



Natural Wealth

In terms of its biological heritage, South Africa is recognised as one of the richest nations in the world. In the last ten years, Government has prioritised people's needs while safeguarding the country's considerable natural assets.



In 2002, the section responsible for Biodiversity and Conservation was elevated to a branch. Its mandate was expanded to include dealing with the country's rapid progress in creating new protected regions like Transfrontier Conservation Areas, Biosphere Reserves, World Heritage Sites, National Parks and Bioregional plans to address gaps in the system.

South Africa has an incredibly rich biodiversity, third only after Brazil and Indonesia. This provides a wide range of products and services for both commercial and subsistence purposes. Nature provides water, food, fibre and all that sustains life. The value is inestimable.

With the intended National Biodiversity Strategy and Action Plan the department will be taking a practical and holistic approach to the conservation of biodiversity at a national level by allowing all spheres of government and civil society to craft a coherent and common vision for the country.

The department also seeks to protect the interests of South African citizens whose knowledge or traditional uses of indigenous biological resources is being used for bioprospecting, by ensuring that benefits derived from commercial exploitation are shared equitably. This also ensures that South Africa's extraordinary plant biodiversity, is not commercially exploited by pharmaceutical companies from other countries. It is based on a legal framework through which communities are rewarded for their knowledge about the use of certain plants.

BEFORE 1994

Conservation in South Africa goes back many centuries, long before



What Is Biodiversity?

Biodiversity (biological diversity) is the total variety of living organisms in all ecosystems on Earth, the genetic differences between them, and the communities and ecosystems in which they occur. It is the "natural wealth" of the Earth, which supplies all our food and much of our shelter and raw materials.

the arrival of the European settlers. The Sanqua (Bushmen) people – some of the earliest communities in southern Africa – had a uniquely symbiotic relationship with their environment, which minimised the impact of human settlement while exploiting the country's flora and fauna.

In contrast to European policies, there are records of 'wise use' ethic amongst indigenous societies in South Africa dating back centuries. Even under communal ownership, property rights were conferred on members of the community to manage important resources like wild fruit-bearing trees.

When European settlers arrived to colonise the country, correspondents wrote of the huge abundance of predators, antelope, elephants and rhinoceros. But hunting for sport, food, and products like leather and ivory led to a rapid depletion of wildlife.

By the end of the 1800s, hunters and others were becoming seriously worried about the decrease in wildlife numbers. This eventually resulted in the formation of the first National Parks, like Kruger and Kalahari Gemsbok. Both were formed principally to preserve animals seen as valuable by hunters – mostly antelope. Predators on the other hand, were frequently shot on sight, and seen as vermin or problem animals.

Expanding settlements, mostly resulting from the discovery of gold and diamonds, coincided with declining biodiversity. Most of the destruction of South Africa's forests can be attributed to the European settlers during the period 1860 to 1940, when large trees were felled for building and mining purposes.

The apartheid era took a particularly heavy toll on South Africa's communities, biodiversity and ecosystems. In addition to widespread impoverishment and social dislocation, such policies caused significant ecological damage. The majority of the population was squeezed into 13% of the land in overcrowded homelands. These areas suffered massive deforestation, soil erosion and loss of biodiversity. Subsidies on water, energy and agricultural inputs (available to white industrial, agricultural and domestic users) led to wasteful practices and long-term damage were caused to the soil, rivers and wetlands of the country.

The establishment and expansion of national and provincial parks in

many parts of South Africa was accompanied by severe hardship for people. For example, in the 1960s, the Tsonga-speaking Makuleke community in the north of Kruger National Park were forcibly removed so that the park could be extended northwards to the Limpopo River. Similarly, thousands of people were removed to form Ndumo Game Reserve and Tembe Elephant Park in northern KwaZulu-Natal.

Conservation policies typically mirrored the apartheid policies of the day and aimed at restricting access to protected areas. As a result, the perception grew that conservation was elitist and of no benefit to ordinary people. This perception was reinforced by a military presence within many protected areas, the military background of many wardens, and the 'fences and fines' approach of conservation game guards, dressed in khaki uniforms, carrying guns and subjecting black people to harsh punishment for killing animals.

POLICY AND LEGISLATION

The peaceful transition in South Africa presented a unique opportunity for redress and recovery. Starting with the constitution, new policies and legislation have been developed across all sectors, with full public consultation and participation.

