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Message from the Chief Executive Officer



Mr Shonisani Munzhedzi

Greetings colleagues,

It is my pleasure to share with you another informative issue of the *SANBI Gazette*. In this edition, we reflect on key organisational matters and updates for the first two quarters of the 2023/24 financial year, and provide highlights of key programmes that characterise our agenda for the remainder of this year.

The 2023/24 financial year marks the end of the five-year Medium-Term Strategic Framework (MTSF) period aligned to the 6th administration of the country, which started in the 2019/20 financial year. Service delivery, job creation, skills development and fighting crime are still some of the driving socio-economic imperatives informing the posture of public service, but in the context of a constrained fiscus. It is imperative that the role of biodiversity and nature's contribution to people are mainstreamed if these priorities are to be sustainably realised.

The recent budget cuts and cost containment measures present us with a unique opportunity to explore innovation, and challenge us to prioritise areas that have the highest impact on the delivery of our mandate. An enhanced funding model for SANBI, in the context of public good, is ideal to ensure financial sustainability and complementarity to the current funding mix. Growing international opportunities and extending networks need to be further exploited for the benefit of SANBI's mandate.

Organisational matters and key priorities

Overview of Annual Performance Plan (APP)

It is my great pleasure to inform you that SANBI achieved an APP performance of 98% in the first quarter. The overall performance of 93% in the second quarter is satisfactory, as it sustains the quarter's performance above the 90% threshold while striving for 100% achievement. I am grateful for the excellent team work and commitment from all levels of the organisation.

Sustainable transformation sessions

The Sustainable Transformation Task Team (STTT) undertook feedback sessions at all SANBI campuses in the first two quarters of this year. There was positive feedback in relation to staff growth through the Groen Sebenza Programme and other employee interface programmes. In addition, discussion ensued on a number of issues including gender equality and sustaining equal opportunities for all without prejudice. Calls were made for enhanced transparency in relation to policy updates, and further clarity and empowerment on policy issues affecting areas of Human Resources (HR) and Supply Chain Management (SCM). The STTT will take forward recommendations that emanated from these sessions in its interface with management structures of MANCO and EXCO to ensure that more regular feedback is provided through the Reference Groups identified in each garden.

Our financial position

SANBI is on track with endeavours to meet the annual target for own income generation through admission fees, rentals, events and other sources. SANBI is solvent with the assets exceeding liabilities and is liquid with current assets exceeding the current liabilities. I would like to encourage all divisions to improve on their financial performance in terms of expenditures on predefined areas particularly on infrastructure and critical services.

[Continued on page 2]

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Update on mandate deliverables and strategic initiatives:

Ecosystem Red List and protection

Following feedback from provincial users of the Red List of Ecosystems, a special session was held at the Biodiversity Planning Technical Working Group to discuss the planned update/revision cycle for the Red List. Two scenarios were tabled with roughly equal support (rapid regular updates [2–4 years] vs. longer cycle major updates [5–10 years]). A compromise to regularly (2–4 years) list only those ecosystem types that changed in category – estimated to be 5–10 types – was proposed and will be communicated to the DFFE and a legal team for inputs and guidance.

National Biodiversity Assessment

Work for NBA 2025 is progressing well, with the second Core Reference Group meeting that took place on 13 and 14 September 2023 at Kirstenbosch. The Collaboration Agreements with the CSIR (for estuaries) and the Institute for Coastal and Marine Research at Nelson Mandela University (for the coast) have been signed and are vital partnerships as SANBI does not have the capacity to lead on these components. Letters inviting 25 entities to nominate officials to the NBA 2025 Strategic Advisory Committee have been sent from the SANBI CEO's office, and the first meeting took place on 28 November 2023. Substantial work is ongoing regarding the datasets that underpin the NBA analyses, and discussions have begun on how to structure the NBA 2025 web portal. The Contextual and Operational Framework document for the NBA is nearing completion and has been discussed at the Biodiversity Assessment and Planning Cross Functional Steering Committee meeting held on 8 November 2023.

SBAPP Regional Project with Namibia, Mozambique and Malawi

The project is in its second year and the audit for project year 1 is nearly complete. A regional workshop that focused on mapping of ecosystem types, cross border ecosystem types, and the cross-walking to the Global Ecosystem Typology was held in-person in Gauteng from 20 to 23 November 2023, with 12 international mapping experts joining 14 South African experts for in-depth discussions. A virtual workshop introducing the ecological component of the project was held on 30 November. Species Red List training took place in Namibia from 13 to 16 November and in Malawi from 27 to 30 November. South African experts travelled to those countries to provide the training.

Species Red-Listing

The Plant Red List is currently being updated with 3 000 assessments having been reviewed and edited over

the past six months. The Amphibian and Bird Red List assessments are both underway and will be completed in time for the next National Biodiversity Assessment. Assessments for pollinators have been initiated.

Species Protection Index

Preparatory work has been done in earlier quarters. There is no direct deliverable expected from SANBI until March 2024 when we update the Species Protection Index, report to Working Group 1 and publish the index on Opus. Conservation agencies and the DFFE are responsible for improving species protection and SANBI provides technical support and tracks progress.

Succulent poaching – implementation of National Response Strategy & Action Plan to address illegal trade in succulent plants

Working groups have been established for each of the seven objectives and are meeting on a quarterly basis. A National Stakeholders workshop was held on 2 October 2023 to monitor progress on actions in the strategy. Good progress is being made on the objectives linked to ex situ conservation and enforcement, however, there is limited progress with the work linked to supporting communities to find sustainable livelihood options due to a lack of funding. Work on funding proposals for this work is underway. SANBI worked with Wilderness Foundation Africa to deliver a training course to some prosecutors from the Northern and Western Cape. SANBI is improving on its ability to manage the confiscated plants. Although we note the concerted efforts that are being made to address this crisis, I am extremely concerned that the situation keeps escalating and urge you all to keep pushing forward to abate this crisis.

Biological invasions

I am happy to inform you all that the final draft of the Third Status Report on Biological Invasions was completed in September 2023 and is now subjected to internal processes towards production, after which it will be submitted to the minister.

Genetically Modified Organisms (GMOs)

The GMO Assessment report was completed and submitted to the minister. Colleagues can access the report from SANBI's platforms.

Indigenous knowledge research

SANBI has employed an indigenous knowledge researcher on contract within the Threatened Species Programme. The researcher is also a qualified traditional healer and biologist who holds an MSc from the University of Witwatersrand. Her work will focus on developing a National Response Strategy for addressing the sustainable use of medicinal plant species in South

Africa. She will also be piloting a project to identify and classify culturally significant areas for inclusion in SANBI's National Biodiversity Assessment.

Human Capital Development (HCD) Strategy

I am pleased to see the strides we are making when it comes to the HCD. A total of 1 040 young graduates are continuing with their participation in the Groen Sebenza Programme, receiving training and mentoring in the different skills areas with their host organisations. The Groen Sebenza Programme is aimed at developing young talent and building future leaders to ensure availability of adequate human resources capacity for the biodiversity sector. This number fluctuates from quarter to quarter according to the natural turnover as participants leave the programme to pursue other opportunities, including permanent employment. Sixty Black biodiversity professionals are benefitting from SANBI HCD programmes, bringing the number of a cumulative total of 100 beneficiaries since the start of 2023/24 financial year.

We continue to train teachers and teacher educators on environmental education as part of biodiversity based curriculum support.

Concluding remarks

I have visited various gardens throughout the last two quarters, most notably Hantam NBG and Karoo Desert NBG, both of which are doing remarkable work around conserving and preserving our precious succulents that are under significant threat. I am gratified to see that managers are taking the concept of *lyani ni divhonele* to heart and leaving their offices to go and see for themselves. This is making a visible impact on our operations and I urge you all to make this practice a routine part of your way of working.

I salute your continued commitment to advancing the important mandate of SANBI and to making a meaningful contribution to the goals of the biodiversity sector and society at large. The SANBI Board continues to provide valuable strategic guidance and oversight on our work.

In this edition, we focus on the values of respect and tolerance. We have articulated these as creating open, honest relationships built on trust, mutual respect, dignity and fairness AND valuing and accepting individuals and diversity. As the calendar year draws to a close, I urge you to embrace the diversity of cultures, traditions and practices that exist in our organisation and wish you well over the festive season.

Yours in conservation,

Shoni

SANBI signs a memorandum of understanding with the University of the Free State

Nontsikelelo Mpulo

SANBI and the University of the Free State (UFS) signed a Memorandum of Understanding (MoU) on Wednesday 22 November 2023. The objective of this MoU is to provide the parties with a general framework and a guiding tool in identifying and carrying out specific collaborative projects and activities for joint implementation from time to time through specific formal agreements. Areas of collaboration will range from ecological research and alien and invasive species collaborations, to the co-supervision of postgraduate students, the donation of trees to be planted on UFS campuses, and a number of biodiversity research programmes.



The MoU was signed by Dr Molapo Qhobela, Deputy Vice-Chancellor: Institutional Change, Strategic Partnerships and Societal Impact at UFS; Prof. Edward Nesamvuni, SANBI Board Chair; Shonisani Muzhedzi, SANBI CEO; and Prof. Francis Petersen, Vice-Chancellor at UFS.

SANBI financial news

SANBI Acting Chief Financial Officer

Financial status

The financial status for the year to date 30 September 2023 is as follows:

- There is a surplus of R103 million on the consolidated statement of financial performance.
- Overall, the budgeted income was exceeded by R7.9 million (1%). The MTEF income is below budget by R0.4 million (0%). Projects income exceeded above budget by R8.3 million (24%) due to the recognition of funds carried forward from the prior year.
 - Externally funded projects and donations are R13.8 million (32%) below budget. Project-committed funds amounting to R14.2 million were released from the statement of financial position to cater for project-related committed expenditure. The affected projects with timing differences are the Biobanks, Natural Science Collection Facility and Unlocking Climate Change Finance for Climate Change Adaptation and GEF6.
 - Own income (admission fees, rent received and other income) is R1.3 million (2%) below budget due to seasonal challenges.
 - Investment income is R8.8 million (283%) above budget. Higher interest rates and slow spending in Quarters 1 and 2 contributed to higher amounts of cash being available for investment.
- Overall, expenditure is above budget by R25 million (5%). The MTEF expenditure is above budget by R7.4 million (8%), and Projects expenditure is above budget by R7.4 million (21%).
 - Personnel expenditure is R22 million (8%) above the budget. Some critical vacancies are still being filled.
 - Operating expenses are R67 million (36%) below budget.
 - There is capital expenditure of R40 million, which is R48 million (54%) below the budget.

Financial position

Overall, SANBI is solvent with the assets of R1 103 million exceeding liabilities of R272 million with a margin of R830 million. SANBI is liquid with current assets of R557 million exceeding the current liabilities of R212 million with a margin of R344 million.

Current assets have increased by R16 million (3%) from last year, mainly due to an increase in cash balances (R20 million). The debtors' amounts due over 30 days are R2.3 million.

Current liabilities have decreased by R63 million (23%) due to a decrease in Project funds: unspent committed and trade payables. The creditors' amounts due over 30 days amount to R65.2 million, which is a significant decrease from the previous report.

Cash flow

For the year to date, SANBI received a total of R566 million from the MTEF allocation, sponsors, donations, operations and interest on bank accounts. From this amount and other cash on hand, R306 million was paid to suppliers and employees. The net cash outflow resulting from the operational activities is thus R59 million. A further amount of R39.1 million was expended on investing activities. The overall result is a net cash inflow of R20 million for the financial year to date.

SANBI signs MoU with the University of Mpumalanga

Nontsikelelo Mpulo

The University of Mpumalanga (UMP) and SANBI recently signed a Memorandum of Understanding (MoU) with a view to collaborating to identify and develop projects of mutual interest. These include the development of fund-raising options and implementation models in various areas, including use by researchers attached to the UMP of SANBI's research facilities and vice versa; further training of graduate students and hosting of interns (especially

Work Integrated Learning students in Nature Conservation and Tourism Studies) across all SANBI campuses; horticultural research and conservation; nature conservation and ecological research; free use of and access to national botanical gardens for student training and the training of Lowveld National Botanical Garden employees about management of pests and diseases, in particular those that attack cycad species, amongst others.



Prof. Edward Nesamvuni (SANBI Board Chairperson) and Prof. Ramagwai Sebola represented SANBI at the recent 10 year celebration of the University of Mpumalanga.

From sniffer dog training to plant identification workshops, partnerships are the key to clamping down on plant poaching

Carina Becker-du Toit and Emily Kudze

Over the years, we've marvelled at dogs trained to detect drugs, wildlife contraband, currency, blood and even illicit mobile phones. But now, a level of canine expertise has been unlocked – three conservation canine unit dogs have been trained to detect endangered succulent plants in the Karoo. The canines form part of crucial efforts involving SANBI, Endangered Wildlife Trust (EWT), the South African Police Service (SAPS) and CapeNature to preserve succulent plants in South Africa.

'This initiative is the first of its kind in South Africa and a significant breakthrough for the country's conservation efforts. As far as we know, these dogs are the only detection dogs that are being used to help combat plant poaching globally,' said Dr Carina Becker-Du Toit, the scientific coordinator for plant poaching response.

'The dogs have become the true heroes of the story,' she added, 'their efforts have already helped bring plant poaching criminals to book. Endangered Wildlife Trust (EWT) dog handlers, who cannot be named for safety reasons, are also pleased with how well all the dogs are performing.'

SANBI, in its capacity as one of the lead agents in implementing the plant poaching response plan, said it is pleased to collaborate with various organisations to host plant identification workshops and ensure the dogs are well-nurtured.

'One of the most important factors to consider when we deploy the dogs on "sniffing" missions is their overall wellbeing. Detecting succulents can take time and they can get tired, so we always have to be mindful of their wellbeing. We also give them enough time to rest and rotate them during roadblocks so that they are not overworked and overstimulated,' said Becker-Du Toit.

SANBI also works closely with law enforcement, assisting them with the identification of confiscated plants and other critical information required for criminal investigations.

'We are also working with the EWT and CapeNature to support the initiative and ensure that South Africans are aware of the growing illicit trade in succulent flora,' added Emily Norma Kudze, SANBI's senior scientific coordinator of illegal succulent trade.

Interestingly, SANBI has already provided training to at least 20 members of the SAPS working in the

Vanrhynsdorp area in the Western Cape where plant poaching is more prevalent.

'We provided them with a fundamental plant identification course that covers the types of plants being targeted and the environmental risks posed by plant poaching, and the results were outstanding. Within two days of training, traffic officers intercepted poachers transporting succulents in their vehicles. Thanks to their prompt action, they successfully arrested the culprits,' said Becker-Du Toit.

SANBI's commitment to raising awareness about plant poaching doesn't stop at that. The institute also extended its efforts by engaging members of the National Prosecuting Authority (NPA) about the issue.

'Currently,' said Kudze, 'the conviction rate of known perpetrators is low, particularly at higher levels of the trade chain, and there is little consistency in how these crimes are dealt with in terms of penalties imposed between the provinces.'

South Africa generally has a progressive governance framework for the management of the use and trade of wildlife and wildlife products. 'But,' said Kudze, 'there are some gaps and misalignments between national and provincial policies that limit the ability of enforcement officials to address the current succulent poaching crisis sufficiently. Additionally, the enforcement of policy on the ground is hampered by a lack of awareness and understanding of biodiversity crimes (and particularly plant smuggling) among officials involved in the prosecution process, as well as those mandated to check stocks at exporting nurseries and ports of exit. Some of these constraints are even more pronounced in the arid zone where areas are vast, population densities low, and the number of compliance and enforcement officials limited.'



Confiscated plants.

Kudze said the good thing about training and engaging the NPA is that it has shed light on the severity of the problem, prompting them to consider stricter enforcement of plant poaching laws and more severe penalties for poachers.

To date, more than one million plants have been confiscated from plant poachers. Becker-Du Toit said this is only the tip of the iceberg in this multibillion-rand industry.

There is a growing demand for these plants and SANBI is committed to protecting South Africa's biodiversity, as reflected by its nationally approved Strategy and Action Plan focused on tackling the challenges and developing the opportunities surrounding the illegal collection and trade of plants.

Kudze says protecting biodiversity starts with creating awareness about the importance of safeguarding our biodiversity from illegal trade. 'Awareness is key – when you know better, you can do better,' she added.

For Becker-Du Toit, partnerships are the key to clamping down on plant poaching. 'When conservationists, experts, law enforcement and communities collaborate, we create a stronger defence against poachers,' she concluded.



Confiscated plants.



Confiscated *Conophytum* species.

Analytical techniques in biodiversity big data using GBIF: making an impact

Tshepiso Mafole, Minoli Appalasaamy and Fatima Parker-Allie



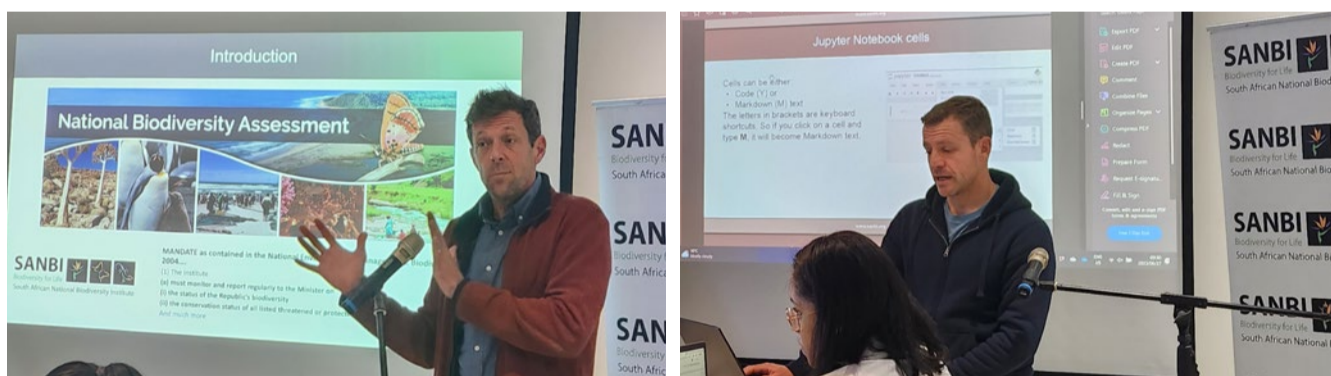
Attendees at the 2023 training workshop held at Iziko South African Museum, Cape Town.

