CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

LOCAL BIODIVERSITY STRATEGY AND ACTION PLAN

City of Cape Town
July 2019

Making progress possible. Together.

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B. ACRONYMS AND ABBREVIATIONS

APO	Annual Plan of Operation
BioNet	Biodiversity Network
BMB	Biodiversity Management Branch
CAPE	Cape Action Plan for People and the Environment
CapeNature	Western Cape Provincial Conservation Authority
CBD	Convention on Biological Diversity
City	City of Cape Town (administration)
city	Cape Town (area)
CFR	Cape Floristic Region
CPPNE	Cape Peninsula Protected Natural Environment
CWCBR	Cape West Coast Biosphere Reserve
DEA	Department of Environmental Affairs (National)
DEA&DP	Department of Environmental Affairs and Development Planning (Provincial)
DME	Department of Minerals and Energy (National)
EDRR	Early Detection and Rapid Response
EIA	Environmental Impact Assessment
EMD	Environmental Management Department (CCT)
EMF	Environmental Management Framework
EPWP	Expanded Public Works Programme
ES	Environmental Strategy
IAA	Invasive Alien Animals
IAP	Invasive Alien Plants
IAS	Invasive Alien Species
ISU	Invasive Species Unit
IDP	Integrated Development Plan
LAB	Local Action for Biodiversity
LBSAP	Local Biodiversity Strategy and Action Plan
LBIP	Local Biodiversity Implementation Plan
METT	Management Effectiveness Tracking Tool
MOSS	Metropolitan Open Space System
MSDF	Municipal Spatial Development Framework
NEMA	National Environmental Management Act 107 of 1998
NEMBA	National Environmental Management Biodiversity Act 10 of 2004
NEMPAA	National Environmental Management Protected Areas Act 57 of 2003
NRM(P)	Natural Resources Management (Programme)
NBSAP	National Biodiversity Strategy and Action Plan
PA	Protected Area
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SDF	Spatial Development Framework
WFW	Working for Water
WfWet	Working for Wetlands

C. DEFINITIONS

ALIEN SPECIES — Species that were introduced to areas outside of their natural range. See Invasive Species.

BIODIVERSITY — Biodiversity (biological diversity) is the totality of the variety of living organisms, the genetic differences among 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.

BIODIVERSITY NETWORK — The fine-scale systematic conservation plan for Cape Town which spatially locates the sites that need to be conserved in order to meet minimum National Conservation Targets as determined by SANBI. This map also includes the important river corridors and wetlands.

BIODIVERSITY TARGET — The minimum proportion of each ecosystem type that needs to be kept in a natural or near natural state in the long term in order to maintain viable representative samples of all ecosystem types and the majority of species associated with those ecosystems[1]. These targets are also referred to as National Biodiversity Targets.

BIOLOGICAL INVASION — Biological invasion (ecology) is the process by which species (or genetically distinct populations), with no historical record in an area, breach biogeographic barriers and extend their range[2].

CLIMATE CHANGE — Climate change refers to any global climate change over an extended period of time, whether due to natural variability or as a result of human activity.

ECOLOGICAL CORRIDOR — An ecological corridor is a link of ecological habitat, containing indigenous vegetation, which joins two or more larger areas of similar habitat. Corridors are for the maintenance of ecological processes including allowing the movement of animals and continuation of viable populations[3].

ENDEMIC — A species or other taxonomic group that is restricted to a particular geographic region, owing to factors such as isolation or in response to specialized soil or climatic conditions[4].

[1] DEA 2011
[2] Online: http://*encyclopedia2.thefreedictionary.com/biological+invasion*
[3] Pierik et.al. 2016
[4] Allaby, 1998

GREEN JOBS Jobs that focus on enhanced environmental quality, improved living environment and the restoration and/or protection of municipal green infrastructure and ecosystem services with a specific focus on skills development and social upliftment.

INDIGENOUS A species that occurs naturally in an area, and therefore one that has not been introduced by humans either accidentally or intentionally[5].

INVASIVE SPECIES Invasive species refers to any species whose establishment and spread threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and may result in economic or environmental harm or harm to human health[6].

INTRODUCTION OF INVASIVE SPECIES Introduction means that the species (or its propagule) has been transported by humans across a major geographical barrier[7].

MANAGEMENT UNITS FOR INVASIVE SPECIES Management Unit refers to different demarcated areas or sites for managing invasive plants. The boundaries of the management units are established using natural features, e.g. rivers, drainage lines, hiking paths or roads. The management units are assigned alpha-numeric identities using an acronym indicating the locality as a prefix, followed by numbers from 001 onwards. The outlines of individual management units are indicated on a map showing the management unit identity, as well as the size of each unit in hectares.

MUTUALISM The interaction of different species populations that benefits both populations[8].

NATIONAL VEGETATION TARGETS See above Biodiversity Target.

NATIVE RANGE OF SPECIES Native range refers to the habitat, region or area where a plant, animal or microbe occurs naturally and evolved to co-exist with other species.

NATURALISATION OF INVASIVE SPECIES Naturalisation starts when species overcome and survive abiotic and biotic barriers as well as barriers to regular reproduction[9]

[5] Allaby, 1998
[6] National Environmental Biodiversity Act 10, 2004 (NEMBA) definition of invasive species
[7] Richardson et al, 2000
[8] Allaby, 1998
[9] Richardson et al, 2000

PROTECTED AREAS — These are areas of high biodiversity which are formally proclaimed (protected) under the Protected Areas Act 56 of 2003. They are also referred to as Nature Reserves.

RANGE EXPANDING SPECIES — Range expanding species refers to animals or plants indigenous to South Africa expanding their distribution range naturally due to suitable urban habitats and food sources. Examples include the Pied Crow (*Corvus albus*) and Egyptian Goose (*Alopchen aegyptiaca*).

RED LIST — Inventory of the global conservation status of plant and animal species. Regional red lists are produced by countries to evaluate the extinction risk of species within a political management unit.

SPECIES — A species is an assemblage of plants or animals whose members have the same main characteristics and are able to breed with each other.

TAXON — In biology, a taxon (plural taxa) is a group of one or more populations of an organism or organisms seen by taxonomists to form a unit (e.g. plant genus or sub-species).

VASCULAR PLANT — A division comprising plants that have vascular tissue (xylem and phloem) through which water and nutrients are transported[10].

WILDLIFE CORRIDOR — A wildlife corridor is a link of wildlife habitat, not always containing indigenous vegetation, which joins two or more larger areas of similar wildlife habitat. Corridors are for allowing the movement of animals and continuation of viable populations.

[10] Allaby, 1998

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PART 1: STRATEGY COMPONENT

EXECUTIVE SUMMARY

The City of Cape Town is a biodiversity hotspot without parallel. There are over 3 000 plant species and 20 vegetation types occurring within the boundaries of the City. Six of these vegetation types and approximately 200 plant species are confined to the City boundaries, and occur nowhere else in the world. Until recently, Cape Town has not had an effective biodiversity conservation programme, leading to 14 plant taxa becoming classified as extinct and some 405 being threatened with extinction. These rich natural assets need to be effectively protected and managed in order to support and promote sustainable social and economic development in Cape Town.

Cape Town, one of the 8 metropolitan municipalities in South Africa and the third largest city, adheres to a variety of international, national, provincial and local legislation relating to environmental, biodiversity and wetland management. The key legislation that guides the management and protection of biodiversity in Cape Town is the National Environmental Management Act 107 0f 1998 (NEMA) and its subsidiaries Biodiversity Act 10 of 2004 (NEMBA) and Protected Areas Act 57 of 2003 (NEMPAA). The management of wetlands is chiefly administered through the National Water Act 36 of 1998. Cape Town abides by this legislative framework and has developed strategies, policies, and plans to ensure the protection, conservation, and wise use of priority biodiversity sites.

The National Development Plan 2030 states that South Africa "needs to protect the natural environment in all respects, leaving subsequent generations with an endowment of at least equal value". This statement underpins much national and provincial policy and legislation in regards to environmental management.

South Africa's National Biodiversity Strategy and Action Plan (NBSAP[11]) fulfils the requirements for contracting parties to the Convention of Biological Diversity and sets out a strategy and plan for biodiversity conservation in the country. The vision of the NBSAP is to "Conserve, manage and sustainably use biodiversity to ensure equitable benefits to the people of South Africa, now and in the future."

The City's Integrated Development Plan (IDP) and Municipal Spatial Development Framework (MSDF) recognise Cape Town's critical environmental assets, its globally important biodiversity, and the significance of its 308 km coastline. The IDP also focuses on sustainable development and creating a resilient city, as envisaged in Goal 11 of the Sustainable Development Goals. The City's Environmental Strategy

[11] Republic of South Africa 2015

recognises and commits the City to conserving Cape Town's unique and globally important biodiversity (including terrestrial and freshwater ecosystems) for both present and future generations.

In 2008, the Framework for a Strategy and Action Plan for the Management of Invasive Species in the city was adopted by Council. The Local Biodiversity Strategy and Action Plan (LBSAP) 2009-2019 was approved in 2009. These documents provided strategy and action plans for the protection and conservation of the city's biodiversity and natural assets, and invasive species control. The strategies focused on implementing the Biodiversity Network (the fine-scale, systematic conservation plan for Cape Town known as the BioNet).

This document is the updated and revised LBSAP which incorporates the updated invasive species strategy. The LBSAP has been divided into two parts: the strategy component (Part 1) and the action plan 2019-2029 (Part 2). The strategy component, aligned to the City's Environmental Strategy, will replace the Biodiversity Strategy approved in 2003 and the Framework for a Strategy and Action plan for the Management of Invasive Species in the City approved in 2009. The strategy component, together with the Action Plan, will replace the LBSAP 2009-2019. The LBSAP also includes the updated targets for 2022 as aligned to the City's 5 year IDP (2017-2022).

The LBSAP is coordinated and led by the Environmental Management Department's Biodiversity Management Branch incorporating the Invasive Species Unit. As well as Biodiversity Management, many other City line departments are involved and responsible for aspects of biodiversity, invasive species control, resource management and conservation.

VISION

- To be a City that leads by example in the protection and enhancement of biodiversity.
- To be a City within which biodiversity plays an important role, where present and future generations benefit from a healthy and vibrant biodiversity.
- To be a City that actively protects its biological wealth and prioritises long term responsibility over short-term gains.

STRATEGIC OBJECTIVES

Strategic Objective 1: Develop and maintain relevant policies and strategies to ensure alignment with relevant International, National, Provincial and City of Cape Town legislation, policies and strategies.

Strategic Objective 2: Secure formal conservation status, manage, maintain and restore identified and existing terrestrial and wetland priority sites.

Strategic Objective 3: Identify, enhance and optimise socio-economic benefits and opportunities that are ecologically sustainable, focusing particularly on the provision of green jobs and skills development programmes.

Strategic Objective 4: Significantly reduce the threat posed by invasive species to Cape Town's natural, economic and social assets.

Strategic Objective 5: Increase communication efforts to enrich Cape Town citizens' knowledge of our local biodiversity.

Strategic Objective 6: Ensure effective and efficient management of the Environmental Management's Biodiversity Management Branch, which leads and co-ordinates the LBSAP.

