

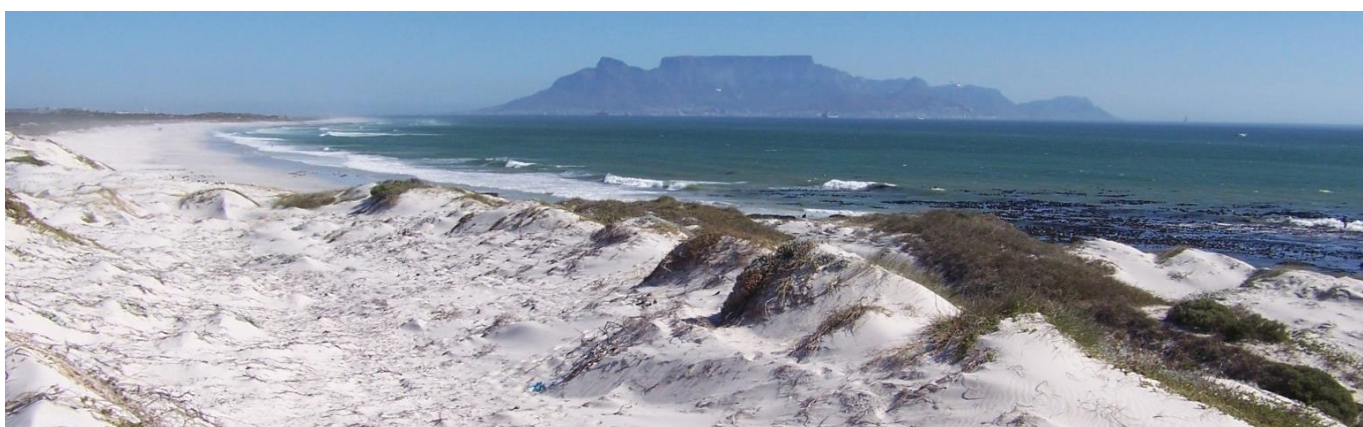


CITY OF CAPE TOWN  
ISIXEKO SASEKAPA  
STAD KAAPSTAD



# Biodiversity Management Progress Report

July 2018 – June 2019



Blaauwberg Nature Reserve includes a spectacular stretch of coastline, awarded Green Coast Status in 2018.



Grade 3 learners from Sid G Rule Primary School, fascinated by the Candelabra flower *Brunsvigia orientalis*

SPATIAL PLANNING AND ENVIRONMENT  
ENVIRONMENTAL MANAGEMENT DEPARTMENT  
BIODIVERSITY MANAGEMENT BRANCH

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**Making progress possible. Together.**

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# 1. Acronyms

APO	Annual Plan of Operation
BioNet	Biodiversity Network, the systematic biodiversity plan for Cape Town
BMB	Biodiversity Management Branch
CARBS	Councillor Appointed Representatives for Baboon Suburbs
CBA	Critical Biodiversity Area
CCT	City of Cape Town, also referred to as City
CIP	Metro Southeast (SE) Strandveld Conservation Implementation Plan
CPFPA	Cape Peninsula Fire Protection Association
CPUT	Cape Peninsula University of Technology
CREW	Custodians of Rare and Endangered Wildflowers
CSU	Conservation Services Unit, Biodiversity Management Branch
CTEET	Cape Town Environmental Education Trust
DCCP	Dassenberg Coastal Catchment Partnership
DEFF	Department of Environment, Forestry and Fisheries (previously Department of Environmental Affairs, DEA; national)
DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)
EDRR	Early Detection and Rapid Response
EIA	Environmental Impact Assessment
EMD	Environmental Management Department
EPWP	Expanded Public Works Programme
FTE	Full Time Equivalents (jobs)
HWS	Human Wildlife Solutions
IDP	Integrated Development Plan
ISU	Invasive Species Unit, Biodiversity Management Branch
LBSAP	Local Biodiversity Strategy and Action Plan
METT	Management Effectiveness Tracking Tool, METT-SA03 used in this report
MSDF	Municipal Spatial Development Framework
NEMBA	National Environmental Management Biodiversity Act, Act 10 of 2004
NEMPAA	National Environmental Management Protected Areas Act, Act 57 of 2003
NRM	National Resources Management, a programme which includes Working for Water
PAAC	Protected Area Advisory Committee
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks, the national protected area authority CapeNature Western Cape provincial conservation authority
SDG	Sustainable Development Goal
TMF	Table Mountain Fund
TMNP	Table Mountain National Park, managed by SANParks
WESSA	Wildlife and Environment Society of South Africa



## 2. Executive Summary

### Conserving biodiversity: our natural capital

The City of Cape Town (CCT or City) **Integrated Development Plan (IDP)** and draft **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 (SDGs). The City's **Environmental Strategy** recognises the significance of, and commits the City to conserving, Cape Town's unique and globally important biodiversity (including freshwater systems) for both present and future generations.

The Environmental Management Department's (EMD's) Biodiversity Management Branch (BMB) is responsible for the planning and implementation of the Local Biodiversity Strategy and Action Plan (LBSAP), which incorporates protected area expansion, conservation services, people and conservation (nature conservation tourism, recreation and education), job creation, skills development, invasive species control, restoration and management of the City's Nature Reserves.

**During 2018/19, the BMB continued to implement its objectives aligned with the IDP, and specifically the Strategic Focal Area (SFA) 1 – Opportunity City:**

*Text from IDP 2017 to 2022 in italics*

#### **"1.3.b.3 EPWP Localised Project**

*The City will continue to localise community works and Expanded Public Works Programmes (EPWP) in order to ensure that sub-councils are involved in the drafting of labour-intensive community programmes benefiting local residents during implementation. A focus will be on the continued improvement of the Jobseeker Database system to address weaknesses in the current system and to operate optimally."*

From 1 July 2018 to 30 June 2019, over **106 127 person days of temporary employment** (461.24 FTEs – Full Time Equivalents) and **3 318 job opportunities** were created on the reserves and **Biodiversity Network (BioNet)**. The focus of employment was on local communities and the individuals were employed from the relevant Sub-councils' Jobseekers Database. Supporting and running parallel to the job creation programme are training and formal skills development programmes. One such skills development programme (3 year) was funded by the Expanded Public Works Programme (EPWP) Department. This programme aims to provide opportunities for 30 young professionals to acquire the necessary skills, experience and exposure in the environmental management sector, specifically management of invasive species. This programme includes on-the-job training for learners, students and interns. It is critically important to be able to assist with career development and the BMB makes every effort to provide opportunities for EPWP and skills development incumbents. From July 2018 to June 2019, 19 out of 26 vacancies in the BMB were filled with individuals from the EPWP and skills development programmes, or previous EPWP/skills development staff.

#### **"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 BioNet (target of 65%)*"

The City has set a target to ensure the conservation of 65% of the 2009 BioNet, the fine-scale conservation plan for Cape Town, by 2022. The BioNet includes all priority natural and semi-natural wetlands and rivers, and indicates which parcels of land are classified as Critical Biodiversity Areas (CBAs) and need to be conserved to meet National Conservation Targets. The BioNet and Management Guidelines were consolidated into the **Bioregional Plan**, which was approved as policy by the City Council in July 2015. To date, 64.97% (55 222ha) of the 2009 BioNet is conserved or in the final stages of proclamation.

- *"Continued implementation of the Bioregional Plan monitored through the Management Effectiveness Monitoring Programme."*

Protected Area Reviews and Management Effectiveness Tracking Tool (METT) assessments were completed. There is now 10 years' worth of data (2007-2017) being analysed. The City is one of the leading conservation agencies in the implementation of the METT. It was agreed that Version 1 would be used again in 2017 so that it could be compared. Towards the end of 2018, all the City's protected areas undertook for the first time the METT-SA03. This updated tool has double the indicators and requires verification and evidence documents. This has resulted, as expected, in a decrease in scores. All protected areas, however, did achieved "Sound Management".

- *"Conservation Programme which includes all education, events and visitor programmes."*

The City's protected areas received just over **378 000 visitors**, recorded mostly through its manned access points and organised events (the majority of reserves are open access, so this figure is an under-estimate). Through paid gates and events an income of **R3.5 M** (Planned R3.3 M – increase from previous year's R1.91 M) was generated, mainly as a result of Witzands Aquifer Nature Reserve activity permits, a new responsibility as the management of these activity permits was transferred from Bulk Water to Biodiversity Management on 1 July 2019.

Five hundred and thirty-nine (**539**) individuals, totalling **1 124 person days** with a value of **R850 000**, volunteered in 2018/2019. A further **456 individuals (7 021 person days)** with a value of **R3.8 M** worked on the reserves via sponsored programmes. The reserves and the outreach programmes saw **31 138 learners** from **354 schools** resulting in 47 464 person days of education. With other events and exhibitions, a total of **67 169 individuals** took part in education and awareness activities.

The first 3-year cycle of the Protected Area Advisory Committees (PAACs) was completed in 2017/2018. Advertisements were placed for nominations in 2018 and the 11 PAACs re-established for the next three years.

#### **"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 establishing viable populations and spreading into new areas."*

The City and CapeNature hosted a meeting of the C.A.P.E.'s (Cape Action for People and the Environment) Invasive Species Animal Working Group (IAWG). This group, consisting of managers and researchers, aims to identify ways forward in terms of invasive animal species. The City is also part of the provincial meeting ACRAE (Alien Clearing, Restoration and Alien Biomass Economies) focusing on invasive plant species. Lastly,

the BMB runs a Spotter Network focusing on locating identified emerging invasive plants. Recently the Polyphagous Shothole Borer (PSHB) was found in Somerset West and this species was added to the Early Detection and Rapid Response (EDRR) programme. The Invasive Species Unit (ISU) developed a protocol to remove trees infested with PSHB. More information can be found on the website: <http://www.capetowninvasives.org.za>

- *“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.*

*The National Environmental Management: Biodiversity Act (NEMBA) Act 10 of 2004 Alien & Invasive Species Regulations (2014) requires all organs of state at all spheres of government to control invasive species, monitor and report progress and to incorporate invasive species management, control and eradication plans into IDPs.”*

In the last year, all the control plans for protected areas were completed and submitted. The City was one of the few municipalities country-wide that submitted control plans. Invasive alien clearing targets were finalised and submitted to Council.

## 2.1 Highlights

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In addition to the above, the notable initiatives during the period July 2018 to June 2019 included:

### 1) Awards

The BMB was recognised at four awards/competitions:

#### a) Green Coast Status awarded to Blaauwberg Nature Reserve

South Africa's first Green Coast Status was awarded on 14 September 2019 to Blaauwberg Nature Reserve in recognition of the City's commitment to preserving the unique flora and fauna along its coastline. The nature reserve is situated in an area that includes approximately 2 000 ha of pristine coastal landscape, is home to Critically Endangered vegetation and boasts a 7 km coastline. The Wildlife and Environment Society of South Africa (WESSA), the national implementer for the Green Coast Programme, presented the first official Green Coast Status flag to the nature reserve and its implementing partner, the Friends of Blaauwberg Conservation Area (Figure 1).

#### b) Cape Town – winners of Most Observations and Most Species in the City Nature Challenge

Cape Town won the most recorded observations and most recorded species categories of the 2019 iNaturalist City Nature Challenge which took place over four days between 26 April and 29 April 2019 (Figure 2). Together, Cape Town participants were able to record an impressive 53 775 observations and 4 587 species. Runners-up in the recorded observations category were La Paz, Bolivia with 46 931 observations and San Diego, USA with 38 241. In the recorded species category runners-up were Hong Kong, China with 3 596 species and Houston, USA with 3 367. This was the first time that Cape Town entered this international citizen science competition, and Cape Town was the only South Africa city to enter. In 2019, 159 countries participated. An awards ceremony for participants was held at City Hall on 10 June 2019. Ald. Marian Nieuwoudt, Mayoral Committee Member for Spatial Planning and Environment (quoted in the press):

*"Capetonians really went out and showed the world what incredible biodiversity this, our city, possesses. Cape Town certainly rose to the challenge, considering that we are entering autumn, and there were over 150 cities competing of which many are in the throes of spring. Thank you to each resident or visitor who took the time to explore our pristine natural environments and for capturing the beauty and life they came across. We are extremely proud to have a globally important biodiversity".*

- c) Biodiversity Management received a Gold Award in Biodiversity Category at the Eco-logic Awards  
This award was presented on 5 June 2019 (Figure 3). Eco-logic recognised the BMB with the following (quoted from the Eco-logic webpage <https://www.eco-logicawards.com/eco-logic-e-zine/>):

*"Plans for conserving Cape Town's unique biodiversity began in the early 1980s. Many of these plans such as the Biodiversity Strategy and the Biodiversity Network (BioNet) were visionary documents and a first for a South African municipality. However, implementation was slow with pockets of activities around some of the established reserves as well as a people centred project called Cape Flats Nature. This all changed when in 2005, the City formed the Biodiversity Management Branch (originally the Nature Conservation Branch), within the Environmental Management Department. Areas formally secured for conservation have doubled from 34% of the BioNet in 2009 to over 64.8% by 2018, a doubling in less than a decade. The conservation effort has been further supported by: formalising protected area boundaries and management plans; setting up protected area advisory groups; management effectiveness; people and conservation programmes; establishing baseline ecological data; monitoring and evaluating; and Increasing the staff component from approximately 40 in 2005 to over 210 by 2018. The functions of Biodiversity Management have also grown through this period to include: protected area expansion; management of 20 protected areas; conservation stewardship programmes; conservation services programmes; invasive species management; people and conservation; and significant job creation and skills development."*

- d) Mayoral Awards – October 2018

BMB received a Mayoral Certificate of Recognition:

*"In recognition of your exceptional display of the City of Cape Town's values and contribution towards delivering the BEST TEAM".*

This was primarily motivated as a result of the Invasive Species Unit's work on the Kader Asmal EPWP and Skills Development Programme.



**Figure 1: Green Coast Status awarded to Blaauwberg Nature Reserve.**



**Figure 2: Ald. Nieuwoudt recognises participants in the 2019 iNaturalist City Nature Challenge.**



**Figure 3: Cllrs and staff celebrate the Biodiversity Award at the Eco-logic awards ceremony.**

## **2) New Water Programme includes clearing of invasive species in the Strategic Water Catchments**

Water and Sanitation Department included the clearing of invasive species as a strategy to increase water flow into the City's dams. The existing plan to clear pines and gums around the dam in Steenbras

Nature Reserve was also fast tracked. Bulk Water with BMB and partners, including the Cape Town Water Fund, are collaborating to clear the catchments. Bulk Water and BMB are also looking towards securing the Upper Steenbras Catchment. This will involve land reservation from public works and clearing of invasive species. Land invasion from Grabouw is a threat to water security in the Steenbras catchment.

### 3) **Wildfire at Silwerboomkloof turned into an ecological burn**

The East team with City Fire and Rescue Services achieved a milestone when they turned a wildfire situation into an ecological burn (3.5 ha burnt in total) within the Silwerboomkloof section of Helderberg Nature Reserve. This success could possibly be replicated throughout the City Nature Reserves in areas where fire risk could be reduced (Figure 4).



**Figure 4: Silwerboomkloof's wildfire that staff turned into an ecological burn.**

### 4) **New populations of species found in the City**

Staff found a record 13 new populations of plant species and six new populations of animal species. A full list can be found in sections 4.3 and 4.4. This provides further evidence that Cape Town is indeed one of the most biodiverse cities in the world.

### 5) **Two new Protected Areas in the Metro SE**

In order to facilitate development in the Metro Southeast (SE), the City was required to set aside two areas of land, which will form two new Protected Areas, at Vesuvius Way and Symphony Way West. Appropriate budget for staff, general expenses and capital had to be set aside for long-term management of these sites as part of the housing development approvals. This, with the Woodlands site offset for other housing land, and Joostenbergskloof, resulted in the City's Protected Areas increasing in number to 20.

### 6) **Other milestones achieved in the 2018/2019 financial year included:**

- Initiation of the process to complete the building at Harmony Flats Nature Reserve
- Submission of the LBSAP to Council
- Successful opening of the Witzands Aquifer permit office at the New Witzands Multipurpose Centre at the gateway to the dunes
- Keeping baboons out of the suburbs around the Peninsula for over 99% of the time
- Assistance from fleet to replace six old vehicles and adjustment budget for 12 additional vehicles.

## 2.2 Challenges

### 1) **Security and law enforcement**



Increased incidents of crime (e.g. malicious damage to property, burglary at residential premises, theft, and other illegal activities including dumping and trespassing) continue to be a significant challenge. Other challenges include illegal harvesting, and security threats to visitors, staff and contractors. In the last financial year, there remained a threat of land invasion, and as a result security patrols and staff working over weekends was increased. This resulted in an increased cost.

**2) Staff and budget**

There is still a lack of permanent staff in key positions such as administrators, people and conservation (P&C) officers, field rangers, mechanical operators, and staff in the ISU. A realignment process to address some critical gaps is urgently needed, and will assist in staff shortages. Security, not surprisingly, is one of the largest budget items for the BMB, and is still inadequate to ensure the safety of people, resources and infrastructure.

**3) Comments on development**

Environmental Impact Assessment (EIA) comments and recommendations (based on the BioNet and Bioregional Plans) are rarely adopted in development decision making by the Western Cape's Department of Environmental Affairs and Development Planning (DEA&DP). As a result, developments are often approved without sufficient mitigation for biodiversity loss.

**4) Water Quality concerns in Zandvlei Estuary Nature Reserve**

There were a number of sewage spills into Zandvlei which caused the closure of the vlei. This resulted in numerous complaints by the users and public. Reserve staff did a great job in communicating with users and interested public via the PAACs. An email group of all affected Council staff was set up to discuss issues, share information, and agree on decisions as to additional testing and closure of the vlei. Interaction with Water and Sanitation to address the problems is ongoing.

**5) TMGA and CFA – Drilling into the aquifers for water**

Drilling for water in Steenbras Nature Reserve (Table Mountain Group Aquifer) and on the Cape Flats (Cape Flats Aquifer) continued as part of the New Water Programme, and this created a large amount of work for reserve staff as well as the Conservation Services Unit in terms of monitoring and commenting on infrastructure development and method statements.

**Table 1: Regions, reserves, offices and units of the BMB, each illustrating at least one major highlight and one major challenge from 2018-2019.**

<b>Name of reserve</b>	<b>Highlight(s)</b>	<b>Challenge(s)</b>	<b>Management response to challenge</b>
<b>South Region</b>	This quarter saw a large injection of capital funding into the South reserves. Fencing projects were completed at False Bay, Edith Stephens and Symphony Way West; as well as the renovation of the False Bay Rendezvous at Zandvlei.	The lack of a formally signed conservation agreement by Kenilworth Racing continues to limit the City of Cape Town's assistance in the management of Kenilworth Conservation Area.	Ongoing engagement with Kenilworth Racing.
<b>Zandvlei Estuary (including Muizenberg East and Psoralea Park Private Nature Reserves)</b>	The renovation of the False Bay Rendezvous building was largely completed. The weekly Zandvlei Park Runs now start and end at this facility.	Ongoing sewage spills in Zandvlei due to urban sewage reticulation failure. Closure of Zandvlei due to sewage spills.	Ongoing engagement with Water and Sanitation. Investigating temporary measures such as diversion tanks to cope with large sewage spills. Water and Sanitation have capital funds to upgrade pump station that is failing, but the time period to upgrade the pump station (1-2 years) is a concern.
<b>False Bay</b>	Capital and operational funding resulted in a new wall being constructed at Rondevlei and a number of maintenance projects being completed.	The end of the EPWP staff contract has left a large labour staff vacuum in the reserve staff component.	False Bay requires a small team of permanent worker staff.
<b>Edith Stephens</b>	Additional EPWP staff resulted in a number of projects being completed.	The hosting of EPWP and Symphony Way staff puts strain on the infrastructure.	Ongoing.
<b>Symphony Way West</b>	The reserve boundaries were surveyed and fence erection began.	The security situation remains a challenge, with fencing work being stopped.	Additional security was employed. Contractor was responsible for security during erection of the fence.
<b>Kenilworth Racecourse</b>	A number of varied education programmes was offered. A visit by the CTEET trustees was made.	The lack of an environmental educational facility impacts on the programmes being offered.	This has been a long-term problem and is linked to the conservation status of the site. Once proclaimed then investment can be addressed.
<b>East Region</b>	Clearing of pines in the Steenbras Catchment.	Security threats from land invasion remains an issue.  The development of the Steenbras Well Field continues to result in an increase in staff resources needed. Full impacts not quantified as yet.	Monitoring and employ more security.  Monitor.
<b>Wolfgat (including Macassar Dunes)</b>	Waste Removal and invasive alien plant clearing at Monwabisi Coastal Area with EPWP team from the ISU. Fencing along Swartklip Road is in progress.	Regular dumping. Drownings and body dumps at WGNR coastal area. Fencing contractor stopped on a few occasions by community leaders (New Monwabisi Park) for employment.	Illegal activities continue – additional security employed.
<b>Vesuvius Way</b>	Senior Field Ranger appointment completed. Fitness test for new field ranger post completed. Fencing project is in the implementation phase. New vehicle has arrived. EPWP staff from ISU for waste removal and general maintenance.	Illegal wood collection and dumping in and around the conservation area.	Security monitoring.



<b>Steenbras</b>	Clearing of pine plantations around the Steenbras dam continues at a rapid pace. The restoration of the new landscape is something to look forward to.	The lack of a P&C Officer remains a challenge: no EE programmes have been conducted for the area for a long time as there is no capacity. The inability to engage with the communities around the nature reserves is a huge pity.	Ongoing EPWP skills development programme to address P&C needs under investigation. Report to SPE Portfolio committee underway.
<b>Harmony Flats (including Morkel's Cottage)</b>	Restoration planting at Harmony Flats received a huge boost with the help of contracted services and EPWP staff.	<p>Safety and security is a huge concern for the area. Staff have to be increasingly vigilant in the protected areas. Staff often have to leave the site due to unrest or being harassed by gangsters and community members. Theft of fencing and signage is a big problem. It is difficult to improve and secure areas when the infrastructure is constantly stolen.</p> <p>The management of invasive species on the reserves is a challenge due to budget constraints as a result of administration with NRM programmes.</p>	<p>Ongoing.</p> <p>Ongoing meetings with NRM to resolve the issues.</p>
<b>Helderberg (including Silverboomkloof and Lourens River PNE)</b>	<p>The two CTEET learners on a year-long learnership, Aviwe Mtombeni and Khanyiso Thakoli, successfully completed the programme. Khanyiso Thakoli received a three-year Tourism Officer contract with Table Mountain National Park and Aviwe Mtombeni was appointed as a Nature Guide in Caledon. Two interns, Craig Smith and Sisipho Yikwani, paid by the CTEET Internship programme, joined the team. They will be based on the Reserve until June 2020.</p> <p>Funding (R10 000) was received from the Friends of Helderberg Nature Reserve to run the June holiday EE programme.</p>	The EPWP administration and sourcing of EPWP staff was the biggest challenge. There were over 100 phone calls made to candidates on the Jobseeker Database. Unfortunately, only nine candidates responded to the job offer. This exercise was time consuming and very frustrating. A better way of sourcing candidates should be investigated. Essential Personal Protective Equipment was not forthcoming, which caused unnecessary delays to the programme. There were also several instances where staff were not paid on time.	Ongoing discussions with ISU and EPWP office.

<b>Central Region</b>	<p>Members of the local community surrounding the protected areas benefitted from EPWP contracts. EPWP workers appointed during the report period were of great help at the reserves. They assisted with various projects, including alien clearing, reserve maintenance and infrastructure maintenance.</p> <p>The Area Managers for central were assigned new areas of responsibility. Tshepo Mamabolo became the Area Manager for the Tygerberg area, and Vibeke Maass became the Area Manager for the Durbanville and Bracken areas. The implementation of these changes has proved successful and both are taking on their new areas with enthusiasm.</p> <p>Platteklouf gate (in Tygerberg Nature Reserve) was closed in November due to operational constraints. This did not affect service delivery and/or customers.</p>	<p>Lack of permanent P&amp;C Officers in Central remains a challenge. The region relies on interns and/or volunteers to fulfil the function and provide environmental education. Relying on temporary staff to fulfil the function affects the continuation and standardisation of programmes. It further limits the expansion of the programme.</p> <p>Complaints from Nerina suburb as they wanted the section of Uitkamp Wetlands Nature Reserve near their residential area permanently closed. They were not happy with the self-locking gates that BMB installed as a security measure to ensure the reserve is locked at night.</p>	<p>P&amp;C EPWP Skills Development Programme motivated for. This will benefit and train participants.</p> <p>Resolved via the Sub-council.</p>
<b>Tygerberg</b> <b>(including Bothasig Fynbos Nature Reserve and Van Schoorsdrift)</b>	<p>Removal of pine trees: 22 large pines at the picnic area were removed; ISU assisted with the funding. The pine species are listed in CARA (Act 43 of 1983) as 'invader' alien species.</p> <p>Van Schoorsdrift: alien clearing contract project number TDEM/19/12, Kadar Asmal Programme ran from 2 April 2019 to 28 June 2019. Due to an extensive and complex recruitment process, the project was delayed by a month. Candidates were recruited from the Sub-council 1 database. Seven individuals from Wolfrivier and Dunoon were employed for 51 days, and 4.7 ha was cleared.</p>	<p>Lack of P&amp;C Officer at Tygerberg Nature Reserve; the reserve relies on interns and/or volunteers to fulfil the function. Some 750-1500 learners attend EE programmes at the reserve and the numbers can grow with a permanent officer on site. The reserve is also surrounded by several communities that would benefit from such programmes. The post is critical and in order for the reserve to provide such services to our communities we need to have adequate resources in place.</p> <p>Lack of sustainable budget is a great challenge for Van Schoorsdrift as we are not able to complete the initial clearing and implement follow up. Great effort and resources have been placed to clear this precious conservation area and sometimes in vain, as progress is impeded by lack of follow-up.</p>	<p>Tygerberg P&amp;C Officer post prioritised – paperwork and motivation to create post submitted.</p> <p>It is recommended that budget be allocated for at least a year of alien clearing at Van Schoorsdrift. A meeting was set up with ISU to discuss the way forward.</p>

<b>Durbanville, Uitkamp Wetland and Botterblom</b>	<p>The contractor completed the alien clearing at all three nature reserves. They did follow-up on all the Port Jackson and initial clearing of several other invasive plant species. The clearing was done very well.</p> <p>A grysbok was photographed by a camera trap at Uitkamp Wetland Nature Reserve (UWNR).</p>	<p>Appointment of EPWP workers through the Sub-council Jobseekers Database is a time-consuming process and it is difficult to appoint people that remain interested in the work.</p> <p>The continued complaints from residents of Nerina suburb about the thoroughfare of pedestrians at UWNR.</p>	<p>Ongoing meetings between ISU and EPWP office.</p> <p>Ongoing – report tabled at Sub-council.</p>
<b>Bracken (including Haasendal)</b>	<p>A site meeting was held with the architects to discuss the accommodation schedule and design of the future multipurpose centre. A draft Site Plan Layout was produced.</p> <p>A CTEET intern was appointed in June to assist with monitoring and data collection. The contract will be for one year.</p> <p>A contractor was appointed to do alien clearing at Haasendal Conservation Area (HCA). A new 4x4 vehicle was received and allocated to HCA.</p>	<p>Direct Employment EPWP is a very challenging system, with many hours wasted on administration which still resulted in incorrect payments.</p> <p>Crime leads to the dumping of the community's belongings in the reserve, including bank, ID and drivers licence cards, as well as dumping of used needles.</p> <p>The alien clearing contractors were appointed extremely late. This caused issues with quality control and delays due to wet weather.</p>	<p>Ongoing meetings with ISU and EPWP office.</p> <p>Document lessons learnt.</p>

<b>North Region</b>	Two Ranger Integrity Teams were deployed at the Blaauwberg Nature Reserve from 1 April 2019 to 30 June 2019 by Quemic Africa. Their objective was to protect staff, as well as the infrastructure at the Montispectus overnight accommodation and other visitor facilities against burglary and theft.	No full-time and qualified P&C Officers at Blaauwberg, Table Bay or Witzands Aquifer Nature Reserves.	Ongoing – P&C EPWP Skills Development Programme motivated for.
<b>Blaauwberg</b>	Green Coast Status awarded to Blaauwberg Nature Reserve. The WESSA Group Award was presented to the City's EMD and implementing partner Friends of Blaauwberg Conservation Area under the leadership of Roy Fuller-Gee.	<p>Incidents of crime including malicious damage to property, burglary at residential premises, theft and other illegal activities e.g. dumping and trespassing, continue to be a significant challenge.</p> <p>Illegal occupants residing in condemned structures at the old Blaauwberg's Valley farm portion of the Nature Reserve are continuing to exploit the natural resources in the Nature Reserve by harvesting wood and grazing domestic animals in the Hill Section. The occupants also move around in the Nature Reserve and leave management access gates open overnight.</p>	<p>Additional security employed.</p> <p>Ongoing legal process.</p>