From 26 to 30 June 2023, the South African National Biodiversity Institute – Global Biodiversity Information Facility (SANBI-GBIF) played host to an enriching and enlightening workshop held at the Iziko South African Museum in Cape Town. The workshop is one of the products of the partnership between SANBI-GBIF and GBIF Spain, to implement a project titled 'Cross continental partnership to investigate data mining approaches for impactful data use cases and stories', funded through the Capacity Enhancement Support Programme (CESP) of GBIF.

The aim of the project was to increase capacity in South Africa by cultivating biodiversity informatics expertise, through training activities in the application of biodiversity big data analysis and techniques. Here, 'big data' refers to very large and/or complex datasets that are difficult to manage, handle and analyse using conventional data processing techniques.

The five-day workshop, titled 'Analytical techniques in biodiversity big data using GBIF: making an impact', involved experts from various institutions such as University of the Free State, University of Cape Town, Sol Plaatje University, Spanish National Research Council and SANBI. A wide variety of topics were explored, including, Jupyter Notebooks, the GBIF API, data visualisation, data reduction techniques, molecular data mobilisation, image segmentation, species distribution models, species and ecosystem assessments, conservation planning, along with the new buzz around town, ChatGPT.

The workshop brought together participants from research organisations, the natural history collections community, provincial and government officials, biodiversity information practitioners, academics and postgraduate students. The event was kicked off with some warm words from Dr Bongani Ndhlovu (acting CEO: Iziko Museums of SA), Ms Carmel Mbizo (Head of Branch: SANBI) and Ms Fatima Parker-Allie (Node Manager: SANBI-GBIF), who highlighted the value and potential of biodiversity informatics in supporting science, policy and conservation outcomes.



Training experts from various institutions.



A, Dr Bongani Ndhlovu, CEO of Iziko Museum; B, Ms Carmel Mbizo, Head of Branch at SANBI; and C, Ms Fatima Parker-Allie, SANBI-GBIF Node Manager.

[Continued on page 6]



Training experts from GBIF-Spain.

[Continued from page 5]

The partnership with GBIF-Spain, led by Dr Francisco Pando, proved to be highly successful in identifying opportunities to understand the value of GBIF-mediated data. His team consisted of Dr Katia Cezon and Dr Fernando Aguilar and focused on GBIF API, new data visualisation applications and image segmentation to name a few. Brainstorming sessions with GBIF-Spain and SANBI-GBIF began with institutional visits in Madrid, Spain (December 2022) and Cape Town, South Africa (March 2023). Each member of the Spanish team provided valuable insight on biodiversity informatics and how to effectively make use of the eLearning platform.

Workshop attendees visited the Iziko Museum's outstanding collection, which made the day brighter and shed some light on South Africa's marine ecology. The natural history collections of this flagship institution

contains ± 700 million year-old fossils, socio-cultural artefacts and expansive insect and marine invertebrate collections of the country. Dr Wayne Florence, the Iziko SA Museum's Director: Research and Exhibitions led the tour.

The training involved various analytical techniques using big data approaches. It underlined the significance of utilising data for impactful use cases and stories, hence enabling innovative research for South Africa and the rest of the globe. There was great value in the workshop, from the array of experts present, to understanding how machine learning techniques can be applied to imagery, leading to its relevance in biodiversity management or species distribution modelling. This human capital development opportunity presented by the big data world enables stakeholders to play a part in the conservation of our biodiversity. Attendees also left with newfound knowledge and a deeper awareness of the various facets of analysing big data using GBIF.



A tour through the Iziko South African Museum guided by Dr Wayne Florence, Director of Research and Exhibitions.

CREW and BEPE team up for a lesson in bio-crimes

Caitlin Smith and Ntefeleng Lesego Seiphetho

In a collaborative effort between the Custodians of Rare and Endangered Wildflowers (CREW) and the Biodiversity Education and Public Engagement team (BEPE), the CREW team from Kirstenbosch recently addressed Grade 11 students at the Karoo Desert National Botanical Garden, highlighting the alarming rise in illegal plant trade since 2019.

The engaging session began with an overview of the Karoo Desert National Botanical Garden, gradually focusing on the surge in bio-crimes. The discussion honed in on the illicit trade of plants, emphasising its detrimental impact on South African biodiversity.

A key highlight was the exploration of the Red List of South African plants, revealing the precarious status of

species at risk of extinction. The session encouraged active participation through small-group activities, where students analysed the consequences of plant poaching and its influence on Red List classifications. The interactive approach allowed students to grasp the severity of the issue, fostering a deeper understanding of the connection between illegal plant trade and the decline of vulnerable species.



The CREW team presenting background information to learners.



Grade 11 learners playing a Red List game to determine the Red List status of two species.

The journey of capacity development within the Greater uMngeni Catchment: Ecological Infrastructure for Water Security Project

Alwande Nxumalo

The Ecological Infrastructure for Water Security (EI4WS) Project is funded by the Global Environment Facility and implemented by SANBI, in partnership with a range of organisations and institutions under the leadership of the Development Bank of Southern Africa; the Department of Forestry, Fisheries and the Environment (DFFE); and the Department of Water and Sanitation. The project focuses on demonstrating how ecological infrastructure can contribute to water security and build skills and capacity in South Africa.

Initially, the project did not incorporate young professionals as part of the project team. However, during implementation the project team identified a need to include young minds that would not only assist with the critical work being conducted, but also introduce new ideas and innovative ways of working.

In August 2021, the EI4WS Project introduced 17 young professionals to start their journey as interns. Five, including me, were placed in the Greater uMngeni Demonstration Catchment as ecological infrastructure interns. Two interns found work elsewhere soon after the internship began and so only three interns remained.

As young professionals in the EI4WS Project, we have been supporting enhancing organisational capacity and investment in ecological infrastructure in the Greater uMngeni Catchment to improve water resource management. Our role focuses on stakeholder engagement and supporting the coordination of the uMngeni Ecological Infrastructure Partnership, the implementation of DFFE's KwaZulu-Natal Natural Resource Management Strategy and the development of the Pongola-Mtamvuna interim Catchment Management Strategy.

Throughout the internship, we were exposed to opportunities for growth and learned valuable skills. Our communication skills improved by being exposed to various platforms within and outside SANBI to showcase our work, writing articles and reports, as well as engaging with stakeholders at multiple levels, including with communities, researchers, government officials and non-government organisations. We were involved in the planning and hosting of several events, workshops and meetings, and have acquired coordination and organisational skills that we have used in many areas of our work. There has also been an improvement in our knowledge of environmental management, especially on ecological infrastructure and integrated water resource management. We have become more knowledgeable on

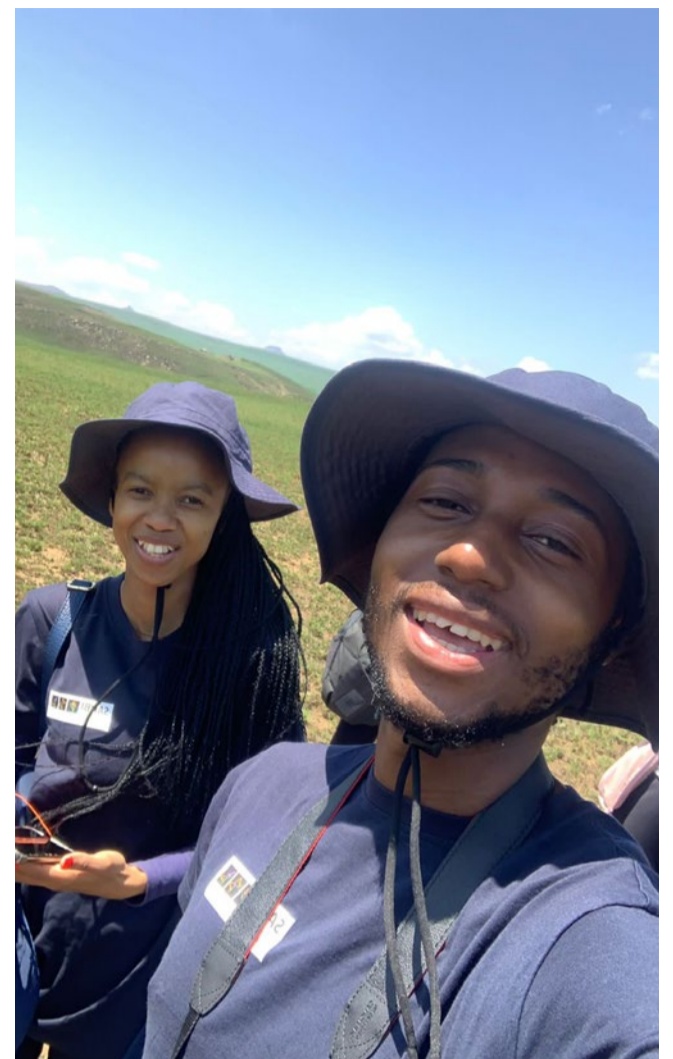
environmental and water-related legislation, the different processes of engaging with policy, and mainstreaming ecological infrastructure into policy through being heavily involved in the development of the Pongola-Mtamvuna interim Catchment Management Strategy, amongst other water policy-related activities.

We have worked with community-based initiatives, such as the Amanzi Ethu Nobuntu Programme, where we worked closely with a group of 23 enviro-champs. Through this close working relationship we learned how to navigate the challenges that come with working with a large and diverse group of people and how to manage a community-based project. In addition, we led the enviro-champs teams, guiding them towards a common vision whilst allowing co-creation and co-learning from both sides.

We believe that a change in mindset and behaviour is just as important as the skills that we have acquired. We experienced this, particularly through our engagement and communication with different stakeholders at various levels. We also realised the importance of meeting people where they are and understanding their needs and their way of working before imposing our ideas on them. This shows intentionality and provides a good foundation for a long-lasting relationship. We have learned to incorporate social processes in every aspect of our work, as neglecting this often leads to an array of challenges and, ultimately, failure.

Through our experience, we have also learned to understand the importance of documenting both the successes and the lessons learned. This allows others to learn from our own experiences and has been critical for our personal growth – continuous reflection allowed us to improve and grow from our experiences. Throughout the internship, we had the privilege of being involved in capacitating enviro-champs. We also assisted in organising induction for the new interns who recently joined the Greater uMngeni team, as well as for the broader Biodiversity Information and Policy Advice Division. During this induction, we engaged the new interns on the EI4WS Project, particularly the community-based implementation work in the Greater uMngeni Catchment.

It has been an amazing experience for us, though not always smooth sailing. Working from home during the pandemic was a huge challenge as we had limited engagement with our mentors. This hindered how much learning and mentoring we could receive from them.



Alwande Nxumalo (left) and Dalisu Hlatshwayo (right) on a field trip to the iNgula Nature Reserve during the 2022 National Wetland Indaba.

We often overlook social challenges and tensions, especially when working in communities, and this was a difficult space for us to navigate. Initially, some of us did not have laptops, making it difficult to procure additional training that could have helped us expand our knowledge and skills. However, we do acknowledge that the on-the-job training we received was a more valuable way of learning.

An ongoing challenge is the lack of retention within the organisation and the broader environmental sector. Whilst it is great that there are a lot of internship opportunities offering growth, there is a lack of transitional junior positions that allow an individual to grow further and for the organisation to retain the investment they have made in these individuals. This means that valuable capacity is being lost. It would have been beneficial for the organisation to capacitate interns and have opportunities to keep them allowing for the longevity of project work, especially community-based work. This work requires a unique set of skills that takes time to craft and acquire. Whilst we do acknowledge this gap within the organisation, we are hopeful and confident that the knowledge and skills we have acquired throughout the two years at SANBI will open opportunities that offer further growth and prosperity.



Young professionals and enviro-champs on field training for wetland monitoring in Mpophomeni.



Muzi Mkhohlwa demonstrating how to use citizen science tools at a school's awareness campaign in the Palmiet River Catchment.

Parties deliberate on wildlife trade at CITES CoP19, November 2022

Michèle Pfab



The CITES Secretariat and the Chair sitting up front and facing all the attending Parties in Committee I, where proposals to amend the Appendices to CITES are deliberated upon.



Cheese and wine evening event in the Panama Convention Centre aims to lobby Parties to support proposals for the inclusion of various shark species in the Appendices to CITES.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora, otherwise known as CITES, is an international agreement between 184 countries, or Parties to the Convention, that aims to ensure that trade in wild species is sustainable. The fundamental method of ensuring this is through non-detriment findings (NDFs) that are undertaken by the Scientific Authority of a state of export. SANBI plays a pivotal role in this by providing technical support to South Africa's Scientific Authority through collating a robust scientific evidence base, conducting research and monitoring projects, and consulting with experts and key stakeholders. SANBI also provides an important scientific decision support service to South Africa's national CITES Management Authority, the DFFE, and this includes the attendance at CITES meetings, the most important of

which is the Conference of the Parties (CoP) that takes place every two to three years. The 19th CoP of CITES was convened in Panama City, Panama from 14 to 25 November 2022 and Michèle Pfab, Scientific Coordinator for the Scientific Authority at SANBI, attended as part of the South African delegation.

The most important discussions at a CoP revolve around which species to include in the Appendices to CITES. Appendices I, II and III to the Convention are lists of species afforded different levels of protection from over-exploitation.

Commercial trade in species included in Appendix I is prohibited, as these species are deemed to be threatened by international trade, while regulated commercial trade in Appendix II species is allowed through a system of CITES permits. Where local livelihoods or economies are especially reliant on the international trade in natural resources, Parties fight to prevent economically important species being brought under the purview of CITES. A case in point was a proposal by Panama and a host of other countries, including the European Union and the United Kingdom, to list the entire family of requiem sharks, including the very abundant blue shark (*Prionace glauca*), in Appendix II. The proposal was opposed by South Africa and many other countries such as Canada, China, Japan and Indonesia, who all argued that the listing would result in severe socio-economic impacts on fisheries around the world.

The well-lobbied proposal, passionately delivered by the host country Panama, was nevertheless accepted by a majority after a vote, with an implementation delay of 12 months as a concession. Similar arguments were heard during interventions from African Parties, such as Cameroon, Central African Republic, Congo and Gabon, when they opposed the inclusion of various timber species in Appendix II as proposed by the European Union. They argued that local management is adequate

to ensure sustainable use and lamented a lack of resources to implement onerous CITES controls.

Discussions around elephants and rhinos, where the division between southern Africa and the rest of the African continent is palpable, are never absent from a CITES CoP. The usual attempt to transfer the elephant populations of Botswana, Namibia, South Africa and Zimbabwe from Appendix II to Appendix I, this time by Burkina Faso, Equatorial Guinea, Mali, Senegal and the Syrian Arab Republic, was rejected by a majority of Parties. On the other side, Zimbabwe attempted to open up its commercial trade in leather goods and argued that the sale of stockpiled elephant ivory would generate much needed conservation funds. But powerful CITES players, especially the European Union that votes as a block, vehemently oppose any trade in ivory and continue to advocate for demand reduction in Asia. There was at least some recognition of the successful conservation efforts in southern Africa where elephant populations are stable to increasing. Similar arguments ensued around Eswatini's proposal for a legal trade in rhino horn, which was also rejected, leaving the country with a lack of funds and a heavy burden of continuing with costly anti-poaching measures.

The dichotomy in paradigms among Parties is quite evident, with the majority supporting a protectionist approach that sees CITES as a tool to protect wildlife, particularly animals, from use and commercial trade, and a smaller faction that views CITES as a trade instrument to ensure utilisation of natural resources is sustainable. Global animal rights NGOs have become well-entrenched in the politics of CITES and seem to be driving an anti-use agenda disguised as conservation. Animal soft toys, evening cheese and wine parties, gifts and pamphlets abound at any CITES CoP, all in an attempt to get Parties to vote for the inclusion of more and more species in the Appendices to CITES. In the end, however, Management Authorities and Scientific Authorities are left with the serious task of implementation.

Appendix I lists species that are the most endangered among CITES-listed animals and plants (see Article II, paragraph 1 of the Convention). They are threatened with extinction and CITES prohibits international trade in specimens of these species, except when the purpose of the import is not commercial (see Article III), for instance for scientific research. In these exceptional cases, trade may take place, provided it is authorised by the granting of both an import permit and an export permit (or re-export certificate). Article VII of the Convention provides for a number of exemptions to this general prohibition.

Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. It also includes so-called 'look-alike species', i.e. species whose specimens in trade look like those of species listed for conservation reasons (see Article II, paragraph 2 of the Convention). International trade in specimens of Appendix II species may be authorised by the granting of an export permit or re-export certificate. No import permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requires). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild (see Article IV of the Convention).

Appendix III is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation (see Article II, paragraph 3, of the Convention). International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates (See Article V of the Convention).



Voting screen showing the outcome of a vote on a procedural matter that has in this case been adopted by a simple majority.



Frog soft toy handed out to Party delegates to canvass support for a proposal to include the glass frogs of Central and South America (*Centrolenidae* spp.) in Appendix II of CITES.

SANBI comments on the Climate Change Bill

Kirstin Meiring

The Climate Change Bill is a draft law that will have a significant impact on South Africa's climate change response once it is published as the Climate Change Act. The Bill was tabled in Parliament in February 2022. Since then, the Parliamentary Portfolio Committee for Forestry, Fisheries and the Environment (Portfolio Committee) has hosted nationwide public hearings to ensure meaningful engagement with interested and affected parties regarding the content of the Bill.

The Bill's main purpose is to enable the development of an effective climate change response and a long-term,

Ecosystem-based adaptation (EbA) means the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. EbA uses the range of opportunities for the sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate change. It aims to maintain and increase resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change. EbA is most appropriately integrated into broader adaptation and development strategies.

Ecological infrastructure (EI) means the naturally functioning ecosystems, including mountain catchments, water resources, coastal dunes, wetlands and nodes and corridors of natural habitat that together form networks of interconnected structural elements in the landscape that generate or deliver valuable ecosystem services to people.

just transition to a low-carbon and climate-resilient economy and society for South Africa in the context of sustainable development. Amongst others, the Bill provides for the establishment of the Presidential Climate Commission to advise the government on its climate change responses, the development of the National Adaptation Strategy and Plan (NASP) in consultation with certain relevant ministers, and the publication of a list of the greenhouse gas emitting sectors that are subject to sectoral emissions targets.

