

Environment Quarterly

EzemVelo Ngenyanga Ntathu • Mbango wa kotara • Mupo nga Kotara



**Rooibos victory for Khoi
and San Communities**

**Solutions for
plastic pollution**



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



2019 environment CALENDAR



JANUARY

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| 2 | February World Wetlands Day | 5 | June World Environment Day | 16 | September International Day for the Preservation of the Ozone Layer |
| 3 | March World Wildlife Day | 8 | June World Oceans Day | 19 | September International Coastal Clean-up Day |
| 23 | March World Meteorological Day | 17 | June World Day to Combat Desertification | 22 | September World Rhino Day |
| 22 | April Earth Day | 18 | July Nelson Mandela Day | 2-6 | September National Parks Week |
| 12 | May World Migratory Bird Day | 31 | July World Ranger Day | 21 | November World Fisheries Day |
| 22 | May International Day for Biological Diversity | | | | |

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Dear Valued Stakeholder

We are in the throes of merging the forestry and fisheries functions into the environment portfolio finalising the creation of the new Department of Environment, Forestry and Fisheries. It's a work in progress and all of us are equal to the task.

Aligned with that decision to merge the work into a single Department, this end-of-the-year edition reflects the work led by Minister Barbara Creecy as part of the fisheries work programme. EQ was there when the Minister made history by handing over small-scale fishing rights to various fishing cooperatives in KwaZulu-Natal and the Eastern Cape.

This was laudable as it was no mean feat at all, especially if you consider the fact that about 116 million people are involved in capture fisheries in developing countries, of which 90 percent are small-scale fishers and about 50 percent are women.

The small-scale fisheries sector plays a vital role in ensuring food security, nutrition, the prevention, alleviation and reduction poverty, as well as securing the livelihoods and culture of coastal communities.

As I write this note, the South African delegation, led by Minister Creecy, is at the international climate change talks in Madrid, Spain.

At the talks, the Minister reminded delegates that we are experiencing unprecedented increases in the frequency and intensity of heatwaves, bush fires and droughts, placing a tremendous burden on our already water-stressed country.

As we strive to position the new department for even greater successes in the years to come, it is essential that we respond to the changing realities of our world, our country and our region. To wit

Globally, plastic pollution has been acknowledged as a perennial problem that requires urgent global attention. The local chapter of that intervention was the Plastic Colloquium we hosted to thrash out a work programme that will, hopefully, see less of single-use

plastic besmirching our environment and clogging our rivers and oceans. There was sufficient consensus that it cannot be business-as-usual. So this festive season, when you go shopping, kindly use recycled bags instead of single-use plastic bags.

The hosting of the successful Colloquium took place barely a week after a meeting of African Ministers of Environment –AMCEN – in Durban where South Africa took over as President of AMCEN.

As we take to various coastal destinations in our beautiful country, let's remember the right extended to all South Africans to equitable access to our beach areas and amenities. It would be unfair to not add that our rights are also buttressed by our responsibilities.

We should, in the spirit of Good Green Deeds, not throw any litter out of moving cars. Let's also, in the same spirit, keep our beach areas, various parks we will patronise this season, clean.

Enjoy your holidays.

May the birth of the New Year bring with it new levels of hope and more space for your dreams to become a reality.

Sustainably Yours

Albi Modise
Head of Communication & Advocacy

Meet our team

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Albi Modise

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SOUTH AFRICA'S COASTLINE IS FOR EVERYONE TO ENJOY!

Did you know?

According to the National Environmental Management Integrated Coastal Management (ICM) Act of 2008, everyone has the right to equitable access to the South African beaches and its public amenities.

The state in its capacity as the public trustee of all coastal public property, has a duty to manage, protect and enhance it in the interest of the whole community, and for the benefit of present and future generations.

In terms of the IMC Act, all people in South Africa have the right of reasonable access to coastal public property and are entitled to use and enjoy coastal public property, provided such use:

- Does not adversely affect the rights of members of the public to use and enjoy the coastal public property.
- Does not hinder the State in the performance of its duty to protect the environment.
- Does not cause an adverse effect to the environment.

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Minister hands over historic fishing rights to co-operatives

By Tshego Letshwiti

Images by Madimetja Mogotlane and Yanga Mabuda

The Minister of Environment, Forestry and Fisheries, Ms. Barbara Creecy made history this year when she handed over 15-year fishing rights allocations to seven small-scale fishing co-operatives in KwaZulu-Natal.

Allocation of these rights will provide work opportunities for around 467 people in the Ugu District Municipality with a broader agenda to also promote transformation of the fishing sector.

This follows the department's amended legislation of 2016 which recognised the importance of small-scale fishers, and launched an Expression of Interest process, where a total of 316 communities from the four coastal provinces registered their interest.

Minister Creecy also announced a "basket of species" as well as the rights being granted and support programmes being facilitated by government to assist with the sustainability of the co-operatives allocated with fishing rights.

Some of the most common harvested resources by small scale fishers include fin-fish, mussels, octopus, rock lobster, sand and mud prawns, limpets, crabs, oysters, seaweed and abalone.

Speaking at the hand-over ceremony, in Hibberdene, Umzumbi Municipality, Minister Creecy expressed her satisfaction with the allocation of the fishing rights. "The policy for the Small Scale Fisheries Sector is aimed at providing redress and recognition to the rights of Small Scale Fisher Communities in South Africa that were





Above: Minister Barbara Creecy and Acting Mayor of Umzumbe Local Municipality Ms Londolo Zungu in KwaZulu-Natal. The Minister was there to hand over fishing rights to small scale fishers.

previously marginalised and discriminated against in terms of racially exclusionary laws and policies. This is a milestone in terms of the transformation of the fisheries sector," she added.

In KwaZulu-Natal (KZN) a total of 53 communities expressed interest, however 48 participated in registration to be recognised as small-scale fishers. In total, 2 184 small-scale fishers were finally recognised in KZN from 36 declared small-scale fishing communities. Subsequently, the declared communities have been assisted to register co-operatives and to further apply for 15-year fishing rights for the first time.

The department also assisted by conducting two-day compulsory training workshops with the recognized small-scale fisheries of the KZN communities in 2018. These were done to help fishers understand the co-operative model in general, including roles and responsibilities and their rights as members of co-operatives.

The department facilitated the registration of the co-operatives with Company Intellectual Property Commission (CIPC) and thirty-six (36) co-operatives from the declared Small-scale communities in KZN. All registered co-operatives were handed over their co-operative registration documents and all the co-operatives were assisted to apply for the fishing rights in 2019.



Above: Members of the KwaZulu-Natal co-operatives.



Above: Minister Barbara Creecy and Acting Mayor of Umzumbe Local Municipality Ms Londolo Zungu present one of the KZN fishing rights co-operatives with a certificate.

Recently cabinet took a decision, to extend the timeframes for dealing with the fishing rights in twelve commercial fishing sectors which will expire on 31 December 2020. Any fishing rights allocation process is highly contentious and a number of legal and administrative procedures must be followed in order to ensure that a proper, transparent and legally defensible process is followed. Cabinet's approval for an extension of the timeframes will be in the interest of all South Africans, including both the current right holders and aspirant applicants.

"It is important to re-state that the decision to review the FRAP 2020 process which will see the re-issuing of licenses for 12 of the 22 fisheries. This decision has been taken following consultation with the sector and is aimed at ensuring that we follow all regulatory and legislative requirements. It is essential that the process is seen to be fair, open and transparent. It must promote the transformation of the sector, and create sustainable livelihoods for the many coastal communities who have no other means of support," explained Minister Creecy.

The department is committed to using the extended timeframes to deliver a credible and transparent Fishing Rights Allocation Process and to reduce the number of appeals and legal reviews.

“ The policy for Small Scale Fisheries Sector is aimed at providing a redress and recognition to the rights of Small Scale Fisher Communities in South Africa that were previously marginalised and discriminated against. ”

Rooibos victory for Khoi and San communities

By Gaopalelwe Moroane
Images by Siziphiwe Maxengana

Pride and excitement filled the !Kwa Ttu San and Cultural Centre in Yzerfontein, north of Cape Town on the morning of 1 November 2019 when the Rooibos and Honeybush Traditional Knowledge Benefit Sharing signing took place.

"The signing of this agreement is not only the first of its kind in the country, but also a first of its kind in the world," said Minister of Environment, Forestry and Fisheries, Barbara Creecy when addressing the San and Khoi community members who will directly benefit from the agreement. The historic agreements mark the Rooibos industry's recognition that the Khoi-Khoi and San people are the original founders of the Rooibos plant, including its traditional knowledge and thus should be included as beneficiaries in the industry.

The agreement is as a result of nine years of negotiations and was signed by Minister Creecy, chairperson of the National Khoi-San Council, Mr Cecil Le Fleur, chairperson of the San Council of South Africa, Mr Collin Louw, and chairperson of the South African Rooibos Council, Mr Martin Berg.

"The ABS agreement is a mark of South Africa's commitment to local and international biodiversity and bioprospecting regulations, including the Convention on Biological Diversity, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable

Sharing of the Benefits Arising from their Utilisation, the National Environmental Management: Biodiversity Act and its Regulations on Bioprospecting, Access and Benefit Sharing.

How will Khoi and San communities benefit from this agreement?

The agreement launches a one-year pilot project through which the Khoi and San communities will receive 1.5 percent of the farm gate price from the processors of rooibos in the form of an annual levy, excluding VAT.

This is estimated at R12 million per year and will be paid into Trust Accounts opened by the San and Khoi communities. Benefits also include the creation of jobs and the upliftment of some 160 small-scale farmers who belong to the Wupperthal cooperative in the Western Cape and the Heiveld co-op in the Northern Cape.

Asked what the signing of the agreement means for her community in Niewoudville, Northern Cape, Heiveld Cooperative's Ms Alida Afrika said, "The signing of this agreement has restored the dignity of my community as it confirms that industry recognises that traditional knowledge of Honeybush and Rooibos belongs to us."



Above: The agreement was signed by Minister Barbara Creecy, the chairperson of the National Khoi-san Council, Mr Cecil Le Fleur, the chairperson of the San Council of South Africa, Mr Collin Louw, and the chairperson of the South African Rooibos Council, Mr Martin Berg.



About the contributor: Gaopalelwe Moroane

Ms Gaopalelwe Moroane is an Assistant Director: Internal and External Communications in the Chief Directorate: Communications of the Department of Environment, Forestry and Fisheries. She joined the department in 2012 as an intern after completing her studies at Rhodes University.

