

# Environment Quarterly

Kwartaalike Omgewingsverslag • Tikologo ka Kotara • Mupo nga Kotara

## **Climate Change:**

**The poorer ‘can’t  
keep up’ with impacts**

**DFFE concludes Fishing  
Rights Allocation Process**

**iSimangaliso  
Investment Summit**



forestry, fisheries  
& the environment

Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA



**STAY  
SAFE**

PROTECT SOUTH AFRICA

TOGETHER WE CAN BEAT THE CORONAVIRUS

# 2022 environment CALENDAR



## JANUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

## FEBRUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

## MARCH

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

## APRIL

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

02 February  
03 March  
21 March  
23 March  
22 April

**World Wetlands Day**  
**World Wildlife Day**  
**International Day of Forests**  
**World Meteorological Day**  
**Earth Day**

## MAY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

## JUNE

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

## JULY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

## AUGUST

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

14 May  
22 May  
05 June  
08 June

**World Migratory Bird Day**  
**International Day for Biological Diversity**  
**World Environment Day**  
**World Oceans Day**

17 June  
18 July  
31 July  
September

**Desertification and Drought Day**  
**Nelson Mandela Day**  
**World Ranger Day**  
**National Arbor Month**

## SEPTEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

## OCTOBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

## NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

## DECEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

16 September  
19 September  
07 -11 September  
21 November

**International Day for the Preservation of the Ozone Layer**  
**International Coastal Clean-up Day**  
**South African National Parks Week**  
**World Fisheries Day**

# Content

ARTICLES IN ENVIRONMENT QUARTERLY THIS ISSUE : February – March 2022

## Cover story

8 Climate Change: The poorer 'can't keep up' with impacts

## Features

- 3 Poster: World Meteorological Day
- 4 World Meteorological Day: Early warnings save lives
- 5 DFFE concludes Fishing Rights Allocation Process
- 6 Enviro News
- 7 Enviro highlights this quarter
- 9 Poster: Climate Change impacts
- 10 Branch Profile: Forestry Management
- 12 Poster: Wetlands working for you!
- 13 Research: Biodiversity conservation benefits from citizen science
- 14 Marine Biology with Dr Kerry Sink
- 16 Our own GeoSpatial World Rising Star
- 17 Working on Fire graduates will be instrumental in dry season
- 19 Recycling mistakes to avoid
- 20 South Africa's worst invasive plants
- 21 Poster: Aquatic Invasive Species



**About the back cover image** - Valley of desolation, Graaff-Reinet, South Africa

Formed over 100 million years ago by a violent volcanic shift, the Valley of Desolation consists of sheer cliffs and precariously balanced giant dolomite rocks that drop down sharply to the valley floor 120 metres below. Looking down from the rocky peaks, one sees an immense terrain of nothingness, or so it seems, where visitor's whispers echo through the still Karoo air.



To use this QR code conveniently you must have a smartphone equipped with a camera and a QR code reader/scanner application feature.



# From the Editor-in-Chief's Desk



## Dear Valued Stakeholder

Welcome to our last issue of Environment Quarterly for the financial year 2020/2021. Once again, time seems to be quickly passing by and we are looking forward to the beginning of another year of continuous engagements, milestones and celebrations with you.

The last two months have been eventful for the department and a key milestone has been the completion of the 2021/22 Fishing Rights Allocation Process (FRAP) in the nine commercial fishing sectors that were due for reallocation.

Minister Ms Barbara Creecy has now urged all applicants who are dissatisfied with the FRAP process to lodge an appeal online. The dissatisfied applicants can lodge an appeal by completing the prescribed Appeals Form on the website <https://www.frap2021.co.za/>.

In the beginning on March 2022, South Africa welcomed the sixth assessment by Working Group II of the Intergovernmental Panel on Climate Change (IPCC). We also welcomed the adoption of the resolution to “end plastic pollution: towards an international legally binding instrument”. The resolution was adopted by the resumed 5th Session of the UN Environment Assembly (UNEA 5.2) unanimously by all member states with resounding acclamation and standing ovations.

According to Minister Creecy, this represents an important landmark and significant decision to protect the environment and particularly our oceans that are important for food security, addressing climate change, improving the health and promoting sustainable development and poverty eradication.”

In this issue, we also profile the Ten Million Trees Programme which was officially launched in the North-West Province during the commemoration of the 2021 National Arbor Month Campaign.

Read more about the programme on Page 10.

The Minister also announced the four tree species that have been added to the list of Protected Trees in South Africa. The four species added to the list are the Red and Pink Ivory (*Berchemia zeyheri*), the Jackal Berry (*Diospyros mespiliformis*), Manketti (*Schinziophyton rautanenii*) and the Umtiza (*Umtiza listeriana*).

March also saw the celebration of 19 Working on Fire (WoF) members who recently graduated as Type 2 Crew Leaders. The ceremony was officiated by Director General Ms Nomfundo on behalf of the Minister at the Kishugu Training Academy in Mbombela, Mpumalanga. We cover the graduation ceremony on page 17.

In closing, I would like to bid farewell to Portia Chipane: Director Corporate Communications who is leaving the department end of April and played a crucial role in the production of EQ from April 2020. We wish her luck in her future endeavour.

Until next time. Let's all play our role in preserving and taking care of our environment!

**Albi Modise**

**Head of Communications & Advocacy**

## Meet our team

### **Head of Communications and Advocacy**

Albi Modise

### **Editor-in-Chief**

Portia Chipane

### **Editor**

Erica Mathye

### **Editorial Team**

Salome Tsoka

Tshegofatso Nahlovu

Veronica Mahlaba

Zibuse Ndlovu

### **Design & Layout**

Brian Chapole

Sibusisiwe Nxumalo

Titus Tlowana

### **Cover Image**

Adobe Stock

### **Contributors**

Dr Kerry Sink

Gaopalelwe Moroane

Nosipho Nazimbomvu

Saloshnie Govender

Siyabulela Malo

### **Photography**

Alfa Pretorius

Earthtouch News

Greenpeace

Invasive Species South Africa

Paul Venter

Pixabay

SANParks

Thembeke Thwala

Find more information on: [www.environment.gov.za](http://www.environment.gov.za) or call 086 111 2468



WORLD  
METEOROLOGICAL  
ORGANIZATION

WORLD METEOROLOGICAL DAY | 23 MARCH 2022

# Early Warning and Early Action

World Meteorological Organization commemorates the coming into force of the Convention establishing the World Meteorological Organization on 23 March 1950.

The day highlights the importance of the role that people and their behaviours play in protecting the earth's atmosphere.



forestry, fisheries  
& the environment

Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA



# World Meteorological Day: Early warnings save lives

By Tshegofatso Ndhlovu

Image by Pixabay.com

Weather, climate and water extremes are becoming more frequent and intense in many parts of the world as a result of climate change. More people are exposed than ever before to multiple related hazards, which are themselves evolving as a result of population growth, urbanization and environmental degradation.

## What is World Meteorological Day?

- World Meteorological Day takes place every year on 23 March and commemorates the coming into force on 23 March 1950 of the Convention establishing the World Meteorological Organization (WMO).
- WMO's mission is to support the countries of the world in providing meteorological and hydrological services to protect lives and property from natural disasters related to weather, climate and water, to safeguard the environment, and to contribute to sustainable development.
- The day showcases the essential contribution of National Meteorological and Hydrological Services to the safety and wellbeing of society and is celebrated with activities around the world.

This year's theme is: **Early Warning and Early Action**, spotlighting the vital importance of Hydrometeorological and Climate Information for Disaster Risk Reduction. Early action helps communities adapt to climate change and extreme weather conditions.