SANBI supports the Bill and has identified ways in which this draft law could be strengthened so that vulnerable communities and municipalities can better cope with the harsh impacts of climate change. In July 2023, SANBI made four key recommendations to the Portfolio Committee on how the Bill can be strengthened from an ecosystem-based adaptation perspective:

1. Firstly, in recognising the urgency of the climate crisis and the need to implement adaptation strategies within this decade, SANBI recommended that the Bill expressly refer to the implementation of the existing National Climate Change Adaptation Strategy (approved by Cabinet in 2020) as an interim measure, pending the development and publication of the NASP.
2. Secondly, SANBI promoted the mainstreaming of the concepts of ecosystem-based adaptation (EbA) and ecological infrastructure (EI) into the Bill as a favourable climate change adaptation response in support of a long-term just transition to a climate-resilient economy and society.
3. Thirdly, SANBI promoted the mandatory and timely inclusion of climate change considerations



South Africa: National Assembly passes the Climate Change Bill

into plans, programmes and decisions by all organs of state entrusted with powers and duties aimed at the achievement, promotion and protection of a sustainable environment. Specifically, SANBI requested for EbA and EI to be integrated into land use planning tools (such as Integrated Development Plans and Spatial Development Frameworks) as a climate change adaptation consideration.

4. Lastly, SANBI recommended that mechanisms for climate funding in South Africa should be recognised and supported through the Bill to enable the accelerated flow of funding. Moreover, that the Bill gives force and effect to the National Climate Change Investment Plan (currently being developed), which will be key to unlocking climate finance.

The Bill provides a much-needed legal framework in South Africa to respond to the impacts of climate change through climate change mitigation and adaptation responses. By so doing, the Bill provides an opportunity for SANBI to mainstream EbA and EI considerations to ensure benefits to human well-being and improved economic prosperity in the face of climate change challenges. SANBI views this Bill as a strategic means of addressing the climate crisis through investment in EI and the promotion of EbA.

The Greater Addo–Amathole Node Planning Workshop

Zoleka Mkhize

The Global Environmental Facility-funded project (GEF 7) on catalysing finance and capacity for the biodiversity economy around protected areas, builds on the National Biodiversity Economy Strategy. This strategy seeks to balance biodiversity and natural resource protection with sustainable use for economic development and equitable distribution of benefits. It sets out measures to develop the wildlife, trade, bioprospecting and ecotourism sectors creating job opportunities. The GEF 7 project targets activities in three biodiversity economy nodes including the Greater Addo–Amathole Node, Great Kruger–Limpopo Node and Greater iSimangaliso Node.

The South African National Parks (SANParks), one of the project implementing agencies, convened the Addo–Amathole Node Planning Workshop on 13 and 14 December 2022. The workshop served as an introduction to the newly appointed node coordinator, and was an excellent opportunity for the GEF 7 project entities to plan and better understand the role and responsibilities of each entity involved. The workshop was attended by representatives from the World Bank, SANBI, SANParks and the Eastern Cape Parks and Tourism Agency (ECPTA).

The workshop was filled with sound discussions on the nodal planning for the GEF 7 project. The node coordinator highlighted shifts in the planning of the anchor projects, following lessons learnt from the COVID-19 pandemic. The pandemic revealed important lessons in the sustainability of the wildlife economy sector, including the value of diversifying activities to ensure sustainability. This encouraged the project to not only focus on tourism and high value species, but also to explore other opportunities such as mixed wildlife and cattle ranching and cattle auctions. From experiences in the Kruger National Park and the uMzimvubu Catchment, a mixed system is not as complex to run and has immediate financial gains for communities. There is a national priority to explore the game meat strategy in the project and capacitate communities to operate abattoirs. The focus would not only be on wildlife, but also on livestock and exploring safety net payment from carbon for sustainable grazing. The project hopes to support communal areas to manage their land better and create a nature-aware and nature-positive landscape.

Key outcomes from the meeting included discussions on the development of a Node Coordination Committee, which will focus on reporting progress and providing strategic advice on the projects. The committee will create a platform for collaboration and

a space for learning and policy advice. It is envisioned that the committee will live beyond the lifespan of the GEF 7 project and it is, therefore, important to ensure that it is embedded in the landscape. The committee will include government departments, non-governmental organisations and municipalities. All members will be expected to mainstream the work into their respective spaces in line with the project master plan currently being developed.

The role and responsibilities of each entity within the Greater Addo–Amathole Node were identified during the workshop. A proposed coordinated matrix was presented and discussed to ensure that the entities had a full understanding of the deliverables and the responsibilities required for achieving the GEF 7 project targets.

The discussions covered several topics such as community training and government support and it was agreed that SANParks and ECPTA will coordinate separate training programmes. ECPTA will focus on training communities around the Great Fish River, while SANParks will focus on the communities around the Addo Elephant National Park. SANBI will lead the learning exchanges nationally and regionally for the projects within the project nodes. The GEF 7 entities will provide support in identifying key stakeholders to engage in these learning exchanges, as well as participating and sharing lessons learnt within the landscapes. The ECPTA will appoint a Biodiversity Stewardship Facilitator to focus on supporting biodiversity stewardship on communal land within the Greater Addo–Amathole Node.

Another key highlight from the discussions was on the technical reports which will measure the progress of the project indicators. These reports will be prepared and submitted biannually. To keep the momentum running, the entities agreed on conducting quarterly nodal planning meetings which will serve as an anchor in ensuring alignment and commitments of nodal targets.

The workshop attendees acknowledged work previously done by various projects, but noted that tangible community benefits have yet to be realised. Through the GEF 7 project, there is an opportunity to showcase tangible work done for the communities, align and integrate this work into SANParks and ECPTA processes. This will empower communities to be owners of their natural resources, while advancing their knowledge and understanding of the biodiversity economy from which they can benefit.

Grafting training for future propagation of threatened Proteaceae species

Mashudu Nndanduleni

Kirstenbosch National Botanical Garden runs a grafting project for threatened species, focusing on the Proteaceae.

On 16 May 2023, senior horticulturist, Mashudu Nndanduleni, conducted grafting training with two students who are placed at the garden for Work Integrated Learning (Khawulani Khanyile and Yonela Dyakobe) and one Groen Sebenza intern (Mane Somtshu). Mane will continue to lead the project to ensure that species that are susceptible to root rot diseases are conserved and displayed in the garden.

The grafting was focused on the following aspects:

- Introduction of grafting and selection of rootstocks and scions.
- Grafting tool function and management.
- Grafting techniques.
- Monitoring.

The group was taken to the mother stock and to the garden to collect root stock for bench grafting and scions of threatened species.



Collecting scions.



Cleaning and sharpening tools.



Collecting rootstock.



Grafting.



Bark grafting.

Dynamic ACCESS workshop at University of Venda explores ways to enhance habitability of our planet

Dr M.C. Moshobane

The recently concluded Alliance for Collaboration on Climate and Earth Systems Science's (ACCESS) Habitable Planet Workshop, hosted at the University of Venda, brought together a diverse group of postgraduate students hailing from various academic disciplines. The 10-day event, held from 5 to 15 July 2023, focused on collaborative efforts to address the pressing issue of improving the habitability of our planet.

One of the workshop highlights was the insightful presentation by Mr L. Rasifudi who was invited to share his groundbreaking research outcomes. Mr Rasifudi, SANBI Groen Sebenza intern based at Thohoyandou National Botanical Garden, under the tutelage of Dr M.C. Moshobane, captivated the audience with his talk titled, 'Bio assessment of water quality using macro-invertebrate communities in the Selati River, Lower Olifants River System'. The presentation shed light on

the concerning decline in surface water quality across the globe over the past century and, specifically, in the Selati River System, and pressures that exacerbate the problem, such as invasive alien species.

The workshop participants represented a diverse array of academic backgrounds, including law, social sciences, engineering, biodiversity and environmental science. Together, they embarked on a comprehensive exploration of the multifaceted challenges contributing to the deterioration of our planet's habitability.

Dr Carl Palmer, ACCESS Education and Training National Portfolio Manager, expressed his appreciation for the invaluable contributions made by Mr Rasifudi. In a heartfelt letter of commendation, Dr Palmer acknowledged the significance of Mr. Rasifudi's research and the impact it has on raising awareness about critical environmental issues.



Mr Rasifudi, SANBI Groen Sebenza intern based at Thohoyandou National Botanical Garden.

The ACCESS Habitable Planet Workshop successfully fostered interdisciplinary collaboration and ignited a fervent drive among the participants to work collectively towards a more sustainable and habitable planet. The insights shared by Mr Rasifudi and his peers promise to be a stepping stone toward a brighter and more ecologically balanced future.

Plant propagation: smoking treatment of fynbos seeds and seed sowing

Wongiwe Nqwede and Mashudu Nndanduleni

Kirstenbosch National Botanical Garden hosted a plant propagation workshop, which included the subtopic of seed smoking treatment of fynbos seeds and seed sowing. This training was presented by SANBI's senior horticulturists, Ntuthuko Mabuya and Mashudu Nndanduleni.

The training was held on 9 and 10 May 2023. Horticultural conservation worker (restio specialist), Gift Tshwili, and protea specialist, Sicelo Tyulu, also joined the workshop. The aim was to train interns and Work Integrated Learning students on the techniques used to germinate fynbos seeds using smoking treatment, as well as the importance of germinating these seeds. The importance of seed smoking and other factors used to break the dormancy of seeds was emphasised. The training covered the introduction of fynbos and smoke treatment, and seed pre-treatment, seed collection and monitoring.

On the first training day, an introductory talk and background to pre-treatment was presented. The presentation detailed the physiology of seed dormancy and touched on how we can improve the germination of fynbos species, and particularly threatened species, to increase ex situ conservation and restoration work. The

importance of fire in the Fynbos Biome was emphasised. The use of smoke to break the dormancy of fynbos seeds, and other factors, was presented and demonstrated during these two days. The second part of the presentation covered aspects of the Fynbos Biome and Renosterveld in the Cape Floristic Region, highlighting how other biomes, such as Forest, Thicket, Succulent and Nama-Karoo, contribute to the region. The Proteaceae, Restionaceae and Ericaceae are the most dominant plant families in the fynbos, while these tend to be absent or present in low abundance in Renosterveld.

Interesting questions were raised during discussions and resulted in potential future research projects.

The physiology of protea and restio seeds was explained and their differences were highlighted. The importance of determining seed viability and how to break the seed dormancy are among the aspects of seed physiology that are particularly pertinent to gene banks, as is seeds' development of tolerance to desiccation and loss of tolerance to it. Aging of seed resulting in a reduction of viability, specifically if stored in a poor environment. It was recommended to conduct a viability test before seeds sowing, so as not to waste time and resources on non-viable seeds.

The interns and students learned the process of setting up a smoking tent and collecting the right fynbos material for smoking. All of us join the fieldwork to collect dried and wet fynbos material of species such as *Passerina*, *Metalasia* and *Euryops*. Later, before the first day ended, we visited the seedbank (previously known as the seed room) where we explored where seeds are dried, cleaned and stored.

On the second day the group had a smoking practice, which was facilitated by Sicelo and Gift. We were joined by staff from the University of Stellenbosch Botanical Garden. The whole process, from setting up the smoking tent, fetching the stored seeds and propagation preparation, was explained in detail. The group was split where some attendees were responsible for sorting out seeds, while others prepared trays and filled them with soil medium.

During the two hours while seeds were undergoing the smoking process in the tent, training continued on the importance of seed and propagation records. Following the smoking process, the seed and trays were moved from the tent to the nursery for germination and covered with sifted bark.



Directorate for Biodiversity Evidence leads special session during Grassland Society Conference

Dr M.C. Moshobane

The 58th annual conference of the Grassland Society of Southern Africa took place from 24 to 28 July 2023 at Omaramba in Rustenburg, North West. A landmark special session, led by the Directorate for Biodiversity Evidence of SANBI, delved into the pressing issue of biological invasions in the country's Grassland and Savanna biomes.

The theme of the session, 'Biological Invasions in the Grassland and Savanna Biomes of South Africa', underscored the urgency of addressing the challenges posed by invasive alien species. The session provided a comprehensive exploration of the entire spectrum of invasive species management, ranging from detection and distribution, to understanding and determination of the negative impacts, and implementing various eradication strategies within the biodiverse grassland and savanna habitats of South Africa.

The aims and objectives of the session were two-fold: firstly, to shed light on the developments in emerging alien species management in South Africa, and secondly, to present progress made in policy and science-based management of invasive species in South Africa. The presentations delivered during the session were both enlightening and thought-provoking, revealing the multifaceted nature of the issue – inferred from the level of engagement by stakeholders from different spheres of science.

Highlights from the session's presentations included:

1. Threats to endangered ecosystems: Moleseng C. Moshobane's presentation explored the dire threats posed by invasive alien plant species to the Critically Endangered Woodbush Granite Grassland in Limpopo. The talk emphasised the need for urgent and strategic interventions to safeguard this unique ecosystem of which less than 10% remains.
2. Detection and patterns: Thabiso M. Mokotjomela and co-workers shared insights into the detection of plant invasion patterns across multiple provinces, including Free State, Eastern Cape and KwaZulu-Natal, and how the observed plant invasions might threaten strategic water source areas in the Lesotho Drakensberg.
3. Community science contribution: David Maphisa showcased the power of citizen science in documenting the distribution of alien invasive species through different databases. This innovative approach has the potential to significantly enhance our understanding of invasive species' presence and spread. Early acquisition of information about



Presentation team for 'Threats to endangered ecosystems'.

4. Ecological impacts: Nobuhle Mweli's presentation delved into field evidence of the ecological impacts that *Cylindropuntia pallida* (Rose) F.M.Knuth has on grassland quality. This study unveiled crucial insights into the interplay between invasive species and indigenous ecosystems, and clarified potential socio-economic implications of slow management of the alien species.
5. Predicting habitat occupancy: Zimbini Scott and King Matsokane discussed the application of predictive modelling of habitat occupancy by the emerging invader cactus, *Cylindropuntia pallida*. This proactive and spatially explicit approach can aid in the development and implementation of pre-emptive management strategies.
6. Eradication efforts: Thulisile P. Jaca and co-workers addressed the challenging task of eradicating cactus species, *Harrisia balansae* in South Africa, offering insights into the complexities of battling invasive species. Using field evidence, she demonstrated the importance of strengthening the

detection capacity of emerging alien species.

7. Community engagement and livelihoods: Thabiso Cele presented a case study highlighting how the management of emerging species boasts community livelihoods. The presentation demonstrated various clearing projects across the Northern Cape, Eastern Cape and Free State, while providing first-hand potential positive conservation spin-offs of successful projects.

The special session brought together scientists, researchers, policymakers and community stakeholders to collectively address the growing concerns surrounding invasive species in South Africa's Grassland and Savanna biomes. By fostering knowledge-sharing and collaborative efforts, the session has set the stage for more informed and effective strategies in the ongoing battle against biological invasions.

The Grassland Society of Southern Africa and SANBI's Directorate for Biodiversity Evidence remain committed to advancing research, conservation and management practices that safeguard these vital ecosystems for future generations.

Supporting transformation agenda and improving rural livelihood through conservation initiatives: Tshivhula Community Property Association case study

Tshimangadzo Nndwakhulu and Zoleka Mkhize

Up in the Soutpansberg, extending from the Limpopo River to the banks of the Great Sand River in the eastern region of the Mokgalakwena River, the Tshivhula people, also known as the Vhatwanamba, settled decades ago. Direct descendants of the Great Mapungubwe Kingdom, the Tshivhula people lived in harmony with the rich biodiversity of their land. They harvested their medicines and food from enormous shrubs, and utilised reptiles and wild animals in the area. They hunted and kept herds

of livestock, while enjoying shade of the giant trees, which protected them from blazing midsummer heat. The gathering of mopane worms and the indulgence in wild berries were treasured rituals for the Vhatwanamba. However, the apartheid era unjustly stripped them of their land, forcing many to become refugees in distant regions.



Wildlife in Tshivhula Game Farm.

[Continued on page 14]

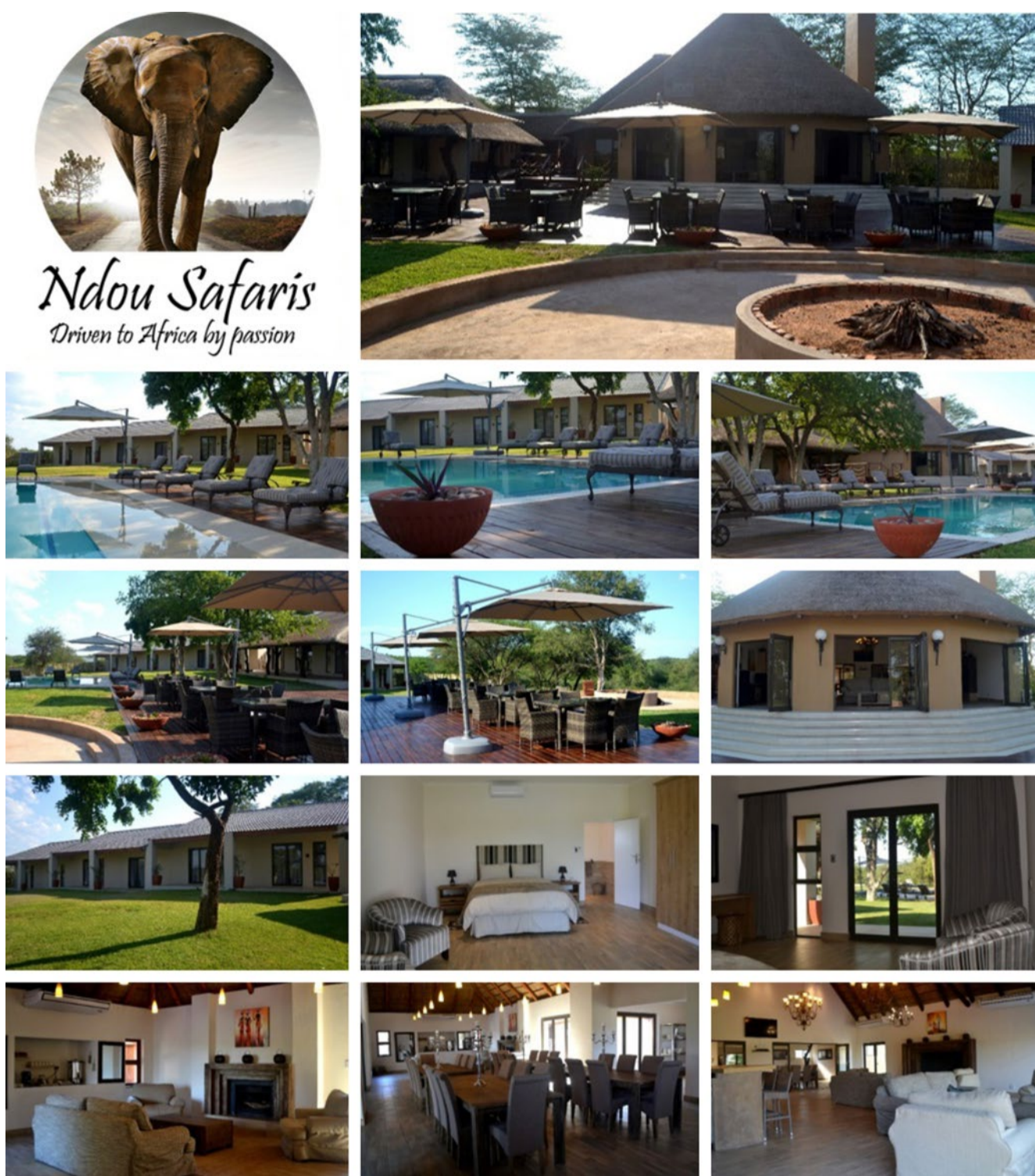
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In 1998, the Tshivhula community embarked on a journey towards restitution of their land. It had been seized by the post-apartheid government as part of its efforts to address lost land issues resulting from the apartheid era and marked the beginning of a journey for the Tshivhula community. Between 2009 and 2018, the community successfully regained control of six farms of approximately 20 000 hectares. As a result of reclaiming these farms, it became necessary to establish the Tshivhula Community Property Association (CPA). The Tshivhula CPA was specifically established to represent the community members who had lost their land. Acknowledging that land serves as an economic resource, the CPA recognised the need for innovative strategies to ensure various business activities in the wildlife and ecotourism sector. They opted for a joint venture approach, by partnering with a private company as a shareholder. This collaborative effort has proven to work successfully. The CPA aspires to establish a business solely operated by the Tshivhula CPA, however, they are currently thrilled with the progress and operations of this joint business venture.

