

TRAFFIC

DECEMBER 2024

A SUCCULENT TRADE

**THE LEGAL AND ILLEGAL TRADE
IN SUCCULENT FLORA STEMMING
FROM SOUTH AFRICA**

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TRAFFIC REPORT

ABOUT US

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DESIGN

Francesca Marcolini

ON THE COVER:

The epitome of the illegal succulent plant trade in South Africa: a seized specimen of the endangered species.



Crassula deceptor

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ABOUT THE DEFRA ILLEGAL WILDLIFE TRADE CHALLENGE FUND

The DEFRA Illegal Wildlife Trade Challenge Fund (IWTCF) is a UK government competitive grants scheme aimed at eradicating the illegal wildlife trade. The IWTCF - one of Defra's Biodiversity Challenge Funds and the Darwin Initiative and Darwin Plus - is co-funded with the Foreign, Commonwealth and Development Office (FCDO) and underpins UK commitment. The fund was launched in 2014 and delivers on the UK's IWT Conference Series commitments by supporting projects that tackle illegal wildlife trade (IWT) in developing countries. It has had significant reach: committing over GBP43m to 136 projects; working with local communities in over 60 countries across Africa, Asia, Latin America, and Europe; protecting a broad range of endangered species, including pangolins, jaguars and orchids, and addresses some of the most pressing IWT issues.

ABOUT THE "HARNESSING TECHNOLOGY TO END THE ILLEGAL TRADE IN SUCCULENT PLANTS" PROJECT

In 2022, the Royal Botanic Gardens Kew and TRAFFIC were awarded the DEFRA IWTCF Round 8 for the project titled "Harnessing technology to end the illegal trade in succulent plants." The project spanned the period 2022 to 2025 and had four main outputs:

- Output 1: A greater understanding of trade dynamics informs law enforcement strategy and action.
- Output 2: The technical skills of law enforcement officers in identifying and intercepting illegally traded succulent plants have been improved and supported by innovative technology.
- Output 3: Internet companies know their responsibility to police and deter illegal trade in succulent flora and adopt and implement effective monitoring frameworks.
- Output 4: Development and testing innovative tools and technology to improve and facilitate identification and intervention of illegally traded succulent flora.

This report authored by TRAFFIC, is a deliverable under Output 1.

ABOUT THE "NATIONAL RESPONSE STRATEGY AND ACTION PLAN TO ADDRESS THE ILLEGAL TRADE IN SOUTH AFRICAN SUCCULENT FLORA"

In 2022, South Africa published a strategy and action plan to address the challenges of illegal harvesting of Indigenous succulent flora (Crouch *et al.*, 2022). This report aims to satisfy actions and key actions under Objectives 1 and 3.

DONORS AND PARTNERS



Funded by the UK Government
through the Illegal Wildlife
Trade Challenge Fund

ACRONYMS AND ABBREVIATIONS

BMA	Border Management Authority
CITES	Convention on International Trade in Endangered Species
DEFRA	Department for Environment, Food and Rural Affairs
DFFE	Department of Forestry, Fisheries and the Environment
EEFC	Environmental Enforcement Fusion Centre
EMI	Environmental Management Inspectors
FCDO	Foreign, Commonwealth and Development Office
HKIA	Hosea Kutako International Airport
IUCN	International Union for Conservation of Nature
IWT	Illegal Wildlife Trade
LPR	Licence plate recognition
IWTCF	Illegal Wildlife Trade Challenge Fund
NBIF	National Biodiversity Investigators' Forum
NCNCA	Northern Cape Nature Conservation Act
NEMBA	National Environmental Management: Biodiversity Act
NEMPAA	National Environmental Management: Protected Areas Act
NGO	Non-governmental organisation
NPA	National Prosecuting Authority
POCA	Prevention of Organized Crime Act
SANBI	South African National Biodiversity Institute
SANPARKS	South African National Parks
SAPS	South African Police Service
SARS	South African Revenue Service
SSC	Species Survival Commission
STESU	Stock Theft and Endangered Species Unit (SAPS)
TOPS	Threatened or Protected Species
UK	United Kingdom
US	United States
USD	United States Dollar
ZAR	South African Rand

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RECOMMENDATIONS

THROUGHOUT THIS RESEARCH, CHALLENGES WERE IDENTIFIED. THESE HAMPER ENFORCEMENT EFFORTS TO COMBAT SUCCULENT PLANT TRAFFICKING AND PREVENT A LEGAL AND SUSTAINABLE TRADE IN THESE PLANTS FROM WHICH LOCAL SOUTH AFRICANS COULD BENEFIT.

RESEARCH

CHALLENGES:

Some enforcement agencies lack awareness of the dynamics and severity of the illegal succulent trade stemming from South Africa and other African countries such as Namibia and Madagascar. Some agencies operate in silos, so strengthened collaboration and information-sharing is needed within each country and as well as across international borders.