## What can I do to help in the fight against climate change?

- **Speak Up:** Educating people and making them aware about climate change and its impact on our lives is vital because it will ensure that they take care of the environment.
- **Protect and respect green spaces:** Green spaces don't only provide us with trees for oxygen, but they are also habitat for our animals and plants.

- **Save water:** The treatment of the water that we get in our homes takes up a lot of energy so it is important for us to save water by adjusting the way we use up water.
- **Make your commute green:** Cars are major contributors to air pollution, taking a bus, joining lift clubs or riding a bicycle to work reduces the amount of greenhouse gas emissions by cars.
- **Recycle:** Instead of throwing away all waste, clean up things like plastic bags, bottles and containers to use again in future.
- **Save Electricity:** Saving up electricity saves energy, you can do this by switching off lights in unoccupied rooms and switching off appliances that are not in use.
- **Keep our rivers and beaches clean:** Plastics and waste that goes into the ocean are very bad and harmful to all sea animals, be sure stop littering around these areas.
- **Plant a tree:** Harmful CO<sub>2</sub> gases are major contributors to climate change, trees can help with this as they absorb these gases thus removing them from the air while releasing oxygen.
- **Say No to plastics:** Plastics are bad for the environment, swap out your plastic shopping bags for cotton bags which can be reused as many times. Using paper or metal straws also helps in the fight against plastic pollution.
- **Plant your own vegetable garden:** Not only does this provide better nutrition for you and your family, planting a vegetable garden helps in reducing pesticide and fertilizer use, as these deplete the soil by harming helpful bacteria and fungal networks that distribute nutrients naturally to plant roots.

# DFFE concludes Fishing Rights Allocation Process

By Zibuse Ndlovu



**Above:** The department finalised the allocation of fishing rights in 9 out of the 10 commercial sectors where rights expired at various times during 2015 (excluding abalone, which was not finalised).



**Above:** Kalk Bay Fisher.

The Department of Forestry, Fisheries and the Environment (DFFE) has concluded the 2021/22 Fishing Rights Allocation Process (FRAP) in the nine (9) commercial fishing sectors that were due for re-allocation.

DFFE's Head of Communications and Advocacy, Mr Albi Modise said the goal of the process was to ensure sustainable harvesting of the country's marine resources while also addressing historical inequalities by allowing new entrants. "Fishing industry's transformation is a constitutional and legislative requirement. It balances government's priorities and ensures the global competitiveness of the country's fishing sector," said Mr Modise.

A total of 2 473 applications were received and adjudicated in the following sectors:

- Hake Deep-Sea Trawl
- Hake Longline
- South Coast Rock Lobster
- Small Pelagic (Sardine and Anchovy)
- Kwa-Zulu Natal Crustacean Trawl
- Demersal Shark Longline
- Squid
- Tuna Pole-Line
- Traditional Linefish

"In assessing and allocating the commercial fishing rights, the department evaluated and assessed all applications received. Besides the personal information of each application, the documents assessed also contained information related to their current and previous involvement in the fishing sector, investment in the fishing sector, performance and compliance history, their transformation profile and their contribution to the fishery. This information, amongst others was used in determining who would be granted a commercial fishing right," said Mr Modise.

The successful 2021 FRAP Rights holders are required to commence with the process of applying for their new Catch Permits and ensure that all the Grant of Right Fees

are paid on or before 60 days from the date of receipt of their right.

In 2005/2006, long-term commercial fishing rights were allocated in terms of the MLRA in 22 commercial fisheries sectors for periods ranging from 8, 10 and 15 years. Rights that were allocated for 8 years expired in 8 of the fishing sectors on 31 of December 2013. On 30 December 2013, the Department re-allocated long-term commercial fishing rights in all eight fishing sectors in which rights were expiring and these fishing rights were allocated for a new period of 8 years and were to expire on or before the 31 of December 2020. Rights that were allocated for a period of 10 years expired in 10 of the fishing sectors at various times during 2015.

"These rights were allocated for a period of 15 years and will therefore not form part of the 2020 allocation process. Recently, commercial rights have also expired on the 31 of December 2020 in 4 sectors allocated in 2005 for 15-years and those allocated in 2013 for a 7-year period," said Mr Modise.

Twelve (12) sectors are due for allocation in terms of section 18(6) of the MLRA in 2021 and these sectors are:

1. KZN Prawn Trawl
2. Demersal Shark
3. Tuna-Pole Line
4. Hake Handline
5. Traditional Linefish
6. White Mussels
7. Oysters
8. Squid
9. Small Pelagics (Pilchard and Anchovy)
10. Hake Deepsea Trawl
11. Hake Longline
12. South Coast Rock Lobster

"Three (3) of the 12 sectors listed, are identified to be eligible as small-scale species and consultation is underway to declassify them. The Department will also be finalising the allocations of rights in the Abalone sector which could not be concluded in 2015," said Mr Modise.



# ENVIRO NEWS

By Erica Mathye

Images by Earthtouch News and Greenpeace



## On a low carbon future

United Nations Secretary General Antonio Guterres has described the climate emergency as the defining issue of our time, arguing that the shocks resulting from climate change not only damage the environment on which we depend, they also weaken our political, economic and social systems.

Unless we join the technological transition taking place across the globe, our economy risks of being left behind, and in due course facing redundancy and/or non-competitiveness of our exports in a trade environment that favours goods and services produced in a low carbon environment. Our research indicates that this transition risk will affect major sectors of our economy including energy, mining, agriculture, transport and manufacturing.

**-Minister Barbara Creecy, 24 February 2022**



## On plastic pollution

South Africa welcomes the adoption of the resolution to "end plastic pollution: towards an international legally binding instrument" This represents an important landmark and significant decision to protect the environment and particularly our oceans that are important for food security, addressing climate change, improving the health and promoting sustainable development and poverty eradication.

**-Minister Barbara Creecy, 3 March 2022**



## On biodiversity and conservation

The South African government is implementing a Global Environment Facility (GEF) project over five-years up to 2024, with an objective to fight against illegal wildlife trade through institutional strengthening, improved information management and monitoring, thus influencing the supply of illegal trophy system at local, national, and regional level. The project is part of the Global Wildlife Programme in partnership with the World Bank. Three communities bordering Kruger National Park will be involved Makuya, Sabie and Matsulu.

**-Minister Barbara Creecy, -3 March 2022**



## On hunting of elephant, leopard and rhino

The quota for leopard has been set at 10 animals, and is informed by robust data generated through a sophisticated national leopard monitoring programme. Leopard hunts will only be allowed in areas where leopard populations are stable or increasing, and only male leopards seven (7) years of age or older may be hunted. Implementing a strict seven-year age minimum for trophy leopards dramatically reduces the risk of overharvesting.

Forestry, Fisheries and the Environment Minister, Ms Barbara Creecy, has confirmed the quotas for the trophy hunting of black rhino, leopard and elephant in South Africa for 2022.

A total of 10 black rhino may be hunted, and 150 elephants. Only adult male black rhinos will be hunted, and only on conservation management grounds in accordance with a set of strict criteria to ensure that demographic and/or genetic conservation is enhanced (as stipulated in the black rhinoceros Biodiversity Management Plan). The quota for black rhino is based on the national population estimates for black rhino per subspecies, all three of which show an increasing trend at present. Only a very small portion of the overall elephant population is hunted in a year (less than 80 elephant bulls, which is less than 0.3% of the total population). The national elephant herd shows an increasing trend and the quota of 150 is well within sustainable limits.