<b>Table Bay</b>	<p>A <i>Glareola nordmanni</i> (Black-winged pratincole) was reported by Jan and Frieda Prinsloo. Other birdwatchers and wildlife enthusiasts also saw it. This bird is a Near-threatened Palearctic breeding summer migrant, and is a very rare sighting in the Western Cape.</p> <p>The winter holiday programme was successful with 93 children attending over the four days hosted at TBNR.</p>	<p>During this reporting period, several incidents of illegal grazing of livestock inside the Diep River and adjacent sections have been reported to management. Cows from the neighbouring community have been some of the recurring challenges experienced since 2011.</p> <p>Illegal dumping remains one of the biggest challenges on the Southern Section of the Zoarvlei Wetland, adjacent to the community of Brooklyn.</p>	<p>Several meetings with the livestock owners and internal stakeholders including the City Law Enforcement have taken place.</p> <p>Additional security employed.</p>
<b>Witzands Aquifer (including Dassenberg Coastal Catchment Partnership (DCCP) sites)</b>	<p>One Mayor's project EPWP worker was appointed as part of the 2018/2019 CTEET Level 2 learnership programme. The learner commenced work on 9 July 2018 on a one-year contract.</p> <p>The official opening ceremony for the new office complex was held on 16 August 2018. Councillors, stakeholders and staff from BMB attended the event.</p>	<p>The DCCP remains without a permanent P&amp;C Officer since 2009. This is a huge disadvantage to both the DCCP and communities, as the relationships, programmes and opportunities conducted with the schools/groups/events are affected by this lack.</p>	<p>Motivation and paperwork for the creation of a P&amp;C Officer post has been submitted.</p>

<b>Head Office</b>	<p>New uniform is being issued to staff and it is well received.</p> <p>We have taken delivery of the 19 new vehicles. This is the largest number of vehicles received during a quarter. The Manager, Julia Wood, must be acknowledged for obtaining the funding.</p> <p>Fire fitness tests SOP developed.</p>	<p>Delivery of certain tender items by the vendor.</p> <p>New staff members have been tested by Mogamat Paulsen from Fleet Risk and failed to obtain their Council Authorisation due to their inability to drive properly. This could result in a reduction in service delivery.</p>	<p>The project manager met with SCM to discuss the poor performance of the vendor.</p> <p>Additional training interventions could assist.</p>
<b>Maitland (Head Office)</b>	<p>The new post-mortem room at Maitland has been completed for our vet, Dr Dorothy Breed.</p>	<p>The crossbeams of the shade cloth parking above parking bays 6 – 10 were damaged during a storm.</p> <p>Once again, there was no tenant meeting held.</p>	<p>The matter has been reported to Facilities Management and we await the repair.</p> <p>Ongoing emails to Facilities Management.</p>

<b>Invasive Species Unit</b>	<p>Invasive Animal and EDRR Tenders have been approved and are being implemented.</p> <p>Over-achieved our job creation target for EMD with 332%. This excludes the job opportunities created for other line departments.</p> <p>Protocol for the control of PSHB developed.</p> <p>Memorandum of Agreement (MoA) signed with DEA for R5 M over three years.</p> <p>Invasive Species Website updated with online reporting tools.</p> <p>Additional funding received to implement Kader Asmal Skills Development Programme. A total of R11 014 141.98 was received as additional funding. Most of the funding was used to employ additional workers on Nature Reserves.</p>	<p>High turnover of staff in ISU due to contract positions. This has a negative impact on project and operations.</p> <p>Lack of awareness and environmental education capacity (posts) within the unit.</p> <p>Inability to gain access to private properties as a result of continuous change of ownership remains a challenge for the EDRR and Guttural Toad programme.</p> <p>The delays in signing of the DEA: NRM MoA. Delays in transferring funds resulted in no implementation of Grand funded projects.</p> <p>Protests, the forced occupation of the ISU offices, and violence by contractor's employees.</p> <p>Late payment of contractors' teams still continues to present challenges and delays in the implementation of projects. This has also impacted on the quality of work in the field.</p>	<p>Ongoing post prioritisation. Submit funding proposal for permanent positions.</p> <p>Ongoing post prioritisation. Submit funding proposal for permanent positions.</p> <p>Policy and By-law needed.</p> <p>Implementation and reporting meeting to be held to establish ways of fast tracking processes to ensure implementation of various projects.</p> <p>Discussions with SCM, Legal, and Safety and Security as to way forward.</p>
<b>Westlake Conservation Centre and Habitat Restoration Facility</b>	<p>Contractors started work on site for several capital-funded infrastructure projects, namely:</p> <ul style="list-style-type: none"> <li>• installation of conservancy tanks to replace the septic tank system,</li> <li>• conversion of an old storeroom in the top courtyard into a staff mess room,</li> <li>• replacement of asbestos roofing on two staff houses,</li> <li>• construction of shaded parking structures near the top courtyard.</li> </ul> <p>20 plants of <i>Serruria aemula</i> var. <i>congesta</i> (CR) (Haasendal origin) from SANBI for establishing a living collection at Westlake.</p>	<p>There will not be sufficient operational funds in the Cost Centre for all needs.</p> <p>Several challenges experienced with capital projects: poor communication with certain contractors; delays in starting work on site; damage to existing infrastructure e.g. electrical cable, water supply pipe and roof structures; conservancy tanks incorrectly installed and some agreed expectations not met.</p> <p>EPWP staff at the restoration facility came to an end during January. Bouts of lack of staff capacity has significant impacts on the facility.</p>	<p>We can see how short we are and then virement from other Cost Centres as the year progresses.</p> <p>Management followed up with contractors and held back a percentage of payment where possible to address outstanding work or work to be redone.</p> <p>Two permanent worker posts placed on the future organogram to give the facility stability with regards to the variability in the EPWP.</p>

<b>Conservation Services Unit</b>	<p>A Cost Centre (18020216) dedicated to the CSU has been created and some funds have been allocated.</p> <p>Sales agreements signed and funds paid over to transferring attorneys for Prashanti Hill (Raciti) and Poncelet properties.</p> <p>Wolfgat Nature Reserve was gazetted on 3 May 2019. False Bay Nature Reserve and Helderberg Nature Reserve were gazetted/declared on 22 March 2019.</p>	<p>There will not be sufficient operational funds in the Cost Centre for all needs.</p> <p>Both sales agreements were signed off relatively early, but payment was delayed due to last minute changes by both land owners.</p> <p>Resolving the priority State land of high biodiversity value for conservation purposes. The proclamation of the remaining two Nature Reserves, Table Bay and Zandvlei Estuary.</p>	<p>We can see how short we are and then virement from other Cost Centres as the year progresses.</p> <p>The transferring attorney of Mr Poncelet took seven weeks to finalise her invoice. When it was submitted at the very last minute, it was incorrect and had to be changed three more times before it was accepted and paid. Mr Raciti's last minute changes couldn't be accommodated in the end, but fortunately the sale still went ahead, albeit with him not being 100 % happy.</p> <p>Continue following up with CapeNature, as both processes are reliant on them.</p>
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## 3. Strategy, Policy and Legislation, and Plans

### 3.1 Local Biodiversity Strategy and Action Plan

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 alien species control. The strategies included implementing the BioNet.

The LBSAP was updated, revised and incorporated the updated Invasive Species Strategy. The LBSAP was also 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 (ES), 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 2008. The updated LBSAP, which included the updated targets for 2022 as aligned to the City's 5-year IDP (2017-2022), was submitted into the council process at the end of May 2019.

### 3.2 Invasive Species Control Plans

The Invasive Species Strategic Framework dated September 2008 was revised in the previous financial year and aligned with the National Environmental Management Biodiversity Act, Act 10 of 2004 (NEMBA) regulations and the Invasive Alien Species Lists (October 2014). The NEMBA Alien and Invasive Species Regulations (2014) requires all organs of state at all spheres of government to control invasive species, monitor and report progress, and incorporate invasive species management, control and eradication plans into IDPs. The City has submitted control plans for all its proclaimed Protected Areas. The City of Cape Town was one of the few municipalities country-wide that submitted control plans.

### 3.3 Metro Southeast Conservation Implementation Plan

The Metro Southeast (SE) Strandveld Conservation Implementation Plan (CIP) is a collaborative City-led project including external conservation partners such as CapeNature, DEA&DP and the South African National Biodiversity Institute (SANBI). Owing to the urgent need for development land in the Metro SE, and the rapidly shrinking area of endemic and Endangered natural vegetation, this project was initiated to identify a key set of areas required to secure biodiversity resources and vital ecosystem services, and to set aside other less critical BioNet land for development. A framework and set of maps for this plan were developed and approved in 2013/14. Operational funds of R6 M were allocated in the 2017/2018 and 2018/2019 financial years to secure and manage Vesuvius Way and Symphony Way Conservation Areas.

The CIP layers have been updated (Figures 5 and 6), due to transformation of the remaining vegetation. The updated maps have shown that over 500 ha of Strandveld has been lost in the Metro SE since 2013 (Figure 7 and Table 2). The biggest single causal factor for this loss, especially of the priority conservation land, has been through illegal land invasion. It is proposed that a closer working relationship with Human Settlements



and other line functions could create a conservation land bank to facilitate development on identified “Unselected” Strandveld. This project will be a major focus in the upcoming financial year.

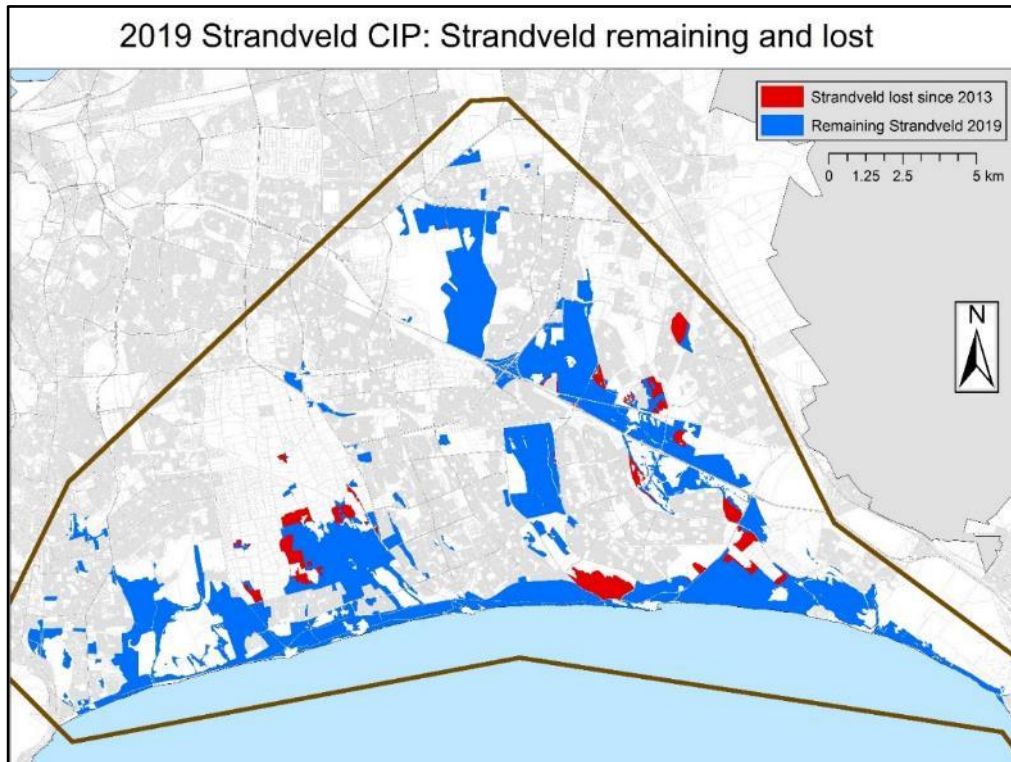


Figure 5: Cape Flats Dune Strandveld lost (555 ha) and remaining (6 146 ha or 23,9% of the historic extent) in the Metro SE.

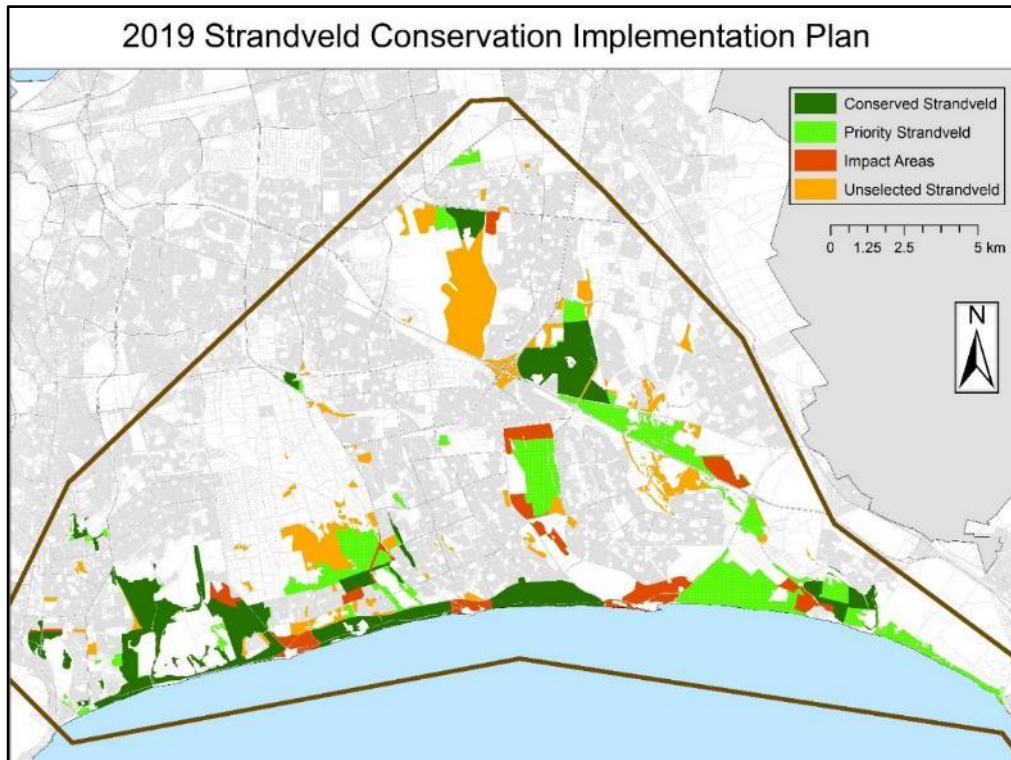


Figure 6: Remaining patches of Strandveld in the Metro SE. Unselected Strandveld (orange) are areas that are of a low priority to conserve and could have development (with mitigation) facilitated; however, not all of these areas are suitable or available for development. Areas in light green are a high priority for addition to the protected area network (dark green).

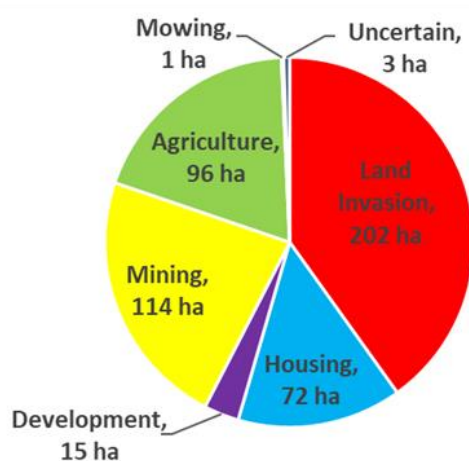


Figure 7: Causal factors of Strandveld loss in the Metro SE since 2013.

Table 2: Taking stock of the remaining Cape Flats Dune Strandveld in the Metro SE.

Metro SE Strandveld	Area (ha)	% of historic extent
Historic extent	25 721	
2013 remaining*	6 701	26,1
<b>Lost</b>	<b>555</b>	<b>2,2</b>
<b>2019 total remaining</b>	<b>6 146</b>	<b>23,9</b>
2019 conserved	2 092	8,1
2019 priority	1 872	7,3
2019 impact	687	2,7
2019 unselected	1 495	5,8

\*Adjusted for improved mapping

## 4. Green Jobs

### 4.1 Job Creation

In total, **106 127** person days of temporary employment (**461** full-time job equivalents; **3 318** job opportunities) was created under the Kader Asmal Catchment Management Programme (Table 3 and Figure 8).

**Table 3: Job Opportunities created for EMD.**

Project	Budget (excl. VAT)	Expenditure (excl. VAT)	Person Days	Job Opportunities	FTE
EMD-Kader Asmal Project (Grant Funding)	R9 266 000.00	R9 266 000.00	82 949	2 559	360
EMD-Kader Asmal Project	R5 234 000.00	R5 703 431.43			
EMD-Kader Asmal Project (Skills Development)	R3 469 098.40	R3 469 098.40			
EMD-Kader Asmal Project (Additional Funding)	R7 514 170.94	R7 514 170.74			
EMD-Kader Asmal Project (Capital Funding)	R400 000.00	R405 040.50			
Ward 42 (WPX.0011157) Gugulethu & Manneberg	R510 000.00	R509 999.01	3 227	69	14
Ward 30 (WPX.0010208) Kalksteentfontein	R100 000.00	R100 000.00	367.5	17	2
Recreation and Parks	R1 040 677.47	R1 040 677.47	6 417	140	28
Solid Waste	R246 374.67	R246 374.67	1 661	33	7
Social Development and Early Childhood Development	R5 000 000.00	R4 998 362.20	11 505.5	500	50
<b>TOTAL</b>	<b>R32 780 321.48</b>	<b>R33 253 154.42</b>	<b>106 127</b>	<b>3 318</b>	<b>461</b>



**Figure 8: Invasive Plant Control operation in Three Fountains.**

The ISU also facilitated job creation of **750** job opportunities and **10 828** person days for other line functions (Table 4). This close partnership with other line departments ensures job creation while best management practice in clearing alien invasive species from City land is undertaken.

**Table 4: Job Opportunities created on behalf of other Line Departments.**

Line Departments	Planned Budget	Actual Expenditure	Person Days	Job Opportunities	FTE	Comments
City Health	R1 999 971.04	R1 999 971.04	4 480	426	19	Reported under line department's EPWP project SOCH/19/222
Human Settlement/Property Management	R1 775 484.25	R1 775 484.25	6 348	324	28	Reported under line department's EPWP project# TDHS/19/501M
<b>TOTAL</b>	<b>R3 775 455.29</b>	<b>R3 775 455.29</b>	<b>10 828</b>	<b>750</b>	<b>47</b>	

## 4.2 Social Development

The social development programme linked to the Kader Asmal EPWP programme addresses and supports the various social and health aspects that the workers deal with on a daily basis. This included women's and men's health interventions that reached 261 workers (Table 5). In collaboration with various stakeholders, 180 EPWP workers were supported through outreach programmes. These include one on one interventions with EPWP workers and cover a spectrum of subjects including medical and substance abuse interventions. In this financial year, 1 845 EPWP workers (Table 5) were reached through various interventions including toolbox talks (Figure 9). The toolbox talks highlight and address the various Safety, Health and Environmental (SHE) subjects within a team and the specific site where the team is working. During the interaction with the teams the social development officer also identified different social aspects that the team is struggling with and gave guidance and advice.

**Table 5: Training and Social Development Days.**

Interventions	Person Days	Number of People
One on One	0.42	6
Outreach	7.50	180
Network Meetings	5.63	49
Medical Interventions	102.67	261
Toolbox Talks	67.00	240
Inductions	32.66	273
Environmental Awareness	61.00	61
Health and Safety	30.00	15
First Aid Training	30.00	15
Fire Awareness	15.00	15
Workshops	6.67	10
Debriefing Session	3.67	44
Value in waste sorting and recycling	124.00	62
Water Week	58.44	374
EE Programme (2 Oceans Aquarium)	60.00	180
EE Programme (Table Mountain)	10.00	60
<b>TOTAL</b>	<b>614.66</b>	<b>1 845</b>





**Figure 9: Epilepsy SA facilitator running the epilepsy awareness workshop (left) and demonstrating how to help an epileptic patient (right).**

## 5. Conservation Services

### 5.1 Protected Area Expansion

Cape Town's BioNet is implemented via a partnership with internal line functions and external stakeholders. The BioNet Implementation Committee was set up in 2010 as a governance mechanism to implement the BioNet. This committee comprised of three levels of state authorities, namely SANParks (the national protected area authority), CapeNature (the provincial conservation authority), and the City (the local authority), as well as the Cape West Coast Biosphere Reserve (CWCBR). The BioNet Implementation Committee partners signed a memorandum of understanding (MoU) in 2011, which detailed each of the authority's obligations in respect to the implementation of the BioNet. The City and its partners assessed and agreed on strategies for each parcel of land prioritised on the BioNet.

The Protected Areas Expansion programme was very successful in 2018/19 with both stewardship and land acquisition playing a part. The conservation estate is now 55 222 ha, **64.97%** of the 2009 BioNet (the target approved in the IDP is 65% by 2022).

As part of the Protected Areas Expansion work, key projects included:

#### 1) Reserve Proclamation

False Bay and Helderberg Nature Reserves were declared on 22 March 2019 (Figure 10). Wolfgat Nature Reserve was gazetted on 3 May 2019. Twelve of the 14 City Nature Reserves have now been gazetted. The remaining two (Zandvlei Estuary and Table Bay Nature Reserves) will be gazetted imminently.

PROVINCE OF WESTERN CAPE		PROVINSIE WES-KAAP	
Provincial Gazette		Provinsiale Koerant	
8067		8067	
Friday, 22 March 2019		Vrydag, 22 Maart 2019	
Registered at the Post Office as a Newspaper		As 'n Nuusblad by die Poskantoor Geregistreer	
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(*Reprints are obtainable at Room M12, Provincial Legislature Building, 7 Wale Street, Cape Town 8001.)		(*Herdrukke is verkrygbaar by Kamer M12, Provinsiale Wetgewing-gebou, Waalstraat 7, Kaapstad 8001.)	
No.	Page	Nr.	Bladsy
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34	Department of Environmental Affairs and Development Planning: Declaration of Helderberg Nature Reserve ..... 198	34	Departement van Omgewingsake en Ontwikkelingsbeplanning: Verklaring van Helderberg Natuurreservaat ..... 203
35	Department of Environmental Affairs and Development Planning: Declaration of False Bay Nature Reserve ..... 211	35	Departement van Omgewingsake en Ontwikkelingsbeplanning: Verklaring van Valsbaai Natuurreservaat ..... 220

Figure 10: Extract from the Provincial Gazette showing proclamation of Helderberg and False Bay Nature Reserves.

## 2) Reservation of City Land (conserving City-owned land).

Nine of the ten properties in Macassar that Biodiversity Management submitted a reservation application for have been to the relevant Sub-council meeting for approval. Erf 1137 Macassar, and properties in other areas are still with Property Management (Table 6).

**Table 6: Summary of 15 City owned properties that Biodiversity Management would like to reserve for conservation.**

Erf Number	Site name	Area (ha)	Date submitted	Status
Erf 702 Macassar	Macassar	16.70	November 2016	Complete
Erf 703 Macassar	Macassar	41.20	November 2016	Complete
Erf 707 Macassar	Macassar	11.80	November 2016	Complete
Erf 708 Macassar	Macassar	30.87	November 2016	Complete
Erf 721 Macassar	Macassar	6.69	November 2016	Complete
Erf 1062 Macassar	Macassar	5.17	November 2016	Complete
Ptn of Erf 1063 Macassar	Macassar	1.30	November 2016	Complete
Erf 1195 Macassar	Macassar	2.18	November 2016	Complete
Erf 1196 Macassar	Macassar	5.91	November 2016	Complete
Erf 85352 Muizenberg	False Bay	2.10	November 2017	Complete
16005	Hassendal POS	1.04	August 2017	In process
ST 222-62	Haasendal straighten edge	16.13	December 2016	In process
Ptn of RE Erf 1137 Macassar	Macassar	22.68	November 2016	In process
Erf 21082 Rugby	Zoarvlei (Table Bay)	2.90	December 2017	In process
Erf 42876 Tafelsig	Wolfgat Parking	0.21	December 2016	In process

## 3) Conservation Stewardship (conserving private and communal land)

Since the inception of the stewardship project in 2010, a total of 19 properties (excluding properties on the peninsula that have agreements with SANParks) have signed Biodiversity Stewardship agreements. Seven of these properties have signed perpetuity agreements totalling 2 242 ha.

Funding for stewardship sites to assist with ecological management, alien vegetation clearing, fire management, and signage, for example, play a significant role as an incentive for landowners that set land aside for the greater good. Raising funds for these critical interventions remains a challenge. The Table Mountain Fund (TMF) has been exceptional in their support for the City's Protected Area Expansion initiatives, with multiple projects approved for the coming year. This includes R150 000 funding support over three years, for critical pre-proclamation processes (valuations, SG Diagrams, legal fees, etc.), ending in September 2019. Another three year R160 000 TMF alien clearing project commenced in 2018 and will run until 2021. In addition, three TMF Stewardship Incentive projects of R30 000 each are being funded during 2019. During the reporting period, various conservation incentives for private land owners were implemented, with funding sourced from the organisations listed in Table 7.

TMF also sponsored a landowner recognition day, where the conservation stewardship landowners, who signed perpetuity conservation agreements, were invited to a social braai and each received a little gift pack, in order to give back to them a little for the commitment they have made to conservation. The event was hosted at Bokbaai, on the West Coast, on 29 September 2018.

After a very long process, Erf 145 Capricorn was donated to the City for conservation purposes. This will be incorporated into the False Bay Nature Reserve. Many thanks must go to Property Management for assisting with this process.



**Table 7: Organisations that have contributed funding for private landowners.**

Organisation	Budget	Comment
Table Mountain Fund	R150 000 (over 3 years 2017-2019)	R40 000 remaining until September 2019.
Table Mountain Fund	R30 000 (2019)	Atlantic Beach alien clearing.
Table Mountain Fund	R30 000 (2019)	Burgherspost wetlands fencing project.
Table Mountain Fund	R30 000 (2019)	La Fontaine Conservation Area alien clearing.
Table Mountain Fund	R35 000 (2018)	Signage for Stewardship sites completed December 2018.
Table Mountain Fund	R3 500 (2018)	Spring Day at Harmony Flats.
Table Mountain Fund	R3 500 (2018)	Stewardship Recognition Day.
Table Mountain Fund	R30 000 (2018)	Alien Clearing at Grove NR (Knorhoek) – complete.
Invasive Species Unit	R62 000 (2018)	Post-fire follow-up clearing, mostly pines.
Invasive Species Unit	R60 000 (2018)	Initial clearing at Three Fountains NR 2.8 ha Rooikrans – completed early October 2018.
Dept. Agri.: LandCare	R420 000 (2018-2019)	Invasive species clearing Klein Dassenberg (September 2018 – March 2019).
Table Mountain Fund	R160 000 (2018-2021)	Invasive species clearing Klein Dassenberg (November 2018 – March 2021).
WWF-SA	R40 000 (2018)	Joostenbergskloof Core Flora Site fencing project – completed.
<b>Total</b>	<b>R1 050 500</b>	

#### 4) Development facilitation through land banking and other offsets

The Atlantis industrial incentive scheme includes a land-banking component. Key biodiversity properties outside the urban edge (and within the landscape conservation initiative, the DCCP) are proactively purchased and conserved to mitigate the loss of biodiversity remnants within the urban edge and industrial area of Atlantis, thereby facilitating new investment opportunities in the area. This scheme is supported by Province's DEA&DP and CapeNature. This pragmatic approach facilitates development, while ensuring that priority land is added to the conservation estate, thereby securing biodiversity resources and the vital ecosystem services they deliver. Since 2012/2013, over 1 000 ha has been secured for the land bank and just over 104 ha of development in Atlantis has been facilitated.