Rooibos Agreement is victory for Khoi and San communities

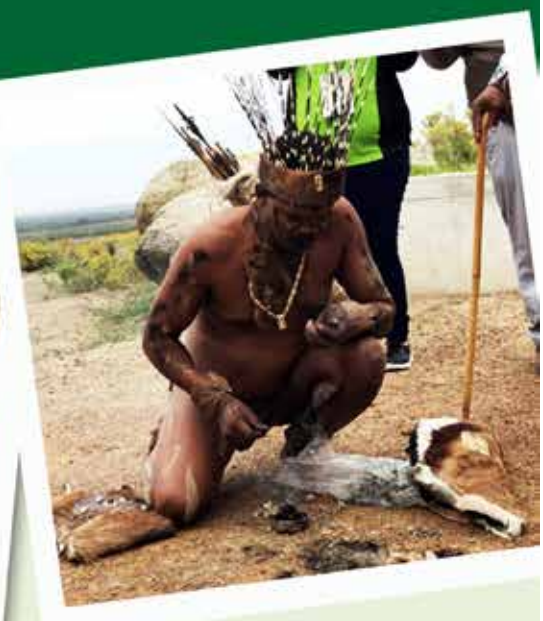
“ The signing of the Rooibos and Honeybush Traditional Knowledge Benefit Sharing Agreement between industry and the Khoi and San communities sets the benchmark for future similar agreements, says Environment, Forestry and Fisheries Minister, Ms Barbara Creecy. ”



Above: Minister of Environment, Forestry and Fisheries Barbara Creecy and !Aru | Khuisi Berendse, also known as Oom Piet after the signing of the Rooibos and Honeybush Traditional Knowledge Benefit Sharing Agreement.
(Image by Esa Alexander)



Above: The agreement was signed by Minister Barbara Creecy, the chairperson of the National Khoi-san Council, Mr Cecil Le Fleur, the chairperson of the San Council of South Africa, Mr Collin Louw, and the chairperson of the South African Rooibos Council, Mr Martin Berg.
(Image by Siziphiwe Maxengana)



Above: To officially open the signing of the Industry-wide Benefit Sharing Agreement for traditional knowledge associated with Rooibos, Mr !Aru | Khuisi Berendse, blessed the ceremony by starting a fire with sage and soil from !Khwa Ttu. The Khoi and San community believe that the burning of fire symbolises the blessing of the ceremony by ancestors.
(Image by Esa Alexander)



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Minister leads successful Plastic Colloquium

By Veronica Mahlaba



Above: Minister Creecy interviewed by SABC News Channel 404 about the purpose of the Plastic Colloquium which was held in Gauteng recently.



Above: Owner of K1 Recycling pallet plant, Mr Mazibuko shows the Minister how he turns washed plastic into pallets to sell back to manufacturers.



Above: Well-known radio presenter and MC Ms Azania Mosaka from 702 interviews the Minister about outcomes of the Plastic Colloquium.

Government and industry came together to discuss and provide solutions to the plastic problem that is facing South Africa. Plastic has been around since the 1950's and contributes 76 billion rand to our economy, employing nearly 60,000 people. However, plastic waste undermines the flood absorption and water storage capacity of our wetlands. It threatens catchments, river systems, estuaries and oceans. Minister Barbara Creecy led the first Plastic Colloquium held on 21-22 November 2019 at Birchwood Hotel.

The Plastic Colloquium brought together key stakeholders from government, industry and civil society for clear objectives to influence action in reducing littering and the huge quantities of plastic waste entering the country's river systems, wetlands and oceans.

With the growing consumption and use of plastic, Minister Creecy explained plastic pollution as a growing concern. The very attributes that have made plastic such a successful product, are making it a highly problematic pollutant.

A study conducted by the Department in 2017 on Plastic Material Flow confirmed that packaging constitutes the largest component of plastic waste generated in South Africa.

"Microplastic particles are found almost everywhere. A 2018 Water Research Commission report documented the presence of substantial amounts of plastic particles in surface, tap, and ground water sources in South Africa," explained the Minister.

She said the country's plan to achieve the ideal plastic waste-free South Africa by 2030 is a comprehensive plan to tackle the problem countrywide, adding that the plan must begin with households, and consumers who are conscious about why plastic litter damages the environment and who are willing to do their bit to help. Schools must be encouraged to assist in the battle against plastic pollution so that young citizens can become aware of their environmental responsibilities while raising much needed funding for their schools.

"Our anti plastic waste campaign must be supported by an ever-improving system of municipal refuse collection, which promotes separation at source.

"We must prioritise rural municipalities that lie along our major rivers so we combine our resources to protect our freshwater ecosystems and stop plastic from entering our oceans.

"There must be a clear role for informal waste collectors, who number as many as 60 000 in our country. These men and women must be given back their dignity. They must be systematically registered, organised, trained, equipped and protected from harsh, insanitary and dangerous working conditions," the Minister said.



About the contributor: Veronica Mahlaba

Ms Veronica Mahlaba is a Senior Communication Officer at the national Department of Environment, Forestry and Fisheries serving under the Communications Chief Directorate. Ms Mahlaba has experience as a Lecturer in the Media Studies Department at a private college.

Ministers take action for environment sustainability

By Veronica Mahlaba



Above: Mayor of eThekweni Metropolitan Municipality, Cllr Mxolisi Kaunda who welcomed the delegates in his city and Minister Creecy during the ministerial session of the conference.



Above: The South Durban Community Environmental Alliance (SDCEA) came to deliver their petition to Minister Creecy.

African Ministers responsible for the environment united at the 17th Ordinary Session of the African Ministerial Conference on the Environment (AMCEN) deliberated on emerging environmental issues and the implementation of various decisions, strategies and declarations to ensure Africa's sustainable development and prosperity. The conference took place under the theme: Taking Action for Environment Sustainability and Prosperity in Africa at the Olive Convention Centre, Durban on 11-15 November 2019.

Speaking at the conference, Minister of Environment, Forestry and Fisheries, Ms Barbara Creecy said while dire warnings of loss of biodiversity and environmental degradation are cause for concern, it is not too late for people to act.

"For the first time, the world has agreed on a set of Sustainable Development Goals that have turned the often misused term of sustainable development into a real and practical vision for the future. This practical vision is clearly reflected in the African Union's Agenda 2063 and the collective commitment we have made as a continent to implement the SDGs."

Furthermore, the Minister said we are living in a time of new and exciting technological advances in the green economy space. There is increasing recognition of the important contribution the Biodiversity and Oceans Economies can make to our gross domestic products. Renewable energy technology is becoming both more effective and cheaper by the day.

It is an era where a circular economy, is a practical and affordable alternative to the unsustainable take-

make-use-dispose model that is the root of many of current problems.

"Now is the best time for us to take stock and consider how we will build environmentally sustainable and climate resilient economies and communities on our continent," said Minister Creecy.

AMCEN seeks to promote value-addition of natural resources for sustainable industrialisation and trade in Africa, preventing illegal trade in species, while addressing the impacts on the environment by adopting concrete resolutions and actions. It will deliberate on matters related to, amongst others, green economy, climate change, sustainable development and management of hazardous waste in the continent.

The conference also provides a platform for Africa to consolidate its agenda and position in preparation for the forthcoming Twenty Fifth Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP 25) set to take place in Madrid.

Also speaking at the official opening on behalf of the outgoing President of AMCEN, Mr Stanislas Stephen Mouba emphasised the need to promote a shift in environmental management in Africa by taking more action.

"We have all been truly impressed by the work that AMCEN has undertaken over the years, especially in bringing together countries from the region not only to tackle various environmental and sustainable development challenges facing our continent but also to explore how to take advantage of the opportunities that exist," said Mr Mouba.

The status of South Africa's ecosystems and biodiversity



By Zimkita Mavumengwana
Images by Veronica Mahlaba and SANBI

On 3 October 2019 Minister of Environment, Forestry and Fisheries Ms Barbra Creecy launched the National Biodiversity Assessment (NBA) in a celebratory event that was held at the Pretoria National Botanical Garden.

The NBA is the primary tool for reporting on the state of biodiversity in South Africa. It is used to inform policies, strategies and activities for managing and conserving biodiversity more effectively. During the NBA launch Minister Creecy said, "The assessment allows government to evaluate progress and shortcomings in conservation and ecosystem management on both land and sea".

The NBA was led by the South African National Biodiversity Institute (SANBI) as part of their mandate to monitor the status of South Africa's biodiversity and was undertaken between 2015 and 2019. It involved extensive collaboration from over 470 individuals representing about 90 institutions. Ninety young people

contributed to the NBA as SANBI prides itself on growing young people's skills and capacity. SANBI Board Chair Ms Beryl Ferguson noted that "South Africa is one of the few countries in the world where young people can participate in such an important product". A short film which features four young scientists from SANBI sharing their role and experiences of their involvement in the development of the NBA was screened at launch.

South African biodiversity is extraordinary – it is one of the 17 megadiverse nations in the world and in the top three when it comes to plant and marine species found nowhere else on Earth. Megadiverse nations are countries that together contain more than two thirds of the world's biodiversity.

Dr Andrew Skowno, lead scientist of the NBA, alongside Ms Dewidine van der Colff, who is one of SANBI's young scientists, presented the key findings and messages of the NBA at the launch event.

The findings revealed that almost half of all South Africa's 1 021 ecosystem types are threatened with ecological collapse and one in seven of the 23 312 indigenous species that were assessed are considered threatened with extinction. Nonetheless efforts to protect our biodiversity are showing promising outcomes, as over two-thirds of ecosystem types and 63% of species assessed are represented in protected areas. The study found that major pressures on South Africa's biodiversity are habitat loss, changes to freshwater flow, overuse of some species, pollution, climate change and invasive alien species. Freshwater fishes are the most threatened species group assessed in South Africa – which is a reflection of the generally poor ecological condition of many of our rivers. Approximately 99% of estuarine area and 88% of wetland area is threatened, and less than 2% of their extent is in the Well Protected category. The restoration and protection of these small ecosystems is a priority to secure the essential benefits that they provide to people and species.

Protected areas have expanded in the ocean and on land and are a source of pride for South Africans. Continued expansion will help to ensure biodiversity conservation, ecological sustainability and even more social and economic benefits from biodiversity to society. Protected areas now cover nearly 9% of South Africa's mainland area and 75% of terrestrial ecosystem types have some form of representation. The 20 new Marine Protected Areas declared in 2019 ensure that 5% of the country's mainland marine territory and 87% of marine ecosystem types have some protection.

South Africa has an incredibly wealth of plant species, with 20 401 plant species found within our borders. These have all been assessed and a high number (2 804 species) are threatened with extinction. This is due to many indigenous plants having extremely limited ranges that coincide with areas that have been extensively developed or degraded. South Africa has the second highest number of documented plant extinctions of any country in the world, with 36 species confirmed extinct and a further 70 possibly extinct. All mammal, bird, reptile, amphibian, freshwater fish, butterfly and dragonfly species were assessed, together with selected marine and estuarine fishes and invertebrates. Of the 2 911 animals assessed, a total of 12% are categorised as threatened with extinction.

This biodiversity wealth gives people benefits like food, water, medicine and materials; it supports agricultural and fisheries production and helps protect us from natural hazards like floods and droughts; and it provides the basis of a vibrant tourism industry while offering natural spaces for recreational and cultural activities. South Africa's economy is highly dependent on its biodiversity – for example: biodiversity-related employment is estimated at 418 000 jobs; biodiversity tourism generates a direct spend of R31 billion annually; and our approximately 2 000 medicinal plant species contribute to the African Traditional Medicine sector worth ~R18 billion per year.

Biodiversity benefits us in our everyday lives, and Minister Creecy stated that with this wealth of biodiversity comes the responsibility of ensuring it is both protected and used sustainably. She said, "Biodiversity is central

to South Africa's national objectives of addressing poverty, inequality and unemployment, and supports increased economic growth and improved service delivery for all its citizens. Every decision taken, whether by governments or individuals, affects the future of biodiversity."

The full set of NBA products, which include a synthesis report, seven technical reports, datasets, maps, supplementary materials and popular products, is accessible via <http://nba.sanbi.org.za/>



Above: SANBI Board Chairperson Ms Beryl Ferguson welcomes all partners that made it possible for the NBA to be compiled and published.