TARGET GROUPS IN SOUTH AFRICA:

- Police officers from the South African Police Service (SAPS), specifically those from the Stock Theft and Endangered Species Units (STESU).
- Traffic officers.
- Prosecutors, Magistrates, and Judges.
- Officials that issue phytosanitary certificates. According to South Africa's Plant Health (Phytosanitary) Bill (B14-2021), a person intending to export plants, plant products or other regulated articles from South Africa must apply for the prescribed phytosanitary certificate (Section 14). Ministry of Agriculture, Land Reform and Rural Development officials can issue these certificates. However, they are not mandated to check for any other permits but could inform the relevant nature conservation authority should they suspect the consignment to be illegally acquired.
- Protected area managers and staff from South African National Parks (SANParks), provincial authorities such as CapeNature, etc.
- Compliance and enforcement units from provincial nature conservation departments, such as DAERL.
- Officials from the Border Management Authority (BMA) and the South African Revenue Services (SARS) Customs and Excise department and screeners at cargo and passenger ports.

RECOMMENDATIONS: Research into illegal succulent trade dynamics, especially the consequences such as heritage loss, habitat destruction, and the irreplaceable nature of succulents, should be shared through information-sharing sessions or awareness interventions with these officials. Resources such as posters or guidebooks should also be available to these officials. Interagency and interprovincial meetings and fora should be held regularly, as many syndicates operate across provincial boundaries.

Research should focus on better understanding the demand for these plants, so further insight is needed into consumers and destinations. A better understanding of the roles of other African countries in facilitating the illegal trade in South Africa's succulents is also needed.

PERMITS

CHALLENGES:

The legislation acts as a barrier to legal trade, and therefore, many local nurseries cannot legally trade in indigenous flora. Interviewees explained the difficulties in obtaining permits to possess and trade in protected flora.

RECOMMENDATIONS: To create livelihood opportunities and support local businesses, many challenges must be addressed regarding acquiring permits to sell and export protected and specially protected flora.

TARGET GROUPS:

- Provincial and national government legislators

CONFISCATED PLANTS

CHALLENGES:

The influx of confiscated plants is unmanageable. The sheer volume of plants that require potting and care is resource-intensive, and most agencies do not have the capacity and funds to care for these plants in the short and long term.

RECOMMENDATIONS: The national government needs to allocate a budget to support the implementation of the national strategy, including the care of confiscated succulent plants. Compared to the Western Cape Province, the Northern Cape Province faces significant obstacles, with the national strategy yet to be fully implemented. However, succulent plants are mentioned as a possible priority species in South Africa's National Integrated Strategy to Combat Wildlife Trafficking (NISCWT). Elevating succulent plants to this level is important in ensuring that crimes involving these are a priority for enforcement agencies to address.

TARGET GROUPS:

- South African National Biodiversity Institute (SANBI)
- Department of Forestry, Fisheries, and the Environment (DFFE)

AWARENESS

CHALLENGES:

The public is generally unaware of the illegal trade in succulent plants

RECOMMENDATIONS: Campaigns should be run to raise public awareness of the ecological consequences of these biodiversity crimes, especially for local communities and youth. It's important to instill a sense of ownership and responsibility in communities to conserve their natural heritage for future generations. Public engagement should be encouraged to garner support and boost the reporting of illegal activities. Consumer awareness should be enhanced, as consumers are often unaware that they purchase illegally harvested succulents.

TARGET GROUPS:

- Local communities
- Youth
- General public
- Consumers

These recommendations should be viewed in conjunction with those made by Bruwer (2023), which are being addressed under the current phase of the National Response Strategy and Action Plan to Address the Illegal Trade in South African Succulent Flora.

The results of this study provide considerable insight into the dynamics of the legal and illegal trade in South African succulent plants. Reducing the number of succulent plants illegally harvested from their natural habitats requires a more expansive and holistic approach beyond the enforcement and application of the law as it stands today.

EXECUTIVE SUMMARY

In South Africa, the illegal harvesting of succulent flora is rife in both private reserves and state-protected areas in the Succulent Karoo Biome, which spans the Northern, Western and Eastern Cape Provinces. Between 2019 and May 2024, more than 1.6 million succulent plants representing more than 650 species have been seized by law enforcement in South Africa. Many succulent species are in high demand for ornamental use by collectors in America, Europe, and Asia, and to meet this demand, the illegal harvesting and trade of indigenous succulent flora are rampant. This degrades ecosystems, deprives South Africa of unique natural resources, and criminalises those drawn into illegal harvesting for financial gain. To adequately inform law enforcement strategy and action, this research aims to provide a greater understanding of the who, what, where, when, how, and why of the illegal succulent trade dynamics, along with a review of legal proceedings of succulent court cases. Lastly, numerous challenges were identified during this research, as were recommendations to address these and the target groups.

Argyroderma delaetii

A comparison between TRAFFIC's 1998 succulent plant catalogue dataset and a 2023 succulent plant price list dataset indicates trends in species, prices and conservation status of plants involved in the succulent trade during this time. It was found that much of the same genera traded in TRAFFIC's 1998 dataset were still traded in the 2023 dataset and that the average price per plant (across all species) increased from the 1998 dataset to the 2023 dataset for the Czech Republic, Germany, Netherlands, United Kingdom, United States and South Africa. The comparison also revealed that succulent plant species that have not been assessed by IUCN or are not listed on CITES have lower average prices than listed species, and this could be because listing a species increases its value or because inherently valuable species are more likely to become CITES-listed due to more intensive trading.