Properties procured during the reporting period:

- R5.3 M was approved for the acquisition of Portion 58 of Cape Farm Klein Dassenberg No. 20 (Raciti) from the adjustment budget. The sale was concluded during this reporting period.
- The 7.5 ha Poncelet property (Portion 129 of Driefonteinen Farm No. 29) was acquired as an offset for a Transport and Urban Development Authority (TDA) development.

Preparation for the 2019/20 land acquisition budget:

- Concluded negotiations with Rainbow Chickens towards the potential acquisition of a 41 ha portion of their Langdam property in the DCCP.
- Negotiations initiated with Mr Shubert at Aster Farm, DCCP, towards potential acquisition of their property during the 2020/21 financial year.

The Property known as Fynbos Farm (PA 472/2) north of Joostenbergskloof was ground-truthed. Numerous high quality habitats and threatened species were found on site. This property is of immense conservation significance.

#### 5) The Dassenberg Coastal Catchment Partnership

The DCCP is an ongoing initiative of CCT, CapeNature, WWF-SA, TMF, SANParks, Wilderness Foundation, Cape West Coast Biosphere, DEA&DP and SANBI. The DCCP continues with the partnership and has initiated the implementation of the grant received from the GEF5 for the coordination of the partnership

and initiation of key projects. The contract for the GEF5-funded DCCP coordinator, Martin Albertus, expires at the end of 2019.

## 6) Public land

### a) Parcels of state land scattered across the City

A submission to the Department of Public Works was submitted via CapeNature for a variety of state properties across the CCT on 1 March 2018. This has not been resolved but is still in process

### b) Steenbras Catchment.

The exact area that is envisaged to be secured to protect the Steenbras catchment was identified following a few site visits to assess the situation on the ground. All relevant property information (ownership, title deed number, erf number, etc.) was submitted to CapeNature, who will include the properties in their process to secure state land. Permission to manage the land in the interim is required from the Mayoral Committee. A report needs to be drafted and submitted during the next reporting period.

## 5.2 Core Flora Sites

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The Core Flora Sites are a set of 37 sites identified in the late 1990s as being of critical conservation importance. These sites form an important component of the BioNet, and remain a priority for conservation. They also act as a good barometer of how our conservation efforts are proceeding. The following actions occurred around the unprotected Core Flora Sites during this reporting period:

- Two properties on the Klein Dassenberg hills were purchased
- Renewed talks with Hercules Pilaar farm regarding stewardship or land acquisition
- Signed donation agreement from WWF-SA toward the acquisition of the Joostenbergskloof Core Flora Site from Garden Cities.

## 5.3 Flora

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### Biodiversity Floral finds:

- 1) A new population of *Gladiolus jonquillodorus* (EN) at Joostenbergskloof.
- 2) A new population of *Babiana blanda* (CR) and *Othonna linearifolia* (EN) at Camphill Village.
- 3) A new population of *Senecio foeniculoides* (CR) at Pella Outspan.
- 4) A new population of *Gladiolus martleyi* (LC) discovered on Groenfontyn (Figure 11).
- 5) A new population of *Erepsia hallii* (EN) on Langdam farm (Figure 12).
- 6) Two isolated flowering clumps of *Agapanthus walshii* (EN) in Steenbras Nature Reserve.
- 7) Scattered flowering *Gladiolus brevifolius* (LC) plants were found above 100 m near Kogelberg Peak in November 2018 (Figure 13). This appears to be the first record of the species in Cape Town.
- 8) A recently discovered but still undescribed species of *Limonium* was found growing at Three Fountains Nature Reserve. It is currently only known from three sites (Figure 14).
- 9) New population of *Wurmbea robusta* (CR) at Fynbos Farm, Klipheuwel – a huge range extension and new record for the City.
- 10) New populations of *Babiana blanda* (CR) at Klipheuwel Dairy Farm, Klipheuwel ridge and Joostenbergskloof, confirmed by John Manning.
- 11) New population of *Leucadendron stellare* (CR) found at Klipheuwel Dairy Farm, confirmed by Tony Rebelo. This is the only population in the City.

- 12) New population of *Claretum clavatus* (EN) found at Three Fountains Nature Reserve, confirmed by Hedi Stummer. This is new for the City.
- 13) Hundreds of *Babiana regia* (CR) flowering after the ecological burn at Joostenbergskloof (Figure 15).



Figure 11: A new population of *Gladiolus martleyi* was found on Groenfontyn Estate wetlands in February 2019.



Figure 12: A new population of *Erepsia hallii* was found on Langdam farm in February 2019.



Figure 13: *Gladiolus brevitylus* plants found at Steenbras Nature Reserve in November 2018, appear to be the first record for the City.





Figure 14: A recently discovered but still undescribed species of *Limonium* was found growing at Three Fountains Nature Reserve.



Figure 15: *Babiana regia* (CR) flowering after the ecological burn at Joostenbergskloof.

## 5.4 Fauna

### 1) Notable records for the year

- A single White-fronted Bee-eater (*Merops bullockoides*) was recorded in Zeekoevlei (False Bay Nature Reserve) on 8 June 2019. This constitutes the first record of this species for the City, and corresponds with an increase of sightings of this species in the Western Cape (Figure 16).
- The Coral Shield Cobra (*Aspidelaps lubricus*) found by Johan Gerber at the Cape Town Ostrich Ranch on 15 May 2019 was significant. This was the first record of this species in the City in approximately 20 years (Figure 17).
- A Lesser Black-backed Gull (*Larus fuscus heuglini*) was recorded at the Southern Birding Area of the False Bay Nature Reserve on 6 January 2019 (Figure 18). This individual has been identified as belonging to the *heuglini* subspecies and is often referred to as a Heuglin's Gull. This record constitutes the first record of this species for the Western Cape.
- On 10 November Cliff and Suretha Dorse discovered Cape Galaxia (*Galaxia zebrata*) in one of the streams draining in to Steenbras dam. This is the first indigenous freshwater fish to be discovered in the Steenbras catchment (Figure 19).
- The first record of Kogelberg Moss Frog (*Arthroleptella kogelbergensis*) for the City was confirmed from Steenbras Nature Reserve on 9 August 2018.
- Two Laminate Vlei Rat (*Otomys laminatus*) skulls found by Cliff Dorse and Andre Rossouw on 21 August 2018 in the wetland on Kogelberg Peak constitutes the first record of the species for a City reserve (Figure 20). The only other local records are from Cape Point. The red data report on the species can be seen at:

<https://www.ewt.org.za/wp-content/uploads/2019/02/44.-Laminate-Vlei-Rat-Otomys-laminatus-NT.pdf>



Figure 16: Images of the White-fronted Bee-eater (*Merops bullockoides*) at Zeekoevlei, False Bay Nature Reserve. Photographed by Michael Mason.



Figure 17: Coral Shield Cobra (*Aspidelaps lubricus*) found by Johan Gerber at the Cape Town Ostrich Ranch. Photographed by Cliff Dorse.



© Michael Mason (michaelisbirding@gmail.com)

Figure 18: Lesser Black-backed Gull (*Larus fuscus heuglini*) photographed at the Southern Birding Area, False Bay Nature Reserve, on 7 January 2019. Photographed by Michael Mason.



Figure 19: Cape Galaxia (*Galaxia zebrata*) were found to be inhabiting one of the tributaries of Steenbras Dam.



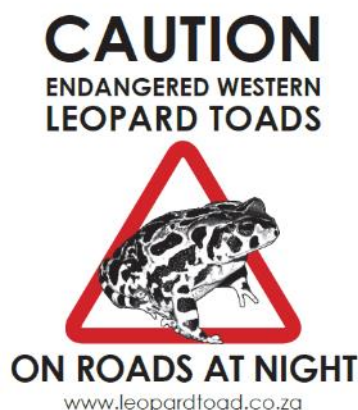


Figure 20: Lamine Vlei Rat (*Otomys laminatus*) skull found in the wetland on Kogelberg Peak.

## 2) Fauna management

### a) Western Leopard Toad

The Endangered Western Leopard Toad has long been recognized as a flagship species for conservation within the City. These charismatic animals have a strong public following and the Western Leopard Toad Conservation Committee (WLT-CC) was established in 2007 to coordinate the conservation efforts focused on this species. The WLT-CC consists of conservation authorities such as SANBI, SANParks, CapeNature and the City, as well as an exceptional group of volunteer coordinators for most of the areas in which Western Leopard Toads occur.



This group continues to do sterling work in creating awareness around the threats these animals face, particularly during their annual breeding migration. The breeding efforts of the toads were definitely affected by the drought conditions, but the 2019 breeding season is highly anticipated with an increase in rain again. The City funds and provides the needed signage, by-law permit approvals, and the campaign posters during the breeding migration to ensure a consistent and familiar annual campaign City-wide. False Bay Nature Reserve, in particular the Zeekoevlei and Rondevlei sections, are two breeding localities for the Western Leopard Toad that fall within the City's protected area network as sites managed by BMB. Further City-owned sites on the



protected area network include Biodiversity Agreement sites such as De Oog, Lower Silvermine wetlands, Glencairn wetland, Greater Princess Vlei and Two Rivers Urban Park that are under the custodianship of the City's Recreation and Parks Department.

b) Grysbok

Milnerton Racecourse Section of Table Bay Nature Reserve has experienced an explosion in the number of Cape Grysbok. This is due to the isolated nature of the site where no natural movement of animals can occur. There are also no naturally occurring predators that could keep numbers reduced. The Critically Endangered Cape Flats Sand Fynbos was showing signs of overgrazing and an urgent intervention was made to remove and translocate grysbok. Monitoring will continue, and if the number of animals exceed the carrying capacity of six animals, more will be removed. A total of 25 grysbok were removed from this site in this year and released in the Rietvlei Section of Table Bay Nature Reserve and in Blaauwberg Nature Reserve.

c) Bontebok

A MoU was finalised for the loan of nine Bontebok to Kinko Conservation Area. There is a permit application in process with CapeNature for the translocation of the Bontebok. This will also provide a solution for the lone female Bontebok at Tygerberg Nature Reserve. The capture of the Bontebok at Vergelegen Farm will be difficult due to the terrain, and will likely occur in stages in the next financial year.

d) Table Mountain Ghost Frog

The CCT is represented on the Table Mountain Freshwater Ecosystems Project. The project is a multi-partner initiative with TMF funding to effectively protect threatened species on Table Mountain, including the Table Mountain Ghost Frog.

### 3) Game Register

The City is required to report to CapeNature on the numbers of game animals each year (Table 8).

**Table 8: Game spreadsheet for the 2018/19 reporting period.**

Species	Translocations	Births	Deaths	Total	Animals on loan	Animals on CCT Reserves
Bontebok ( <i>Damaliscus pygargus pygargus</i> )	0	0	0	9	8	1
Grey Rhebok ( <i>Pelea capreolus</i> )	0	0	0	*3	0	0
Hippopotamus ( <i>Hippopotamus amphibious</i> )	0	0	0	7	0	7
Eland ( <i>Taurotragus oryx</i> )	0	4	0	20**	0	20**
Red Hartebeest ( <i>Alcelaphus buselaphus</i> )	0	0	0	7	0	7

\* There were sightings of three Grey Rhebok at Helderberg Nature Reserve, consisting of an adult ram and ewe, with a young ewe also spotted in 2018, estimated to be around two years old. They have, however, not been seen since March 2018 and move off of Helderberg Nature Reserve to adjacent properties (Owen Wittridge pers. comm.) so the number is an estimate.

\*\* Fifteen Eland are at Blaauwberg Nature Reserve. The five Eland at Rondevlei are owned by CTEET.

## 5.5 Baboons

### 1) Baboon Management on the Cape Peninsula

The Chacma Baboon (*Papio ursinus*) forms part of the city's rich biodiversity, and is a considerable tourism asset (Figure 21). After many years of management, the Peninsula managed baboon population is growing steadily (the total number in the managed troops grew from 368 in June 2013 to 449 in June 2019), and is thus not considered to be under threat (Table 9). This trend is evident for both the southern and northern sub-populations, although it is much more pronounced in the north, where the sub-population has grown by 45 in four years, despite the mysterious disappearance of about 30 baboons on the wine farms in June 2018 (see 2018 Annual Report – URL <https://hwsolutions.co.za/wp-content/uploads/2019/10/HWS-Annual-Report-2019.pdf>).



**Figure 21: Baboons in their natural environment on the Cape Peninsula.**

The existing programme continues to deliver excellent results. The City manages the programme and has an informal partnership with the relevant government authorities (SANParks, CapeNature and the Navy), and is advised by the SPCA and Baboon Research Unit, University of Cape Town. Over the past year the Baboon Liaison Group (BLG) (comprising of Councillors, and representative ratepayers from baboon affected communities) became largely dysfunctional because of representation issues, especially in the southern Peninsula. The community liaison function is currently being replaced by CARBS (Councillor Appointed Representatives for Baboon Suburbs). The four councillors in whose wards baboons are active (Wards 61, 62, 71 and 72) each appointed one or two interested and active residents per community to act as conduits of information with regards to baboon activities and mitigation.

The programme is run as a City tender and the current service provider, Human Wildlife Solutions (HWS), is contracted until June 2020. The programme, which mainly focuses on employing rangers to keep baboons wild and 'out of town', remains costly and runs at about R14 M per year. The tender focuses on managing 11 of the 16 troops on the Cape Peninsula, that may raid the urban area. Figures 22 and 23 show the ranges of the troops, divided into the northern troops located in Constantia and Tokai, and the southern troops located in the southern Peninsula. The main objective is to keep baboons away (by holding the line through aversive conditioning techniques) from residential areas. In terms of the current tender, HWS has a ranger stationed on Plateau Road to manage the interface between baboons and



tourists on the road. However, the Plateau Road Troop does not raid in the official urban area and is therefore not a fully managed troop.

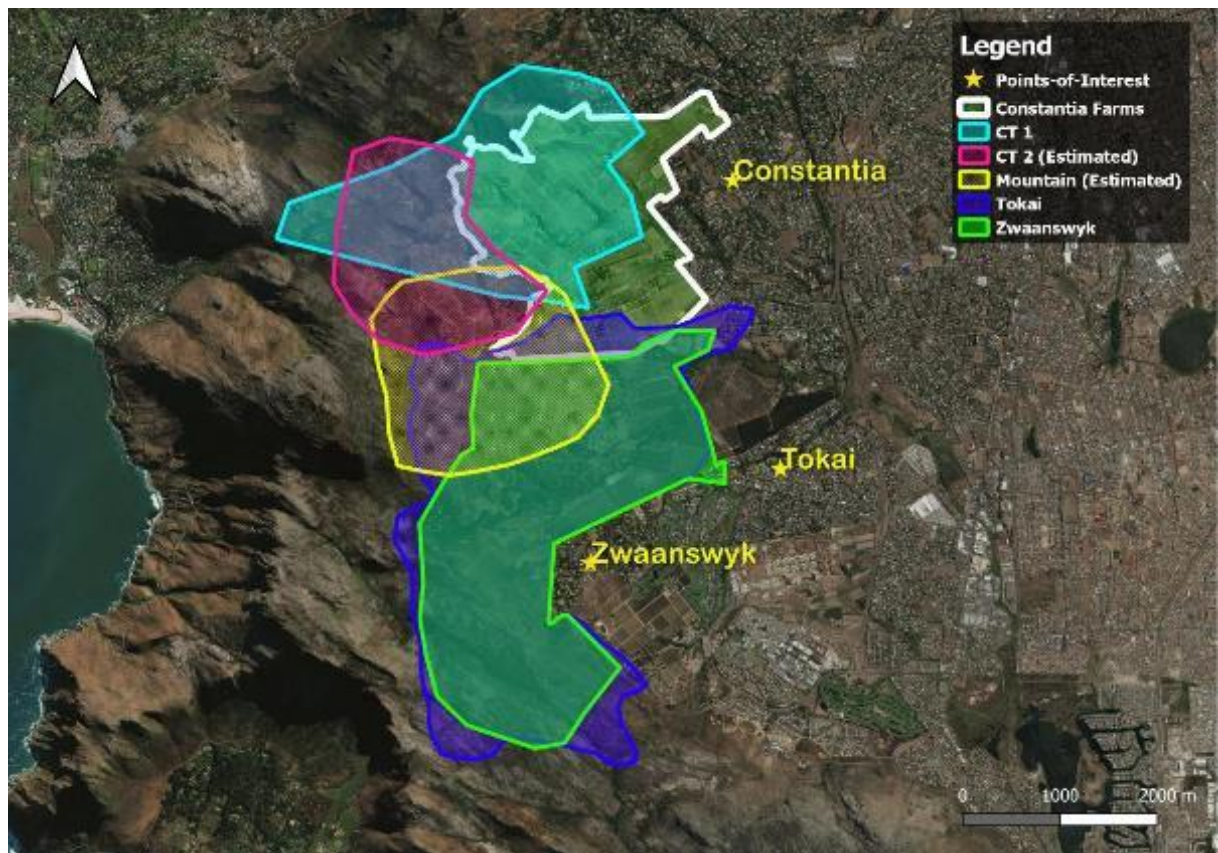


Figure 22: Home ranges of the northern managed baboon troops in 2018/2019.

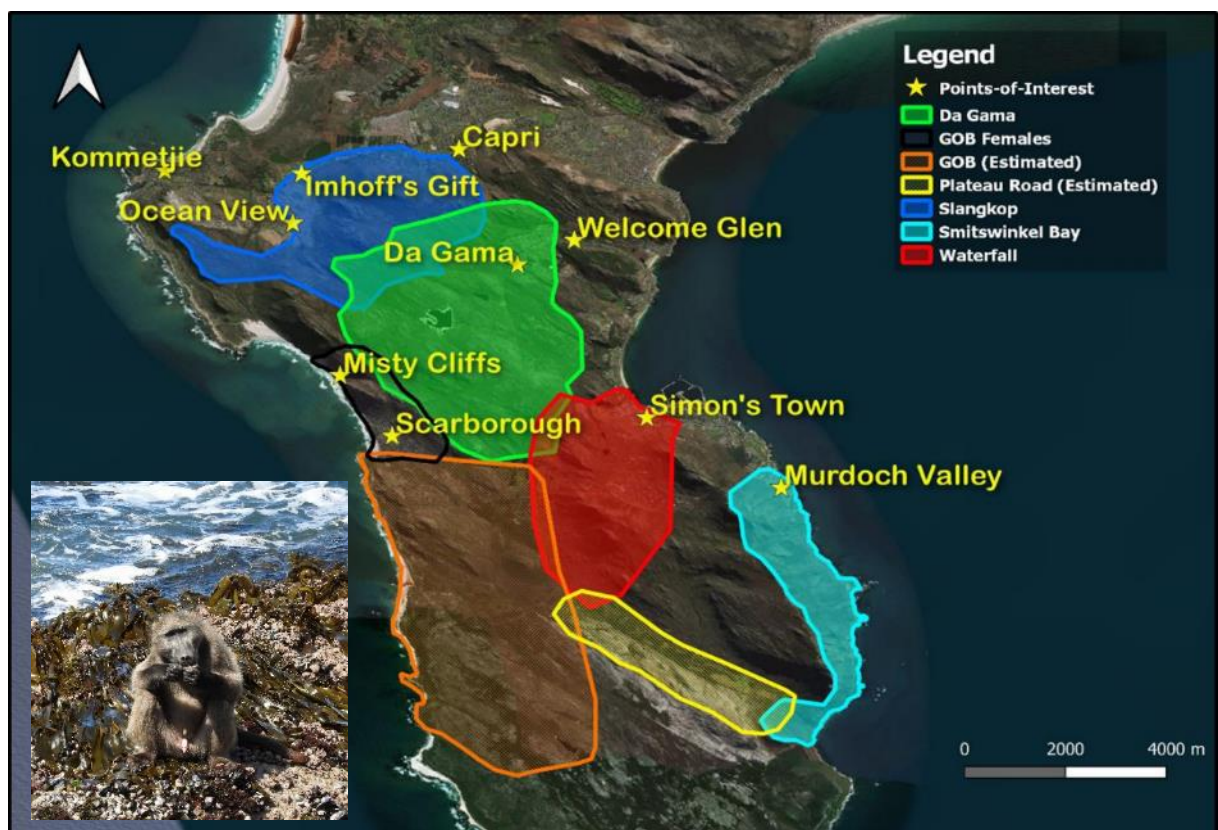


Figure 23: Home ranges of the southern managed baboon troops in 2018/2019, (insert – baboon foraging on mussels).

a) Total Managed Population

Annually, an accurate ground count is conducted in May and June to determine the number of baboons in each managed troop on the Cape Peninsula. These counts are adjusted at the end of June to accommodate any observed new-borns or deaths recorded after the count (Table 9).

**Table 9: Managed baboon troop population statistics for the Cape Peninsula.**

TROOP	END JUNE TOTALS						Total observed new-borns	Total observed deaths	Total migrations	EXPECTED TOTAL POPULATION per monthly reports	Total current population per annual counts at 30 June 2019
	2013	2014	2015	2016	2017	2018	(1 July 2018 to 30 June 2019)				
Da Gama	42	43	46	52	52	55	8	8		55	48
Smitswinkel	21	22	24	29	33	35	0	3		32	31
Waterfall	28	29	31	33	37	40	3	7	+1	37	48
GOB	20	19	16	17	23	29	2	2		29	23
Misty Cliffs	17	16	9	11							
Slangkop	37	40	35	41	40	44	5	5		44	43
SUB TOTAL	165	169	161	183	185	203	18	25		197	193
Zwaanswyk	28	28	30	28	30	20	6	4	-3	19	20
Tokai	64	70	62	65	69	75	15	6	+3	87	91
Mountain	41	47	49	47	57	60	5	6	-2	57	73
CT1	70	69	77	81	63	46	6	3	+1	50	64
CT2					22	10	2	1	+1	12	8
SUB TOTAL	203	214	218	221	241	211	34	20		225	256
<b>TOTAL</b>	<b>368</b>	<b>383</b>	<b>379</b>	<b>404</b>	<b>426</b>	<b>414</b>	<b>52</b>	<b>45</b>		<b>422</b>	<b>449</b>

*The Misty Cliffs Splinter Troop re-joined the GOB Troop in December 2016. Since then some individuals (6 in 2018, and 4 in 2019) have formed raiding parties mostly sleeping separately above Misty Cliffs. The Constantia Troop split into CT1 and CT2 late in 2015. The totals for these two troops are given here from 2017 onwards.*

It is notable that despite the decline in the population in June 2018 (Table 10), the northern sub-population has rebounded strongly to an all-time high of 256 baboons, while the whole managed population has a total of 449 baboons. The population of the troops in the north continued to grow faster than those in the south, as has been the trend for the past six years. This is primarily due to the troops having access to farm crops. These are now primarily vine related products, because recently most of the farmers changed their cover crops to something less palatable than barley or wheat.

Table 10: All recorded baboon deaths summarised into the different categories.

Deaths	End June Totals							Total (since July 2012)	Average Annual Deaths (total population)
	2013	2014	2015	2016	2017	2018	2019		
Management	15	10	9	4	11	8	4	61	2,2%
Human Induced (HID)	5	3	22	13	5	8	17	73	2,6%
Direct**	2		1	5	1	4	3	16	0,6%
Indirect***	3	3	21	8	4	4	14	57	2,0%
Natural	19	21	22	8	27	28	18	143	5,1%
PLOHP****						7		7	0,2%
Unknown	5	9	5	8	7	13	6	53	1,9%
<b>TOTAL DEATHS</b>	<b>44</b>	<b>43</b>	<b>58</b>	<b>33</b>	<b>50</b>	<b>64</b>	<b>45</b>	<b>337</b>	<b>12,0%</b>
<b>TOTAL POPULATION</b>	<b>368</b>	<b>383</b>	<b>379</b>	<b>404</b>	<b>426</b>	<b>414</b>	<b>449</b>		

All recorded baboon deaths are summarised into categories: **Management** – baboons euthanased for management reasons according to the WAAC raiding protocol/BTTG03 guidelines; **Human Induced Deaths** are divided into two categories; (a\*\*) **Direct** – deaths caused directly and intentionally by humans such as shootings and poisonings; (b\*\*\*) **Indirect** – deaths caused indirectly by humans such as vehicle accidents, electrocutions and dog altercations. This category also includes baboons seriously wounded by the above causes, then humanely euthanased; **Natural** – baboons dying from old age, injuries related to baboon-on-baboon fights, infanticide, etc.; \*\*\*\***Private Land Owner Hunting Permit** – deaths of damage causing animals hunted on farmland in accordance with a provincial hunting permit issued by CapeNature in terms of Nature Conservation Ordinance 19 of 1974; and **Unknown** – occasionally a baboon is found dead and the cause could not be determined.

#### b) Percentage Time Spent Out of Town

Over the last year (1 July 2018 to 30 June 2019), the average time out of town for troops continued to increase, reaching its highest average percentage yet of 99.9% for baboon troops (Figure 24). The City's 2017 tender requirement is that the average time out of town is at least 90%. The annual trend of increasing troop average time out of town is almost perfectly reflected in the decreasing winter bin raids (Figure 25).

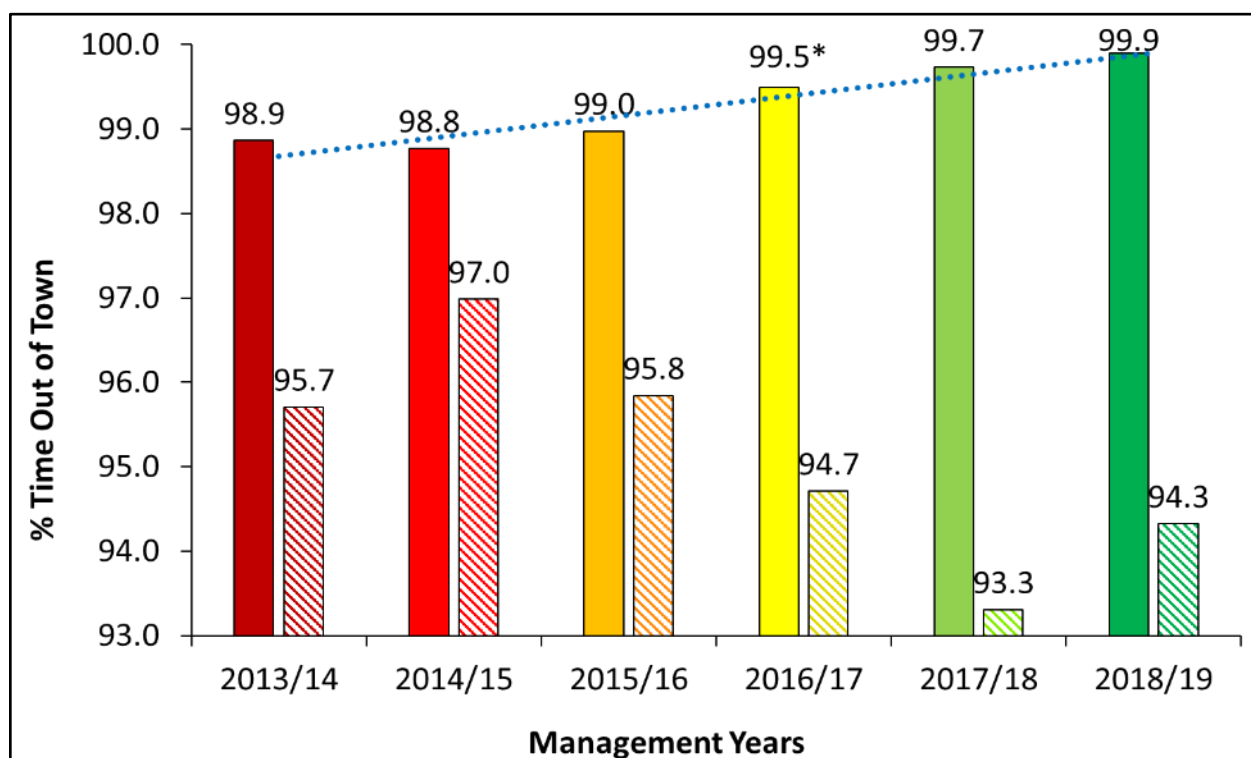
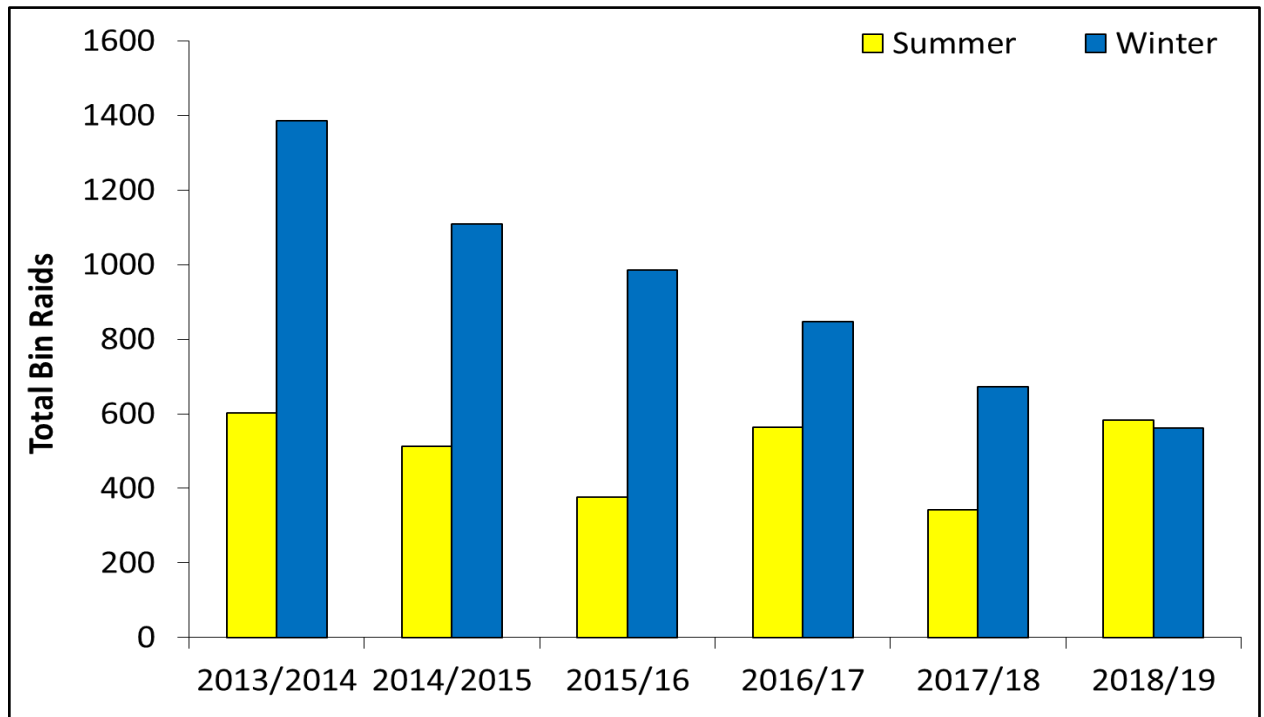


Figure 24: Managed baboon troops (solid bars) and individuals (striped bars) average percentage time out of town per management year (June – July). The City's 2017 tender requirement is that the average time out of town is at least 90%.

