



environment & tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA



SOUTH AFRICA's NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

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FOREWORD BY THE MINISTER



On all continents, and in all oceans, natural warning beacons are starting to flash. Humanity cannot afford to ignore the growing proof of the frequently irreversible erosion of our living environment. The destruction of forests, believed to be home to more than half of all terrestrial species, the shrinking of natural habitats due to population growth and urbanisation, the sharp decline in the numbers of the great wild mammals, and many other danger signs all indicate the urgency of acting now to meet our biodiversity responsibilities – a duty that affects the fate of all.

Our generation is undoubtedly the last to have the ability to stop this destruction of the living environment, and to do so before we cross the threshold of no return, beyond which the very future of humanity could be jeopardised.

We know enough about the decline in biodiversity to start taking steps to reverse it, but we are still not fully aware of all its potential consequences and repercussions for our species. We know very little about the impact of climate change on biodiversity, for example.

Preservation of biodiversity, like the struggle against climate change, requires radical changes in attitudes and lifestyles. This change in attitude and action is a matter of concern to each and every one of us. We will succeed by educating the new generations, by ensuring that information is disseminated to the wider public, and also by encouraging an increasing number of companies to act in a truly sustainable manner.

Our biodiversity heritage is valuable first and foremost in ecological terms, but it also has an economic value that is often underestimated. If intelligently mobilised, it can serve the cause of development and poverty alleviation.

Biodiversity is also an obvious asset for tourism. We must help all implementers keen to promote biodiversity to approach this concept in a spirit of sustainable development.

Given the urgency of the question, we must first of all focus on protection of threatened species and sustainable management of endangered natural environments. We must therefore continue to designate additional protected areas, governed by the rules of conservation, imposing greater or lesser restrictions on human activities. To safeguard parts of our deep marine environment that are particularly rich in biodiversity, the creation of protected areas in light of existing protection mechanisms is also necessary.

To reinforce the protection of our natural heritage, and in keeping with our commitments under the Convention on Biological Diversity, South Africa has designed a National Biodiversity Strategy and Action Plan. This will provide a strong impetus for all our policies aimed at protection and conservation of our valuable biological resources. There was also a national imperative to produce such a strategy and plan of action. Section 24 of the South African Constitution (Act 108 of 1996) notes the human right to have the environment protected. This principle is given effect by the recent promulgation of the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) and the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003). These pieces of legislation build on the White

Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, which was published in 1997. In the "way forward" of this Policy, it was envisaged that a priority action of this policy will be to draft an action plan through which detailed implementation strategies can be developed. This will form an essential component of the National Environmental Strategic Action Plan, (renamed the National Biodiversity Strategy and Action Plan).

The time has come for us to tread the path of a humanist ecology. To integrate, in our quest for economic and human progress, an awareness of our duties to nature and our responsibilities to future generations, this National Biodiversity Strategy and Action Plan states as its goal to conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future.

The strategy and action plan is based on the recognition that South Africa is extremely rich in terms of biodiversity, but is also a developing country where the majority of the population lives in poverty. Biodiversity provides numerous benefits to people and to the economy and needs to be conserved and managed to ensure that these benefits can continue. These benefits must also be fairly distributed. Biodiversity must therefore be managed in the context of ensuring equitable benefits to people – both current and future generations.

To achieve this goal, the National Biodiversity Strategy and Action Plan highlights five strategic objectives. A number of outcomes have been identified for each of these strategic objectives, with five-year targets and indicators, and activities to achieve the outcomes, complete with priority, lead agency, support partners and the role of our Department of Environmental Affairs and Tourism.

South Africa played a key role in hosting the 2002 World Summit on Sustainable Development, and is fully committed to achieving the goals and targets of the Johannesburg Plan of Implementation, including the Millennium Development Goals and biodiversity targets, such as reducing the rate of loss of biodiversity by 2010. If implemented effectively, this strategy and action plan can play a significant role in helping us to reach these targets.

Better co-ordination between the different agencies responsible for managing the natural environment will create a veritable force whose aim is to conserve and sustainably utilise our natural resource base, upon which we ultimately depend for our basic needs, survival, and development.

We have the responsibility to ensure that our country becomes and remains a living ark. Our communities must stand as the custodians of conservation and the guarantors of biological diversity.

A handwritten signature in dark ink, reading "Marthinus van Schalkwyk".

MARTHINUS VAN SCHALKWYK, MP
MINISTER OF ENVIRONMENTAL AFFAIRS & TOURISM

DIRECTOR-GENERAL'S INTRODUCTION



Biological diversity has since 1992 appeared as one of the most important conceptual developments. It has become part of everyday language but still remains a rather abstract notion to most people. Essentially, it provides a unifying principle which encompasses all genes, species, habitats and ecosystems on earth, thus covering everything from a wild plant's genes to the high seas. This convenient shorthand not only denotes all components of the living world but also the intricate interdependence between them.

This interdependence is the key to the fragile equilibrium of each ecosystem and to the entire biosphere. Man cannot see himself as separate from it. Pressures on the environment are expected to continue to grow and to be further exacerbated as climate change puts additional stress on the world's productive systems. In this country where preservation of the environment may come into conflict with the crucial requirements of survival, population pressure and development needs, this might lead, in many cases, to the sacrifice of a priceless natural heritage.

Biological diversity is an asset of international, national and local value and significance and functions as an all-embracing concept providing a common frame of reference to be managed according to an integrative strategy and plan of action. The global objective of arresting the decline in biodiversity in 2010, needs a local response to step up the pace of action and truly implement the necessary measures. The NBSAP will go a way towards the attainment of the 2010 target. This means mobilising all the scientific and institutional disciplines concerned which will evidently require a vast programme of national co-operation.

The process to develop the National Biodiversity Strategy and Action Plan was guided by a representative project steering committee and various task teams and consultants working in thematic areas such as conservation, sustainable use, invasive alien

species and economic integration and poverty alleviation. An initial stocktaking and assessment phase, or rapid appraisal, noted the underlying causes of biodiversity decline – particularly social, economic and institutional causes. Together with insights gained from various consultations and inputs received from interested stakeholders, ways of ensuring sustainable and equitable use of our rich biological heritage were identified and informed the development of strategic objectives and outcomes. The strategy was further refined in a series of task team workshops, and an implementation plan developed to highlight priority activities, lead agents and partners.

In order to ensure conservation and sustainable use of biodiversity, we need to deal with the root causes of biodiversity loss. These often lie at a systemic level, and will need strong commitment at the highest levels of government. The strategy has a strong focus on mainstreaming and integration, institutional effectiveness, cooperative governance and partnerships. South Africa has achieved remarkable progress in a decade of democracy, but much still needs to be done. The challenges are enormous, and our strategy needs to be implemented through a prioritized set of actions to achieve measurable outcomes.

The National Biodiversity Strategy and Action Plan was intended to provide a framework against which the country's rivers and wetlands, mountains and plains, estuaries and oceans and magnificent coastline and landscapes, upon which the national economy is fundamentally dependent, can be managed.

PAM YAKO
DIRECTOR-GENERAL



IUCN	International Union for the Conservation of Nature (World Conservation Union)	SAIAB	South African Institute for Aquatic Biodiversity
MCM	Marine and Coastal Management Branch of DEAT	SALGA	South African Local Government Association
MoU	Memorandum of Understanding	SANAP	South African National Antarctic Programme
MPA	Marine Protected Area	SANBI	South African National Biodiversity Institute
MRC	Medical Research Council	SANCOR	South African Network for Coastal and Oceanic Research
NAFCOB	National African Federated Chamber of Business	SANParks	South African National Parks
NBI	National Botanical Institute (now renamed - see SANBI)	SAPS	South African Police Service
NBSAP	National Biodiversity Strategy and Action Plan	SIBIS	SANBI's Integrated Biodiversity Information System
NEDLAC	National Economic Development and Labour Council	SKEP	Succulent Karoo Ecosystem Programme
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)	SO	Strategic Objective
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	StatsSA	Statistics South Africa
NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)	STEP	Subtropical Thicket Ecosystem Planning
NEPAD	New Partnership for Africa's Development	SUAR	Sustainable Utilisation of Agricultural Resources Bill, 2004
NGO	Non Governmental Organisation	THETA	Tourism and Hospitality Education and Training Authority
NRF	National Research Foundation	TFCA	Transfrontier Conservation Area
NSBA	National Spatial Biodiversity Assessment	ToR	Terms of Reference
NSoER	National State of Environment Report	UCT	University of Cape Town
NSSD	National Strategy for Sustainable Development	UNCCD	United Nations Convention to Combat Desertification
PHASA	Professional Hunters Association of South Africa	UNDP	United Nations Development Programme
Ramsar	Convention on Wetlands of International Importance, signed in Ramsar, Iran, in 1971	UNFCCC	United Nations Framework Convention on Climate Change
RDL	Red Data List	WfW	Working for Water Programme
SA	South Africa	WG1	Working Group 1 of MINTEC, on biodiversity and heritage
SACOB	South African Chamber of Business	WRC	Water Research Commission
SADC	Southern African Development Community	WSSD	World Summit on Sustainable Development
SAEON	South African Environmental Observation Network	WTO	World Trade Organisation
		WWF-SA	World Wide Fund for Nature South Africa

1. INTRODUCTION

The National Biodiversity Strategy and Action Plan (NBSAP) sets out a framework and a plan of action for the conservation and sustainable use of South Africa's biological diversity and the equitable sharing of benefits derived from this use. The NBSAP was prepared by the Department of Environmental Affairs and Tourism (DEAT), during the period May 2003 to May 2005.

The NBSAP is supported by a Country Study, which is based on a rapid assessment of South Africa's biodiversity, socio-economic and political context. It provides an overview of key issues, constraints and opportunities identified in the stocktaking and assessment phase.

This document provides the background to the NBSAP process followed in South Africa and an executive summary of the situational assessment (Country Study) that guided the development of the strategy.

The strategy that follows sets out the strategic objectives, outcomes and activities needed to achieve the overarching goals of conservation, sustainable use and equity. An implementation plan sets out high priority activities which are needed to achieve the objectives, including lead agents, partners, targets and indicators. Long-term (15 year) targets have been set for the strategic objectives, while five-year objectives have been set at the outcome level.

South Africa is highly committed to reducing the loss of biodiversity by 2010.



2. BACKGROUND TO THE NBSAP AND THE PROCESS FOLLOWED

South Africa initiated a process to develop a National Biodiversity Strategy and Action Plan in May 2003. The Department of Environmental Affairs and Tourism (DEAT), specifically the Chief Directorate: Biodiversity and Heritage, as the lead agent for implementation of the Convention on Biological Diversity (CBD) and other multi-lateral environmental agreements, was mandated to manage the process to develop the NBSAP. This process was partly funded by the Global Environment Facility, through a grant administered by the United Nations Development Programme (UNDP). Additional finance was made available by DEAT, while members of the Project Steering Committee and workshop participants covered their own expenses.

The NBSAP is in part a response to an obligation South Africa agreed to by signing and ratifying the Convention on Biological Diversity in 1995. Article 6 of the CBD – General Measures for Conservation and Sustainable Use – calls for the development of national strategies, plans or programmes and the integration of conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

South Africa played a key role in hosting the 2002 World Summit on Sustainable Development, and is highly committed to achieving the goals and targets of the Johannesburg Plan of Implementation, including the Millennium Development Goals and biodiversity targets, such as reducing the rate of loss of biodiversity by 2010. The NBSAP sets out a plan of action to achieve this target.