The fundamental objectives of the policies and legislation are to secure sustainability and equitable access to resources.

The **NEMA (Act 107 of 1998)** notes: "The environment is held in public trust for the people. The beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage."

It is regarded as framework legislation relating to biodiversity and conservation; its objectives are further defined and supported by the Protected Areas Act and Biodiversity Act.

The National Environmental Management: Biodiversity Act of 2004 aims at providing a regulatory framework to protect South Africa's valuable species, ecosystems and its entire biological wealth. It implements the White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity and multilateral agreements like the Convention on Biological Diversity.

It provides the framework, norms and standards for the conservation, sustainable use and equitable benefit-sharing of South Africa's biological resources.

It facilitates the transformation of the National Botanical Institute into the South African National Biodiversity Institute (SANBI).

It also enables the development of a National Biodiversity Framework, which will provide for an integrated, coordinated and uniform approach to the conservation and sustainable use of biodiversity



in South Africa.

The National Environmental Management: Protected Areas Act of 2004 provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes, seascapes and the management thereof. The Act envisages a national register of protected areas, with a simplified classification system of Special Nature Reserves, National Parks, Nature Reserves and Protected Environments.

It brings in the concept of biological diversity protection and ecosystem management for the first time. Biodiversity, conservation and ecosystem management are noted as important aims in policy and legislation governing marine and coastal resources, freshwater and natural forests.

It also proposes a new system of protected areas linking various kinds of protected environments to replace the existing fragmented system.

Based on experience with Biosphere Reserves, and informed by the new bioregional approach to conservation (linking the protected area network along mountains, rivers, wetlands, the coastline and other areas of natural vegetation), the Act will result in an interlocking system of protected areas that explicitly encourage the inclusion of private land. It recognises that people are the custodians of the land and they need to be involved in the management of the protected land and should benefit from it.

It caters for concurrent competence in the management of protected land. For example, an area with National Park status can now be managed by another agency, for example a provincial parks authority. Steps have been

put in place to make sure standards are upheld.

South Africa is a signatory to the Convention on Biological Diversity (CBD). The **White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity (July 1997)** is guided by the main aims of the Convention, namely conservation of biodiversity, sustainable use of biological resources, and equity.

The key goals of the policy are conservation of the diversity of landscapes, ecosystems, habitats, communities, populations, species and genes; sustainable use of biological resources; and minimisation of adverse impacts on biodiversity.

South Africa is one of the only two countries in the world to have promulgated legislation specifically related to the World Heritage Convention (the other being Australia). The country's **World Heritage Convention Act (Act 49 of 1999)** notes that all World Heritage Sites must have an integrated management plan in place, to ensure cultural and environmental protection and sustainable development of the site.

STRATEGIC APPROACHES

A new approach to sustainable use, conservation and ecotourism development in partnership with communities is being forged, in such places as, the Greater St Lucia Wetland Park, the Pafuri region of the Kruger National Park, the Blyde River Canyon and the Richtersveld National Park.

Innovation and Progress

Pre-1994 policy in South Africa promoted conservation of certain species and ecosystems in parks and reserves. More through luck

than good judgement, a high proportion of South Africa's terrestrial fauna and flora is conserved in designated Nature Reserves or National Parks.

But since 1994 it has become clear that conservation of biodiversity through protected areas alone is not enough. The need to extend conservation management and economic benefits of parks beyond the protected area network is now a widely accepted principle in South Africa.

422 areas. These included wilderness areas, National Parks and provincial reserves, covering a total of 6.6 million hectares.

Of the twenty eight IUCN Category II protected areas listed (equivalent to National Parks), 16 were under control of the SA National Parks (SAN Parks), eleven were under the control of Ezemvelo KwaZulu-Natal Wildlife and one was under control of the Eastern Cape provincial authority.

The numbers of protected areas have since dropped to 403, a



Protection of biodiversity at landscape level is essential to preserve the broad functioning of ecosystems

The shifts in approach over ten years have been fundamental; from preservation to conservation and sustainable use; from exclusivity to participation and sharing; from public funding to business principles, outsourcing and economic empowerment; from fences and fines to incentives and individual responsibility.

Consolidation and Expansion of Protected Areas

The national register of formally protected areas revealed that, by 1995, 5.4% of the land surface of South Africa was under formal protection, comprising a total of

reflection of the programme of consolidation and expansion, rather than deproclamation.