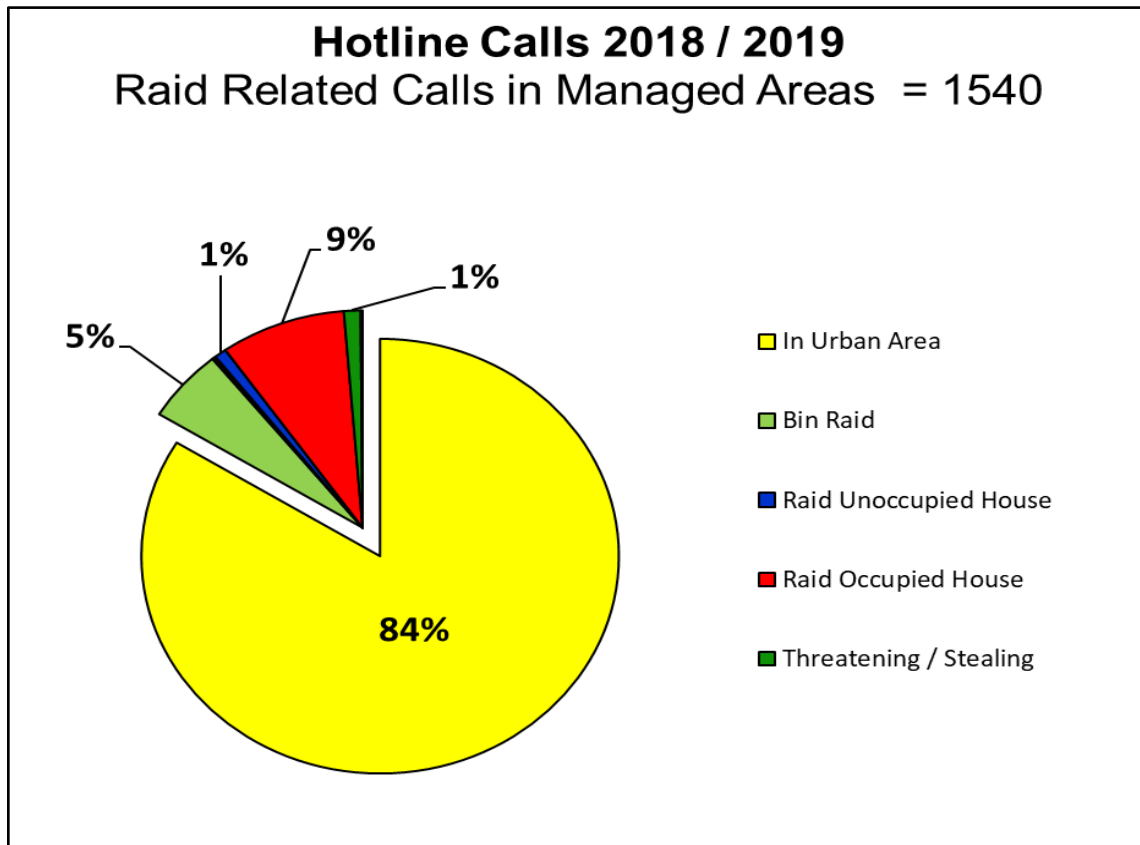


**Figure 25: Total bin raids per season per management year (July to June). Data for troops and individuals are combined to reflect annual trends. Note a fairly consistent trend in summer raids and a steady decline in winter raids.**

Winter (April to September) is the season when the baboons are most under pressure from cold and lack of food and is therefore when the baboons try hardest to raid the urban area. A progressive decrease in winter bin raids is therefore a good indication of the overall success of the baboon management programme. This is reflected in the fact that over the past year the baboon troops spent an average of only 0.1% time in town (Figure 24).

Although the baboon troops have spent progressively less time in the urban area over the past few years, individuals have been spending more time in town. This effect is also evident in the fact that summer bin raids (mainly by individual males) has essentially remained stable over the years and has not decreased. This is largely the effect of having individual males or small raiding parties leaving the troop and returning to town to raid. Many of these raids are occupied house raids by males. This pattern is clearly evident in Figure 26, which shows from hotline records that raiding of occupied houses is the greatest category of raids (9%) after simply being in the urban area (84%). No doubt, the effect of the raid being witnessed by the resident does skew this record in favour of occupied house raids.





**Figure 26: Pie chart of five types of baboon raids reported on hotline calls from 1 July 2018 to 30 June 2019.**

Probably the most pervasive problem in baboon management this year has been the still relatively high incidence of raids by individual baboons or small groups of individuals (time out of town 94.3% in 2018/2019). This can largely be attributed to the ongoing availability of fruiting trees, open vegetable gardens, compost heaps, and poor waste management by a wide variety of institutions. The details of this are highlighted in the baboon management monthly reports. Furthermore, although the service provider (HWS) has enough staff to manage whole troops as units, they do not have the additional staff required to manage a variety of individuals leaving the troops to raid on their own. It is these individuals that are the cause of most of the hotline calls and the relatively high percentage of individuals in the urban area (5.7%). This situation is being compounded by the growth of the managed baboon population, particularly in the northern sub-population. This is reflected in the wide spread of areas from which baboon raids were reported over the past year (Figure 27).

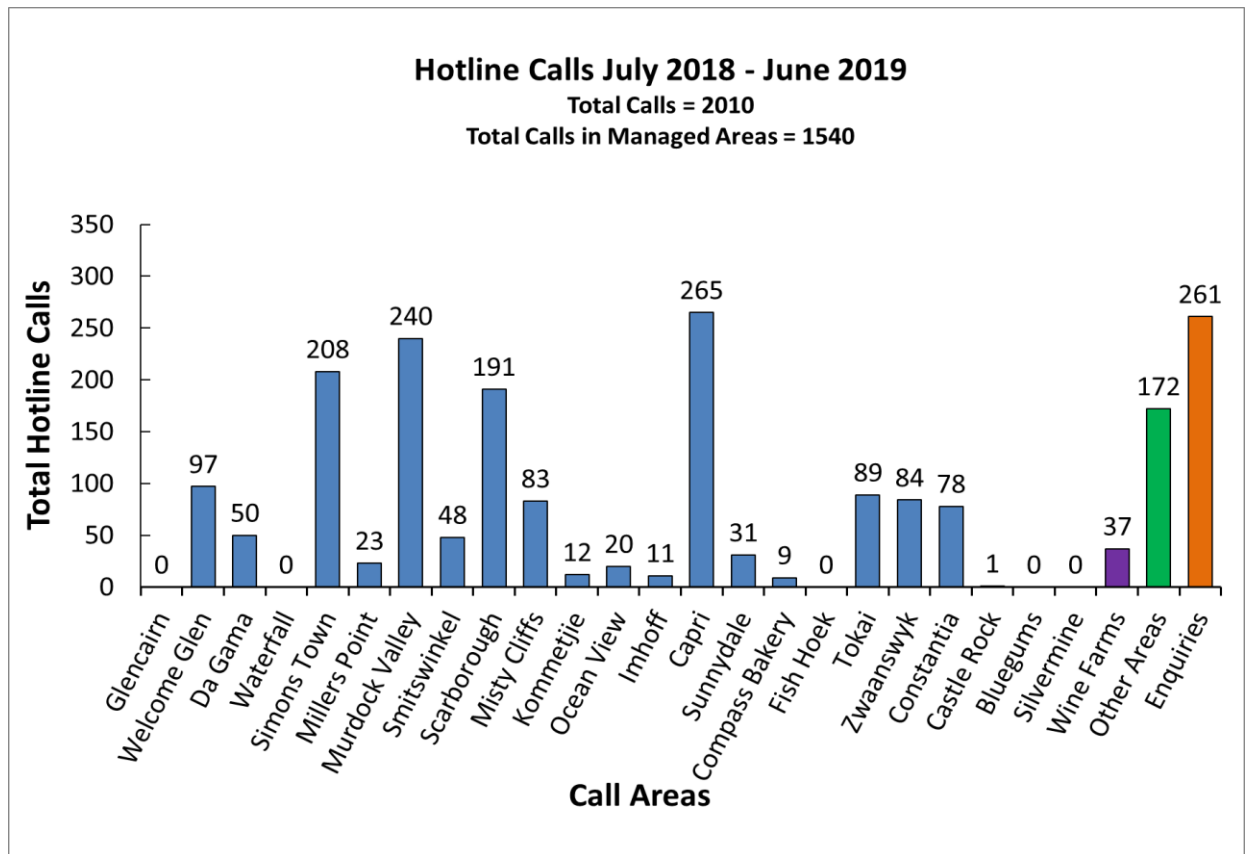


Figure 27: Total hotline calls reported per area from 1 July 2018 to 30 June 2019.

c) Community Awareness

A new addition to the Human Wildlife Solutions team during this reporting period has been the Community Conservation Officer. This position has resulted in focused outreach, education and awareness within communities affected by baboons. Outreach is targeted at schools, residences, businesses, and public areas, and has reached 14 686 people since October 2018. This position, which was initiated a year ago, has been a major success for the project, continuing to help drive positive change in human behaviour around the baboon-affected areas of the Peninsula.

d) Major Events of the Past Six Years Affecting Baboons on the Peninsula

Fire has probably had the most significant effect on the managed baboon troops over the past six years. There were widespread fires across the south in January 2016 and again in January 2017. The only baboon troop in the south whose home range was not affected by these fires was the Smitswinkel Bay Troop. In 2015, the fire in the north burnt almost the entire foraging range of the four troops that live there. This resulted in most of the pine trees in the plantations needing to be felled, and therefore, a high percentage of the baboons' diet was removed. The Constantia Troop split into two sub-equal groups, thus increasing the total number of baboon troops in the north that needed to be managed from four to five.

After the pine plantations were felled, the trees were not replaced by fynbos, but mostly by a bank of invasive alien vegetation (Figure 28 a-c). This rapidly grew into an almost impenetrable thicket that limited both baboon and human movement, and severely restricted the baboons' access to natural forage. As a result of reduced forage for baboons, and long sections of the Constantia wine farms' electric fences being burnt, four baboon troops increased their foraging efforts on the wine farms. In 2017 two wine farms applied to CapeNature for a permit to hunt the baboons as damage-causing animals. Seven baboons were shot officially in 2017 on the farms in terms of this permit. Approximately another 30 baboons mysteriously disappeared, and have still not been accounted for.

The drought of 2016 and 2017 compounded the effects of all the fires, but particularly in the south, as it came during and after the fires, and therefore provided almost no rain for regrowth after the fires. This probably also contributed to the increase in individual raids during the summers of 2016/17 and 2017/18 (Figure 24).



Figure 28a: Open area in Tokai plantation immediately after the 2015 fire.



Figure 28b: Tokai plantation six months after the fire when the plantation had been felled.



Figure 28c: Growth of invasive alien vegetation two years after the Tokai plantation had burnt then been felled.

## 2) Baboon Management in the Steenbras Nature Reserve:

In addition to the baboons on the Cape Peninsula, the City's BMB manages baboon troops in the Steenbras Nature Reserve. In January 2016 the Virtual Fence system was implemented to limit human-baboon conflict in Gordon's Bay. This management method takes the natural behaviour traits of baboons and their predators into consideration and simulates the formation of a boundary which the baboon troop is reluctant to cross out of fear of predation. Implementation of the Baboon Virtual Fence at the Steenbras Nature Reserve continues to be extremely successful, releasing staff from being on



baboon standby to being able to focus on other important Reserve activities. Baboons have been prevented from coming into town since the implementation of the system (Figures 29 and 30).

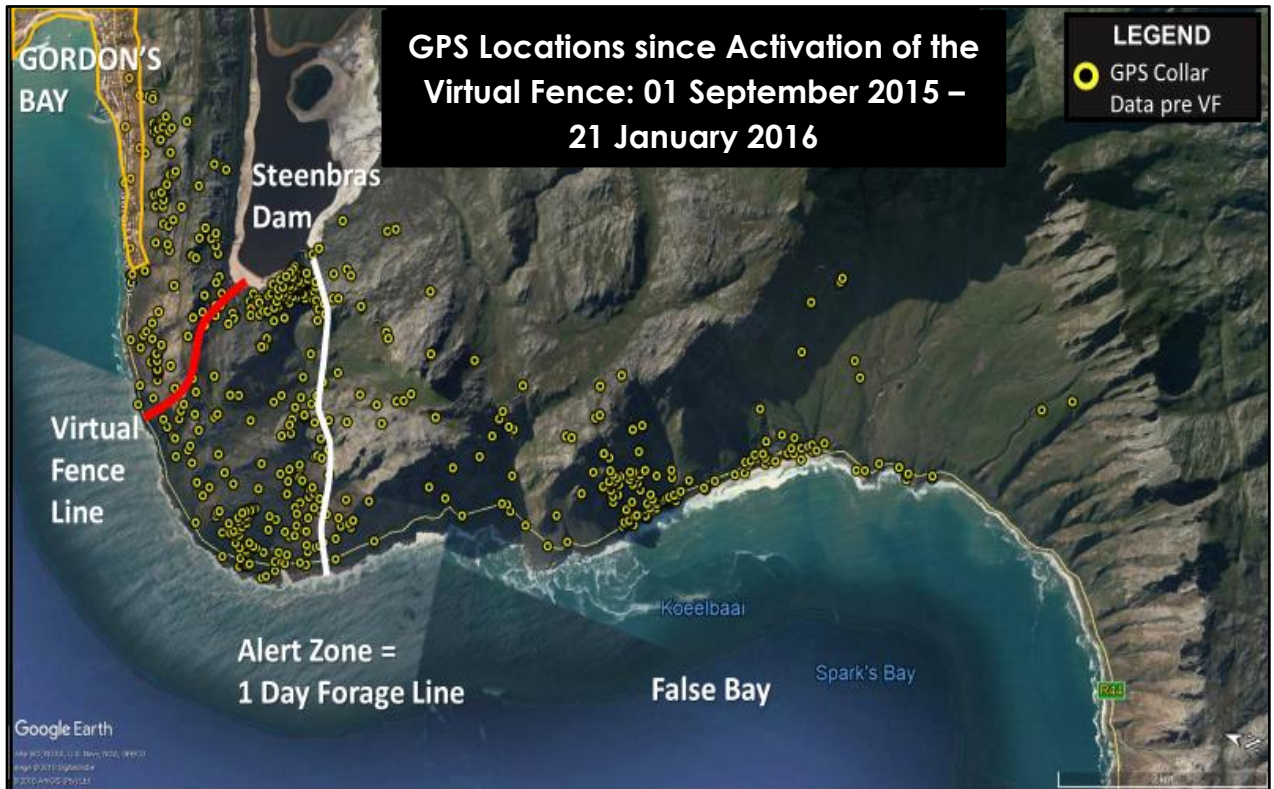


Figure 29: GPS locations of the alpha male of the Steenbras Dam Troop three months before the activation of the Virtual Fence. Note the numerous locations in Gordon's Bay.

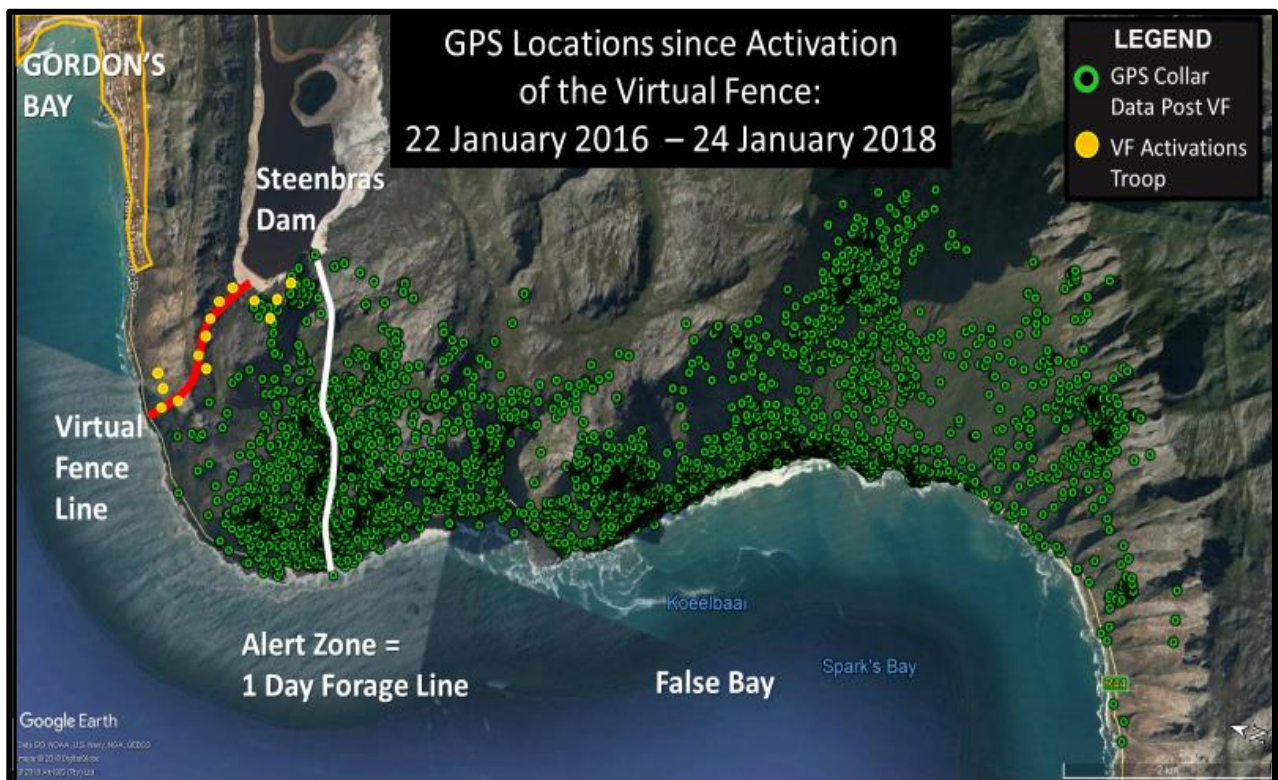


Figure 30: GPS locations of two successive alpha males of the Steenbras Dam Troop for two years after the activation of the Virtual Fence. Note the troop has spread further southeast and has not crossed the Virtual Fence line or gone back to Gordon's Bay.

Based on the success in Steenbras Nature Reserve, the virtual fence system is being installed elsewhere. A virtual fence was recently installed south of Simonstown to keep the Smitswinkel Troop south of Murdoch Valley. Another virtual fence will be installed later this year to the south of Scarborough. This will be aimed at keeping the GOB Troop in the Cape of Good Hope section of the TMNP. A third virtual fence was installed in Constantia in 2016/2017 but all the baboons with collars were killed. This virtual fence will be re-installed north of Ou Kaapse Weg.

## 5.6 Water Quality and Maintenance of Recreational Vleis

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### 1) Water restrictions

The drought conditions have been slightly alleviated during the last winter rainy season in Cape Town, but although our dam levels are showing improvement compared to the same time in previous years, our seasonal wetland systems have not recovered from an ecological perspective. Ground water levels are still low and have not recovered to pre-drought conditions. Water restrictions remain in place in Cape Town for both residential (105 litres of municipal drinking water per person per day) and business use until further notice. The City Protected Areas therefore maintained all previously implemented water saving measures which include: placing information signage, using non-potable water for sanitation, removing or putting stoppers in external taps, fixing water leaks, suspending various cleaning activities, changing the fire-fighting approach, and using non-potable water in operations.

### 2) Water quality

As mentioned, the effects of the drought are still evident, particularly in our seasonal wetland systems. The perennial systems have also been subject to a correlated reduced flow from the respective catchments. Combined with multiple sewage spills and other factors leading to the on-going eutrophication of our watercourses within the nature reserves, water quality within the urban context remains a challenge. The City Protected Areas are subject to water sampling as per the monthly Water and Sanitation: Catchment Management selected and coordinated sites, as well as the quarterly sampling of Biodiversity Management selected and coordinated sites that complement the aforementioned. Additional ad hoc sampling is undertaken in response to a pollution event, to monitor algal blooms, or to determine the cause of an unexpected decline in water quality.

Exact coordinates of the 20 Biodiversity Management water quality sampling sites that are sampled and submitted for analysis on a quarterly basis were obtained. These samples were subject to chemical and microbiological analysis for a number of years as part of a Service Level Agreement with Scientific Services. There was, however, a need to review and rationalise the existing 20 sampling localities. Using the existing site localities as a basis, a workshop was held to determine the on-going need for each of these sites, and to identify other sites where sampling would be needed. The finalised list of 27 sites was captured, with a motivation for each selection, and complimentary mapping of exact coordinates as a guide (Table 11 and Figure 31). The new list of sites was submitted to Catchment Management and Scientific Services for approval and capture. Biodiversity Management is awaiting final confirmation from Scientific Services to commence the implementation. Branded cooler bags were procured and allocated to all reserves on this list, to ensure that water samples are correctly stored and transported for analysis at the Athlone laboratory. The standard sampling as per the old sampling list and schedule continues in the meantime, with ad hoc sampling being arranged and undertaken when necessary.

Ad hoc sampling is undertaken in collaboration with Scientific Services, Catchment Management and Environmental Health to ensure a coordinated effort, timeous analysis and succinct interpretation of the results, to better inform members of the public of the risks associated with reduced water quality,



particularly in our recreational water bodies which include Zandvlei Estuary Nature Reserve, Table Bay Nature Reserve: Rietvlei section, and False Bay Nature Reserve: Zeekoevlei section.

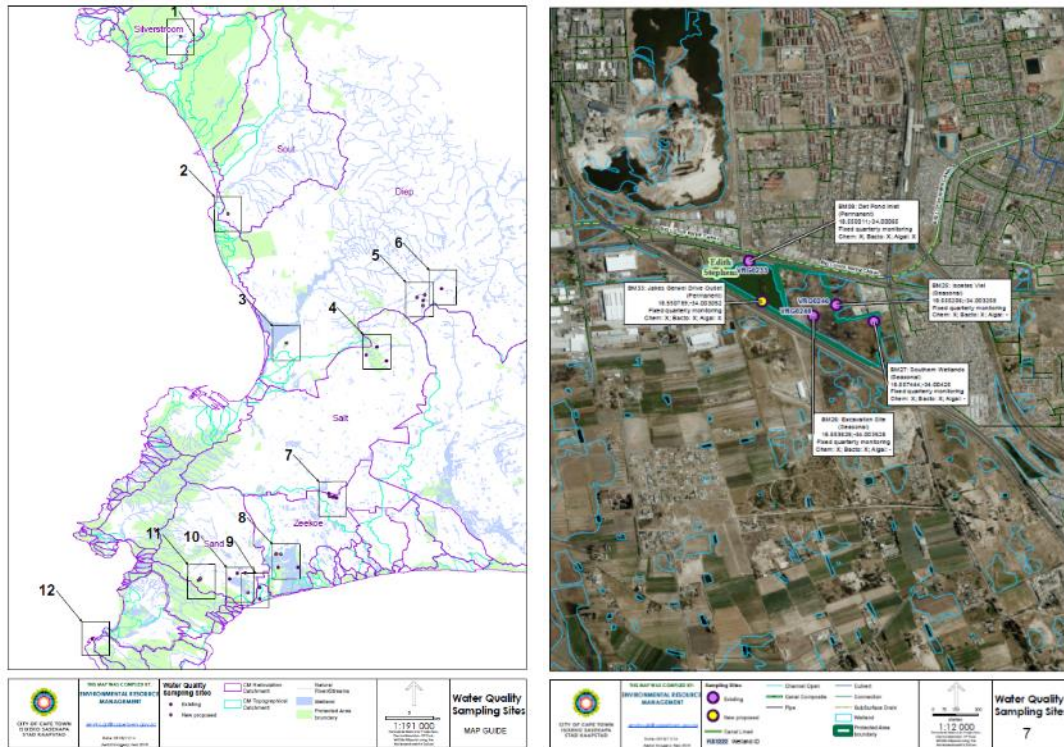


Figure 31: Examples of the CCT Nature Reserve water quality sampling site overview and site specific mapping.



Table 11: The new list of quarterly water quality sample sites awaiting implementation on CCT Protected Areas.