There is also a national imperative to produce an NBSAP. Section 24 of the South African Constitution (Act 108 of 1996) notes the human right to have the environment protected in ways that ensure conservation and sustainable use. This principle is given effect by the recent promulgation of the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEMBA) and the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEMPAA). Chapter 3 of NEMBA calls for the development of a National Biodiversity Framework. The NBSAP is the first step in the process of developing this Framework.

The NBSAP was prepared during May 2003 to May 2005, under the strategic guidance of a Project Steering Committee, with representation by national departments, national agencies such as the National Botanical Institute (from September 2004, this became the South African National Biodiversity Institute) and South African National Parks, provincial departments and agencies (such as provincial Parks Boards) responsible for biodiversity conservation, as well as some representation by civil society. A National Project Manager was appointed to manage the process, assisted by a Project Management Team and several voluntary Task Teams.

During the stocktaking and assessment phase, a number of consultants were contracted to provide a strategic assessment of the key thematic areas of conservation (including spatial and social components and key threats such as invasive alien species), sustainable use, access and benefit sharing, economic integration and poverty alleviation, policy, legislation and institutional capacity. Six Task Team workshops (held between October 2003 and April 2005) brought together a wide range of expertise and interests to develop the draft Strategy.

The draft Strategy was debated in a series of consultative workshops. A first national workshop was convened in March 2004 to discuss the stocktaking and assessment and debate the draft Strategy, followed by a second national workshop in July 2004. Additional discussions and consultations took place in all nine provinces during 2004, and with various national departments and NGOs. In addition, a national workshop on sustainable use and benefit sharing was held in June 2004. An NGO biodiversity network, NetBio, hosted several workshops for NGOs and CBOs, while civil society representatives attended all the national and provincial workshops. Two workshops that focused on municipalities were held in partnership with the South African Local Government Association (SALGA) in October and November 2004. These were attended by representatives of all three types of municipality (metropolitan, district and local), from all nine provinces.

The first comprehensive national spatial assessment of the status of biodiversity at the ecosystem level was carried out

in 2004, as part of the NBSAP process. The National Spatial Biodiversity Assessment (NSBA) was funded jointly by DEAT and the South African National Biodiversity Institute (SANBI). The NSBA used systematic biodiversity planning techniques to determine the conservation status of ecosystems and to identify national priority areas for conservation action and more detailed planning. The NSBA

has four components, dealing with terrestrial, river, estuarine and marine environments.

The NBSAP and the NSBA form the basis of the National Biodiversity Framework, which will undergo a further consultative process during 2005, and will be reviewed and amended as necessary every five years.

The first comprehensive national spatial assessment of the status of biodiversity at the ecosystem level was carried out in 2004, as part of the NBSAP process.



3. EXECUTIVE SUMMARY

OF COUNTRY STUDY

3.1. *Social, political and economic context*

The Republic of South Africa is the southernmost country on the African continent stretching from latitude 22°S to 35°S, and from longitude 17°E to 33°E and covering an area of 1 219 090 km². The South African population is diverse and is estimated to number 45 million, with a population growth rate of 2.1% per annum. Although South Africa is regarded as a middle-income developing country, income distribution is highly skewed. Poverty is widespread in South Africa. Half of all South African households (or more than 22 million people) earn less than R353 per adult per month, or approximately US\$2 per day. The national unemployment rate is estimated at about 26% but is much higher in some areas. Poverty leads to malnutrition and exacerbates health risks such as malaria, tuberculosis and HIV/AIDS. Poverty alleviation and job creation are national priorities.

By 2001 approximately 50% of the population of South Africa resided in urban areas. The urban areas have well developed financial, legal, communications, energy and transport sectors and modern infrastructure. The rural areas, however, have limited infrastructure and development.

South Africa has the largest economy in Africa and has a stock exchange that ranks among the ten largest in the world. In the past, the South African economy was based chiefly on primary production and extraction of resources. The southern African sub-continent contains some of the oldest rocks on earth and South Africa is very well endowed with mineral resources, including gold, platinum, diamonds, copper, iron, manganese, vanadium and coal. Agriculture is also an important sector. Although its percentage contribution to Gross Domestic Product (GDP) has declined in recent years, agriculture is socially important, being the main employer in rural areas where few other employment options exist. The agricultural sector provides materials for the important manufacturing sector and contributes to national food security. The majority of land in South Africa (86%) is zoned for agriculture, of which 13% is used for cultivation of crops. Most of this land is privately owned.

In recent decades, the South African economy has shifted away from primary sectors, with secondary and tertiary sectors becoming more important. For example, the contribution of tourism to the economy has overtaken that of agriculture. The tourism industry contributed an estimated 10% of GDP

By 2001 approximately 50% of the population of South Africa resided in urban areas.



in 1999. Tourism is currently the fastest growing sector of the economy.

Private and communal landowners, particularly those involved in economic sectors such as mining, agriculture and urban development, are important stakeholders for implementation of the biodiversity strategy.

The serious poverty and underdevelopment amongst large sectors of the population is largely due to South Africa's history of colonialism and apartheid. Under race-based apartheid policy and legislation, the majority of South Africans were systematically dispossessed of their land and denied access to resources and adequate services, including healthcare, housing and education. Redressing the wrongs of the past and ensuring equitable access to resources is essential in South Africa.

South Africa's first non-racial elections were held in 1994 and brought the African National Congress (ANC) to power, with Nelson Mandela as the country's first democratically elected president. South Africa's history presented the new govern-

ment with enormous challenges. The first ten years of democracy saw a thorough overhaul of founding principles, policies, legislation and institutions. South Africa is in the unusual position of having changed virtually every piece of legislation in the past decade, with the stated intention of achieving justice, equity and sustainability. Three spheres of government have been established: national, provincial and local. Each is tasked with addressing the legacy of the past and ensuring a sustainable future for the country. While the political focus of the first decade of democracy in South Africa was on policy changes and the overhaul of legislation, the focus of the second decade is on implementation.

3.2. Legislative and institutional context

Administrative boundaries changed dramatically post-1994, to form nine new provinces: Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West, Northern Cape and Western Cape, each with its own Provincial Legislature. The number of local authorities was reduced from 843 municipalities to 284 in December 2000. The new municipalities are of three types: one-tier metropolitan

The serious poverty and underdevelopment amongst large sectors of the population is largely due to South Africa's history of colonialism and apartheid.



municipalities, two-tier district and local municipalities. These changes have affected local government in the short term, creating new opportunities as well as challenges such as capacity constraints. Local government has an important role to play in development planning and management of biodiversity, and will require particular focused support to facilitate implementation of the NBSAP.

South Africa has signed and ratified a large number of international conventions, treaties, protocols and other agreements. South Africa ratified the Convention on Biological Diversity in 1995, and is committed to sustainable development and international co-operation on matters relating to environment, development and human rights. South Africa's policy and legislation for environmental management, including biodiversity conservation, has undergone profound changes in the past decade. This policy development process is ongoing.

South Africa's Constitution (Act 108 of 1996) creates the overall framework for environmental governance in South Africa by establishing the right to an environment that is not harmful to health and well-being; by balancing the right to have the environment protected with rights to valid social and economic development and by allocating environmental functions to a wide range of government agencies in all spheres and requiring co-operation between government agencies and spheres of government. The Constitution emphasises the principle of co-operative government and reflects a fundamental departure from the past in that the three traditional spheres of government – national, provincial and local – are no longer regarded as hierarchical tiers with national government at the helm, but rather as three “distinctive, interdependent and interrelated” spheres of government. National legislative competencies include land reform, water resources, forest resources, marine resources, national parks and national botanical gardens. Functional areas of concurrent national and provincial legislative competence include environmental management, pollution control, soil conservation, nature conservation (excluding national parks, national botanical gardens and marine resources) and regional planning and development.

National legislation has been promulgated to govern national competencies such as water (National Water Act, Act 36 of 1998), forests (National Forests Act, Act 84 of 1998), marine resources (Marine Living Resources Act, Act 18 of 1998) and more recently, national parks and national botanical gardens, which are governed by NEMPAA and NEMBA, respectively. National policy on coastal resources

has been developed and legislation is currently being developed. The wide range of legislation dealing with various aspects of biodiversity, including various types of protected areas, has resulted in a relatively high number of state departments and agencies being responsible for managing biodiversity within protected areas, and across the landscape and seascape outside the protected area network.

The biodiversity conservation sector in South Africa is well established. DEAT is the primary custodian of the environment in South Africa, but this responsibility is shared. Biodiversity is also an important function of other national departments such as Department of Water Affairs and Forestry (DWAF) and the Department of Agriculture (DoA), and a number of other public and private (civic) institutions at national, provincial and local level. In September 2004, NEMBA transformed the National Botanical Institute (NBI) into the South African National Biodiversity Institute (SANBI). While the NBI focused on botany, SANBI will focus on biodiversity in all its forms, including terrestrial, marine and other aquatic ecosystems. NBI dealt with plants, while SANBI will deal with plants, mammals, birds, amphibians, fish, reptiles, invertebrates and other organisms, particularly with regard to bioregional planning and programmes, biodiversity research, monitoring and reporting. South Africa has a well-established research capacity, with a number of world renowned universities, science councils and other research institutions.

A number of large, cross-sectoral programmes have been initiated in South Africa during the past decade, focusing on development and poverty alleviation. These present important opportunities to mainstream biodiversity considerations in development planning, capacity building and community empowerment. Examples include the Working for Water, LandCare and Integrated Sustainable Rural Development programmes. Bioregional planning and integrated bioregional programmes have been effectively implemented in a number of internationally recognised biodiversity hotspots in South Africa, with funding assistance from the GEF, international NGOs such as Conservation International, the National Botanical Institute (now SANBI) and provincial conservation agencies. SANBI is increasingly playing a co-ordination and facilitation role in bioregional planning and programmes. For example, SANBI hosts the Cape Action for People and Environment (C.A.P.E.) programme and the Succulent Karoo Ecosystem Programme (SKEP) and is co-ordinating the development of the National Grassland Biodiversity Programme.

3.3. South Africa's rich diversity

The diversity of peoples, topography, climate and geology of the country ensures a wide variety of landscapes, scenic vistas, lifestyles and knowledge. These natural and cultural resources underpin a large proportion of the economy and many urban and rural people are directly dependent on them for jobs, food, shelter, medicines and spiritual well-being.

South Africa is a megadiverse country, considered one of the most biologically diverse countries in the world, largely due to the species diversity and endemism of the vegetation. The major natural systems of the country have been classified in terms of the biome concept, based on dominant plant life forms, correlated with climatic variations. Biomes found in South Africa are desert, fynbos, succulent Karoo, Nama Karoo, grassland, savanna, Albany thicket, forest and wetland vegetation.

South Africa occupies only 2% of the world's surface area but is home to nearly 10% of the world's plants and 7% of the world's reptiles, birds and mammals. South Africa is home to approximately 24 000 plant species. Levels of endemism are high, especially for plants. Plant genetic diversity is also unusually high, contributing to the potential for developing new medicines, crops, cosmetics, ornamental plants and other useful products.