Although almost 6% of the country is under formal conservation protection, the goal was set in 2003 to steadily increase this to 8% by 2010 and later to 10% (the percentage of protected land recommended by IUCN – World Conservation Union) to ensure that all significant vegetation types are included. This means that, ultimately, just over four million more hectares will eventually be protected.

It is highly unlikely this goal could

be achieved solely through land purchase with state money. Instead, it was envisaged that cooperative agreements between a range of parties (innovative public-private partnerships) will bring increasing amounts of land under conservation management.

Nevertheless, since the change of government in 1994, four new national parks have been proclaimed – the Agulhas, the Cape Peninsula (now Table Mountain National Park), the Vhembe Dongola National Park (now renamed Mapungubwe National Park) and the Namaqua National Park.

At the same time, existing National Parks such as Addo Elephant, Augrabies Falls, Karoo, Marakele, Mountain Zebra, Tankwa Karoo, West Coast and Wilderness Lakes have been expanded, adding almost 350 000 hectares to land under the management of SANParks.

Since 1994, a further 120 000

hectares of land have been proclaimed as provincial reserves, mainly in the Northern Cape and Limpopo Provinces.

Other protected land, like Biosphere Reserves, Conservancies and Natural Heritage Sites could be brought under more formal conservation by the National Environmental Management: Protected Areas Act, which entered into force in 2004.

Private Contributions to Conservation

In addition to formally protected areas, many privately owned reserves contribute to biodiversity conservation in South Africa. In addition to national and provincial parks, an estimated 13% of South Africa's land surface is now under some form of private conservation management, in the form of conservancies, private game reserves or farms, and mixed game/livestock farms.

Biological resources become privately owned when fenced on private land. However, plants and animals regarded as threatened are subject to locally enforced regulation and controls, which are being linked to the Convention on International Trade in Endangered Species (CITES).

Because endangered animals like rhinos can now be privately owned, their monetary value has become a strong motivation for breeding and sales. As a result, the black and white rhino population in South Africa is growing. Since 1994, there has been a steady annual increase in live game animals sold.

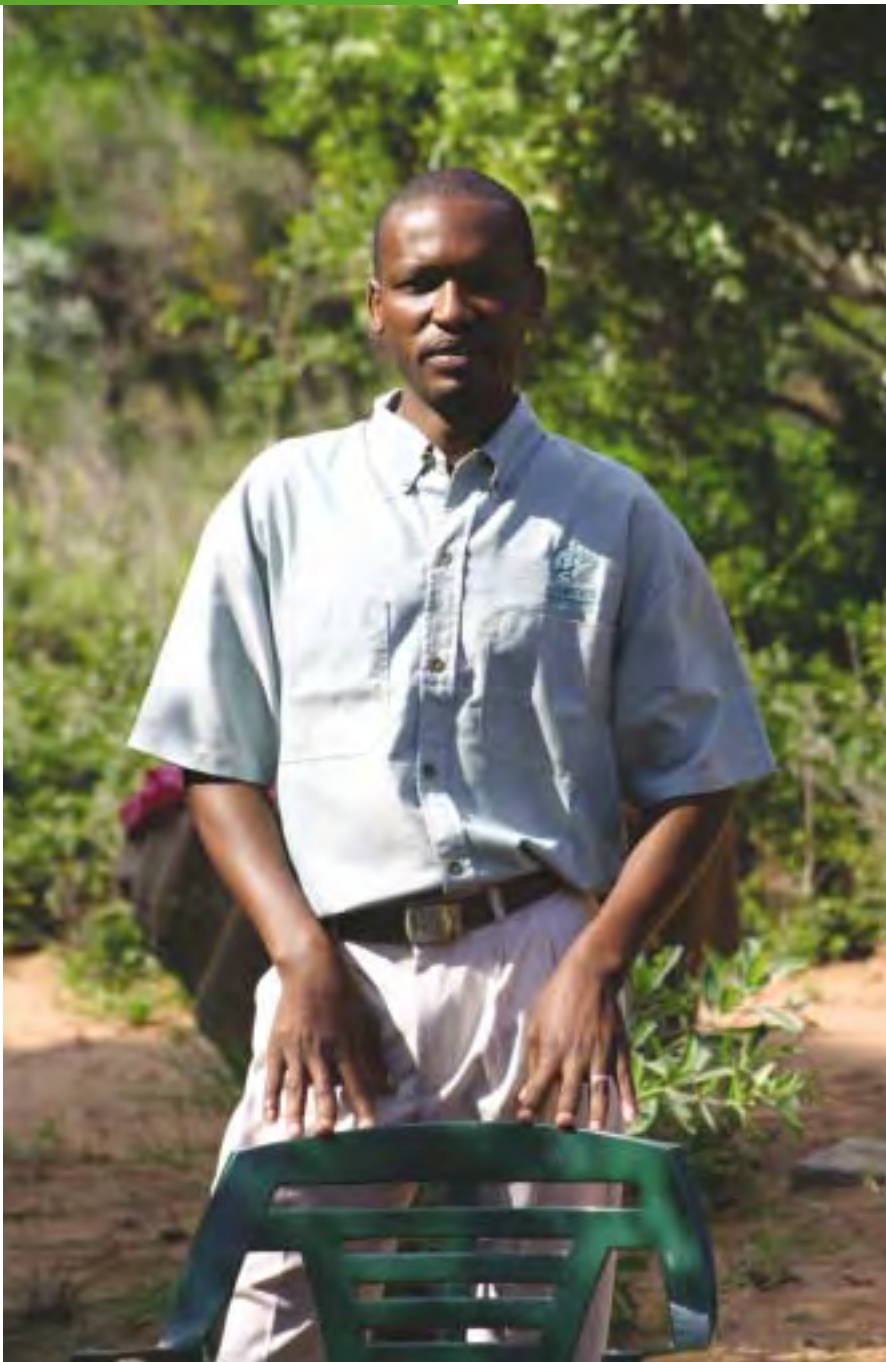
According to a recent study, South Africa now has 5 000 game ranches and more than 4 000 ranches with a mixture of game and stock.

