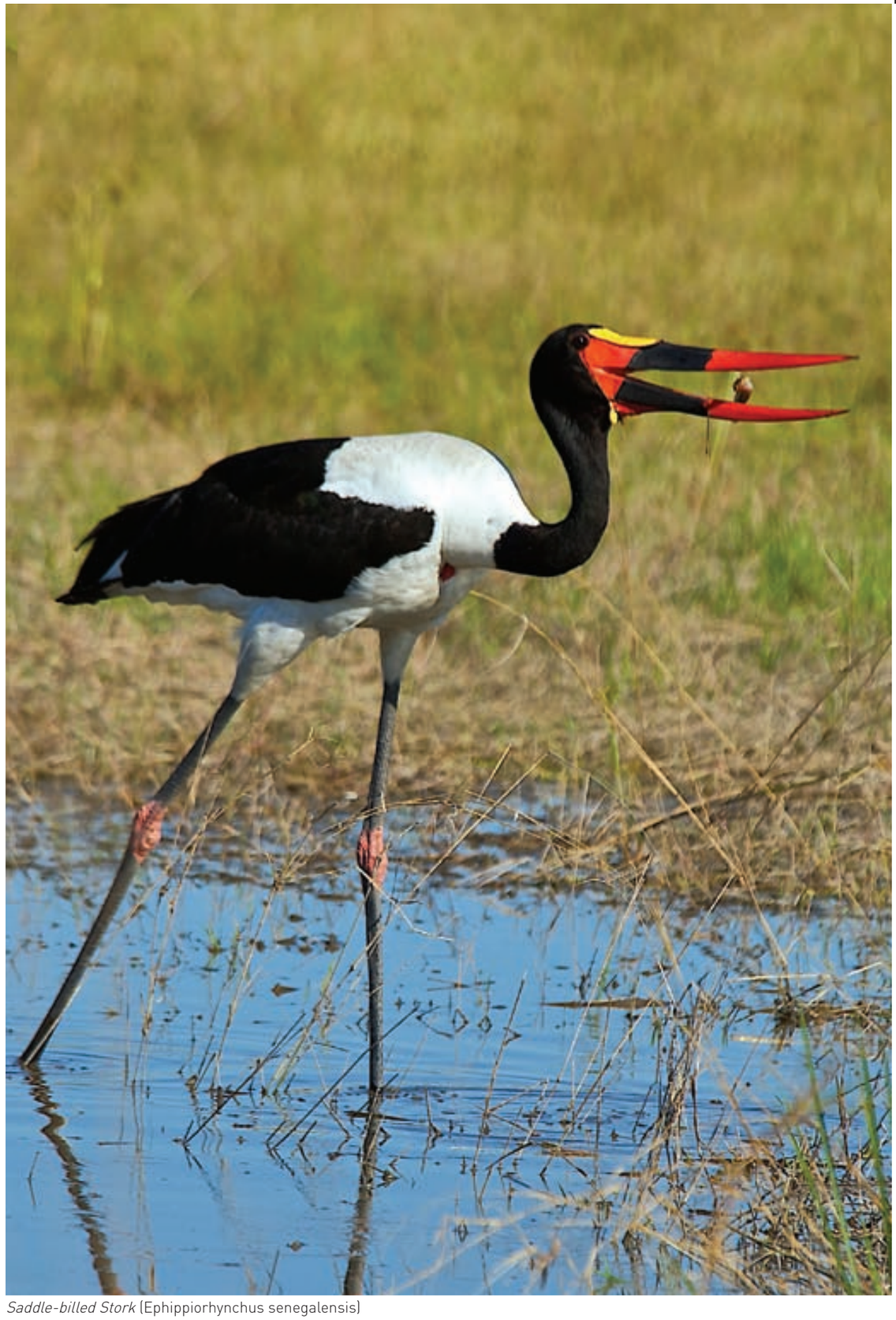
Key management issues

Staff are chiefly occupied with the maintenance of water points for game, fences and tourism control. A hunting concession exists within the park, and requires monitoring. Rare species, particularly white and black rhino, roan and sable antelope and disease-free buffalo require careful monitoring and management. Conservation of the last known breeding colony of Cape Vultures in Namibia.

Future plans

The display at the vulture hide will be upgraded, and regular feeding will recommence. New staff accommodation is being constructed and the Okatjikona Environmental Education Centre is being renovated. The latter is due to reopen early in 2010.

Colourful Etjo sandstone cliffs and rare game species such as roan and sable are synonymous with the Waterberg Plateau Park.



Saddle-billed Stork (Ephippiorhynchus senegalensis)

Contributors/References

Chapter 1

Contributors: Ben Beytell, Brian Jones, Midori Paxton
Co-ordinator: Linda Baker
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Chapter 3

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Opening image tourists and elephants: Michael Sibalatani
Contents image: Paul van Schalkwyk
Foreword image: Paul van Schalkwyk
Preface image: Paul van Schalkwyk
Opposite image of elephant: Tony Heald

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Impala pg17: Paul van Schalkwyk
PA Map: SPAN Project/ Suzi Seha
Sable: Pompie Burger
Etosha camels: National Archives
HE President Pohamba: Andy Thompson

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Cricket: Andy Thompson
Cheetah: Marita van Rooyen
Caprivi pan: Linda Baker
Blue Crane: Paul van Schalkwyk

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Ostrich: Paul van Schalkwyk
Skeleton Coast: Amy Schoeman
Hikers in the NNP: Andy Thompson
Children and game: Andre Baumgarten

Chapter 4
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Rhino capture: Vincent Guillemin
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Flyers: Holger Kolberg
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African Jacana: Paul van Schalkwyk
Collared elephant: Michael Sibalatani
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Skorpion Mine: Linda Baker
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Devil's claw: Frederich Alphers
Woman and devil's claw: Frederich Alphers
Concessions signing: Linda Baker
Matambo: Olga Jones
Khaudum signing: Andy Thompson
Hai||om elders: James Suzman
Caprivi Youth: Linda Baker
Kunene boundary group: Michael Sibalatani

Chapter 6
Fish Eagle: Pompie Burger
Concession signing: Andy Thompson
Khaudum: Paul van Schalkwyk
Brochures: Venture Publications
Sunset: Paul van Schalkwyk

Chapter 7
Elephant: Paul van Schalkwyk
Fish River Canyon: Paul van Schalkwyk
/Ai-/Ais Hot Springs: Paul van Skalkwyk
Quiver Tree: Paul van Schalkwyk
Skeleton Coast: Paul van Schalkwyk

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Park profiles
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Cape Cross Seal Reserve: Paul van Schalkwyk
Daan Viljoen Game Park: Paul van Schalkwyk, Pompie Burger
Etosha National Park: Paul van Schalkwyk
Gross-Barmen Hot Springs: Paul van Schalkwyk
Hardap Recreation Resort: Paul van Schalkwyk
Khaudum National Park: Claudia and Wynand du Plessis
Mamili National Park: Paul van Schalkwyk
Mangetti National Park: Pompie Burger
Mudumu National Park: Paul van Schalkwyk
Namib-Naukluft Park: Paul van Schalkwyk
National West Coast Recreation Area: Paul van Schalkwyk
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Popa Game Park: Paul van Schalkwyk
Skeleton Coast Park: Amy Schoeman
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