South Africa's faunal diversity is also high relative to the land surface area. South Africa is home to an estimated 5.8% of the global total of mammal species (close to 300 species), 8% of bird species (more than 800 species recorded), 4.6% of reptile species (288 species) and 5.5% of the world's known insect species (50 000 species have been recorded in South Africa, but an estimated further 50 000 have not yet been described). In terms of the number of endemic species of mammals, birds, reptiles and amphibians, South Africa ranks as the fifth richest country in Africa and the 24th richest in the world. Marine biological diversity is also high. There are over 11 000 species found in South African waters, which is about 15% of global species, with more than 25% of these marine species (or 3 496 species) being endemic to South Africa.

Three globally recognised biodiversity hotspots (areas with especially high concentrations of biodiversity, which are



South Africa occupies only 2% of the world's surface area but is home to nearly 10% of the world's plants and 7% of the world's reptiles, birds and mammals.

under serious threat) are found in South Africa: the Cape Floral Kingdom (equivalent to the fynbos biome), Succulent Karoo (shared with Namibia) and the Maputaland-Pondoland-Albany centre of endemism (Maputaland-Pondoland is shared with Mozambique and Swaziland). The succulent Karoo biome is one of only two arid biodiversity hotspots in the world, the other being the Horn of Africa.

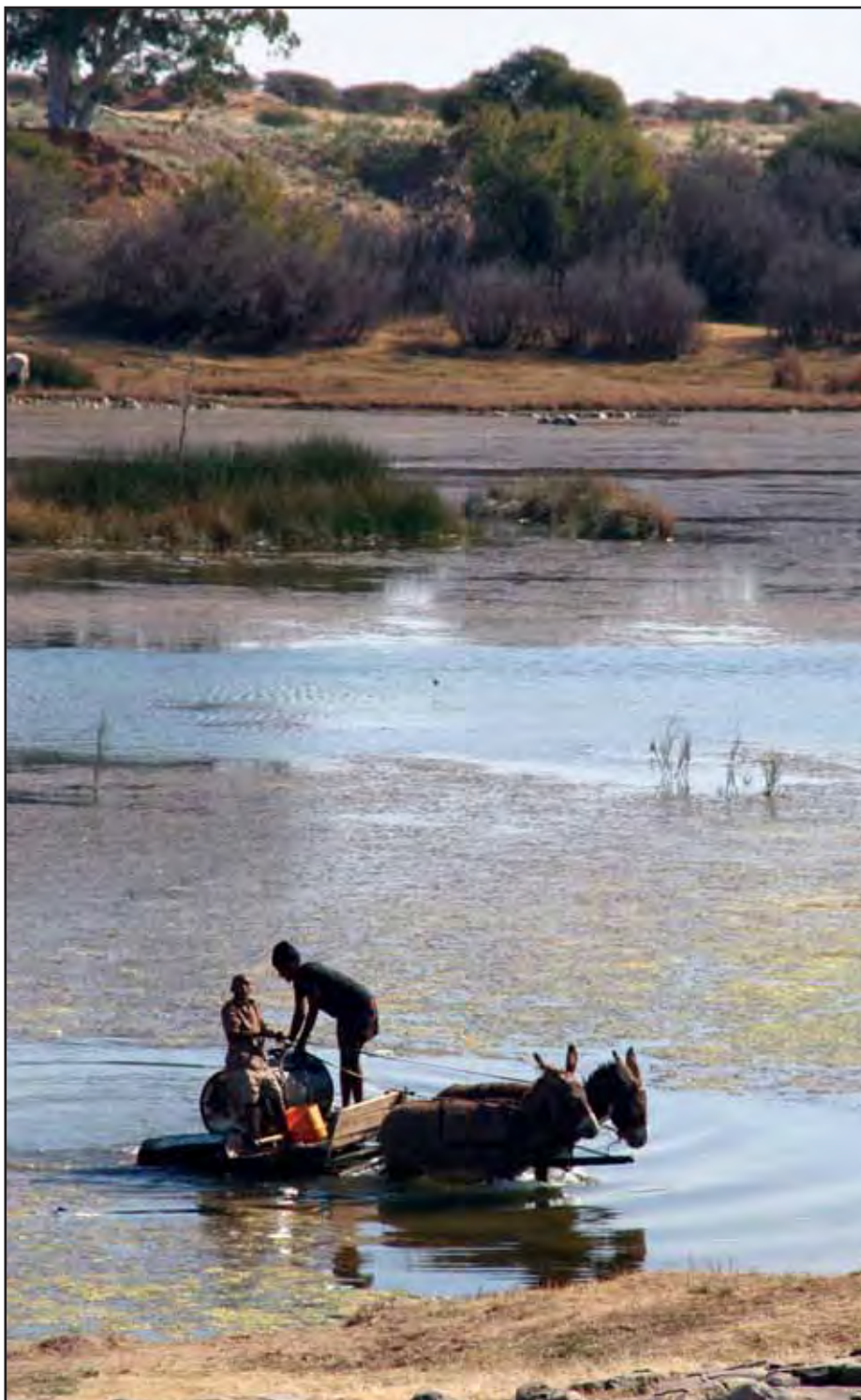
3.4. Species assessments

The first assessments of the conservation status of certain southern African plants were published in the 1980s, with a comprehensive assessment published only in 1996. The 1996 southern African plant Red Data List (RDL) was updated in 2002, with particular emphasis on socially and economically important species, species known to be unsustainably harvested, and species of special interest such as endemics. Nevertheless, the conservation statuses of only about 25% of the plants listed in the 1996 RDL have been updated since 1996. Of the 948 taxa assessed, 414 are threatened with extinction, while 108 are data deficient. Fifteen are considered to be extinct while 19 are critically endangered (all are endemic to South Africa). The major threatening processes are noted to be habitat transformation and degradation due to agricultural activities, urban development (especially coastal development), mining, industry and roads, the spread of invasive alien species, subsistence harvesting (especially of medicinal plants) and illegal collection for commercial trade (particularly of groups such as cycads and succulents). Climate change is recognised as having potentially serious consequences for South Africa's vegetation, especially the succulent Karoo and grassland biomes.

An early assessment of the conservation status of South African mammals was published in 1986, but covered terrestrial mammals only. The most comprehensive assessment of the conservation status of South Africa's mammalian species was made in 2002/2003. The Red Data Book of Mammals of South Africa indicates that of the 295 species and sub-species of South African mammals evaluated, 12% are endemic, 57 species (19.3%) are threatened (critically endangered, endangered or vulnerable), while a further 38 (12.8%) are near threatened. Of the critically endangered and endangered species, 70% and 33% respectively are endemic to South Africa. Almost a fifth of all mammal species could not be assessed, due to data deficiencies. The main threatening

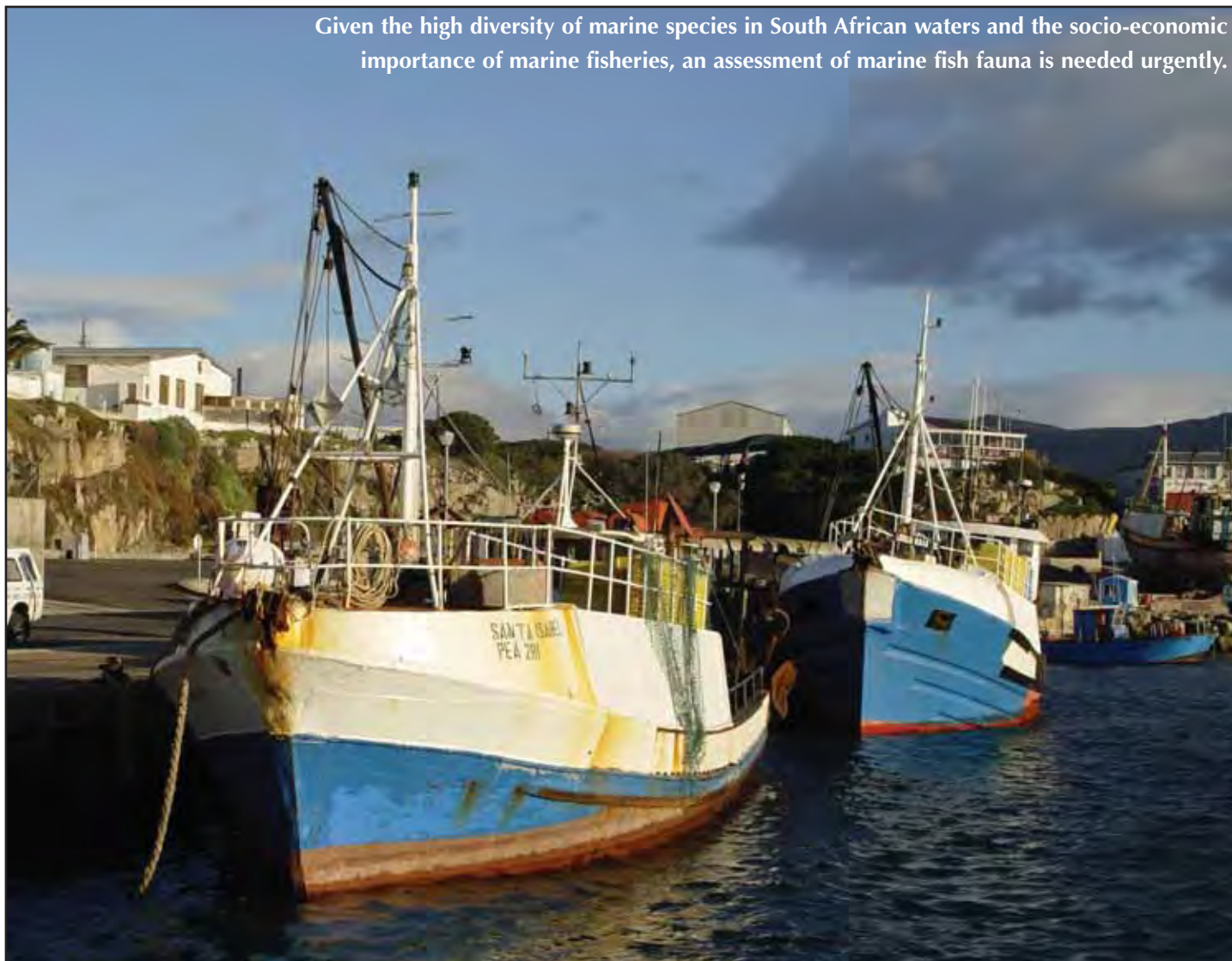
processes impacting on mammals are habitat loss, degradation and transformation due to deforestation, agriculture, commercial timber planting and urban and industrial development as well as poisoning, pollution and hunting.

An assessment of the status of southern African bird species, published in 2000 by BirdLife, an NGO, indicates that two species are extinct in the region while 59 species are threatened and 64 are near threatened. The species list of South African birds is in the process of being updated and numbers more than 800 species.



Almost half of South Africa's river systems are critically endangered.

Given the high diversity of marine species in South African waters and the socio-economic importance of marine fisheries, an assessment of marine fish fauna is needed urgently.



The Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland, published in 2004, indicates that 20 of the 114 recorded species of frogs (17%) are threatened (including four critically endangered species) and a further five species are near threatened. Eight species are data deficient.

The last formal assessment of the status of South African freshwater fishes was carried out in 1987 and most South African freshwater fish species need to be re-evaluated. South African marine fish species have not been assessed. Given the high diversity of marine species in South African waters and the socio-economic importance of marine fisheries, an assessment of marine fish fauna is needed urgently.