SLA BM SAMPLING SITES - FIXED QUARTERLY MONITORING												
	Nature Reserves	Site Description	Site Specific Contact Person	System type	Current Status	Existing CODE	NEW CODE	Coordinates (Decimal Degrees)		Monitoring Type		
								Latitude	Longitude	Chem	Bacto	Algal
1	Tygerberg NR	Welgemoed Dam	Ashton Mouton Tel: 021 444 8971	Permanent	Existing	BM01	BM01	-33.874556	18.604914	X	X	
2		Kanonberg Dam	Ashton Mouton Tel: 021 444 8971	Permanent	Existing	BM02	BM02	-33.861469	18.595808	X	X	
3		Plattekloof Dam	Ashton Mouton Tel: 021 444 8971	Permanent	Existing	BM03	BM03	-33.868806	18.585494	X	X	
4	Uitkamp Wetlands NR	Mos Riv Wetlands	Akho-Amaya Mayataza Tel: 021 979 0060	Seasonal	Existing	BM04	BM04	-33.81728	18.63958	X	X	
5		Rooivalkslot culvert	Akho-Amaya Mayataza Tel: 021 979 0060	Seasonal	New proposed		BM30	-33.814172	18.633777	X	X	
6		Southern Boundary - Summer Place	Akho-Amaya Mayataza Tel: 021 979 0060	Seasonal	New proposed		BM31	-33.822469	18.63944	X	X	
7		Northern Boundary - Sparrowhawk Cres	Akho-Amaya Mayataza Tel: 021 979 0060	Seasonal	New proposed		BM32	-33.812042	18.641211	X	X	
8	Botterblom NR	Botterblom Straat	Akho-Amaya Mayataza Tel: 021 979 0060	Permanent	Existing	BNR01	BNR01	-33.806083	18.657174	X	X	
9	Edith Stephens NR	Det Pond Inlet	Luzann Isaacs Tel: 021 444 6483	Permanent	Existing	BM08	BM08	-34.00065	18.550011	X	X	X
10		Jakes Gerwel Drive Outlet	Luzann Isaacs Tel: 021 444 6483	Permanent	New proposed		BM33	-34.003052	18.550789	X	X	X
11		Isoetes Vlei	Luzann Isaacs Tel: 021 444 6483	Seasonal	Existing	BM25	BM25	-34.003258	18.555206	X	X	
12		Excavation Site	Luzann Isaacs Tel: 021 444 6483	Seasonal	Existing	BM26	BM26	-34.003928	18.553828	X	X	
13		Southern Wetlands	Luzann Isaacs Tel: 021 444 6483	Seasonal	Existing	BM27	BM27	-34.00425	18.557444	X	X	
14	Muizenberg East	Psoralea Park Wetland	Andrea von Gunten Tel:021 444 1487	Permanent	Existing	BM11	BM11	-34.089351	18.484064	X	X	
15		Private Nat Res	Andrea von Gunten Tel:021 444 1487	Permanent	Existing	BM12	BM12	-34.100284	18.484488	X	X	
16	Rondevlei NR	Moddervlei	Shihabuddeen Khan Tel: 021 400 3443	Seasonal	Existing	BM13	BM13	-34.070249	18.501736	X	X	
17		Erica Field culvert	Shihabuddeen Khan Tel: 021 400 3443	Seasonal	New proposed		BM34	-34.057993	18.504487	X	X	
18		Fishermans Walk, Coot Road, Inlet	Shihabuddeen Khan Tel: 021 400 3443	Seasonal	New proposed		BM35	-34.058012	18.499566	X	X	
19		Hippo Boma Wetland area	Shihabuddeen Khan Tel: 021 400 3443	Seasonal	New proposed		BM36	-34.057667	18.500382	X	X	
20	Zeekoevlei NR	South eastern corner - at outlet	Victoria Day Tel: 021 400 3446	Permanent	Existing	BM15	BM15	-34.070256	18.520833	X	X	
21	Zandvlei NR	Military Rd / Lang vlei canal	Kyran Wright Tel: 021 444 1485	Permanent	Existing	BM16	BM16	-34.075566	18.4707972	X	X	
22		Keyser River / Upstream	Kyran Wright Tel: 021 444 1485	Permanent	Existing	BM17	BM17	-34.075764	18.4631537	X	X	

23		Westlake river 13 mile bridge	Kyran Wright Tel: 021 444 1485	Permanent	Existing	BM18	BM18	-34.081439	18.4559665	X	X	
24		Caravan Park site	Kyran Wright Tel: 021 444 1485	Permanent	New proposed		BM37	-34.094532	18.473229	X	X	
25	Blaauwberg NR	Melkbos Pan	Jacques Kuyler Tel: 021 444 7318	Permanent	New proposed		BM38	-33.735109	18.454286	X	X	
26	Milnerton Racecourse NR	Central Dam	Hester Pentz Tel: 021 444 7218	Permanent	New proposed		BM39	-33.857572	18.509718	X	X	
27	Witzands Aquifer NR	Silverstroomstrand pans	Sihle Jonas Tel: 021 444 7687	Seasonal	New proposed		BM40	-33.56679	18.409478	X	X	
<b>AD HOC SAMPLING AS SPECIAL PROJECT</b>												
1	Westlake Conservation Centre	Site 1: Above Old Student House (House 2)	Tamaryn Khan Tel: 021 444 2795	Seasonal	New proposed		BM41	-34.082519	18.426128	X	X	
2		Site 2: Between House 2 & House 3	Tamaryn Khan Tel: 021 444 2795	Seasonal	New proposed		BM42	-34.081669	18.427911	X	X	
3		Site 3: Below dam & House 3 access road	Tamaryn Khan Tel: 021 444 2795	Seasonal	New proposed		BM43	-34.080912	18.428144	X	X	
4	Skilpadsvlei Conservation Area	Main waterbody	Suretha Dorse Tel: 021 400 6148	Permanent	Existing	BM29	BM29	-34.13843	18.32533	X	X	

### 3) Notable events on Nature Reserves

#### a) Milnerton Racecourse Section, Table Bay Nature Reserve

The extraordinary Cape Water Net algae (*Hydrodictyon africanum*) was recorded in Milnerton Racecourse in September 2018 (Figure 32). This is one of the remarkable freshwater algae with extremely large spherical cells (up to 15 mm in diameter). These cells are initially joined when they start growing but then separate as their size increases. They survive desiccation as spores and emerge in temporary still waters. What makes this record remarkable is that this species is thought to be endemic to the Cape Floristic Region, is very seldom encountered and could possibly be considered an Endangered species, as its wetland habitat has suffered significant transformation.



Figure 32: Cape Water Net (*Hydrodictyon africanum*) cells.

#### b) Milnerton Lagoon section, Table Bay Nature Reserve

There is ongoing concern associated with sewage spills into the Table Bay Nature Reserve (TBNR), and in particular the Milnerton Lagoon Section, which negatively affect the water quality. Public warnings and signs erected by Environmental Health are still in place at Milnerton Lagoon and the Milnerton Canoe Club advising users to avoid the water, as any recreational use of the waterbodies would be at own risk. The City's Catchment Management Branch is working towards Pollution Abatement Plans for all catchment areas, that will provide action items to address the issues.

#### c) Zandvlei Estuary Nature Reserve

The large amount of litter entering the Zandvlei Estuary Nature Reserve (ZENR) from the upper catchment area remains a concern, as well as the on-going sewage spills entering the system. There were 11 separate sewage spill incidents into ZENR in the period between 28 September 2018 and 24 June 2019 (Figure 33). The waterbody was closed for recreational use on three separate occasions, as a precautionary approach, based on the water quality testing results that showed *E. coli* levels exceeding the National Water Quality Guidelines from the Department of Water and Sanitation. The waterbody was only re-opened for intermediate contact recreational use once water quality results showed a sufficient improvement in accordance with the guideline thresholds. The causal factors for these sewage spills included pump station failure, cable theft, and blockages of the pipes and pump station by foreign objects.

A revised system and operational response guideline was workshopped with all line functions involved in the response to these incidents. This exercise resulted in a very effective email chain that immediately alerts all relevant parties to a spill event, and therefore streamlines response times and collective decision-making. This system is still in place and working very effectively for ZENR. A subset of the same collection of officials has also met to discuss short- and long-term interventions, to prevent sewage spills from entering ZENR from the Sand River Canal which receives a significant number of these spills. The short-term measures are currently still under discussion, to determine

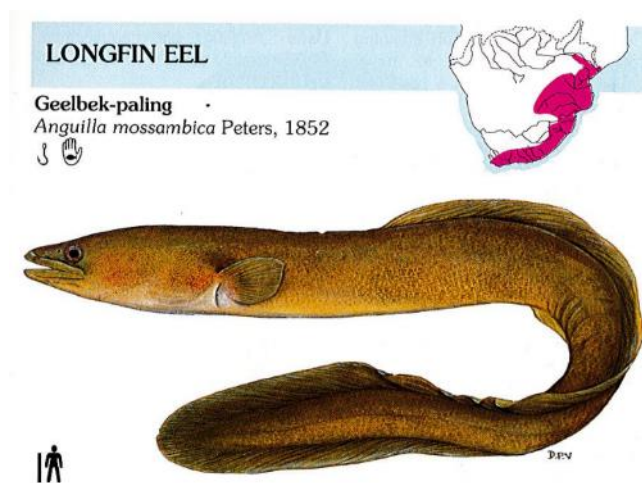
feasible implementation during the low flow conditions of spring and summer months. The long-term solution will require significant funding, but will be pursued as well.



**Figure 33: Drone footage (left) of the Marina da Gama canals showing a plume of discoloured water after a suspected sewage spill on 24 June 2019. The algal growth was monitored using an Algal Torch (right).**

d) False Bay Nature Reserve: Zeekoevlei River and surrounds

A fish die-off event at Capricorn Business Park lake, as a result of an algal bloom, resulted in the discovery of two dead African Longfin Eels (*Anguilla mossambica*; Figure 34). This lake is connected to and flows into the Zeekoevlei River, which flows to the sea through False Bay Nature Reserve (FBNR). The presence of the African Longfin Eel is significant as they are catadromous. This means they breed and are born at sea (African eels are suspected to breed in the Mascarene Plateau between Seychelles and Reunion Island), after which they make the long journey to the estuaries of freshwater rivers (in this case Zeekoevlei River), and migrate up the river systems to spend 10 – 15 years before migrating back to their oceanic breeding grounds. This species occurs in four of our City Nature Reserve systems, these include TBNR: Rietvlei section (2016 record), Steenbras Nature Reserve, and ZENR. These eels are considered an 'umbrella' species, which means that if environmental conditions are good for them, it is likely that a whole range of other species will also be in a healthy state.



**Figure 34: Sketch of African Longfin Eel (*Anguilla mossambica*) from Freshwater Fishes of Southern Africa (Paul Skelton).**



e) False Bay Nature Reserve: Zeekoevlei Section

Environmental Health placed new public warning signs at the Zeekoevlei picnic area to create awareness around poor water quality and the potential impact on human health. The popular picnic site, located at the confluence of the Big and Little Lotus Rivers, is close to a number of storm water outlets. This is the first in a series of signs to be erected City-wide.

**4) Maintenance of rivers and wetlands**

The Catchment, Storm Water and River Management project, to compile River Maintenance Management Plans (MMPs) for each Catchment, continued with the final MMPs being sent out for comment. Biodiversity Management provided comment on a number of these MMPs in furtherance to ensuring an environmental best practice approach to the maintenance activities within our catchments, and specifically our nature reserves. The final MMPs are kept in a Sharepoint site for all relevant officials to be able access the information when needed. A roadshow is planned to familiarize all City staff with the content of these MMPs, and ensure adequate implementation.

a) Milnerton Lagoon mouth management

The estuary mouth at Milnerton Lagoon area of TBNR was subject to the formation of a sandbar in 2017, closing off the flow of water into the sea, due to the drought conditions and low water flow levels in the river. This created a flooding risk upstream if water levels rise in the lagoon. The mouth was, therefore, artificially opened on 10 December 2018, in accordance with the NEMA Environmental Authorisation (Figure 35). The subsequent breaching allowed water to flow out to sea and prevented any potential flooding damage to public infrastructure in close proximity. The sandbar built up again towards the end of December 2018.



**Figure 35: The artificial breaching of the estuary at Milnerton Lagoon on 10 December 2018.**

The Diep Estuarine Management Plan (Diep EMP) was updated by Provincial government-appointed consultants, to ensure it aligns with the new National Estuary Management Protocol, and to include the new water resource quality objectives (WRQO) into the plan. The WRQO will be gazetted in future, and regulate the management of water resources in rivers and estuaries nationally.

b) Zandvlei Estuary mouth management

The late rainfall in the last season resulted in the mouth being kept open for a longer period at the end of the rainy season. Normal scheduled opening and closure of the mouth resumed as per the schedule in September 2018 (Figure 36). This manipulation is primarily to protect built infrastructure within the Marina da Gama, but also allows for much needed sea water ingress into the estuary and fish movement. The manipulation of the mouth has resulted in improved water quality in the estuary. Due to the more average rainfall levels this year, the mouth was kept open from May 2019 onwards.



**Figure 36: Artificial breaching of the Zandvlei estuary mouth took place on 18 January 2019, 18 March 2019, 19 April 2019 and 15 May 2019 respectively.**

c) Rondevlei draw-down and reedbed management

The Rondevlei weir was opened on 11 January 2019 to release trapped nutrients, improve water quality and improve wading bird habitat (Figure 37). The lower water levels also allow for improved accessibility to clear water hyacinth.



**Figure 37: The opening of the Rondevlei Weir (left) and subsequent reed removal (right).**

In the absence of a formally approved MMP for Rondevlei, a Method Statement was compiled and submitted to all relevant authorities for approval to allow for the removal of Bulrush (*Typha capensis*) along the northern, eastern, and sections of the southern shoreline of Rondevlei in FBNR. The reed removal was needed to reduce the nutrient load in the system, rejuvenate the wetland habitat, and maintain the reserve infrastructure.

d) Zeekoevlei draw-down

The Zeekoevlei weir opening was undertaken on 26 April 2019 and the drawdown continues to play an important role in the improvement of the water quality of the vlei. Since the first draw-down in 1997, it has been an annual event that is aimed at reducing the nutrient load in the waterbody and preventing significant algal blooms that can be toxic to animals and humans. The draw-down did not take place in 2018 for the first time, as a result of the low water levels during the drought.



## 5.7 Ecological Research

### Blaauwberg Sand Fynbos Restoration Project

This ecological restoration project began in 2012 as a collaboration among City, Stellenbosch University and the Millennium Seed Bank programme. The project has both research and operational management components, fostering a co-learning approach that is designed to improve the outcomes of ecological restoration interventions. The project also explores ways to scale up restoration and improve efficiency. This is important as restored ecosystems will improve the conservation of biodiversity, delivery of ecosystem services, adaptation to climate change, and potentially contribute to climate change mitigation and the social value of nature reserves.

The current phase of the ecological restoration project continues the City and Stellenbosch University collaboration, and is funded by the Hans Hoheisen Charitable Trust for three years from 2019-2021. There are two components: the first is an operational component, administered through the Wilderness Foundation, to clear 24 ha of *Acacia saligna* from highly degraded Cape Flats Sand Fynbos, and collect, sort, and pre-treat Fynbos seeds for sowing across the alien-cleared landscape. The second component comprises three research projects administered through Stellenbosch University, Centre for Invasion Biology (Figure 38). The PhD study will examine restoration techniques that avoid the immediate use of fire (which results in expensive acacia follow-up). One MSc study will explore applied nucleation as a method to scale up restoration and the other MSc study will investigate pollination networks (whether pollinators return after invasive alien clearing).



Figure 38: Students recording data in recently-cleared plots in Blaauwberg Nature Reserve. Photograph: University of Stellenbosch.

## 5.8 Restoration

### Ecological Restoration in City Nature Reserves and other protected areas

Subsidiary restoration plans, that build on the habitat condition assessments, were completed for 10 City nature reserves and uploaded to the Branch Sharepoint site in the previous financial year. These covered examples of fynbos, renosterveld and strandveld; and targeted the highest priorities for restoration based on a hierarchical analysis conducted by Dr Pat Holmes. These restoration plans guide active restoration (sowing and planting to restore vegetation structure, function and composition) within each reserve, based on the greatest needs and available resources. These plans are linked to invasive clearing and fire via the

Restoration Annual Plan of Operation (RAPO), to facilitate holistic, integrated reserve management and ecological best practice.

Dr Pat Holmes retired at the end of July 2018. The new Biophysical Specialist, Dr Charmaine Oxtoby, started on 1 February 2019. Initial discussions were held with reserve staff for four new restoration plans, but final drafts were not completed by the end of this reporting period.

Working with reserve teams, and staff from the City Recreation and Parks Department, the BMB Habitat Restoration Facility facilitated the reintroduction of seed, bulbs and plants to 46 sites comprised of City Nature Reserves and other protect areas<sup>1</sup>. Over 39 000 bulbs and plants (of more than 400 species) were planted out at 36 sites (Table 12). Seeds of over 150 species were re-introduced to 18 sites. (Table 12). Prior to broadcasting, the seed was cleaned and smoked at the Habitat Restoration Facility at the Westlake Conservation Centre. Reserve teams were largely responsible for collecting the plant material from Westlake, then broadcasting the seed and/or planting out the bulbs and plants on their sites. Members of the Habitat Restoration Facility team assisted with *in situ* reintroductions for several of the larger projects.

**Table 12: During the last financial year, the Habitat Restoration Facility distributed the following bulbs, plants and seed for ecological restoration in City reserves and other protected areas. Note: Sowing and planting generally takes place during the 1<sup>st</sup> and 4<sup>th</sup> quarters (to coincide with winter rains) thus the values for the 2<sup>nd</sup> and 3<sup>rd</sup> quarters are generally low.**

Method	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Total for 2018/19
Bulbs and plants planted out for restoration	7 830	0	179	31 770	<b>39 779</b>
Seeds reintroduced for restoration (number of species)	0	0	0	151	<b>151</b>

#### Plant donations for education and landscaping

In addition to ecological restoration efforts, 3 490 plants were donated to ten education projects and ten community-benefit landscaping projects, mostly schools (Table 13).

**Table 13: During the last financial year, the Habitat Restoration Facility donated the following for education and landscaping projects.**

Method:	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Total for 2018/19
Plants donated for education	840	0	27	927	<b>1 794</b>
Plants donated for landscaping	50	700	185	761	<b>1 696</b>
<b>Total</b>					<b>3 490</b>

#### Plants rescued, produced, and in stock

The Habitat Restoration Facility undertook five search and rescue operations, generating over 16 000 plants. These rescued plants will be maintained at the facility until their reintroduction to appropriate receptor sites in winter 2020. In accordance with the propagation schedule, seed was collected for storage and/or sowing, and cuttings were collected for the production of plants – also for reintroduction in winter 2020. See Tables 14 and 15 below for a summary of the plants rescued, produced and in stock.

<sup>1</sup> The 46 sites that received plant material: Blaauwberg Dune Strandveld; Blaauwberg Renosterveld; Blaauwberg Sand Fynbos; Bracken; Bothasig Fynbos; Van Schoorsdrift; Brakkefontein; Witzands Aquifer; Dassenberg; Klein Dassenberg; Fryuitsig; Diepriver Corridor; Edith Stevens; Atlantis Stewardship sites; Groenfontein; Tydstroom; Woodlands; Joostenbergskloof; Harmony Flats; Morkel's Cottage; Silverboomkloof; Kedestes project; Kenilworth Racecourse; Wolfgat; Vesuvius Way; Baden Powell; Monwabisi; Meadowridge Common; Rondebosch Common; Rondebosch-East Common; Milnerton Racecourse; Old Boyes Drive; Park Island (Zandvlei); Zandvlei; Penhill; Rietvlei bird block; Rietvlei EE centre; Rondevlei Erica Field; Skilpadsvlei; Symphony Way; Tygerberg; Westlake Conservation Centre; Wolfgat EE Centre; York Road Conservation Area; Zeekoevlei Bottom Road; Zeekoevlei Eastern Shore.

**Table14: During the last financial year, the Restoration Facility rescued and produced the following plants.**

Method:	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	Total for 2018/19
Search and rescue plants	0	13 657	2 396	37	<b>16 090</b>
Seed collected (no. species)	0	91	73	14	<b>178</b>
Cuttings produced	0	33 475	6 448	330	<b>40 253</b>
Seed trays sown	0	57	0	257	<b>314</b>
Plants bagged/potted	0	0	18 957	9 664	<b>28 621</b>

**Table 15: All remaining plant material in stock at the Restoration Facility at the end of June 2019 (i.e. all seed collections, search and rescue plants, cuttings and plants in bags).**

Stock	Number of species	Number of origins	Total
Seed	130	44	--- kg
Seedling trays	56	34	308 trays
Cuttings	3	3	330 cuttings
Search and rescue plants	11	2	3 449 bags
Plants in bags and pots	152	71	51 656 bags

Examples of some of the 46 ecological restoration interventions that took place this financial year

a) Harmony Flats Nature Reserve

In March, the team from the Elements Landscaping Company, who is contracted to complete search and rescue activities on a number of development sites, assisted with the planting of bulbs onto the restoration sites at Harmony Flats Nature Reserve. The following species and quantities were planted back onto the reserve: 1 980 *Watsonia marginata* bulbs; 3 000 bulbs of *Babiana stricta*, *Romulea* sp. and *Ornithogalum thyrsoides*; and 3 000 *Watsonia meriana* bulbs.

b) Silverboomkloof section of Helderberg Nature Reserve

Following the fire in February 2019, Silver Tree (*Leucadendron argenteum*) seeds were broadcast in May. The seeds were originally collected from the same population at Silverboomkloof (date unknown), and were smoked at the Habitat Restoration Facility immediately prior to broadcasting (Figure 39).



**Figure 39: Staff broadcasting seed at Silverboomkloof section of Helderberg Nature Reserve.**

c) Bracken Nature Reserve

On 6 and 7 July 2018, the Bracken Cluster staff and Dr Pat Holmes assisted Dr Tony Rebelo and Mashudu Nndanduleni of SANBI to plant 249 *Serruria furcellata* seedlings (Figure 40). The seedlings were propagated at Kirstenbosch by M. Nndanduleni. He sent a list of GPS points of the locations where the seedlings were planted for the reserves records.



**Figure 40: Planting of *Serruria furcellata* seedlings in Bracken Nature Reserve, July 2018.**

d) Haasendal Nature Reserve and Westlake Conservation Centre

Staff were invited by Mashudu Nndanduleni of SANBI to inspect the *Serruria aemula* var. *congesta* rooted cuttings that were ready to be planted. *Serruria aemula* var. *congesta*, one plant originally found at Haasendal, is now extinct in the wild. Staff were requested to create a liaison between Kirstenbosch and Westlake's Habitat Restoration Facility to establish a second *ex situ* living collection of *Serruria aemula* var. *congesta*. This was done, and 20 rooted cuttings were planted at the Westlake Conservation Centre (13 June<sup>2</sup>) (Figure 41). Another 50 rooted cuttings were identified for planting at Haasendal. On 28 June 2019, the reserve staff collected these 50 rooted cuttings and planted them into a freshly cleared area of Haasendal. The remainder of the stock was used to replant the Kirstenbosch *ex situ* living collection, and create the next batch of cuttings.

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<sup>2</sup> Note: Another 10 rooted cuttings were planted in the following financial year (28 August 2019) increasing the total number of the living collection to 30 plants.





Figure 41: Twenty *Serruria aemula* var. *congesta* rooted cuttings from SANBI planted at Westlake 13 June 2019.

e) Seed collection

During this financial year, seed was collected at the various reserves. Seeds will be stored and used for rehabilitation or restoration of identified areas (Figure 42).



Figure 42: Staff member collecting seed (left) and Naomi Mdayi of the Millenium Seedbank, SANBI, collecting herbarium specimens for identification (right).

## 5.9 Soil Erosion

Big Bay and Bloubergstrand, Blaauwberg Nature Reserve, have experienced extensive erosion (the transport of sediment out of an area), over the last decade (Figure 43). The City implemented a managed retreat of the dunes and walkways at Big Bay. However, ongoing erosion has led to further loss of beach amenities, and is placing infrastructure at risk. It is still unclear whether this erosion is cyclical and may reverse in future, or whether the Big Bay system has switched over to a long-term erosional state. The City appointed PRDW Consulting Port and Coastal Engineers to undertake a coastal processes study, to address this question and inform decision making.





**Figure 43: Effects of an intense cold front at the Western Cape during June 2017.**

## 6. Invasive Species

### 6.1 Terrestrial Invasive Plant Management

The ISU facilitates control of invasive species across the city, in collaboration with different line departments, to clear woody and aquatic invasive plants. Workload assessments were conducted for both protected and non-protected areas around the City (Figures 44, 45 and 46). Annually, data are taken from Workload assessments in order to guide costing for the contracts, but also to provide a baseline for the invasive densities across the City. The plans, which feed into the restoration plans, are also the base of the Invasive Species Control Plans that are done per site. The Invasive Species Control Plans for all City land are a requirement of NEMBA. The treatment stages are analysed to align with set targets (Figure 47 and 48). A total of 13 037.95 ha was cleared on Protected Areas and biodiversity/conservation agreement sites.

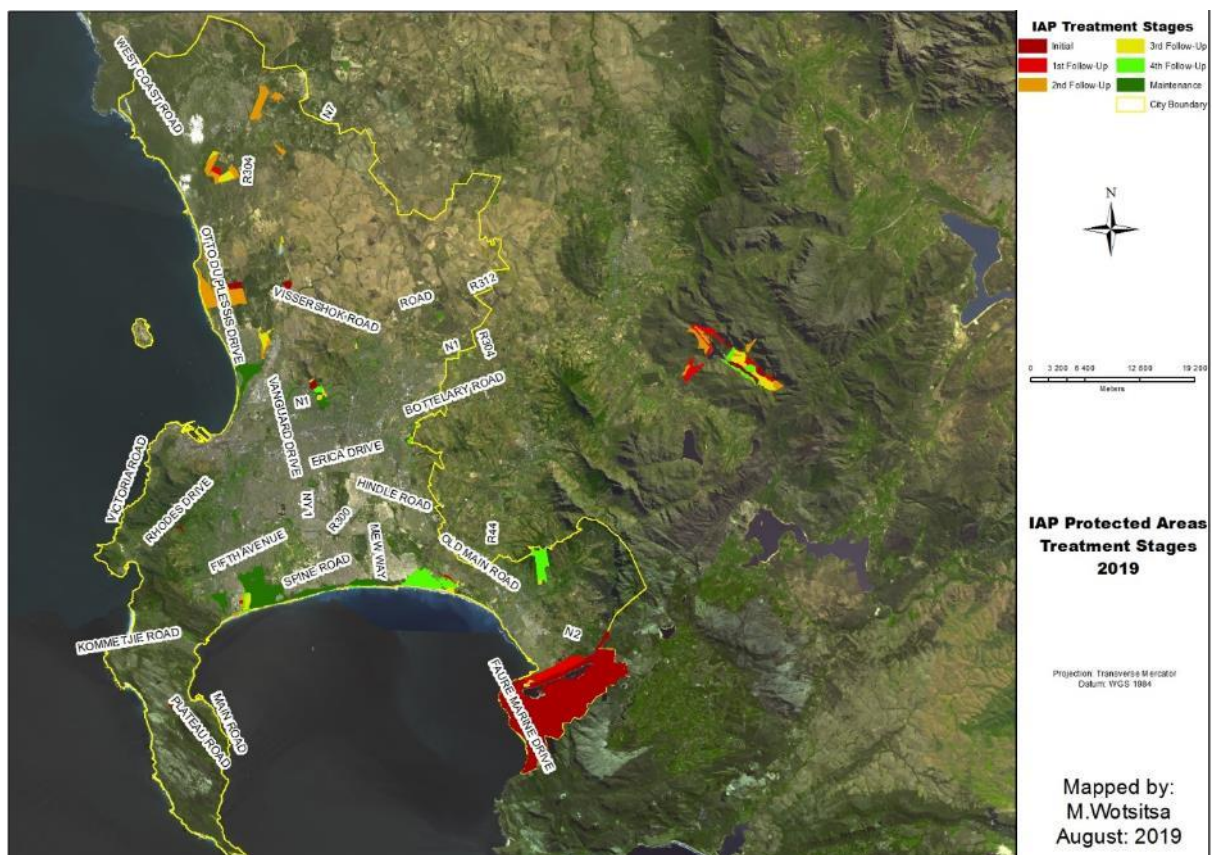


Figure 44: Invasive Alien Plant Treatment Stages for City Protected Areas.





Figure 45: Tygerberg Nature Reserve Block 16C, before clearing (left) and after clearing.