Usually the participants in these areas share a range of broad, long-term goals, including conservation management,

South Africa's natural wealth

- South Africa covers an area of 122 million hectares. Although this only represents 2% of the land surface of the world, it is home to 7.5% of the planet's plants, 5.8% of its mammals, 8% of its bird species, 4.6% of its reptiles and 5.5% of its insects.
- The Cape Floral Kingdom is one of the Earth's six floral kingdoms, and the only one to be found entirely within the borders of one country. It covers only 4% of the area of southern Africa, but is home to 45% of the sub-continent's plant species.
- South Africa's 'mega diverse' status (it is one of 17 countries which collectively contain two-thirds of the world's biodiversity) is due largely to the wide range of climatic conditions and habitats found in the country, from arid deserts to moist, humid subtropical forests, and variable topography ranging from sea level to high mountains.
- More than 100 Important Bird Areas occur in South Africa, as well as five Endemic Bird Areas, a number only matched by one other country (Madagascar).
- Biomes, or ecoregions, are assemblages of plants and animals that can be mapped at a large scale, based on dominant vegetation types and climatic conditions. Seven biomes have been recognised in South Africa: Forest, Thicket, Savanna, Grassland, Fynbos, succulent Karoo and Nama Karoo. Within the biomes, 440 distinct vegetation types are now recognised.





Partnerships with communities are being forged.

integrated planning and economic development through tourism.

In many areas, growth in private game reserves has been encouraged by the presence of a national park or other initiative, such as a World Heritage Site. In all cases, these have involved consolidation of several separate farms, removal of domestic livestock, introduction of wildlife, veld rehabilitation programmes and building of tourism infrastructure.

ACHIEVEMENTS

A number of communities who were evicted from areas now located within National Parks have successfully won land claims. Interestingly, all the communities have decided to keep their returned land under conservation. This has given rise to a new and dynamic era in conservation, in which communities have become co-owners and even co-managers with Government in national parks.

Institutional reform

To meet the challenges posed by the conservation and biodiversity sector a comprehensive level of transformation had to be observed. Within DEAT the portfolio was upgraded from the level of a Chief Directorate to a Branch headed by a Deputy Director-General who is solely focused on this function.

To change the negative image of the agencies responsible for conservation and biodiversity, it was ensured that their Boards and staff composition represent the population demographics and aspirations of the country. Previously, the preserve of white males conservation, is increasingly changing face.

National departments and agencies such as SANParks and the National Botanical Institute have been fundamentally restructured. This has included redefining the role and composition of Boards. The Boards are now appointed through a process of public nomination and serve for a period of five years.