**-Minister Barbara Creecy, Twitter**



# Enviro highlights this quarter



## Matjhabeng Local Municipality is hands on, on waste management interventions

On 08 February 2022, the Mayor of Matjhabeng Local Municipality, Cllr Thanduxolo Khalipha showed the Deputy Minister of Forestry, Fisheries and the Environment Ms Soty the progress they have made at Odendaalsrus Landfill Site as part of the waste management intervention by the department.

Thereafter, the Deputy Minister held a stakeholder engagement to give progress to the community about the four intervention projects which are part of the department's contribution to the District Development Model discussed 2020. **Veronica Mahlaba.**

## Radio 2000 and DFFE give back to Kwa-Thema

On 28 February 2022, the department assisted Radio 2000's Breakfast Show, popularly known as The *Take Off* in their community outreach project by donating waste bins, rakes, spades, digging forks & seedlings to Qedusizi Primary School in Kwa-Thema.

The gardening tools and seedlings will assist the learners with starting a vegetable garden that will contribute to the school's feeding scheme and the bins will help learners about the benefits of separating waste at source. **Veronica Mahlaba.**



## DFFE sponsors R30 million Buy-back Centre in the Eastern Cape

In a grand gesture geared towards building the waste economy in the Eastern Cape province, the Department of Forestry, Fisheries and the Environment through the Operations Phakisa Chemicals and Waste Programme launched the Ezibeleni Waste Sorting and Buy Back Centre during the District Waste Management Summit held from the 02-04 March 2022 in Queenstown, Eastern Cape.

The R30 Million Buy-back centre which includes two transport stations, namely the Lesseyton Transfer Station and the Ilinge Transfer Station located in the Chris Hani District Municipality will not only play a monumental role in sorting out the waste challenges identified in the district and its local municipalities but will also create over 40 jobs over the next three years. **Salome Tsoka.**

## Deputy Minister Soty gives feedback to the community of Bloemhof

Deputy Minister Makhoto Soty in her capacity as the Presidential District Development Champion of the Dr Ruth Segomotsi Mompati District Municipality hosted a pre-Presidential Imbizo Community Stakeholder Engagement in Bloemhof, North West on 10 March 2022.

The stakeholder engagement session formed part of various activities that were hosted in activation to the Presidential Imbizo taking place in Mahikeng on 12 March 2022. During this session, Deputy Minister Soty gave feedback on the progress that has been made since being elected District Champion in this region while also engaging the community on the service delivery problems that they are currently experiencing. **Tshegofatso Ndhlovu.**



# Climate Change: The poorer ‘can’t keep up’ with impacts

By Zibuse Ndlovu

**T**hose most impacted by climate change are poorer communities, the assessment report by Working Group II of the Intergovernmental Panel on Climate Change (IPCC) has revealed.

According to the report, African countries have already experienced widespread loss and damage as a result of human-induced climate change. Southern Africa is no different and is already facing loss of lives and impacts on human health, reduced economic growth, water shortages, reduced food production, biodiversity loss and adverse impacts on human settlements and infrastructure.

In her remarks on the report, Forestry, Fisheries, and the Environment Minister, Ms Barbara Creecy lauded the report as an “important contribution to enhancing scientific understanding on climate change on the impacts, adaptation and vulnerability, that must inform international policy in the United Nations Framework Convention on Climate Change (UNFCCC)’s COP27 in Egypt, in November 2022.”

“The report makes clear that our development pathways must become more climate resilient - and that choices we make as a society now are critical. With increasing global warming, losses and damages will increase and additional human and natural systems will reach adaptation limits,” said Minister Creecy.

Furthermore, The report highlights and analyses information available, including a chapter on the African continent, further emphasizing the vulnerability of all countries on the continent, and the urgency of developing and implementing adaptation measures across the continent and in multiple sectors. Equitable access to sustainable development is essential in response to climate change. The IPCC report finds that climate change will increasingly undermine

food security. At 2 °C warming by 2050, people in sub-Saharan Africa, South Asia, Central and South America and on small islands are likely to experience food shortages, leading to malnutrition. “Our ability to adapt and develop in a climate resilient manner is critical, this includes adopting stress-tolerant crops and livestock diversification on farms,” said Minister Creecy.

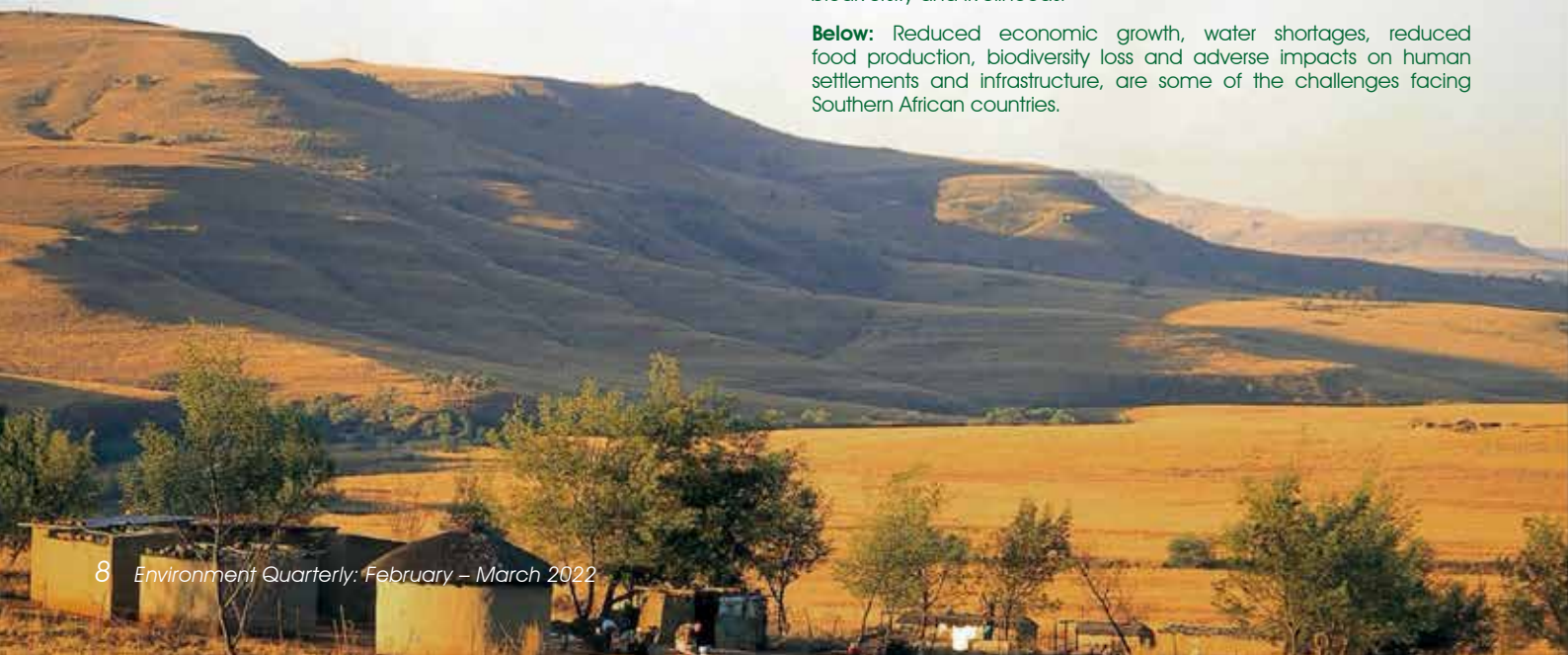
One of the Working Group II co-chairs is a South African scientist and local government practitioner, Dr Debra Roberts. Roberts summarised the key message of this large report by stating that the message from the Working Group II report is clear and the scientific evidence is unequivocal. Climate change is a threat to human wellbeing and the health of the planet. Any further delay in concerted global action will miss the brief, rapidly closing window to secure a liveable future. This report offers solutions to the world,” said Minister Creecy.