Simon Mafela, secretary of the Tshivhula CPA, is delighted with the success of the CPA. He works in collaboration with the chairperson, deputy secretary, treasurer, other community members and Chief Abel Tshivhula. He emphasised the significance of establishing connections and partnerships in ensuring the success of the CPA. The close collaboration with Limpopo Economic Development, Environment and Tourism (LEDET) has provided valuable insights into the establishment and cooperation of the Tshivhula CPA business venture in the wildlife and ecotourism sector.

Working with LEDET sparked Mr Mafela's interest in further understanding the sector, which led to him becoming part of the Limpopo Emerging Wildlife Association. This association consists of representatives from various African communities within Limpopo. Being part of this association has created connections that are paramount for the Tshivhula CPA. Mr Mafela has been introduced to various entities, including SANBI, the Department of Forestry, Fisheries and the Environment, and Wildlife Ranching South Africa among others. He has actively participated in engagements and conferences, such as the People and Parks conferences and the United Nations Development Programme's Biodiversity Finance Project. These platforms have provided him with extensive knowledge on effective CPA management and exposure to the socio-economic transformation within the wildlife and ecotourism sector.

The Tshivhula CPA has successfully established markets worldwide and forged valuable connections with international clients. They have been given opportunities to share their CPA's operational structure with other community property associations and entities. As a result of these engagements, Mr Mafela was entrusted with the responsibility of representing South African communities at the CITES Conference in Panama. He was also invited to Dubai to engage with stakeholders in the wildlife and ecotourism industry, exchanging lessons learned and identifying potential opportunities within the sector. These experiences have significantly contributed to the knowledge development of the Tshivhula CPA. Mr Mafela has gained invaluable exposure to various aspects of the wildlife economy, including decision-making processes related to wildlife trade and the creation of opportunities for trophy hunting. These opportunities have allowed the establishment of linkages and collaborations with foreign nationals, fostering mutually beneficial business ventures and partnerships. For instance, their participation at the CITES Conference enabled them to showcase their work



Tshivhula business enterprise.

at Huntex 2023, attracting interested parties keen to bring clients from the United States to visit the Tshivhula enterprise.

The Tshivhula CPA places great importance on enabling unity in the community. They are cognisant of their responsibility to reclaim and use the land for the benefit of the community. To achieve this, the CPA has provided the community with diverse skills development opportunities, including experience in game counts and captures, exposure to hunting practices, and to housekeeping and lodge activities. At present, the CPA is actively involved in fast tracking the land claim process for the remaining Tshivhula farms. Collaborating with various partners, they aim to offer training programmes and employment opportunities to the community members. The CPA intends to facilitate the establishment of community businesses on certain portions of the Tshivhula farms, enabling community members to enhance their skills, generate more employment opportunities and develop sustainable enterprises.

Despite the development of partnerships and exposure to experienced individuals in the sector, the CPA faces challenges in finding a suitable model to ensure

equitable profit sharing from the revenue generated, to directly address the community's needs. The concept of communal ownership of land creates a challenge when it comes to profit sharing, because beneficiaries are not allocated shares and there is no guideline to help CPAs deal with this matter. There are other challenges, including mining activities, which threaten the biodiversity stewardship programmes and declaring the farms as a conservancy, as well as the huge threat of animal poaching, which poses a significant risk to business operations.

According to Mr Mafela, achieving success as a CPA is a challenging process that necessitates perseverance and transparency. He emphasises the importance of CPA leadership and continuity to avoid the loss of vision of the entity. This entails diligent planning, clearly defined roles, acquiring the relevant information, and forging meaningful partnerships and connections. The journey of transformation undertaken by the Tshivhula has had a profound impact on the socio-economic condition of their community, and it has played a pivotal role in protecting the natural resources that sustain them. The sustainable operation of Tshivhula CPA represents a significant example of reversing the legacy of apartheid.



Mr Simon Mafela and colleagues.



Tshivhula CPA community engagements.

The power of collaboration: celebrating 10 years of the Umzimvubu Catchment Partnership

Karabo Sethole



Participants at the 10 year Umzimvubu Catchment Partnership celebration.

In conversation with Fezile Matandela from Conservation South Africa (CSA) and the co-chairperson of the Umzimvubu Catchment Partnership (UCP), we delved into the impact of the UCP, the partnership's ongoing conservation initiatives, the crucial role of community engagement in achieving sustainable water management, and the future plans and priority projects of the UCP.

The UCP is a collaborative programme aimed at promoting sustainable restoration and management of the Umzimvubu River's catchment area in South Africa. The UCP brings together stakeholders, including government agencies, local communities, non-governmental organisations (NGOs), research institutions and the private sector. These stakeholders collaborate in decision-making processes and work towards achieving a common goal of creating job opportunities and improving livelihoods, whilst conserving the catchment area. In the initial stages of the UCP, the main focus was on establishing partnerships, identifying key stakeholders and learning from other organisations in the field. This involved participating in learning exchanges, attending training workshops and sharing best practices. Capacity building played a vital role during this phase, helping the UCP to understand their role within the catchment. Securing funding and resources was a crucial objective for the UCP in the early stages. They engaged with relevant stakeholders such as WWF and SANBI to explore ways to bring in funding and mobilise resources to support the work. This ensured that the necessary resources were available to carry out their initiatives and projects effectively.

The key UCP projects include rangeland restoration and management, WASH (Water, Sanitation and Hygiene), alien invasive plant clearing, the Presidential Youth Employment Intervention (PYEI) initiatives,

Meat Naturally – Sustainable Agriculture Programme, small scale stock farming, and the spring rehabilitation and protection toolkit. Fezile highlights that the partnership's notable accomplishment lies in the successful introduction of various models used to secure Strategic Water Source Areas (SWSAs) within the catchment area, for example, the WWF mountain model, and rangeland and grazing associations.

'Collaborations or partners coming together assists in accelerating holistic interventions in the landscapes. And makes it easier for work to continue and have an impact in the landscape,' Fezile said.

The UCP has effectively collaborated by leveraging the strengths, resources and expertise of the partners to achieve a common goal. According to Fezile, collaboration is key and the work in the catchment cannot be done in silos. She emphasised the importance of learning from each other and sharing best practices. Fezile notes that the UCP recognises the importance of managing fresh water source areas holistically, considering both the quantity and quality of water. By bringing together different stakeholders, it facilitates coordinated conservation efforts to address water-related challenges, such as water scarcity, pollution and ecosystem degradation. This integrated holistic approach ensures the sustainable use of water resources and benefits all users within the catchment.

The fact that the UCP has reached a significant milestone of 10 years, speaks volumes of its success. During the course of 10 years, the UCP has delivered tangible results in the Umzimvubu River's catchment area. These outcomes include the restoration of degraded ecosystems, improved water quality, increased access to clean water for communities, enhanced livelihood opportunities, increased youth and community involvement, improved governance structures, and the implementation of climate change

adaptation measures. The UCP's ability to translate its vision into practical and measurable outcomes demonstrates its effectiveness in achieving its objectives.

The UCP's longevity also reflects its success in strengthening institutions involved in catchment management. Through capacity building initiatives, training programmes and knowledge-sharing the UCP has empowered government agencies, local communities and other stakeholders with the necessary skills and expertise to sustainably manage the catchment's resources. This institutional strengthening ensures the continuation of effective management practices beyond the 10-year milestone.

One of the key indicators of the UCP's success is its impact on local communities. Over the past 10 years, the UCP has actively engaged and empowered communities within the catchment area, enabling them to participate in decision-making processes and take ownership of their natural resources. By involving communities in sustainable livelihood initiatives, the UCP has contributed to poverty alleviation and improved the overall wellbeing of the people living in the catchment. The sustained backing by partners indicates their confidence in the UCP's approach, effectiveness and ability to create a positive and lasting impact in the catchment area. This recognition further strengthens the UCP's position and paves the way for continued success and future collaborations.

The UCP has amazing plans for the future, aiming to further enhance sustainable water management and community involvement within the catchment area. By pursuing these future plans and projects, the UCP aims to create lasting positive change in the Umzimvubu Catchment, promoting sustainable water management practices, enhancing ecosystem resilience and fostering the wellbeing of local communities.

A shift from waste management to waste reduction

Nomcebo Shange

'South Africa is drowning in its own waste' is an expression to describe the waste pollution crisis that the country is facing. The villages in Matatiele Municipality in the Eastern Cape are not exempt from this crisis. With work led by Environmental and Rural Solutions (ERS) – a social enterprise NGO – in collaboration with The Nature Conservancy (TNC), baseline data were gathered from two pilot villages. The baseline data were interested in revealing what was included as waste and how it was disposed of. Household surveys on waste, water and sanitation were conducted, as well as waste mapping to identify waste hotspots and practices. The approach taken was to understand the situation and challenges faced by the communities. It included consultation and collaboration between community leaders, village residents, partner NGOs, donors and the local municipality to solve waste problems. The community clean-ups revealed that 60% of the waste volume was disposable nappies, while a further 30% were recyclable materials.

The lens shifted and focused on disposable nappies due to the negative impacts they have on ecosystem health. At the moment, disposable nappies are considered the biggest threat to fresh water. They are also found discarded on grazing land, disrupting farming practices, as cattle eat disposable nappies. In some cases, dogs in the neighbourhood take discarded disposable nappies from a family's yard to their neighbours, which causes conflict between neighbours. The baseline data also revealed that the reason mothers dispose of nappies in this manner is due to poor municipal service delivery and lack of access to formal disposal facilities. Community members are forced to dispose of waste in pit toilets and holes, but once these are full, mothers are forced to dispose of waste in streams, rivers, springs, bushes, grazing land or in wattle plantations.

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Unemployment remains another ongoing crisis in the country. The baseline data revealed that most households in these villages are dependent on government grants, which are estimated at about R3 300 per month. These government grants need to support all the needs of the household, including the purchase of disposable nappies. It is estimated that there are two to four babies per household and if one baby uses 120 disposable nappies per month, this equals to 1 440 per year. This generates 4 m³ of waste per year, or 10 m³ in 2.5 years (estimated duration that babies wear nappies). The average cost for one baby is R700+ per month, which equates to R8 400 per year and R21 000 in 2.5 years. The use of disposable nappies is therefore also financially taxing and not only detrimental to ecosystem health. This prevalent situation demands a more sustainable behavioural change to reduce the financial burden, as well as the volume of waste generated. Mothers in the villages were approached with an alternative, in the form of reusable nappies. A trial run was initiated with eight mothers and they responded with positive feedback in terms of cost

saving. However, societal pressures still exist and there are stereotypes surrounding reusable nappies being a measure of one being 'poor'.

On behalf of the communities, ERS has since approached BidyKins, an online business that specialises in selling modern cloth (reusable) nappies. BidyKins supplies starter packs at a wholesale price of R550 and they can last babies for many years. The starter packs include a waterproof bag with two compartments, different coloured nappies with an absorbent fabric, white microfibre inserts (to absorb moisture) and, lastly, disposable nappy liners which are biodegradable. These modern cloth nappies are one-size-fits-all as they have adjustable buttons. The disadvantage is accessibility because they can only be ordered from the website. There is a potential opportunity for entrepreneurs to be trained to order reusable nappies in bulk and become distributors within their communities. However, this training cannot take place due to lack of funding.

ERS, Endangered Wildlife Trust (EWT), academics and international stakeholders held a waste management conference in November 2023. Through the conference,

civil society attempted to pull together manufacturers, NGOs and any other influencers that can change behaviour around sanitary hygiene products – disposable nappies, sanitary pads and adult nappies. Four webinars were held leading up to the conference that covered topics the following topics: circular economy around plastics and disposable hygiene products; lifecycle assessment of single-use hygiene products, focusing on sanitary ones; nappy economics; and stories of change and hope. According to Nicky McLeod from ERS, 'The consensus is shifting from managing waste, to reducing the waste generated, by changing behaviours and finding alternative products.'

The conference, and its webinars, provided a learning environment to share information and best practice. A key outcome of the conference was to challenge nappy manufacturers, by bringing them into this conversation, and to promote the use of reusable nappies throughout South Africa. While this is the desired outcome, it cannot be forgotten that the success of the shift towards reusable nappies is also dependent on water access for households – reusable nappies cannot be a viable option without the availability of water.

Workshops: a critical tool for knowledge transfer

Elekanyani Mulaudzi and Monica Mwale

There are numerous benefits for hosting workshops. They introduce new ideas and encourage participants to explore these through group interactions, demonstrate and encourage practical methods, therefore providing a great way of teaching a hands-on skill.

Workshops also offer participants a fair chance to explore new methods for conducting research in an enabling environment where they can ask questions. Thereafter, participants can test methods after the workshop in the comfort of their homes or workplaces. SANBI, like many other organisations, takes the initiative in supporting its employees in skills-building workshops, using national and international expertise to support capacity and technological transfer. The organisation understands that employees must have this set of skills to perform job-related functions.

The South African Node of the International Barcode of Life (SABOL) invited the South African DNA barcoding research community, including researchers, students and interns, to a two-part workshop on eDNA metabarcoding. This workshop was conducted in a hybrid format and was led by Dr Tamara Schenekar from the University of Graz in Austria.

The first part of the workshop happened online on 28 August 2023 and focused on introducing the basics of eDNA research and discussing sampling techniques during a webinar. Environmental DNA, or eDNA, refers to a genetic material that is released by various organisms into the environment from common biomaterial sources, like skin cells, hair, mucus, gametes, and as well as bacteria. The collection of eDNA involves non-invasive and highly sensitive sampling and analysis techniques. As a result, when compared to other traditional methods of biodiversity assessment, eDNA proves to be cost-effective and time efficient, as evidence of the occurrence (presence) of species in specific areas. Collecting samples for eDNA is relatively straightforward and it can be done anywhere (from water, soil or air) using a process that filters the environmental samples (e.g., water) and captures biological materials in those samples. It is, however, vital to ensure that an eDNA project or experiment is properly planned to address the research objectives, using a clear experimental design for each sample type.

The second part of the workshop was a hybrid DNA metabarcoding data analysis session held on 4 and 5

September 2023. It was conducted both online via MS Teams and in person at the University of Pretoria in Gauteng.

DNA metabarcoding is a technique used for identifying plants and animals by rapidly analysing the DNA sequences of bulk DNA samples, such as eDNA or even stomach contents in diet analysis. This part of the workshop involved a command-line bioinformatic data analysis pipeline or workflow using a variety of software. Participants attending this workshop were required to have installed specific software on their PCs before the workshop sessions. This software included Ubuntu, FastQC, Cutadapt, Python, PEAR and vsearch among others. Installation guidelines for all software were provided. Participants attending in-person had access to the University of Pretoria's bioinformatics facility, where the required software was already installed.

Several topics were covered, the first of which was an introduction to metabarcoding data library preparation and analysis. Participants were also introduced to the Linux bash terminal command-line and were taught some basic Linux commands. Although bioinformatics, especially command-line or scripts, might seem daunting for beginners, the analytical process is fascinating. The command-line is the basis of all software and acquiring skills in this field is becoming more important for molecular biologists, as it's a growing area with opportunities for doing high-performance computing of datasets. During the workshop, all participants reviewed the raw data collected from an unidentified nature reserve in

Pretoria and assessed its quality. Each participant had a computer station for hands-on learning.

The nature of some bioinformatics tasks is time-consuming, especially when running on slower local machines, other than servers. For example, read mapping can take a significant amount of time when run locally, compared to using more advanced facilities with dedicated servers. The processing time also varies depending on the size of the genome dataset you are working with. We were unable to cover all the topics during the workshop days due to limited time. To ensure that every topic was covered and that everyone who attended understood, a continuation of the workshop was suggested with a date to be confirmed. In the upcoming session, we will pick up where we left off with the aim of completing the remaining uncovered topics.

Although bioinformatics can be intimidating for beginners, workshops can provide structured learning environments because they offer hands-on support and interactive guidance to assist participants in overcoming technical challenges. There is a growing need to acquire extensive bioinformatics skills through workshops and this serves as evidence of the critical role that this field plays in biological research and its potential applications in the near future. In conclusion, one must honour the invitation to workshops because they are essential platforms for an individual to gain expertise to thrive in their careers and be able to share knowledge with future generations as the world of work evolves, requiring a variety of advanced skills.



International and National expertise Dr Tamara Schenekar from the university of Graz and Mr Mahlatse Kgatla SANBI employee.



Dr Tamara Schenekar and participants of the SABOL workshops at the University of Pretoria Bioinformatics computer labs.

Dr Moshobane takes centre stage at Annual Young Scientists Conference 2023

M.C. Moshobane

Dr M.C. Moshobane, a passionate advocate for science communication, played a pivotal role as a facilitator and adjudicator during the 2023 Annual Young Scientists Conference (AYSC), further solidifying his legacy in the field. Dr Moshobane's wealth of expertise and exceptional contributions to various science promotion activities and initiatives earned him a prominent role in the conference's proceedings.