At provincial level, conservation management has likewise gone through substantial transformation and restructuring processes. Whatever the institutional form, Government's policies around affirmative action, employment equity, job creation and sound financial governance have underpinned policy and laws governing conservation management.

TFCAs

Nature recognises no borders. Neither do communities, often separated from one another decades ago by political boundaries drawn arbitrarily by colonising countries. TFCAs are meant to benefit people by bring-



ing socio-economic upliftment and a reduction in poverty, while protecting valuable ecosystems.

TFCAs form an integral part of the NEPAD, whose ideals encompass transboundary ecosystem management, integration of conservation with sustainable socio-economic development as well as the promotion of regional cooperation for peace.

South Africa has now become a proud partner in six TFCAs. Five

have been signed into existence, and these are:

The **Kgalagadi Transfrontier Park** which unites the Gemsbok National Park in Botswana and the Kalahari Gemsbok National Park in South Africa into a single ecological unit of 3.7 million hectares. The treaty was signed in 2000. In view of the potential to benefit from foreign and local tourists in Namibia, the department recently initiated negotiations with the relevant

Namibian officials to open the Mata Mata border post, which will provide easy access into the park. In anticipation of this, DEAT has facilitated the development of a business plan for the upgrading of the road linking the park to other tourism nodes in the Northern Cape. The upgrading of the road will create temporary jobs and facilitate business opportunities for the local community.

The **Great Limpopo Transfrontier Park** creates a 3.5 million hectare area that joins the Kruger National Park in South Africa with the Limpopo National Park in Mozambique. The Sengwe communal area acts as a biodiversity corridor between Zimbabwe's Gonarezhou National Park and Kruger. The treaty was signed in 2002. Most of the R40 million in projects on the South African side have been completed, including the Giryondo Border Post, expected to be functional before the end of 2004. This will provide tourists with easy access between Kruger and Limpopo National Parks.

The **!Ai-!Ais/Richtersveld Transfrontier Park** is 622 000 hectares in extent, with 31% of the area in South Africa, and 69% in Namibia, joining national parks of the two countries. The treaty was signed in 2003, and integration has begun with the completion of the crossing point between the two parks and discussions on the establishment of a border post. A Joint Management Plan between SAN Parks and the Richtersveld community has been drawn up. It provides for a governance structure to oversee the management and development of the park.

The **Lubombo Transfrontier Conservation and Resource Area**, which incorporates the Greater St Lucia Wetland Park, is situated between South Africa, Swaziland and Mozambique. It is expected to encompass over



400 000 hectares of wildlife sanctuaries, extensive wetlands and pristine coastal areas. It will link the Maputo Elephant Reserve in Mozambique through the Futi Corridor to the Tembe Elephant Park in South Africa.

The **Maloti-Drakensberg Trans-frontier and Development Area** covers about 500 000 hectares of mountains on the border between South Africa and Lesotho. The area is a major watershed and the source of most of the rivers in the sub-region. A Memorandum of Understanding has been signed between the two countries.

The **Limpopo-Shashe Trans-frontier Conservation Area** is located on the border between South Africa, Botswana and Zimbabwe. The 490 000 hectare area is still under negotiation by the three countries.

Biosphere Reserves

Although not protected by any specific piece of legislation in South Africa until the Protected Areas Act was passed in 2004, several Biosphere Reserves have been established. Biosphere

Reserves in South Africa are generally formed around an existing core conservation area, include outstanding natural beauty and biological diversity, and exist in partnership with a range of interested landowners. Biospheres can incorporate development, as long as it is sustainable, while still protecting terrestrial or coastal ecosystems.

They evolve from the ground up, and by their very nature are democratic and inclusive, representing all stakeholders. Biospheres help to conserve natural resources, but the spin-off is that they enable effective and cohesive planning.

The first, registered with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1998, was the **Kogelberg Biosphere Reserve**. This 100 000 hectare reserve has high floral diversity, endemism and spectacular scenery, and is an important water catchment area for Cape Town. The core area is Kogelberg Nature Reserve, and the biosphere includes an important wetland, five towns, various settlements and resorts, agricultural land

(particularly fruit orchards) and commercial forestry plantations.

The **Cape West Coast Biosphere Reserve** was listed in 2000 and covers an area of 376 900 hectares. It includes a number of threatened vegetation types and important bird breeding sites such as the Langebaan Lagoon (West Coast National Park), the Berg River, Rietvlei Nature Reserve and a coastal area.