SECTION 1. INTRODUCTION

1.1 Background to Local Biodiversity Strategy and Action Plan (LBSAP)

The City of Cape Town is a member of ICLEI – Local Governments for Sustainability, and was instrumental in developing Local Action for Biodiversity (LAB) as a global programme in conjunction with ICLEI, following the ICLEI World Congress in Cape Town in 2006. In April of the same year, the City re-affirmed its commitment to the conservation of biodiversity by approving its participation in ICLEI's LAB Project. LAB focused on enhancing the planning for and implementation of biodiversity integration within urban precincts and empowering local authorities in this respect. The LAB programme has evolved into the "Cities with Nature Programme". The City is registered with this programme. In August 2008, The City signed the Durban Commitment which committed the City to recognising biodiversity as "the variety of life on earth on which human well-being is dependent and that biodiversity provides ecosystem services that underpin all our community needs". At the same time the City signed the IUCN Countdown 2010, a programme which committed partners to halting biodiversity loss by 2010.

The LAB Programme provided an excellent framework in which to align the City's conservation work. One of the main actions required by partners was to compile and adopt a Local Biodiversity Strategy and Action Plan (LBSAP). Before, the initiation of LAB, the City already had an approved Biodiversity Strategy, approved as a sub-strategy of the Integrated Metropolitan Environmental Policy. This Biodiversity Strategy was used as the basis for the development of the first LBSAP, which took the Biodiversity Strategy further, updating the strategic objectives and including an action plan. The LBSAP was also aligned to the Integrated Development Plan (IDP) and the Cape Action for People and the Environment (CAPE[12]). The LBSAP 2009-2019 was approved by Council in May 2009.

Since 2009, the international, national and local policy and legislative landscape has changed considerably. Internationally various key strategies and targets were approved, most notably the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020 and the Aichi targets (CBD 2011). These documents clearly lay out the responsibilities for the partner countries which in turn are passed down to the various spheres of government. The City's LBSAP provides the plan for City's contribution to biodiversity conservation and links with the international, national and provincial plans. Locally, the City's Environmental Strategy (2017) forms the framework for the LBSAP. The current LBSAP is also aligned to the IDP, the Economic Growth

[12] The City is a signatory to the CAPE, a partnership programme in the Cape Floristic Region (CFR) which works towards a shared vision. The programme was initiated in 2000 and runs until 2020.

Strategy (EGS) and the Social Development Strategy (SDS). The LBSAP plan must be read in conjunction with the City's Coastal Management Programme (2015) which sets out strategic and operational plans for the management of the City's coastline.

The invasive species legislation has also changed. Through the implementation of the NEMBA, the Invasive Species Regulations (2014), and the Invasive Species Listing (2016, amendment), South Africa aims to prevent and minimize the impact of invasive species by placing a Duty of Care on landowners (and all spheres of government and private) to adhere to certain restrictions on activities related to the various categories of invasive species. Section 76 of NEMBA determines that Organs of State, including all spheres of government must develop Invasive Species Monitoring, Control and Eradication Plans (Invasive Species Control Plan) for all land they own. Furthermore, Organs of State must compile and submit Invasive Species Status Reports to the Minister of Environmental Affairs to demonstrate progress with implementation of the control plans and to show the efficacy of the control methods they are implementing to reduce the extent of invasive species. Finally, NEMBA requires municipalities to incorporate these invasive species control plans into their IDP[13] (IDP 2017-2022, section 1.4.b.5). An important part of the LBSAP is to align the various departments' invasive species control plans and to provide a mechanism for data collection to inform status reports and monitor progress. It is also critical to align the invasive species control plans to biodiversity; fire; and water production management approaches under a programme of holistic restoration management goals which delivers optimal ecosystem services.

The updated LBSAP incorporates the draft invasive species strategy that was a product of collaboration and input from different line departments/branches (Environmental Management (EMD), Bulk Water, Recreation and Parks, Human Settlements and Catchment and Stormwater Management, see Annexure A1 for a list of all line functions that were participated in LBSAP formulation). The strategy component (Part 1) will replace the Biodiversity Strategy of 2003. The action plan (Part 2), which details the operational actions required, has been updated for 2019-2029 and also includes the updated targets for 2022 as aligned to the City's 5 year IDP (2017-2022). These targets are in the process of being updated for inclusion into the next IDP (2022-2027) and the action plan will be updated in 2028 for approval in 2029.

The LBSAP is coordinated and led by the EMD's Biodiversity Management Branch (BMB). Biodiversity Management has the responsibility for protected areas (expansion plans and management), wildlife conflict programmes, as well as Invasive species co-ordination and implementation. As well as BMB and the other EMD branches, many other City line departments are involved and responsible for biodiversity and resource

[13] Refer to City's IDP 2017-2022, section 1.4.b.5

conservation due to irreplaceable biodiversity being found in almost every open space in Cape Town. Numerous line departments, especially those that have large land assets, are also responsible for invasive species removal. Invasive species control is co-ordinated and undertaken by the Invasive Species Unit, in consultation with other line departments namely: Asset Management and Maintenance; Water and Sanitation; Recreation and Parks; Human Settlements; Property Management; and Solid Waste Management. Budget for the work comes primarily from the City's EPWP office, other line departments, and grant funding via Department of Environmental Affairs (DEA)'s National Resource Management Programmes (NRM, Working for Water and Working for Wetlands).

The management of biodiversity and invasive species should be regarded as a transversal programme requiring a multi-level, City-wide approach involving all departments responsible for planning and resource management in the City. The implementation of the LBSAP will be most effective via a transversal work stream. This working group will, among other issues, co-ordinate action on biodiversity conservation, catchment management, compliance with NEMBA, improving efficacy of control and management of invasive species, and integration of invasive species management actions.

What is an LBSAP?

"A Local Biodiversity Strategy and Action Plan (LBSAP) is a guiding strategy, complemented by specific actions and adopted by local governments to achieve optimal and realistic governance and management of biodiversity and ecosystem services. An LBSAP is essentially the local equivalent of a National Biodiversity Strategy and Action Plan which is the primary instrument used by national governments for implementing the Convention on Biological Diversity (CBD). LBSAPs have been formally recognised in decision X/22 at the 10th Meeting of the Conference of Parties (COP) to the Convention on Biological Diversity (CBD COP 10) in Nagoya, Japan, in October 2010. The decision asks parties to encourage local governments to develop and implement LBSAPs in support of NBSAPs and indeed, in support of the Convention." (ICLEI, 2013[14])

[14] Local Biodiversity Strategy and Action Plan Guidelines: An aid to municipal planning and biodiversity conservation

1.2 Context

Bounded by ocean and mountains, and situated in the Cape Floristic Region (CFR), which is a biodiversity hotspot of international significance, Cape Town is one of the most biodiversity-rich cities in the world, containing a large number of unique habitats and species. Cape Town also has a dramatic scenic setting, historical townscapes and cultural landscapes, and a rich cultural heritage.

This biodiversity and natural heritage is the foundation of the City's economy, underpinning its future. However, all evidence points to an environment that is under increasing negative pressure with a steady decline and erosion of our natural heritage base. The Environmental Strategy 2017 identified the need for the City and its communities to actively shift from a business as usual approach to a driven and targeted sustainability agenda if environmental decline is to be halted.

Rich in natural assets, that include species, diverse ecosystems, landscapes, heritage, cultural and social diversity, the City of Cape Town is a microcosm of the global challenge and it is imperative to find a sustainable balance between environmental protection and the ongoing economic and social development needs of a growing population.

Cape Town is a rapidly growing urban centre with an estimated population of 4.2 million people. It is the economic hub of the Western Cape and exemplifies the challenges of developing nations: those of building the economy so as to extend services, reduce the wealth gap, uplift the poor and ensure equitable economic and social opportunities to all communities, without eroding its natural capital. Cape Town offers some of the highest quality and standard of living in the world yet also some of the poorest. It is within this imperative of social development that the City frames its approach and commitment to environmental protection and sustainable development.

As such, Cape Town is committed to mainstreaming environmental protection and to conserving biodiversity, while ensuring that the social and economic benefits of a healthy environment promote a more equitable society.

1.3 Conserving Our Future

Increasingly, globalisation has redefined the way in which cities view their development agendas. More so than ever before, global competitiveness, global resource constraints, global events, and global perceptions are central drivers to the future of individual cities. This global environment within which cities interact is itself

facing new and challenging trends. The financial crisis, climate change and increasing risks to resource availability have become and are likely to remain the defining development parameters for cities across the world. These global challenges have brought about a realisation that sustainability and environmental resource protection are no longer optional, but must become central to development strategies if economic and social stability and resilience are to be achieved in a fast-changing world.

The world has now reached the point where more than half of the human population live in cities, which will increase the pressure on natural resources. Urban areas are, however, the ideal place to change behaviour and ensure that the environmental agenda is taken to heart. However, in many cases urban areas are places where citizens have lost their connection with the natural environment. It is vital that these challenges are addressed.

1.4 Approach to Sustainable Development

According to Imperatives[15] sustainable development is defined as "…development that meets the needs of the present without compromising the ability of the future generations to meet their own needs". As such, the City recognises that unless determined steps are taken to reverse the current environmental decline and resource consumption patterns, the social and economic cost and risk to the City and its citizens will increase dramatically. The ability of the City to meet its goals in terms of economic and social development is thus strongly dependent on the City's ability to manage and sustain Cape Town's natural assets. *"At the core of Cape Town's sustainability approach there must therefore be an embedded strategy of recognising and promoting the key role of natural assets in stimulating and supporting both the economy and social development, while at the same time managing and sustaining these natural assets to enhance their productivity and benefits, as opposed to eroding their potential"* (City's Environmental Strategy).

In doing the above, City will enhance, manage, utilise and protect these assets so as to grow the economy, extend social opportunity, develop its communities and build a more equitable and resilient society.

[15] Imperatives et.al. 1987

SECTION 2. INSTITUTIONAL FRAMEWORK

2.1 International

South Africa is a signatory to various international conventions, treaties, protocols, and other agreements. The most important biodiversity conventions for the City of Cape Town include (date of ratification by South Africa in brackets):

- **UN Convention on Biological Diversity (1995)**

In decision X/2, the tenth meeting of the Conference of the Parties (COP), held from the 18-29 October 2010, in Nagoya, Japan, adopted the updated Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets (CBD 2011). The Aichi Targets are significant for the City as each country's National Biodiversity Strategy and Action Plan (NBSAP) needs to align to these targets. The City of Cape Town's targets and implementation feed into the NBSAP and thus contributes to the Aichi targets (the Aichi targets are contained in Annexure B). The vision for the CBD's strategic plan is "*Living in Harmony with Nature*" where "*By 2050, biodiversity is valued, conserved, restored, and widely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits for all people*".

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use
Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services
Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

The Aichi targets are broad ranging, covering aspects from avoiding extinctions of threatened species, to reducing subsidises that are harmful to the natural environment, to protecting 17% of the Earth's land surface and 10% of its seas by 2020. Of the 20 Aichi Targets, the City LBSAP's strategic objectives and actions contribute to 80% of the targets (Section 5.3 notes the Aichi Target alignment for each strategic objective). Four of the Aichi Targets are not related to the City's mandated work or sphere of interest, and are the responsibility of other spheres of government (Target 10, 13, 16, 17, Annexure B, CBD 2011).

Internationally, there is a specific emphasis on invasive species due to their impact on biodiversity, ecosystem services, and livelihoods. For this reason, countries across the globe developed strategies and legislation to prevent the introduction of potentially invasive species and manage those species that are already in a country. South Africa ratified section 8h of the Convention of Biodiversity (CBD) whereby it undertook to manage invasive species.