The second Academy of Science of South Africa's (ASSAf) Institutional Engagement Roadshow, held in collaboration with the South African Young Academy of Science (SAYAS) and the University of Venda (UniVen) on 12 and 13 June 2023, was a resounding success. The roadshow was paired with the AYSC, centred around the theme, 'Basic Sciences for Sustainable Development', organised by SAYAS.

The conference kicked off with an opening ceremony graced by keynote speakers representing collaborating institutions. Dr Bernard Nthambeleni, Vice-Chancellor and Principal of UniVen, officially opened the event and extended a warm welcome to all participants. During her keynote address, Prof. Nosisi Feza, Deputy Vice-Chancellor of Research and Postgraduate Studies at UniVen, underscored the ethical imperative of conducting sound research.

The ASSAf roadshow, a dynamic blend of informative sessions and engaging discussions, was a collaborative effort to promote scientific excellence and ethical research practices. Dr Tebogo Mabotha of ASSAf facilitated a morning information session on 12 June 2023, attended by over 150 enthusiastic participants. Mr Thabo Dikgale, Partnership Officer at UniVen, delivered the opening remarks, setting an encouraging tone for the proceedings.

Prof. Himla Soodyall, ASSAf's Executive Officer and SAYAS Executive Committee member, along with Prof. Dustin van der Haar from the University of Johannesburg, took the stage to explain the mandates, benefits of membership and nomination processes of ASSAf and SAYAS. M. Susan Veldsman, Director of Scholarly Publishing at ASSAf, delivered a thought-provoking presentation on predatory journals, cautioning researchers about the potential perils associated with publishing in such outlets.

The conference reached its crescendo with a gala dinner at the MGB Hotel at 2Ten, featuring an inspirational talk by Dr Palesa Sekhejane from the Human Sciences Research Council. Those who delivered outstanding oral and poster presentations, were acknowledged for driving excellence and innovation in scientific inquiry.



Dr Moleseng Claude Moshobane during the opening ceremony.



SANBI senior scientist, Dr Moleseng Claude Moshobane, and ASSAf's executive officer, Prof. Himla Soodyall.

SANBI Gazette submission requirements

The SANBI Gazette serves as a lively publication reflecting our work and commitment towards celebrating who we are and biodiversity. In order to feature best content, look and feel for future issues of the SANBI Gazette, please note:

You may contribute your news and stories to the following SANBI Gazette categories:

1. **Corporate News:** Updates from SANBI departmental highlights and/or focus areas (SCM, Employee Wellness, IT, HR, Safety, etc.).
2. **In Focus:** Profiling a SANBI division, directorate, project, programme.
3. **Biodiversity News:** Science, research, policy and implementation related updates and features about the variety of plant and animal life.
4. **Public Engagement:** Events, activities, entertainment, e.g., workshops, conferences, concerts, talks, campaigns, recent and upcoming special and commemorative day celebrations.
5. **Readers Zone:** Historical notes and the latest biodiversity literature and books.
6. **Opinion Piece:** Share your interest and insights, hobbies, commentary about biodiversity related topics.
7. **Sharing Skills:** Sharing professional areas of expertise, offering tips and tools.
8. **SANBI Staff:** Showcasing the accomplishments of SANBI staff.
9. **Back Pages:** Puzzles, competitions, cartoons, creative contributions, etc.

Submission requirements

- Text should be submitted as a Microsoft Word document. Keep the document name brief (30 characters or less).
- Please supply text and figures/images separately. Please do not insert figures into the Word document.
- **Figures:**
 - Figures should be appropriately named (e.g. Figure 1).
 - Do not use punctuation in the figure file names and keep the name brief (25 characters or less), e.g. Figure 01_Habitat.
 - Figure captions should be provided in the Word document, not as part of the figure file name.
 - Do not add numbers, labels or captions to the original images, but include a scale bar if required. Notations should be provided on a copy and not on the original image.
 - Photographs should be provided electronically as either **JPG or TIF** files at 300 dpi at approximately the size at which the photo needs to be placed in layout. Please contact the graphic designer if you have any questions (e.fouche@sanbi.org.za). **Photos that do not conform to quality or file format requirements will not be included in layout.**
 - Please do not submit photographs taken with a cell phone or tablet.
 - Photograph mosaics should be submitted as separate TIF or JPG files and appropriately named (e.g. Figure 1A, Figure 1B, etc.). A proof layout of the mosaic can be provided. Final layout of the mosaic will be done by the designer.

Workshop on implementation of Resource Directed Measures in KwaZulu-Natal: key learnings in water resource protection

Alwande Nxumalo and Anele Ngcobo

Resource Directed Measures (RDM) are defined as a key strategy for facilitating the protection and sustainable use of water resources in South Africa. The National Water Act (No. 36 of 1998) recognises the need to use water resources to aid the development of the country, without compromising the needs of future users. Chapter 3 of the National Water Act defines three RDMs for water resource protection:

1. Classification systems of water resources based on the level of protection that is required and the extent to which they can be used.
2. Resource Quality Objectives (RQOs), which are numerical and/or descriptive statements about the biological, chemical and physical attributes that characterise a water resource for the level of protection defined by its class.
3. The Reserve, which refers to the quantity and quality of water required for meeting basic human needs and those of aquatic ecosystems before any other uses of water from the resource are permitted.

SANBI has been supporting the implementation of RDMs through its Ecological Infrastructure of Water Security (EI4WS) Project. SANBI has partnered with the Department of Water and Sanitation (DWS) and the Pongola-uMzimkhulu Proto-Catchment Management Agency to develop an Interim Catchment Management Strategy for Pongola-Mtamvuna Water Management Area (WMA), and support the determination of water resource classes and associated RQOs in the WMA.

The national and KwaZulu-Natal (KZN) Regional Office of DWS, SANBI, Rhodes University and the Water Research Commission co-hosted a workshop on the implementation of RDMs in KwaZulu-Natal on 24 and 25 May 2023 to engage with local stakeholders. Water resource practitioners from the national DWS Water Ecosystems Management and Water Use Compliance Monitoring and Enforcement chief directorates, as well as the KZN Regional Office and the Pongola-Mzimkhulu Proto-Catchment Management Agency, the Department of Fisheries, Forestry and the Environment (DFFE), the Duzi-Umngeni Conservation Trust (DUCT), Umngeni Water, iLembe District Municipality and eThekweni Municipality attended the workshop.

The workshop encouraged meaningful co-creation and interaction as stakeholders identified themes from the discussions. It demonstrated how professionals from different departments and institutions think differently. While participants shared opposing views, it was evident that we all had the same vision in mind and realised that there are many ways of fulfilling it. This was an eye-opener and showed the value of partnerships and how significant outputs could arise from such engagements. The co-learning and collaborative approach is important



Emerging themes from discussions and presentations of the workshop.

as many organisations are tasked with implementing RDMs but, due to the nature of working in silos, there is a lack of awareness of the initiatives. Information dissemination on RDMs from national government is often limited as information is stored on the DWS website and is written in scientific language, which is often not understood by people outside the scientific community. Whilst there is a need to create awareness around the implementation of RDMs, particularly in a catchment area, it is pertinent that stakeholders who will be implementing RDMs be involved in the determination of the RDM and are aware of their different roles and responsibilities.

One of the tensions, and areas of concern, is the lack of understanding of what 'RDM implementation' means, as well as the technical jargon used. This results in misinterpretation of information. The gazetted documents must be made accessible to the public, as people need to have access to this information before implementation. A major concern is that the sector is still utilising water quality guidelines that were gazetted in 1996. This outdated information is therefore still being used to guide practices for water quality when there have been major changes in water ecosystems over the years. Although the interim catchment management strategy is being developed for the WMA, the slow establishment of the Pongola-uMzimkhulu Catchment Management Agency has delayed the coordination and management of activities, such as the implementation of RDMs to protect and manage water resources.

The workshop used a value-creation framework activity, which allowed participants to reflect on the two-day engagement. More people felt that the workshop was



Workshop participants deliberating on the emerging themes from group discussions.

fruitful as they got to learn more about RDMs and appreciated the participatory approach that was adopted. The participants were eager to apply the knowledge gained in areas such as allocating water use licenses, compliance monitoring and enforcement, and the development of the interim catchment management strategy. Overall, the workshop changed views on what has been done, what still needs to be done, and how the bottom-up approach could be used to implement RDMs. This workshop was an initial step to ensure that DWS, SANBI and other stakeholders are speaking the same language regarding the determination and implementation of RDMs and the management and protection of ecological infrastructure, particularly in the Pongola-Mtamvuna WMA.

Pretoria National Botanical and Zoological Gardens receives SASOL TechnoX sustainability award

Justice Bilankulu, Katlego Coza and Fionah Bilankulu

Sasol TechnoX is South Africa's premier Science, Technology, Engineering, Arts, Maths and Innovation (STEAMI) career exhibition. The expo is organised annually by the Sasol Foundation. The 21st edition, took place from 14–18 August 2023 in Sasolburg, Free State. Sasol TechnoX provided an immersive and hands-on experience for learners, showcasing the diverse disciplines and exciting career opportunities offered by science, mathematics and technology.

Among the notable exhibitors was SANBI, which was represented by the Pretoria National Botanical Garden and the National Zoological Garden. The collaborative stand showcased SANBI's expertise in wildlife, botany, research and conservation, captivating and educating teachers and learners from various primary and secondary schools.

At this event, the SANBI team took centre stage as an exhibitor, providing an engaging and interactive experience for school learners and visitors of all ages. The institute's

stand was a harmonious blend of education and entertainment, aimed at fostering an appreciation for South Africa's rich biodiversity and emphasising the importance of conservation efforts. The exhibit featured an array of preserved animals species, indigenous plants, informative displays on careers in biological sciences, and interactive educational activities that kept the learners both informed and entertained.

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SANBI's participation in the Sasol TechnoX exhibition had a profound impact on the learners' understanding of biodiversity and conservation. The hands-on experience provided by the institute helped bridge the gap between scientific research and public awareness. Learners left the exhibit, not only with a deeper appreciation for South Africa's incredible biodiversity, but also with a heightened sense of responsibility towards preserving the country's natural treasures. Furthermore, the learners were introduced to various exciting careers in biological sciences, nature conservation and research.

The Sasol TechnoX exhibition provided an excellent opportunity for cross-disciplinary learning and collaboration. SANBI's presence enriched the event by showcasing the intersection of biology, technology and education. This collaboration emphasised the importance of integrating scientific knowledge with technological advancements to create a more sustainable future.

In a noteworthy achievement, SANBI was honoured with a Sustainability Champion Award for their outstanding contributions to sustainability at the Sasol TechnoX 2023 exhibition award ceremony. This



Interacting with learners at Sasol TechnoX.

recognition highlighted the institute's dedication to preserving the environment and promoting sustainable practices. It showcased SANBI's exemplary efforts in aligning their mission with eco-friendly initiatives, emphasising that conservation is not only about protecting wildlife, but also about sustaining the ecosystems that support it.



Learners using microscopes.

The collaboration between the National Zoological Garden and Pretoria National Botanical Garden left a lasting impression on school learners and visitors, inspiring them to play an active role in preserving the nation's natural heritage. The event served as a reminder that the harmonious coexistence of science, technology and nature is essential for a sustainable and thriving future.

Celebrating National Women's Day: developing communities of practice through online workshop to increase women's climate agency

Shai Felicity

Climate change has an adverse effect on communities all around the world, and is no longer just a theoretical idea, but a harsh reality. South Africa is especially vulnerable to the negative consequences of climate change due to its biodiversity and ecosystems that provide a number of services to communities and industries across the country. The impacts of climate change are profound, not only on the environment but also on people's lives and means of subsistence, particularly on those who depend on natural resources for survival.

Moreover, not everyone in society is equally affected by climate change. Climate change exacerbates existing inequalities. The effects are often most severe on vulnerable groups, such as women, girls, youth and people with disabilities. Their vulnerability to the changing climate is made worse by the gender disparities that already exist, further marginalising them. Due to the connection between gender inequality and climate change, there is an urgent need for targeted conversations and initiatives that address the complexities women face in adapting to the changing environment. Attempts to find solutions to adapt to climate change are futile if women are excluded and or marginalised from participating fully in key platforms and key processes.

In response to these challenges and the necessity of coordinated action, on 8 August 2023, the Adaptation Network (AN) hosted a virtual workshop themed 'Building Communities of Practice to Catalyse Women's Climate



Many people depend on functional ecosystem services for subsistence farming as a means of survival.

Agency'. The AN is a platform for sharing experiences, practical approaches and frameworks relating to climate change adaptation. Members of the AN include representatives from civil society, government, parastatals, academia and the private sector.

As an observer member of the AN Steering Committee, SANBI supported and participated in the virtual event. Notably, the event was a continuation of a commitment to build momentum from the Climate Change Adaptation and Gender Mainstreaming dialogue that was held on 8 and 9 March 2023, hosted by SANBI and the Department of Forestry, Fisheries and Environment with support from the Department of Women, Youth and Persons with Disabilities.

Gender mainstreaming is part of SANBI's transformational agenda for the sector and for the organisation's processes and how it implements its projects and programmes. SANBI's Division: Adaptation Policy and Resourcing (D:APR) implemented projects that intentionally focused on being inclusive of women's participation in projects and activities. The division committed to establishing a Gender and Climate Change Community of Practice and undertaking a suite of activities focused on building our collective capacity on how climate change impacts vulnerable women and girls in the South African context. In addition, the division is also committed to ensuring that gender is mainstreamed in all its projects starting at the conceptualisation phase until the evaluation and close-out phase.

The online Women's Day event had prominent speakers from a range of organisations who spoke on different topics, based on their rich knowledge and experience. Other than building communities of practice to catalyse women's climate agency, the event also celebrated women and youth for their continuous work toward climate change adaptation and building resilience, by including interludes that encouraged women and youth to share their voices on topics such as personal, local and indigenous knowledge, climate activism and social justice.

Nikolas Bosscher from the Government of Flanders spoke about the work the donor is doing in South Africa, especially in terms of mainstreaming gender into climate change support.

As the programme came to an end, both the attendees and presenters reflected on the importance of having frequent engagements, to continue building communities of practice, and resilience to foster adaptation to the impacts of climate change in society, especially amongst women and girls.

National Women's Day in South Africa, honours the courageous deeds of women who protested against injustices during the apartheid era in 1956. Similarly, the workshop exhibited the courage, cohesion and resolve that these historical women served as prime examples of. Overall, the workshop truly honoured the pioneering women who blazed the road for equality and justice, while urging the current generation to take up the cause of climate action.

Celebrating Women's Day: empowering voices and advocating change at SANBI

Ziphozomusa Nxumalo and Sanelisiwe Miya

In commemoration of National Women's Day, the Foundational Biodiversity Science (FBS) Transformation Reference Group, under the leadership of Prof. Ramagwai Sebola, organised an empowering gathering on 8 August 2023 at the African Pride venue in Pretoria National Botanical Garden.

The event was masterfully hosted by Ziphozomusa Nxumalo. Ms Deshni Pillay, Head: Biodiversity, Information and Policy Advice (BIPA) Division and chairperson of the SANBI National Transformation Task Team, led the discussions. She extended a warm welcome to participants committed to commemorating this important occasion.

Deshni started the session by outlining the transformation journey on which SANBI had embarked in November 2021. She emphasised the critical importance of profound radical change within FBS and shared the successes that the BIPA Transformation Reference Group has achieved. She encouraged the FBS team to engage with this grouping to learn more in shaping their transformation journey.

During her address, Deshni quoted Maya Angelou saying, 'a woman in harmony with her spirit is like a river flowing. She goes where she will without pretence and arrives at her destination prepared to be herself and only herself.'



Event participants dressed up.

This day is a tribute to the historical milestone of 9 August 1956, when 20 000 women, guided by iconic leaders like Lilian Ngoyi, Helen Joseph and Albertina Sisulu, marched to the Union Buildings in Pretoria. This commemorative event aimed to honour and celebrate the courage and resilience exhibited by women in the organisation and in the country.

Keynote speaker, Lorato Sithole, the outgoing Chief Financial Officer, shared invaluable insights about balancing a thriving career, while navigating the realm of working motherhood. She encouraged women to continually upskill themselves and actively seek opportunities for advancement.

Sanelisiwe Miya facilitated a colloquium using the World Café Style, which fostered engaging and collaborative discussions. This style encourages participants to move between groups or tables, allowing for interactive dialogues. Each table tackled crucial themes, including:

1. Issues women face in the SANBI workplace: addressing gender bias, stereotypes, workplace harassment, discrimination and work-life integration.
2. Career progression and advancement: exploring strategies for empowering women in leadership roles and advancing their careers.
3. Women and leadership: encouraging more women to take on leadership positions within SANBI.



Lorato Sithole.

Participants engaged in constructive dialogues, generating insightful recommendations aimed at fostering an inclusive and supportive work environment for women at SANBI. Some of the recommendations included:

- Implementing mandatory training and workshops that uplift and upskill women in leadership positions.
- Promotion on inclusivity in decision-making processes.
- Establishing mentorship programmes.
- Implementing training programmes to address biases and stereotypes.
- Normalising flexible work arrangements for better work-life balance.
- Reviewing compensation policies and exploring wellbeing initiatives.

The event also featured games and giveaways, led by Nonkululeko Ntshangase.

The session concluded with a unified commitment to implement these recommendations, ensuring a more equitable and supportive environment for all at SANBI.

The day also served as an opportunity to introduce the newly formed Foundational Biodiversity Science Transformation Reference Group which included Sanelisiwe Miya (chairperson), Ziphozomusa Nxumalo (secretary), Khatthu Neshunzhi and Nonkululeko Ntshangase.



FBS Transformation Reference Group with Deshni Pillay.

Staff profile: Ricardo Riddles – nurturing biodiversity and passion at Karoo Desert National Botanical Garden

Moleseng Moshobane

Meet Ricardo Riddles, a devoted advocate for indigenous flora and a proud steward of the captivating landscapes of South Africa. Born in Cape Town in 1982, Ricardo's journey has led him to his current role as garden manager at Karoo Desert National Botanical Garden, nestled in the charming town of Worcester.

In this capacity, Ricardo orchestrates the vibrant tapestry of life that thrives within the botanical garden. His responsibilities span a wide spectrum, from overseeing business operations in accordance with SANBI's operating procedures, to safeguarding and enhancing the invaluable indigenous flora. His daily routine is a dynamic blend of strategic planning, team coordination and nurturing the garden's evolution.

Ricardo's true passion lies in collaborating with a team that mirrors his fervour and deep respect for the botanical wonders that grace the landscape. The garden's serene tranquillity serves as a wellspring of inspiration for him.