Above: Minister Barbara Creecy breaks down the findings of the NBA at SANBI.



EPIP invests in biodiversity by training field rangers

By Nomvuyo Mlotshwa

The Department of Environment, Forestry and Fisheries is training 137 youths from five district municipalities in KwaZulu-Natal to contribute to the conservation of natural resources and protection of our cultural heritage. Through the Environmental Protection and Infrastructure Programmes (EPIP) the youth are trained as conservation general assistants, environmental educators, assistant housekeepers, assistant chefs, table attendants, cultural site guards and armed field rangers.

The EPIP KZN-Youth Environmental Services (YES) programme in conjunction with Ezemvelo KZN Wildlife deployed the armed field ranger trainees to reserves within their region for practical workplace training for a period of 12 months. The training covered subjects such as conservation guardianship and the use of chemical weapons.

Training on the competent handling and use of a self-loading rifle and a manual rifle were offered. On successful completion, learners will receive a national or accredited basic field ranger certificate.

Ezemvelo KZN Wildlife Head of Operations and Conservation, Mr Oscar Mthimkhulu said the parade is a demonstration of the discipline imparted on the trainees. Mr Mlungisi Hlela said the field rangers are foot soldiers of all conservation and that part of their job entails putting their lives at risk for the safety of our biodiversity. They are fighting with their lives to protect South Africa's wildlife and bioprospecting economies.

Deputy Director of the YES programme at the Department of Environment, Forestry and Fisheries Ms Nkosingiphile Khuluse, commended the partnership with Ezemvelo KZN Wildlife as 63% of the previous cycle trainees were absorbed into full-time employment by the reserves they were hosted in during their training.

“Field rangers are foot soldiers of all conservation and part of their job entails putting their lives at risk for the safety of our biodiversity.”



About the contributor: Nomvuyo Mlotshwa

Nomvuyo Mlotshwa is the Assistant Director: Programme Publicity and Liaison. She is responsible for managing and promoting the brand of the Environmental Protection and Infrastructure Programmes. She is passionate about community outreach and stakeholder liaison.



Best Leadership Award winner: Thulasizwe Xolo
Stationed: Vernon Crookes Nature Reserve

How did you find out about the YES programme?

The KwaXolo Community Chief made an announcement that Ezemvelo KZN Wildlife was inviting unemployed youths with a matric to apply for the field ranger one year apprenticeship.

What interests you about being a field ranger?

The fact that I contribute towards protecting and preserving our environment. South Africa has such beautiful nature that attracts lots of tourists and boosts our economy.

What did your day-to-day activities at Ezemvelo Training Centre entail?

We woke up at 04:30 AM to do physical training which included a 3 kilometre run and rigorous training. We also cleaned our rooms, and went for prayer before breakfast, and then attended our classes.

What challenges do field rangers face?

Working in the bushes means encountering different weather conditions such as rain, the cold winter and blazing hot sunny days. It is also not a 9 to 5 job. One night, we were alerted of malicious activities in the Vernon Crookes Reserve and had to be on patrols in the bush in the middle of the night.

How has this programme improved your life?

Since completing my matric in 2005, I had a few small jobs, but with the stipend that I receive from the EPIP YES apprenticeship and training, I am able to put food on the table for my family more steadily.

What motivates you in life?

I believe in a healthy lifestyle so I jog every morning and since joining the YES programme, I have developed a special love for nature and hope to further my studies within the nature conservation field.

Would you recommend this career to other youth?

Yes, especially to black South Africans. I think we still have minimal knowledge about the importance of nature conservation and therefore fail to play our part and be involved.



Nosipho Nzimande
Stationed: Spioenkop Game Reserve

How did you find out about the YES programme?

Being unemployed meant I was a regular at Bergville Well-Being Community Centre. One week I did not go to browse for jobs, but luckily I bumped into the lady from the community centre and she told me about the field ranger apprenticeship opportunity.

What are your day-to-day activities at Spioenkop Game Reserve?

As a trainee at Spioenkop Game Reserve I work closely with qualified and experienced rangers conducting daily reserve patrols. We use portable radio signalling system to communicate with each other. We record animals spotted within the reserve using cyber tracker and in the manual record book.

How did you experience the field ranger training centre?

In the training centre we were treated equal, men and women were trained the same. We all ran 3 kilometres and did sit-ups, push-ups, jack-knives, and shuffle kicks. Then we had to do frog jumps or crawl or roll until we reached the kitchen for breakfast. These extensive exercises were to boost our mental and physical fitness while it also taught us to do tasks accurately. It was very strict. If your room was not tidy, you would easily earn yourself 50 or 60 squats that day.

Has the training changed your life in any way?

The training taught me many important principles and it revealed to me the best version of myself. It has become my habit to jog every morning and do sit-ups and squats to keep fit. I've also improved on time management. The programme also helped with my self-esteem and I have conquered my phobia of darkness. Now I feel like I am somebody in my community, and I walk with pride and dignity as I strive to be a good example everyday.

Would you recommend this career to other youth?

Yes I would. It is important for us to take care of nature or else our animal species like the rhinos will become fairytales to our great grandchildren.

Neville's winning image captures international community

By Salome Tsoka
Image by Wild Shot Outreach

Mr Neville Ngomane's captivating dehorning image, titled *Desperate Measures* has captured the hearts of the international community. By winning the international Chartered Institute of Water and Environmental Management (CIWEM) Young Environmental Photographer of the Year Award, Neville brought to light the desperate conservation methods used to save the rhino.

The winning image captured the moment a three-year-old white rhino named Ringo, was dehorned by Rhino Revolution, a rhino conservation group in a private game reserve in Hoedspruit, Limpopo. Neville along with other youth from the Wild Shots Outreach organisation targeting youth living in communities in the Greater Kruger were invited to document the dehorning.

Aspiring entrepreneur and conservationist, Mr Ngomane said watching the dehorning was difficult and he was hurt and angered by what people did all in the name of making money.

"The decline of the rhino population eats me up and scares me a lot. We have known about this issue for a long time but we still have humans that continue to kill rhinos for money. I think that communities that live around reserves with rhino populations should be taught more about this. If locals are educated about it then they might even help find ways to stop it or even help find the poachers," Mr Ngomane said.

The young rhino is one of five orphaned rhinos under the care of the conservation group after their mothers were poached. Every two years, the rhinos are dehorned to protect them from poachers vying for their horns.

Mr Ngomane (20) said he has already started taking initiatives to educate other young people in his community about conserving wildlife and keeping the environment clean. He said he also hopes to someday combine his love for photography and wildlife conservation.

"Photography means a lot to me and I want

continue with it. In ten years, I see myself in the bush, traveling through Africa learning more about wildlife and conservation. I see myself running campaigns and an organisation that engages young and old to conserve wildlife," he said.

Wild Shots Outreach founder and director, Mike Kendrick said he entered Mr Ngomane's image which was picked from more than 4,000 international entries and that the win was a fantastic accolade for Neville, for Wild Shots Outreach and for the communities they work in.

"We hope that Neville will develop his passions for conservation and for wildlife photography through some of the opportunities that are opening up for him," said Mr Kendrick.

Mr Ngomane has also had the opportunity to attend an elephant conservation event in Hong Kong as the winner of the CIWEM Young Environmental Photographer of the Year. Neville's image has since been exhibited at the Wild Shots Conference in Cape Town, broadcast in various media platforms across the country, on BBC in UK, by CNN and even received some recognition from American actor, producer, and environmentalist, Leonardo DeCaprio.



About the contributor: Salome Tsoka

Ms Salome Tsoka holds a BA Degree in Journalism from the University of Johannesburg and has been writing for as long as she can remember. She is an intern in the Chief Directorate: Communications and has a unique passion for writing captivating stories.

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**South African
NATIONAL PARKS**

A mobile solution for Mzansi's waste pickers

By Zibuse Ndlovu

Whoppa tricycles are an efficient mode of transport for waste pickers and mobile vendors to reach their business destinations, with an electric version that boasts a speed of up to 25 km/h at a range of 50 to 60 km on a single charge. To find out more about these super tricycles we spoke to Mr Giovanni Mottalini who spent the last 8 years with Qhubeka, a Non-Profit Organisation using donor funding to supply bicycles to those in need.



Above: Safe, high quality, reliable, eco-friendly, affordable, pedal and motor assisted electric Whoppa Tricycle.



About the contributor: Zibuse Ndlovu

Zibuse Ndlovu is the Assistant Director: Editorial Services at the Department of Environment, Forestry and Fisheries, within the Communications Chief Directorate.

In your view, do you believe that ordinary men and women who are recyclers are getting enough support from both government and private sector?

The short answer to your question is no. In general, waste pickers are seen as pests and a scourge on the roads, but having said this, it seems as though attitudes are changing and there is a drive to integrate them into the formal business world. This would definitely legitimise them in the eyes of the public.

What inspired the idea of Whoppa tricycles, tell us more about their potential in relation to waste pickers and recycling?

Whoppa realised the need for transportation and the associated costs thereof, and thus decided on manufacturing the tricycles. They have continuously strived to manufacture safe, high-quality, reliable, eco-friendly, affordable, pedal and motor assisted electric tricycles with the primary objective to create jobs and reduce unemployment.

Tell us about e-motors, we understand that there are different versions...can you elaborate?

The electric motors are either on the front or rear wheel mounted or mid frame, the least expensive is the front wheel then the rear wheel and finally the mid mounted motor which is the most complex and is totally controlled within itself, but obviously the most costly as it basically drives the tricycle, whereas the front and rear wheel versions are basically pedal assists.

Would you say that the Whoppa tricycles have changed the lives of the recyclers in terms of efficiency, if so, how?

Where they have been implemented they definitely have. A case in question is at Sasol, where before the implementation of the tricycles, with the normal pull trolleys waste pickers were completing between 1 to 2 trips a day, with the tricycles they are now doing 5 and more daily, this definitely translates to more income for their toils. The tricycles allow more speed and these are pedal versions, so there is no immediate need for the expense of electric versions of the tricycle, but the tricycle could, if so required be upgraded to the electric version later at just the cost of the electric motor.

Are there any success stories where real people's lives in recycling were changed because of this innovation?

A case in question is the Sasol example and Anglo American have now also embarked on a similar project in the Mpumalanga region.

You say the tricycles are manufactured with job creation in mind, can you please elaborate on that?

They are manufactured in South Africa, and that basically means that they are definitely contributing to job creation locally.

Most of the time waste pickers face many challenges working in the informal waste economy, they are stigmatised by the public, exposed to unhealthy working conditions, what would be your message to them?

I believe that integrating them into the formal business structure would go a long way in creating a more sustainable future and definitely remove the stigma that they are labelled with. The public needs to understand that what waste pickers do is not only for themselves or for the country only, but it's to save the universe.

In closing, what does going green mean to you and how do you practice it in your daily life?

For me, going green is to firstly, eliminate all single use bags, containers and ensure that the world is reintroduced to reusables and in the home all waste should be minimised where possible. I only now use reusable shopping bags, I separate at source, my wet waste is turned into compost and I have been on a drive to assist waste pickers to be more organised and organised with various organisations.

When you go shopping take your recycled shopping bags. **Do not demand new plastic bags**



Plastic pollution is a problem.