3.5. Ecosystem status

Assessments of biodiversity in South Africa have mainly focused at the species level in the past.

South Africa's first comprehensive national assessment of the status of biodiversity at the ecosystem level was carried out

during 2004 in a partnership between DEAT and SANBI, as part of the NBSAP process. The objective was to systematically identify geographical priority areas for the development of short- to medium-term strategies and actions. The National Spatial Biodiversity Assessment (NSBA) used systematic biodiversity planning techniques to determine the status of ecosystems and to identify national priority areas for conservation action and more detailed planning. The NSBA integrated terrestrial, inland water, estuarine and marine ecosystems, using available spatial data, conservation planning software and a series of expert and stakeholder workshops. The NSBA assessed the status of ecosystems and the adequacy of the current protected area network, and identified broad priority areas for conservation action. This assessment was carried out at a national (1:250 000) scale, and provides a national context for biodiversity plans at the sub-national and local scale.

The spatial biodiversity assessment of South Africa's 440 terrestrial ecosystems showed that 34% are threatened. Of these, 5% are critically endangered (mainly in the fynbos and forest biomes), 13% are endangered (mainly in the grassland

and savanna biomes) and 16% are vulnerable (mainly in the fynbos and grassland biomes).

The status of river ecosystems in South Africa is cause for concern. The spatial biodiversity assessment of South Africa's 120 river signatures found that 82% are threatened. Almost half, or 44%, are critically endangered, while 27% are endangered, 11% are vulnerable and 18% are least threatened. River ecosystems in South Africa are poorly protected. South Africa is a water-scarce country and all freshwater systems are heavily utilised. The assessment focused on main stems of rivers. There is a need to extend the assessment to tributaries, and to identify priorities for conservation.

South Africa has 259 estuaries, which can be divided into five different types: estuarine bays, permanently open estuaries, river mouths, estuarine lakes and temporarily closed estuaries. These various types are distributed across three zones, namely the cool temperate zone on the west coast, the warm temperate zone on the south coast, and the subtropical zone on the east coast. This classification gives us 13 estuarine zonal-types or groups. Of these groups, three are critically endangered and five are endangered.

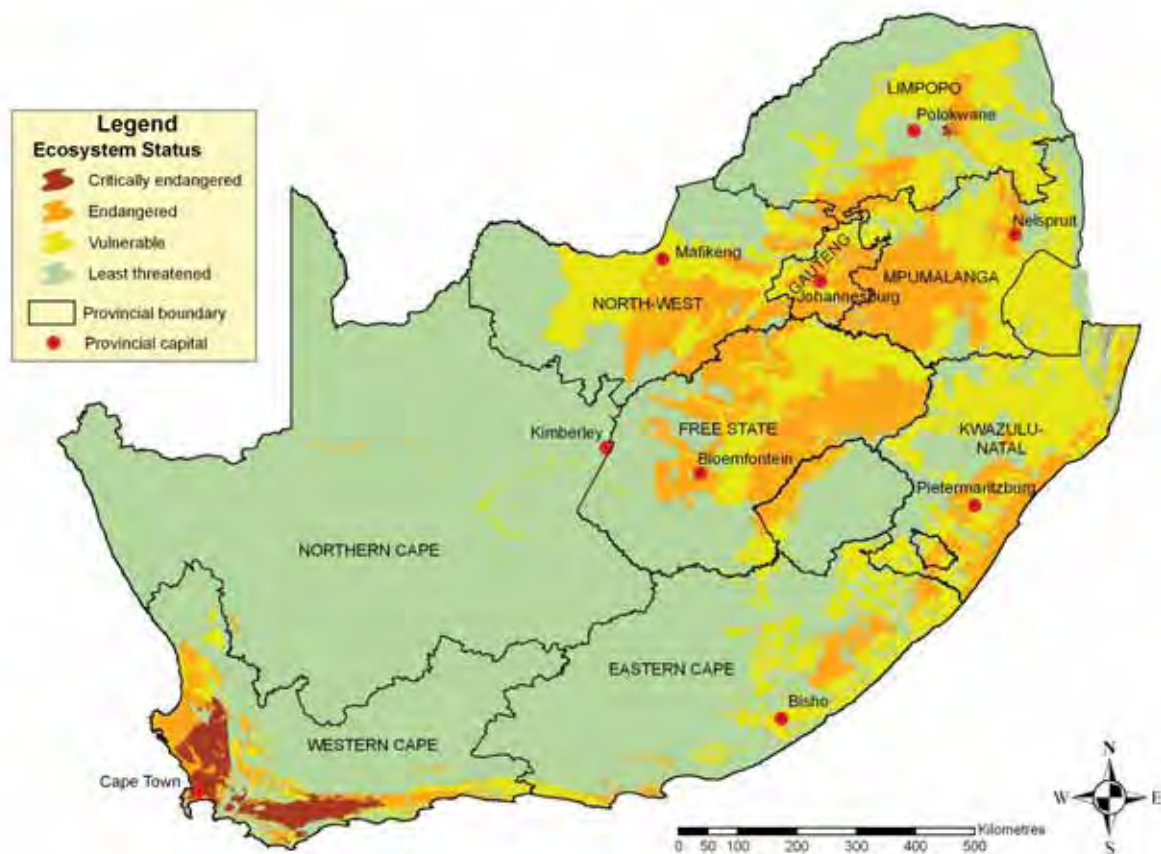
The spatial biodiversity assessment of the marine environment showed that 65% of South Africa's 34 marine biozones are threatened, with 12% being critically endangered, 15% endangered, 38% vulnerable and 35% least threatened.

The declining status of ecosystems is cause for considerable concern, since international and national research has shown that degradation of ecosystems leads to a reduction in ecosystem services, such as a reduced capacity to generate clean water and a loss of food production due to land degradation. These losses are often felt disproportionately by the urban and rural poor, who are most exposed to the effects of pollution and who rely directly on the natural environment for their livelihoods. This is a concern in all regions of the world and particularly in sub-Saharan Africa, where the condition and management of ecosystem services is a dominant factor influencing prospects for reducing poverty. The degradation of ecosystem services is already considered a significant barrier to achieving the Millennium Development Goals and the harmful consequences of this degradation could grow significantly worse in the next 50 years, according to the Millennium Ecosystem Assessment completed in 2004.

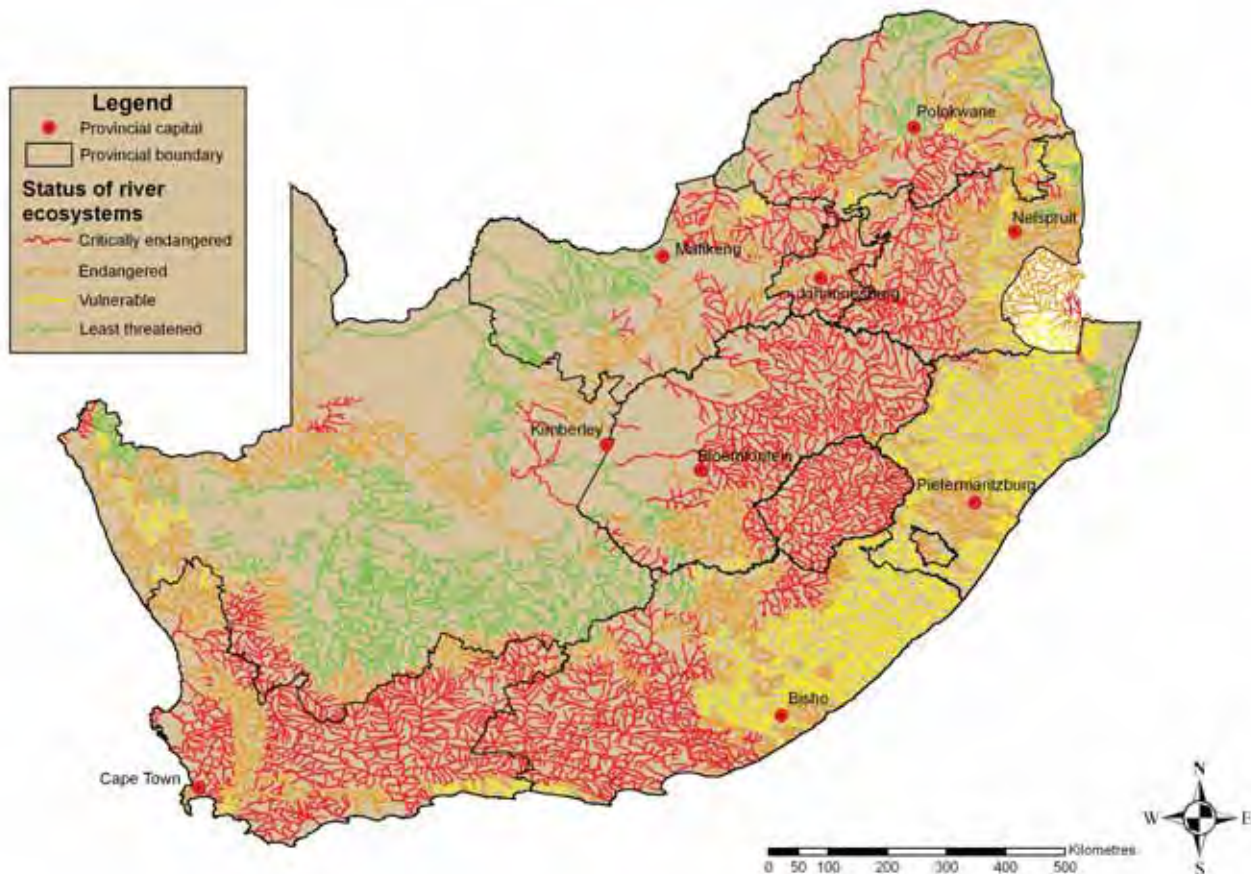
The status of river ecosystems in South Africa is cause for concern.