Who?

Interviewees described the demographics of role players in the illegal succulent supply chain, and these roleplayers were identified as illegal harvesters, intermediaries, exporters, organisers, syndicate leaders and financiers. The interviewees believed that consumers range from naïve online purchasers who lack awareness of the consequences of their purchasing behaviours to specialist collectors who knowingly seek rare, novel, or "authentic" wild specimens. Most of the demand is believed to be coming from the United States, Europe and Asia. However, some interviewees believe there are local consumers within South Africa, but to a far lesser extent.

What?

When interviewees were asked which succulent plant taxa were traded illegally, dwarf succulents were mentioned the most. It was suggested that caudex plants, variegated/crested species, specific bulb species, and other ornamental plants have become more popular in recent years. When asked how the prices of plants are determined, nursery owners said that it is based on numerous factors, including the plant's size, age, cultivar, variety, special mutations, colour morphs, scarcity, and market prices.

Where?

For the illegal trade, most illegally harvested succulents are sourced from outside protected

areas in the Eastern Cape, Western Cape, and Northern Cape provinces in South Africa, Namibia, and other southern African countries such as Madagascar, Mozambique, Tanzania, and Malawi have been implicated as transit countries in the illegal succulent trade from South Africa and Namibia. Illegally harvested succulents are believed to be destined for southeast Asia, specifically China, South Korea, and Japan, as well as various European countries (Germany, France, Italy, Spain, Netherlands, Czechia, Hungary, and the UK) as well as the US and Saudi Arabia. For the legal trade (based on CITES Trade Data between 1995 and 2021), most commodities reported by number were wild-sourced (55%) or artificially propagated (44%). Three importers (Belgium, Germany, and the United States) accounted for over 85% of all legal direct imports of live specimens from listed succulents from South Africa between 1995 and 2021.

How?

Some interviewees viewed illegal succulent harvesting among locals in South Africa as largely opportunistic due to economic circumstances. Based on the information gathered from interviewees, it is evident that the modus operandi of illegal harvesting is very systematic. Illegal harvesters had prior knowledge of the area and targeted specific sites. Coastal roads are being used more often, as opposed to major routes. Plants were transported to designated depots or warehouses for sorting, organising, packing, and exporting. The poached succulents are neatly wrapped in cotton or toilet/tissue paper for protection and packed into boxes. In the past, plants were concealed as or within toys, dried fruit, ornaments, or household goods. The packaged plants are then exported via a postal service or private courier companies. Payments across the value chain are made using cash, electronic bank transfers, gift vouchers, or drugs. Interviewees mentioned the convergence between the illegal trade in succulents and other commodities, including abalone, rhino horn, ivory, and reptiles.

When?

Since the 1990s, the demand for South African succulent plants has existed. However, the interviewees mentioned two key events or periods that may have increased demand

FOREWORD

for succulent plants. The 2015-2016 El Niño-induced drought increased domestic demand for succulents as these plants require minimal water for domestic gardens. The COVID-19 pandemic in 2020 saw a major shift in the role of players involved in the succulent trade. Before the pandemic, foreign nationals from China, South Korea, Japan, and the Czech Republic would visit South Africa to remove plants and smuggle them back to their respective countries. During the pandemic, it has been suggested that foreign nationals opted to recruit locals to poach succulents on their behalf due to lockdown restrictions and have continued to do it this way ever since. The number of succulent seizures in South Africa drastically increased in the years following the Covid-19 pandemic.

Why?

Interviewees cited financial reasons as the biggest motivator for participating in the illegal succulent trade. Many succulents are easily accessible; collection trips can occur quickly and are very profitable. According to the interviewees, succulents are mainly in demand in Southeast Asian and European countries for

ornamental purposes. Rare succulents are seen as a status symbol. Additionally, consumers living in small apartment buildings with limited space demand portable, durable, long-lived, low-maintenance “natural elements” to add beauty to their apartments.

Legal Proceedings

Over the last five years, there have been significant developments in protection mechanisms for South Africa’s succulent flora through the implementation of provincial and national legislation, precedents set by court cases, the development and implementation of the “National Response Strategy and Action Plan to Address the Illegal Trade in South African Succulent Flora,” and international treaties, including the listing of 17 species and the entire *Conophytum* genus on CITES Appendix III.

Conclusions and Recommendations

Challenges were identified throughout this research. These hamper enforcement efforts to combat succulent plant trafficking and prevent a legal and sustainable trade in these plants from which local South Africans could benefit.

The illegal trade of succulent plants has emerged post-COVID-19 as a significant environmental and conservation concern. As demand for these unique and aesthetically pleasing plants has surged globally, particularly for horticultural and ornamental markets, so has the exploitation of wild plant species. The allure of rare and exotic succulents, often driven by social media trends and climate-wise gardening movements, has placed immense pressure on wild populations, leading to their unsustainable harvest and, in many cases, extinction.