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Unemployed youth learn professional culinary skills

By Nomvuyo Mlotshwa



The Department of Environment, Forestry and Fisheries through its Environmental Protection and Infrastructure Programmes (EPIP) enrolled 100 unemployed youth for a Diploma in Food Preparation and Culinary Arts (Cooking) with HTA Training Development, City and Guilds internationally accredited training provider. The impact of this training project is widespread and includes youth from four local municipalities in Mpumalanga Province: Thembisile Hani, Steve Tshwete, Msukaligwa and Lekwa Local Municipalities.

Executive chef at The Ridge Hotel, Mr David Loate commended the training project saying, "Professionally trained chefs are still scarce in this area. This training will open great opportunities for our young ones". Chefs in restaurants and hotels are responsible for the planning of menus, ordering foodstuffs, overseeing food preparation and supervising kitchen staff. Skills Development Facilitator in Thembisile Hani Local Municipality Mr Johanna Mahlangu said "The Department has contributed to developing the skills of our unemployed youth. They will now be able to find employment, or render catering services in the area. Their small businesses will boost the local economy. We are extremely grateful for this opportunity".

A matric certificate was a prerequisite for the course. Trainees attended theoretical training for six months. These included classes on workplace safety, food safety, food preparation and special diets as well as catering operations. Upon completion, the learners were placed with various institutions including the Southern Sun, The Ridge Hotel and Yalla Yalla Boutique Hotel in Emalahleni for a period of 12 months.

One of the learners, Mr Kenneth Lubisi said, "I've learned so much in terms of food preparation. I can now fix mouth-watering dishes including desserts with self-confidence. My speciality is roasting pork chops and making a chicken marinade. Time management is one of the most important aspects in this field. We were taught to prepare in advance in order to determine if we have all the ingredients we need to create a specific dish before cooking."

Approximately 28 learners settled into full-time employment after training with their host institutions. Sarah Phetla who was absorbed by Yalla Yalla Boutique Hotel, emphasized "Wearing a clean, full uniform and covering hair is a necessity in the kitchen. Safety boots protect feet and toes from injury from falling pots, pans and knives and assist against slipping from accidental spills".

Another learner, Ms Mbali Khumalo said learning how to use a knife correctly can shorten preparation time. "It begins with learning to distinguish between the different types of knives and various cut styles such as chopping, dicing or julienne strips, and then practice the proper way of holding the knife," she said.

Three industrious young chefs who participated in the training registered a catering company, and put to practise their new skills. They prepared food with a meagre budget and sold it at the Emalahleni Music Festival where they made good profit. It seems the young chefs from this training programme will be cooking up storms everywhere they go.

HOW THE

START AT THE SOURCE

NO INVASIVE ALIEN PLANTS AT SOURCE
FOLLOW THE RIVER
AND MOVE DOWN

GOOD RAINS AT THE SOURCE
SKIP FORWARD 4

1

2

3

11

9

10



12

PIT LATRINE TOILET
NEAR A RIVER OR DAM.
MOVE BACK 2 SPACES.

13

14

15



16

A WETLAND CLEANS THE WATER.
FOLLOW THE RIVER
AND MOVE DOWN.

31

29

32

30

28

WATER POLLUTION.
MOVE BACK
1 SPACE.

33



THE RIVER IS DAMMED
AND NO WATER IS BEING
RELEASED DOWNSTREAM
MOVE BACK 1 SPACE.

34

37

35

36



environmental affairs

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RIVER FLOWS

4



RUNNING TAP
WASTE OF WATER
MOVE BACK 2 SPACES

5

INVASIVE ALIEN PLANTS
REMOVED. FOLLOW THE
RIVER AND MOVE DOWN.

8

7

6

POOR FARMING
PRACTICES CAUSED EROSION
MOVE BACK 1 SPACE.

19

20

17

18

21

YOU PUT OUT A
VELD FIRE. MOVE
FORWARD 2 SPACES.

24

INVASIVE ALIEN
SPECIES. MOVE BACK
2 SPACES

22

27

25

23

26



38

39

LITTER ON
THE BEACH.
MOVE BACK 1 SPACE.

40

YOU
MADE
IT!! 41



Ensuring collaborated enforcement in our oceans

By Perfect Hlongwane

Ms Frances Craigie is the Chief Director of Enforcement at the Department of Environment, Forestry and Fisheries. She also chairs the Working Group overseeing Initiative 5 of the Marine Protection and Governance, which seeks to implement an enhanced and coordinated enforcement programme in the areas relevant to the oceans economy.

Tell us about the Working Group and how it operates

The Working Group is crucial to coordinating the activities of the different law enforcement agencies that are represented under Initiative 5. These different teams of law enforcement operate both proactively and retroactively. They maintain a presence that enables them to monitor non-compliance and criminal activity in the oceans and coastal space and also conduct investigations and carry out arrests, where necessary, of criminal perpetrators. This is a wide-ranging and diverse portfolio, requiring the assistance, participation and buy-in of several different stakeholders, including the general public. South Africa has an extensive coastline and vast ocean space, making it a sometimes herculean task to provide enforcement and monitor all the illicit activities that take place within the sphere of the oceans economy.

What are some of the challenges you encounter in your work?

There is the issue of stowaways, who I can describe as undocumented individuals who hide out on vessels that will dock in South African harbours. These individuals pose a security risk, as do all individuals who

enter the sovereign space of another country illegally. Enforcement also plays a role in minimising the criminal activities of those who engage in destruction of the coastal and ocean habitat, ensuring that offenders are apprehended and made to face the full might of the law. Such activities can range from simply driving private vehicles on the beach, which in many cases is strictly forbidden, to engaging in unlicensed and unregulated fishing activity.

How do you ensure compliance and enforcement in the marine space?

Part of ensuring compliance and effectively enforcing South Africa's marine and maritime laws consists of being present and proactive in that vast space. Visibility of enforcement officers is therefore key to the effective discharging of their enforcement responsibilities. This is not only to achieve security-related outcomes, but also to ensure the sustainability of the oceans and coastal area space, as many of the laws and regulations governing it are geared towards protecting and conserving that environment.

How serious are the criminal activities that take place?

Some of criminal activity which takes place in the oceans economy space is

brazen and quite serious, and often carried out by sophisticated criminal syndicates. Anticipating these kinds of activities and ensuring that offenders are apprehended requires that joint operations be carried regularly, as the response by enforcement to these kinds of organised crime must also be extensive and sophisticated.

The illicit harvesting of abalone in the period between October to December, 2018 alone, coordinated enforcement programmes and joint operations resulted in some 46 arrests, 153 fines, the confiscation of 8 vehicles and 10 vessels, and the recovery of almost 8 000 abalone valued at almost 3 million rands. Joint operations can last, she says, ranging anything from 3 to 52 days, outlining the complexity of the task.



About the contributor: Perfect Hlongwane

Mr Perfect Hlongwane is a writer and editor from Johannesburg. Formerly a lecturer in the English Department at Wits University, he left academia for a career in publications, editing Soccer News, South Africa's first Black-owned sports magazine, and subsequently the glossy SoccerLife magazine. He has done copy editing work for Media24, the Mail & Guardian, Jacana Media and others. Jozi, his first novel, was shortlisted for the UJ Writing in English Debut Prize in 2014. His second novel, Sanity Prevail, is forthcoming from Blackbird Books in 2020.

SA farms are abandoned amidst dry climate conditions

By Reyhana Mahomed

In the last two decades, the summer rainfall region of South Africa has experienced frequent drought events which negatively impacted crop farming. This has resulted in an increase in farm abandonment in the region - which includes the provinces of North West, Limpopo and the Free State – ensued by an increase in bush encroachment threatening the grazing potential of the savanna system that could cripple food security as livestock lose access to grassy plant species.

CSIR remote sensing specialists studied satellite imagery of South Africa's savanna system over the period 2001 to 2018 which showed that as the climate became drier, farms were abandoned, which in turn led to an increase in tree cover.

"The grass-tree co-existence of the Savanna is crucial to the provision of important ecosystem services, including grazing and browsing resources to livestock and wildlife; and the provision of food and medicinal plants to the human community," says CSIR remote sensing specialist, Dr Moses Cho.

The Kruger National Park is located in the Savanna system and the variability of grass and tree cover is controlled by a number of environmental and human-induced factors. For example, increasing levels of atmospheric carbon dioxide released from industries and other human activities favour tree growth in the savanna, causing bush encroachment.

Cho warns that this could lead to the expansion of tree cover at the expense of grassy areas, adding that other activities such as deforestation, overgrazing and farm abandonment are equally changing the dynamics of tree and grass cover in the region.

While increasing bush density in the savanna reduces land accessibility by wildlife and livestock, the researchers acknowledge that the increase in tree cover has the potential to increase the landscape's resilience to the impacts of droughts.

This research was published in the International Journal of Applied Earth Observation Geoinformation.

Enquiries: [Dr Moses Cho, mcho@csir.co.za](mailto:mcho@csir.co.za)

Savanna vegetation

Over 30% of the land area of South Africa is occupied by Savanna vegetation. Savanna vegetation is characterised by a continuous layer of grassy vegetation and varying proportions of tree cover.

Remote sensing

Remote sensing is a popular means of establishing long term spatio-temporal patterns of forest cover at the regional to continental scale.



About the contributor: Reyhana Mahomed

Ms Reyhana Mahomed is a Communications Manager at the Council for Scientific and Industrial Research (CSIR): Natural Resources and the Environment. Before joining the CSIR, Ms Mahomed was a Deputy Director in the Department of Environmental Affairs' Chief Directorate: Communications.



Save the bees

By Marcini Govender

Images by Native Nosi and SANBI



Above: Honeybees of South Africa. South Africa is home to two sub-species or races of honeybees which are indigenous to the country: African bee and Cape honey bee.

Above: Cape honey bee.

For most of us, honeybees are annoying insects whose intentions is just to buzz around us and attack us with the acid-laden stings. However, the truth is that these small black and yellow insects can actually make or break the human world. Honeybees are vital components of our environment, and almost never get the recognition that they deserve.

We have bees to thank for around one-third of the world's food supply, including avocados, almonds, onions, and a whole lot of other fruits and vegetables that would be extremely missed if they were to disappear.

Without pollinators, food crops would have a lower production level and eventually lead to worldwide famine. Hunger and poverty will be very common. Freshwater will start drying up as well, as there will be less trees for water retention to occur. With less water and diminishing food, humans will die of thirst and starvation. Fertility would also suffer a setback, followed by a drop in the rate of reproduction. Ultimately, we wouldn't be able to sustain ourselves and would be forced into extinction within a few hundred years.

Honeybees are the primary pollinators in South Africa. Not only are they important to the agricultural industry, but they also pollinate 40% to 70% of the indigenous flowering plants. In the Western Cape the Cape honeybee is an essential pollinator for the fynbos biome,

of which 83% of plants are insect pollinated.

The Honeybee Forage Project, a project funded by the Working for Water Programme, Department of Environment, Forestry and Fisheries (DEFF) and implemented by South African National Biodiversity Institute (SANBI) and the Agricultural Research Council (ARC), was undertaken and showed that eucalyptus trees, certain crops such as sunflower, citrus and canola, indigenous trees and shrubs, flowering plants in suburban gardens and even roadside wildflowers or weeds are all critically important to South Africa's indigenous honey bees.