The assessment report, which was released on 28 February 2022 is the second in a series of reports to be adopted under the IPCC 6th assessment cycle. In March, the IPCC will release the next reports on dealing with mitigation of climate change, and finally, a synthesis report of the key findings of all three reports will be released later in the year.



**Above:** Land degradation is another global problem impacting biodiversity and livelihoods.

**Below:** Reduced economic growth, water shortages, reduced food production, biodiversity loss and adverse impacts on human settlements and infrastructure, are some of the challenges facing Southern African countries.



# CLIMATE CHANGE IMPACTS COULD BE DISASTROUS FOR FOOD & WATER SECURITY

## LET'S STEP UP OUR EFFORTS



Find us:  
Department of Forestry, Fisheries  
and the Environment



Watch us:  
EnvironmentZA



Follow us:  
@EnvironmentZA

Call Centre: +27 86 111 2468  
[www.dffe.gov.za](http://www.dffe.gov.za)



**forestry, fisheries  
& the environment**

Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA



# The Ten Million Trees Programme

By Nosipho Ndzimbomvu

Trees play an important role in the development and sustainability of South African communities. They form part of the green infrastructure that provides goods and services that include food, shade, medicine, soil erosion control, biodiversity conservation and protection. Trees further help reduce the negative impacts of climate change, which is currently a critical environmental challenge in South and the world at large.

Greening is one of the key functions of the Department of Forestry, Fisheries and the Environment (DFFE). It is an integrated approach to the planting, care and management of all vegetation in urban and rural areas to secure multiple benefits for communities.

The Ten Million Trees Programme is one of the recent initiatives by the Forestry Branch of DFFE. The programme emanates from the Million Trees concept that was established in 2007. The Million Trees Programme commenced an initiative that brought different stakeholders in the greening space to collaborate

and plant at least one million trees annually. This collaboration has ensured that over the years the target has been exceeded on an annual basis.

The announcement in 2021 by the Presidency of the Republic of South Africa to plant Ten Million trees in the next five years was a confirmation and recognition of the work that DFFE and its greening partners have done. The Ten Million Trees Programme was officially launched in the North-West province during the commemoration of the 2021 National Arbor Month Campaign, and 11 000 trees were planted at low-cost residential areas to officially commence the programme. The DFFE in consultation with its stakeholders resolved to plant two million trees per annum beginning from 2021/22 fiscal year.

To reach the target of planting ten million trees over a five-year period, the programme has been incorporated and promoted through various greening initiatives within the Forestry Management Branch, these include

**Below:** Indigenous and fruit trees planted by Derek Hare at Hanover Park, Western Cape.



## About the contributor: Nosipho Ndzimbomvu

Nosipho Ndzimbomvu is the Assistant Director in the Forestry Development and Regulation Chief Directorate. She primarily deals with urban and rural forestry as well as greening.

the International Day of Forests, National Arbor Month and the Arbor City Awards. These greening campaigns focus on working closely with South African Municipalities and their communities to take part in planting trees to address environmental and socio-economic needs.

Previously the Forestry Management Branch focused mainly on tree planting in residential settlements, recreational facilities, parks and open spaces in line with Local Government Greening strategies and plans. However, the planting of the ten million trees would need that the DFFE look at this initiative in a broader context if greening is to address issues of climate change, beautification, improving the aesthetics of surroundings, rehabilitation of degraded areas, food security and creation of sustainable settlements amongst others. This broader context provides a good platform for the various Branches in the Department to have a specific role and niche and align interventions towards the achievement of the bigger goal.

The Ten Million Trees Programme is not only a DFFE programme, but it belongs to all South Africans hence the initiation of the clarion call to all South Africans to participate in the programme. The DFFE is asking South African individuals and communities, corporate organisations, Non-Governmental Organisations Education Institutions to plant indigenous and fruit trees that are suitable for the areas they live in, for a course that is important to them, including planting trees to mark an important event; to attain food security; to fight the effects of climate change; to promote biodiversity and natural heritage and to beautify their residential areas and cities.

**The South African community has started showing up in support of the Ten Million Trees Programme:**



**Above:** Indigenous trees planted by Mhlontlo Community College in Qumbu, Eastern Cape.



**Above:** Indigenous Trees Planted by Mafusini Pre-School in Qumbu, Eastern Cape.



For Enquiries: Contact Small Scale Forestry Directorate

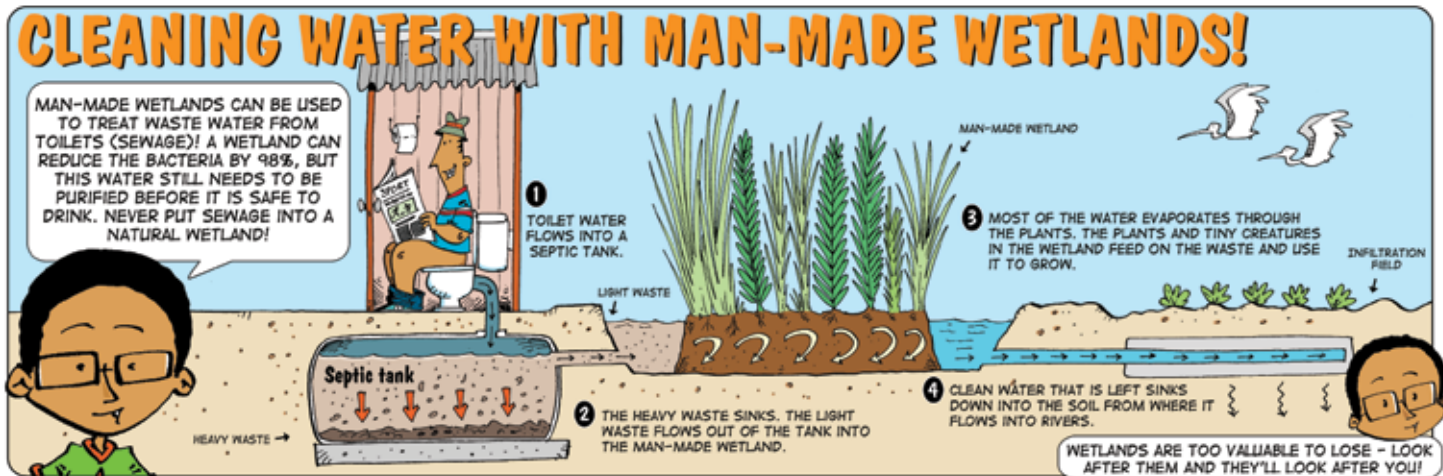
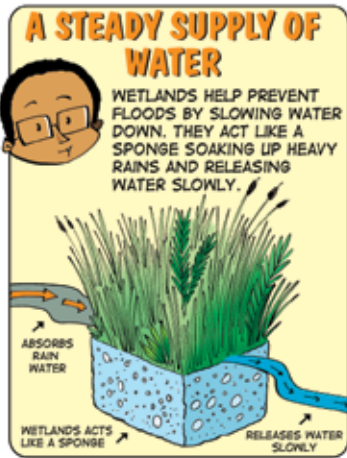
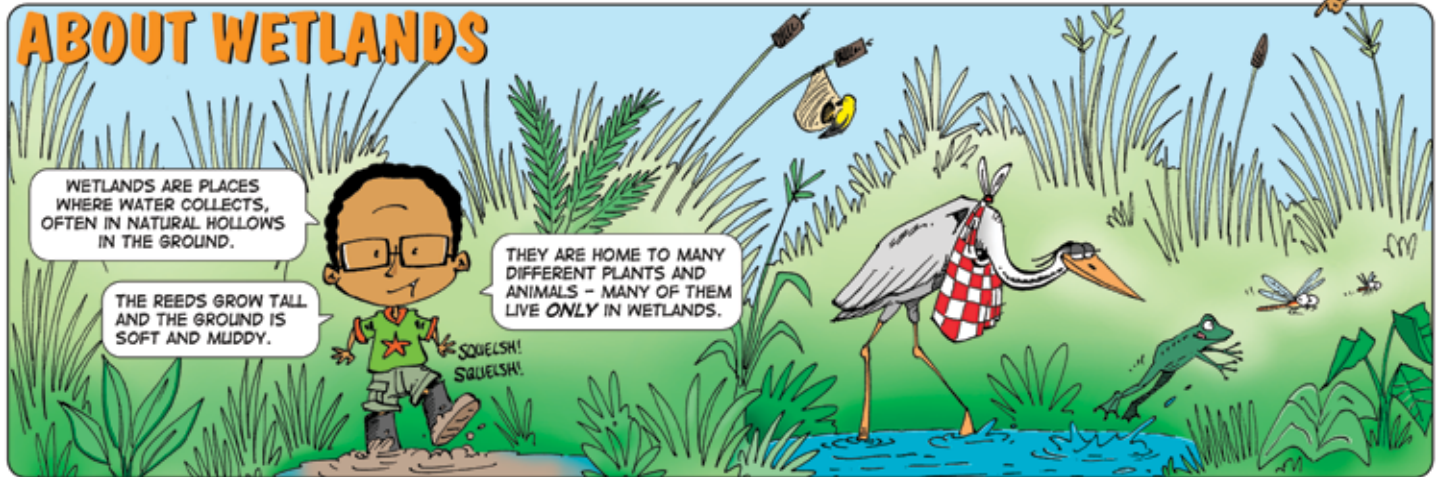
**Mr Tebogo Mathiane:** [tmathiane@dffe.gov.za](mailto:tmathiane@dffe.gov.za),