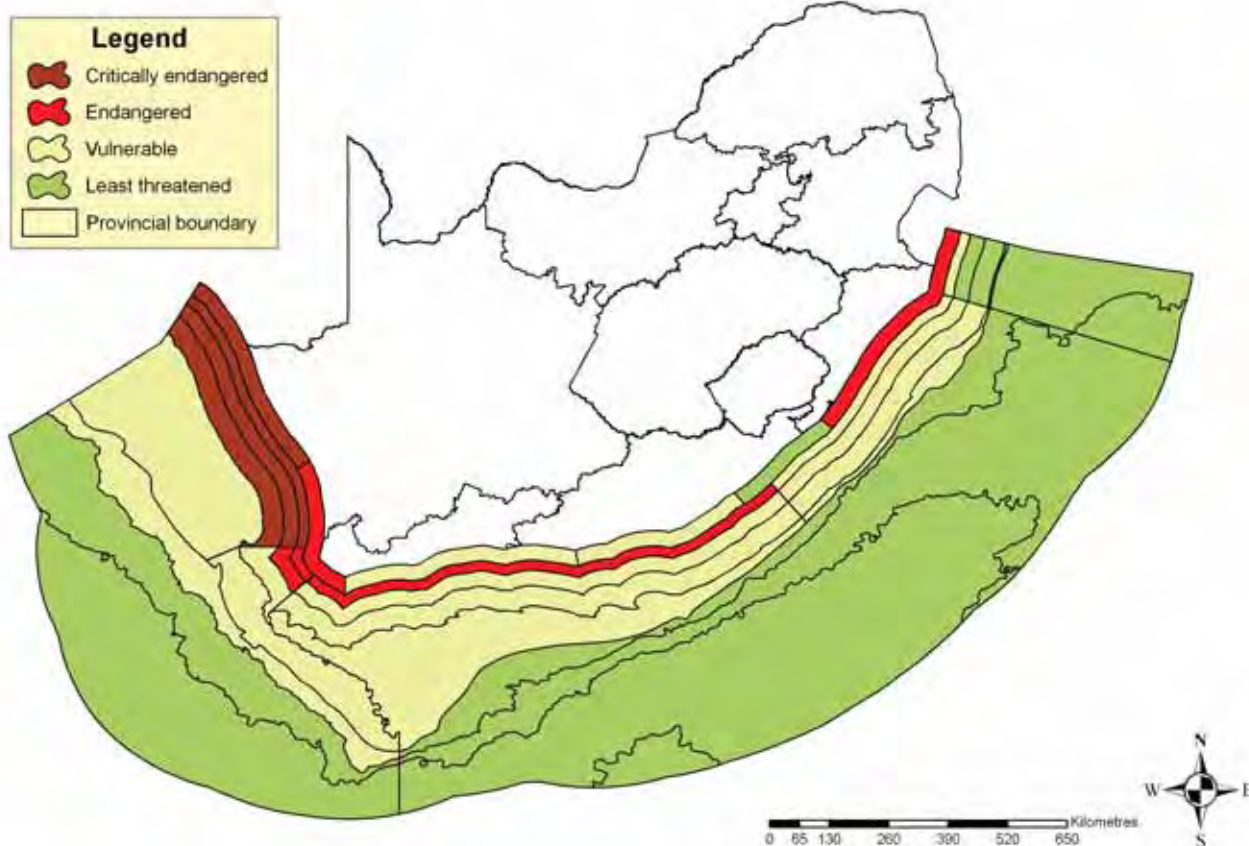
Status of Terrestrial ecosystems (NSBA 2004)



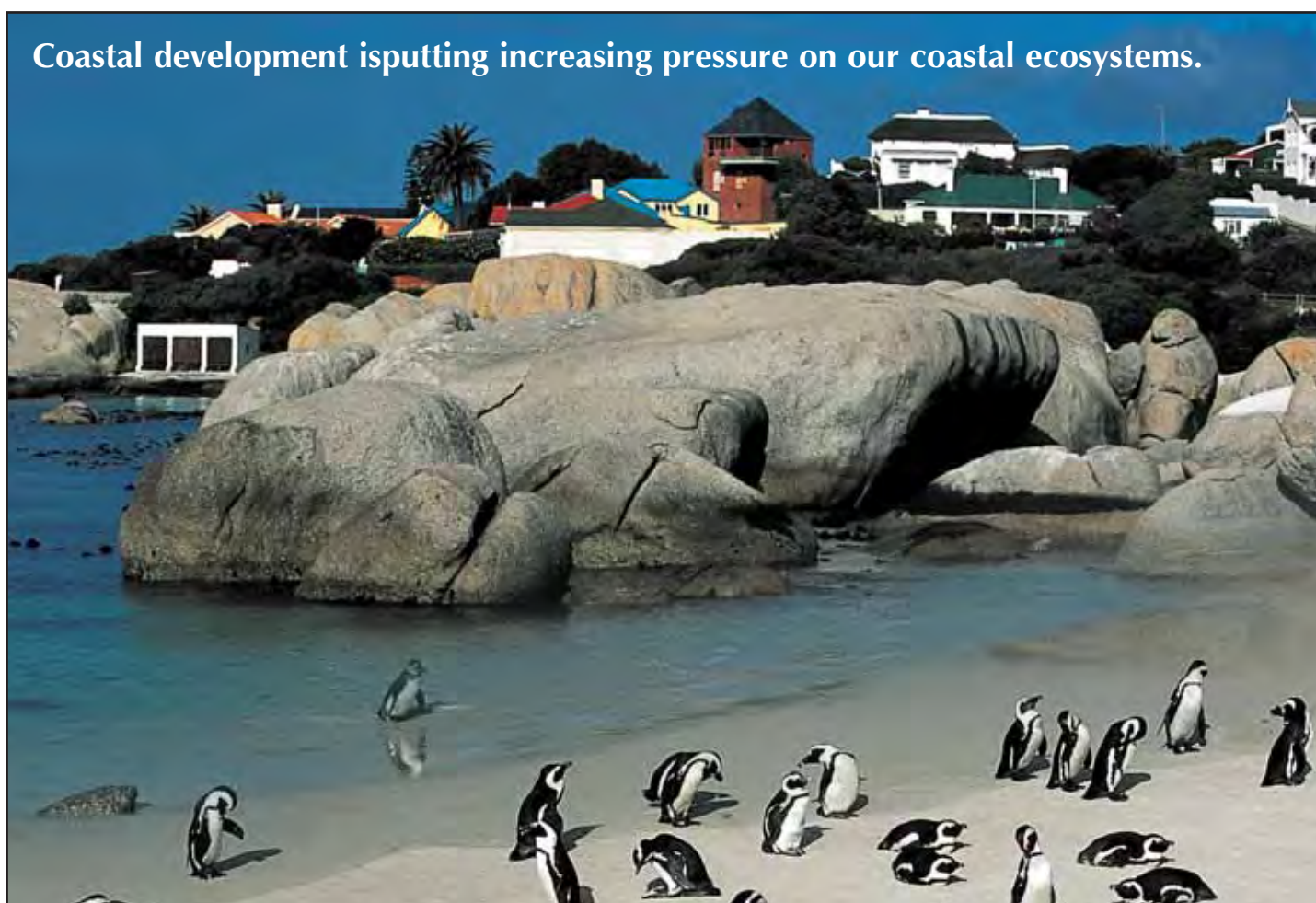
Status of river ecosystems (mainstem rivers only) (NSBA 2004)



Status of marine biozones (NSBA 2004)



Coastal development is putting increasing pressure on our coastal ecosystems.



3.6. South Africa's protected area network and priority areas for conservation action

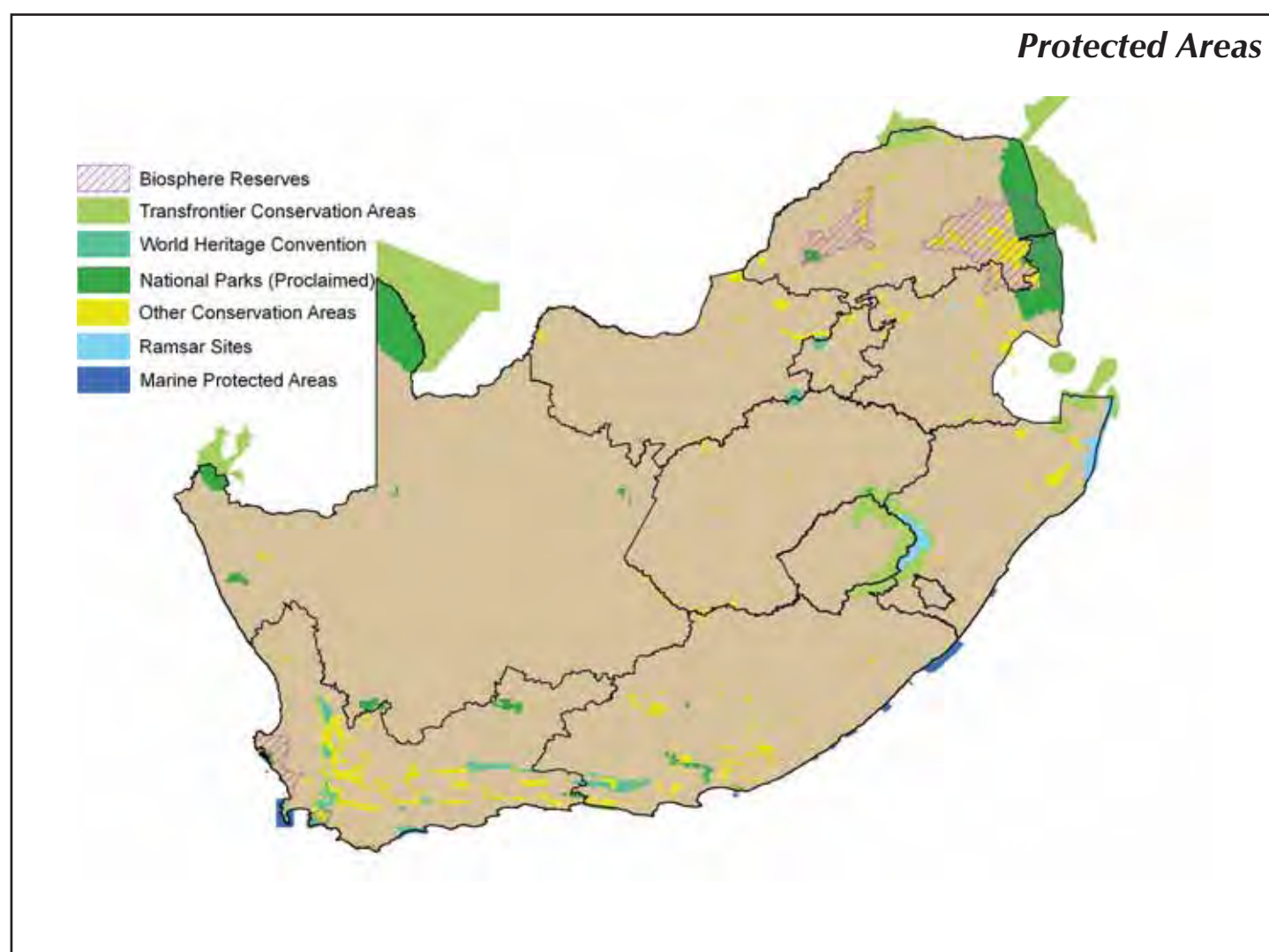
South Africa has a century-long history of conservation, with a well developed protected area network managed by a range of institutions at national, provincial and local level. However, the establishment of protected areas has been *ad hoc* in the past. Protected areas were often proclaimed on land marginal for agriculture or other use, and the current system of protected areas does not include a representative sample of all ecosystems. Although 5.4% of South Africa's land surface area is currently formally conserved through the system of national and provincial protected areas, the protected area network is skewed towards certain biomes such as savanna, leaving biomes such as grasslands and succulent Karoo under-conserved.

Rivers in particular are poorly conserved. Where they are included in a protected area, they often form the protected

area boundary and are thus not really protected. Some coastal and marine biozones are poorly protected. Only two estuarine groups are considered well protected. Although 18% of South Africa's coastline currently falls within marine protected areas, these tend to be located close to the coastline, while offshore biozones are generally poorly protected. Marine biozones on the west coast are least protected and most threatened.

DEAT has a stated objective of expanding the formal protected area network to cover 8% of the land surface area and 20% of the marine areas by 2010.

The NSBA has identified broad priority areas for conservation action. These are areas where there is a need for finer scale planning, expansion of the protected area system and integration of biodiversity-compatible development and resource management across the landscape and seascape, including on private and communal land. These areas are priorities for implementation of the Strategy, including strategies for mainstreaming, sustainable use, conservation and institutional strengthening.