Eucalyptus trees provide a reliable food source because different species flower at various times of the year. However, these trees are considered as alien invasive species that utilizes a large amount of water and must be removed when growing along water courses, in protected areas or in ecosystems identified for conservation purposes. The removal of these trees has unfortunately also contributed to the reduction of bee forage, but provisions were made in the Alien Invasive Species Regulations for management of eucalypts to support the bee industry.

Our survival depends on the health of the planet and its species, and unless we begin to face this fact, we will continue to contribute to our own demise. Unless we take drastic measures to save the bees, the planet's survival is in doubt.

What can we do to save the bees?

Plant indigenous

Plant as many indigenous flowers in your garden as possible to encourage bees to come in and pollinate. Indigenous trees particularly recommended by beekeepers are sweet thorn, buffalo thorn, karee, river bushwillow, weeping wattle and tree fuchsia.

Colourful indigenous bee-friendly plants include agapanthus varieties, aloe species, asparagus fern, buchu, butterfly bush, clivia, ericas, euryops daisy, Felicia, gazania varieties, carpet geranium, Cape honeysuckle, lion's ear, osteospermum hybrids, protea, ribbon bush and vygies.



Above: Cape honeysuckle is a species of flowering plant in the family Bignoniaceae, native to southern Africa.

The South African National Biodiversity Institute published a list of indigenous plants which provides food for honeybees, find it at: <https://www.sanbi.org/wp-content/uploads/2018/04/kirstenbosch-nbg-list-plants-provide-food-honey-bees.pdf>

By making your garden a biodiverse haven you can play your part in keeping the bees thriving as an indispensable part of our ecosystem.

Provide water

Leave a dish of water out for bees to drink as bees also get thirsty and adding twigs, moss, rocks, or mud to the water gives the bees something to land on so they're less at risk of falling into the water and drowning. To deter mosquitos, change your water at least once a week.

Say no to pesticides

Avoid using pesticides in your own home garden as with bee populations declining, it's more important than ever to keep our homes pesticide-free. Bees exist in urban environments, so urban gardens are important to their nutritional needs. Plants that are treated with pesticides are extremely harmful to bees, and even low doses of tainted pollen/nectar can build up in a beehive over time and lead to neurological issues and cause the whole colony to die out.

Support SMME honey farmers

If you eat honey, buy from local beekeepers when possible, as small time bee farmers are more likely to keep the practice free from harming the bees.



Above: Bees need to drink water routinely as we do.



Above: Mokgadi Moloko Mabela, founder of the Native Nosi beekeeping company.

For more information on bees and how you can contribute to sustaining their survival visit the following websites:

South African Bee Industry Organisation: <https://www.sabio.org.za/>

SANBI's indigenous plant list: <https://www.sanbi.org/wp-content/uploads/2018/04/kirstenbosch-nbg-list-plants-provide-food-honey-bees.pdf>

<http://biodiversityadvisor.sanbi.org/literature/4327-2/strelitzia/>

<https://agribook.co.za/livestock/beekeeping/>

Fast Fact



- Bees have five eyes (two compound eyes and three single lens eyes) and a worker bee's main eyes have nearly 7000 lenses.
- An electrostatic charge on the bee's hairs attracts pollen and the leg brushes, then scrapes, the pollen from front to back, where it collects in the pollen basket – a wide, flat area on the rear pair of legs.
- The proboscis (long tongue) is an airtight, straw-like tube that sucks up nectar and also works in reverse to feed offspring from the honey stomach.

Getting around

A honeybee has two sets of wings used for flight. The wing hooks enable the bee to attach one of each set of wings together during flight for maximum efficiency.

Communicating

Honeybees communicate by performing a series of dance moves. Through the number of turns, duration of the dance and the moves themselves, they can communicate the distance of the food and the direction of the food in relation to the sun.

Food

Honeybees forage on nectar (carbohydrates) and pollen (protein) of flowering plants, and they require a large

diversity of pollen and nectar from different plant sources to be healthy. While some beekeepers may supplement a colony's food with sugary water, this is not a long-term or healthy option. African honeybee beekeepers use a variety of plant species (including indigenous plants, crops and weeds) as forage resources for their be

Family life:

The honeybee lifecycle includes egg, larva, pupa and adult stages. Honeybee colonies comprise of a single mated queen and 10 000 to 50 000 of her worker daughters. The queen can choose the sex of her offspring because of haplodiploidy (the sex-determination system of bees, wasps and other Hymenoptera). Diploid eggs are fertilised and produce female offspring (workers and queens), while unfertilised, haploid eggs develop as males (drones).

Mating

In order to mate, a queen flies with drone aggregations on one to four successive afternoons, mating with six to ten males on each flight. The average lifespan of a queen is three to four years; drones usually die upon mating or are expelled from the hive before the winter; and workers may live for a few weeks in the summer and several months in areas with an extended winter

Source: SANBI



Plants in Peril

By Marcini Govender
Images by Brand South Africa



There are more than 9 000 indigenous plant species in the Cape Floral Kingdom. Broadly known as fynbos, many species have been exported for decades but certain species, such as the king protea, protea compacta and silver brunia, are currently trending in Europe, Asia, Russia and other international markets. They have unusual aesthetic appeal and they last far longer than non-fynbos flowers.

South Africa is the third most diverse country for plant and animal species, making the country one of the megadiverse countries in the world. However due to human activities, the existence of one in four plant species in South Africa are threatened with extinction. The South African National Biodiversity Institute (SANBI) has a threatened species programme which assesses the national conservation status of indigenous plants. South Africa was the first megadiverse country to fully assess the status of its entire flora. The Red List of South African plants provides up to date information on the national conservation status of South Africa's indigenous plants.

The conversion of natural habitat for agricultural or urban and industrial land uses cause loss of habitat and is the most severe threat to South African plants. The threat of habitat loss is followed by habitat degradation caused by overgrazing, clearing of trees and woody shrubs from savannas and forests and inappropriate fire management (which may be either too frequent, too infrequent or out of season burning). Habitat degradation causes disturbance and a breakdown of essential ecosystem processes which may result in the loss of sensitive species. Invasive alien plant species

outcompeting indigenous plants species is another severe threat.

The Environmental Protection and Infrastructure Programmes of the Department of Environment, Forestry and Fisheries continue the battle with eradication of alien invasive plants and rehabilitation of degraded environments through the Working for the Coast and Land focus areas as well as the Greening and Open Space Management and People and Parks projects. These interventions follow in the footsteps of the Working for Water programme which was established in 1995.

As part of an awareness campaign about plant species that are under threat, we want to share some information on the country's endangered species.

The Cape Floral Kingdom is the richest plant kingdom in the world and has been awarded World heritage status. However, many plant species in this rich biodiverse area are currently endangered. This is problematic as a good number of these species are endemic and occurs only in South Africa and nowhere else in the world. Let's take a look at some of these species that need our support and care to survive – you could even start your own plant rescue garden!



About the contributor: Marcini Govender

Ms Marcini Govender is in the Directorate Environmental Sector Advocacy and Coordination in the Department of Environment, Forestry and Fisheries. She is a registered Principle Natural Scientist in the field of Botany and is currently pursuing interests in Science Communication which allows scientist to inform, educate, share wonderment and raise awareness of science related topics.



Above: Natural distribution of the northern spiderhead.



Above: Flowers of the northern spiderhead.

Northern Spiderhead / sandveldspinnekopbos

Scientific Name: *Serruria fucifolia*

Family: Proteaceae

Red List status: Endangered

Distributed between Gifberg to Hopefield in the Western Cape, this medium-sized fynbos shrub is under threat from habitat loss due to expanding agricultural plantations of potatoes in the south, rooibos tea in the north and alien invasive plants.

During July to October it is covered in sweetly-scented silver-pink flowers. Typical of the fynbos plants it is covered by silver hairs, with grey green leaves which curl upwards.

Ideal in a fynbos garden but adapts itself to being planted into many different garden styles. The soft silver-pink flowers and matt foliage combine well with typical cottage-garden-type plants. It is one of the easiest and most vigorous spiderheads to grow and is tolerant of many soil types providing it is in full sun and has good drainage. The best time to plant in the garden is at the start of the rainy winter season.



Above: Natural distribution of the northern spiderhead.



Above: Van Staden's sceptre in full bloom

Van Staden's sceptre / geel paranomus

Scientific Name: *Paranomus reflexus*

Family: Proteaceae

Red List Status: Endangered

This green bottlebrush grows on sandstone slopes in the mountains of the Eastern Cape Province. It can be only be found in the Van Stadens Mountains and the Elandsberg near Port Elizabeth in the Eastern Cape. It is confined to Kouga Sandstone Fynbos, and occurs in small clumps of a few dozen plants scattered through its range. This species is continuing to decline because of habitat destruction and invasive alien plants.

It is a perfect addition to any fynbos, water-wise, or Mediterranean garden. It tolerates drought but performs best with moderate water all year round.

Hessea

Scientific Name: *Hessea mathewsii*

Family: Amaryllidaceae

Red List status: Critically Endangered

This damp loving plant grows near limestone and granite and is naturally found between Vredenburg and Langebaan in the Western Cape Province in only four locations. It is a bulbous plant, with a slender stem, reaching a height of about 190 mm. Leaves are narrow and strap-shaped, occurring as two, or sometimes three, blades. It is a many-flowered plant that has pink and white flowers.

Large areas of this species' habitat has been transformed for crop cultivation, and plants on remaining fragments are threatened by overgrazing and further habitat loss to urban expansion. It is estimated that there are less than 1 500 adult plants still growing in the wild.

It is a great indoor and outdoor plant and will do well in container cultivation, requiring bright sunlight and a sharply drained, gritty soil. It is a solitary bulb that produces many seeds. Quick propagation is ensured if ripe seeds are placed just below soil surface. Drench well in winter, and keep dry in summer.



Above: Natural distribution of the hessea.



Above: Hessea flowers.



Money-making plants

By Marcini Govender

Images by Africa.com and Jive Media

South Africa has a large quantity of valuable plants and offers some well-known plants species to the world's commercial sectors. With this rich biodiversity the search for new plant species is an avenue of new economic growth and holds the promise of new industry and jobs and subsequently the promise of better futures for many.

The process of bioprospecting is defined as the search for valuable chemical products in natural biological resources. Indigenous plants are a valuable source providing us with chemical and biological products for medicine, agriculture, and other industries and offers a way of improving the economy. South Africa, with its exceptional and remarkably rich biodiversity has the ability to be a source of many new commercially usable leads and beneficial products and such development, coupled to sound natural resource management, can generate both financial and non-financial benefits.



Three of our valuable plant resources are discussed below.

Aloe ferox

Common names: bitter aloe, red aloe (English); bitteraalwyn, bergaalwyn (Afrikaans); iNhlaba (Zulu); iKhala (Xhosa)
This is one of the well-known South African plants and often associated with medicinal practices. It reaches heights of 2-3m with dull greenish-blue leaves arranged in a rosette. The flowers are carried in a large candelabra-like flower-head and there are usually between five and eight branches, each carrying a spike-like head of many flowers. The flowers may vary from yellow-orange to bright red.

Flowering occurs between May and August, but in colder parts of the country this may be delayed until September. Found more on mountain slopes and rocky places it is distributed through Western and Eastern Cape, Kwazulu-Natal and southern Free State. Aloe ferox is a medicinal gem and is used for a number of ailments that include but are not limited to, arthritis, stomach-ailments and wound healing.