- **UN Framework Convention on Climate Change (1997)**

Natural systems have a significant role in to play in climate change mitigation and adaptation. Protecting and restoring natural areas enhances the City's climate change resilience through ensuring the long-term provision and functioning of critical ecosystem goods and services. Additionally, the carbon sequestration function of natural systems contributes to our goals to mitigate climate change through emissions reduction.

- **Convention on Wetlands (popularly known as the Ramsar Convention) (1971)**

Recently in 2015, the City-owned False Bay Nature Reserve was declared a Ramsar site, one of 23 in South Africa and six in the Western Cape. It is the only truly urban Ramsar site which provides the City with a great opportunity to ensure that this reserve benefits and educates the local communities on biodiversity issues. It is a huge achievement and recognition of the importance and uniqueness of the City's natural assets and its ability to manage these assets.

- **World Heritage Convention (1972)**

South Africa is home to eight of the official world heritage sites, as determined by the UNESCO World Heritage Committee. The country has a total of four cultural; three natural and one mixed (both cultural and natural) sites. Two of them occur in Cape Town: Robben Island (cultural); and the Cape Floristic Region (natural) which is represented by various sites, e.g. The Table Mountain National Park in the City of Cape Town.

- **UN Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1975)**

This has bearing on threatened biodiversity in the City, especially in the marine environment, e.g. abalone / perlemoen (*Haliotis midae*).

Other agreements include:

- **Sustainable Development Goals (SDGs)**

SDG Goal 15 (Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss) focuses on preventing biodiversity loss.

- **UNESCO Man and Biosphere Programme (MAB)**

The City contains sections of three biosphere reserves: Kogelberg Biosphere Reserve; Cape West Coast Biosphere Reserve and the Cape Winelands Biosphere Reserve.

2.2 National and Provincial

South Africa *"needs to protect the natural environment in all respects, leaving subsequent generations with at least an endowment of at least equal value"* (Executive Summary of the National Development Plan 2030).

The National Biodiversity Strategy and Action Plan (NBSAP – DEA 2015) is a requirement of contracting parties to the CBD and sets out a strategy and plan for contracting parties to fulfil the objectives of the Convention. This requirement is laid out in Aichi Target 17.

Vision of the NBSAP:
Conserve, manage and sustainably use biodiversity to ensure equitable benefits to the people of South Africa, now and in the future.

Strategic objectives:
1. Management of biodiversity assets and their contribution to the economy, rural development, job creation and social wellbeing is enhanced.
2. Investments in ecological infrastructure enhance resilience and ensure benefits to society.
3. Biodiversity considerations are mainstreamed into policies, strategies and practices of a range of sectors.
4. People are mobilised to adopt practices that sustain the long-term benefits of biodiversity.
5. Conservation and management of biodiversity is improved through the development of an equitable and suitably skilled workforce.
6. Effective knowledge foundations, including indigenous knowledge and citizen science, support the management, conservation and sustainable use of biodiversity.

The Provincial Government of the Western Cape is at present finalising their Provincial Biodiversity Strategy and Action Plan. This plan will provide the link between the National Biodiversity Strategy and Action Plan (NBSAP) and the City's LBSAP. The City was represented on the Steering Committee of this project in order to ensure alignment.

National Invasive Species Strategy

The National Strategy for dealing with Biological Invasions in South Africa (DEA, 2014) makes provision for the management actions of post-border prevention, early detection and rapid response, containment, control and restoration following invasive plant control. The strategy includes the importance of data management, monitoring, reporting, capacity building and building the research-management interface.

2.3 City of Cape Town

All municipalities in South Africa are required to complete and adopt an Integrated Development Plan (IDP) that guides decision-making and communicates its vision to its constituents. The IDP is linked to the Municipal Spatial Development Framework (MSDF) which guides spatial development across the municipality. The IDP recognises Cape Town's critical environmental assets, its globally important biodiversity, and the significance of its 308 km coastline. The IDP also focuses on sustainable development and creating a resilient City, as envisaged in Goal 11 of the Sustainable Development Goals (SDGs).

The IDP 2017-2022

The conservation of biodiversity falls within the IDP's strategic goals of being a Well-Run City, an Inclusive City, and specifically, an Opportunity City

Central to the LBSAP is ensuring job creation and skills development which is aligned to the following section of the IDP:

1.3.b. Economic Inclusion (job creation and skills development)

"*The City will drive economic inclusion in order to improve quality of life and greater levels of self- determination as well as create an enabling environment for economic growth by investing in EPWP and community works programmes, working with its partners to support skills development initiatives in high growth sectors and fund bursaries for studies in areas of scarce skills and offer apprenticeships.*"

- 1.4 Resource Efficiency and Security;
- 1.4 b Climate Change Programme;

1.4.b.1 Adapting Climate Change Project

"*Adapting and building resilience to the economic, social, physical and environmental impacts of climate change. The City will perform required hazard, vulnerability and risk assessments, determine the required adaptation interventions across various sectors, produce an integrated City Climate Action Plan of Action (CAPA), and progressively implement the CAPA. This project will aim to ensure that*

Cape Town adapts to climate change, by protecting the natural environment and the ecosystem services that support it."

1.4.b.4 Biodiversity management project

"The City's biodiversity and ecosystem services will be restored and managed to ensure their long term sustainability and efficacy. This will be achieved through on and off reserve management, guided by the City's Bioregional Plan and focused on optimising socio-economic benefits and opportunities where ecologically sustainable."

"Managing biodiversity and ecosystems strengthens their resilience to climate change and improves the resilience of the city as a whole to the impacts of climate change. The following will form part of this project:

- *Securing the protection of the Biodiversity Network (target of 65%)*
- *Continued implementation of the Bioregional Plan monitored through the Management Effectiveness Monitoring Programme*
- *Conservation Programme which includes all education, events and visitor programmes."*

1.4.b.5 Invasive species management project

"The City's invasive species management programme focuses on:

- *Identifying and managing invasive species introduction pathways in collaboration with national and provincial stakeholders and minimising the movement of invasive species within the metro*
- *Detecting and controlling new and emerging invasive species before they establish viable populations and spread into new areas*
- *Controlling existing invasive species to improve ecosystem health and services and to protect biodiversity*
- *Control target invasive species according to a species management plan*
- *Maximising green job opportunities through labour intensive control methods and associated jobs such as clearing litter in river channels. Monitoring efficacy of control methods and reporting progress."*

In addition to the above, Biodiversity Management in the City is aligned to the following of the 11 priorities listed in the IDP:

- **Positioning Cape Town as a forward-looking globally competitive business city**
  Conservation of natural resources including biodiversity, wetlands, coastal and geological landforms, as these form the basis for sustainability and a globally competitive city.
- **Economic inclusion**
  Conservation of natural (nature reserves) and heritage resources – tourism (international and local); job creation via Kader Asmal Expanded Public Works Programme (EPWP).
- **Resource efficiency and security**
  Climate change mitigation and adaptation; Protected Area expansion; ecological restoration of Protected Areas; conservation of strategic water resources in catchments and aquifers.
- **Safe communities**
  Providing safe places for recreation; environmental education and play; reducing the negative effect of invasive alien vegetation on fire safety; improving the water quality of recreational waterbodies.
- **Excellence in basic service delivery**
  Monitoring and evaluating work done on nature reserves; providing a detailed progress report each year for the BMB.
- **Building integrated communities**
  Providing recreation and environmental education opportunities across the city; providing job opportunities via the Kader Asmal EPWP.
- **Operational sustainability**
  Conservation of natural resources; contributing to a sustainable city.

The Environmental Strategy (2017) recognises and commits the City to conserving Cape Town's unique and globally important biodiversity (including freshwater systems) for both present and future generations.

In 2008, the Framework for a Strategy and Action Plan for the Management of Invasive Species in the City, was adopted by Council. The Local Biodiversity Strategy and Action Plan (LBSAP) 2009-2019 was approved in 2009. These document provides an action plan for the protection and conservation of the City's biodiversity and natural assets, including the work done to implement the BioNet. The BioNet, includes all priority natural terrestrial and semi-natural wetlands and rivers, and indicates which parcels of land are classified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) have to be conserved to meet National Conservation targets (Rebelo *et al*. 2011). The BioNet and Management Guidelines were consolidated into the Bioregional Plan which was approved as policy by Council in July 2015.

The other critical strategies include the City's first Environmental Education and Training Strategy which was published in 2003 and reviewed in 2011. As a result of this, it was decided to have two strategies: Public Environmental Awareness, Education and Training Strategy; and Environmental Awareness, Education and Training Strategy for City Staff and Councillors. These documents have been finalised but not yet approved.

SECTION 3. LEGISLATION, REGULATIONS AND BY-LAWS

All environmental legislation in South Africa originates from the Constitution of the Republic of South Africa (1996) which enshrines the following rights in Section 24 -
"Everyone has the right:-

1. *to an environment that is not harmful to their health or well-being, and*
2. *to have the environment protected, for the benefit of present and future generations through reasonable legislation and other measures that –*

(a) prevent pollution and ecological degradation;
(b) promote conservation; and
(c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

The most important legislation for the protection of biodiversity at a National level includes (these also include statutory requirements that the City needs to abide by):-

1) **The Conservation of Agriculture Resources Act (CARA) 43 of 1983**, which was the first piece of legislation in South Africa to protect wetlands, through the integrated conservation of soil, water resources, and vegetation.

2) **The National Water Act (36 of 1998)** and the **National Environmental Management Act (107 of 1998)**, became the first pieces of legislation to balance human, environmental and economic interests for the purpose of sustainable development. Both these acts have a set of regulations which require Environmental Authorisation and/ or a Water Use Licence if a wetland is impacted during a development or through maintenance actions of the City.

3) The National Environmental Management Act (NEMA) has a set of subsidiary acts which include various provisions which impact on biodiversity and wetland conservation. These include:
   a. **The National Environmental Management: Biodiversity Act (10 of 2004; NEMBA).** Threatened ecosystems, or ecosystems in need of protection, are gazetted in terms of Section 52 of this act and can be a trigger for environmental authorisation in terms of the National Environmental Impact Assessment Regulations as laid out in NEMA. These include some natural and semi-natural wetlands that conserve endangered species. NEMBA also lists invasive alien species that need to be controlled and/ or eradicated (Invasive species regulations (2014) and lists (2106). This includes invasive alien aquatic species. Section 76 of NEMBA determines that Organs of State at all spheres of government must develop Invasive Species Monitoring, Control and Eradication plans (IS control plan) for all land they own.

b. **The National Environmental Management: Protected Areas Act (57 of 2003; NEMPAA)** sets out legislation for the proclamation and protection of conservation areas.
c. **The National Environmental Management: Integrated Coastal Management Act (24 of 2008)** provides additional protection for estuaries and coastal wetlands. Manipulation of estuary mouths (including for ecological reasons) requires authorisation. For example, Zandvlei estuary is an important estuary which needs human intervention to maintain a good influx of sea water to maintain the salinity and to provide access to marine fish for breeding purposes. The National Estuary Management Protocol was gazetted and requires all estuaries to have prepared management plans. Of Cape Town's estuaries, the three largest are proclaimed under the NEMPAA and these have Estuary Management Plans incorporated into their integrated Environmental Management Plan as per the regulations of the NEMPAA.