South Africa is a biodiversity hotspot and home to the Succulent Karoo Biome, which hosts some of the most unique succulent plant species on the planet, many of which occur in only one place. Its rich botanical heritage is a source of national pride and a vital component of its ecosystems, sustaining wildlife, livelihoods, and cultural traditions. However, this natural wealth has also made the country a target for illegal plant trade, particularly in the succulent, caudiciform and geophyte flora.

This report sheds light on the complexities of the illegal succulent plant trade, particularly in South Africa. It goes beyond the surface, exploring this issue’s economic, social, and legislative dimensions. From the illegal harvesting of endemic species in remote regions to the syndicates that smuggle these plants across international borders, the report unravels the intricate web of mechanisms threatening some of the world’s rarest plant

species. It offers valuable insights into the challenges faced by conservationists, law enforcement agencies, and local communities in combating this unsustainable trade. More importantly, it calls for urgent action to enhance enforcement awareness of this issue, support national conservation collections and legitimate nurseries to manage and sell in-demand species and promote public awareness campaigns.

As someone deeply committed to conserving our global flora, I believe raising awareness is crucial to addressing this crisis. The insights provided in this report are not only timely but essential. They serve as a wake-up call to all stakeholders across the supply chain, including policymakers, the horticulture industry, conservationists, and consumers.

Having participated in the very first discussions about this project, it is a pleasure to see this report published. I commend the authors; this report is an essential tool in the fight against the illegal plant trade. Their work is an invaluable resource that will undoubtedly contribute to the ongoing efforts to protect southern Africa’s precious succulent plants and many others.

Dr Carly Cowell

Director of Conservation Policy and Practice, Botanic Gardens Conservation International and Chair of the IUCN SSC Succulent Plant Illegal Trade Task Force
August 2024



Seized plants from the *Conophytum* genus in pots



A seized specimen of the *Conophytum* genus

INTRODUCTION

WHAT ARE SUCCULENT PLANTS?

Succulent plants, or 'succulents', contain a trait called cellular succulence, which is the presence of large cells for water storage (succulent tissue), and this can occur in any vegetative plant organ such as the roots, stems, and leaves (Griffiths and Males, 2017). There is a common misconception that succulents are abundant in the desert environments. On the contrary, succulents tend to occur in regions with arid or semi-arid climatic conditions where the rainfall might be infrequent but is regular and predictable. Succulents occur in climatic zones characterised by low water availability and high evaporative potential, but moisture input from fog or dew may supplement the infrequent rainfall in these environments. Succulent growth forms are highly diverse, ranging from dwarf herbaceous rosettes and cushion plants to woody shrubs and trees. These growth forms include columnar and opuntoid stem succulents such as *Euphorbia* and *Cactus* species (spp.), massive-leaf succulents such as *Aloe* and *Agave* spp., miniature desert and semi-desert succulents such as *Conophytum* and *Lithops* spp., pachycauls such as *Adansonia* and *Adenium* spp., Arctic-alpine succulents such as species of the genus *Sedum*, and geophytes (plants that have underground storage organs (e.g., bulbs, tubers). Many succulent plants are drought-resistant plants, slow growing or long-lived. Approximately 3 to 5% of all flowering plants are commonly described as succulents (Griffiths and Males, 2017).

DISTRIBUTION

Most succulent plants come from arid or semi-arid environments ranging from tropical and southern Africa, including Madagascar, to North and South America, including Mexico and the West Indies (Oldfield, 1997). Conditions normally too harsh for other plants to survive, such as high temperatures and low precipitation, have made these plants extremely hardy and adaptable. Although the subject of a certain amount of debate, about 10 000 species of plant within 30 plant families are recognised as belonging to the succulent group (Oldfield, 1997).

UTILISATION

The strange growth forms and attractive flowers of succulents have elicited widespread interest and popularity worldwide, having long attracted the attention of botanists, both amateur and professional and horticultural enthusiasts (Oldfield, 1997). Due to their ability to survive drought conditions and the fact that these plants can survive outside their natural range, succulent plants are particularly favoured as house plants (Rutherford *et al.*, 2018). They are also popular in landscaping where drought-tolerant plants are required (xeriscaping). Many plant collectors prize them for their unusual growth forms or rarity in the wild. Many succulent species are in high demand for ornamental use by collectors in America, Europe, and Asia.



In America, Europe, and Asia, the demand for succulent species for ornamental use by collectors is high.

THREATS

The main threats to succulent plants are the illegal trade of succulent plants and seeds for the horticultural industry and private collections, as well as pressure from human activities and climate change (SANBI, 2022). Due to the unsustainable trade in certain succulent plants for the horticultural industry, some species are regulated under the Convention on International Trade in Endangered Species (CITES; Rutherford *et al.*, 2018).