They may be grown from seed and seeds should be sown in well-drained growing medium in shallow trays and covered lightly with sand. After germination the seeds should be kept moist but ensure you do not overwater. Once seedling reach a height of 4cm they are ready to be transplanted into small pots or bags.



Aspalathus linearis

Common names: rooibos tea (Eng.), rooibostee, bossietee (Afr.)

A plant with great economic value and a very popular tea. Enjoyed and valued for being healthy as it is caffeine-free, low in tannins and rich in anti-oxidants. It is not only enjoyed as a herbal tea, but is also used as an ingredient in cosmetics, in slimming products, as a flavoring agent in baking, cooking and cocktails and even as a treatment for infants who are prone to colic.

Its natural distribution range from about Vanrhynsdorp in the north to the Cape Peninsula and the Betty's Bay area in the south. Rooibos tea is made from selected forms of the species found mainly on the Cederberg Mountains.

It is cultivated on sandy soils in the valleys of the Olifants, Breede and Hex Rivers.

It is an erect to spreading, shrub or shrublet up to 2 m high. Its young branches are often reddish. The leaves are green and needle-like and may be densely clustered.

The yellow flowers, which appear in spring to early summer, are solitary or arranged in dense groups at the tips of branches. The fruit is a small lance shaped pod usually containing one or two hard seeds.

Although an attractive plant they are seldom grown in gardens as it is difficult to provide the optimal growing conditions these plants require. In order to grow *Aspalathus linearis* successfully, seeds must first be scarified, which involves weakening or altering the seed coat to stimulate germination and then planted in acidic sandy soils.



Sclerocarya birrea

Common names: marula (Eng.); morula (Northern Sotho); mufula (Tshivenda); ukanyi (Tsonga)

This beautiful tree, well-known for its edible fruits, is medium sized with an erect trunk and rounded crown. Male and female flowers are borne on separate trees with the male flowers producing pollen and female flowers producing the well-known yellow fruit. The fruit appear February to June and are green while on the tree. It only turn yellow after falling from the tree.

It has a widespread distribution in Africa ranging from Ethiopia in the north to KwaZulu-Natal in the south.

In South Africa it is frequently found in Limpopo and it occurs naturally in various types of woodland, on sandy soil or occasionally sandy loam.

The tree is used for traditional and commercial uses. The bark and trunk are used for cosmetic production, medical ailments, as dyes, for crafting, and making of furniture and certain music instruments like traditional drums. The fruit is eaten fresh, made into beer and available commercially as a creamy marula liqueur.

Planted in spring as a potted tree or seed, this tree grows easily in river sand. It's fast growing but sensitive to frost and must be properly protected.



Plans to divert 75% landfill waste by 2023

By Salome Tsoka



Above: Director-General Ms Nosipho Ngcaba highlights need to realign key initiatives as the sector is a critical employment driver.



Above: Deputy Director-General: Chemicals and Waste Management Mr Mark Gordon says the chemicals and waste sector is a viable economy.

More than 200 participants from the Operation Phakisa Chemicals and Waste Economy Lab from both the public and private sector plan to divert 75% of landfill waste by 2023. This was one of the targets set at the Chemicals and Waste Re-Alignment Workshop hosted by the Department of Environment, Forestry and Fisheries (DEFF) on 18-19 July 2019 at the Aviator Hotel in Kempton Park.

The workshop comes after the successful launch of the Good Green Deeds Campaign in March 2019 where President Cyril Ramaphosa signed off on the Operation Phakisa Chemicals and Waste Economy outcomes supported by the pledging company representatives and other key stakeholders.

The purpose of the workshop was to engage on these outcomes and commitments and outline the 3 ft plan to help align the outcomes and influence investment in either of the waste streams.

Director General Ms Nosipho Ngcaba stressed the importance of the gathering and highlighted that the workshop intended to revisit and commit to the initiatives unveiled by President Ramaphosa.

"We need to be cognisant on how those commitments we made will bring on investment from the private sector. We also need to empower small and medium-sized enterprises in order to create an inclusive economy," she said.

The Phakisa plans to not only divert 75% waste from landfill but to also contribute to the country's GDP by 1.5% while also creating sustainable income generating jobs. Deputy Director-General: Chemicals and Waste Management Mr Mark Gordon said there is a very viable economy to be realized in the chemicals and waste sector.

"There is potential for the chemical and waste sectors to contribute in a meaningful way to the broader economy of the country in a multifaceted way."

"We're looking at optimizing the sector and waste as you know is not an environmental term but an economic term," he said.

Speaking at the workshop, Department of Planning, Monitoring and Evaluation (DPME) Deputy Director-General: Sector Monitoring Mr Mpumzi Bonga indicated that the operation phakisa labs were key to creating employment in the country

"The success of the operation phakisa labs could in the next five years create 1.9 million jobs with 127 000 of the jobs coming from the environment sector. As such, the contribution of this sector must not be underestimated," he said.

Workshop participants included private sector representatives from industries like Coca-Cola Beverage South Africa, Eskom, Samsung and Sasol as well as public sector representatives including the Department of Trade and Industry, Department of Science and Technology and the Department of Labor attended the workshop.

"The purpose of the workshop was to engage on these outcomes and commitments and outline the 3 ft plan to help align the outcomes and influence investment in either of the waste streams."

WHAT IS LITTERING?



Priority wildlife and community interaction

By Dr Monica Mwale

The SANBI National Zoological Garden partnered with the University of Pretoria (UP) through their 2019 Joint Community-based Project Module (JCP) to create geometric metal wall art profiles of two priority species (Wildlife forensics) for the interior laboratory wall and exterior sitting area for a healthy work environment.

The JCP is a compulsory module offered in the Faculty of Engineering, the Built Environment and Information Technology (EBIT) at UP for all undergraduate students. Students are required to work for 40 hours in the community to get experiential learning, an integral and core part of higher education. This is in line with the goals of the White Paper on the Transformation of Higher Education (DoE, 1997, p.10) which aims to "promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programme".

The NZG team collaborated with JCP Group 25 (Marcelo Pestana, Mieke Herbst, Faith Lindeque, Entao Michael Huang and Juanelle Smit) to highlight two species that symbolize the focus of the research done by the research staff, post graduate students and interns of this unit towards wildlife conservation and forensic science applications.

The two priority species targeted through the community partnership were the African elephant (*Loxodonta africana*), and lion (*Panthera leo*), iconic "big-five" African species that are revered as symbols of strength and power. Unfortunately, wild populations of both species

are threatened by illegal wildlife trade as well as habitat loss and fragmentation due to global change. These two species are part of research projects in SANBI and were therefore ideal wall art, not only for staff wellness and interaction but also as focal species of South Africa.

The five UP students involved in the project, formed a collaborative group that was multidisciplinary (three mechanical engineers, one electronic engineer and one interior architect) to ensure that tasks and solutions could comprise of different concepts and frameworks. Through interaction and engagement, this community project addressed the needs of SANBI and provided a mutual benefit to both students and the NZG team. The students were not only able to acquire important job and life skills but also gained an increased awareness of their societal responsibilities towards wildlife conservation as they carried out the specific project tasks.

Project leader Marcelo Pestana commented that, "The JCP project taught me to think on my feet when dealing with unforeseen circumstances as well as how to properly delegate tasks to the group based on each group members strengths and weaknesses." In summary, this project was beneficial to both students and SANBI by promoting wellness and highlighting the value of collaboration in efforts promoting wildlife conservation.

A comparison of the impact of anthropogenic activities on the status of three antelope species, Oribi (*Ourebia ourebi ourebi*), Bushbuck (*Tragelaphus scriptus sylvaticus*) and Blue duiker (*Philantomba monticola*).



About the contributor: Monica Mwale

Dr Monica Mwale is a researcher based at the SANBI National Zoological Gardens. Her research is in wildlife biodiversity science as it relates to biosystematics and conservation genetics. She also conducts molecular analyses to develop species reference databases (using DNA barcoding) and validated genetic guidelines in wildlife forensic science.

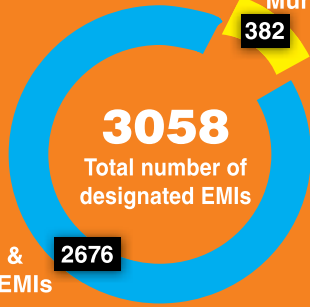


GREEN SCORPIONS: Protecting our Environment

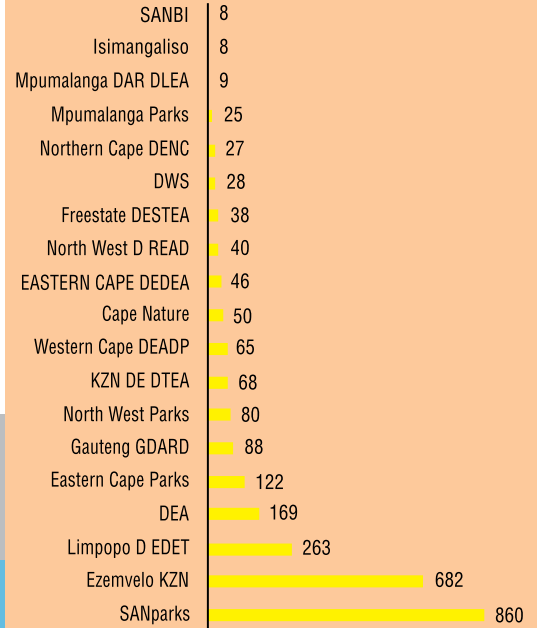
The Environmental Management Inspectorate (EMI)

Executive overview of EMI designation

Total Number of EMI's



| Nat & EMI Increase | |
|--------------------|------|
| 2008/2009 | 903 |
| 2009/2010 | 1073 |
| 2010/2011 | 1076 |
| 2011/2012 | 1399 |
| 2012/2013 | 1705 |
| 2013/2014 | 1917 |
| 2014/2015 | 2109 |
| 2015/2016 | 2411 |
| 2016/2017 | 2577 |
| 2017/2018 | 2640 |
| 2018/2019 | 2676 |



2676
Total number National and Provincial designated EMI's



1691
Are EMI Grade 5 (Field Rangers)

63.2%

1.3%
Increase in total number of EMI's on the National Register

Slight decrease in number of Grades 5 EMI's

1723 → **1691**
2017/2018 → 2018/2019

303
2016/2017

333
2017/2018

382
2018/2019

Slight increase in EMI's designated at local authority levels over the last three years

Designated EMI's per institution

DEPARTMENT OF ENVIRONMENT, FORESTRY AND FISHERIES RELEASES 2018/19 NATIONAL ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT REPORT AT ANNUAL SUMMIT

The Department of Environment, Forestry and Fisheries has released the 2018/19 National Environmental Compliance and Enforcement Report outlining the work done by the Green Scorpions in the past financial year.

The Report was released at the 8th Environmental Compliance and Enforcement Lekgotla being held at the Mithah Seperepere Conference Centre in Kimberley in the Northern Cape.

The multi-stakeholder conference, taking place under the theme Facing the Future Together: The Green Scorpions ends on 12 September 2019.