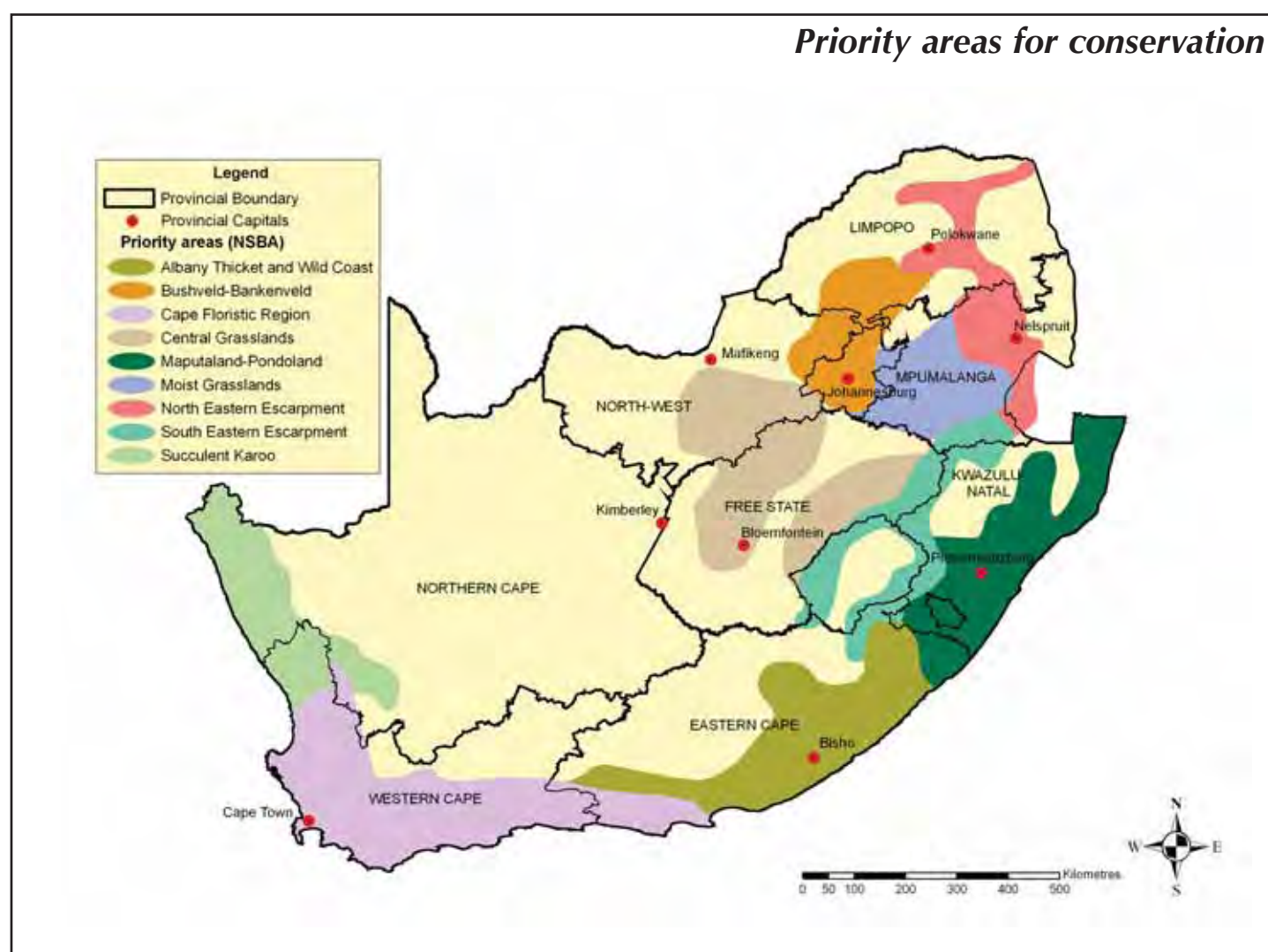
3.7. Use of biodiversity in South Africa

In South Africa, terrestrial, inland water, coastal and marine ecosystems and their associated species are widely used for commercial, semi-commercial and subsistence purposes through both formal and informal markets. While some of this use is well managed and/or is at levels within the capacity of the resource for renewal, much is thought to be unsustainable. 'Use' in this case refers to extractive use, such as collecting, harvesting, hunting, fishing, and so on, for human consumption and production, as well as more indirect use such as ecotourism.

There is generally good information available on formal commercial industries based on biological resources (e.g. hunting, game farming, ecotourism and organised forest timber, wildflower and fern harvesting) because they are regulated, and managed through permit and licensing systems. This trade is largely regulated through the provincial conservation agencies. Wildlife ranching (game farming) is an important economic activity in the savanna biome, particularly in Limpopo (where more than half of all game farms are located) and the



The farming of wildflowers to service the horticultural industry has become big business in some areas, especially in the Western Cape.



Northern Cape. Game farming is also growing rapidly in the Eastern Cape. There are an estimated 9 000 privately owned game ranches in South Africa, covering an area of more than 17 million hectares. The sale of game has shown substantial growth in the last decade from 8 292 animals sold in 1991 (worth R9 million) to 20 022 animals sold in 2002 (worth R105 million) at 52 auctions held throughout South Africa. However, hunting is much more profitable than the sale of wild game. Professional hunting is estimated to support 70 000 jobs and generates R1 billion a year from trophy hunting fees, taxidermy, accommodation and venison.

As with game farming, the farming of wildflowers to service the horticultural industry has become big business in some areas, especially in the Western Cape. While some indigenous species are cultivated as with any other agricultural crop, selected fynbos plant species are also harvested from the wild for commercial purposes. Harvesting is done according to international certification standards based on currently known sustainable levels. A number of plants yield traditional beverages (such as rooibos tea and honeybush

tea), or aromatic oils or remedies (such as buchu, hoodia and devil's claw), which have been commercialised. The market for wildlife and wildflowers has had positive impacts and has led to an increase in the area of land under conservation management.

South Africa is actively engaged in bioprospecting and the past decade has witnessed a flurry of activities in the exploration of local biodiversity for commercially valuable genetic resources and biochemicals. This is due largely to the country's extraordinarily rich and unique biodiversity and well-developed research and institutional capacity, which combined provide an extremely favourable environment for bioprospecting, as well as for other approaches based on trading and using biodiversity for commercial gain.

The absence of legal and administrative mechanisms to control access to South Africa's genetic resources and to set conditions for benefit-sharing has in the past been a key constraint towards achieving more meaningful benefit sharing. South Africa's legislation with respect to Access and Benefit Sharing



There are reported to be 28 million consumers of traditional medicines in South Africa, but the current supply of medicinal plants from woodlands and forests is thought to be unsustainable.

is currently in a transition, and new legislation encapsulated in NEMBA has yet to be implemented.

There is considerable lack of understanding of subsistence use of terrestrial and coastal resources in South Africa except that it is known to be extensive and in many cases is thought to be unsustainable. Poverty and unemployment levels are extremely high, particularly in the communal areas, and natural resource harvesting is often a significant component of livelihood strategies. Permits are required to collect resources such as thatch, reeds and bulbs from protected areas; these regulations differ from province to province. However, the existence of regulations or holding of permits does not ensure sustainability. Resource use in communal areas and use of resources from protected areas is extensive but difficult to quantify. A wide variety of resources are harvested for food and a subsistence income, from multiple food types, material for craft production, to building material, fuel and medicinal plants. In many cases, subsistence use is undertaken by very poor people to satisfy daily needs or to collect funds to do so. One of the biggest constraints is a lack of research and monitoring, both to determine sustainable quotas and to ensure compliance. There are very few examples of resource monitoring to assess sustainability of terrestrial resource use.

It is well known that informal resource use is an essential element of the livelihood strategy of many poor rural communities, especially in the savanna and forest biomes. Wood, reeds and thatch are widely used for housing and shelter of livestock, many species of plants are collected for food and medicines, while 'bushmeat', birds and insects also help poor communities meet their nutritional requirements. Natural resources provide important dietary supplements to rural communities, particularly during times of hardship. Wetlands play an important role in the livelihood strategies of rural communities, including cultivation, winter grazing and harvesting resources such as reeds, thatch and fish, but many are in poor condition. The Working for Wetlands programme is currently in the process of mapping South Africa's wetlands and assessing management priorities.

Firewood is still the primary source of energy for heating and cooking in a high percentage of households across the country. The direct use of wood for domestic purposes is an important source of 'income' since it acts as a substitute for formal energy and construction resources. The total adjusted direct consumption value of these products was estimated at R396 million, R1 529 million and R842 million for the Eastern Cape, KwaZulu-Natal and Limpopo Provinces respectively in 1998. This translates into 31.3%, 21.2% and

59.1% of the gross geographic products for agriculture of the respective provinces. These numbers are significant and point to a considerable underestimation of the value and contribution of the natural resources in these provinces to the livelihoods of their people and to their economic development.

Traditional medicines are considered essential for the welfare of black households in South Africa. In South Africa over 60% of all healing takes place outside the formal western-style medical system. There are reported to be 28 million consumers of traditional medicines in South Africa. However, the current supply of medicinal plants from woodlands and forests is thought to be unsustainable.

Although land degradation and over-harvesting of terrestrial resources is a concern in many areas, it is South Africa's freshwater ecosystems that are under most pressure. South Africa is a water-poor country and freshwater is a scarce resource. Most river systems in South Africa have been transformed, both physically and in terms of water quality. The poor condition of most inland aquatic ecosystems is a direct reflection of poor land and water management and development within the catchment area. Thus, the greatest threat to aquatic biodiversity is not merely as a result of unsustainable use levels of the resources, but rather because of decreasing freshwater availability and widespread ecosystem degradation. Aquatic habitats are impacted on by overgrazing, invasive alien species, informal settlements, urban development and industrial and agricultural pollution. Riparian activities (sand mining, impoundments, cultivation) also threaten aquatic habitats and associated biodiversity. The movement of fish (indigenous and alien) to new catchments severely threatens biodiversity of aquatic systems. The movement of fish between catchments requires strict control and strong enforcement.

The marine fishing sector is an important economic sector in South Africa. About 600 000 tons of marine resources are harvested annually by 27 000 South African fishermen and women, with a value of approximately R2.5 billion. The value of the entire fishing industry, incorporating commercial, recreational and subsistence fishing, is estimated to be R4.5 billion a year. As with terrestrial resources, the commercial sector is regulated, co-ordinated and well researched, but there is limited information on the subsistence sector. Strict allocation of fishing licenses linked to scientific assessment of Total Allowable Catches has enabled some pelagic fish stocks to recover. Despite the strict controls, certain commercial sectors (particularly abalone and line-fishing) are under severe threat and priority actions are needed to address this. Certain rocky intertidal invertebrates are over-exploited

Coastal and estuarine resources are particularly difficult to manage, due to the extensive coastline and overlapping jurisdictions.



by subsistence and semi-commercial harvesting. Sea birds (especially albatross, nine species of which are listed as endangered, vulnerable or near threatened) suffer high mortality during longline fishing activities for hake, tuna, swordfish, Patagonian toothfish and sharks. These indirect impacts of fishing are being monitored and addressed. A national plan to reduce the incidental catch of seabirds in longline fisheries was launched in 2002 but levels of success are as yet unknown. Poaching is a significant problem for some marine resources, particularly abalone. Coastal and estuarine resources are particularly difficult to manage, due to the extensive coastline and overlapping jurisdictions.