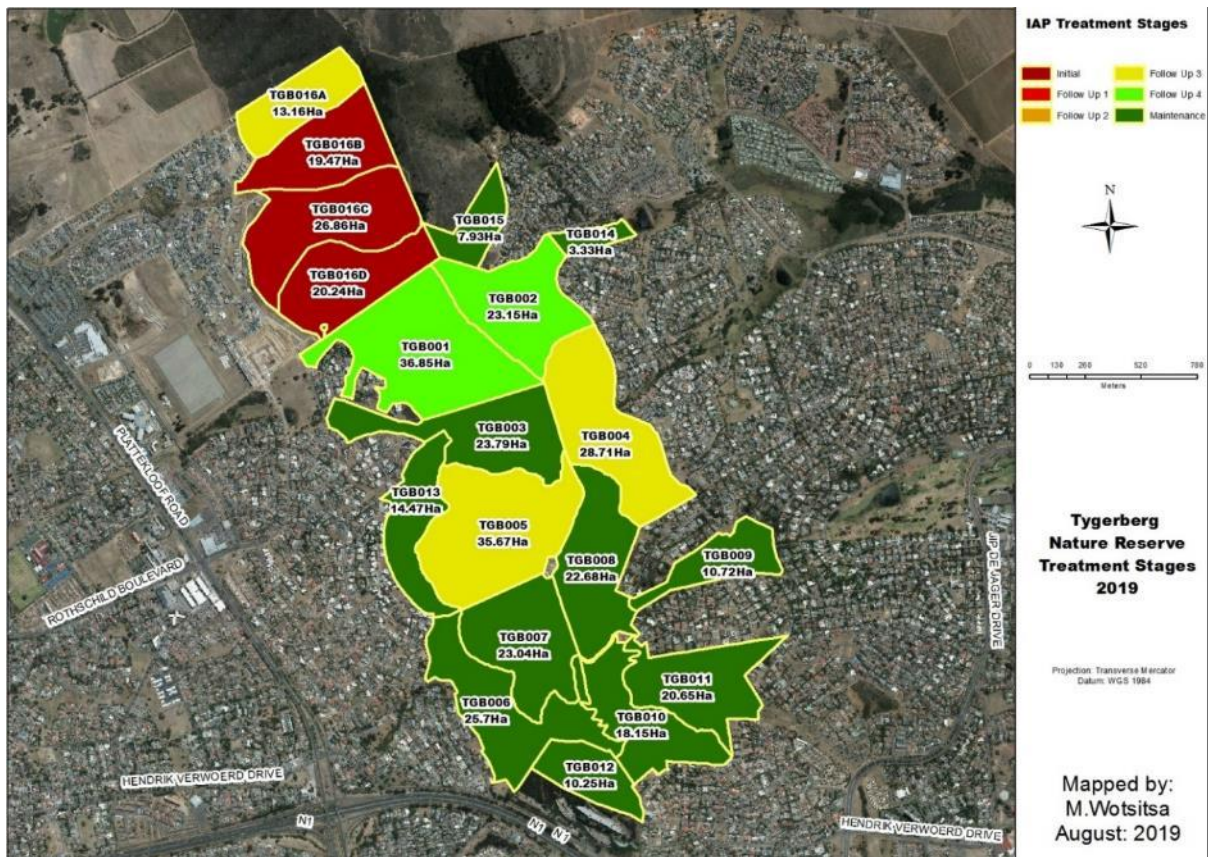


Figure 46: Detailed treatment stage map for one site – in this case Tygerberg Nature Reserve.

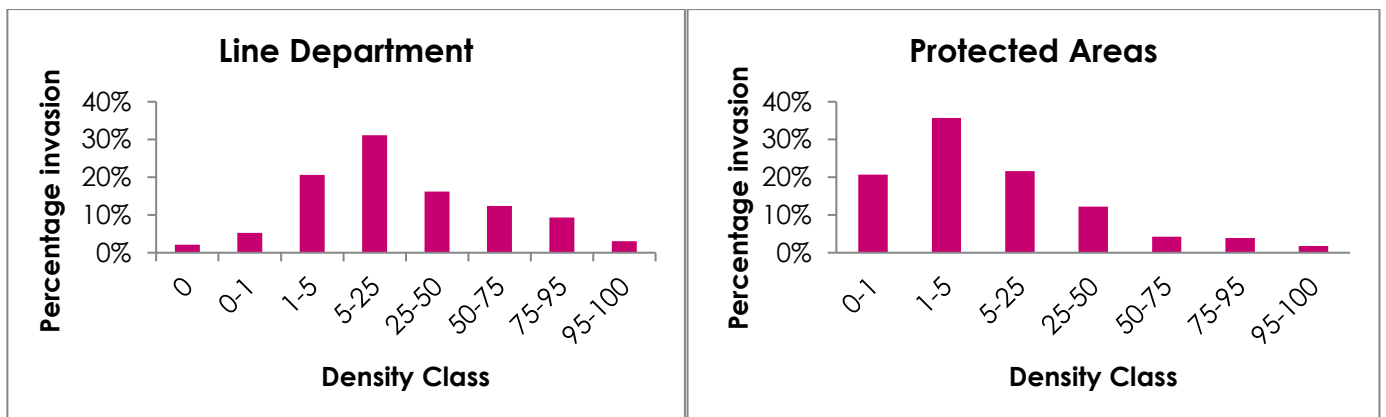


Figure 47: Baseline information and to show trends as the City strives to ensure that all City land is in the density class of <1% invasion by woody alien invasive species.



Figure 48: Steenbras Nature Reserve: STB017 before and after alien clearing.

## 6.2 Biocontrol

Over 26 000 biological control (biocontrol) agents were released (Table 16) to control invasive Water Hyacinth (*Eichhornia crassipes*). The reduced number of biological control agents produced was due to a faulty thermometer, such that the temperature in the tunnel could not be controlled. This has subsequently been repaired, after major delays with the Supply Chain Management Department.

Table 16: Biocontrol release sites.

Biocontrol release sites	Type of site	Catchment	Agents
Kysers pond	Pond	Zandriver Catchment	2 100
Strandfontein (False Bay)	Retention pan	Zandriver Catchment	16 450
Liesbeek	River	Salt River Catchment	3 500
Westlake River	River	Sandriver	2 306
Constantia – Pagasvlei	Pond	Sand River	2 100
<b>TOTAL</b>			<b>26 456</b>

In collaboration with the Association for People with Disabilities in Hout Bay, six handicapped workers were sourced and appointed in the Biological Control Facility (Figure 49). A strategic decision was made to place the workers in the facility to reduce the risk of incidents in field. These appointments are critical for our job creation targets in the Kader Asmal and NRM Programmes. Having dedicated staff will improve the output of the facility, with more frequent releases planned.



Figure 49: Six EPWP workers sourced from the Association for People with Disabilities in Hout Bay.



## 6.3 Invasive Animal Management

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### 1) House Crows

House Crow (*Corvus splendens*) preys on all small indigenous animal species and birds' eggs. The Unit managed successfully to obtain a three-year House Crow control tender. The tender includes monitoring and baiting of the remaining House Crow population in Cape Town. The Nyanga roost has the biggest population, and has shown the most success when in using the baiting method. Forty carcasses were collected and the remaining population estimation is 350 individuals. Increased reports of satellite roosts have been received, namely in Edgemoor, Athlone, Mitchells Plain, and Eerste Rivier; and these will be monitored and baited over the next period.

### 2) Mallard Ducks

Mallard (*Anas platyrhynchos*) hybridises with the indigenous Yellow-billed Duck (*Anas undulata*), putting the native species at risk. The Mallard Duck operations were implemented in Marina de Gama. Twenty-two ducks were euthanased. The population has been reduced to less than 40 individuals remaining. A tender has been secured for the implementation of the Mallard Duck control programme.

### 3) Wasps

European Yellowjacket Wasp (*Vespula germanica*), which feed their young on chewed insects, are known to attack beehives and damage fruit crops such as apples, pears and grapes. The wasp season begins from September/October and ends in May. The majority of the wasps were removed in the Durbanville area, where there were 90 reports and 166 wasps removed. This project is ongoing.

### 4) Guttural Toads

Guttural Toad (*Sclerophrys gutturalis*) competes with the endemic Western Leopard Toad (*Sclerophrys pantherina*). The Guttural Toad operation was implemented later than usual, due to delays in the Supply Chain Management. The Guttural Toad season starts in October and ends in March. In the period we concentrated on removing adults, and managed to remove 814.

## 6.4 Early Detection and Rapid Response (EDRR)

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Preventing the introduction of invasive species is the first line of defence; the second is the early detection and rapid response that targets species while populations are still localised, and can be contained and possibly eradicated. This programme can save costs by detecting invasive species before they become established and require widespread control measures. The EDRR Programme targets 22 listed invader species for control, and works with various landowners across the city to detect, identify, and control these target species from expanding and invading large areas.

Recently, the Polyphagous Shothole Borer (PSHB) was found in Somerset West and this beetle species was added to the EDRR programme (Figure 50). The ISU developed a protocol to remove trees infested with PSHB. More information can be found on the website: <http://www.capetowninvasives.org.za>



**Figure 50: Tree infected with Polyphagous Shothole Borer.**

The Spotter Network allows the general public to spot EDRR plants and report them. Table 17 indicates the sightings reported and new spotters that joined the Spotter Network.

**Table 17: Number of EDRR sightings reported on the Spotter Network.**

<b>Quarter</b>	<b>Number of sightings</b>	<b>Number of follow-up sightings</b>	<b>Number of new sightings</b>	<b>Total controlled</b>	<b>Number of new spotters</b>
July – September 2018	33	30	3	33	9
October – December 2018	582	361	221	578	5
January – March 2019	368	205	142	347	0
April – June 2019	24	34	6	18	
<b>TOTAL FOR THE YEAR</b>	<b>1 007</b>	<b>630</b>	<b>372</b>	<b>976</b>	<b>14</b>

## 7. Fire

### 7.1 Preparation for the Fire Season

The National Veld and Forest Fire Act 101 of 1998, Chapter 4 places a duty on landowners to prepare and maintain firebreaks. The procedure in this regard, and the role of adjoining owners and the fire protection association, are dealt with. Every owner on whose land a veldfire may start, or burn, or from whose land it may spread, must prepare and maintain a firebreak on his or her side of the boundary between his or her land and any adjoining land. The annual preparation and maintenance of the City's Protected Areas took place in September and October 2019. Staff brush-cut firebreaks along all Protected Areas' boundaries where necessary. Some Protected Areas start their fire season preparation as early as August, as can be seen in Figure 51.



**Figure 51: Staff cutting the firebreaks in Bracken Nature Reserve.**

Blaauwberg Nature Reserve and Koeberg Nature Reserve (Eskom) staff held a fire-preparedness joint exercise at Koeberg Nature Reserve. The exercise included inspection of personal protective equipment, checking of vehicles, and testing of firefighting equipment for the forthcoming fire season.

Similarly, at Atlantic Beach Estate, the City's Disaster Management and Blaauwberg Nature Reserve staff held a fire preparedness joint exercise (Figure 52). The exercise included a discussion on Veld and Forest Firefighting fundamentals, Incident Command Structure (ICS), personal protective equipment, checking of vehicles, and testing of firefighting equipment, for the forthcoming fire season.



**Figure 52: Atlantic Beach Estate, the City's Disaster Management and Blaauwberg Nature Reserve staff held a fire preparedness joint exercise at Atlantic Beach Estate.**

## 7.2 Wildfire

On 28 November 2019, DCCP staff, Quemic rangers, and City Fire and Rescue Services battled another extensive wildfire at Klein Dassenberg, with 60 ha burnt. The fire started near the old Mamre/Darling Road and rapidly spread through the Nature Reserve.

On 29 November 2018, staff attended to a large wildfire in Witzands Aquifer Nature Reserve (Figure 53). This fire was in an area that was isolated, near-inaccessible, and littered with invasive plants, which made it very challenging to contain. Assistance was required from Blaauwberg, Tygerberg and Table Bay Nature Reserves. While the wildfire continued to rage into the evening, a decision was made to let the fire continue to possibly burn out on its own, since the area was covered with invasive vegetation, and not threatening any people or property. City Fire and Rescue Services continued to monitor the incident and it eventually stopped burning (100 ha burnt).



**Figure 53: Wildfire at Witzands Aquifer Nature Reserve, November 2018.**

On 1 January 2019, a large wildfire in the Betty's Bay – Kogelberg area burned approximately 16 000 ha and destroyed many homes and infrastructure, especially in Betty's Bay. This fire entered Steenbras Nature Reserve on the afternoon of 6 January and burned out large sections (2 882 ha) of the Protected Area (Figure 54). While fire can be destructive, it is important to remember that many plant species are dependent on fire to survive. Some of these species only flower after a fire event. The next few months will be interesting in terms of plant growth and veld rejuvenation (Figure 55).



The Hottentots Holland Custodians of Rare and Endangered Wildflowers (CREW) team are assisting the reserve staff with post-fire monitoring across the reserve. All sightings are verified on iNaturalist and then added to the Biodiversity Management tool.



**Figure 54: Steenbras Nature Reserve wildfire, January 2019.**



**Figure 55: Recovery after the fire. Left to right: *Brunsvigia orientalis* (candelabra flower); *Amaryllis belladonna* (March lily); and *Haemanthus coccineus* (blood flower).**

A wildfire was reported in the Silwerboomkloof section of Helderberg Nature Reserve (HNR) on 18 February 2019. The fire started at approximately 12:00. Staff from HNR, City Fire and Rescue Services, Working on Fire, NCC Environmental Services, and Cape Peninsula Fire Protection Association (CPFPA) were in attendance. Since there was aerial support, a decision was taken to ignite the remainder of the area to reduce fire risk. City Fire and Rescue Services approved the request and ignition followed. In total, 3.9 ha was successfully burnt (Figure 56).

Several smaller wildfires plagued the South, East and North Protected Areas, but most of these were small (less than 2 ha), and located immediately along the reserves' boundaries. The Harmony Flats team successfully kept fires excluded from the Protected Area for a second year in a row.



Figure 56: Wildfire in Silverboomkloof section of Helderberg Nature Reserve, February 2019.

## 7.3 Ecological Burns

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As a result of the water crisis, only one ecological burn of 1.8 ha was undertaken, at Tygerberg Nature Reserve, on 25 and 27 February 2019 (Figure 57). The burn was in Tygerberg's restoration plots and is part of a bigger restoration project. Care was taken to ensure that non-potable water was used.



Figure 57: Ecological burn at the restoration plots in Tygerberg Nature Reserve, February 2019.

## 7.4 Brush Pile Burning

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As per the latest research undertaken at Blaauwberg Nature Reserve, it appears that limiting stack burning after invasive clearing is desirable, especially in medium to high quality vegetation. However, fuel reduction or ecological considerations are critical in some areas, so each case is assessed on its merits. Last year no stack burning was undertaken. This approach also has benefits in terms of cost savings.

## 8. Nature Conservation

### 8.1 Overall Reserve Management

The reserves below were recognised at the Branch's Performance Recognition and Teambuilding Day on Friday 2 November 2018, held at Eerstesteent, Blaauwberg Nature Reserve.

#### **Reserve of the Year:**

##### **Wolfgat Nature Reserve**

*Wolfgat Nature Reserve is in maintenance phase for woody invasive species. Wolfgat was also one of the highest scoring reserves in METT-SA03 for this year and Lewine Walters can particularly be commended for timeously submitting all the required evidence. Lewine has put a considerable effort into skills development for new staff. The Wolfgat staff have worked with the local community and also deliver a high standard to numerous learners in the Mitchells Plain and Khayelitsha areas. Lewine Walters has led her team consistently well, dealing with dumping issues, high crime and security issues, as well as land invasion pressures.*

#### **Runner up:**

##### **Helderberg Nature Reserve**

*This reserve is going from strength to strength and scored high in the METT-SA03 evaluation. The staff are commended for an overall neat reserve. Helderberg Nature Reserve's vegetation and firebreaks are looking great. The infrastructure upgrading is of a high standard and will be completed as they prepare for the construction of the EE/Multipurpose Centre; converting the existing EE Centre into offices and demolishing temporary offices.*

#### **Most improved:**

##### **Durbanville Nature Reserve**

*Especially the western side where invasion has been cleared to reveal a stunning piece of renosterveld-fynbos mosaic.*

##### **False Bay Nature Reserve**

*Especially Rondevlei section (fixing up of the infrastructure), and the coastal strip (invasive clearing and ensuring area free of illegal structures).*

### 8.2 Management Effectiveness of the Nature Reserves

It is recognised worldwide that management effectiveness should be monitored via a Protected Areas Management Evaluation tool. The most commonly used is the Management Effectiveness Tracking Tool (METT). Cape Town has undertaken the METT 2008 and 2012 versions three times in the last 10 years. In summary:

- 2007 - Majority were Management Clearly Inadequate (less than 33%)
- 2012 - Majority were Basic Management with Significant Deficiencies (33-67%)
- 2017 - 12 Reserves fell in Basic Management with Significant Deficiencies (33-67%)  
4 Reserves fell in Sound Management (>67%)

A detailed report on the 10 years of METT and Protected Area Reviews are underway. As part of this report, a questionnaire was circulated to the managers on their understanding of the process, and if the METT and



Protected Area Reviews had supported their management of the reserves. The BMB Manager was invited to the Conservation Symposium to give a talk on “A decade of application of the Management Effectiveness Tracking Tool in the City of Cape Town”. This talk was very well received, and should be submitted to a scientific journal for publication, as it appears that not many conservation organisations (in South Africa and elsewhere) have as much experience and data as this case study in Cape Town. The Conservation Symposium was held from 5 to 8 November 2018 at St Ives, Midlands, KwaZulu-Natal.

The new version of the Management Effective Tracking Tool (METT-SA03) assessment is now used by all Protected Areas in South Africa. The original METT and current GEF METT have approximately 30 indicators, while the METT-SA03 has 70 indicators, does not have the threats or pressures information, but requires verification and evidence. The scores are therefore predicted to be lower. As a result of the detailed nature of the METT-SA03, the Protected Area Reviews were not completed in 2018 or 2019 as management is assessing whether they are needed, and if so, in what form they should be undertaken. In early 2018, the METT-SA03 were undertaken for the 16 proclaimed Nature Reserves, as well as some of the Conservation Areas (Kenilworth and Westlake). In the last financial year, the scores were verified, the evidence collected, and approved by the Branch Manager (Figure 58). All scores, as predicted, were lower, but all fell in the category of Sound Management (between 33 and 67%). Figure 59 shows the scores in relation to previous years.

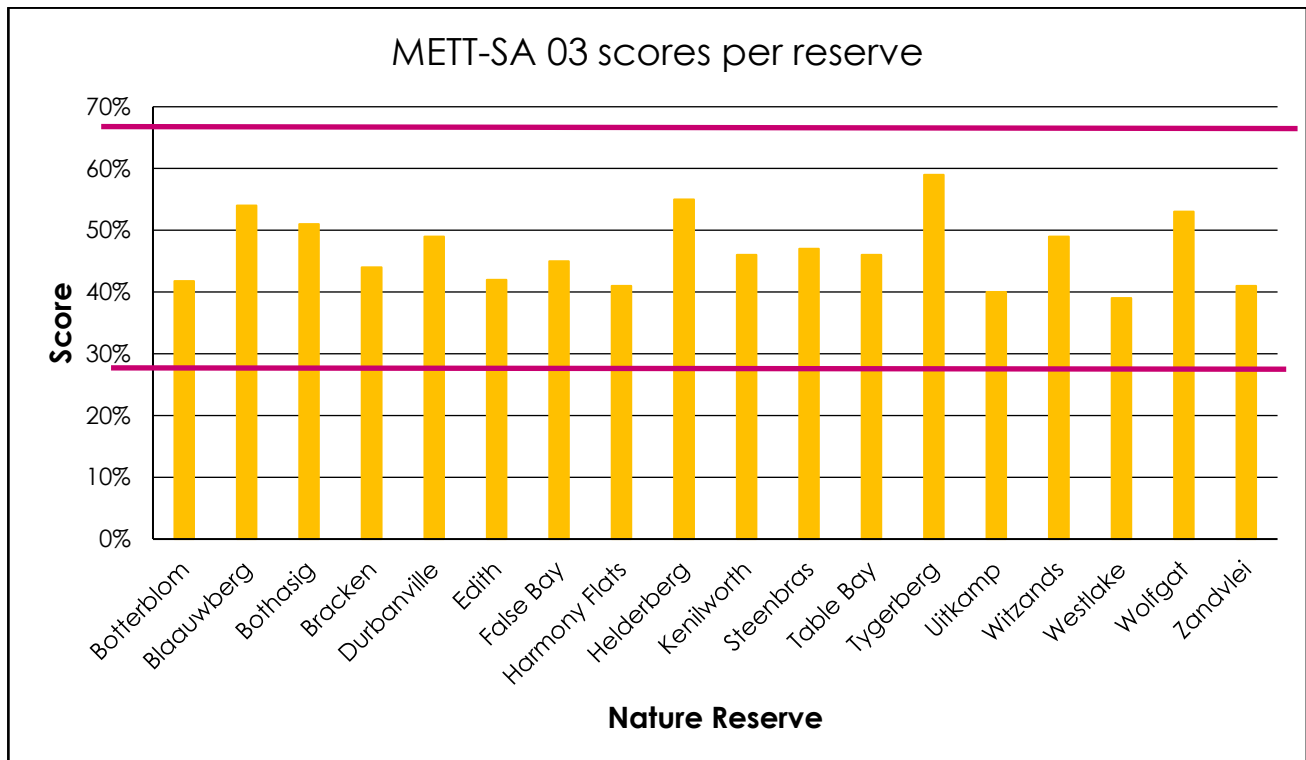


Figure 58: The 2018 METT-SA03 scores for the CCT Protected Areas.



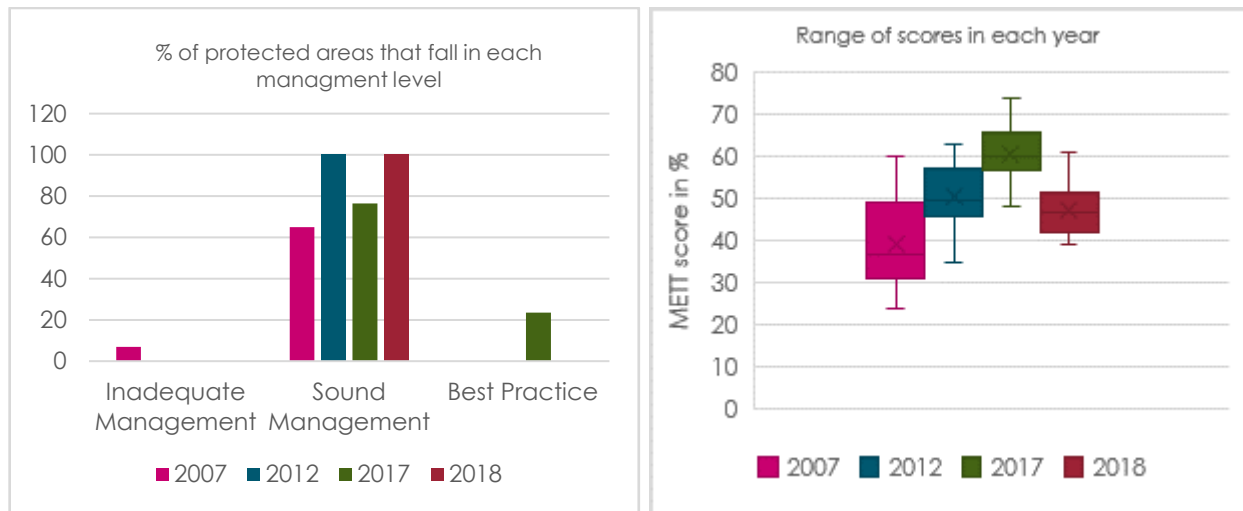


Figure 59: The 2017-2018 scores.

## 9. People and Conservation

### 9.1 Environmental Education



**Figure 60: Learners enjoy and learn from the display in the Blaauwberg Nature Reserve EE centre.**

A total of 31 138 learners from 354 schools (with 12 656 adults) resulted in 47 464 person days of education (Figures 60 to 67). Including the ad hoc education-related events described below, 67 169 individuals were involved in formal education, events, exhibitions, informal or awareness activities on and off reserves. This included the work undertaken on the reserves by the City's partner, Cape Town Environmental Education Trust (CTEET). The number of schools was less than last year, but the number of education days was not affected by nearly the same margin, indicating the trend of schools bringing bigger groups of learners and thus occupying more education days

per school. The number was higher than the predicted target (the target set for this year was 40 000 person days of environmental education). The past financial year saw the key Environmental Calendar Days celebrated, including: Arbour Day, Heritage/Tourism Month, Coastal Clean-Up Week, Marine Month, Western Leopard Toad Month, Biodiversity Month, Wetlands Month and Water Week (with an invasive species topic). Various holiday programmes were successfully held at the nature reserves throughout the year.



**Figure 61: Elkanah House High School learners visited Table Bay Nature Reserve.**



**Figure 62: Children from Bumblebee Crèche enjoy their snack on a visit to Edith Stephens Nature Reserve.**





**Figure 63: Learners from Oakley House School engaging in an ecosystem activity.**



**Figure 64: Learning about the different species found at Blaauwberg Nature Reserve.**



**Figure 65: Berzelia Primary visited the Witzands Aquifer Nature Reserve for a wetland programme.**



**Figure 66: EPWP staff member (Ferisco Blom) helping children to complete an activity during a Holiday Programme at Bothasig Fynbos Nature Reserve.**



**Figure 67: First overnight camp held at Edith Stephens Nature Reserve.**

The ISU in partnership with SANBI, CTEET, Western Cape Wetlands Forum, and DEA (Working for Wetlands Programme) hosted an educational wetlands day event on 1 February 2019 at Khayelitsha Wetlands Park (Figures 68 and 69). This is an annual event that is used to raise awareness about the importance of wetlands. Learners from Impendulo Primary School were the guests for the day, and were exposed to group activities such as canoeing, wetlands planting, mini SASS (river health assessment), and a wetlands education station.



**Figure 68: Learners canoeing in Khayelitsha Wetland Park.**



**Figure 69: Learners planting some plants for Wetlands Day.**



## 9.2 Awareness and Events



**Figure 70: Children studying the hippo's bones at Pelican park library.**

Special events were held at the City's Nature Reserves throughout the year, with approximately 9 987 people attending. Events ranged from annual events such as the Helderberg Trail Challenge, to monthly events such as the Tygerberg Full Moon walks.

In addition to the formal events, 365 people attended guided hikes through the City's Nature Reserves during this period.

The BMB had many exhibitions across the city, with an estimated 7 664 people attending. Exhibition themes varied, but included careers, biodiversity and educational exhibitions (Figure 70 and 71).



**Figure 71: ISU, in collaboration with Recreation and Parks, raising awareness about Polyphagous Shot-hole Borer.**

Awareness event topics included fire awareness, baboon awareness, snake awareness and beach safety. Over 2 390 people were reached. Community conservation training sessions were held this year with 124 community members trained. General community engagements included 1 852 people through various contact sessions. Approximately 748 people participated in activity-based learning efforts such as beach clean-ups, guided hikes and alien plant hacks.

Education support was provided by People and Conservation Officers to students, teachers and volunteers. Over 244 people received this support (Figure 72).



**Figure 72: 1st Milnerton Sea Scout cubs visited Milnerton Racecourse section of Table Bay Nature Reserve to hear about the City Nature Challenge and learn how to use the iNaturalist App.**

## 9.3 Communication

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### 1) Resource development

- Outdoor signage:
  - Westlake Conservation Centre signage completed and delivered; waiting for installation
  - Morkel's Cottage signage submitted for design
  - Witzands Aquifer Nature Reserve mock-ups completed
  - Witzands Aquifer Nature Reserve road signage in process
  - Tygerberg Nature Reserve signage in process
  - Woodbridge Island (Table Bay Nature Reserve) signage submitted for design.
- All nature reserve directional maps were revised and submitted for updating and redesign.
- The biodiversity section of the Smart Living Handbook was revised, edited, and signed off by the BMB and EMD.
- The Careers booklet associated with the Smart Living Handbook was also revised, edited, and signed off by the BMB and EMD.
- Many different communication resources were developed for the City Nature Challenge.
- Various ad hoc resources and requests were dealt with (notices, templates, invitations, etc. including design, approval and coordination) (Table 18).

**Table 18: Resource and other queries dealt with during the 2018/2019 financial year.**

Project	Status
Morkel's Cottage signage	In process
Witzands Aquifer Nature Reserve road signage	In process
Westlake Conservation Centre signage	Completed; waiting for installation
Tygerberg Nature Reserve signage	In process
Woodbridge Island (Table Bay Nature Reserve) signage	In process
Witzands Aquifer Nature Reserve signage	Mock-up stage
Rietvlei (Table Bay Nature Reserve) post box flyer	Completed
Vesuvius Way Conservation Area fencing flyer	Completed
Symphony Way Conservation Area fencing flyer	In process
Directional Maps – all	In process
Biodiversity Report 2018	Completed
Branch Certificate	Completed
Smart Living Handbook	Signed off by EMD
PSHB residents letter	Completed
Symphony Way Conservation Area pamphlet	Completed draft
Careers booklet	Signed off by EMD
City Nature Challenge Flyer	Completed
City Nature Challenge How To Guidelines	Completed
City Nature Challenge A2 Poster	Completed
City Nature Challenge School Competition	Completed
City Nature Challenge School letter	Completed
City Nature Challenge translation documents	Completed
Library pack for City Nature Challenge	Completed
City Nature Challenge library distribution	Completed
City Nature Challenge Councillor Media photo opportunity	Completed
City Nature Challenge all partners poster	Completed
City Nature Challenge councillors excursion	Completed
City Nature Challenge awards ceremony	Completed
City Nature Challenge certificate of acknowledgement	Completed
City Nature Challenge spot prize insert	Completed

## **2) Media matters (media releases, radio interviews, articles, internal journals etc.)**

Two story ideas were submitted to CONTACT, with one BMB related story published (Figure 73). There were also many media releases and media queries last year (Table 19); some were written by BMB communication staff, for others a response was simply coordinated or an already written article edited and sent for approval.