The **Waterberg Biosphere Reserve**, listed in 2001, is located in the Limpopo Province and covers 1.4 million hectares. The core area is the Marakele National Park as well as 28 000 hectares of state land which is being converted into a private-community venture, three provincial reserves, private game farms and a 5 000 hectare 'tribal reserve' owned by the Masebe community, which includes the Nylsvley Ramsar Site.

The **Kruger-to-Canyons Biosphere Reserve**, also listed in 2001, covering more than 3.3 million hectares, spans the boundary between the Limpopo and Mpumalanga provinces. The core areas consist of thirteen declared



THE VALUE OF WETLANDS

- The respected science journal Nature reported in 1997 that worldwide, wetlands are thought to be worth \$4.9 trillion a year in goods and services (more than one tenth of the planet's Gross World Product of \$45 trillion).
- Wetlands occur from the top of mountains all the way to the sea. They include springs, seeps, marshes, floodplains, swamp forests, mangrove swamps and estuaries.
- Wetlands reduce the severity of droughts and floods by regulating stream flow.
- They purify water and provide habitats for many different plants and animals.
- They provide fodder for animals, human food, fish and fibres (sedges and reeds) that are used for weaving.

protected areas, with a major portion of the Kruger National Park as the largest core area.

Natural Heritage Sites

This programme, initiated in 1984, has continued steadily as a cooperative venture between DEAT, provincial nature conservation agencies, the private sector, private landowners and non-governmental organisations. Some 325 sites have been registered, representing more than 46 000 hectares. Although no legal framework for their protection exists, owners of the sites receive a certificate of appreciation from Government.

The World Parks Congress

The fifth World Parks Congress (held once every ten years) was held in September 2003 at the Durban International Convention Centre, bringing together some 3 000 delegates from over 200 countries worldwide.

The congress theme was 'Benefits Beyond Boundaries', and was organised by IUCN and the World Commission on Protected Areas. The South African Government was responsible for putting in place the logistical arrangements.

Fifty years on from the first congress, the world now has far more protected areas, from less than 1 000 in 1962, to

approximately 46 000 now – an area that has tripled in the last 20 years alone. They now conserve 10% of the Earth's land surface. But delegates questioned whether the full range of ecosystems was adequately protected, especially in light of climate change issues. In addition, there was concern that less than 1% of the planet's marine and coastal systems have been conserved. These make up the Earth's largest and most diverse biome, crucial in terms of the human food supply.

The Durban Accord is the key document emanating from the Congress and is intended to inspire and influence positive action for protected areas. Among other commitments, it calls for the



expansion of protected areas, which are to be prioritised on the basis of threats. South Africa made an important contribution via DEAT – the recognition that protected areas have powerful potential to make significant contributions to poverty reduction.

A series of field trips organised by Ezemvelo KwaZulu-Natal Wildlife and the Greater St Lucia Wetlands Park Authority gave the conference an experiential and interactive edge.

Working for Wetlands

This has become one of DEAT's most successful projects, combining the alleviation of poverty, and the provision of jobs, skills and opportunities, with the restoration of biological diversity.

The project started as a partnership between the Departments of Environmental Affairs and Tourism, Water Affairs and Forestry, and Agriculture as well as the non-governmental organisation, the Mondi Wetlands Project.

Working for Wetlands is a DEAT Poverty Relief Project, employing unskilled staff to rehabilitate

damaged and degraded wetlands.

Since its inception in 2000 and with a budget of R30 million a year, the project has employed about 2 230 people and has carried out a total of 690 rehabilitation interventions through eighty projects.

A partnership between Working for Wetlands and the Water Research Commission was established with the aim of providing a sound scientific and technical base for wetland rehabilitation, conservation and management.

CHALLENGES AHEAD

By the close of the 20th century, indigenous forests had declined by half. Overall, an estimated 25% of South Africa's land has been transformed from its natural state. Riverine habitats have been fundamentally changed, and very few naturally functioning freshwater systems remain. Half of South Africa's wetlands have been lost completely through transformation to other land uses.

Virtually all ecosystems in South Africa have been modified or transformed by human activities.

These include cultivation for commercial crops or subsistence agriculture; overstocking, overgrazing and poor land-use management; afforestation for commercial timber production; the spread of invasive alien trees, shrubs, herbs and fauna; urbanisation and settlements; the damming of rivers; mining; transportation; industrialisation; and subsistence and commercial harvesting of indigenous plant products.