A number of important poverty alleviation and community development programmes have been initiated in South Africa, and present an opportunity for improving natural resource management and linking biodiversity and social development. These include the Working for Water Programme, the Integrated Sustainable Rural Development Strategy and the Expanded Public Works Programme, which focus on employment opportunities for the poor. The linkages between poverty alleviation and well-functioning ecosystems need to be emphasised at a local or community level, where

the impacts are felt, as well as at a national level where important decisions about economic growth and development are made.

3.8. Pressures on biodiversity conservation and sustainability across the landscape and seascape

In many areas, especially in terrestrial ecosystems, it is not the direct use of biological resources that is threatening their sustainability, but rather indirect pressures such as changing land use and associated clearing of natural vegetation. Virtually all ecosystems and habitats in South Africa have been modified or transformed by human activities. Three key, inter-related threats are habitat removal, invasive alien species and climate change. The introduction and spread of invasive alien species is closely correlated with human activities. Land degradation, clearing of indigenous vegetation, invasion of land by alien species and climate change all interlink to create synergies that exacerbate and compound the impact on biodiversity, leading in turn to further degradation and loss.

Worldwide, loss and associated fragmentation of natural habitat is regarded as the foremost cause of loss of biodiversity, and South Africa is no exception. Land transformation is the most significant factor impacting on South Africa's biodiversity today. The agricultural sector has had the most profound impact on natural habitat across South Africa. The clearing of natural vegetation for crop cultivation has impacted on all biomes.

Many important biodiversity areas overlap with areas of high population density, high agricultural potential, mineral deposits and scenic beauty important for tourism. This can lead to conflicts regarding decisions over land use allocations and underscores the need for extensive consultation regarding land use changes, and the need to set aside areas considered irreplaceable for biodiversity conservation and important for ecosystem services. As far as possible, all land uses should integrate biodiversity considerations into management and mitigation plans. Planning frameworks at various levels – national, provincial and local – must take biodiversity into

consideration in order to guide development. Provision is made in various pieces of legislation to encourage co-ordinated and integrated planning, but the legislation is still in the process of being implemented. For example, legislation administered by the Department of Land Affairs (DLA) and the Department of Provincial and Local Government (DPLG), requires provincial and local administrations to develop, with public consultation, economic development and spatial plans that integrate social, economic and environmental considerations. Legislation administered by DEAT, namely the National Environmental Management Act, 1998 (Act 107 of 1998) requires various national departments to develop Environmental Management Plans and/or Environmental Implementation Plans which should indicate how environmental considerations will be incorporated into their operations, while the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) requires DEAT to develop a National Biodiversity Framework, which will co-ordinate and guide provinces and municipalities with regard to national biodiversity priorities.



The Working for Water Programme (WfW) is a major initiative that aims to control invasive alien plants in South Africa and at the same time create jobs and alleviate poverty.

In addition to habitat loss due to development pressures, transformation of habitats due to the uncontrolled spread of invasive alien species is a serious concern in all biomes and ecosystems across South Africa. More than 180 recognised invasive alien plant species already infest the equivalent of 10 million ha, or 8% of South Africa's surface area, an area that is constantly expanding. Invasive alien species, particularly large plants, have been well studied in South Africa, compared to other sub-Saharan countries. South Africa has a long tradition of listing invasive species present in the country and publishing annotated checklists and field guides to these species.

Invasive alien species have very serious negative impacts on the biodiversity and economy of South Africa. Woody invasive alien species, mainly from Australia and South America, use considerably more water than indigenous vegetation, resulting in about 7% of the annual flow of South Africa's rivers being lost. Invasive alien species pose a threat to the survival of thousands of endangered species of plants of all ecosystems in South Africa. They increase fire hazards and accelerate soil erosion. The widespread introduction of alien fish species into South Africa's rivers, streams and dams, and the translocation of indigenous fish between catchments and inter-basin transfers of freshwater have seriously impacted on native fish species.

The political recognition of the impact that invasive alien trees have on freshwater resources, supported by highly credible research, led to the Working for Water Programme (WfW), a major initiative that aims to control invasive alien plants in South Africa and at the same time create jobs and alleviate poverty. This is administered by the Department of Water Affairs and Forestry and is run in partnership with all the other relevant national and provincial departments, agencies and boards.

It is important to note the upward trend in the numbers of alien species arriving in South Africa. As South Africa becomes warmer under the influence of global climate changes it seems likely that its ecosystems will become increasingly prone to invasions by more tropical alien species. Extreme climate events such as floods exacerbate the problem, allowing alien plants to move into riverine areas and to spread across floodplains. Ecosystem transformation and fragmentation due to human intervention tends to promote the entry and spread of invasive alien species and this is likely to intensify in future. The first line of defence in combating the spread of invasive species must be prevention. Once an invasive species is firmly established, the costs of

control or eradication are high and compete with other demands on scarce financial resources. Due to the extent of the problem in South Africa, containment of existing invasive alien species is also required, with the ultimate goal, where possible, being eradication.

Across the African continent, climate change is likely to accentuate social and ecological vulnerability and limit capacity to adapt to changes in ecosystem functioning. These changes have serious economic implications. Vulnerability is high due to frequent floods and droughts, a heavy reliance on rain-fed agriculture, and poverty. Adaptive capacity is low because of limited financial resources, skills and institutional capacity. Plant richness in South Africa is generally correlated with climatic variables and environmental variability, and it is expected that changing climate could have significant impacts on plant diversity in the country.

A South African country study on climate change, published in 1999, used bioclimatic modeling techniques to assess vulnerability and adaptation of plant biodiversity. The study predicted that the area hospitable to the country's biomes is likely to shrink to about 38 - 55 % of their current area. The largest losses are expected to occur in the western, central and northern parts of the country. These changes include the almost complete loss or displacement of the succulent Karoo biome along the west coast and interior coastal plain, an extensive eastward shift of the Nama Karoo biome across the interior plateau, and contraction of the savanna biome on the northern borders of the country. Higher levels of atmospheric carbon and reduced levels of frost are expected to encourage tree growth and an expansion of the savanna biome into the grassland biome. Although the fynbos biome is not expected to contract much in terms of area, many species are likely to be lost, due to more frequent and more intense fires, and loss of animal species important for pollination and seed dispersal. The mountainous areas may provide refuges for some species, if they are able to migrate to new areas. Species composition is likely to change across all biomes, leading also to major structural vegetation changes, especially in the grassland biome.

South African studies modeling the impacts of anticipated climate changes on 179 South African animal species indicate that some species are likely to be minimally affected, with no change in range size, while others are expected to become extinct. Most species' range sizes are expected to contract. Species-rich areas are likely to contract and become concentrated around the eastern highlands. Species losses are likely to be highest in the west, with the majority of range shifts in

Because of climate change, species composition is likely to change across all biomes, leading also to major structural vegetation changes, especially in the grassland biome.



an easterly direction, following the anticipated east-west aridity and temperature gradients. A higher proportion of red data species is expected to be impacted on by range shifts.

The impact of climate change is likely to be compounded by loss, fragmentation and degradation of natural habitat, which constricts the movement of species, and may mean that areas that would have been suitable for species to migrate into under changing climatic conditions are unable to support such shifts. It is essential that South Africa's National Biodiversity Strategy is closely linked with both the Climate Change Response Strategy and the National Action Programme to Combat Land Degradation and Alleviate Rural Poverty.

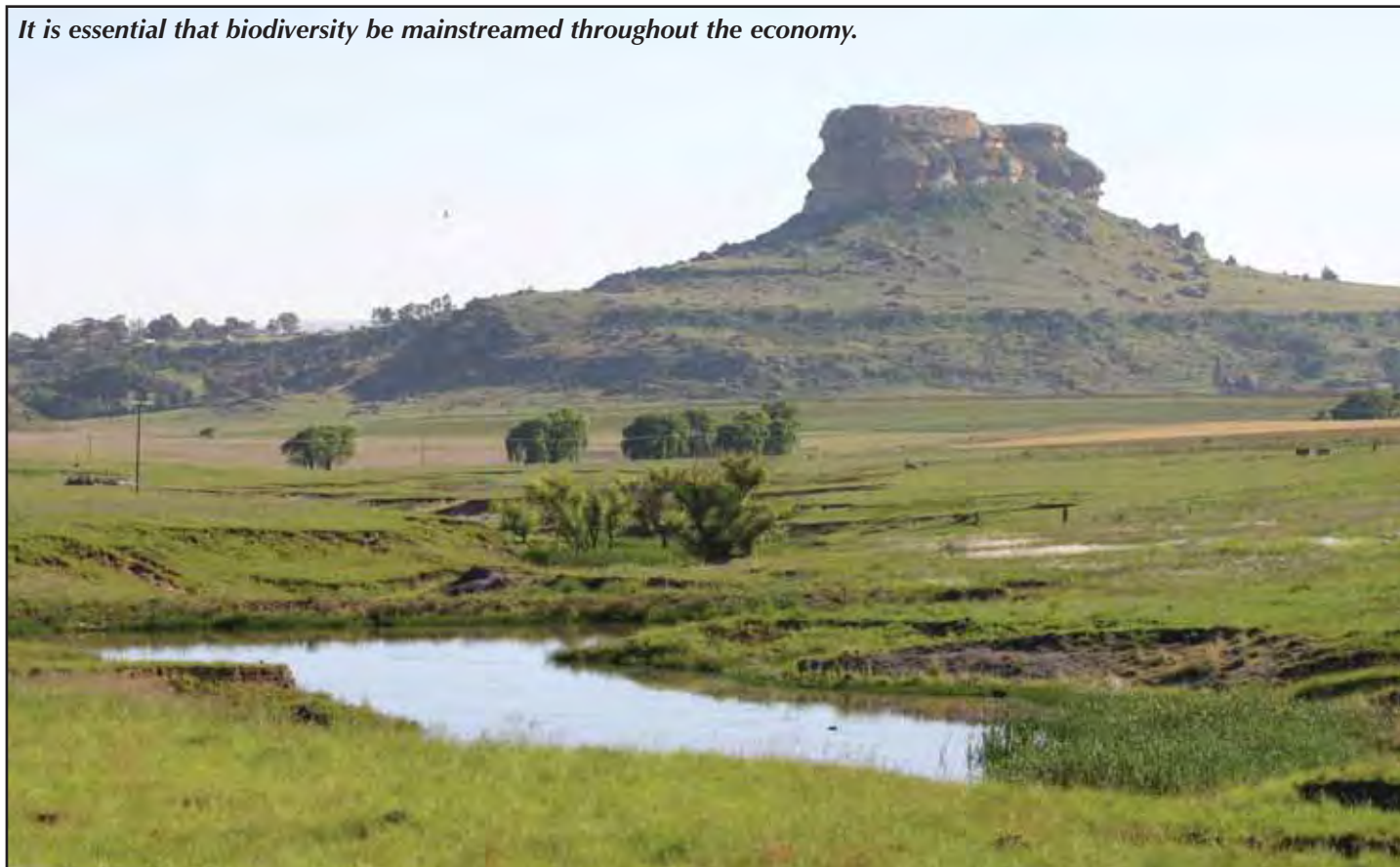
3.9. Key points that inform the strategy

South Africa's biodiversity is globally significant as well as important to the national economy and to people's livelihoods at a local level. This value is often not recognised by decision-makers, with the result that biodiversity is not adequately considered in development planning and conversions of land from natural habitat to other use. This may be partly due to the historical focus on species rather than ecosystems and the services they provide, and the fact that much of the use value of species to rural people is not quantified and is not included in economic indicators.