Engaging in thoughtful discussions with his dedicated colleagues, they breathe life into a shared vision for the garden's future.

Challenges, while formidable, only serve to ignite Ricardo's determination. Foremost among these challenges is the perpetual shortage of funds. The garden harbours ambitious infrastructure and visitor experience projects, yet financial constraints pose obstacles. Moreover, the spectre of plant poaching casts a shadow over the precious vegetation. Ricardo and his team are unwavering in their commitment to identifying crucial species and nurturing them within the protective embrace of the botanical sanctuary.

Ricardo's journey through professional landscapes has been a diverse and enriching one. From his formative years at Kirstenbosch National Botanical Garden, where he immersed himself in the intricate tapestry of South African flora, to his foray into the fungal realm



as a grower's assistant for Denny Mushrooms, Ricardo has ceaselessly sought opportunities to expand his horizons. His time at Blueberry Hill Farms deepened his understanding of hydroponic farming, adding another layer of expertise to his horticultural repertoire.

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Academically, Ricardo holds a Diploma in Horticulture from Cape Peninsula University of Technology, a foundational step in his path to knowledge. His insatiable thirst for learning led him to pursue various training programmes, encompassing project management, supervisory management, pest control and hydroponics. With a B.Tech. in Horticulture under his belt, Ricardo exemplifies a commitment to excellence.

Currently residing in the enchanting town of Worcester in the Western Cape, Ricardo's gaze is firmly fixed on the horizon. His vision for the Karoo Desert National Botanical Garden is to cultivate a haven of biodiversity that radiates a sense of family, diversity and perpetual transformation. His aspiration is to elevate this sanctuary into a globally renowned succulent botanical garden, a hub of research and a beacon of biodiversity.

Among Ricardo's most cherished pursuits at the garden is his engagement in research projects centred on indigenous succulent plants. Unravelling the mysteries of propagation and nurturing the growth of these extraordinary species fuels his curiosity and kindles his passion.

In the intricate fabric of life at Karoo Desert National Botanical Gardens, Ricardo is a vital thread, intricately woven into the rich tapestry of biodiversity and exploration. As the seasons transition, so too does the garden, growing more robust and resilient, guided by a shared vision and propelled by an unquenchable passion for biodiversity conservation.



New initiative: the SANBI Tutor Hub

Ferozah Conrad and Rene du Toit

The Further Studies Policy at SANBI was developed more than 20 years ago to provide advice, opportunities, facilities and financial support to enable employees to:

- Acquire the skills, knowledge and related qualifications needed to perform the functions for which they are employed.
- Develop their potential to meet the future human resources needs of the organisation.
- Develop individuals beyond the immediate and foreseeable needs of the organisation (in exceptional cases).

Over the past five years, a total of R6.5 million rand has been invested in supporting staff in their studies. During this period, a total of 243 registrations have been paid with 89% of these at salary levels 1–10. The studies ranged from matric to doctoral level.

In the past the Further Studies Committee was focused mainly on offering financial support. However, the benefits of support beyond only finance has been identified and, to this end, a Tutor Hub has been established. This platform aims to offer support, through advisors and tutors. Staff contemplating further studies can seek advice and guidance on study options, and staff who have enrolled for further studies can seek guidance and tutoring, where and when required.

How will it work?

The HR Training and Development Unit maintains a database of qualifications of staff who have been previously supported by SANBI.

Staff who are supported for further studies, can be matched with a tutor or tutors, depending on need. The tutors can be 'contracted' on a formal or informal

basis, depending on the support required. Support can range from advice and guidance, to proofreading of assignments or dissertation chapters, or basic training of software like GIS for making maps, etc.

Staff who are contemplating further studies, can contact the HR Training and Development Unit, which will then match them with tutors on the database, who have completed the same or similar studies. The advice and guidance can prove invaluable in making a decision, which can impact career planning.

The ultimate aim of this support is to promote a culture of learning and ubuntu.

The Tutor Hub will be piloted in 2024.

For more information, please contact: Ferozah Conrad (f.conrad@sanbi.org.za) or Rene du Toit (r.dutoit@sanbi.org.za).

World Youth Skills Day: a spotlight on the Climate Change Groen Sebenza Internship Programme and interview with Déna Skye Jansen

Interview with Déna Skye Jansen by Caitlynn Francis and Terriann Thavar

South Africa is faced with a staggering percentage of youth unemployment, averaging 53.9% between 2013 and 2021, and recording a high of 62% in the first quarter of 2023 (see: https://www.statssa.gov.za/?page_id=737&id=1). One of the South African National Biodiversity Institute's (SANBI's) pillars is human capacity development and, starting in 2013, SANBI began a major skills development and job creation programme, aptly named Groen Sebenza, with funding from National Treasury. A decade on, the ambitious, and much needed, internship programme has flourished and is now in its second phase (Groen Sebenza Phase II) and has been joined by a sister programme funded by the Government of Flanders, the Groen Sebenza Climate Change (GSCC) Adaptation Project.

As per SANBI's website (See: <https://www.sanbi.org/job/groen-sebenza-climate-change-adaptation-project/>), 'the Groen Sebenza Climate Change Adaptation Project is aimed at developing capacity in the climate change adaptation space, primarily in provinces and national sector departments to enable them to better respond

to climate change adaptation challenges within their contexts.' Over the course of the last year, 14 young graduates, primarily from previously disadvantaged backgrounds, were paired with skilled professionals across the country to learn, grow and eventually gain the competence and confidence to embark on rewarding and meaningful careers in climate change adaptation.

One such graduate is Déna Skye Jansen (DSJ), who is currently interning in the Climate Change Directorate of the Western Cape Government's Department of Environmental Affairs and Development Planning. Déna describes themselves as an environmentalist and social justice activist who grew up in the Middle East and Namaqualand. Despite facing financial challenges and a volatile job market during the COVID-19 pandemic, they sought a dedicated tenure with a reputable institution like SANBI, applying for an internship and eventually being placed through the GSCC internship programme.

As part of its celebration of World Youth Skills Day, observed on 31 July, SANBI's Adaptation Policy and Resourcing Division reached out to Déna with a series of questions to get a sense of the impact that their GSCC internship experience has had on them professionally and personally.

1. How did you end up in the climate change space - what was your career journey?

DSJ: My cross-continental experiences as well as the nature-centric perspectives imparted on me by my parents have set me on a career path that I hope will always reflect 'collaborative custodianship' with each other of the planet we share.

I think that from a young age just playing outside and getting my hands and feet 'dirty', tasting, touching and smelling the environments I moved in, as encouraged by my parents, made me in awe of the abundance around us all. In high school, I excelled in my science subjects so I thought I would go down a pure science and academia career path. That was until I got to the University of Cape Town in 2017. Back in South Africa, where we are still grappling with very visible, every day, historical inequalities and injustices, and being part of such a socially radical student populace, I found myself being drawn to more social science discourse. This ultimately led me to switch my focus major for my imminent 2020 honours year from Applied Biology to Environmental and Geographical Sciences (EGS). The EGS department at UCT

had more female and POC teaching staff, so I felt more welcomed when I would express my ideas of wanting decolonisation and redress to be better highlighted in our academic practices.

My honours thesis would eventually be rooted in urban ecology, so I've always found myself trying to find the nexus between society and the natural environment. This internship is actually the first time that I have directly engaged with climate change and climate change-related issues and topics on a daily basis. Retrospectively, what I think passed me by before about a career in climate change was that I thought it would only be about the atmospheric sciences and climatic modelling – which I know is not something I am interested in pursuing in a technical sense. Now, I am so inspired daily in my internship at how we can apply climate change and sustainability lenses to everything to fortify our societal social development efforts.

2. What motivates you every day to do what you're doing?

DSJ: There are three things that motivate me every day in my work. Firstly, I have a genuine interest and awe in the work that the [Climate Change] directorate does. Whenever someone asks me what a typical work week is like, I say that it's different each week, and I like it that way. One week we could be having a lot of meetings with external stakeholders on climate finance, the next it could be meeting with municipalities asking for climate change mainstreaming support and then other times could involve the finer details of climate policy development. I initially had worries that a career in the public sector would be monotonous, but that couldn't be further from the truth. My team is also so diverse and welcoming, and that helps for the parts of the job that do actually have to be monotonous such as the administrative side of things.

Second, ever since I was younger, I've tried to be led by some form of altruism. This is a common sentiment, I feel, between people who have studied the environmental sciences in some way. The idea that the work is bigger than me and contributing to something for the greater good, as cliché as it sounds, is a very strong motivator for me. I greatly value feeling like I'm contributing and making an impact – even if that impact will only materialise years later as is the case with adaptation response measures.



[Continued from page 22]

Lastly, of course, I am at the start of my professional career journey as well as my path to financial independence and stability. If not for the fact that I pay my own bills with the internship stipend, but also my aspirations to increase my personal quality of life, I remain driven to get and learn whatever I can while I have this opportunity, so that I can be poised for wherever I head to next in my career and to continue my upward trajectory.

3. What do you think are the best skills to prioritise for youth that are keen to get involved in climate change?

DSJ: The best skills that I believe youth, and anyone, need to get effectively involved in climate change response are those that enhance continued learning, collaboration and empathy. This may seem milquetoast, but climate change action, whether via mitigation or adaptation, magnifies the existing social ills of any specific location or community. If young people are really eager to make a difference, we need to be able to have a good grasp on systems thinking and cultural competence. Essentially, we require a 'no man is an island' perspective along with the care, concern and curiosity for experiences outside of our own.

In terms of technical skills, my ideal skill set for young people would be rooted in a scientific background and excellent reading, comprehension and communication skills. A basic understanding of the scientific method and some statistical jargon can go a long way in understanding IPCC reports, for example. And, the 'climate change issue' globally is really one of meetings and negotiations, and for those, young people need to be able to take in a lot of information, make sense of it, synthesise and then communicate it back in different ways as necessary to respective target audiences and stakeholders.

4. What does climate justice mean to you?

DSJ: Climate justice, to me, is the fair and equitable distribution of duties and burdens of climate action such that it is considerate of respective levels of privilege (in the individual and interpersonal sense) and economic development (on the geopolitical scale).

5. Do you have suggestion on ways to increase youth representation/develop champions in climate change?

DSJ: Create the space and offer the seats at the table. One other lesson from the Youth & Just Transition dialogue event is that any doubts of whether the youth can hold their own, and are knowledgeable about this space, should be no more. Youth representation can be increased by doing just that – invite youth representatives and build sustained connections with them. Also, organisations should also tap into their existing youth members and employees by including them in more discussions and even simply asking for their insights or opinions. This will not only benefit the organisation as a whole in its efforts to increase its youth engagement, but it will also make youth individuals feel valued and challenged to actually show up and contribute.

And, for the young people who are not yet climate literate, for whatever reason or disadvantage, starting with the first point of capacitating the youth that are already engaged can help bridge the gap to the larger population. After all, it may be easier for youth to speak to youth. This, however, does not mean that anyone who is above 35, for example, should not make efforts to communicate with those younger than them. Another way that climate championship can be encouraged is by (once again, using systems thinking) demonstrating the linkages between climate action and the lived contexts of the audience you are trying to engage with. When people are able to see how interwoven their day-to-day lives are with climate change impacts, the evolving just transition

and how easy it can be to make certain climate-conscious decisions, they are more likely to come on board.

6. Any final thoughts on your time at the Climate Change Directorate and being a GSCC intern thus far?

DSJ: My time as a part of the Climate Change Directorate has been incredibly enriching and empowering. I would say that the most important skills I have been honing are my interpersonal skills and stakeholder engagement skills. As I've stated before, effective communication is an indispensable part of climate change action, and we definitely do a lot of that here at the provincial level – whether it is internally with our colleagues or externally with other spheres of government or sectors. Because of how my workplan has been structured, by my supervisor and I, there has also been ample time for me to do online training and reading alongside the directorate work deliverables. Through the trainings, I have been able to obtain e-certification on climate adaptation from the University of Cape Town as well as on South African local government from the Civics Academy. And, there's still so much on the horizon that I am excited to explore. I can definitely say that the space to have a healthy mix of learning and doing within the internship has helped me build confidence in the knowledge that I, myself, will have to communicate with stakeholders. This is all further supported by a foundation of understanding where my supervisor gives me the room to choose within the parameters of what is required of larger work goals of the directorate. Thus, I still have my agency while being guided by my amazing team. For this, I am truly appreciative.

Déna and the other young graduates who make up the Groen Sebenza Climate Change Internship Programme are a testament to the untapped potential that lies within the youth sector in South Africa. Together with the over 1 000 graduates who have been recruited as determined and talented young professionals in the Groen Sebenza Phase II internship programme, she represents the future of the climate change adaptation and biodiversity sectors.

WC DEADP's Youth and Just Transition Dialogue – a virtual experience filled with promise for the future

Caitlyne Francis

The South African National Biodiversity Institute's (SANBI's) commitment to engagement with young people – and specifically young professionals in the environmental/biodiversity sector – is strongly exemplified through its multiple youth employment endeavours over the years, e.g., the Youth Environmental Service (YES) Project (see: <https://www.sanbi.org/job/youth-environmental-service-project-yes/>), the PYEI Wildlife Economy Young Professionals Database (see: <https://www.sanbi.org/job/call-for-registration-on-pyei-wildlife-economy-young-professionals-database/>) and the multiple iterations of the Groen Sebenza Internship Programme (see: <https://www.sanbi.org/news/groen-sebenza-phase-ii-programme/> and <https://www.sanbi.org/job/groen-sebenza-climate-change-adaptation-project/>). The extensive reach and experiential potential of the Groen Sebenza Internship is made possible through organisational ties with national and provincial departments where interns learn the core skills and competencies necessary to be successful in the biodiversity sector.

The Western Cape Government's Department of Environmental Affairs and Development Planning (WC DEADP) is one such department with which SANBI has organisational ties. Thus, it was with great interest that three members of SANBI's Adaptation Policy and Resourcing Division (D: APR), TerriAnn Thavar (ecosystem-based adaptation and communications intern), Kirstin Meiring (senior programme officer) and Caitlyne Francis (senior programme officer), attended

a virtual dialogue focused on youth and a just transition on 30 June 2023, hosted by the WC DEADP's Climate Change Directorate.

The dialogue was virtually attended by over 1 000 delegates, with rich discussions and diverse viewpoints from youth leaders working in the climate change and just transition arena. Notable speakers included Michelle Mhaka (African Climate Alliance), Nokwethaba Makhanya (World Wide Fund for Nature) as well as a representative from the Youth Policy Committee at the South African Institute for International Affairs and an independent, intersectional climate activist, Raeesah Noor-Mahomed.

Michelle Mhaka's talk highlighted that language should not be a barrier for young people to engage in climate change discussions or the just transition movement. She also emphasised the idea of collaborations with civic organisations for transformative and restorative climate change justice and the need for Afrocentric climate change literature for youth in Africa.

The presentation by Nokwethaba Makhanya carried forward the necessity for a shift towards youth as the demographic who should be at the centre of climate change and just transition dialogues, while the rich and nuanced presentation of the Youth Policy Committee focussed on the importance of amplifying the voices of young people in decision-making as they have new perspectives and the boundless ambition necessary to tackle this daunting challenge.



As a final reflection on the outcomes of this much-needed discussion, I draw from the words of one of our very own Groen Sebenza Climate Change young professionals who themselves were actively involved in the Youth and Just Transition Dialogue, Déna Skye Jansen, 'The main outcomes ... were two-fold. Thematically, we had the valuable opportunity of hearing from actual young people about all the climate action that so many of the youth are already engaged in. We also got to hear from them about what are some of the potential ways that the role of youth in decision-making can be enhanced and leveraged. For some this could mean tapping into various media such as art or podcasts. And, closer to home, it also means potentially establishing dedicated communities of practice or groupings to ensure a sustained relationship between youth stakeholders and the public sector.'

These dialogues represent opportunities not only to hear the perspectives of young people who will bear the brunt of the impacts of climate change on the planet, but allow us opportunities to reflect on the depth of diversity, skill and intellect that lies within the young leaders in the environmental sector in South Africa. Some of these are sharpening their talents and competencies with the support of SANBI and under the experienced tutelage of national and provincial partners across the country.

Young people lead biodiversity knowledge building sessions at Kirstenbosch National Botanical Garden

Loyisile Dlomo and Omphile Khutsoane

The Kirstenbosch National Botanical Garden used International Day of Biological Diversity, celebrated on 22 May, to promote biodiversity knowledge among youth from Thomas Wildschutt Primary School in Retreat and Newfields Primary School from Newfields Estate.

The morning, hosted at the Gold Fields Environmental Education Centre (GFEEC), started off by dividing learners into four groups consisting of 25 learners from both schools per group. Four assistant education candidates (AECs) were tasked to lead each group around the garden.

Led by the garden interns, AECs and volunteers, the morning proceeded with a walk in Kirstenbosch National Botanical Garden. The learners moved through four stations with different activities about biodiversity in the garden, ranging from the clever adaptation of fynbos plants to their environment, the creation of food web puzzles in the forest, matching of plants and their uses in the Useful Plants Garden and, lastly, making and decorating biodiversity crowns in the Dell. With each activity completed at the different stations, the garden rang with loud cries of 'biodiversity!'

The learners were excited to learn about biodiversity, while exploring the garden, and making friends from another school. Their bright smiles, interest and enthusiasm were proof that they learned a lot from the event and will apply the new knowledge in their everyday lives. The learners' highlight was creatively making biodiversity crowns in the Dell using dry plant materials for decorations. They also enjoyed competing in the Useful Plants Garden to match all the plants and their uses first.

The activities in the garden concluded and all the learners headed back to GFEEC for a small ceremony where the schools were presented with posters and where learners wrote messages about the Biodiversity Day event. They also received gift bags and donations of plants to take back to school. Each school had a teacher sharing a few words of gratitude to the GFEEC team and the learners for the success of the event. SANBI was represented by four staff members who shared their experiences about working in an environment where South Africa's rich biodiversity is conserved. Delana Eksteen and Omphile Khutsoane of the GFEEC gave special thanks to the



Delana Eksteen encouraging learners to become custodians of biodiversity at the closing ceremony, with learners holding up their Biodiversity Day posters.

learners and to the team who had led the activities. Michael Ndovu and Dr Mkungele Nsikani shared words of encouragement to the learners to do their part in conserving biodiversity in their communities.



Almuth Delius, with learners, doing the fynbos adaptation dress-up bag with a learner.



Learners creating the food web puzzle in the forest.



Learners with their biodiversity crowns on. Crowns were made from recyclable and dried plants materials.