More than 90% of the country falls within arid, semi-arid or dry sub-humid zones and is vulnerable to land degradation and desertification. Overgrazing is considered a threat to biodiversity in virtually all South African 'hotspots' of endemic species. This threat is particularly severe in the communally managed land of Maputaland, Pondoland and the succulent Karoo.

To achieve the government's stated objective of increasing the area under formal protection from 5 to 8%, three million hectares of land must be secured. Further conservation initiatives related to TFCAs would include the expansion of the Biosphere Reserve programme in South



Africa as well as the expansion and development of the relevant protected areas.

The implementation of the National Environmental Management: Protected Areas Act (Act no 57 of 2003) will ensure the effective management of these areas. The following is necessary for its implementation: development of regulations, appointment of management authorities, development of management plans by the authorities in terms of national norms and standards and the monitoring of the implementation of these plans and to make the relevant adjustments needed.

While the NEMA: Protected Areas Act has gone a long way to rationalising the legislation on protected areas, South Africa also needs to ensure effective management of its protected areas.

A national and international trade in plants for medicinal, ornamental and cultural purposes is putting increasing pressure on many threatened species. An estimated 350 plant species are commonly used for medicinal purposes. Unsustainable use may

be driving some species to extinction locally and even nationally.

Land degradation

Land degradation is a serious threat to rural livelihoods. It sets off a vicious cycle that eventually undermines all the livelihood assets and is a hazard to the natural capital of the local community (as well as to the larger community) in that the natural resources available to households are degraded. It has costs to the nation at large because it depresses national capital regionally, and ripples through the whole economy. Erosion by water, sheet and gully formation, is the main mechanism of land degradation.

Domestic livestock grazing practices cause loss of vegetation cover and changes in plant species composition. Bush encroachment and alien plant invasions are significant forms of veld degradation in a smaller number of magisterial districts, and are largely associated with private or state-managed land.

Experts now regard alien invasive

plants to be the greatest hazard to land resources. However, there is now clear scientific evidence of accelerated bush encroachment owing to elevated atmospheric carbon dioxide, a trend highly dependent on how veld fires are managed.

Deforestation is a significant form of vegetation degradation in several districts of Limpopo Province, in KwaZulu-Natal, and in the Eastern Cape. Deforestation results from the clearing of trees for cultivation, settlement or the use of wood and non-wood forest products. Large areas of woodland (estimated at 12 000 square kilometres) have been converted to fields and settlement sites.

The influence of land use practices

Since 1994, land degradation has continued in many areas, as reported by members of communities from across the country. The causes are diverse, and include:

- Undermining of traditional as well as legal tenure arrangements for land and resources, resulting in transgression by



Threats to Biodiversity

- In terms of both area and absolute numbers, South Africa has the highest concentration of threatened plant taxa in the world.
- Of the 4 149 plant taxa whose conservation status has been assessed, 3 435 are considered to be globally threatened with extinction.
- This high number reflects that 98% of the threatened taxa are found only in southern Africa. Most of these are found in the Cape Floral Kingdom, particularly in the lowland fynbos of the rapidly urbanising areas of greater Cape Town.
- Almost 1 900 of the 3 435 listed Red Data plant species in southern Africa are threatened wholly or partially by alien invading plants.
- South African Red Data Books show that 102 bird species (14%), 72 reptile species (24%), 17 amphibian species (18%), 52 species (17.6%) of mammals and 142 species (22%) of butterflies are threatened.

interlopers and illegal land occupation, which causes people to cease investment in land management or simply to abandon use of the land;

- new infrastructure and other development projects, often not compliant with standards, that occupy prime agricultural land, cause erosion and have other detrimental effects, and
- diverse other causes, such as the development of cemeteries.

Poverty alleviation

Poverty alleviation and biodiversity conservation are themes of the Government agenda that should

be seen as integrated solutions, rather than working against each other. A problem is that, the usual indicator of economic growth, GDP does not factor biodiversity into the equation. South Africa is experiencing economic growth, but without an increase in jobs, with worsening poverty, and with declining biodiversity.

Expenditure on sectors that impact on biodiversity is orders of magnitude higher than expenditure on sectors that conserve biodiversity. It is essential that the economic value of biodiversity and biological resources be valued and taken into account in development decisions.