A list of national legislation that has a bearing on biodiversity protection includes the following:-

- National Water Act 36 of 1998
- Environment Conservation Act 73 of 1989
- Marine Living Resources Act 18 of 1998
- SEA-SHORE Regulations GN 15636/1994
- Minerals and Petroleum Resources Development Act 28 of 2002
- Municipal Finance Management Act 56 of 2003 and regulations
- National Building Standards and Building Regulations Act 103 of 1977
- National Environmental Management Act 107 of 1998
- National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)
- National Environmental Management: Integrated Coastal Management Act 24 of 2008
- National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA)
- Norms and Standards for the Management of Protected Areas in South Africa (Gazette No 382, 12 March 2016
- National Environmental Management: Waste Act 59 of 2008
- National Water Services Act 108 of 1997
- National Veld and Forest Fire Act 101 of 1998
- National Forest and Fire Laws Amendment Act 12 of 2001
- Spatial Planning and Land Use Management Act 16 of 2013

A list of local By-laws that has a bearing on biodiversity protection includes the following:-

- Animal By-Law
- Recreational Water Use By-Law

- Coastal By-Law (in preparation)
- Nature Reserve/Recreational Use By-Law (in drafting)

SECTION 4. CONTEXTUAL FRAMEWORK

4.1 Bioregional Context and Planning

The City of Cape Town falls within the CFR which is the smallest and richest by area of the six floral kingdoms in the world, and it is the only one to be found entirely within one country. Its rich biodiversity is under serious threat for a variety of reasons including conversion of natural habitat to agriculture and urban sprawl, inappropriate fire management, rapid and insensitive development, overexploitation of water and marine resources, and invasion by alien species. The region has been identified as one of the world's "hottest" hotspots of biodiversity. In response to this, a process of extensive consultation involving various interested parties, including local government and non-governmental organisations resulted in the establishment of a strategic plan referred to as Cape Action Plan for the Environment (CAPE). It identified the key threats and root causes of biodiversity losses that need to be addressed in order to conserve the floral kingdom. This resulted in a spatial plan identifying areas which need to be conserved and a series of broad programme activities which need to be undertaken over a 20-year period. Based on the situation assessment and analysis of threats, three overarching themes that complement and reinforce one another were developed:

By 2020 CAPE will:

- establish an effective reserve network, enhance off-reserve conservation, and support bioregional planning;
- strengthen and enhance institutions, policies, laws, co-operative governance, and community participation; and
- develop methods to ensure sustainable yields, promote compliance with laws, integrate biodiversity concerns into catchment management, and promote sustainable eco-tourism.

Cape Town, located in the south-west biogeographical region of the CFR, is an area harbouring a very high concentration of biodiversity and encompasses four local centres of endemism within the CFR, which as a whole is considered one of the 34 global "biodiversity hotspots". A biodiversity hotspot is a region rich in endemic plant species that has lost 70% of its habitat and is threatened with further destruction[16].

Currently there is an intensifying biodiversity conservation crisis in the Cape Town lowlands (a large part of which is known as the "Cape Flats"), with only extremely small areas of lowland vegetation formally conserved. Although the City of Cape Town's Biodiversity Network has identified the natural vegetation remnants required to

[16] Conservation International: https://www.conservation.org/How/Pages/Hotspots.aspx

conserve samples of this biodiversity, for many vegetation types it is too late to achieve the necessary conservation targets for adequate conservation.

In these cases, all remaining remnants are crucial to secure in retaining some of this biodiversity for posterity. For the few lowland vegetation types with sufficient habitat remaining to meet the required conservation targets, there is yet insufficient habitat secured and managed for biodiversity conservation. Climate change adaptation parameters were included in the latest BioNet planning analysis. A more detailed report on biodiversity and climate change considerations was also completed in 2011.

Although the City has a good record in biodiversity conservation planning, we need to accelerate the implementation of the BioNet before remaining options are lost and to optimise network efficiency. In this regard the BioNet is a base layer for the approved MSDF and EMFs for the City of Cape Town. The Bioregional Plan in terms of the NEMBA for the City has been completed and was approved by Council as a policy in 2015.

4.2 Ecological Context

The City produced a Biodiversity Report in 2008 as part of the LAB programme that documents the current knowledge and state of biodiversity within the metropolitan boundaries. This report was updated in 2018 and is available on the City's website[17].

An updated summary of the city's biodiversity and threats to this biodiversity is provided below.

The world-renowned richness of Cape Town's biodiversity can be attributed to the wide range of biophysical characteristics across the landscape that support many different terrestrial ecosystems (i.e. vegetation types), habitats and their associated flora and fauna. Wetlands, rivers and the coastal ecosystems also are important contributors to Cape Town's biodiversity.

The city supports over 3000 indigenous vascular plant species, representing one third of the species in the CFR. Fourteen plant taxa are globally extinct or extinct in the wild, with a further seven classed as "*Critically Endangered Possibly Extinct*" in the Red List of South African Plants. Of the 660 Red List taxa, 405 are threatened with extinction of which half are located on the Cape Flats. New plant species are still being discovered

17 http://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/CCT_Biodiversity_Report_2018-07-27.pdf

across the Cape Floristic Region and occasionally those thought to be extinct are rediscovered (e.g. the beautiful pink Irid, *Babiana blanda,* found in the City's Northern district*)*.

4.2.1 Descriptions of broad vegetation types

More extensive, detailed information on the individual vegetation types is available in Rebelo et al. (2006). The city contains 20 main national vegetation types, 11 of which are critically endangered and six of which are endemic (only found within the City boundaries).

Sand Fynbos
Cape Town has three types: Cape Flats Sand Fynbos, which is critically endangered and endemic to Cape Town; Hangklip Sand Fynbos, which is endangered and occurs on the Peninsula as well as east of False Bay; and Atlantis Sand Fynbos, which is critically endangered and extends north of Cape Town. Sand Fynbos occurs on moderately undulating and flat plains on leached, acidic to neutral Tertiary sand. All three Sand Fynbos types are species-rich and harbour a number of endemic plant species: for example *Erica margaritacea* in Cape Flats Sand Fynbos and *Leucospermum parile* in Atlantis Sand Fynbos.

Alluvium Fynbos
Cape Town has two types: Lourensford Alluvium Fynbos, which is critically endangered and confined to the City's Eastern District; and Swartland Alluvium Fynbos, which is critically endangered and extends north of Cape Town. Alluvium Fynbos is either found on low-lying plains with duplex, silty soils or on granite and shale meta-sediments often embedded with small cobbles and pebbles. Previously this was considered to be part of Renosterveld, but it is clearly a Fynbos type. There are several endemic species, such as *Diastella buekii* and *Marasmodes undulata* in Swartland Alluvium Fynbos.

Granite Fynbos
Cape Town has two types: Peninsula Granite Fynbos, which is critically endangered and confined to the Cape Peninsula; and Boland Granite Fynbos, which is vulnerable and extends to the north-east of Cape Town. Granite Fynbos occurs on moderately undulating plains and hills, or on steep to gentle slopes below the sandstone mountain slopes, with soils varying from extensive and deep, to localised deep soils between large granite domes and sheets. Endemic taxa include *Leucospermum grandiflorum* (Boland Granite Fynbos) and *Hermannia micrantha* (Peninsula Granite Fynbos).

Sandstone Fynbos
Cape Town has two types: Peninsula Sandstone Fynbos, which is endangered and confined to the Cape Peninsula Mountain Chain; and Kogelberg Sandstone Fynbos,

which is critically endangered and extends to the south-east of Cape Town. Sandstone Fynbos occurs mainly in the high mountains, on steep to gentle slopes, and on undulating plains and hills of varied aspect. The soils are acidic lithosols derived from Ordovician sandstones of the Table Mountain Group (Cape Supergroup). Both these vegetation types are extremely species-rich with a staggeringly high concentration of local endemic species (>130 in each). Examples are *Mimetes fimbriifolius* and *Leucadendron strobilinum* on the Peninsula and *Erica sitiens, Leucospermum bolusii* and *Aspalathus acanthiloba* on the Kogelberg.

Shale Fynbos

Two types occur in higher rainfall areas where the shale soils are sufficiently leached of nutrients: Cape Winelands Shale Fynbos (incorporating Peninsula Shale Fynbos), which is vulnerable and extends north-east of Cape Town; and Elgin Shale Fynbos, which is critically endangered and extends to the east of Cape Town. Shale Fynbos occurs on moderately undulating plains and steep slopes against the mountains. Soils are acidic, moist clay-loams. Many species are shared with Granite Fynbos and include several local endemics (e.g. *Leucadendron argenteum, Leucadendron daphnoides* and *Leucospermum grandiflorum)*.

Cape Flats Dune Strandveld

This vegetation type is confined to Cape Town, but shares affinities with coastal thicket vegetation to the east and Succulent Karoo to the north. Cape Flats Dune Strandveld is endangered and occurs on flat to slightly undulating dune field landscapes. The soils are alkaline sands derived from Tertiary to recent calcareous sand of marine origin. Outcrops of limestone occur, particularly along the False Bay coastline. Strandveld has few endemic species compared to Fynbos.

Cape Seashore vegetation

This is the vegetation community that occurs predominantly on the unstable fore-dunes above the beaches. Characteristic species include *Pelargonium capitatum, Tetragonia decumbens, Didelta carnosa* and *Carpobrotus acinaciformis.* This vegetation community is vulnerable to disturbances and performs an important role in stabilising coastal dune systems.

Renosterveld

Cape Town has four types, all of which are critically endangered: Peninsula Shale Renosterveld, which is confined to Cape Town; and three other types which extend north of Cape Town on their respective soil types: Swartland Granite, Shale and Silcrete Renosterveld. Renosterveld occurs on soils with a heavier texture (clays and loams) where rainfall is not sufficiently high to leach out the nutrients (<600mm p.a.). Clay soils are derived from Malmesbury Group Shales, and loams from Cape Granite or silcrete parent materials. Renosterveld is mainly found in the moderately undulating lowlands

and foothills. Some Renosterveld vegetation is rich in bulbs. Endemic plants include *Asteraceae,* succulent and bulb species (e.g. *Marasmodes oligocephala, Lampranthus dilutus, Babiana tubulosa)*.

Southern Afrotemperate Forest

Southern Afrotemperate Forest is not considered to be threatened (least threatened) and occurs throughout South Africa on a variety of substrata. In the Mediterranean-climate areas of the CFR, forest is confined to fire protected kloofs in the mountains. The emergent tree species have a subtropical affinity and are mostly widespread throughout South Africa. Tree species which occur in Cape Town's Southern Afrotemperate Forest patches include *Podocarpus latifolius, Rapanea melanophloeos, Cunonia capensis, Curtisia dentata* and *Kiggelaria africana.*

4.2.2 Fresh Water Ecosystems

In addition to its rich terrestrial biodiversity, Cape Town supports a variety of wetlands and rivers. Historically, a large proportion of lowland Cape Town was dotted with seasonal and perennial wetlands, interconnected via the groundwater system (Day 1987). Low-lying areas of the Cape Flats that support marsh and floodplain wetlands are known locally as "vleis". As a result of urbanisation, most of the vleis and rivers on the Cape Flats have been modified, with vleis either drained or converted to permanent water bodies (Freshwater Lake), and rivers channelized or fully canalised. Most seasonal wetlands fall into the Cape Lowland Freshwater Wetlands type. These are nested within the terrestrial vegetation types described above.