The 2019 Lekgotla brought together international, national, provincial and local authorities that are involved in environmental compliance and enforcement to discuss topics of common interest, to develop capacity, to make recommendations and to develop strategies to tackle the challenges facing the environmental compliance and enforcement sector. Attendees include stakeholders in the criminal justice system, including the South African Police Services (SAPS) and the National Prosecuting Authority (NPA).

The 13th National Environmental Compliance and Enforcement Report outlines the activities undertaken to ensure an environment that is not harmful to the health and well-being of the people who live in South Africa. This report focuses on the activities undertaken specifically by the environmental authorities, and does not reflect the compliance and enforcement work undertaken by the related sectors, such as water, agriculture, forestry and fisheries, mineral resources, health, labour or the police.

There are presently 3 058 Environmental Management Inspectors, more popularly known as the Green Scorpions, working in 18 entities, including the environmental departments of national, provincial and local government, and entities such as SANParks, iSimangaliso Wetland Park, Ezemvelo KZN Wildlife,

North West Parks, Eastern Cape Parks, CapeNature and Mpumalanga Parks and Tourism.

Of these, 2 676 EMI's work in national and provincial government, and 382 in municipalities. While there has been a steady growth in the number of EMI's at local authority level in the past six years, the number of Grade 5 EMI's deployed as field rangers in national and provincial parks around the country has decreased slightly in the past year from 1 723 to 1 691.

The financial year continued to display a similar pattern to previous years in relation to the most prevalent types of environmental crimes being detected by the various EMI Institutions. For the brown sub-sector, the unlawful commencement of environmental impact assessment listed activities continues to be the most common non-compliance, while in the green sub-sector, illegal hunting and illegal entry to national parks and other protected areas continues to be the predominant environmental crime. The Department of Environmental Affairs and the Limpopo department of environment responded to 534 incidents relating to illegal possession of alien and invasive species and the picking of indigenous plants without permission.

With regard to ensuring conformity in the industrial sector, proactive compliance monitoring and enforcement work continued in relation to priority sectors with 4 530 inspections taking place during the past year – 153 in response to emergency incidents such as a hazardous fire or the release of dangerous chemicals into the air. The sectors focused on included the ferro-alloy, steel and iron sectors, refineries, power generation facilities and identified landfill sites.

Enforcement notices have been used by the Green Scorpions for a number of years to ensure that the damage caused to the environment is either eliminated or remedied as a first response to non-compliant behaviour. The sectors targeted in the air quality sector in the past year, due to their inherent ability to cause serious environmental harm, included those facilities that have an obligation in terms of Air Quality legislation to report their emissions. Focused

campaigns were undertaken in relation to crematoria, brick manufacturers and lime production facilities as well as those facilities required to submit climate change pollution prevention plans.

The level of compliance with the National Atmospheric Emission Inventory System and the Air Quality Act was reported to be as low as 25% at the end of February 2018. In order to increase the level of compliance, 792 warning letters were issued across the different sectors. As a result, reporting increased dramatically, and by the end of March 2018, the level of compliance was 80%.

In the 2017/18 reporting period, biodiversity compliance and enforcement continued to focus on the high-risk species, such as rhinoceros, elephants, pangolins and cycads, while still ensuring that other species receive the protection from the Inspectorate.

In addition to pursuing the criminal prosecution and conviction of offenders of biodiversity legislation, the Green Scorpions had also been involved in a number of proactive international and domestic projects/initiatives that seek to improve the capacity of the EMI's to combat these types of offences.

In support of Operation Phakisa: Oceans Economy, the Green Scorpions took part in a number of focused joint operations in the maritime environment. The work of the Joint Compliance and Enforcement Programme of Phakisa, involving multiple law enforcement entities, resulted in the confiscation of abalone worth more than R21.3 million and rock lobster worth more than R675 000. Equipment used in illegal activities worth more than R5 million, as well as other illicit goods, including drugs, were confiscated during the raids. The illegal harvesting of marine resources remains critical, with poachers being more aggressive. This has resulted in injuries, arson of state infrastructure and led to loss of life.

The latest NECER indicates a decrease in the number of criminal dockets registered by the Green Scorpions, from 1 257 in 2017/18 to 1 028 in 2018/19, alongside a slight decrease in the number of dockets – to 424 –

finalised and handed to the NPA for prosecution. A total of 820 people were arrested.

The value of the total number of admission of guilt fines increased to R312 930 in the past financial year, while the value of Section 24G administrative fines almost halved to R5 983 518.00 in respect of activities commenced with in the absence of the necessary environmental authorisations.

To ensure compliance with environmental laws, 4 530 facilities were inspected. During these inspections 5 263 non-compliances were detected – 5 037 for brown infringements, 12 in the blue sector and 214 in the green sector. Of these, 735 were reactive and were triggered by complaints. A total of 2 453 were based on environmental authorisations and permits, while 1 215 were considered routine inspections on prioritised sectors.

Environmental authorities across the world are currently experiencing challenging times given the status of the global economy. This situation is exacerbated in developing countries, where the key priorities of government focus on economic growth, job creation and infrastructure development. This requires environmental authorities to develop innovative strategies to ensure that environmental compliance and enforcement supports these priorities, while at the same time, instils an appropriate level of respect amongst the regulated community for environmental law.

In developing a cohesive response to this balancing act, environmental authorities across all spheres of government in South Africa, and including the blue, green and brown sub-sectors, need to unify to meet the challenges that they face them in an uncertain and dynamic future. In this regard, the country can learn many valuable lessons from other African countries, which face similar socio-economic obstacles: and yet find ways to deliver effective compliance and enforcement services to their citizens.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



Mangrove ecosystems play vital role in environment

By Tshego Letshwiti

Images by Brand South Africa



Above: The Beachwood Boardwalk runs through the stands of mangroves at Mngeni Estuary.



Above: Propagules of *Rhizophora mucronata* taken at Wavecrest in the Eastern Cape.

Earlier this year the Department of Environment, Forestry and Fisheries (DEFF) joined the rest of the world in commemorating the annual International Day for the Conservation of the Mangrove Ecosystems. The Department, along with the management authorities (ECPTA, EKZNWildlife, Transnet NPA, iSimangaliso Wetland Authorities), various stakeholders which includes academia, research institutions and Non-Government Organizations (NGOs) have all worked together to improve the status, importance, and management of mangroves in South Africa; and to safeguard the long-term restoration of these ecosystems.

Mangrove distribution range is limited to the eastern part of South Africa's 3200 km coastline, from Kosi Bay estuary in the KwaZulu-Natal Province and reach their Southern distributional limit at Tyolomnqa Estuary near East London, Eastern Cape Province. Generally, mangroves occur in sheltered estuaries that have a permanent connection to the sea; and occur in 31 estuaries along the East coast of the country. Their absence in cool temperate regions (West coast of South Africa) could be attributed to the lower seawater temperatures and lack of sheltered open estuaries.

There's a total of eight mangrove species occurring along the South African coastline. The three dominant species are the white mangrove (*Avicennia marina*), black mangrove (*Bruguiera gymnorhiza*) and the red mangrove (*Rhizophora mucronata*). With an additional three species (*Ceriops tagal*, *Lumnitzera racemosa* and *Xylocarpus granatum*) found in the Kosi Estuary that has recently been classified as occurring in the tropical biogeographic zone. The area covered by mangroves in South Africa is small compared to other East African

countries (total mangrove cover is currently estimated at 1 631 ha), and the largest mangrove forests are found in the subtropical areas (iSimangaliso Wetland Park and Richards Bay estuary).

Mangroves are incredibly important ecosystems that provide ecosystem services and we should care for and invest in their conservation. The ecosystem services include, but not limited to: serving as biodiversity hotspots, home to an incredible array of species, and provide nesting and breeding habitat for fish, shellfish, migratory birds, and sea turtles; providing for livelihoods, healthy mangrove ecosystems mean healthy fisheries from which to fish by local communities, and the surroundings provides for sustainable farming; maintaining water quality, with their dense network of roots and surrounding vegetation, they filter and trap sediments, heavy metals, and other pollutants; serving as buffer against erosion, storm surge, flooding, as they stabilise shorelines by slowing erosion and provide natural barriers protecting coastal communities; serve as carbon storage, mangroves sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area than tropical forests like the Amazon rainforest.

Thus conserving and restoring mangroves is essential to South Africa's fight against climate change; serve for direct and indirect use, communities have historically used mangrove wood and other extracts for both building and medicinal purposes. In addition, they serve as a sustainable development hub, healthy mangrove forests have an untapped potential for sustainable revenue-generating initiatives including ecotourism, sport fishing, and other recreational activities.



About the contributor: Tshego Letshwiti

Ms Tshego Letshwiti is an Assistant Director within the Internal and External Communications Sub-Directorate at the Department of Environment, Forestry and Fisheries, in Cape Town. She joined the Department in February 2014 after working in print and broadcast Media. She holds a BA Honours Degree in Journalism from the University of Johannesburg.

CLIMATE CHANGE IMPACTS COULD BE DISASTROUS FOR FOOD & WATER SECURITY



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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



Make Marine education accessible to everyone

By Siziphiwe Maxengana
Images by Benedict Mlaba

All South Africans have a role to play in our oceans, whether through conservation and protection of ocean species and the coastline or the various employment opportunities that arise from our oceans space.

From 14 to 18 October 2019 officials from the Department of Environment, Forestry and Fisheries (DEFF) celebrated National Marine Week (NMW) by spreading knowledge about marine life across the country.

Officials spread themselves across the nine provinces to celebrate the week under the theme "Our Ocean Future".

The objective this year was to engage young South Africans from different backgrounds and cultures and raise awareness about the role that we all play in our oceans, as well as the importance of conserving and preserving our marine and coastal environments.

DEFF included inland provinces in the awareness programme to address the negative contributions they also make with marine plastic pollution as 80% of marine litter comes from activities conducted inland.

Ocean Research's Mduduzi Seakamela gave back to communities and also revisited his old school.

"If a boy like me from Temba, who could not even swim, was able to become a Marine Scientist and swim with whales, what is stopping you?," he said encouraging students from Makgetse High School.



Above: DEFF official, Ms Jessica du Toit, demonstrating to learners how pollution ends up in the oceans.



Above: DEFF official, Ms Nosipho Gumede engaging with learners on different careers to pursue in the marine industry, at a school in Kwa-Zulu Natal.

10 Facts about the Ocean

1. Plastic pollution is the largest threat in our ocean as it degrades very slowly.
2. Plastics are the most common manmade objects sighted at sea, with 18,000 pieces of plastic litter floating on every square kilometre of the world's oceans.
3. 100,000 turtles and marine mammals, such as dolphins, whales and seals, are killed by plastic marine litter every year around the world.
4. One million seabirds are killed by marine litter every year.
5. Six million tons of debris enters the world's oceans every year, weighing about the same as a million elephants.
6. More than 260 animal species worldwide have become entangled in or consumed fishing line, nets, ropes and other discarded equipment.
7. Estuaries filter pollutants, resulting in cleaner water and protect the shore line from erosion and flooding.
8. Each year, three times as much litter is dumped in the world's oceans as fish caught.
9. Air pollution is responsible for 33% of the toxic contaminants that end up in oceans and coastal waters.
10. About 70 % of the planet is ocean, with an average depth of more than 4000m.



About the contributor: Siziphiwe Maxengana

Ms Siziphiwe Maxengana is an intern: Internal and External Communication in the Directorate: Communication Services in Cape Town. She holds a BA Communications Management Degree and has passion for writing.