Celebrating Arbour Month and the Season of Creation

Caitlin Smith and Zane Matthews

On a rainy, yet eventful, Sunday on 10 September 2023, the outreach greening team from the Gold Fields Environmental Education Centre (GFEC), in collaboration with CREW for community outreach, gathered with the All Saints Plumstead community to celebrate Arbor Month and the Season of Creation. The Season of Creation is celebrated annually by the Anglican congregation. They use this period to pray and focus on the story of Earth and commit to a ministry of healing the Earth. During this occasion, the outreach greening team from the GFEC shared valuable insights on essential topics, such as water and plant conservation, along with some expert gardening tips. The event was attended by more than 35 parishioners of all ages.

The most exciting part of the day was the hands-on experience that followed. Everyone got their hands a little dirty as they enthusiastically planted the new beds. It was not just about gardening, it was a morning filled with bonding, learning and personal growth. Parishioners not only gained a deeper understanding of the environment, various plant species, and the significance of water conservation, but they also

left with greener thumbs and a stronger connection to the world around them. This event seamlessly combined education and action, nurturing a sense of environmental responsibility within the community.



Parishioners getting their hands dirty in the new beds.

And to wrap up the day, after the planting, parishioners and the teams from Kirstenbosch came together for some delightful socialising and tea in the hall. It was a wonderful ending to a morning of learning and unity.



Parishioners being taught how to plant the new beds by Zane Matthews from SANBI.

Children connecting with nature in SANBI's KwaZulu-Natal National Botanical Garden, Pietermaritzburg



Celebrating heritage: a memorable event at KwaZulu-Natal Herbarium

Rangani Nemando and Cedrick Khumalo

In the heart of KwaZulu-Natal a remarkable event unfolded on 22 September 2023, bringing the rich heritage of South Africa to life. Organised by two passionate individuals, Cedrick Khumalo and Rangani Nemando, the heritage event at the KwaZulu-Natal Herbarium was a vibrant celebration of cultural diversity, history and the extraordinary natural world.

A tribute to heritage

Heritage events serve as powerful reminders of the deep cultural and historical roots that define a community. South Africa, with its multifaceted heritage, offers a splendid tapestry of traditions, languages and natural treasures. It was precisely this vibrant diversity that Cedrick and Rangani aimed to honour at the KwaZulu-Natal Herbarium.

The KwaZulu-Natal Herbarium, located in Durban, stands as the custodian of the region's botanical heritage. The herbarium houses an extensive collection of plant specimens from the eastern region of South Africa, each with a unique story to tell. Their historical genetic data, like our cultural traits, help us to fill in the knowledge gaps about relationships. Against this backdrop, the event came to life, showcasing the link

between South Africa's rich cultural heritage and its botanical wonders.

Cultural extravaganza

The event kicked off with a dazzling display of South African culture. All staff members, resplendent in their vibrant attire, took centre stage and performed traditional dances, played contemporary games, and offered mesmerizing performances and interesting facts about the cultural practices associated with their attire. This highlighted the depth and beauty of South Africa's cultural heritage.

Attendees were also treated to traditional music, showcasing the diversity of sound that makes up the country's musical heritage. The air was filled with the beat of drums, the melody of flutes and the harmonies of vocalists, transporting everyone to various provinces of South Africa's cultural tapestry.

It wasn't just a visual spectacle, the attendees were also treated to a culinary journey through South African heritage. Traditional dishes from various regions were served, allowing everyone to taste the flavours of the nation. The diverse South African palate was

celebrated with *iklabishi namathambo, isibindi senkomo, Umkhupha, Thophi, Gulab Jamun, Puri Patha, Samosa, Chapati, uphuthu* and many more.

Looking ahead

The KwaZulu-Natal Herbarium's Heritage Day celebration was a resounding success. It highlighted the importance of celebrating and preserving cultural diversity, history and the natural world. It also underscored the significance of institutions like the herbarium in safeguarding a region's botanical heritage.

As we look to the future, events like these will continue to play a pivotal role in fostering unity, understanding, and a collective sense of responsibility towards our heritage. They remind us that, in the tapestry of life, every culture, every plant species and every delicious dish is a valuable thread contributing to the rich mosaic of our shared history.

As the organisers, we extend our heartfelt thanks to all our wonderful staff, interns and research assistants. Their attires, enthusiasm, participation, traditional dishes and commitment to celebrating our diverse heritage filled the event with memories.

Free State National Botanical Garden wins golden award at Bloem Show!

Stemmer Ngalo

The Free State National Botanical Garden won the Golden Award for the most beautiful exhibition stall at the Bloem Show, which took place from 27 April to 6 May 2023.

The Bloem Show is an annual event held at the showgrounds in the city of roses, Bloemfontein. The show is one of South Africa's consumer and trade events, which combines agriculture, arts, variety exhibitions and educational activities. The 2023 event was a significant year for the Bloem Show as it was celebrating the milestone record of 140 years in existence (15 May 1883–2023). It has proven, over the last 140 years, to be a major events in South Africa, contributing significantly to the economic growth of Bloemfontein, the Free State and surrounding regions.



The 2023 golden award.



Free State National Botanical Garden with their golden award. From left: Mr Itumeleng Motsoeneng, Ms Nondumiso Magija, Ms Sandisa Mbulana and Mr Pule Tseki.

Hantam Flower Season

Photographs taken by SANBI CEO, Shonisani Munzhedzi, at the Hantam National Botanical Garden during flower season.



Harold Porter National Botanical Garden puts a smile on senior citizens' faces

Delicia Appel

SANBI's Harold Porter National Botanical Garden celebrated Nelson Mandela International Day on 18 July 2023. We invited 65 senior citizens to the garden, who were transported from Kleinmond in SANBI's vehicles. The purpose of the event was to make a difference in the lives of the community and not even the rainy weather kept them away from this special day.

SANBI's marketing coordinator, Delicia Appel, opened the celebration and after the welcoming message, everyone sang the national anthem of South Africa. The garden's acting curator, Mr Wonga Komanisi, gave a tribute to the late Nelson Mandela and spoke about his legacy.



Delicia Appel presents a book prize to one of the seniors.

Decorations for the event were provided by DW Deco hire in Kleinmond and the programme included a lucky draw for seniors. Additionally, everyone received a gift from the local Albertyn Pharmacy in Kleinmond. The venue was filled with a warm atmosphere and the seniors enjoyed seeing each other again. Overall, it was a lovely gathering for everyone, despite the rain. The senior citizens appreciated the opportunity to create wonderful memories.



Delicia Appel hands over a fruit basket won by the senior citizen.



Delicia Appel gifts two senior ladies a fruit basket and a fynbos plant.

Kwelera National Botanical Garden staff celebrate Mandela Day

Nondumiso Myataza

For Nelson Mandela International Day, the staff at Kwelera National Botanical Garden extended a 'green' helping hand to Bulugha Primary School. Bulugha Primary School is a neighbouring farm school located approximately 9.5 km from the garden.

Early on the morning of 18 July 2023, the staff gathered their machinery, tools, as well as the relevant PPC and headed to the primary school. Upon arrival, the staff was welcomed by the school principal and were shown a piece of land they were to work on. The piece of land was once a garden that was maintained by the school's volunteers but had become neglected; overgrown by vegetation and used as a dumping site.

Although staff members only intended to spend a few hours helping at the school on Mandela Day, they ended up spending two full days working on the piece of land. The aim was to clear the area, which the school will then use as a garden. Despite the hard work, the team spirit among staff members was good with some funny teasing and playful name-calling. The team was delighted to assist Bulugha Primary School, who, in turn, were very pleased and presented themselves as friendly hosts.



The Kwelera National Botanical Garden staff with the school principal and the deputy principal of Bulugha Primary School.



The piece of land before the team worked on it.



Team members working very hard on Mandela Day.



The hard-working team from Kwelera National Botanical Garden.



A cleared piece of land – a gift from Kwelera National Botanical Garden to Bulugha Primary School.

SANBI KwaZulu-Natal achieves significant milestones in transformation: a triumph for cross-divisional collaboration

Sanelisiwe Miya and Mbuso Zondi

SANBI KwaZulu-Natal kicked off Women's Month with a game-changing transformation session. This was a cross-divisional collaboration on the transformation agenda amongst the divisions of KZN FBS, NBG and BRAM. SANBI KwaZulu-Natal made history on this occasion, recording multiple firsts during the session: the first cross-divisional transformation session, the first KZN-NBG session, and it was chaired by the first national chairperson of the FBS-TRG, Sanelisiwe Miya.

Positive change through inclusivity and fostering unity

The session symbolises a shift in divisional attitude, as it encourages communication and synergy within departments, thereby establishing a sense of community among the SANBI groups. This is a significant step forward in establishing organisational unity and transformational

success. It set the tone for future efforts to promote inclusivity, diversity and good transformation inside the organisation. This cross-divisional session could be the first of its kind at the divisional level, serving as a catalyst for other divisions to follow suit, as SANBI strives to be a pioneer in transformative initiatives.

Furthermore, this session saw female leaders, Ms Zondi (KZN-NBG Manager), Dr Singh (KZN Herbarium Curator) and Sanelisiwe Miya (FBS-TRG Chairperson), working together to encourage change in their respective centres. This allowed employees to freely express their problems, thoughts and suggestions, and cultivated an open and supportive workplace in which everyone's viewpoints were appreciated. A transformational mindset is required for an organisation to embrace and adapt to a changing world, while remaining true to its fundamental values and aims. This watershed moment in SANBI KwaZulu-Natal's



FBS-TRG Chairperson, Ms Miya.

history serves as a reminder of the power of unity and teamwork.

More divisions can be inspired by this collaborative effort to promote positive change and growth at all levels by breaking down barriers and embracing transformation. This collaborative transformation session will be engraved in SANBI KwaZulu-Natal's annals as the day of cross-divisional transformation triumph, the day of firsts.



Transformation workshop participants outside the conference at the KwaZulu-Natal National Botanical Garden.



Interactive session

KwaZulu-Natal Herbarium celebrates 2023 Mandela Day

Gracious Imercia Mona and Rangani Nemando

To celebrate Nelson Mandela International Day, the KwaZulu-Natal Herbarium (NH) Groen Sebenza Phase II interns took it in their own hands to honour this year's theme, 'It is in your hands' and volunteered 67 minutes to clean up the Durban Harbour on the Wilson Wharf side. Ocean pollution has devastating effects on marine life and ecosystems in this harbour. It is important to protect this ocean environment and biodiversity to make it safer for marine life. The Wilson Wharf is a scenic treasure and one of the main attractions within the Durban Harbour. Litter and pollution make this coastal tourism spot less attractive, thereby negatively affecting economic profits.

On 27 July 2023, the NH staff also hosted 14 top achieving underprivileged science learners from Wiggings Secondary School (Grade 12), and Umkhumbane Secondary School (Grade 11) in the spirit of celebrating Nelson Mandela. The purpose of this event was to expose learners to the herbarium, its purpose and functions, and to provide guidance towards different careers in biodiversity. Presentations by various staff, including Groen Sebenza interns, shared more about what SANBI does and its role in biodiversity. The learners were also captivated by an educational guided botanical garden tour that promoted nature conservation awareness at the Durban Botanic Gardens. Lastly, they were gifted with SANBI-branded pencil cases to promote a passion for biodiversity.

The event proved to be highly successful, learners remained eagerly engaged during the event and demonstrated a great deal of interest. Our special thanks go to Wiggings Secondary School and Umkhumbane Secondary School, event organisers and all NH staff.



Durban harbour clean-up.



Wiggings and Umkhumbane secondary schools learners.



Durban Botanical Gardens tour.



Demonstrating herbarium functions.

Pretoria Zoo conservation programme preserves some of the world's most threatened species

Adapted from media releases by Flow Communications South Africa

The National Zoological Garden in Pretoria is notching up impressive wins in its mission to breed animal species that face an uncertain future in the wild, thereby helping to secure the survival of animals under threat of extinction.

The Pretoria Zoo's well-established Adopt a Wild Child Programme gives people an opportunity to 'adopt' zoo animals, including the zoo's captive-bred baby animals. This gives individuals, families, groups, organisations and businesses an opportunity to invest in the future of these animals and to help ensure their survival.

Earlier this year, the zoo celebrated the extremely rare birth in captivity of four vulnerable sungazer lizards. This brought the total number of sungazers bred there to five. The lizards are endemic to Free State and Mpumalanga grasslands. Habitat destruction and poaching are the species' biggest threats, and the lizards survive only in relatively small



One of two chicks that are part of a captive breeding initiative that aligns with the recently published Draft Biodiversity Management Plan that aims to safeguard the species in their natural habitat.

pockets of protected areas in the wild. This rare breeding event was recognised internally by SANBI, where the conservation officer, Liezl Oosthuizen, and conservation worker, Nomusa Gumede, were winners of the merit award category 'Excellence in championing biodiversity'. Sungazers, along with many other species of birds, reptiles, amphibians and mammals, are up for adoption through the Adopt a Wild Child Programme.

Captive breeding and conservation are not limited to endemic or indigenous South African species. Zoos around the world collaborate on breeding programmes to ensure genetic diversity is maintained in the offspring of captive animals, and our national zoo is a frequent, and highly regarded, participant in captive breeding programmes.

Recently the zoo secured a male buff-cheeked gibbon from the Zoo du Bassin D'Arcachon in La Teste-de-Buch in France. The gibbon, named Sylvester, has been introduced to a female buff-cheeked gibbon and hopes are high that the pitter-patter of tiny buff-cheeked gibbon feet will be heard soon.

The Pretoria Zoo received the highly prestigious Pan-African Association of Zoos and Aquaria (PAAZA) Conservation Award for its successful African Pancake Tortoise Breeding Programme. This is a species of flat-shelled tortoise indigenous to Tanzania and Kenya. In due course, the Pretoria Zoo will exchange some of these hatchlings with international zoos to maintain the genetic viability of the global captive pancake tortoise population.

Conservation officer, Chadané Pretorius, and conservation worker, Kabelo Segodi, are the reptile specialists behind this



Conservation officer Chadané Pretorius and conservation worker Kabelo Segodi are the reptile specialists behind this successful breeding programme.

successful breeding programme. The most recent batch of hatchlings, brought into the world thanks to the dedication and expertise of Kabelo and Chadané, added four more pancake tortoises to the zoo's reptile park.

In addition, the Pretoria Zoo is tremendously proud of the success of its Cape Vulture Breeding Programme.

Right now there are two vulture chicks on the nest. The chicks hatched in the second half of July, and are doing splendidly. They are part of a captive breeding initiative that aligns with the recently published Draft Biodiversity Management Plan that aims to safeguard the species in their natural habitat.

The Pretoria Zoo has been breeding Cape Vultures (*Gyps coprotheres*) successfully since 1996. These birds are indigenous to southern Africa, primarily inhabiting regions in South Africa, Lesotho, Botswana and parts of northern Namibia. The Cape Vulture is classified as Vulnerable according to IUCN Red List categories.

Since 1997, the Pretoria Zoo has achieved successful breeding, with five pairs of birds currently incubating, hatching and raising one to three chicks every breeding season. During the breeding season, nesting material is provided on a weekly basis for building and lining nests. Eggs are entrusted to pairs for incubation, hatching and rearing. Pairs tending chicks are fed twice a day. The rest of the colony is fed twice weekly. Nest inspections are conducted every other day to monitor egg laying.

Curator of birds, Sarah Shabangu, said she and her colleagues at the zoo take great pride in the success of the breeding programme. 'It's been a cornerstone of our conservation efforts since 1996. Through our dedicated work, we are contributing to the protection of this vulnerable species and its natural habitat in southern Africa. Every chick hatched is a beacon of hope for the future of the Cape Vulture.'



Sungazer.

Harold Porter National Botanical Garden promotes water conservation

Nyameka Dlawu, Lubanzi Kutshwa and Mbali Shabangu (Ecotourism team)

On 14 July 2023, the Harold Porter National Botanical Garden hosted their winter holiday programme with the support of several stakeholders, including Bloubakkie, a health food shop in Kleinmond.

This is an annual event aimed at providing 3–16-year-old children with information about the garden and emphasising the importance of biodiversity conservation.

Activities included a brief history of the garden, followed by a water conservation game, which focused on the various ways for people to use water cautiously at home and at work. We also included games like sack racing and tug of war to promote teamwork and cooperation. For the young ones, we offered face painting, storytelling, a game of musical chairs and animated movies.

It was a great experience for the children and the interns in creating an educational and fun-packed programme.

International Day for Biological Diversity celebration at the Free State National Botanical Garden

Jeanette Ngalo

On 23 May 2023, the Free State National Botanical Garden's Biodiversity Education and Public Engagement (BEPE) Division celebrated International Day for Biological Diversity. Following the theme for 2023 'From Action to Agreement: Build Back Biodiversity', the BEPE staff hosted an awareness and celebratory event at the garden to which Grade 11 learners from Navalsig Secondary School and Heatherdale Secondary School were invited. In addition, the invitation was extended to the National Museum, South African Weather Services (SAWS), the Department of Forestry, Fisheries and the Environment (DFFE), the Department of Small Business Development, Tourism and Environmental Affairs (DESTEA), Bloem Water and the South African National Parks (SANParks).

The purpose of the day was to educate the youth on issues of concern and threats to our biodiversity, mobilise organisational will and resources to address biodiversity global problems, equip the youth with actionable solutions for protecting and conserving the biodiversity around us, as well as to celebrate and reinforce organisational achievements in conserving and managing our biodiversity.

The programme for the day was designed to be interactive and impactful for both learners and participating stakeholders. Ms Sandisa Mbulana FSNBG BEPE kicked off the programme with a talk on the origin of this year's theme, the benefits we receive from biodiversity, some of the threats to our biodiversity, and what we can do in our immediate areas to protect and conserve our biodiversity.

The learners were asked to conduct research on the use of indigenous knowledge practices in conserving and protecting biodiversity before the event. The learners mainly consulted their family and community elders for the information to be presented, as well as relevant secondary sources. Each school was then given a chance to present its findings to a panel of judges from SANBI, the National Museum and SANParks, who scored them based on criteria that included a method of delivery, presentation skills, relevancy and accuracy of information and creativity.

Invited stakeholders delivered short presentations on how their organisations are working towards protecting and conserving biodiversity in their respective capacities. Bloem Water is responsible for providing water to Mangaung Municipality and the process of providing water to the municipality can have negative impacts on the environment when they have to install large underground pipes. Therefore, the organisation has committed to replace all sections of biodiversity that were disturbed in the process of installing underground water pipes. In addition, the organisation avoids removing endemic biological species and uses environmentally friendly chemicals to clean water that is provided to the residents of Mangaung Municipality. The National Museum presented the impacts and challenges that we, as the human race, would face if some species in the food web were to become extinct. The presentation emphasised the pest imbalance that would occur if



Grade 11 learners from Heatherdale Secondary School and Navalsig Secondary School attending the International Day for Biological Diversity event at the Free State National Botanical Garden.