Cape Lowland Freshwater Wetlands

These wetlands occur on the Cape Flats and in landscape depressions and may be permanently or seasonally flooded areas. Soils may be fine sands, silts or clays. Typically the vegetation in the seasonal wetlands comprises restio, sedge or rush-beds as well as macrophytic vegetation embedded in permanent water bodies. Important species include *Senecio halimifolius, Pennisetum macrourum, Triglochin bulbosa, Bolboschoenus maritimus* and *Juncus krausii.* An endemic shrub species of seasonal marsh communities in the south is *Passerina paludosa.*

Cape Inland Salt Pans

These wetlands occur in areas that were formerly coastal lagoons that have been cut off from the sea and become seasonally dry. They are small depressions in the landscape dominated by low succulent scrub composed of creeping chenopods and salt-tolerant herbs and grasses. Examples may be seen at False Bay Nature Reserve, Zandvlei Estuary Nature Reserve, Table Bay Nature Reserve and Noordhoek Wetlands.

4.2.3 Marine Ecosystems

Cape Town's shoreline is 308 km long, and exhibits different coastal landforms such as rocky shores, sandy beaches, estuaries, islands and sea cliffs. The coastline supports an immensely diverse range of marine and coastal ecosystems, which are home to over 80 rare and endangered species. This is one of the most diverse and productive stretches of coastline in South Africa. Cape Town's coastal zone is also an area of high recreational activity and a sought-after living environment for both local people as well as national and international tourists. For these reasons, the City's coastline is one of its greatest ecological, social and economic assets.

The coastal waters around Cape Town are situated in the transition zone between two biogeographic provinces: the cool temperate west coast, and the warm temperate south coast marine zones. The seas around the Cape Peninsula are rich in marine biodiversity, because this is where the distributions of the organisms of the cold Benguela upwelling system and warm Agulhas current overlap. In addition, there are also organisms unique to the temperate waters of the transitional area between these two major zones, centred on False Bay. Of the approximately 2000 marine species in False Bay, 61% are endemic to South African waters and 14% of these to False Bay itself.

4.2.4 Endemic and Threatened Species

A sixth of South Africa's flora may be found in Cape Town. This is a remarkable figure considering that Cape Town covers less than 0.1% of the country's surface area! About 200 plant species are locally endemic to Cape Town (i.e. found nowhere else in the world). Unfortunately, Cape Town has already lost 49 plant species and 14 of these are now globally extinct or extinct in the wild. The precarious status of many of Cape Town's habitats is reflected in the IUCN Red List total for plants, which includes a high tally of 660 taxa, of which 405 are listed as threatened.

Associated with the extremely rich plant diversity are rich small vertebrate and invertebrate faunas. Of the 27 species of amphibian recorded from the boundaries of the city, 26 are endemic to South Africa and 11 are threatened with extinction. Four species are endemic to the city. Fortunately, all are found within the Table Mountain National Park although three of them are Critically Endangered and one near-threatened. The recently described Klipheuwel Caco (*Cacosternum aggestum*) is classified as Data Deficient and currently all the known sites are within the City of Cape Town. The range of this species however may be more extensive and it is expected to occur outside the City boundaries.

It is estimated that an impressive 60 species of reptile are to be found within the city. About half of these of these are endemic to South Africa and eight are considered to be threatened with extinction.

Over 404 bird species have been recorded from the city area. Sixteen of these are endemic to South Africa and 28 have been assigned threatened Red List status. Of special interest to the bird enthusiast are the six Fynbos endemic birds, all of which are found within the City boundaries. Also of significance is the presence of four designated Important Bird Areas in the City boundaries.

Eighty-three terrestrial mammal species are thought to occur within the City boundaries, sixteen are endemic to South Africa and eight introduced species have become established. Many of the mammals in the Fynbos Biome are secretive and nocturnal and are therefore difficult to observe.

The City has a rather depauperate fresh water fish fauna largely due to the lack of major river systems within our boundaries. Of the five indigenous species recorded, one is classified as vulnerable and a second species as locally extinct. The *Sandelia* and *Galaxia* fish genera are however under taxonomic revision and this will result in some new species being described. All of our indigenous fish species are threatened by pollution, invasive alien vegetation and alien fish species (with at least 12 alien species established in the city).

While the small vertebrates have not been adequately sampled it is glaringly evident that our invertebrate fauna has been grossly neglected. From the groups that are better known, such as the butterflies and dragonflies, it is evident that many species are under threat with some species already lost. The realisation that we are losing species we don't even know exist is a sobering thought. One of the species of special interest is the endemic and Critically Endangered Barber's Ranger (*Kedestes barbarae bunta*) which is only found in the False Bay Nature Reserve.

4.2.5 Threats to Biodiversity

Several threats to the city's biodiversity have been identified and are listed below.

Urbanization

The city boundaries coincide with an extremely high concentration of unique (i.e. irreplaceable) biodiversity, making it impossible to completely avoid negative impacts of urban development. High immigration rates to Cape Town, particularly during the past three decades, and inappropriate development in the form of low density urban sprawl, constitute the greatest threats to remaining biodiversity in the city. Urbanization

(including illegal land invasion) causes fragmentation of natural habitats, exposing flora and fauna to greater impacts of invasive alien species, pollution and other disturbances. In turn, these impacts lead to declines in populations and increased extinction risks. Loss of key species, such as insect pollinators, can then lead to lack of seed production in plants. In addition to housing, development of industrial areas and major infrastructure projects in support of a rapidly growing population, including cemeteries, transport systems, bulk water (including aquifer drilling) and alternative energy plants (e.g. wind and solar farms) have a large negative impact on biodiversity conservation.

Invasive Species

The second most important threat to biodiversity conservation in Cape Town is invasion by alien species. The CFR is particularly susceptible to invasion by alien trees, such as species of Australian *Acacia, Hakea* and *Eucalyptus,* and *Pinus* from the northern hemisphere. Many of these trees are considered ecosystem transformers as they out-compete the indigenous vegetation and alter ecosystem processes, such as nutrient cycling, fire and hydrological regimes.

Invasive alien animal species that are of concern include the Argentine Ant (*Linepithema humile)*, which disrupts the fynbos seed dispersal mutualism with indigenous ants, the Mallard Duck (*Anas platyrhynchos)* which hybridizes with the indigenous Yellow-billed Duck *(Anas undulata)*, and the Indian House Crow (*Corvus splendens)* which preys on small indigenous animal species and birds' eggs. Feral and domestic cats are also a major threat to invertebrate and vertebrate biodiversity in Cape Town, especially small mammals, amphibians and reptiles.

The invasive species strategic objective in the LBSAP is concerned with NEMBA listed terrestrial, freshwater and marine invasive animal (vertebrates and invertebrates) and plants, as well as plants not listed, but showing invasive tendencies in certain habitats such as wetlands e.g. ornamental palms – considered garden escapees. The LBSAP, however, excludes feral domestic animals (cats, dogs, goats, etc.), and range expanding indigenous species e.g. pied crows (*Corvus albus*).

Refer to Annexure A for more detail.

Agriculture

Most of the productive land in Cape Town has already been developed. However the ploughing of marginal agricultural land still occurs, particularly for extension of wine farms, and this can impact negatively on threatened biodiversity. Agricultural activity has caused fragmentation of natural remnants, particularly Renosterveld and Shale and Granite Fynbos vegetation types, with similar impacts to those mentioned above under urbanisation.

Inappropriate Fires

Fynbos and Renosterveld are fire-prone shrublands that require summer fire for the long-term conservation of component species. However, if fires are too frequent, then slower-growing species may be eliminated. Conversely, if fires are excluded, then forest / thicket species invade and the species-rich shrubland communities decline. Not all vegetation types in Cape Town are fire-prone. For example, Cape Flats Dune Strandveld often has a high succulent and/or thicket component and does not require fire to persist, although it can withstand the occasional fire. Conversely if this vegetation is burnt too often in quick succession it becomes degraded and alien trees or grasses invade. Grasses in turn maintain the shorter fire-cycle and permanently change the vegetation structure and biodiversity value.

Mowing

Current City policy is to mow public open spaces (POS) and road verges regularly throughout the year. Areas below power lines are also regularly mowed as well as vegetation above large pipelines. In higher rainfall areas, mowing eliminates all but the hardiest indigenous plant species (some winter flowering geophytes can persist) and leads to dominance by grasses. In drier areas, mowing destroys most of the vegetation and reduces plant cover, with wind-blown sand often becoming a nuisance. However, because of the large scale of urban development in Cape Town, some of our vegetation types persist mainly in these POS pockets, usually managed by the City's Recreation and Parks Department. In some cases, the vegetation is too transformed to be amenable to restoration, but in other sites indigenous seed banks remain and there is potential to restore portions of the sites for biodiversity conservation if mowing is stopped and conservation-friendly management implemented.

Over-exploitation

The majority of the city comprises relatively unpalatable vegetation on nutrient-poor sandy soils. Historically, livestock would have been grazed for short periods in some of this vegetation then moved on to better grazing ground with higher carrying capacity, such as the inland Renosterveld areas. However today, small stock farmers are herding cattle and goats year round on low-nutrient vegetation types. This results in the vegetation being over-utilized, opening up gaps for alien grasses to colonize.

Illegal harvesting of indigenous flora and fauna, for food, medicines and other uses is widespread in Cape Town and occurs at unsustainable levels. Recent research indicates that 448 species are harvested of which 250 are plants (Petersen et al 2012). Petersen et.al. (2014) estimated US$15.6 million annual trade in wild resources in the city based on an investigation of the township trade.

The proximity of a large metropolitan area to the marine environment provides great challenges and opportunities for marine conservation. The exploitation of natural resources along the city coastline is an important source of recreation, employment and food. Unfortunately the intensity of harvesting has exceeded the capacity of many fish and invertebrate species to recover, and many are severely overexploited.

Pollution

In terrestrial ecosystems, nitrogen deposition from car exhausts enriches the soil and makes it vulnerable to alien grass invasion which outcompete the Fynbos species that are adapted to a low-nutrient regime.

A large part of the Cape Town lowlands comprises seasonal wetlands. These ecosystems and our rivers are all polluted to a greater or lesser extent via the stormwater system and failing sewerage systems. Nutrient enrichment of wetlands causes the loss of indigenous biota and the colonization by less sensitive and invasive species.

Hydrology

Changes to hydrology resulting from urbanization on the Cape Flats, such as large-scale hardening of catchment areas, drainage and canalization of streams, alters natural ecosystem functioning in wetlands and vegetation remnants, and this has led to changes in species composition over time. In recent years, borehole abstraction from the aquifers has intensified with potential impacts such as the lowering of water tables and loss of ground-water fed wetlands and mountain springs on which many plants and animals depend.

Crime

The currently high level of crime in the city, particularly relating to contact crime, is a major threat to the conservation of our natural ecosystems, as people perceive vegetation remnants as areas that harbour criminals. Until crime prevention is countered more successfully, natural areas and biodiversity in general will be under threat from these negative perceptions, leading to inappropriate development that may seem in the short-term to be more expedient.

Environmental crime

Activities such as the illegal dumping of waste, poaching, arson, illegal harvesting of flora, illegal hunting of fauna, and unauthorised destruction of indigenous vegetation remnants, also directly impact negatively on biodiversity.