**Mr Michael Modise:** [mimodise@dffe.gov.za](mailto:mimodise@dffe.gov.za),

**Ms Nosipho Ndzimbomvu:** [nndzimbomvu@dffe.gov.za](mailto:nndzimbomvu@dffe.gov.za)

**Below:** Non-Governmental Organisation, Myezo Growth and Development plants indigenous and fruit trees in Pretoria, Gauteng.

# WETLANDS WORKING FOR YOU!



# Biodiversity conservation benefits from citizen science

By Saloshnie Govender

**G**lobally, South Africa is one of the most biodiverse countries next to Indonesia and Brazil (SANBI, 2022). Occupying just 2% of the world's land surface, the country boasts 10% of the world's plant species, 7% reptile, bird and mammal species (CBD 2022), with more species still being discovered. South African habitats are also highly threatened. For instance 20% of the Cape Floral Kingdom is threatened with extinction (CBD 2022). However, there are not enough scientists to monitor the vast biodiversity. With the impending environmental and anthropogenic influences that contribute to species extinction such as climate change, habitat loss and alien invasives, South Africa's citizen science community has actively participated to record and monitor our rich biodiversity.

The Custodians of Rare and Endangered Wildflowers programme (CREW) engages citizen scientists to monitor and conserve rare and threatened plants in South Africa. In addition to collecting data on plants, CREW volunteers record organisms which is shared on the interactive biodiversity platform iNaturalist. iNaturalist is an online collaborative tool not only created to help users identify the plants and animals they observe but, also provides research quality data for scientists and researchers. Through a rigorous identification mechanism, observations require at least three correct ID's to be considered research grade.

To help its eager volunteers and ensure quality data, CREW together with the Botanical Society of South Africa (BotSoc) and the South African National Biodiversity Institute (SANBI) have developed training sessions to navigate the iNaturalist App and to learn key skills of plant distribution, identification, and monitoring. Besides recording the date of observation and upload date, the App also records the location and the accuracy of this for each observation. Furthermore, iNaturalist has implemented stringent means to protect sensitive data such as the locality details for highly threatened plants and animals that are targeted for illegal trade. CREW's training sessions are not only for its volunteers, but are open to anyone interested in learning how to use this open source database to their benefit such as students and interns.

This data contributes to updating South Africa's Red List for plants and animals. CREW has developed projects on the iNaturalist platform such as the Red List project of southern Africa to facilitate data collection by citizen scientists involved in the CREW programme. This data is further used for important decision-making policies, such as the refining and use of vegetation maps, land-use and conservation planning, Important Plant Areas, Red Listing, taxonomic updates (distribution and range extensions) and, monitoring of multi-taxon groups. Moreover, data collected from iNaturalist and its major global events make huge contributions towards international and national agreements such as the Sustainable Development Goals 2030 (UNDP 2022) and the National Biodiversity Assessment, through data collection, raising awareness and improving education about climate change and impact reduction important with such high endemism locally.

Global events initiated by iNaturalist such as the City Nature Challenge (CNC) and Great Southern Bioblitz (GSB) are important in aiding and contributing to data collected by citizen scientist. The CNC and GSB are global events challenging all participating cities to prove their high biodiversity by uploading their observations onto the app within the given time. Unlike the CNC which occurs in April to May of each year, the GSB happens in October allowing the southern hemisphere to showcase its beauty during springtime. The first CNC in 2016 started as a competition between San Francisco and Los Angeles, and grew into a four-day international bioblitz, discovering who makes the most observations, the most species and engages the most people during the event.

This year the CNC will take place on from the 29th of April until the 2nd of May 2022, and already includes ten cities in Southern Africa. All are encouraged to join and capture or identify the vast biodiversity just outside their doorstep to prove which city has the most biodiversity to offer.

For more information on the City Nature Challenge 2022, check out the projects page on iNaturalist.



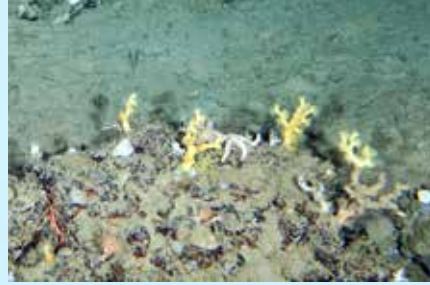
## About the contributor: Saloshnie Govender

Ms Saloshnie Govender is a restoration and rehabilitation intern working with the Custodians of Rare and Endangered Wildflowers (CREW) at the South African National Biodiversity Institute (SANBI). She has a Master of Science degree in Biodiversity and Conservation Biology from the University of the Western Cape and is passionate about restoration ecology.

# Marine Biology with Dr Kerry Sink



**Above:** King penguins at King Penguin Bay. (Image by Otto Whitehead)



**Coral mystery:** Live cold water corals in the proposed Browns Bank MPA (Image by ACEP Deep Secrets)



**Above:** The ACEP Imida Frontiers Project has collected data, conducted benthic biodiversity surveys and mapped selected areas in Amathole Offshore MPA. (Image by Peter Chadwick)

## 1. What according to you is the biggest environmental threat today and how can it be overcome?

In my view the biggest threat is that people don't work together for common good and the optimal solutions to our many challenging environmental issues. We need integrated planning and management that takes a holistic view and we need good relationships among sectors, institutions and with communities and industry. We need common goals and aligned work plans and initiatives. Environmental management can and should support economic development with should not be seen as an opposing area of work. The environmental sector can and is supporting development in South Africa.