**Table 19: Media releases and other queries dealt with during the 2018/19 financial year.**

<b>Media releases and queries</b>	<b>Date</b>
Black River / 481979 – social media enquiry	4 July
Poaching and dredging in Zandvlei – media enquiry	25 July
Carte Blanche interview on baboon management – Cllr Herron	22 August
Baboons in the far south – media enquiry	24 August
Annual Birdathon walk and festival – media release	4 October
Zandvlei water body closed until further notice – media release	5 October
Removal of trees in nature reserve – Tygerburger media enquiry	22 October
Black River – media enquiry	29 October
Bee deaths in Constantia – media enquiry	21 November
Dredging of Zandvlei – False Bay Echo enquiry	23 November
Invasive Species Unit – media enquiry	27 December
Alien Trees / 697109 – Facebook enquiry	28 December
Zandvlei Estuary Nature Reserve – Network24 enquiry	17 January
Waterloo Green in Wynberg – Constantiaberg Bulletin	21 January
City's efforts curbed the Kogelberg fire from blazing across Steenbras Nature Reserve – media release	28 January
Sunset concert Helderberg media release	18 February
Tygerburger scorpion enquiry	19 February
Weekend Argus Somerset West Silverboomkloof fire enquiry	21 February
iNaturalist City Nature Challenge media release	26 February
City Nature Challenge Smile90.4fm interview (Julia Wood and Alderman Nieuwoudt)	27 February
Tygerburger media response	7 March
Green jobs creation media release	13 March
Earth Hour release	28 March
Tabletalk water pollution enquiry	29 March
SP&E Budget press release	10 April
City Nature Challenge CapeTalk interview (Julia Wood)	17 April
City Nature Challenge press release	18 April
Western Cape Government City Nature Challenge website and press release	24 April
City Nature Challenge CapeTalk interview (Gigi Laidler)	24 April
City Nature Challenge press release	26 April
City Nature Challenge People's Post article	29 April
Mfundo Tafeni press release	30 April
Zandvlei closure press release	14 May
Netwerk24 enquiry re PSHB	17 May
City Nature Challenge RSG interview (Jacques Van Der Merwe)	17 May
Media enquiry re sick dogs from Zandvlei	20 May
RSG interview re protected area expansion (Jacques Van Der Merwe )	28 May
Biodiversity Day E-nform	22 May
Sunday Times enquiry Zandvlei	31 May



Zandvlei reopening press release	31 May
CCfm interview re waterbodies (Julia Wood)	6 June
PSHB protocol press release	6 June
False Bay Echo water testing sewage spill enquiry	7 June
Eco-Logic Awards press release	10 June
Zandvlei closure press release	26 June



**Water warnings:** Environmental Health staffers at the new sign unveiled at Zeekoevlei picnic area, warning of possible water pollution. Front row, from left: Mandy Wallace, Moegamat Sheraan Mohamed, Jonathan Fischer, Rolivhuwa Murovhi (all members of the Biodiversity team) and Muzzamiel Gamielien (environmental health practitioner – EHP). Back: Craig Stuurman (EHP), Malcolm Cupido (District Manager: Environmental Health), Prince Mokoena (EHP), Michael McSweeney (EHP), Zisile Mqhayi (EHP), Lamees Jacobs, Kholiseka Colleen Mabuya, Zikhona Ngcingi, Votiswa Nojingxa, Zukile Madyolo and Monica Isaacs (all members of the Biodiversity team).

## Signs of the (polluted) times

Signs warning the public of possible water pollution were unveiled at the Zeekoevlei picnic area earlier this year. The launch had a very receptive audience in a group of primary-school learners from the area. “The purpose of the launch was to create awareness of the impact of polluted water on human health, particularly as we were entering peak diarrhoea season at the time,” explains Malcolm Cupido, district manager of Environmental Health in the City’s Health Department. The signage also informs the public of the potential consequences of playing in any polluted water.

The popular picnic area is located at the meeting point of the Little and Big Lotus rivers and close to a number of stormwater outlets. This made it an ideal spot to erect the first of a series of signs to be rolled out at key locations across the metro. The roll-out includes erecting new signage and replacing old ones that have been removed or vandalised. They are put up in water pollution hotspots and convey information about water quality, the dumping of waste in water bodies and canals, and its consequences.

Figure 73: Signage put up with Environmental Health staff and reserve staff at Zeekoevlei, Contact no. 88 June-July 2019.

## 9.4 Protected Area Advisory Committees

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Current Protected Area Advisory Committees (PAACs) include:

- Blaauwberg Nature Reserve
- Bracken Nature Reserve
- Durbanville Nature Reserve
- False Bay Nature Reserve
- Helderberg Nature Reserve
- Table Bay Nature Reserve
- Tygerberg Nature Reserve (including Bothasig Fynbos Nature Reserve)
- Witzands Aquifer Nature Reserve
- Wolfgat Nature Reserve
- Zandvlei Estuary Nature Reserve

The establishment of PAACs is provided for in the Protected Areas Act, and is primarily intended to involve neighbouring communities in decision-making regarding Protected Areas. In terms of the Constitution of the PAACs, the committees serve a period of three years, after which they must reform. All existing members would have to apply to renew their membership, and prospective new members can also apply. The current PAACs were established in the second half of 2018 at the beginning of the new three-year cycle. The appointments of new Councillors as Sub-council representatives to the PAACs took place in June 2019, following the national elections.

## 9.5 Councillor Engagement

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The City celebrated **Transport Month** during October 2018 with an invitation to councillors of the Executive and Council Support Department to use the MyCiti Bus Service and visit Woodbridge Island, Table Bay Nature Reserve, Blaauwberg Nature Reserve and the non-motorised transport facilities en-route.

On 28 February 2019 Alderman Twig, Bevan van Schoor, Regan Melody, Salome Sekgonyana, and Masibulele Zonyana visited the ISU to meet with the staff on the Skills Development Programme (Figure 74). After meeting the staff, the guests were taken to various sites to get insight into the type of projects that are being implemented through the Kader Asmal Project.



Figure 74: Guests from the EPWP office in the biocontrol tunnel getting insight into how biocontrol works.

The BMB annual presentation on the previous financial year (2017/2018) was presented at the Transport Development Authority Portfolio Committee on 4 October 2018. This presentation was well received.

This presentation was tabled at all the Sub-councils in September 2018. BMB staff attended 21 out of the 23 Sub-councils to present. The majority of the Councillors were extremely interested, positive about the work of the Branch, and asked numerous questions which were answered by staff. Questions were about job creation, EPWP staff, conservation areas, rerouting of Baden Powell Drive away from the eroding cliffs at Wolfgat, Morgenster Dune, illegal land invasion, security issues, Swartklip property, volunteers, EDRR, lack of Durbanville PAAC (Bracken NR PAAC was extended to include Durbanville NR), hippo, drilling in Steenbras, and the Zandvlei weed-harvester. All Councillors were also given an opportunity to visit their local nature reserves. Sub-council 12 and 13 had their October Activity day at the Wolfgat Nature Reserve Environmental Education Centre.



Sub-council 03 requested a site visit to False Bay Nature Reserve to look for the hippo for their October Activity Day 16 October 2018 (Figure 75). The field trip was arranged and hosted by Area Manager Koos Retief, with support from BMB staff and CTEET's Nature Care Fund. The councillors and staff were introduced to the Zeekoevlei Environmental Education Centre, the island camp at Rondevlei and were introduced to the Gantouw Project (Gantouw mean the Way of the Eland). Lastly the councillors and staff were taken on a boat trip on Rondevlei to look for the elusive hippos, but the hippos were nowhere to be seen.

Figure 75: Sub-council 3 at Zeekoevlei Environmental Education Centre.

## 9.6 External Stakeholder Engagement

In November 2018, a third group of eMBA students from the Danish University of Technology conducted their International Consultancy project in BMB, assessing the stakeholder engagement and management, with a view to streamlining and providing a more effective process. The recommendations are summarised in Figure 76.

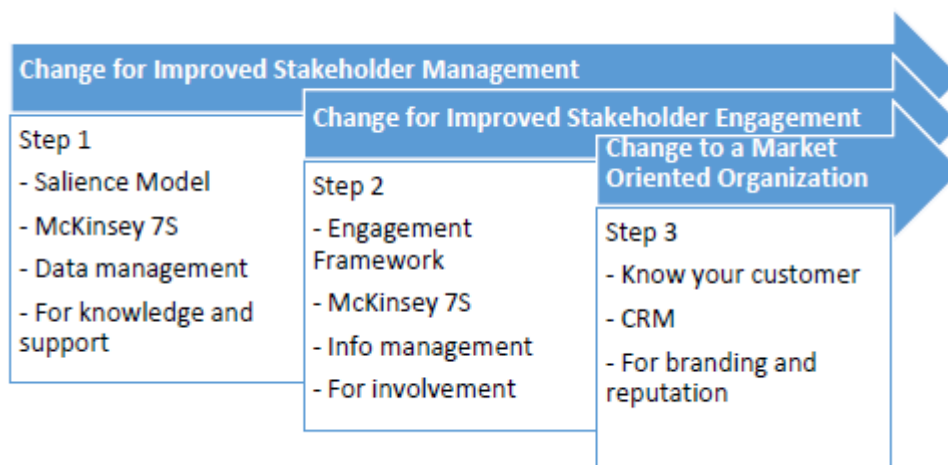


Figure 76: Summary of recommendations taken from final report.

The specific recommended actions to take in the short term are:



1. Perform stakeholder management training (built on Salience model, with iterative approach as in ISO 21500), and build stakeholder register (training slides and proposed (simple Excel) stakeholder register were made available to BMB).
2. Improve existing data management for completeness and correctness, as this is to be used as an internal and external stakeholder management tool (suggestions for SharePoint implementation made available to BMB).
3. Implement a solution for internal communications, to improve top-to-bottom link in BMB, using either SharePoint or similar system.
4. Encourage diversity amongst team, to foster a change mindset to be used as driver for implementing organisational changes as indicated by the McKinsey 7S model.

The recommended actions to take in the long term are:

1. Extend stakeholder management to stakeholder engagement.
2. Continue and improve outreach out to communities and citizens, and employ a marketing employee for community outreach.
3. Build stakeholder management information into data management system.

The business case for improved stakeholder management substantiates the value in focusing on this specific topic. Based on the “time spent survey” the BMB executed in September and October 2017, and focusing on the time spent data points that could relate to stakeholder management: staff management, friends of the reserve/community, tourism/visitor liaison, communication, reporting, and documenting data, it is seen that almost 40% of all employee's time is spent on some variant of stakeholder management, on average. Based on a total salary cost for 2017 of ~R38 M, this corresponds to roughly R15 M spent on stakeholder management. If time spent on stakeholder management can be optimised by just 10%, this corresponds to an increase in workforce, of roughly R1.5 M, or the equivalent of 5-6 extra hires at the site manager level.

The final report will be used to streamline the processes in BMB.

## 9.7 Customer Service

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### 1) C3 notifications

The notifications are being dealt with in the prescribed timeframes. The various line managers deserve recognition and gratitude for their prompt responses which assists with finalising notifications speedily.

### 2) Protected Areas Gateways and Public Access Points

The BMB runs five access points where cash is accepted: Witzands Dunes (Witzands Aquifer Nature Reserve), Eerstestein (Blaauwberg Nature Reserve), Rietvlei (Table Bay Nature Reserve), Tygerberg Nature Reserve and Helderberg Nature Reserve. Rondevlei and Zeekoevlei (False Bay Nature Reserve), Bracken Nature Reserve and Durbanville Nature Reserve have formal access points but entrance is free. Activity permits are sold for Crystal Pools Hiking Trail (Steenbras Nature Reserve), Zeekoevlei and Rondevlei (False Bay Nature Reserve), Rietvlei (Table Bay Nature Reserve) and for activities on the Witzands Dunes (Witzands Aquifer Nature Reserve). These are either via the City's booking system or are available at the gate such as at Witzands Dunes. This facility was only recently opened and the activity permits were sold from the gate for the first time in the last financial year (Figure 77). The sale of permits at the Witzands Dunes gate is a tremendous benefit for customers. The BMB is continually improving their service and working hard to implement the City's new booking system to enhance service delivery.





Figure 77: First and second activity permit customer at the Witzands Dunes, Witzands Aquifer Nature Reserve.

## 9.8 Tourism

In the last financial year, 378 193 visitors visited City Nature Reserves via the manned access points, and key events. Income was R3.5 M across the Nature Reserves as a result of paying gates and hall hiring.

BMB continues to market its Protected Areas wherever possible. Marketing is mostly through media releases, exhibitions, internal media (CONTACT and E-nform), pamphlet handouts, email contact list, using the Environmental Education Friends, the City's Transversal Environmental Education Forum, and showcasing the Nature Reserves at events.

## 9.9 Volunteers, Friends Groups and Sponsored Programmes

### 1) Sponsored Programmes

Sponsored programmes, mainly through CTEET, resulted in 456 individuals and 7 021 person days of work in the BMB (approximate value is R3.9 M). Staff members were employed through CTEET in conservation projects at the following sites:

- Invasive Species Unit – 4 staff members
- Gantouw Project – 5 staff members
- Kenilworth Racecourse Conservation Area – 3 staff members
- Muizenberg East Biodiversity Cluster – 2 staff members
- African Penguin Conservation Project – 4 staff members
- Milnerton Racecourse Section of Table Bay Nature Reserve – 1 staff member

- Atlantic Beach Golf Course Conservation Area – 3 staff members
- Haasendal Nature Reserve – 1 staff member
- Helderberg Eco-Schools Programme – 1 staff member
- Kedestes Conservation Project – 2 staff members
- Princessvlei Conservation Area – 1 staff member (City Parks site)
- Zandvlei Estuary Nature Reserve – 1 staff member (Admin Assistant)
- Zoarvlei Wetlands section of Table Bay Nature Reserve – 1 staff member

In the past year CTEET continued to be BMB's largest partner in terms of programmes offered and on-the-ground management input.

## 2) Volunteer programmes

The dedicated volunteer email address is used for coordinating volunteer activities on the Nature Reserves. CTEET assist with administration, by drawing up volunteer contracts and assisting with placements. The volunteers resulted in 534 individuals and 1 049 person days on the Nature Reserves (valuing approximately R438 278.46) (Figures 78 and 79). In addition, 539 volunteers completed botanical scans on the Nature Reserves, which equated to 1 124 person days valued at approximately R588 278.46.



Figure 78: Volunteers alien clearing in False Bay Nature Reserve.



Figure 79: Friends of BCA's alien hacking team, with BMB staff.



## 9.10 Skills Development

The training of EPWP, interns, learnerships, and formal skills development programmes, is critically important. Of the 25 permanent posts in the BMB in the past year, 19 were filled with students, interns, and EPWP staff or promotion posts of previous EPWP/skills development individuals.

The BMB was involved in various skills development programmes, including the City's Urban Sustainability Graduate Intern Programme, the Kader Asmal Skills Development Programme, Work Integrated Learning (WIL) Nature Conservation students, and the CTEET skills development programmes.

### 1) City's Urban Sustainability Graduate Intern Programme

We currently have two graduate interns for 2019: one Communication and Education intern based at the BMB head office, and one Education Officer intern at Tygerberg Nature Reserve. These interns, who are employed by the City, are based with the BMB from February 2019 until the end of January 2020.

### 2) Kader Asmal Skills Development Programme

The application to implement a three-year skills development programme was successful, and a budget of R3 469 098.40 was approved for the implementation of the Kader Asmal Skills Development Programme for the 2018/19 financial year. The budget was divided into five line items, with wages and training items accounting for most of the budget.

Thirty suitable beneficiaries were recruited from the Kader Asmal Integrated Inter-Departmental Catchment Management Programme's database of previous participants, City job seeker database, and from partner organisations (Figures 80 and 81). Ten beneficiaries were appointed as conservation officers, twelve as quality controllers, and eight as administrative officers. The objective of the programme is to equip the beneficiaries with the necessary skills and experience to become more employable, or to start their own SMME's, after three years of the implementation period.



Figure 80: Kader Asmal Skills Development Programme Participants.



**Figure 81: Kader Asmal Skills Development Programme Participants working in field.**

### **3) City's nature conservation WIL students and interns**

BMB assisted the Cape Peninsula University of Technology (CPUT) advisory board committee to plan the way forward for the WIL Student Programme and new curriculum. The BMB WIL Student programme continues to be of a high standard. This year's results of the CPUT nature conservation students (WIL students) were average, but one of the City's students was awarded the best Research Project prize from CPUT. In 2018, BMB had 11 WIL students (8 from CPUT and 3 from Centurion Academy). The WIL students attended a skills development programme to assist them with various skills, including curriculum vitae writing and interview techniques. The current WIL student recruitment process has become very cumbersome, which has resulted in BMB now being allocated the last interview slot, whereas previously BMB had always had the first slot, and had therefore been able to attract the top students. In 2019, only 9 WIL students were appointed. This is decrease needs to be addressed, as the BMB has funding for 15 students. Two horticultural students were appointed, and they will be placed at the Westlake Conservation Centre for the period July 2019 to December 2019.

#### **a) Report of the 2018 CPUT students (Figure 82)**

Eight students submitted reports, of whom seven passed comfortably, and one failed. The average combined mark for the eight students is 59%, the same as the overall mark for all 36 submissions. The students of the City were thus on par with the other organisations. Considering that BMB interviewed last, and hence had fewer options to choose from, the mentors can be commended for their efforts as they managed to maintain a standard similar to the other organisations that could select students from a larger pool.

One of the students, Alfred Wilson, was the third best overall student with a final mark above 71%. He also received the best Research Project prize. Alfred and Fayruz Prins also did very well in the Resource Management module where they both scored above 70%. Jamy Fredericks submitted the 3rd best Compliance report and also received a prize for the best write-ups of various Compliance components. Alfred and Fayruz also achieved above 70% for the Compliance Report module.





**Figure 82: CPUT Nature Conservation Students of 2018, with their mentors.**

b) Report of the 2018 Centurion Academy students

These three students received hands-on and diverse experience, specialised in the urban biodiversity public sector, and gained valuable knowledge from site supervisors well geared towards facilitating the needs of WIL students. Two of these students possess specific character attributes which make them a good fit for future employment within an organisation such as City.

Nicole Hart and Jessica Bastiaan did well, but the third student didn't submit any projects and will have to redo his year in order to pass and be awarded his diploma.

**4) CTEET learnerships and interns**

The largest skills development programme on the Nature Reserves is in partnership with CTEET. All in all, 35 youth (learners and interns) were based on the City's reserves over the course of 2018/19 (Table 20).

**Table 20: Skills development programme in partnership with the City.**

Name	Programme	Number	Length of Time	Nature Reserve	Comment: Qualified and/ job
NQF 2 Nature Conservation: Resource Guardianship	Learnership	25	1 July 2018 – 30 June 2019 (12 months)	False Bay NR Zandvlei NR Wolfgat NR Gantouw Project (Rondevlei Section of False Bay NR) Helderberg NR Edith Stephens NR Zandvlei Estuary NR Witsands Aquifer NR Table Bay NR	20 got qualification  5 terminated from programme
Nature Conservation	Internship	10	1 July 2018 – 30 June 2019 (12 months)	False Bay NR Zandvlei Estuary NR Wolfgat NR Zandvlei Estuary NR CTEET	8 completed the programme  2 terminated (employment elsewhere)

## 10. Security and Law Enforcement

### 10.1 General Security

Security, visitor and staff safety is the biggest cost for the Branch, and was over R21 M for the 2018/2019 financial year. The security budget is spent on:

#### **Regular security/Security guards:**

Static security guards, as per Safety and Security Tender, were stationed at some reserve entrances (Blaauwberg, Bracken, Helderberg and Steenbras Nature Reserves). These guards have a static access control function for securing a facility.

#### **Rangers (see 9.2):**

The Rangers, as per BMB's Visitor and Staff Safety Tender, undertake patrols along fences, assist with environmental crime and visitor safety, as well as first response to emergencies including all types of crime, fire and oil spills. A response team in the highest crime areas is a key intervention that has assisted with reserve management.

#### **Cash collection:**

Reserves with paying entrances, namely Blaauwberg, Helderberg, Table Bay, Tygerberg and Witzands Aquifer Nature Reserves, use cash collection services.

As per previous years, the security situation on the City Protected Areas remains a concern. All reserves experienced break-ins, vandalism or theft of infrastructure during the year. Again, the public toilet facilities on the eastern shore of Zeekoevlei were a target for vandalism and theft.



**Figure 83: Clearing areas after land invasion structures have been removed.**

There was also an increase in vagrancy, reflecting pressure from the increasing human population of the Cape Flats. Isolated incidents of illegal land invasions continued across the reserves (Figure 83).

Additional patrols had to continue along certain reserve boundaries, which resulted in overtime and additional security costs.

Foot and vehicle patrols are conducted on a daily basis in all City Protected Areas, especially along the fences (Figure 84). Incidents of illegal dumping, illegal overnight structures, hunting with snares, graffiti, and damaged fences are observed and reported. During these patrols, various other sightings are also recorded, including animal tracks and wildlife sightings.

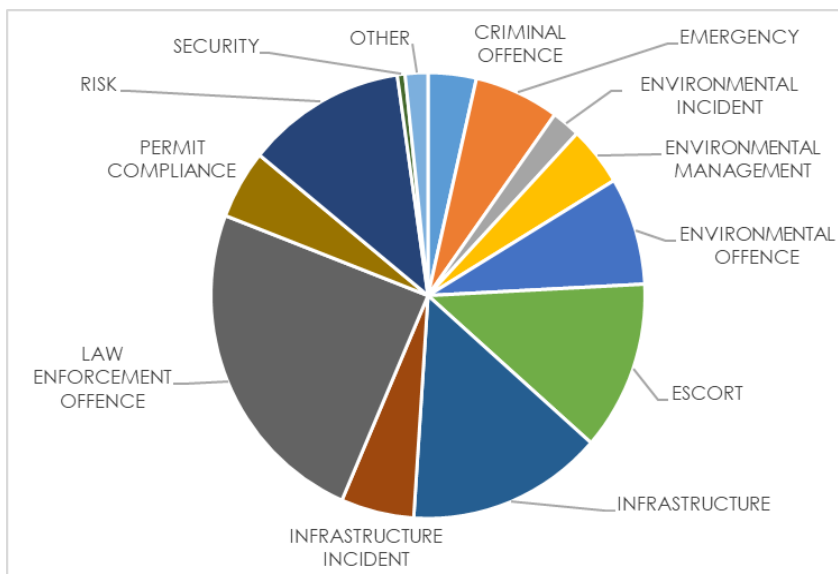


**Figure 84: Foot and vehicle patrols are conducted on a daily basis in Blaauwberg Nature Reserve.**

The Montispectus Overnight Accommodation and the WWII Generator Room at the Hill Section in Blaauwberg Nature Reserve were burgled on 28 August 2018, with significant damage and loss of infrastructure (including gates, doors, windows, burglar bars) and services (including water mains, liquid petroleum gas supply, photovoltaic power supply, and alarm system). The burglary was reported to Table View SAPS (CAS 603/8/2018). The total cost of repairs and replacement of stolen and damaged goods amounted to approximately R142 000. The overnight accommodation was closed to the public (since it was unsuitable for use) until the end of June 2019. Four accommodation contracts with customers, to the total value of R9 136, had to be cancelled, and the customers refunded using the SAP booking system. The accommodation was set to re-open on 1 July 2019. Additional security will be necessary to ensure that the accommodation can remain open, and to ensure visitor safety.

## 10.2 Visitor and Staff Safety Tender

Quemic Africa deploys Rangers for the provision of visitor and staff safety management within the City Nature Reserves and open spaces. Quemic Africa also deploys a Regional Integrity Team in area South, area North and area Central, where Rangers are deployed on a 24/7 basis, consisting of Senior Rangers and a 4x4 vehicle. The Rangers are the first line of response to fires, escorting staff, environmental management, environmental incidents (e.g. snake call outs), medical emergencies, water emergencies, water rescues, crime and related offences, anti-poaching, environmental emergencies, reporting, and providing assistance during the execution of special law enforcement operations with South African Police Services and the City's Metro Police and Law Enforcement Units (Figure 85).



**Figure 85: Quemic Africa incident statistics: July 2018 – June 2019.**



Quemic Africa has a control room, manned on a 24/7 basis. This is the heart of the Quemic operation and also serves as the emergency contact centre for members of the public. Operations and emergency call-outs for the applicable City Nature Reserves are planned and executed from the Quemic control room.

In the last financial year, Quemic Africa rendered a service to the following City Nature Reserves and offices:

- Control Room
- Diep River, Table Bay NR
- Durbanville NR (seasonal)
- Edith Stephens NR
- False Bay NR
- Harmony Flats NR
- Integrity Blaauwberg NR
- Integrity Head Office (drone)
- Integrity Table Bay NR
- Integrity Team Central
- Integrity Team South
- Milnerton, Table Bay NR
- Simons Town – penguin colony
- Southern Bridge – False Bay Nature Reserve
- Symphony Way CA
- Tygerberg NR
- Vesuvius Way CA
- Westlake Conservation Centre
- Witzands Aquifer NR
- Wolfgat NR
- Zandvlei Estuary NR

City Recreation and Parks is also making use of our tender, and Quemic rangers have been deployed at the following public open spaces in the last financial year:

- Majic Forest
- Princess vlei
- Maynardville park
- Wynberg park
- Muizenberg swimming pool and beach



## 11. Staff Matters

### 11.1 Realignment

The BMB realignment process, which was initiated in 2012 and abandoned when the ODTP processes took over, is being re-looked. The most important elements that need addressing are management of the people and conservation programmes, wildlife conflict programmes, baboon programme, and conservation services. The legal requirements of the Nature Reserves being proclaimed as Protected Areas under the Protected Areas Act also need to be addressed.

However, in the interim, various operational relocations took place. Penelope Glanville's trial period within the Conservation Services Unit ended in August and she was happy to be moved permanently to that unit, with the unit being happy to keep her. The mapping process has been initiated and it should be finalised in the next quarter. She will be working within the unit servicing the Branch as the Senior Professional Officer: Knowledge Management. The area managers for Central were then assigned new areas of responsibility. Tshepo Mamabolo became the area manager for Tygerberg, and Vibeke Maass the area manager for the Durbanville and Bracken areas. The implementation of these changes has proved successful, and both of them are taking on their new areas with enthusiasm.

Charline Mc Kie moved from Witzands Aquifer Nature Reserve to Table Bay Nature Reserve; Koos Retief moved from Table Bay Nature Reserve to Blaauwberg Nature Reserve; and Jacques Küyler moved from Blaauwberg Nature Reserve to Witzands Aquifer Nature Reserve. This was effective from 1 June 2019 and excellent feedback regarding this decision was welcomed by senior staff within the Branch.



Figure 86: Tshepo Mamabolo (front) with staff after she moved to Tygerberg area.

## 11.2 Retirements and Appointments

### 1) Retirements and Resignations

Five staff left the BMB in the last financial year, most notably:

- Dr Patricia Holmes retired at the end of July 2018 after many great years of service to the City. Pat is wished well in the next exciting phase of her life! Pat was instrumental in developing the Biodiversity Network and ensuring it was mainstreamed into the City.

### 2) Appointments

From July 2018 to June 2019, 19 out of 25 vacancies in the BMB were filled with 14 individuals from the EPWP and the skills development programmes, and five were promoted from permanent BMB staff component but were from previous EPWP/skills development staff. Thirteen new posts were created to manage the Metro SE new conservation areas, Symphony Way (Figure 87) and Vesuvius Way (Figure 88).



Figure 87: Site visit in autumn to Symphony Way West Conservation Area. From left: Dr Charmaine Oxtoby (Biophysical Specialist), Luzanne Isaacs (Area Manager), Simonne Afonso (Site Supervisor – newly created post) and Sean Bradshaw (ACSA).