ILLEGAL SUCCULENT HARVESTING IN SOUTHERN AFRICA

Around 3,500 species and infraspecific taxa (e.g., subspecies, variety, cultivar, or form) of succulent plants occur throughout South Africa and Namibia. These plants reach their greatest abundance and diversity in the semi-arid, winter-rainfall climate of the southern and western parts of South Africa, where they are often the dominant life form. Given that many of these succulent species are endemic to South Africa and Namibia and occur in small populations, illegal harvesting (picking indigenous/protected/specially protected flora that is listed in the provincial and national legislation without a permit) is a severe threat to the survival of these plants in the wild.

In South Africa, the illegal harvesting of succulent flora is now rife in both private reserves and state-protected areas in the Succulent Karoo Biome, which spans from Namaqualand (on and west of the Great Escarpment), the Hantam, Tanqua, and Roggeveld region as well as the Little Karoo in the Northern, Western and Eastern Cape provinces in South Africa (Mucina *et al.*, 2006). Approximately 16% (1,589 species;

Driver *et al.*, 2003) of the world's estimated 10,000 succulent species occur in the Succulent Karoo Biome (Van Jaarsveld, 1987).

Between 2019 and May 2024, >1.6 million illegally harvested succulent plants, representing over 650 different species, have been seized by authorities as the plants transit Southern Africa to overseas markets (C. Becker du Toit, SANBI, pers. comms. to D. Prinsloo, May 2024). This illegal trade, which occurs through online platforms such as social media, has severely impacted biodiversity in the Succulent Karoo Biome. It is thought that single episodes of illegal harvesting have resulted in whole species extinctions (Raimondo, 2022). Their loss degrades ecosystems, deprives South Africa of unique natural resources, and criminalises those drawn into illegal harvesting for financial gain.

In 1998, TRAFFIC published a study reporting that South Africa had a thriving international trade in succulent plants, based largely on artificially propagated plants produced by the country's well-established nursery community, with exports forming the bulk of this trade (Newton and Chan, 1998). The study reported that South Africa became known as an exporter of illegal wild-collected succulents during the 1970s when commercial collectors documented the destruction of specific *Lithops* populations. It was a concern at the time of the study's publication that some plants offered for export as "artificially propagated" were wild-collected, and this concern is still relevant today.

RESEARCH AIMS

This research aims to inform law enforcement strategy and action by providing a better understanding of the legal and illegal succulent trade stemming from South Africa and information relating to the source, transit and destination locations, modus operandi, and motivations for engaging in the illegal succulent trade. The research documented developments

in protection mechanisms for South Africa's succulent flora through legislation, international treaties, and precedents set by various court case judgements. Finally, this research documented issues and barriers in combating succulent trafficking, challenges and possible solutions, and recommendations for various stakeholders.

METHODOLOGY

STUDY SITE

This research focused on South Africa. Much information came from the Northern Cape and Western Cape Provinces, with some information from the Eastern Cape Province (Figure 1).

FIGURE 1.
Map showing the provinces of South Africa



Many succulent plants survive in arid conditions in the Northern and Western Cape Provinces of South Africa.

SOURCES OF DATA

This research uses various sources of data, such as interviews, catalogue data, online shop price lists, seizure data, court case data, and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Trade data, to describe patterns in who, what, where, when, why, how, and legal proceedings of the legal and illegal trade in succulent plants.

INTERVIEWS

TRAFFIC conducted 24 interviews in person and virtually during 2023 and 2024 in South Africa with the following participants: law enforcement officers (7), protected area managers (7), private landowners (5), and nursery owners (5).

Interview Process

Face-to-face and virtual individual interviews were conducted with the respondents using a pre-designed list of interview questions to guide the discussions. The interview questions were made available in English and Afrikaans, though most interviews were conducted in English. The interviews were conducted in a semi-structured manner, so they evolved into relatively unstructured conversations. The interview questions were structured to ensure that relevant themes were covered, such as role-players, commodities, locations, *modus operandi* (or details surrounding the crime), and legal aspects, such as the laws, regulations and permits that apply to possessing succulent plants. The interviews were often free-flowing, and the interview questions were used to guide the interviewer in conversation, ensuring that these themes were covered.

Ethics

TRAFFIC obtained an ethics clearance certificate from the University of the Witwatersrand in Johannesburg, South Africa (Prinsloo H23/07/55). Before the interviews commenced, TRAFFIC shared information with each interviewee via email detailing the purpose of the research, the use of the information shared and the interview process. The interviewer assured anonymity and confidentiality to each interviewee and explained that the information they provide will never be linked to their personal details and their identity will remain confidential.

Each interviewee provided verbal consent; where permission was granted, a voice recorder was used to record the interview. Permission for anonymous quotes was also requested and granted in most cases.

Limitations

While every effort was made to ensure that these interviews were conducted in an academically rigorous manner, conducting interviews for research purposes may have its limitations. For example, interviewees may misunderstand the interview's motivations because they might be viewed as interrogations. To reduce this bias, interviewees were assured that any information they shared would remain anonymous and not be shared directly with law enforcement. Rather, they would be aggregated with other interviews to reflect trends. The interviews were semi-structured, and the interviewer attempted to develop a friendly rapport and put the interviewees at ease. There is the potential for dishonesty during the research process, and TRAFFIC was aware of this during the data analysis phase. TRAFFIC could not assess the credibility of what was revealed by all the interviewees. However, TRAFFIC did cross-reference the information provided in the interviews with other sources (where available).