SECTION 5. MANAGEMENT OBJECTIVES FRAMEWORK

5.1 Vision

- To be a City that leads by example in the protection and enhancement of biodiversity.
- To be a City within which biodiversity plays an important role, where present and future generations benefit from a healthy and vibrant biodiversity.
- To be a City that actively protects its biological wealth and prioritises long term responsibility over short-term gains.

5.2 Desired Outcome

Biodiversity in the City of Cape Town is conserved and restored where appropriate, has resulted in significant participation by, and has delivered opportunities and benefits to its present and future generations.

5.3 Strategic Objectives

Strategic Objective 1: Develop and maintain relevant policies and strategies to ensure alignment with relevant International, National, Provincial and City of Cape Town legislation, policies and strategies.

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGET 2; 3; 11; 19; 20
NBSAP STRATEGIC OBJECTIVE 3.1; 3.2; 3.6; 5.3; 6.3

Strategic Objective 2: Secure formal conservation status, manage, maintain and restore identified and existing terrestrial and wetland priority sites.

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGET 5; 7; 8; 11; 12; 14; 15; 19; 20
NBSAP STRATEGIC OBJECTIVE 1.1; 1.2; 2.1; 6.3;

Strategic Objective 3: Identify, enhance and optimise socio-economic benefits and opportunities that are ecologically sustainable focusing particularly on the provision of green jobs and skills development programmes.

ALIGNMENT: **IDP 1.3.b.3; 1.4.b.4**
AICHI TARGET 4; 6; 18; 19; 20
NBSAP STRATEGIC OBJECTIVE 1.3; 1.4; 2.2; 5.1; 5.2;

Strategic Objective 4: Significantly reduce the threat posed by invasive species to Cape Town's natural, economic and social assets.

ALIGNMENT: **IDP 1.4.b.5**
AICHI TARGET 9; 19; 20
NBSAP STRATEGIC OBJECTIVES 1.1

Strategic Objective 5: Increase communication efforts to enrich Cape Town citizens' knowledge of our local biodiversity.

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGETS: 1; 19; 20
NBSAP STRATEGIC OBJECTIVES: 4.1; 4.2

Strategic Objective 6: Ensure effective and efficient management of the Biodiversity Management Branch.

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGETS: 19; 20
NBSAP STRATEGIC OBJECTIVES: 3.5; 6.1; 6.2; 6.4; 6.5

5.4 Values of Biodiversity Management in the City

Mission:

- To ensure biodiversity is proactively and effectively managed and protected
- To ensure an integrated approach to biodiversity management among CCT line functions & departments and actively pursue external partnerships
- To adopt a long-term approach with regards to conserving, protecting and promoting biodiversity
- To ensure sustainability of our rich biodiversity
- To adopt a holistic and multifaceted approach to biodiversity conservation, protection, promotion and use
- To continually measure and monitor the CCT's performance in the protection and restoration of biodiversity
- To continually measure and monitor the state of biodiversity in Cape Town

Guiding Principles:

- The importance of both biodiversity pattern and ecological processes
- Best management practice
- Promotion of biodiversity as an asset in all communities
- No ecology without equity – no equity without ecology

- Recognition of the unquestionable importance of all of Cape Town's biodiversity
- Equitable access to biodiversity areas for all
- Social upliftment & economic development through the conservation & restoration of biodiversity
- Open, transparent & responsible governance
- Sound participation & partnerships
- Integrated, coordinated planning & management
- Responsible stewardship of our unique biodiversity
- Commitment to biodiversity goals
- The pre-cautionary principle
- Recognition of the role of biodiversity and functioning ecosystems in climate change mitigation and adaptation

4.5 Desired State of City's Protected Areas (Nature Reserves)

The **current state** of our nature reserves is that;

- Their unique biodiversity and valuable ecosystems have been recognised as worthy of conservation, supported by the targets set in the BioNet and plans in the IDP. However conservation targets are not yet achieved and connectivity between areas currently conserved needs improvement. Many are smaller parcels of land, some of which are isolated from other conservation sites, and many subjected to a relatively high level of edge effects.
- All of the conservation sites have scope for ecological restoration and many require restoration to allow for optimum ecosystem functioning, including climate change adaptation and mitigation.
- Addressing priority infrastructure requirements to meet conservation and visitor requirements are underway as budget allows.
- All sites have a high risk profile for biodiversity protection, security and law enforcement.

The Desired State:

The City's commitment to the conservation of Cape Town's natural heritage is embodied in the fact that our nature reserves have been proclaimed under the NEMPAA. This shows the City's commitment to managing these reserves according to the principles laid out in the act and the gazetted Norms and Standards for the Management of Protected Areas in South Africa (Gazette No 382, 12 March 2016).

The desired state of these nature reserves is to ensure that:

- The City's conservation sites are conserved in perpetuity, proclaimed as nature reserves under the Protected Areas Act 57 of 2003.
- The City's Nature Reserve network is grown by expanding protected areas to ensure that a representative sample of our unique natural ecosystems are protected, as per BioNet targets.
- The City's reserves are well managed ecological functioning entities, with unique heritage protected and restored where appropriate, while providing critical ecosystem services and mitigation against climate change.
- Capetonians are proud of our nature reserves and the unique and irreplaceable natural heritage they contain; the areas are utilised by a diverse array of user groups for sustainable activities; the infrastructure is adequate to facilitate such sustainable use; and the areas are considered valuable assets to the surrounding communities and users of the site.
- The City's nature reserve network provides a safe and secure environment for biodiversity to prosper and people to enjoy, through an effectively implemented compliance and law enforcement strategy.

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PART 2: ACTION PLAN

SECTION 7. ACTION PLAN 2019-2029

The Biodiversity Management Branch, Environmental Management Department is responsible for leading the implementation of the LBSAP and the ensuring that the activities listed below occur.

TIMEFRAMES

ONGOING	Actions that underpin the implementation process and are incorporated into annual planning and budget processes.
SHORT	1 – 3 years: Actions are to be planned or completion from 2019-2022
MEDIUM	4 – 6 years: Actions are to be planned for completion from 2023-2025
LONG	7 – 10 years: Actions are to be planned for completion from 2026 – 2029.

STRATEGIC OBJECTIVE 1: **DEVELOP AND MAINTAIN RELEVANT POLICIES AND STRATEGIES TO ENSURE ALIGNMENT WITH RELEVANT INTERNATIONAL, NATIONAL, PROVINCIAL AND CITY OF CAPE TOWN LEGISLATION, POLICIES AND STRATEGIES.**

KEYWORDS: **LEGISLATION, POLICIES AND STRATEGIES**

OUTCOME: **BIODIVERSITY MANAGEMENT IS CONSISTENT WITH RELEVANT LEGISLATION, POLICIES AND STRATEGIES**

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGET 2; 3; 11; 19; 20
NBSAP STRATEGIC OBJECTIVE 3.1; 3.2; 3.6; 5.3; 6.3

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Ongoing strategic alignment of all branch policies; IDP; and provincial and national strategies	Review existing policies, identify gaps and develop new/update existing	Ongoing whenever new policies, legislation or guidelines are published that may affect biodiversity conservation
	Align City bylaws, policies and strategies to those at international, national and provincial levels	Ongoing whenever new policies, legislation or guidelines are published that may affect biodiversity conservation
	Submit information to EMD and IDP office to align IDP with national and provincial policies and legislation	Ongoing as the IDP is updated annually and reviewed every five years (next review in 2017).
	Ensure all BMB strategies and policies are aligned to IDP; EGS; SDS; ES and EMD's business plan	Ongoing

OUTPUT 2: Strategic Plan development to support biodiversity management	Update BioNet regularly.	Ongoing - update
	Complete ground-truthing of the wetland layer of the BioNet, especially on protected areas	Ongoing
	Ensure estuary classification in BioNet is updated with latest terminology	Short term
	Map ecosystem services and infrastructure for the BioNet (green infrastructure plan)	Medium term
	Ensure BioNet is embedded in the Green Infrastructure Network plan	Medium term
	Investigate the development of additional BioNet implementation frameworks, such as but not limited to wetland land bank	Medium/long term
	Review biodiversity communication, education and other relevant strategies	Medium term
	Draft marketing, visitor, recreation and tourism strategies	Medium/long term

	Review LBSAP's action plan	Long term – review in 2026 for updating in 2028 and approval in 2029
OUTPUT 3: Legislative tools for biodiversity protection developed and implemented	Mainstream approved Bioregional Plan Policy into decision making by investigating overlay zone in zoning scheme and other mechanisms	Medium term
	Investigate which legislative tools are available or need to be developed in relation to invasive species management and control and off reserve biodiversity in general.	Medium term
	Develop a by-law and/or Internal Rules for the management and protection of protected areas	Medium term
	Gazette and implement the new Recreational Water Use By-law	Short term
	Ensure, if possible, conservation rates rebate remains in City's rates policy	Ongoing
	Draft and gazette Internal Rules for the management and protection of Nature Reserves, which are aligned with and consistent with the published management plan for the site.	Medium term

OUTPUT 4: **Increase the sustainability of the City BMB programmes, including the invasive species programme, through establishing and maintaining partnerships**	Maintain and review existing partnerships; identify appropriate new partners and enter into agreements.	Ongoing
	Maintain collaboration with existing academic and research institutions e.g. Stellenbosch University (Centre for Invasion Biology), Rhodes University, University of Cape Town (UCT), International Ocean Institute (IOI), University of the Western Cape (UWC), Percy Fitzpatrick Institute, etc.	Ongoing
	Maintain partnership with NRMP – Working for Water, Working for Wetlands, Working for Ecosystems, Working on Fire	Ongoing
	Co-chair and co-ordinate CAPE Invasive Animal Working Group	Ongoing
	Attend important established forums which include but not limited to CAPE Implementing Committee, Biodiversity Planning Forum and the Fynbos Forum	Ongoing
	Establish partnerships with key external partners involved in the Cape Town's strategic water source catchments.	Ongoing

	Important partners, amongst others, include The Greater Cape Town Water Fund, CapeNature and National Department of Water and Sanitation.	
OUTPUT 5: Establish and maintain internal partnerships	Establish a City biodiversity and invasive species transversal working group (investigate if linked to proposed Environmental Strategy working group). This working group will, among other issues, improve efficacy of control and management of invasive species, integration of invasive species management actions and compliance with NEMBA.	
	Determine line department participation of the City transversal and invasive species working group (see above)	
	Develop a Service Level Agreement to ensure clear roles and responsibilities of participating departments in respect to invasive species as well as communication and reporting protocols	
	Build on the existing inter-departmental relationships to avoid duplication and improve service delivery, especially in relation in invasive species and catchment management.	