Scientific Technician Kanyisile Vena

By Gaopalelwe Moroane
Images by Tshego Letshwiti



Above: Ms Kanyisile Vena from the branch Oceans and Coasts.



Above: Ms Vena teaching school children about the effects of marine litter during this year's Marine Week Awareness.

Every year, the Department, through its Oceans and Coasts branch, celebrates National Marine Week in the second week of October to enhance public appreciation of South Africa as a coastal state with access to a long coastline and a large ocean space and also the role it plays in the life of all South Africans and how individuals can positively impact the wellbeing of marine ecosystems.

In light of this, we spoke to Ms Kanyisile Vena from Oceans and Coasts about her career as a Scientific Technician.

What education requirements are needed for your career?

National Diploma in Analytical Chemistry or BSc Chemistry.

What inspired you to venture into this career path?

For me to pursue Analytical Chemistry, I fell in love with the idea of wearing a lab coat and most importantly, I discovered that I love problem-solving so I did my research on what I wanted to do in the lab. I came across Analytical Chemistry which in simple terms is an assessment of chemical structures and the nature of substances.

What are the duties that are most often and expected of you and how do you manage keeping abreast of them?

My duties are primarily around obtaining and understanding spatial and temporal variability in essential oceanic processes, such as seawater oxygen and nutrient levels, ocean acidification and the carbon cycle, and to understand the drivers of observed variability.

The aim is to then apply obtained knowledge towards the development of high-level indicators of ocean health, and to predict future ocean states in a global change context.

To support this work, an extensive ship-based measurements and sample collection for chemical analysis is conducted.

Thereafter quality data sets after analyses are produced and shared on the data base and further on published on the State of the Oceans and Coasts Report.

What is the most rewarding and challenging part of your work?

The most rewarding part of my job is the fact that I form part of research that connects environmental change, natural resources and human health. The most challenging part that I am the only woman in my unit, work at sea in a previously male dominated space.

What advice would you give to someone who is interested in pursuing a career in Analytical Chemistry?

Chemistry is a very interesting subject to study. All branches of Chemistry are more or less related to one another, so the more you know, the better you understand.

Moreover, the career itself is quite broad. As for jobs, it all depends on what one likes best, for instance, I have worked in the petroleum industry and SAPS Forensics before working for the Department under the Research Chief Directorate.

Wetlands: why should I care?

Humans often equate wetlands with wasteland; a place to be drained, filled in, burnt off and re-purposed. In fact, scientific studies show that 64% of the world's wetlands have disappeared since 1900. Measured against 1700, an estimated 87% have been lost.

Why is this such an alarming trend? And why are wetlands actually essential to sustainable development for the human race?

Wetlands are everywhere

- Wetlands are land areas that are saturated or flooded with water either permanently or seasonally.
- Inland wetlands include marshes, ponds, lakes, fens, rivers, floodplains, and swamps.
- Coastal wetlands include saltwater marshes, estuaries, mangroves, lagoons and even coral reefs.
- Fish ponds, rice paddies, and salt pans are human-made wetlands.
- Wetlands range in size from less than a single hectare to the Pantanal in Brazil, Bolivia and Paraguay, which covers an area three times the size of Ireland.

Wetlands ensure fresh water for all of us

- Less than 3% of the world's water is fresh, and most of that is frozen. Yet every human requires 20-50 litres of water a day for basic drinking, cooking and cleaning. Wetlands provide our water needs and help replenish the groundwater aquifers that are an important source of fresh water for humanity.

Wetlands guarantee our food supply

- Humans consume 19kg of fish each year on average. Most commercial fish depend on coastal wetlands for part of their life cycle.
- Rice, grown in wetland paddies, is the staple diet of nearly three billion people, and accounts for 20% of the world's nutritional intake.

Wetlands purify and filter harmful waste from water

- Some of the pollutants from pesticides, industry and mining, including heavy metals and toxins are absorbed by wetland sediments, plants and marine life.
- Almost two billion people in Asia and 380 million Europeans depend on groundwater aquifers for their water supply.



Above: Blesbokspruit is the only Ramsar wetland in the Gauteng province.



Above: The Working for Wetlands Programme employs unemployed youth to assist in restoring the good health of wetlands. Picture taken at Colbyn wetland area in Pretoria



www.ramsar.org



Above: iSimangaliso Wetland Park - was declared South Africa's first Natural World Heritage Site on 1 December 1999

The Ramsar Convention



The Convention on Wetlands of International Importance, commonly known as the Ramsar Convention, is a global intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It is the only global treaty to focus on one single ecosystem.

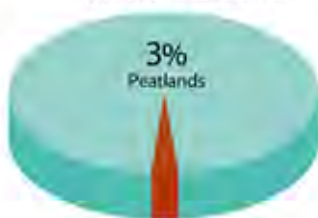
Wetlands are nature's shock absorbers

- Peatlands and wet grasslands in river basins act as natural sponges, absorbing rainfall, creating wide surface pools and reducing floods in streams and rivers. This storage capacity also helps safeguard against drought.
- Mangroves, saltmarshes and coral reefs all reduce the speed and height of storm surges. Their roots bind the shoreline, resist erosion by wind and waves, and increase resilience against climate change.

Wetlands are critical for biodiversity

- Wetlands are home to more than 100,000 known freshwater species alone, and this number is growing all the time. From 1999 to 2009, some 257 new species of freshwater fish were discovered in the Amazon.
- Wetlands are essential for many amphibians and reptiles, as well as for bird breeding and migration.
- Individual wetlands often hold endemic species; forms of life that are unique to one particular site such as Lake Baikal in Russia or the Rift Valley lakes of East Africa.

Total world land area



Carbon stored worldwide



Source: TEEB: The Economics of Ecosystems and Biodiversity for Water and Wetlands

Wetlands store carbon

- Peatlands alone cover an estimated 3% of the world's land area, but they hold 30% of all carbon stored on land. This is twice the amount stored in all the world's forests. But when they are burned or drained for agriculture, they go from being a carbon sink to a carbon source. CO₂ emissions from peatland fires, drainage and extraction equate to 10% of all annual fossil fuel emissions.

Wetlands create sustainable products and livelihoods

- 61.8 million people earn their living directly from fishing and aquaculture. Including their families, more than 660 million people depend on these sectors.
- Sustainably managed wetlands provide timber for building, vegetable oil, medicinal plants, stems and leaves for weaving and fodder for animals.



Enviro Events



Green Scorpions facing the future together

By Veronica Mahlaba

The Department of Environment, Forestry and Fisheries held the 8th Environmental Compliance and Enforcement Lekgotla from 9 – 12 September 2019 in Kimberley, Northern Cape. During the Lekgotla the Green Scorpions (Environmental Management Inspectors) launched the 2018/19 National Environmental Compliance and Enforcement Report (NECER).

The theme for the 2019 Lekgotla is "Facing the Future Together" and supports a cohesive response to environmental challenges and greater collaboration between the various environmental authorities in South Africa to address concerns in the Blue, Green and Brown sub-sectors. These range from water and air pollution to chemical waste, dumping and litter.

The Environmental Management Inspectorate or Green Scorpions is a network of environmental compliance and enforcement officials from all spheres of government who work to ensure that industry, business, government and citizens comply with environmental legislation. The Inspectorate was created in terms of the National Environmental Management Act and came into effect on 1 May 2005.

Waste characterization in Matatiele

The Matatiele Local Municipality is one of four local municipalities within the Alfred Nzo District Municipality in the Eastern Cape. On 27-29 August 2019, the Matatiele LM waste management officials together with DEA: Local Government Support Official, DEDEAT: Waste Management as well as ANDM: Environmental Management officials, exchanged high heels for boots, caps & gloves for hands-on development of the IWMP for Matatiele LM.

The first day was dedicated to waste characterization which includes sifting through waste material brought into the landfill site to determine waste streams disposed at the site.

Day 2 and 3 involved Waste Characterisation Data Reporting, Scenario Planning & identification of Potential Projects as well as IWMP Web-Portal Training as well as capturing of information in web portal and complete draft IWMP status quo report.



DM greens Zweletemba Freedom Park

By Siziphiwe Maxengana

The Deputy Minister of Environment, Forestry and Fisheries (DEFF), Ms Makhotso Sotyu, handed over a rehabilitated Freedom Park Square, in Zweletemba, Worcester, Western Cape on the 15 November 2019.

"We are not only here to handover the park, but to also educate you on how you can benefit from litter through recycling. In doing so, we will implement projects to show the community how that can be done, as well as how to separate recyclable and non-recyclable litter," said deputy minister Sotyu to the Zweletemba community.

The park which is also a heritage site, was handed over under the department's policies of Greening and Open Space Management. Open spaces play an integral part in maintaining the environmental integrity in most settlements. DEFF rehabilitated the park with landscaping and the planting of indigenous trees, and also installed playground equipment for children, gym equipment, as well as park furniture for the community of Zweletemba.

In addition to greening, the initiative was also meant to address illegal dumping and neglected open spaces in communities.



Left: In addition to the installed equipment, Deputy Minister Sotyu also handed over gardening tools for the community to maintain the plants in the park.



Left: Deputy Minister, Makhotso Sotyu assisting Mr Patric Mdala from Forestry with the planting of the Celtis Africana tree in the park.

Accounting for natural resources

By Salome Tsoka



In a country first, the Department, Stats SA and the South African National Biodiversity Institute hosted the first National Natural Capital Accounting which highlighted how the country was working on the accounting for natural resources such as water, minerals and energy.

Ministerial Climate Change Dialogue

By Salome Tsoka



Minister Barbara Creecy hosted the annual climate change stakeholder dialogue at Birchwood Hotel where she listened to a number of concerns raised by stakeholders regarding climate change communication, financing solutions, food security, effects at grassroots levels, education, awareness and more ahead of the 2019 United Nations Framework Convention on Climate Change COP25 conference in Madrid, Spain.

Towards UNCCD COP14

By Zibuse Ndlovu



Our Department hosted the Africa Regional Preparatory Meeting ahead of the fourteenth session of the Conference of the Parties to the United Nations Convention to Combat Desertification (UNCCD COP14) in Pretoria recently.

At least 150 representatives from African countries attended the regional meeting, which plays a crucial role in assisting affected countries of each region to prepare for the sessions of the COP and its subsidiary bodies, by allowing them to discuss and coordinate their views on priority issues before the sessions.

The Conference of the Parties (COP) is the supreme body of the Convention. It makes, within its mandate, the decisions necessary to promote the effective implementation of the UNCCD programme.

Minister grants fishing rights to Eastern Cape fishermen

By Salome Tsoka

The lives of over 1 500 men and women belonging to 20 small-scale fishing co-operatives in the Eastern Cape were changed in November when Minister Barbara Creecy awarded them with long awaited 15 year fishing rights at the Lillian Ngoyi Community Sports Centre in KwaZakhele. The occasion marked the beginning of awarding fishing rights in the province which has more than 7 small-scale fishing cooperatives with over 5000 members.



Biodiversity workshop

By Salome Tsoka

The Department hosted the Youth for Biodiversity Conservation Workshop which brought together youth passionate about biodiversity and conservation from various organizations such as Wild Oceans and People and Parks. The end of the workshop saw the youth join the South African Global Youth Network and vow to protect biodiversity.



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