## 2. What inspired you to become a marine biologist?

I was inspired by the scientists working at the Oceanographic Research Institute in Durban. The aquarium drew me in and then when I started working there I was exposed to the women and men doing interesting research with purpose. All of the work was geared to towards better management of fisheries resources or the ocean.

## 3. How far can technology help save the situation?

Technology has a very important role to play particularly in helping in the energy crisis, climate change,

pollution reduction, environmental management and conservation communication. However without excellent relationships among people within and between institutions and departments and communities and a shared vision, different technologies may work against each other. We must harness technology for common good.

## 4. What do you think a commoner can do to help the environment.

There are so many things people can do to help nature while helping themselves. We can reduce our energy consumption, support wild places, choose our food, packaging and home products with care, and give some of our energy for common good. Growing food, walking or riding a bike and joining a coastal clean-up are great ways to help the environment while helping yourself. In our house, if someone leaves a light on in the day, you will hear "Who is causing coral bleaching?" and I am the slowest shopper carefully considering my choices! We need innovative solutions and fresh thinking in solving environmental problems so even in a work context there are many other fields that can make a significant contribution to mitigating environmental challenges.

## 5. Why would you ask a student to join the environmental sector?

Young people with new perspectives and skills can really make a difference in the environment sector.



### About the contributor: Dr Kerry Sink

Professor Kerry Sink is a principal scientist and the marine programme manager at the South Africa National Biodiversity Institute and an associate of Nelson Mandela University. She leads the classification, mapping and assessment of marine ecosystems and led the technical team for the Operation Phakisa Oceans Economy initiative that saw the implementation of twenty new Marine Protected Areas in South Africa in 2019



## 6. What future do you see for environmentalists?

I am hopeful that the environmental practitioners will improve their people skills, diversify their approaches and innovate new solutions to environmental challenges.

## 7. What are some of the environmental projects you have taken up?

The project closest to my heart was the Offshore Marine Protected Areas (MPA) project although my first conservation project was the development of the Southern African Sustainable Seafood Initiative (SANBI). The Offshore MPA project involved the establishment of 20 new Marine Protected Areas in South Africa and started in 2006, culminating in 2019. I am still working to increase marine ecosystem protection levels in the country and my favourite work involves offshore exploration using Remotely Operated Vehicles (ROVs), expand MPAs I have led three projects funded through the African Coelacanth Ecosystem Project. Deep Secrets undertook a 1600km cruise from Robben Island to the Kei mouth and discovered new features and species under the sea. The Deep Forests project is advancing knowledge, mapping and management of animal forests like deep water coral reefs, fields of seapens (soft corals adapted to living in sand) and beautiful fragile lace coral and seafan gardens. My most recent project Deep Connections, is linked to an international Project the One Ocean Hub and is a trans-disciplinary project that brings social science and art based approaches, oceanography, genetic and ecosystems research together to improve spatial management in the sea. We are currently working on mapping Culturally Significant Areas in the coastal and marine environment.

## 8. Your documentary film, MzanSea won top honours at the International Tourism Film Festival in 2020, how was that experience for you and what did you intend to achieve through the project?

The MzanSea film was sponsored by my Pew Fellowship and was designed to support the establishment of 20 new Marine Protected Areas in South Africa. It was inspired by a SANBI (South African National Biodiversity Institute) project led by Kristal Maze that showed how our decision makers need to be inspired to action rather than receiving messages of doom and gloom about the environment. It was a wonderful experience to travel with the film maker across beautiful South Africa to showcase the most special places in the Ocean. The film achieved its intended goal and increased South Africa's ocean protection from 0.5 to 5%- a tenfold increase. We are now working to identify and protect a further 5%. (sunrise MzanSea pic)

## 9. Do you think the government is doing enough to give importance to deal with environmental issues?

There are many initiatives and more can always be done. Government can work better together and develop stronger partnerships for improved ocean decision making and governance.

## 10. In one statement, what message do you have to the coming generation?

We only have one planet, work together, co-operatively- for common good



**Above:** Dr Kerry Sink and the Deep Secrets team excited to sample a biogenic coral reef at 333 m Secret reef. The Deep Secrets Project aims to build capacity so that we can research and understand our coast's outer shelf, shelf edge and slope ecosystems and thereby support improved integrated ecosystem-based management across multiple sectors in South Africa.



**Above:** Our endemic seabreams such as this Scotsman (*Polysteganus praeorbitalis*) benefit from MPAs.

# Our own GeoSpatial World Rising Star

By Gaopalelwe Moroane

**The department's Dr Lauren Williams has been selected as one of the Geospatial World 50 Rising Stars.**

William's current role as a GISc Professional within the Department of Forestry, Fisheries and the Environment focuses on the development of online tools, geospatial models and data to assist coastal/disaster management practitioners to better prepare and plan for coastal hazards (primarily inundation). In this context, she is also actively involved in coastal disaster management and climate change projects, both of which were focal points of her PhD research, which she completed in 2020 at Stellenbosch University.

## We spoke to Williams about her work as a GISc professional.

### **Tell us a bit more about your work as a GISc Professional and the work you do in the department?**

I work primarily with spatial data, so analysis and outputs are generally in the form of maps. The tasks I undertake vary from simple locality maps to building models, web-based interactive maps, and mobile applications that can be accessed on smartphones and other mobile devices. My research focus is on coastal risk, particularly human-environment (hazard) interactions, so I use GIS to develop hazard models that could assist in development planning, especially in the context of climate change. The exciting part about my work is that the application of GIS is very diverse, so I get to work with many different people and find innovative solutions to their respective problems.

### **What education requirements, college degrees, licenses are needed for your career?**

To major in GIS one needs to have completed Grade 12 Mathematics and Physical Science. Many tertiary institutions offer GIS as an undergraduate degree, but it can also be pursued in post-graduate studies. You don't have to strictly major in GIS as there are many courses (e.g. environmental sciences) that incorporate GIS as an analysis tool and there are also many accredited short courses available. It all depends on the career you are aiming to pursue.

### **How long have you been working as a GISc Professional?**

I have roughly 15 years of working experience using GIS, across both the private and public sectors.

### **What inspired you to venture into this career path?**

I think I ended up in GIS due to a series of fortunate accidents. When I was younger, I had the privilege of travelling frequently with my family and was always put in charge of the map and directions using a thick road atlas book – this was way before we had GPS devices. I credit this part of my upbringing with setting the foundation. At school I excelled in Geography, specifically map work, however, I had no idea that GIS existed until I was exposed to it during my first year at UCT. I knew then that I wanted to continue to pursue it and fortunately I could incorporate those courses without having to change my original study plan. I also secured a GIS bursary that funded my studies until my Honours year.

### **What is the most rewarding and challenging part of what you do?**

I started my career making maps, but GIS has evolved into so much more. I enjoy so many aspects of what I do, but my favourite (at the moment) is developing apps and online data visualisation for OCIMS initiatives. Technology has improved to the point where you can use your smartphone for data collection. I've developed a few apps that people

have downloaded to their devices and use it to record observations. The challenge I find here is that people do not always immediately accept these new approaches, so it takes some convincing for them to firstly accept the new approach and then use the technology. The rewarding part usually follows when everyone is comfortable with the technology, and I can see the data coming into the database that can be used to make very visual dashboards and also get positive feedback from users.

### **What advice would you give to someone who is interested in pursuing a career as a Geospatial Professional?**

It's also advisable that you attend an institution that has a SAGC accredited GIS academic framework, which will be beneficial if you intend on registering as a practitioner. Overall, having GIS skills gives you access to many opportunities and there is immense potential in the new and emerging technologies. As a career, it is really what you make of it and the key to having a fulfilling career is to enjoy what you are doing.