STRATEGIC OBJECTIVE 2: **SECURE FORMAL CONSERVATION STATUS, MANAGE AND MAINTAIN IDENTIFIED AND EXISTING TERRESTRIAL AND WETLAND PRIORITY SITES**

KEYWORDS: **SECURE AND MANAGE SITES**

OUTCOME: **ADEQUATE PROTECTION, MANAGEMENT AND RESOURCES MITIGATE FURTHER BIODIVERSITY LOSS**

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGET 5; 7; 8; 11; 12; 14; 15; 19; 20
NBSAP STRATEGIC OBJECTIVE 1.1; 1.2; 2.1; 6.3;

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Implementation of Biodiversity Network (BioNet)	Ensure that Metro SE Strandveld Conservation Implementation Plan's budget is approved and plan implemented	Short/medium term
	Ensure Dassenberg Coastal Catchment Partnership land banking framework is implemented	Short/medium term
	Set up processes to ensure biodiversity conservation are achieved by 2022	Short/medium term
	Implement the Local Biodiversity Implementation Plan (LBIP; the City's Protected Area Expansion Plan – Section 9) using the tools of land	Ongoing

	acquisition, stewardship and co-operative governance.	
	Protected Areas status gazetted for designated BioNet sites	Ongoing
	Investigate with partners which Protected Areas merit World Heritage Status	Medium / long term
	Assist City Parks with their Biodiversity Agreement sites; ensure EMPs are completed and pursue title deed restrictions; identify new Biodiversity Agreement sites and ensure their conservation	Medium term / ongoing
	Assist other City line departments with advice relating to management of biodiversity assets on their land	Ongoing
	Rerun workshop on the interpretation of the BioNet with Council officials, consultants and DEA&DP	Medium term
	Provide biodiversity land use advice when required and monitor off-reserve biodiversity sites	Ongoing

	Develop appropriate funding mechanisms as well as fund raising to support the BioNet implementation and management	Ongoing
	Co-ordinate catchment management, in consultation with Bulk Water, with a focus on the Strategic Water source Areas for the city	Short term
OUTPUT 2: Management Plans are developed and implemented for Protected Areas and Biodiversity Network sites	Review protected areas management plans and update if necessary for existing sites and develop management plans for new sites	Ongoing
	Implement the protected areas management plans	Ongoing – review plans in 2020
	Develop desired states for each protected area aligned to overall desired state	Short/medium term
	Develop Conservation Development Frameworks (CDFs) and detailed precinct plans for each Protected Area where appropriate	Ongoing
	Develop and implement an Annual Plan of Operation framework linked to	Short term / ongoing

	LBSAP, management plan, monitoring & evaluation plan, strategic planning framework and budget	
	Develop relevant subsidiary plans, especially restoration, security and law enforcement, fire and invasive alien management	Medium to long term
	Develop and implement a protected area's infrastructure plan	Medium term / ongoing
OUTPUT 3: Ensure best practice biodiversity management	Ensure the biodiversity and infrastructure on the reserves is managed according to best management practices	Ongoing
	Investigate how the impacts of global environmental change (including climate change) can be incorporated into the management of the protected areas	Ongoing
	Ensure that Faunal Standard Operating Procedure is implemented	Ongoing
	Ensure that relevant urban wildlife conflicts are managed	Ongoing

	Enusre that effective law enforcement strategies are implemented to ensure optimal management of the security and safety of staff and visitors and to minimise and react effectively to criminal incidents.	Ongoing
	Liaise with researchers involved in medicinal biodiversity trade in the City to resolve a way forward	Medium / long term
	Implement management and subsidiary plans for protected areas	Long term
	Ensure that branch-wide priority biodiversity projects are identified and implemented on and off protected areas	Ongoing
	Establish, where appropriate, Protected Area Advisory Committees for all protected areas under the NEMAPA	Short term / ongoing
OUTPUT 4: Maintain a biodiversity seed bank	Ensure the biodiversity bank of plants and seed, as well as the rare plant collections are maintained and	Ongoing

	restoration programmes are prioritised and implemented	

STRATEGIC OBJECTIVE 3: **IDENTIFY, ENHANCE AND OPTIMISE SOCIO-ECONOMIC BENEFITS AND OPPORTUNITIES THAT ARE ECOLOGICALLY SUSTAINABLE FOCUSING PARTICULARLY ON THE PROVISION OF GREEN JOBS AND SKILLS DEVELOPMENT PROGRAMMES.**

KEYWORDS: **SOCIO-ECONOMIC BENEFITS AND OPPORTUNITIES**

OUTCOME: **BIODIVERSITY IS MAINSTREAMED INTO THE CITY ECONOMY AND SOCIO-ECONOMIC BENEFITS OPTIMIZED WITHOUT JEOPARDISING THE BIODIVERSITY OBJECTIVES OF THE PROTECTED AREA NETWORK**

ALIGNMENT: **IDP 1.3.b.3; 1.4.b.4**
AICHI TARGET 4; 6; 18; 19; 20
NBSAP STRATEGIC OBJECTIVE 1.3; 1.4; 2.2; 5.1; 5.2;

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Ensure Green Job opportunities identified and maximised	Where possible, encourage all works relating to rehabilitation and restoration and invasive alien control, fire-breaks and reed clearing to be undertaken as EPWP projects.	Ongoing
	Apply and manage external EPWP funds	Ongoing
	Grow and develop the Invasive Species Unit	Short term/ ongoing
	Implement four green job pilot projects	Short term

	Develop SMMEs as part of the green economy	Ongoing
	Develop, if appropriate, a green jobs tender	Medium term
	Continue to build the Kader Asmal programme brand as an inter-departmental, cross cutting job creation programme	
OUTPUT 2: Ensure skills development programmes are promoted and implemented	Implement a successful Nature Conservation WIL student programme	Ongoing
	Develop, support and accommodate a range of accredited and non-accredited programmes in consultation with various partners	Ongoing
	Apply for intern posts and host interns from time to time and when funding is available	Ongoing
		Ongoing

	Investigate the linkages between the different EPWP and skills development programmes	
OUTPUT 3: Promote access to and benefit from BioNet and reserves	Investigate additional potentially suitable, but sustainable and compatible recreational activities linked to reserve objectives e.g. bike trails, footpaths, orienteering etc.	Long term
	Promote suitable events while taking cognizance of reserves' carrying capacities e.g. concerts, film shoots, weddings etc.	Medium term
	Promote reserves as places of safety and tranquillity	Medium term
	Review reserve entrance fees every year to promote equitable access to all	Ongoing
	Research visitor profiles and users to nature reserves and make recommendations for marketing and management	Short / medium term

	Support existing sustainable utilisation of resources and investigate, where appropriate, additional possibilities	Medium term
	Communicate how local communities can benefit from the BioNet	Medium / long term
	Support EMD in Green Infrastructure / ecosystem services programmes	Ongoing
OUTPUT 4: Visitor policy, strategy and plan developed and implemented	Research and evaluate customer service, make recommendations and implement changes	Short / medium term
	Implement risk prevention procedures at reserves for groups including evacuation plans	Short / long term/ ongoing
	Implement visitor safety and security measures	Ongoing
	Develop and implement internal and external look and feel guide for the reserves	Short term
	Ensure signage, where possible, is up to date, promotes the City's brand and the nature reserves	Ongoing

	Ensure a professional outlook that is in line with City branding and communication policies	Ongoing

STRATEGIC OBJECTIVE 4: **SIGNIFICANTLY REDUCE THE THREAT POSED BY INVASIVE SPECIES TO CAPE TOWN'S NATURAL, ECONOMIC AND SOCIAL ASSETS.**

KEYWORDS: **INVASIVE SPECIES**

OUTCOME: **REDUCE THE IAS THREAT AGAINST THE BIODIVERSITY OF CAPE TOWN THROUGH IMPLEMENTATION OF SUSTAINABLE PROGRAMMES**

ALIGNMENT: **IDP 1.4.b.5**
AICHI TARGET 9; 19; 20
NBSAP STRATEGIC OBJECTIVES 1.1

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Minimise the risk of new invasive species entering the City of Cape Town Metropolitan boundaries in collaboration with the Department of Environmental Affairs (DEA) Biosecurity and identify, monitor and manage invasion pathways to prevent invasive species from being moved to areas within the boundaries of the City where they do not occur	Liaise with DEA biosecurity to determine the biosecurity measures planned and implemented at Cape Town ports of entry	Ongoing
	Stay abreast with awareness and compliance initiatives led by DEA biosecurity	Ongoing
	Identify invasion pathways and prioritize according to risk	Ongoing
	Develop and implement an invasion pathway monitoring, prevention and response plan	Ongoing
OUTPUT 2: Manage, control, monitor distribution and efficacy of control methods of target invasive species	Review and update existing invasive species monitoring, control and eradication plans annually	Ongoing

according to species management plans	Develop outstanding invasive species monitoring, control and eradication plans and submit to DEA biosecurity	Short term
	Implement invasive species monitoring, control and eradication plans, capture data and ensure availability for status reports	Ongoing
	Liaise with DEA and SANBI to obtain species management plans	Ongoing
	Adapt species management plans to City conditions, implement, monitor progress and efficacy of control methods, capture relevant data for reporting purposes	Ongoing
	Monitor implementation of control actions to determine their efficacy	Ongoing
	Align invasive species management with fire and restoration in an overarching restoration management plan for the protected areas	Short to Medium term
	Co-ordinate, in consultation with Bulk Water, invasive species control in the City Strategic Water Source Areas	Ongoing
OUTPUT 3: Detect invasive species before they become established, control populations and prevent further spread	Extirpate category 1a species on known localities by 2022 (EDRR target list)	Ongoing
	Review Early Detection and Rapid Response (EDRR) target species list annually to determine the	Short Term

	management approach to target species (species or area)	
	Analyse the Spotter Network reports to determine the number of active spotters, number of reports actioned and impact on distribution of EDRR target species Access other citizen science internet sites for alien distribution information (e.g. iNaturalist)	Ongoing
	Obtain scientific input into control actions, control methods and data analysis	Ongoing
	Implement species monitoring protocols	Short Term
	Train three additional EDRR & target species teams to focus on outlier populations, maintain five teams on larger populations	Short Term
	Concentrate efforts on priority introduction pathways to detect and remove new introductions before they establish	Ongoing
	Implement EDRR on protected areas and biodiversity agreement sites that reached maintenance stage	Ongoing

OUTPUT 4: Reduce the extent of listed invasive plants on proclaimed protected areas; biodiversity agreement sites and in aquatic waterways.	Determine and capture overall annual state of invasion on protected areas, biodiversity agreement sites, other city land and water bodies	Annually
	Set targets for priority areas, monitor progress against targets, communicate with relevant department and update status reports annually	Annually
	Determine resource requirements and present to the relevant line department for budgetary purposes	Ongoing
	Control invasion, monitor progress and efficacy of control methods	Ongoing
	Fully integrate biological control in aquatic weed management	Ongoing
	Co-ordinate clearing of invasive plant species from the City's strategic water source catchments.	Short Term to Long Term
OUTPUT 5: Control, contain and/or extirpate priority invasive animal species according to species management plans	Identify priority invasive animal species in collaboration with Invasive Animal Working Group	Short Term
	Review and update invasive animal species management plans	Short Term
	Liaise with experts and partners to determine future management of invasive wasps	Ongoing

	Review house crow project progress, determine status, revise plan in collaboration with experts and scientists to achieve 2022 target	Short Term
	Implement mallard species management programme, set targets and collaborate with DEA biosecurity to achieve targets	Short Term
	Review progress with *Sclerophrys gutturalis* (guttural toad) control programme, liaise with experts and scientists to contain and bring the current population under control	Short Term
	Build invasive animal control and management capacity to ensure effective control of listed invasive animal species	Ongoing
OUTPUT 6: Ensure compliance with NEMBA Chapter 5 and NEMBA Regulations and Invasive Species lists (as revised)	Ensure invasive species monitoring, control and eradication plans are incorporated in the Integrated Development Plan (IDP)	Ongoing
	Collect, capture, collate and analyse invasive species data, prepare and submit invasive species reports as determined in NEMBA Section 76	Ongoing
	Apply for a permit to keep category 2 species on city owned land where appropriate.	Ongoing