Conservation of biodiversity in a network of protected areas, while important, is not enough to safeguard biodiversity resources now and in the future. It is essential that biodiversity be mainstreamed throughout the economy. This means that all sectors that impact on biodiversity, especially agriculture and urban planning, need to factor biodiversity considerations into their policies, plans and programmes. Mainstreaming implies that the full value of biodiversity should be recognised, so that activities that conserve biodiversity or use it sustainably should be rewarded economically and/or in other ways, while activities that destroy biodiversity should bear the associated cost. Critical for mainstreaming is an integrated planning framework that integrates and aligns biodiversity and development planning. It is especially important that spatial planning at national, provincial and local levels takes note of biodiversity priority areas.

It is critical that the value and importance of biodiversity to people's livelihoods is recognised and biodiversity management (including conservation, access, use and rehabilitation) must be integrated with poverty alleviation strategies and local economic development. Tenure reform and rights to access and use biological resources need to be clarified to ensure equitable sharing of benefits. Management of terrestrial and aquatic ecosystems needs to be integrated through effective catchment management that mitigates the impacts of land degradation, invasive alien species, pollution and

It is essential that biodiversity be mainstreamed throughout the economy.



In order to ensure conservation and sustainable use of biodiversity, the root causes of biodiversity loss must be tackled.



other threatening processes on our land, rivers, wetlands, estuaries and coastal and marine ecosystems, in order to ensure the continued provision of ecosystem services and enhance social and economic security.

After a decade of democracy, South Africa has an excellent national policy and legislative framework in place. Although this framework is still being developed and fine-tuned, significant progress has been made in establishing an enabling environment to achieve the goals of economic growth, equity, poverty alleviation, service delivery, participation and co-operative governance. This framework includes biodiversity-related policy and legislation. There is now an urgent need for implementation, especially by provincial and local spheres of government. Given the cross-cutting nature of biodiversity matters, it is essential that the constitutional principle of co-operative governance is applied through partnerships and collaborative programmes, especially in sectors and spatial areas where jurisdictions and mandates overlap. This applies especially to all aquatic ecosystems, including wetlands, rivers, estuaries and coastal

areas. Much more needs to be done to encourage participation, raise awareness, facilitate a sense of responsibility and encourage private and communal landowners to manage biodiversity across the landscape and seascape, and not just to focus on state-controlled protected areas.

In order to implement policy and legislation effectively, the constraints on institutional capacity at all levels in South Africa need to be addressed, especially at the local level. The tools must be available to do the job that is required. This includes financial and other resources, such as staff (in sufficient numbers and with appropriate skills) and the necessary equipment, operational procedures and an appropriate organisational culture. Institutions in all spheres of government and outside government need appropriate structures, information management and systems that support implementation. Research must support information needs and there should be ongoing monitoring, evaluation and adaptation.

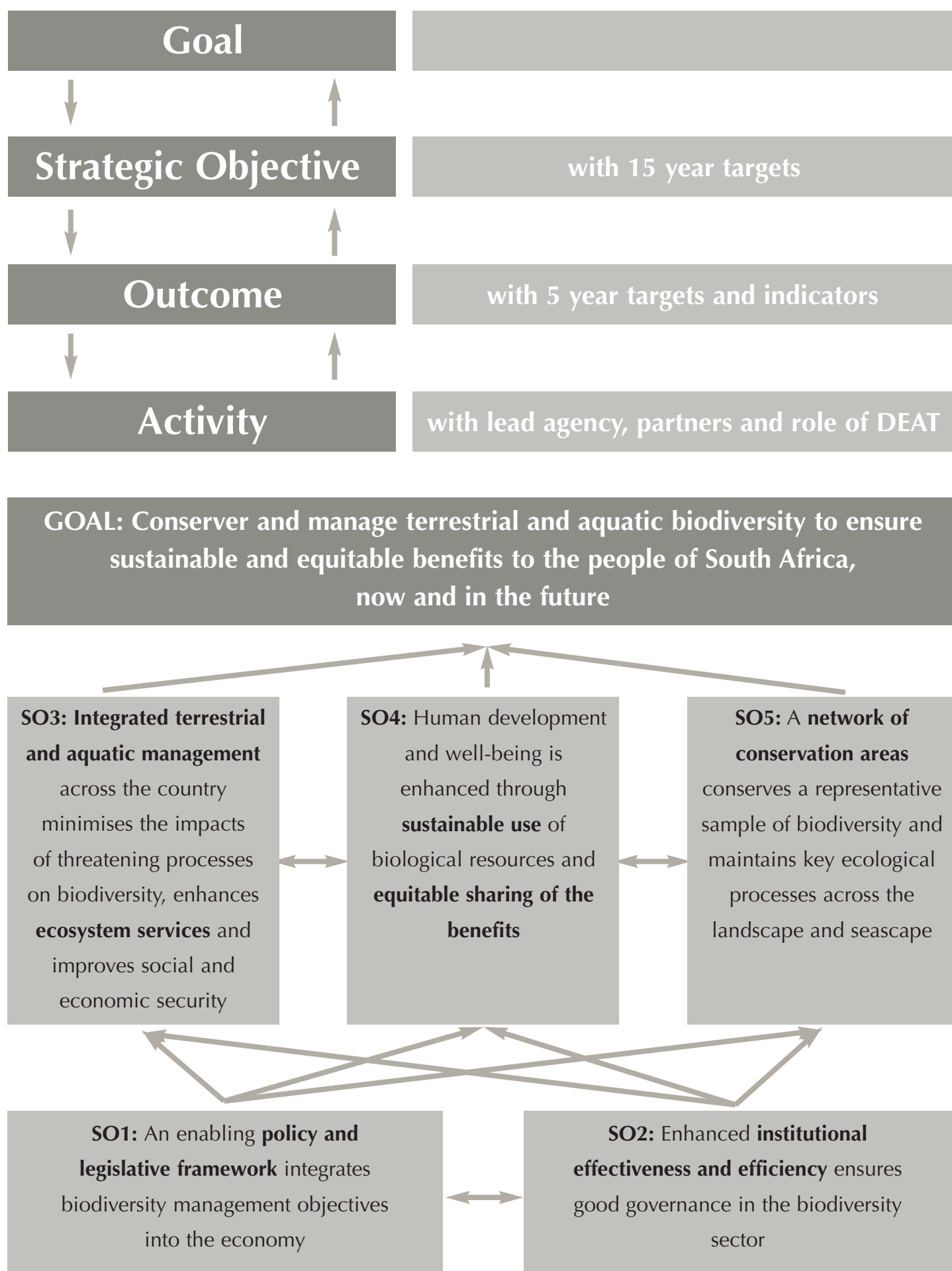
In order to ensure conservation and sustainable use of biodiversity, the root causes of biodiversity loss must be tackled. These often lie at a systemic level, and will need strong commitment at the highest levels of government. The Strategy has a strong focus on mainstreaming and integration, institutional effectiveness, co-operative governance and partnerships. South Africa has achieved remarkable progress in a decade of democracy, but much still needs to be done. The challenges are enormous, and the Strategy needs to be implemented through a prioritised set of actions to achieve measurable outcomes.

3.10. Summary of NBSAP strategic objectives and outcomes

The goal of the NBSAP is to conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future. In support of this goal, five key strategic objectives (SOs) have been identified, each with a number of outcomes and activities. The hierarchy of strategic objectives, outcomes and activities, with associated targets, objectives, indicators and lead agencies, is shown schematically in Figure 1.

The strategic objectives and outcomes are summarised in Table 1. Section 4 presents the strategic objectives, outcomes and activities in more detail. Section 5 sets out targets, lead agencies and implementing partners for each outcome and activity.

Figure 1.



Strategic Objective 2:

Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector

Strategic Objective 1:

An enabling policy and legislative framework integrates biodiversity management objectives into the economy

GOAL:

Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future

Strategic Objective 3:

Integrated terrestrial and aquatic management across the country minimises the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security

Strategic Objective 5:

A network of conservation areas conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape

Strategic Objective 4:

Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits

Table 1. NBSAP Goal, Strategic Objectives and Outcomes

GOAL				
Conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future.				
Strategic objectives				
1. An enabling policy and legislative framework integrates biodiversity management objectives into the economy.	2. Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector.	3. Integrated terrestrial and aquatic management minimises the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security.	4. Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits.	5. A network of conservation areas conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape.
OUTCOMES				
1.1 The value of biodiversity to the economy and to people's lives is quantified and monitored to inform policy, strategy and action.	2.1 The biodiversity sector is transformed and representative of South African society.	3.1 National initiatives to manage terrestrial and aquatic ecosystems are co-ordinated, developed and implemented with full stakeholder participation to contribute to sustainable socio-economic development.	4.1 An equitable access, rights and responsibilities regime promotes sustainable use of biological resources.	5.1 Biodiversity priority areas identified in the NSBA are refined in provincial, regional and local systematic biodiversity plans.

OUTCOMES (continued)				
1.2 Biodiversity considerations are integrated into macro-economic, trade, industrial and fiscal policy.	2.2 Co-operative governance at all levels results in improved biodiversity management.	3.2 Key production sectors and industries integrate biodiversity into their production and service standards.	4.2 Partnerships between government, the private sector, organised civil society and communities encourage entrepreneurship, innovation, investment and action at local level.	5.2 The protected area network is secured, expanded and managed to ensure that a representative sample of biodiversity and key ecological processes are conserved.
1.3 Biodiversity considerations are integrated into resource management policy and legislation.	2.3 Institutions with biodiversity-related responsibilities and programmes are effective, efficient and adequately capacitated.	3.3 A multi-agency national programme deals with the full suite of impacts posed by invasive species across the landscape and seascape.	4.3 The ecological and social sustainability of extractive use of biological resources is researched, assessed and monitored, and opportunities for improvement are identified and implemented.	5.3 Biodiversity is effectively managed in key ecological corridors and high priority fragments of natural habitat across the landscape and seascape.
1.4 A national biodiversity planning and assessment framework informs all decisions regarding land and resource use and spatial development.	2.4 Financial resources for biodiversity management are adequate, and effectively and efficiently used.	3.4 An integrated national programme facilitates adaptation to the predicted impacts of climate change on biodiversity across the landscape and seascape.	4.4 Use of biological resources is well managed to maximise sustainable benefits.	5.4 Management plans for species of special concern ensure their long-term survival in the wild.
	2.5 Information management systems, research priorities, and monitoring and evaluation frameworks are in place and effectively supporting biodiversity management.	3.5 Effective management and control measures minimise the potential risks to biodiversity posed by GMOs.		5.5. Research and monitoring programmes support the establishment and effective management of the network of conservation areas.
	2.6 A comprehensive and proactive national communication, awareness raising and advocacy strategy reaches targeted sectors and facilitates conservation and wise use of biodiversity.	3.6 Effective waste management and pollution control measures limit the impacts of pollution on biodiversity.		
	2.7 Proactive engagement and co-operation with the international community enhances conservation and sustainable use of shared resources and globally important biodiversity in South Africa.	3.7 Research and monitoring programmes support integrated management of terrestrial and aquatic ecosystems.		