## About the Geospatial World 50 Rising Stars

The Geospatial World 50 Rising Stars is an initiative that highlights the outstanding accomplishments of young individuals who are proactive and passionate about the value of geospatial technology to society, the environment, and the economy.

# Working on Fire graduates will be instrumental in dry season

By Salome Tsoka



**Above:** The 19 Type 2 Crew Leader graduates hail from the Free State, Eastern Cape, Gauteng, Mpumalanga and KwaZulu-Natal.



**Above:** Director-General, Ms Nomfundo Tshabalala with DDG: Environmental Programmes, Ms Nonhlanhla Mkhize take a tour of the training facility with Working on Fire Managing Director, Mr Trevor Abraham and Kishugu Camp Manager, Mr Thando Sambokwe.

The Kishugu Training Academy in Mbombela, Mpumalanga was a hub of celebrations on 18 March 2022 as 19 Working on Fire (WOF) crew members were graduating as Type 2 Crew Leaders. Officiating the ceremony on behalf of Minister Barbara Creecy, the Department of Forestry, Fisheries and the Environment Environment, Director-General, Ms Nomfundo Tshabalala congratulated the new graduates in their new roles and highlighted that they will be instrumental in fighting wildfires this dry season.

“As we enter the Autumn and Winter months, your work will become more important. Fires are becoming more prevalent in our communities. Very recently, the WOF team helped fight the Highlands Fire in the Kleinmond

area in the Western Cape. We are seeing that the threat of climate change will result in more fires across the globe and unfortunately, South Africa will not be spared. The WOF has played a significant role in battling these fires in the past and will continue to do so in the future,” she said. The graduates went through a rigorous 42 day training programme which Kishugu Camp Manager Mr Thando Sobukwe, says prepared them for their new leadership position.

“The graduates had to complete 18 modules as well as high intensity physical training which also included productivity tests to help the graduates calculate the production of the day,” he said.

The WOF programme currently employs more than 5000 young men and women across the country. Mr Sobukwe also highlighted that 80% of the staff at the academy come from the programme.

“Our relationship with the Working on Fire is a good one and we are proud to be associated with a programme that not only provides employment to many young South Africans but one which also restores the dignity of people in marginalised communities,” he said.



**Above:** The 42 day training included intense physical training which tested the strength and endurance of the graduates.



# Investors invited to invest in iSimangaliso Wetland Park By Veronica Mahlaba



**Above:** The Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy thanked iSimangaliso for organising a prestigious event.



**Above:** KZN MEC for Department of Economic Development, Tourism and Environmental Affairs, Mr Ravi Pillay assured the potential investors that they have the support of the government.

**O**n 25 March 2022, the iSimangaliso Investment Summit was held to provide potential domestic and foreign investors, as well as intermediaries with information on ecotourism investment opportunities within iSimangaliso Wetland Park. The potential tourism product offerings and investment envelopes worth multi-millions of rands to local and international prospective business investors will help improve the state of this world-renowned tourism destination and also contribute towards the development of communities living in and adjacent to the park in various ways.

The Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy officiated the 2022 iSimangaliso Investment Summit at the Sibaya Casino and Entertainment Kingdom in Durban, KwaZulu-Natal. She was joined by the MEC for Department of Economic Development, Tourism and Environmental Affairs, Mr Ravi Pillay and different traditional leadership represented by 13 Amakhosi.

Speaking at the summit, Minister Creecy explained that the Park has unique features that will give those who invest in the World Heritage Site an added competitive edge. "iSimangaliso is home to more species of animals than any other park in Africa. It is home to South Africa's largest population of hippos and crocodiles. It also harbours five of the world's seven turtle species, including the world's largest, the Leatherback turtle. It is home to black rhino, leopard, lion, coelacanth, elephant, and a vast array of bird and marine life," explained the Minister Creecy.

She further stated that she is deeply encouraged by the support of the private sector and other stakeholders' commitment to walk this journey with iSimangaliso. A journey of a people united by the resolve to benefit from our country's rich cultural diversity, our wildlife, our Park, our heritage, our beaches, the breath-taking scenic views of iSimangaliso World Heritage Site, with its people willing to welcome their own and the world to share in all that is grand.

The MEC, Mr Ravi Pillay echoed the same sentiments as the Minister and said he hopes the majority of the investors will be motivated by passion and commitment for the issues of the environment and the love for that terrain. "Yes you will want to balance your books, otherwise you won't be able to sustain it. However, I hope you have the passion and commitment for South Africa in general," Mr Pillay said.

The Chief Executive Officer of iSimangaliso Wetland Park, Mr Sibusiso Bukhosini stated that iSimangaliso was established in 1999 as the first World Heritage Site and to also play a significant role in empowering the historically disadvantaged communities in programmes, projects and initiatives they implement as the Park. "We have a role in promoting tourism and tourism related developments." He appealed to investors to plow finances in the area and that they will see wonders in their bank accounts.

The iSimangaliso Wetland Park is South Africa's first World Heritage Site whose mission it is to protect, preserve and present its World Heritage Values for current and future generations whilst benefiting communities living in and adjacent to the Park by facilitating optimal tourism and related development.



**Above:** The Chief Executive Officer of iSimangaliso Wetland Park, Mr Sibusiso Bukhosini doing a presentation on investment opportunities available at the Park.

# Recycling mistakes to avoid

By Salome Tsoka

Only 6.1% of households in metropolitan areas in South Africa recycle their waste. This is according to the 2019 General Households Survey by Stats SA. Encouraging people to recycle at the source is one of the many initiatives the Department has undertaken to help reduce the amount of waste that ends up at landfill sites. However, despite these efforts there are some households which may be making recycling mistakes unaware. Here are some common mistakes and how they can be avoided.

- Do not dispose of wet waste, like food and dry recyclables in the same bin. Rather use separate bins for the disposal of food and recyclables to avoid cross contamination.
- Do not dispose electronic waste and packaging waste in the same bin. E- waste is hazardous in nature and should not be disposed of in municipal landfill sites like general waste. It must be stored separately from packaging waste and be taken to e-waste recycling facility
- One mistake people make with food waste is by not emptying its contents of containers or failing to rinse out containers. All containers such as jars, bottles, etc. must be rinsed of leftover food, sauces, or liquids as they can contaminate the recyclables which could lead to them being rejected.
- White paper and paper towels should not be disposed off in the same bin. Paper towels are not recyclable and must not be mixed with other types of paper such as office paper, newspapers and other recyclable paper.
- One should also avoid mixing different types of plastics (including plant based plastics) in the same bin for recycling. When it comes to plastic, sorting is essential, as plastic types are often incompatible and cannot be recycled together.

- Biodegradable or compostable plant-based plastics are not recyclable but compostable and should be disposed separately. In some cases, you can compost biodegradable or compostable plant-based plastics at home but some of these plastics need to be composted in industrial plants as they usually require very high temperatures to break down. The DFFE General Waste Environmental Officer, Mr Katlego Mabatle said plastics are often assigned different numbers to grade them for recycling.

"#1 is used for PET and #2 is used for HDPE containers, #4 is used for LDPE while #7 is used for mixed plastics such as polycarbonates that are not recyclable. Almost all recycling centres accept plastics #1 #2, 4, 5 and #6. Some plastics are harder and thus costlier to recycle, and as a result, are not accepted in certain recycling plants," he said.