Sample

The data collected is treated as indicative of patterns regarding the illegal trade in succulent plants.

A COMPARISON BETWEEN A HISTORICAL DATASET (1982 TO 1994) AND A MODERN DATASET (2023)

The analysis of a historical dataset (1982 to 1994), referred to as TRAFFIC's 1998 dataset, aimed to identify the species, prices and trade volumes of southern African succulent plants being exported from South Africa to document the species being sold in national and international markets; to draw up a list of species potentially threatened by trade by analysing national and international trade statistics; among other aims (Newton and Chan, 1998). TRAFFIC's 1998 study entailed an analysis of export permit data, CITES annual reports and succulent plant nursery catalogues between 1982 and 1994, with most data (96%) covering the period 1990 to 1994. From the catalogues obtained from 171 traders for TRAFFIC's 1998 study, traders were found in 2023. TRAFFIC searched for these traders online to obtain their 2023 price lists, as physical catalogues were no longer available. Of the 133 traders, succulent plant price lists were obtained from 22 traders. The other traders were either no longer active (13), their websites could not be found, or any information on them (46) or further contact was required to obtain their price lists through mail order (49), or they no longer traded in succulent plants (3). TRAFFIC obtained price lists from another 20 online stores and four Whatsapp group sales to supplement this. Similar analyses for the year 2023 were completed, and these results were compared to those of the 1998 dataset to ascertain what transpired since the 1998 study was published. All prices from the 1998 dataset were converted to account for inflation using two datasets: (1) the World Bank¹: accurate to multiple decimal places up until 2022, and (2) the IMF²: accurate to one decimal place up until 2023) and were converted to historical currency exchange rates using the STOCKHISTORY function in Microsoft Office's Excel. Two datasets were used because the World Bank's dataset contains inflation data up to and including 2022, while the IMF's dataset contains inflation data up to and including 2023. All plant species names from TRAFFIC's 1998 dataset and those obtained for the 2023 dataset were compared to and standardised with the 2023 South Africa National Plant Checklist maintained by South African

National Biodiversity Institute (SANBI) and released annually. This was to ensure that data associated with each species in the 2023 dataset could be compared to that of the same species in the 1998 dataset, given that many changes to nomenclature had occurred over the last 26 years.

Only six countries were present in both the 1998 dataset and the 2023 dataset (Spain (ES) was not present in TRAFFIC's 1998 dataset and could only be included in the GINI index analysis). These six countries included the Czech Republic (CZ), Germany (DE), the Netherlands (NL), the United Kingdom (UK), the United States (US), and South Africa (ZA).

The Gini index was used to measure the association between (1) price and IUCN Red List categories and (2) price and CITES Appendices for the 2023 dataset. These analyses included all six abovementioned countries, including Spain (ES). The Gini index is usually used to measure income distribution across a population but has been used here to measure how unequally species prices are distributed across conservation categories. The 1998 study compared listed species with the more numerous non-listed species. Predefined price ranges (in ZAR) were chosen, allowing the study to measure the proportion of listed/non-listed species in each range (e.g., stating that x% of non-listed species and y% of listed species were priced between R0.00 and R9.99, and so on). For this analysis, different price ranges were used to match the increased 2023 prices. The price ranges chosen were as follows: R0.00 to R49.99; R50.00 to R99.99; R100.00 to R149.99; R150.00 to R199.99; R200.00 to R249.99; and R250.00 to R5099.99 (The R5099.99 figure was included to capture the highest price in the 2023 dataset).

The value of the Gini index ranges from 0 to 1 where:

- Zero (0) indicates that listed species in the population are distributed evenly in the price categories (represented by the blue "Line of equality" in the charts below). A value of 0 would mean that all values

in the dataset are within the same range, and therefore, the listing has no effect on the price.

- One (1) indicates that the listed species' distribution is skewed to the highest price category. A value of 1 would mean that listed species constitute all the "value" in the dataset and that non-listed species have no value.
- Values between 0 and 1 suggest some degree of upward price shift of listed species relative to non-listed species, i.e.,

that there is a correlation between listed species and higher prices.

SEIZURES AND COURT CASES

The Department of Forestry, Fisheries, and the Environment (DFFE) Environmental Enforcement Fusion Centre (EEFC), with permission from the South African Police Service (SAPS), shared seizure data on incidents involving succulent plants between 2019 and 2023 with TRAFFIC. This data was mapped using ArcGIS, and a heat map was developed.