Figure 88: Vesuvius Way Conservation Area with Site Supervisor, Devin Heuvel (newly created post). Good progress has been made clearing invasive alien Port Jackson (*Acacia saligna*) and Rooikrans (*Acacia cyclops*).



## 11.3 Staff Training

Overall, there were 73 training interventions, attended by 251 staff, resulting in 1 107 person days (Table 21 and Figure 89). There has been a slight decrease in the training interventions attended this financial year (73) when compared to the previous reporting period (75). However, there was much higher attendance and consequently a higher number of person days during this period. The driver training tender was finalised last financial year and the heavy vehicle driver training was prioritised. The driver training tender was only awarded in the third quarter. Truck mounted training has been provided to four team members and this will provide additional capacity to the BMB to operate the two truck mounted crane tipper trucks. A self-defense course was presented and well received. Finally, nine staff members successfully completed their NQF4 Environmental Management National Certificate (Figure 90). The small plant training tender was awarded and very positive feedback was received from the attendees. The fire training and seminar yielded many positive comments. During September, a new General Administrative Regulation (GAR 6) undertaking was signed making in-house Occupational Health and Safety (OHS) training invalid. This was communicated to the OHS department. The department is battling to find Health and Safety (HAS) reps, and prospective HAS reps may not want to accept this responsibility as they have to attend and pass an accredited course.

**Table 21: Training summary for permanent staff.**

Training	2014 – 2015	2015 – 2016	2016 – 2017	2018 – 2019
Number of courses	72	82	75	73
Number of staff that attended	126	143	123	251
Number of person days	1 760	1 188	620	1 107



**Figure 89: Staff during Biodiversity Month training at Edith Stephens Nature Reserve in May 2019.**



Figure 90: Nine staff members successfully completed their NQF4 Environmental Management National Certificate. Alderman Nieuwoudt presented the awards to the successful candidates.

## 11.4 Staff Industrial Relations

All Industrial Relations (IR) matters were dealt with timeously, and reported on via the formal SAP process. Please refer to Table 22 for the details of the various disciplinary matters that were attended to during last financial year. There was a marked decrease in the disciplinary actions (9) during this period when compared to the previous reporting period (15).

Table 22: Staff Industrial Relations summary.

Disciplinary Statistics				
	2014 – 2015	2015 – 2016	2016 – 2017	2018 – 2019
<b>Non-Financial</b>	7	7	2	1
<b>Informal hearing</b>	0	2	4	1
<b>Counselling</b>	0	5	7	4
<b>Appeals</b>	0	1	0	0
<b>Grievance</b>	2	3	2	3
<b>TOTAL</b>	<b>9</b>	<b>18</b>	<b>15</b>	<b>9</b>



## 11.5 Staff Health and Safety

There are five Health and Safety (HAS) committees, one for each region and one for the Westlake Conservation Centre which includes the ISU. The chairpersons and committees have been appointed in writing. The HAS representatives have also been appointed and have completed their official training. The various committees meet quarterly. Hazard Identification and Risk Assessment (HIRA) inspections were conducted at the various reserves during the period under review, and a high compliance with the Occupational Health and Safety Act was noted.

Fitness assessments were successfully conducted during this period. The assistance of City Fire and Rescue Services is critical during these tests, and contributes to their success. This function will be included in the new MOU with them. These fitness assessments will become a prerequisite for working on the fire line.

There has been a marked increase in the reported Injury On Duty (IOD) injuries for the period under review (Table 23). This was largely due to an increase in IOD incidents by direct EPWP workers (previous years only indirect EPWP workers were employed and BMB was not responsible for their IODs). This was addressed by the Health and Safety representative in February at the Branch meeting. The tool box talk provided line managers with insights to manage safety better, and there was a decrease in the IOD cases thereafter.

**Table 23: Health and Safety statistics**

	2014 – 2015	2015 – 2016	2016 – 2017	2018 – 2019
<b>Incapacity</b>	6	7	11	5
<b>IOD</b>	17	14	13	22

## 11.6 BMB Performance Recognition and Team-Building Day

The BMB has over 200 permanent staff members in 17 offices across the City. Many of these offices have little communication as telephone lines are often down and emails can be intermittent. Communication is a challenge, and staff, especially field staff, hardly ever get to interact with fellow colleagues. In order to facilitate interaction, the BMB has, since 2007, arranged a staff performance recognition and team-building day every year in November. This has been very successful and bolstered staff morale. The friendly competition between reserves also improves productivity. Each year, various awards are handed out and this has become a motivator for staff through the year and a highlight of the day.

Last year's event was held on 2 November 2018 at Eerstesteent, Blaauwberg Nature Reserve. The event was attended by Mr Osman Asmal. The recipients of the awards are chosen by the branch manager in consultation with the senior managers, and awards are made on the basis of outstanding annual performance, the annual reserve visits, and a nomination process open to all BMB staff. Certificates were signed off by the Mayor.

### **Outstanding staff members branch-wide:**

Before the awards, special mention was made of the Admin Team; Bongani Mnisi for his amazing ability to ensure that all staff have uniform, running and sourcing funds; and Erika Foot and Carllene Marks for consolidation of security budget as well as sourcing additional funds.

## **Biodiversity Find of the year**

### **Flora**

*Marasmodes fasciculata* (CR) – Abraham Saaiman

### **Fauna**

Cape Ghost Frog (*Heleophryne purcelli*) – Cliff Dorse

## **Best Teams**

### **Hayley Wittridge and Elana Kellerman, Steenbras Nature Reserve**

*For monitoring boreholes and trying to ensure that the engineers do the right thing! This is not an easy task and has been a high conflict situation. I believe your continued presence is making a difference. This is also with your high work load.*

### **Mark Arendse, Eddie Moses and Berenice Naidoo, Zandvlei Estuary Nature Reserve**

*For running the reserve for one year without a manager. Thank you for stepping in; assisting and keeping the show on the road.*

## **Outstanding Staff**

### **Kyle October (Reserve Supervisor, DCCP)**

*Kyle is nominated for doing an excellent job in the Klein Dassenberg section of the DCCP. He has done great work with restoring; clearing aliens and working with the local community. Members in the branch also singled Kyle out for his dependability, hardworking nature, enthusiasm, passion and willingness to help. Kyle is always available to go to fires, even on other reserves over weekends. He has also created successful and fruitful relationships with other line departments which make it easier for him to achieve his objectives.*

### **Mario Sylvester (Senior Clerk, Steenbras Nature Reserve)**

*Mario came to the branch as an alternative placement. In a very short space of time he has mastered the daily administration requirements for the reserve, assisting with multiple SAP related functions including staff time, reservations, notifications, as well as filing and answering of telephones, all tasks that were not in his previous job description. Most importantly he has taken full responsibility of the permit booking system for the gorge and more recently has been instrumental in getting the new booking programme up and functional for this area. He deserves recognition for his hard work and enthusiasm in integrating himself into the biodiversity team.*

### **Daniel Kandan (Field Ranger, Helderberg Nature Reserve)**

*He is always friendly and helpful and will go the extra mile to assist. He is particularly dedicated to his work and will use his initiative when there is an issue on the reserve, not waiting for management to sort out the problem first. Not only is he a hard worker but he also takes time to enjoy his place of work. You will often see him in the reserve with his family or just completing some routine exercise in nature. Seeing a staff member work hard and then take time to enjoy their place of work is fantastic. Daniel deserves recognition for his time, dedication and passion towards his reserve.*

### **Grant (Garnet) Revell (Field Ranger, False Bay Nature Reserve)**

*Standard five level of education but he has proved to be such an asset to the team. He ensures that the venue at False Bay is booked out Friday to Sunday (bookings already in for the whole of 2019) and makes sure that the client is satisfied with the level of service that we provide. He takes clients through the whole procedure before the booking is made and arranges alternatives where possible. He gets over 120 whatsapp messages a day and deals with all the enquiries professionally at his own expense often going beyond to make the client feel special. The hall has gained popularity only because of what he brings to the table.*

**Dale Slabbert (Visitor Controller, Blaauwberg Nature Reserve)**

Dale is a visitor controller but has enthusiastically taken on many more tasks such as assisting Friends and hack groups and many of the reserve tasks. She has also taken a special interest in the Blaauwberg Nature Reserve Cape Flats Sand Fynbos Restoration Project. She has undertaken surveys, collected seed, planted, and assisted the University of Stellenbosch. This project is critical for the branch and has already changed the way we do many things. The branch would like to thank you and recognise you for your hard work and passion.

**Gavin Oliver (Senior Field Ranger, Blaauwberg Nature Reserve)**

Gavin has been with the branch for many years, starting first as a contract worker at Zandvlei Estuary Nature Reserve and then moving to Blaauwberg Nature Reserve as part of the CEPF project under Cliff Dorse. Gavin is an exceptionally hard worker and is always willing to assist wherever he can. He has become one of our very skilled field staff and needs to be recognised for the many years that he has put into Blaauwberg Nature Reserve. Gavin is a great mentor, showing numerous students and interns how to do numerous operational tasks from fencing, to installing boom gates.

**Nolwethu Fadana (Worker, Tygerberg Nature Reserve)**

Nolwethu Fadana started her career in conservation as an EPWP worker at Table Bay Nature Reserve and Blaauwberg Nature Reserve. In 2016, Nolwethu Fadana was one of two successful candidates for the permanent worker post at Tygerberg Nature Reserve. In the beginning it was challenging for her and the staff to communicate effectively as English and Afrikaans were her second languages, however she has a unique ability of interpreting exactly what tasks are given to her by the staff and completing those tasks. She has become an invaluable member to the TNR team whereby each staff member at least once a day will say, "Where's Nolwethu?" whenever they need assistance in and around the office. The branch would like to thank Nolwethu for all her hard work as well as the helpful atmosphere she creates at the office. "Nolwethu siyaziqhenya siyayibulela umsebenzi owenzayo apa eTNR and siyaziqhenya ngawe."

**Myrna Scholtz (Visitor Control Officer)**

Myrna Scholtz is the first person and the last person you will see when entering and leaving Tygerberg Nature Reserve. She has become the face and voice of Tygerberg Nature Reserve to visitors, staff and volunteers. Myrna has not just succeeded in her duties as a visitor control officer but has committed herself to assisting in whatever operations are required by the TNR management team. Myrna conducts herself very professionally but does also listen and provide guidance to staff when they are going through difficult times. She has cemented herself as a crucial member of the TNR team so at times it's challenging for management to allow Myrna to take her leave as she fulfils so many additional tasks.

**Zikhona Sokudela (Project Manager, Invasive Species Unit)**

Her peers describe her as a being very supportive, hands-on person who drives and encourage them to achieve more. She is always willing to take up additional tasks, has become a master in multitasking and problem solving. Her willingness to take on additional funding has led to the ISU overachieving on hectares cleared in field and job opportunities created. She has also coordinated the Working for Water special projects, Housing, Property Management work for the City. During the last financial year Property Management viremented their funding to our cost centre for Zikhona to plan and implement work as she sees fit. This is a huge achievement since normally the delay with line departments is the assigning and releasing of funds in their department.

**Masande Falakhe (Field Ranger, Haasendal)**

Masande has supported his line manager David Morris, going beyond what is required to make sure the team is ready, prepared and motivated to get into the field. He has really stepped forward this year and took a supervisory role with EPWP contractors and even permanent staff when they came to assist at

*Haasendal Nature Reserve. David noted: "I could not have achieved half the work we did this financial year without his great attitude and dedication to the reserve."*

**Celeste Bergman (Administration Officer, Head Office)**

*The Biodiversity Management Branch could not function without Celeste. She works hard to ensure that the Manager's office is working, especially following up paperwork. She also keeps us and HR on our toes, assisting with tracking of vacancies. She is always willing to assist and pick up the pieces when she sees things falling apart. An example of this is picking up many of the little bits and pieces for today (after Natanya resigned). I would like to thank her for always being there, even when on sick or annual leave she makes sure that her work is sorted out. She is also the most respectful person as well as ensuring a high level of confidentiality. Finally, I would like to congratulate her for recently obtaining her BCom Human Resources.*



## 12. Administration

### 12.1 Budget

Budgets were spent timeously on priority items:

- Operational budget – 95.10% spent (non-controllable staff budget was underspent).
- Capital budget – 89.21% spent (all funds not spent had been committed and plan to be rolled-over to 2019/2020); all these funds were spent on priority projects (additional R5.3 M Capex budget obtained for conservation land acquisition and additional R750 000 land acquisition obtained but remained on Housing budget – funds were spent).
- Ward projects – 98.40% spent.
- Revenue – 111.58% over-collection (through paid gates an income of **R3.5 M** (planned R3.3 M), an increase from the previous year's R1.91 M).
- Kader Asmal EPWP – 101.44% spent. In total R33.78 M was allocated and spent on priority projects (EPWP grant, ward allocation and other line departments. R5 M was allocated at the end of May and was successfully spent by the end of June 2019).

#### Additional funds obtained:

##### a) Internal

##### Operational:

- R3.2 M was allocated in May 2018 for inclusion in BMB operational budget from 2018/2019 to manage Metro SE CIP sites, Vesuvius Way (8 posts) and operational funds.
- R6.7 M (operational budget of which R1.8 M was allocated to Metro SE) was allocated in the January 2019 adjustment as a once-off for 2018/2019. Additional once-off budget was also viremented for general expenses, especially materials and uniform.
- R8.1 M operational budget was allocated in May 2019 as a once-off for 2019/2020 financial year.

##### Capital:

- R5.3 M allocated in the January 2019 adjustment budget to Land Acquisition for 2018/2019.
- R750 000 was allocated from housing budget to buy conservation land as an offset (funds remained on Housing's budget).
- R3.3 M was allocated in the January 2019 adjustment budget to vehicles for 2018/2019.
- R6 M (for 2019/2020) and R5 M (2020/2021) was allocated in May 2019 for Land Acquisition and for the Zandvlei Weedharvester respectively.

##### b) External

- In the last year, the City signed an MOU for R50 M over 3 years with the National Resources Management Programme (NRM; a programme which includes Working for Water) and Working for Wetlands. Only a proportion of the management fee was spent on procuring vehicles. As the first tranche of 33% only arrived at the end of June, in consultation with finance it was decided not to spend any additional funds.
- R3.9 M of other departments' budgets in addition to ward allocation was made available to spend on invasive clearing by the ISU (100% spent).
- R202 000 obtained from Table Mountain Fund (TMF), WWF-SA and LandCare for invasive alien clearing; proclamation and signage. R730 000 (3 year projects) to support stewardship and alien clearing.
- Cape Town Water Fund clearing invasive aliens in the DCCP.

## 12.2 Fleet and Assets

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### 1) Fleet

BMB received six replacement vehicles that were identified by Fleet. The BMB received additional funds in the adjustment budget in January 2019. All in all, 17 new vehicles were procured (Figure 91).

BMB also assisted the Coastal Management Branch and District Environment and Heritage Branch in procuring a vehicle for each of them.



**Figure 91: Durbanville Nature Reserve's new bakkie.**  
The same make and model of bakkie was also given to Tygerberg and Haasendal Nature Reserves.

### 2) Assets

Verification of BMB assets are at 85.48%. The verification process is ongoing. The verification is still low as a result of capacity of the asset verification staff, which is still shared with the old TDA departments. Hopefully, this will be resolved, once the support staff in the Spatial Planning and Environment (SPE) directorate are in place.

### 3) Heritage Assets

Many of the City's Protected Areas host significant cultural heritage assets. Many of the protected areas have documented these assets on a case by case basis, and a consolidated report on the Protected Areas' heritage assets is being prepared, in consultation with EMD's District Environmental and Heritage Branch.

Blaauwberg Nature Reserve already has a detailed knowledge of its assets as a result of partnerships with local enthusiasts, and last year submitted a nomination to declare Blaauwberg a Provincial Heritage Site in terms of section 27 of the National Heritage Resources Act (Act 25 of 1999) (see information in Figure 92 below).



Figure 92: Textbox summarising the nomination to declare Blaauwberg a Provincial Heritage Site.

## 12.3 Infrastructure

### 1) Capital Investment

The BMB has limited capital funds, so planning into the future is critical. The infrastructure priorities in the branch have shifted slightly and the latest priorities can be seen in Figure 93.

The Witzands Aquifer Multipurpose Centre was launched in August 2018 (Figure 94). This centre will provide a gateway to the dunes, facilitating access, providing a place for environmental education and a venue for community functions. The Wolfgat Environmental Education Centre Phase 1 has been completed and BMB is fixing final snags. Telecommunications and City Intranet have been an issue, and are still not resolved. Funds will have to be sourced for Phase 2. Helderberg Environmental Education Centre consultants were appointed for the detailed design and drawing up of the construction tender. The tender for construction will be advertised in 2019/2020. Construction is planned for March 2020. Design to complete the building at Harmony Flats finally was initiated. The initial designs were also started for Bracken Nature Reserve Multipurpose Centre.

Upgrading work to the offices, mess room and sewage system at Westlake Conservation Centre continue. Capital funds for fencing were sourced and fencing was completed at Rondevlei, False Bay Nature Reserve (Figure 95), as well as Symphony Way and Vesuvius Way Conservation Areas. Fencing



at Wolfgat Nature Reserve and Morkel's Cottage had to be rolled over, as the contractor could not complete the work as promised.

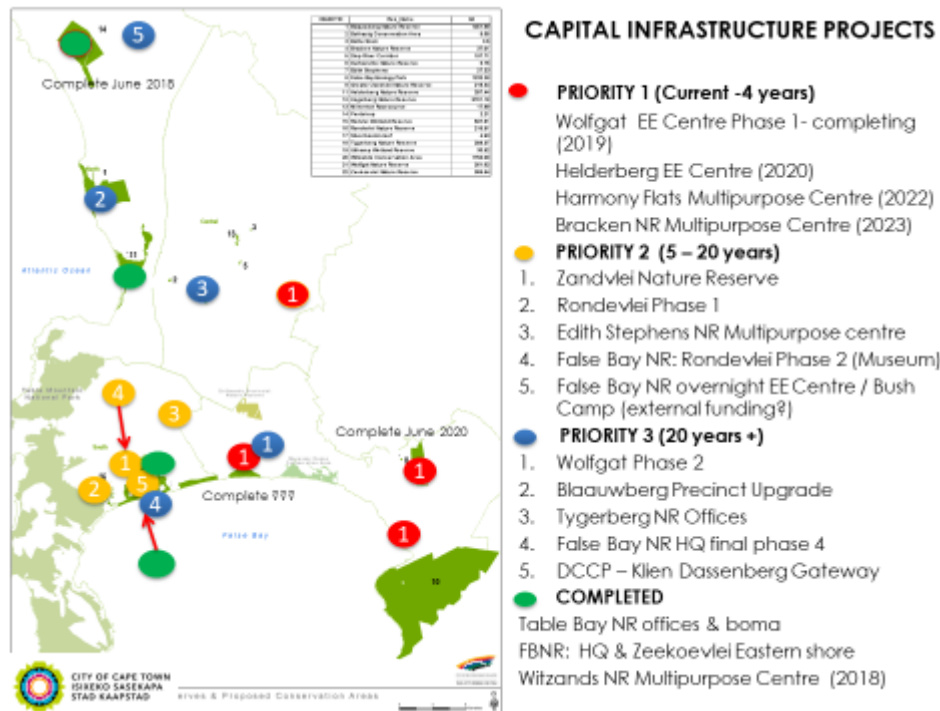


Figure 93: Capital infrastructure (centres and offices) priorities for the BMB.

## GREEN NEWS



**Green custodians:** City staff from Environmental Management pictured at the opening of the new Witzands Aquifer Nature Reserve multipurpose centre in August (pictured below). Front, from left: Sanelisi Nobebe, Thenjiwe Mpeha, Julia Wood, Bongani Mnsi, Sihle Jonas and Ferika Yamile. Second row: Nathlin Theys, Simonne Afonso, Ashton Mouton and Kyle October. Third row (standing): Luzann Isaacs, Luyolo Ntoyaphi, Jolene Saal, Retabile Mavundla, Shihabuddeen Khan (crouching) and Hester Pentz (crouching). Fourth row: Tshapo Mamabolo, Esmay Josephs, Celeste Bergman, Rolivhuwa Murovhi, Trevor Rieb, Pamela Mrebe, Lisa Stapley, Thozama Notshati and Erika Foot. Fifth row: Mashudu Phlandwana, Jerome September, Lethabo Rikhotso, Alfred Wilson, Mogamat Samsodien, Lewine Walters, Abigail Morkel, Qalile Lisa, Lungiswa Mangcola, Thembinkosi Mafuya, Carlene Marks, Clinton Roux, Sonwabile Shilinga, Tamaryn Khan and Linda Flente. Sixth row: Asieff Khan, Koos Retief, Nestus Neethling, Jacques van der Merwe, Jacques Kuyler, Andre Rossouw, Lamla Sigenu, Leigha Mossop, Andre Williams, Chandre Rhoda, Cedric Riddle, Debra Michaels, Gavin Olivier, Nigel Maart, Sakhile Luhani, Jerry Khalo, Hendrik Kraak, Clifford Dorse, Penelope Glanville, Kyran Wright and Monwabisi Varoyi.

# The natural wonder that is Witzands reserve

The new Witzands Aquifer Nature Reserve multipurpose centre offers environmental education and excellent function venues. It will soon also be able to issue permits for activities in the reserve, which is a popular filming location, among others.

Environmental Management's new multipurpose centre at Witzands Aquifer Nature Reserve was officially opened in August. The City invested R20 million in this facility, which will serve as a gateway to the very popular Atlantis dunes. The goal is to expose the community to environmental education while managing access to activities on the dunes.

The Atlantis dunes are a major attraction for a range of activities such as off-roading, sandboarding as well as filming by production companies, all of which require permits.

Currently, these permits are only available from the Atlantis municipal cash office in Westfleur. The new multipurpose centre will eventu-

ally enable the City to issue permits from the reserve, which will make the dunes more accessible to the community and will hopefully also attract more people to the reserve.

The centre boasts a hall and boardroom that are available for function hire, and bookings are already filling up. An online booking system is also on the cards.

As the City wants to create more opportunities for environmental education, tariffs will be waived if the facilities are rented for nature conservation activities.

Witzands Aquifer Nature Reserve is situated near Atlantis, on the West Coast road (R27). The 1 700 ha reserve protects not only the Atlantis aquifer, which serves as the main water supply

for the towns of Atlantis, Mamre and Pella, but also the rich biodiversity and cultural heritage of the area.

This includes an array of plant species, a number of mammals and abundant birdlife. An outstanding feature of the reserve is its non-vegetated mobile dune fields, which appeal to visitors and locals alike.

The reserve's natural beauty and unique features offer multiple environmental education opportunities, making it an ideal venue for both learners and educators for a unique outdoor classroom experience.

For more information on the reserve, dial 021 444 7687 or e-mail [witzandsnature.reserve@capetown.gov.za](mailto:witzandsnature.reserve@capetown.gov.za).



**A splendid venue:** The new R20 million multipurpose centre at Witzands Aquifer Nature Reserve has a hall and boardroom that are available for function hire, at no charge if used for nature conservation activities.

Figure 94: Contact article on the launch of the Witzands Multipurpose Centre, which took place in August 2018.





Figure 95: Installation of the wall at Rondevlei section of False Bay Nature Reserve. It is hoped that the wall will not be stolen as often as the existing concrete palisade has been.

## 2) Maintenance of Infrastructure

### a) Repair of public slipway at the Sea Scouts Base

The slipway jetty at the Sea Scouts Base was repaired by Zandvlei Estuary Nature Reserve staff on 16 April 2019 (Figure 96). The slipway had degraded over time and suffered from potholes underwater, which hampered users' ability to launch their vessels. A coffer dam was erected around the slipway and water pumped out while staff patched up the damaged sections. The cement took and the slipway is once again being used by the scouts and other members of the public.



Figure 96: Repairing the public slipway at the Sea Scout Base in Zandvlei Estuary Nature Reserve.

b) Replacement of the gate at Kristo Pienaar Centre, Tygerberg Nature Reserve

The old farm gate at the Kristo Pienaar garden entrance was removed and replaced with a more aesthetically appealing gate to enhance the reserve entrance to the Kristo Pienaar Centre. The gate upgrade was funded by the Rotary Club (Figure 97).



**Figure 97: New gate at Kristo Pienaar Centre, Tygerberg Nature Reserve.**

c) Upgrading of existing signs.

The Porcupine Trail wooden sign in Uitkamp Wetland Nature Reserve was repainted and varnished (Figure 98).



**Figure 98: Trail sign in Uitkamp Wetland Nature Reserve, before (left) and after upgrade.**

## 12.4 Contract Management

The Uniform tender 307G/2016/2017 expires at the end of June 2020. In the last financial year, the service providers struggled to deliver items. Ongoing discussions with SCM were undertaken to rectify this.

The Baboon tender (229S/2016/17) was awarded in June 2017 for three years (2017/18 to 2019/20) to Human Wildlife Solutions. The current tender expires in June 2020.

The Control of Terrestrial and Aquatic Invasive Plants and Removal and Disposal of Biomass and Litter from Sites (16S/2017/18) was awarded in January 2018. This tender, with other City line departments, is critical to the success of the invasive plant control in the City. This tender expires in June 2020.

Other invasive species tenders awarded were:

- Control and/or extirpation of invasive animal species in the City of Cape Town (259S/2017/18 – July 2018 to June 2021)
- Control and/or extirpation of target and emerging invasive plant species in the City of Cape Town (051S/2018/19 – March 2019 to June 2021)
- Control and removal of House Crows, European Paper Wasps, and German Wasps in the City of Cape Town (154S/2018/19 – May 2019 to June 2021).

The Staff and Visitor Safety tender (212S/2017/18 – July 2018 to June 2021) was finalised and awarded in July 2018.

The Helderberg Nature Reserve Multipurpose Centre Development tender: the consultants' construction tender was awarded in October 2018 and runs until October 2021.



BMB continued to ensure that the Tender Tracking updates and Project Portfolio Management (PPM) progress comments were captured and reported on time.

## 12.5 Reporting

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The Nature Reserves' quarterly reports are presented at the relevant quarterly Protected Area Advisory Committee (PAAC) meetings. The branch statistics are also presented, which include statistics on: fires, EPWP job creation, environmental education, exhibitions and events, visitor numbers, service-in-kind (volunteers and sponsored programmes), skills development, invasive species area cleared, plant species collected, plant species propagated, game register, work load assessments, and security incidences.

Successful senior management meetings were held (every month apart from September and November 2018; and January 2019), as well as branch meetings (four per year). Branch meetings focus on information sharing and are an important place for staff to connect. In early 2019, at the request of staff, the format was changed to two general meetings and two for mid to senior managers where items of management and staff issues can be discussed. The first mid to senior management meeting was held on the 23 May 2019 with mid management staff running an interactive workshop.

## 13. Conclusion

BMB has done well in the last year, consolidating gains made for conservation, especially in a year of uncertainty and realignment when the Transport Development Authority (TDA) was changed and BMB was moved into the new Spatial Planning and Environment (SPE) Directorate. This new directorate is now led by Osman Asmal in his new position of Executive Director SPE, a positive direction for both EMD and BMB. Osman Asmal led EMD for over 14 years, and is a strong supporter of the environment and the BMB.

In the coming year the following projects and priorities include:

- 1) Approval of updated LBSAP.
- 2) Ongoing implementation of Bioregional Plan and LBSAP.
- 3) Continue capital projects:
  - Completion of Harmony Flats building;
  - Construction of Helderberg Nature Reserve environmental education centre; and
  - Bracken Nature Reserve multipurpose centre and office building.
- 4) Strategic Water Source Catchment Areas and New Water Programme – ongoing alien invasive species clearing and restoration.
- 5) Update of Metro SE Strandveld Conservation Implementation Plan (CIP) and approval with budget.
- 6) Complete the METT-SA03 for reserves as required by DEFF and submit by the end of February 2020.
- 7) Continue with the update of management plans for existing protected areas.
- 8) Initiate business management planning for key reserves.
- 9) Proclamation of land adjacent to existing nature reserves and additional areas. These areas are currently reserved and managed by the BMB.





Convention on  
Biological Diversity



environmental affairs  
Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



water & sanitation  
Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA



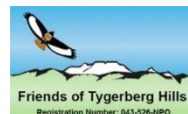
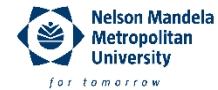
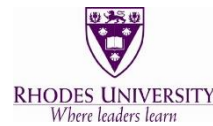
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