Although Government policy has

generally moved away from subsidies, for example to agriculture, many subsidies and incentives exist for trade and industry, especially for export-oriented industries. There are no incentives for conservation and sustainable use of biodiversity.

Invasive alien species

The uncontrolled spread of invasive alien species is one of the key threats to indigenous biodiversity. This spread has negative impacts on the economy, in sectors as diverse as health, agriculture, water supply and tourism, and is likely to become much worse with climate change.

The Working for Water

Programme champions the fight against invasive alien plants, and controls invading alien plants, for a variety of reasons:

- They are the most significant threat to our biological diversity.
- They threaten the ecological integrity of our natural systems.
- Certain species threaten our water security.
- They compromise the productive potential of land.
- Certain species are responsible for massive erosion problems.
- They have other negative impacts such as flooding, eutrophication and changes in water quality.

Climate Change

Climate change, or global warming, is widely attributed to the burning of fossil fuels, such as oil and coal, over the past two centuries. This has sharply raised levels of carbon dioxide into the atmosphere. The gas is often called a 'greenhouse' gas because of its ability to trap heat. This and a number of other exacerbating factors are thought to be behind an increase in average global temperatures and changes in rainfall patterns. Indications are that climate change will result in more extreme weather – increased floods and droughts, which could reduce agricultural production and worsen diseases like malaria.

It is against this growing concern that efforts are being made to improve the scientific understanding of what drives the Earth-atmosphere system producing such changes; to identify those areas that may be particularly vulnerable to environmental changes; and to

improve adaptation and mitigation to enable people, plant and animal communities to better live with climate change.

Social aspects of conservation

These aspects focus mainly on conservation and development, sustainable livelihoods, land reform, stakeholder participation and conflict resolution, training, awareness and capacity building, and cultural issues. Many South Africans have become alienated from nature as a result of

apartheid policies and processes like urbanisation.

To ensure sustainable livelihoods, it is important that economic opportunities are expanded in local areas, in a way that takes humans and biodiversity into account. Nature-based tourism should encourage local economic development. There is a huge need to expand the skills of local communities, and encourage entrepreneurs in the tourism industry, the game farming industry, and commercialisation





enterprises, through support for training, access to finance and marketing.

Other areas where there is a need for information sharing, capacity-building and participatory decision-making are bioprospecting and privatisation of biological resources, ethical hunting and ensuring that the trade in traditional medicines is sustainable. It is particularly important that the land reform process is speeded up.

Access and Benefit Sharing

Access and Benefit Sharing in the Convention on Biological Diversity refers to a 'pact' between developed countries (which want to use resources for commercial purposes, like pharmaceuticals) and developing countries (which own the resources and need to be included in agreements to share benefits). It refers to the use of genetic diversity.

Bioprospecting, the search for new compounds and drugs from natural sources, has had some success in South Africa, with the isolation of a new antibiotic, the discovery of an anti-obesity agent and a mosquito repellent extracted from South African plant species. The Council for Scientific and Industrial Research is leading much of the research in the field, while the Medical Research Council and several universities are also important roleplayers. However, local communities who are the holders of knowledge about our medicinal plants and their uses, were not included adequately in the benefit-sharing arrangements.

Economic Value in Biodiversity

- By 2002 the South African wildlife industry (veterinary services, game capture, hunting, taxidermy etc) was estimated to be worth almost R1 billion a year. This excludes any money generated from tourism accommodation, entrance fees and land sales.
- Bird watching in South Africa generates about R375 million a year, according to BirdLife South Africa.
- The Ezemvelo KwaZulu-Natal Wildlife game auction held annually at Hluhluwe is the largest of its kind in South Africa, and in 2003 generated over R19 million from the sale of surplus wild animals.
- In 2003, black rhinos were being sold at game auctions at up to R450 000 each.
- White rhinos fetched about R230 000 each, giraffe up to R15 000 each, hippos R40 000, blue wildebeest R5 000 each, nyala males up to R26 000 and zebras R6 000 each.
- According to South African National Parks, agricultural land has an average market value of R1 500 a hectare. Land suitable for incorporation into a national park is worth between R3 000 and R30 000, depending on the size of the property, location and vegetation type.
- The Cape wildflower industry generates hundreds of millions of Rands in foreign currency every year.
- Local trade in medicinal plants is estimated at R1.6 billion a year.