	Manage a comprehensive invasive species database in compliance with NEMBA	Ongoing

STRATEGIC OBJECTIVE 5: **INCREASE COMMUNICATION EFFORTS TO ENRICH CAPE TOWN'S CITIZENS KNOWLEDGE AND AWARENESS OF OUR LOCAL BIODIVERSITY**

KEYWORDS: **AWARENESS, KNOWLEDGE, COMMUNICATION, MARKETING, ENVIRONMENTAL EDUCATION**

OUTCOME 1: **INCREASED AWARENESS ABOUT THE BIODIVERSITY AND ITS THREATS**
OUTCOME 2:

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGETS: 1; 19; 20
NBSAP STRATEGIC OBJECTIVES: 4.1; 4.2

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Implement focused biodiversity awareness and communication plans	Develop a general biodiversity awareness and communications plan and schedule	Medium term
	Raise awareness about invasive species impacts, landowner responsibilities, the City invasive species programme	Ongoing
	Continue with annual invasive species forums	

	Improve capetowninvasives.org partnership invasive species website	
	Increase active invasive Spotter Network participation through campaigns and recruitment initiatives. Make use of other existing internet platforms such as iNaturalist	
	Post relevant Cape Town related news and share successes on capetowninvasives partnership facebook	
	Presentations and talks at different community forums such as garden clubs, rate-payers' associations, sub-council initiatives, etc	
	Continue to build the Kader Asmal programme brand as an inter-departmental, cross cutting job creation programme	
		Medium term

	Communicate the message of biodiversity conservation, especially the benefits that biodiversity provides to the community by means of appropriate media	
	Communicate the message of invasive species, their impacts and management by means of appropriate media	Ongoing
	Maintain invasive species Spotter Networks	Ongoing
	Undertake awareness talks	Ongoing
OUTPUT 2: **Ensure that communication efforts align to EMD and City Corporate Strategies**	Update event, media and other relevant communications protocol	Ongoing
	Update media permissions and other relevant communication lists	Ongoing
OUTPUT 3: **Ensure continuous quality information flows between the BMB, EMD and the Public, Media, Council and other Line Departments**	Update website information	Ongoing
	Plan, implement and coordinate exhibitions and awareness campaigns	Ongoing

	Communicate to Subcouncils on an annual basis	Short term / ongoing
	Ensure quality control through planning, implementing and coordinating media releases, articles, filming and radio requests.	Ongoing
OUTPUT 4: Facilitate appropriate environmental awareness, education and community conservation programmes for all relevant target audiences in alignment with existing policies and strategies	Revise and implement strategic action plans (Environmental Education, Awareness, Community Conservation and Communication) for the protected areas	Short term / next revision 2017 Ongoing
	Create awareness, educate and train learners, key role players and community members on key environmental issues	Short term / ongoing
	Create outreach programmes to educate, train and raise awareness amongst learners, key role players and community members	Short term / ongoing
	Source funding opportunities in consultation with partners	Ongoing

OUTPUT 5: Ensure that environmental education efforts are relevant to national, provincial and local needs and standards	Develop and update minimum standards and criteria for all programmes	Ongoing
	Evaluate and monitor all programmes	Short term / ongoing
	Ensure appropriate resources are developed and allocated to programme needs	Short term / ongoing
	Update and revamp all educational interpretation at nature reserves	Medium term
	Review environmental education programmes and investigate what the local and provincial needs are	Ongoing

STRATEGIC OBJECTIVE 6: **ENSURE EFFECTIVE AND EFFICIENT MANAGEMENT OF THE BIODIVERSITY MANAGEMENT BRANCH.**

KEYWORDS: **EFFICIENT MANAGEMENT**

OUTCOME: **THE BRANCHES RESOURCES ARE MANAGED EFFECEINTLY SO AS TO CREATE AN OPTIMAL ENVIRONMENT TO ATTAIN THE REST OF THE BRANCHES OBJECTIVES**

ALIGNMENT: **IDP 1.4.b.4**
AICHI TARGETS: 19; 20
NBSAP STRATEGIC OBJECTIVES: 3.5; 6.1; 6.2; 6.4; 6.5

OUTPUT	ACTIVITY	TIMEFRAME FOR COMPLETION
OUTPUT 1: Monitoring plan developed and implemented	Develop an Ecological Monitoring Plan for Biodiversity in the city and ensure alignment of the invasive species programme	Short / medium term
	Rationalise existing monitoring programmes	Short term
	Develop and implement appropriate ecological monitoring programmes for Protected Areas	Ongoing
	Monitor key indicators off-Protected Areas	Ongoing
	Liaise with Scientific Services and Environmental Health on water quality	Ongoing

	results and undertake additional samples when necessary	
	Complete METT assessments every two years or as requested by Department of Environmental Affairs	Next assessment in 2019
	Develop an ecological integrity monitoring programme	Medium / long term
	Undertake a holistic review of the management of the nature reserves	Medium term - review in 2017
	Investigate how to monitor the impacts of climate change as well as the biodiversity contribution to climate change resilience	Long term
OUTPUT 2: Research programme developed and implemented	Align & initiate research priorities and opportunities with key research institutions, particularly in the field of ecological restoration	Ongoing
	Liaise with Centre for Invasion Biology, Stellenbosch University, about research and monitoring programme with regards to invasive species	Ongoing

OUTPUT 3: Database Knowledge Management	Develop a database and protocols for knowledge management	Ongoing
OUTPUT 4: Sufficient funds available to implement LBSAP	Ensure financial controls are in place and co-ordinate any fundraising efforts	Ongoing
	Motivate for additional funds to implement the LBSAP, especially the maintenance activities from internal budgets, as well as safety and security on the reserves.	Ongoing
	Maintain partnership with NRMP, Major grant funder – Working for Water, Working for Wetlands, Working for Ecosystems, and Working on Fire.	Ongoing
	Fundraising to implement LBSAP	Ongoing
	Develop new funding options for invasive species management	
		Ongoing

OUTPUT 5: Provide an enabling environment for staff and strategic projects	Ensure adequate office equipment and resources	
	Ensure sufficient number and types of vehicles are provided/sourced	Ongoing
	Ensure systems (administration, human resources, finance) are in place to enable managers to achieve their project objectives	Ongoing
	Prevent accidents and minimise incidents by ensuring regular risk audits are completed of worksites in line with OH&S act	Ongoing
OUTPUT 6: Capacity Building Strategy and plan developed, implemented and funded	Develop a capacity building programme	Long term, subject to Council processes
	Conduct a skills audit	Long term, subject to Council processes
	Align skills audit; capacity building programme to develop branch's WPSDP.	Long term, subject to Council processes
	Train all staff on sustainable living practices	Ongoing

OUTPUT 7: Career-pathing and mentorship programme is established	Develop a career-pathing and mentorship plan/programme	Long term, subject to Council processes
	Identify mentors and mentees within the branch	Short term
	Implement the programme	Ongoing
OUTPUT 8: Personal Performance Contracts and evaluations developed	Align, standardise and implement personal performance with Council's Integrated Performance Management processes	Annually
Output 9: Ensure standardised recording and reporting of activities	Continuously refine quarterly and annual reporting templates and ensure completion	Ongoing / quarterly
OUTPUT 10: Ensure volunteer programmes cater to both the volunteer and the implementation of the LBSAP	Implement programmes and host volunteers	Ongoing

SECTION 8. BIODIVERSITY AND INVASIVE TARGETS: DECEMBER 2022

By December 2022:

1) At a minimum, 65% of areas identified (in 2009) to meet our biodiversity targets will be under formal management, including proclamation and stewardship agreements, and will be secured for future generations. The City will increase its investment in these biodiversity areas so as to build their role as key economic, social, recreational and educational assets.
2) Twenty percent of the protected areas (proclaimed protected area layer of 2017 with invasive species baseline of 2016) will be in maintenance phase for woody invasive species control (maintenance implies initial clearing and three follow ups completed).
3) Baseline data: Invasion extent will be mapped for alien woody plants for City owned land on the BioNet.
4) Aquatic invasive alien plant species will be reduced by 80% of the 2009 coverage in the city's water bodies.
5) Biocontrol will be fully integrated into aquatic weed management in the BioNet, where applicable.
6) The house crow population will be reduced to below 100 individuals.
7) All mallard ducks in protected areas will be actively managed.
8) Guttural toads will be confined to a limited invasion area in Constantia and Tokai.

`KEY PROGRAMMES

1) Implementing the City's Biodiversity Network:

a) Proclaiming existing managed areas under the new Environmental Management: Protected Areas Act 57 of 2003.
b) Implementing the Cape Town's Bioregional Plan which is approved as policy and mainstream it into planning and development in the City. The purpose of the bioregional plan is to inform land use planning and decision-making by a range of sectors whose policies and decisions affect biodiversity.
c) Maintaining and reviewing existing partnerships; identifying appropriate new partnership and entering into agreements with new partners.
d) Meeting the proposed LBSAP target of conserving 65% of the BioNet by 2022, by increasing conservation land through internal and external partnerships, stewardship programmes, and land acquisition.
e) Continuing to promote the Dassenberg Coastal Catchment Partnership (DCCP)

2) Promoting the recreational and social opportunities of the natural environment by:

a) Continuing to roll out environmental education and outreach programmes which will increase the public's ability to access protected areas, and will promote environmental education and awareness.
b) Ensuring continued management of the existing conserved areas so that the benefits to the community are enhanced.

c) Developing multipurpose recreation and education facilities, especially where lower income communities can benefit. Priorities include completing infrastructure at Harmony Flats and environmental education or multipurpose centres at Helderberg and Bracken nature reserves.
d) Continuing to implement development facilitation mechanisms such as the land banking programme in the DCCP and the Metro South-East Strandveld Conservation Implementation Plan.

3) Promoting green jobs and increase skills development by:

a) Providing work opportunities to the EPWP target groups in the labour-intensive delivery of public and community assets and services.
b) Continuing to implement the successful skills development programmes.

4) Consolidating gains made by the Invasive Species Unit in terms of invasive species management by:

a) Implementing the invasive species management plans for the City.
b) Completing invasive species management, control and eradication plans for all identified Early Detection and Rapid Response (EDRR) species.
c) Completing the invasive species management plan for guttural toad.
d) Completing and submitting Invasive species control plans for all City owned sites.
e) Meeting the proposed 2022 LBSAP targets in respect of invasive alien species to significantly reduce the coverage of invasive alien vegetation and eliminate problematic invasive alien animal populations.

5) Initiation of a biodiversity and invasive transversal working group

a) Investigate options to set up a biodiversity and invasive transversal group either as a stand-alone or a working group of the environmental transversal group to be set up under the Environmental Strategy.

SECTION 9. LOCAL BIODIVERSITY IMPLEMENTATION PLAN

PRIORITISING AREAS OF THE BIODIVERSITY NETWORK FOR ACTION

The Biodiversity Network (BioNet) is a spatial representation of all the priority areas to conserve which are needed to meet, or get as close as possible to, national biodiversity conservation targets. This network comprises of a complex mix of various landowners and needs to be dealt with on an erf by erf basis. Within the City, several conservation partners are involved with implementing the BioNet. These include the City's, SANPark's, CapeNature's, WWF's and the various Biosphere Reserve's priorities. All conservation organisations collaborate regularly and there is a common goal for each particular site.