CITES TRADE DATA

To incorporate all available CITES Trade Data on succulent species, CITES Trade data were analysed with a focus on the legal trade in both CITES and European Union (EU) Annex D listed succulent species exported from South Africa elsewhere. EU Annex D includes species not listed in CITES, but the EU considers that these species should be monitored, and the trade in these species is reported only by EU member states. This analysis covers years of reported trade from 1995 (1994 was the last date used in the 1998 dataset) to the most recent

year of reported trade by most CITES Parties (2021). The analyses aimed to determine the total quantity of CITES and EU Annex D listed succulents exported; to identify the CITES and EU Annex D listed succulents exported in the highest quantities; to identify the top importers of CITES and EU Annex D listed succulents, to provide an overview of the top terms, sources, and purpose of export of CITES and EU Annex D listed succulents, and to note any marked trends and changes over time.

¹<https://datatopics.worldbank.org/world-development-indicators/>

²https://www.imf.org/external/datamapper/PCPIPCH@WEO/WEO_WORLD/VEN

RESULTS AND DISCUSSION

THE SUCCULENT TRADE SINCE TRAFFIC'S 1998 STUDY

The trade in artificially propagated and wild-collected plants from South Africa is not recent. According to Reinten *et al.*, (2011), "international interest in South African indigenous floriculture increased since the middle of the eighteenth century, when Linnaeus started naming and describing the rich abundance of new floral plant examples, albeit in dried form, received initially from the Western Cape." The acceleration in this trade, specifically for succulent plants, was seen as far back as the 1940s and 1950s. However, the earliest data quantifying this trade was published by Newton and Chan from TRAFFIC in 1998 and comprised an analysis of export

permit data, CITES annual reports and succulent plant nursery catalogues between 1982 and 1994 (hereafter referred to as 1998 dataset) of which the majority of records (96%) derive from the years 1990 to 1994. The results of the comparative analyses between TRAFFIC's 1998 study (1982 to 1994) and 2023 are described below:

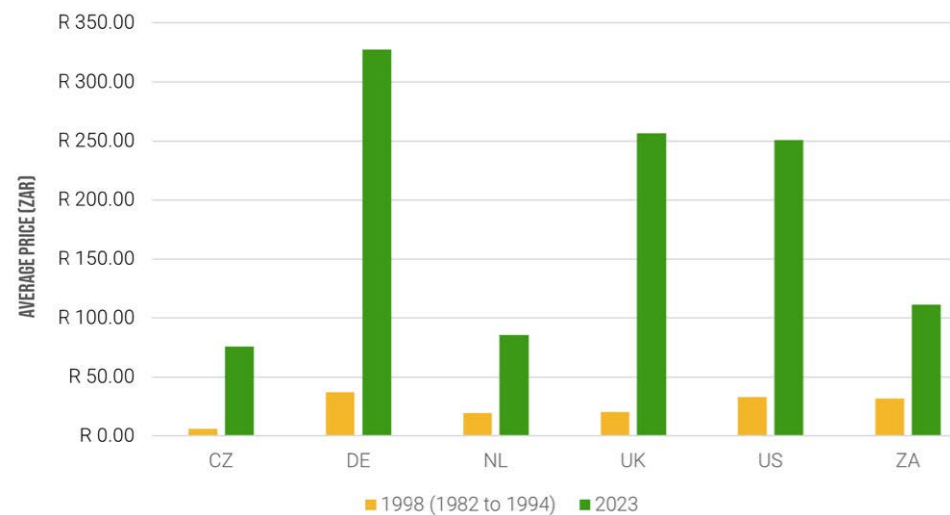
A total of 15,098 records from 1,647 species were recorded in TRAFFIC's 1998 dataset – which included data from a range of sources – compared to 2,782 records from 748 species in the 2023 dataset.

HOW HAVE PRICES CHANGED?

After accounting for inflation, the average price per plant (across all species) increased from the 1998 dataset to the 2023 dataset for all six countries (Figure 2). These six countries

included the Czech Republic (CZ), Germany (DE), Netherlands (NL), United Kingdom (UK), United States (US) and South Africa (ZA).

FIGURE 2. A bar chart showing the differences in the average succulent plant prices between the 1998 dataset (1982 to 1994) and the 2023 dataset for six countries: the Czech Republic (CZ), Germany (DE), Netherlands (NL), United Kingdom (UK), United States (US), and South Africa (ZA).



As an example, the average price by genus was compared between the US and South Africa between TRAFFIC's 1998 dataset and the 2023 dataset. Prices between the two countries were relatively similar in TRAFFIC's 1998 dataset, but there is a much greater disparity between these average prices in 2023 (Figure 3).