**Above:** Recycling at the source is one of the ways the Department hopes to reduce landfill waste.

Lastly, it is important for households to know that not all waste can be recycled. Common non-recyclables include laminated pouches, crisp bags, plastic toys, cotton wool, toothpaste tubes, wrapping paper, tissue paper, paper towels, wax paper, bubble wrap, waxed/ waterproof cardboard, motor oil cans, cardboard containers contaminated with oil based products, mirror glass, window glass, ceramic or marble, etc.



# South Africa's worst invasive plants

By Salome Tsoka

South Africa is ranked as the third most biologically diverse country in the world however, this diversity is constantly under threat from silent killers. According to the Department's 2019 Status of Biological Invasions and their management in South Africa report, over R6,5 billion is lost due to invasive species. Some of these species are as small as weeds in or can grow and reach great lengths and mass. These are some of the worst alien invasive plants found in South Africa listed as Category 1b which are plants that require compulsory control through their removal or destruction because they have a high invasive potential.



## Bugweed

The *Solanum mauritianum* more commonly known as the bugweed is an invasive plant which replaces indigenous riverine and forest margin species competing with younger trees in plantations, particularly pines and black wattle, inhibiting growth and causing stem deformation. It also plays host of the KwaZulu-Natal fruit fly which is an economic pest that causes millions worth of damage every year.

**Above:** The bugweed's unripe fruits is poisonous while its hairy leaves and stems can cause allergic dermatitis and asthma for people. (Image by Pixabay).



## Famine weed

The Famine weed also known as the *Parthenium hysterophorus* is probably the most dangerous invasive plant species as it can actually be toxic to people. This invader can mostly be found in agricultural land used for crop and animal grazing, roadsides and sometimes watercourses. Cattle that has consumed the weed are not fit for human consumption and their milk may become toxic.

**Above:** Famine weed is an aggressive invader in the Kruger National Park. (Image by: Thembeke Thwala)



## Lantana

The *Lantana camara* is not only poisonous to biodiversity and people, but it is also poisonous to the economy as it is often the one plant responsible for the death of a number of livestock costing the country millions every year. Often found in velds and plantations, this invader replaces indigenous species of an area and also disturbs the biodiversity of natural ecosystems. Its density in plantations makes it hard for the use and access of the land as well as the regeneration processes.

**Above:** Managing the invasive weed Lantana by spraying and cutting down Kruger National Park. (Image by: SANParks)



## Pompom weed

The Pompom weed also known as the *Campuloclinium macrocephalum* is indigenous to South America, specifically Brazil and Argentina. This invasive plant can cause serious degradation of velds and grassland areas thus lowering the biodiversity of those areas and further reduce the grazing capacity by being unpalatable to large herbivores. It is easier to see the invasion of these plants during December and March when the plants are in bloom and transform South African grasslands from green to bright pink rows.

**Above:** The Pompom weed growing on roadside, Honeydew, Gauteng. (Image by Paul Venter)



## Water hyacinth

The Water hyacinth also known as the *Eichhornia crassipes* has damaging capabilities on water ecosystems and it is expensive to control. The invasion of this plant leads to the formation of dense mats which completely cover the water surface of dams leading to altered water chemistry and composition. This in turn seriously affects other organisms which leads to the damage and destruction of local aquatic biodiversity and the blockage of river flows. This could in turn lead to localized flooding as well as the interference of water use for activities like recreation or irrigation.

**Above:** Hartebeespoort dam, which lies north of Johannesburg, Gauteng, has become an unfortunate example of water hyacinth's invasive capabilities and its resilience. (Image by Invasive Species South Africa)

# SAVE OUR WATERS FROM AQUATIC INVADERS

South Africa's water resources are being invaded by a range of water weeds. Terrestrial invasive plants such as pines, gums, hakeas and wattle consume larger quantities of water and so reduce water availability, but our water resources are also being invaded by a wide range of invasive aquatic plant species. These plants mostly came into the country through the ornamental garden and aquarium trade where they are used to decorate and plant garden ponds, fish ponds and aquariums. Species like water hyacinth, water lettuce, salvinia, parrot's feather, and hydrilla invades our rivers, wetlands and dams.

## Aquatic invasive species

- Pose a significant threat to agriculture, the environment, tourism, economy and/or human health.
- Due to their aggressive growth, they choke out indigenous vegetation thus reducing biodiversity.
- Can cause rivers to dry up completely, if left to spread and grow.
- Have a negative impact on water quality as they tend to form dense mats that reduce water flow and oxygen in the water.
- Restrict the use of boats for fishing and river transport.
- Prevent sunlight from penetrating the water which affects the entire food chain by causing the deterioration of aquatic biodiversity and providing breeding sites for mosquitoes and snails that carry diseases such as malaria and bilharzia.

National Environmental Management Biodiversity Act (2004): Alien and Invasive Species Regulations are aimed at mitigating the destructive and negative impacts of such invasive species through an informed policy framework and management plan, which in turn, will free up water resources to the benefit of agriculture and other equally important industries as well as for human use.

The aquatic invaders depicted below are commonly found in fish ponds, aquariums and waterways such as rivers and dams. These invaders have major impacts on aquatic ecosystems. According to the Alien and Invasive Species Regulations, Category 1a species must be eradicated; and Category 1b species must be controlled and, where possible, be removed or destroyed.



Water hyacinth (*Eichhornia crassipes*)  
Category: 1b



Water lettuce (*Pistia stratiotes*)  
Category: 1b



Salvinia (*Salvinia molesta*)  
Category: 1b



Parrot's feather (*Myriophyllum aquaticum*)  
Category: 1b



Hydrilla (*Hydrilla verticillata*)  
Category: 1a



Dense waterweed (*Egeria densa*)  
Category: 1b

## AQUATIC INVASIVE PLANTS IMPACT EVERYONE

All South Africans – everyone from any sector including agriculture, private and communal land owners, forestry, manufacturers and mines – are responsible to look after our water resources. It is essential that everyone who utilises water and benefits from its use plays a part to conserve our waters from aquatic invaders.



forestry, fisheries  
& the environment

Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA

FOR MORE INFORMATION ON ALIEN AND INVASIVE  
SPECIES IN SOUTH AFRICA: CONTACT THE DEPARTMENT OF  
DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT

Call centre: 086 111 2468 | Website: [www.dffe.gov.za](http://www.dffe.gov.za)

**Minister of Forestry, Fisheries  
and the Environment**

Ms Barbara Creecy  
Private Bag 313  
Pretoria, 0001  
Environment House  
473 Steve Biko Road  
Arcadia Ext 6  
Pretoria  
Tel: (012) 399 8743

**Deputy Minister Forestry, Fisheries  
and the Environment**

Ms Makhotso Magdeline Soty  
Private Bag X313  
Pretoria, 0001  
Environment House  
473 Steve Biko Road  
Arcadia Ext 6  
Pretoria  
Tel: (012) 399 8854

**Director-General of Forestry,  
Fisheries and the Environment**

Ms Nomfundo Tshabalala  
Private Bag X447, Pretoria, 0001  
Environment House  
473 Steve Biko Road  
Arcadia Ext 6  
Pretoria  
Tel: (012) 399 9008  
E-mail: dg@dff.gov.za

**Call Centre:** 086 111 2468 • [callcentre@dff.gov.za](mailto:callcentre@dff.gov.za)  
**Website:** [www.dff.gov.za](http://www.dff.gov.za)



**PLEASE RECYCLE THIS PUBLICATION**



**For any enquiries or contributions, please contact:  
Ms Erica Mathye, Tel: 012 399 8976 email: [EMathye@dff.gov.za](mailto:EMathye@dff.gov.za)**