Grade 11 learners from Heatherdale Secondary School presenting their research on indigenous knowledge systems used to protect and conserve biodiversity.



Grade 11 learners from Navalsig Secondary School presenting their research on indigenous knowledge systems used to protect and conserve biodiversity.



Prize giving by SANBI staff, Ms Thandeka Mdlalose and Mr Thabiso Cele to Navalsig Secondary School for best presentation.



Certificate giving by SANBI staff, Ms Thandeka Mdlalose, Ms Jeanette Ngalo, Ms Sebatatso Mdalana and Ms Sandisa Mbulana to Heatherdale Secondary School for participation in the indigenous knowledge presentation.



Bloem Water presentation and engagement with learners on how their organisation is working towards protecting and conserving biodiversity in their respective capacity.

wildlife species that were considered problematic were terminated in an uncontrolled manner. The organisation also mentioned how they work with farming communities, especially to conserve wildlife.

SANBI, as an organisation that leads and coordinates research and monitors reports on the state of biodiversity

in South Africa, showcased its work in public education, ecosystem restoration and rehabilitation, and its leadership role in the development of the National Biodiversity Assessment (NBA) document as part of its mandate to assess and monitor the state of South Africa's biodiversity.

[Continued on page 32]



The National Museum presentation and engagement with learners on how their organisation is working towards protecting and conserving biodiversity.



SANBI staff, Ms Nobuhle Mveli and Ms Cynthia Botete conducting a presentation and engagement with learners on how the organisation is working towards protecting and conserving biodiversity.



Department of Forestry, Fisheries and the Environment presentation and engagement with learners.



South African Weather Services presentation and engagement with learners.



SANParks presentation and engagement with learners.

[Continued from page 31]

Other invited stakeholders such as DFFE, DESTEA, SAWS and SANParks emphasised the career paths that learners can choose in order to be involved in the biodiversity sector for the protection and management of biological diversity.

The day ended with a biodiversity treasure hunt that followed the format of 'The Amazing Race' whereby the

learners, teachers and stakeholders were involved in an ecosystem treasure hunt, using clues that were developed by the FSNBG BEPE staff. The learners were placed into groups and at each stop, the learners completed various brain-engaging and educational activities and games such as Tangram, a spelling bee and Biodiversity 30 Seconds, which included terms from their curriculum in order to receive their next clue. It was a fun and educational way to learn about South African biodiversity and incorporate CAPS Grade 11

learning objectives into the day. The learners were competitive and fully participated in the biodiversity treasure hunt which resulted in so much fun for everyone involved.

The International Day for Biological Diversity event hosted by the FSNBG BEPE proved to be successful as guests, learners and stakeholders reported feeling fulfilled, equipped and ready to be active citizens in protecting and managing the biodiversity around us.

Green Open Space Management: trainee nature conservationist

Tayla Stockenstrom

For as long as I can remember, I have had a love for nature, that's why I enrolled for a three-year National Diploma in Nature Conservation at Nelson Mandela University. During my course, my love for, not only nature, but also conservation, grew to a much deeper extent. Within three years of my studies, I knew that this was the ideal career for me.

I joined SANBI at the Harold Porter National Botanical Garden (HPNGB) on 1 July 2022. Once I started working in the garden, the scenery and the richness of the biodiversity captivated me. The target of managing 190 hectares of land along with my mentor and estate manager, Wonga Komanisi, seemed impossible, but through dedication and perseverance, we were able to overcome many obstacles.

Every challenge we faced, made me more eager to learn how to solve them. The estate team members also played a huge role in my growth as a trainee estate manager. Their assistance helped me gain practical experience on estate maintenance/development and all the hard work that goes into meeting targets set out for the year.

Overall, my experience thus far has equipped me to exit the Green Open Space Management internship programme with more knowledge and practical experience than when I entered. I hope to take all the skills I have learned at HPNGB to the next level of my career and improve on them even more.



Tayla Stockenstrom.

Groen Sebenza: infrastructure internship

Tebatjo Mpya

I am a Groen Sebenza (GS) infrastructure intern placed at the Harold Porter National Botanical Garden (HPNGB) and hold a Bachelor of Engineering Technology in Civil Engineering from Nelson Mandela University. Landing the internship, as part of the National Infrastructure Programme, has been a wonderful opportunity for me to transition into the corporate world and build a solid foundation for a successful career. The GS Programme has allowed me to enhance valuable transferrable skills, such as teamwork, team leadership, computer literacy, and report writing. The opportunity created a platform for me to work with, and learn from, a variety of skilled professionals with extensive industry experience.

My main area of expertise in the organisation is related to the facilitation and administration of new and developing infrastructure projects at the HPNGB. I carry out my duties under the supervision and guidance of my mentor and supervisors at the garden. The most part of my experience to date included the opportunity to work closely with the maintenance team. We conduct general



Tebatjo Mpya.

maintenance on the garden's facilities, as required, and perform new minor BPMD projects. This has allowed me to gain valuable maintenance experience and knowledge and use of different equipment, materials and tools.

I am deeply grateful to my mentor, supervisors and colleagues at the garden for making the internship a thrilling experience, granting opportunities for me to learn through responsibilities, and equipping me with skills to help me take on daily work challenges.

My journey in SANBI-DBE Free State and Northern Cape regional office: a reflection on the past two years

Thembelihle J. Mbele

Background

One of the opportunities that I got after graduating with my Bachelor of Science (honours) from the University of Zululand, was the placement as a SANBI Groen Sebenza II intern, a programme that is aimed at providing unemployed graduates with practical experience and on-the-job skills training, while preparing them for a career in biodiversity conservation research. This was a two-year contract in SANBI's Directorate for Biodiversity Evidence (SANBI-DBE) (Free State and Northern Cape region), under the supervision of Dr Thabiso M. Mokotjomela. I started my internship contract

on 1 August 2021 and was excited about the opportunity.

One of the responsibilities of SANBI-DBE is to detect and eradicate populations of emerging category 1a alien species. The programme also compiles occurrence records of different species encountered to update the national database and for research purposes. This programme exposed me to a variety of interesting research projects, skills and practical experience in biological invasions.

[Continued on page 33]

[Continued from page 32]

The game changer

SANBI not only offers internships, but also bursaries for further studies. Within a month of entering the programme, SANBI advertised the SANBI Biological Invasions Bursaries, which I applied for. After my bursary application, I was offered the MSc project development internship contract that spans over one year. During this period, I worked on my research project proposal and implementation plan. My MSc research project focused on the invasive status of *Cortaderia* species with the aim of elucidating the species' genetic divergence and determining if the horticultural trade contributes to the spread and invasion of *Cortaderia* species in South Africa.

Life as a student: reading, data collection and laboratory work

The initial phase of my MSc research project entailed intensive reading of the literature in preparation for developing the methods and material for the project – 93 scientific articles and books. This followed the research project proposal defence that was a success. Thereafter, the most exciting part of the project implementation was my first sampling and data collection in North West and Northern Cape. Sampling involved searching and identifying species in different landscapes across towns. By the end of May 2023, I had sampled 23 towns for occurrence records, inflorescences for seeds and leaf samples for molecular work. The acquisition of these data got me ready to present preliminary results at the National Symposium on Biological Invasions in 2023.

Prior to the symposium, the University of the Free State ran a Flash Fact competition, a competition that allows



Performing DNA extraction at the University of the Free State, Bloemfontein campus.

postgraduate students and staff to share their work by presenting their projects for three minutes and be able to answer questions that follow, as a sign that you really understand your project. With the literature I had read while working on my proposal and preliminary fieldwork results, I had a clear understanding of my project and what I needed to do. As a result, during the competition, I won the Departmental Flash Fact first prize for the Plant Sciences Department, Qwaqwa campus.

During the first week of July 2023, the Centre for Invasion Biology (CIB) hosted the National Symposium on Biological Invasions in the Western Cape, South Africa. The symposium included keynote talks, oral and

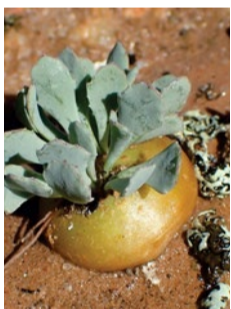


Thembelihle Mbele delivering a presentation at the Kimberly Biodiversity Research Symposium 2022.

speed talk presentations, as well as posters. I presented the preliminary results of my research project in the form of a poster. I received many audience visits to my poster, people asking questions and others making recommendations on how to improve my project. This was a wonderful experience and an opportunity for me to engage and network with great scientists and discuss my work with them. On the night of the gala dinner it was announced that, among the 20 posters displayed, my poster won the prize for the best poster.

Currently, I am doing DNA extractions at Dr Mariette Jackson's laboratory at UFS, Bloemfontein campus from my collected field samples. I also started experiments for my second chapter, seed germination trials, in August.

Conscientious consumers support ethical, responsible and sustainable use of succulent plants



Purchasing plants that have been collected from the wild can be a major threat to natural plant populations if they are collected in significant numbers. By reducing plant population numbers in nature, species cannot persist, and this impacts ecosystems and the life-supporting services they provide to us. Species that are found only in very specific locations or those that are already rare in nature are particularly at risk of going extinct if too many plants are removed from the wild.



Consumers of these plants must take accountability by making more informed and responsible choices to ensure that wild populations can be seen by future generations. Supporting an ethical, responsible and sustainable trade in succulent plants can also benefit local economies within countries where the species grow, thereby helping these countries to protect and conserve the planet's important natural resources.

How to become a more conscientious consumer of succulent plants:

- Learn about the relevant domestic and international laws that have been put in place to protect wild plant species/populations. Many species are protected by domestic laws within their country of origin, and some are protected by the



Cultivated plant

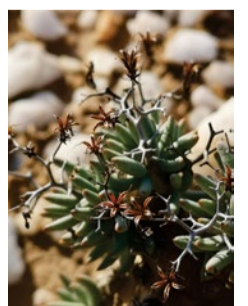
A plant that is grown from seeds, cuttings, divisions or other plant tissues, under controlled conditions (i.e., non-natural conditions influenced and managed by humans) for the purposes of plant production.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

- Be aware of the permits needed to harvest, buy, possess, trade, etc. succulent plant species.
- Find out if/why a species is at risk of extinction and/or protected by law before making a purchase (visit <https://www.iucnredlist.org/> and <https://speciesplus.net/species> for more).
- Avoid buying large plants or species that are rare, at risk of extinction, and/or not widely available on the retail market.
- Choose to buy plants that have been grown artificially in a nursery or garden and try growing plants from seed, cuttings or seedlings and smaller plants.
- Be wary when purchasing plants online, especially from traders active only on social media platforms.
- Take note of the plant's appearance before finalising your purchase to make sure you are not buying a wild-collected plant. Ask for pictures beforehand if purchasing from online traders.
- Before purchasing a plant, ask questions if you are unsure of anything and speak with other ethical succulent plant enthusiasts.


Wild-collected plant

A plant that comes from its natural environment where it was living, growing and (possibly) multiplying without human assistance under natural (uncontrolled) conditions.




How to differentiate between cultivated and wild-collected plants

Characteristics of cultivated (artificially grown) plants



Seedlings and small- to medium-sized plants, often without notably swollen, multi-branching parts.



Have uniform growth and shapes appearing healthy and well cared for.




Produced in succession such that specimens for sale will be of similar sizes.



Typically with bright and vibrant living leaves, and healthy, compact roots.




Healthy plants with no visible holes or signs of damage/injury caused by animal/insect activity, sun exposure/fire or destructive harvesting practices.



For species that have spines, spines are fine (less dense), unbroken and more uniform in size and structure.

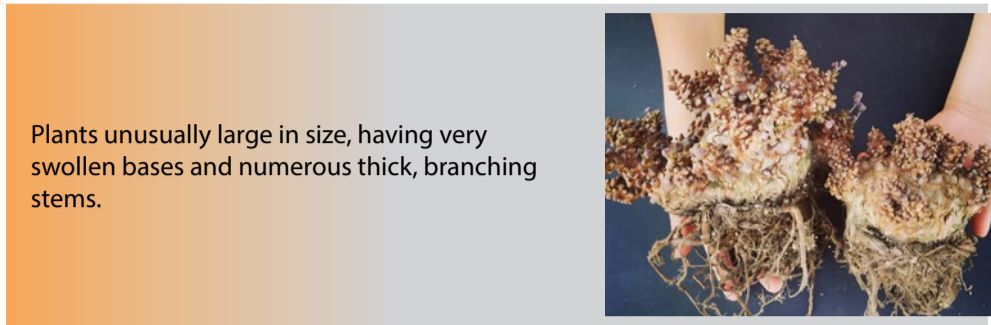


Soil/dirt/pests/lichens/tiny plants and any other materials usually not present on the plants.

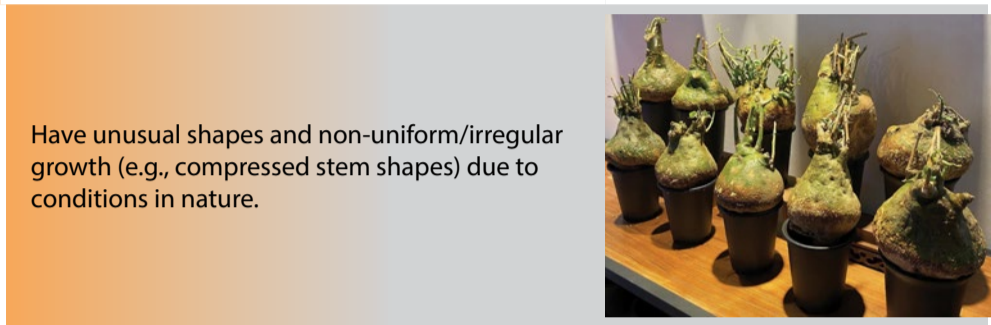


Professionally packaged with neat (often printed) labels and complete documentation.

Characteristics of wild-collected plants




Plants unusually large in size, having very swollen bases and numerous thick, branching stems.



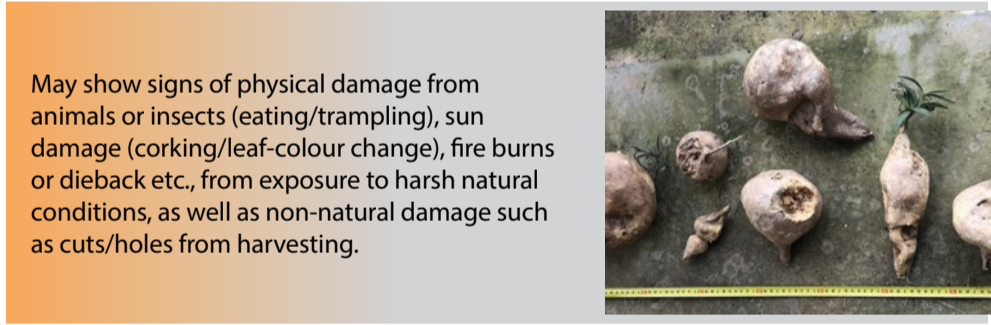
Have unusual shapes and non-uniform/irregular growth (e.g., compressed stem shapes) due to conditions in nature.



Plants of many different sizes for sale – in wild populations, plants are of different ages and therefore different sizes.



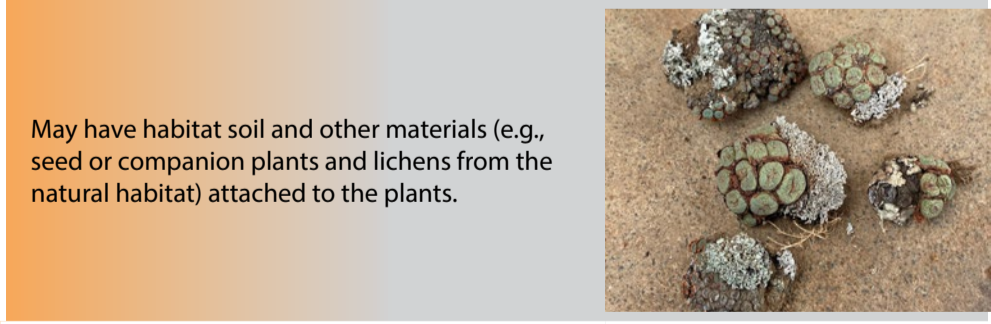
Complete root system (and branches/leaves) typically missing from plants. When present, roots and leaves in poor condition (non-uniform, cut-back, broken or damaged, or shrivelled with discoloration).



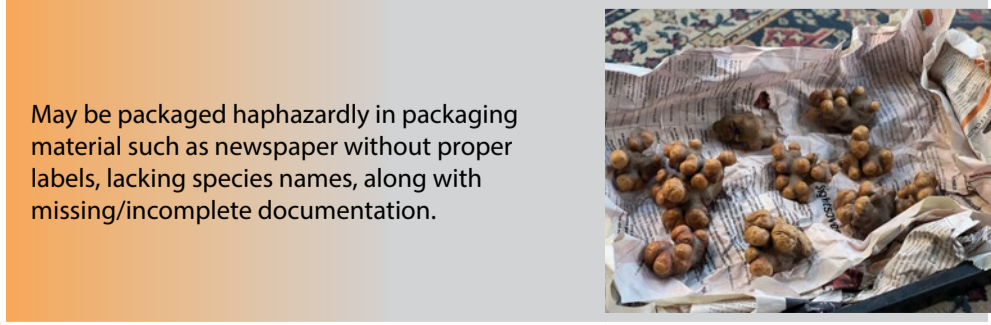
May show signs of physical damage from animals or insects (eating/trampling), sun damage (corking/leaf-colour change), fire burns or dieback etc., from exposure to harsh natural conditions, as well as non-natural damage such as cuts/holes from harvesting.



Spiny species are armoured with thick, fierce, often unruly spines, that may be broken/withered/bleached.



May have habitat soil and other materials (e.g., seed or companion plants and lichens from the natural habitat) attached to the plants.



May be packaged haphazardly in packaging material such as newspaper without proper labels, lacking species names, along with missing/incomplete documentation.

SANBI merit awards



Free State NBG



Hantam NBG



Harold Porter NBG



Karoo Desert NBG



Kirstenbosch NBG



KwaZulu-Natal NBG



Lowveld NBG



Mokopane BCC



NZG



Pretoria NBG



Thohoyandou NBG



Walter Sisulu NBG