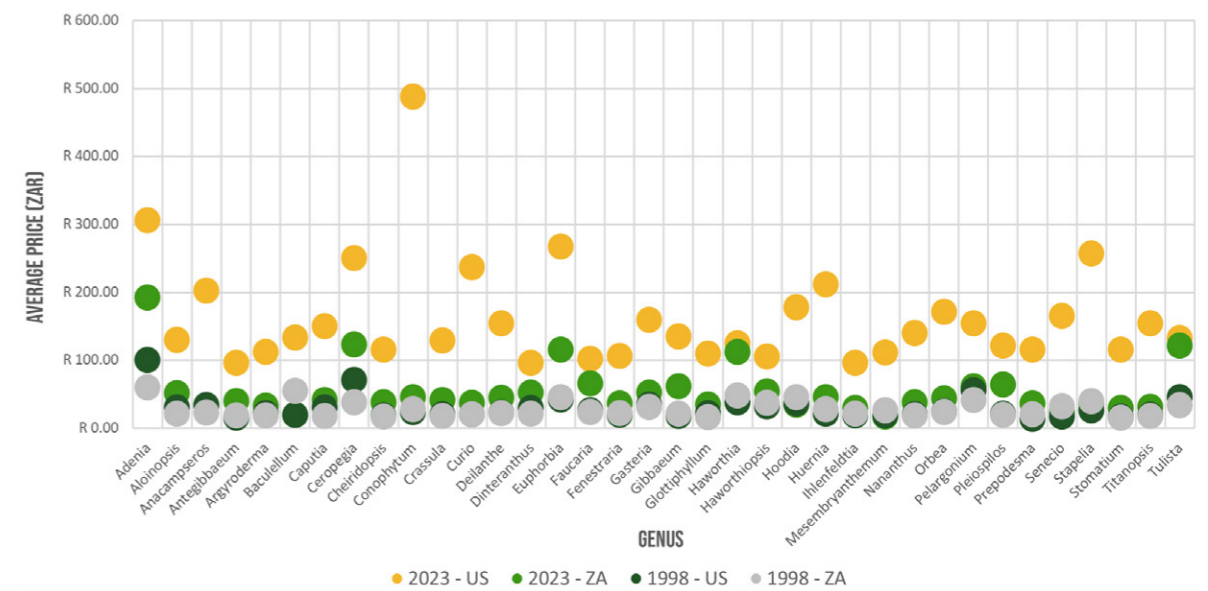
Across all species and countries, there is a statistically significant relationship between TRAFFIC's 1998 dataset and the 2023 dataset (p-value < 0.05). This means that lower prices in TRAFFIC's 1998 dataset tend to translate to smaller price increases in the 2023 dataset. In general, prices in 2023 are much higher than the prices in TRAFFIC's 1998 dataset, even after accounting for inflation.

TRAFFIC's 1998 average price data and the 2023 average price data were compared against IUCN Red List Status and CITES Appendix

Listing to see if "Listed" species translate to higher prices. The results show that species that have not been assessed by IUCN or are not listed on CITES have lower average prices than listed species (Figures 4 and 5). This could be because listing a species increases its value or because inherently valuable species are more likely to become CITES-listed due to more intensive trading. It is also possible that these trends are completely random, as there does not appear to be much correlation between the species' conservation status (e.g. "Least Concern" being low and "Critically Endangered" being high) and the price.

Future analyses should consider comparing prices of species listed on the IUCN Red List or on CITES in the 2023 dataset but not in the 1998 dataset. This may provide evidence in support of or against the two aforementioned theories.

FIGURE 3. Graph showing the average price by genus for the US and ZA using both TRAFFIC's 1998 dataset and the 2023 dataset. Yellow and light green represent the datasets for US and South Africa (ZA) in 2023, respectively. Dark green and grey show the same countries in 1998.





Seized succulent plants are potted, labelled and cared for.

FIGURE 4. Graph showing the average price from TRAFFIC's 1998 dataset and the 2023 dataset for species assessed by the IUCN Red List as Least Concern, Not Threatened, Vulnerable, Endangered, and Critically Endangered) and species that have not been assessed.

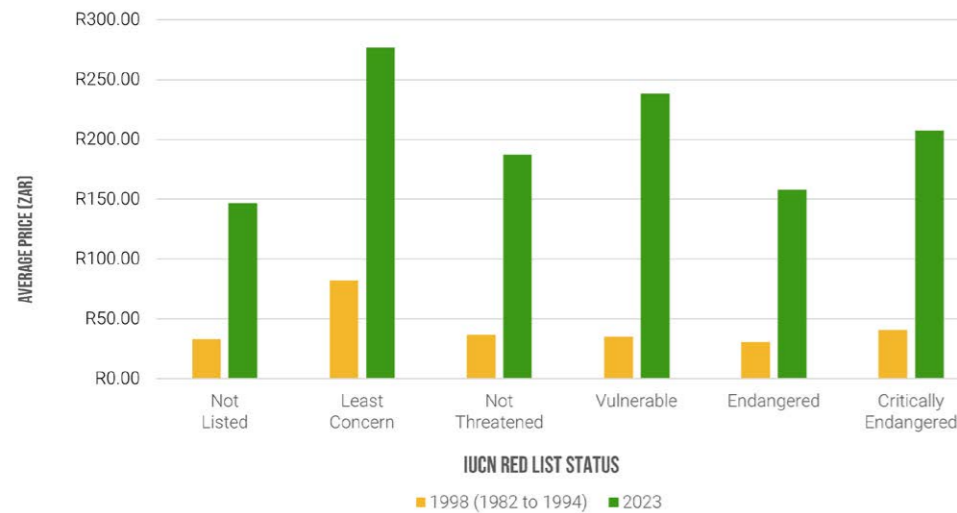
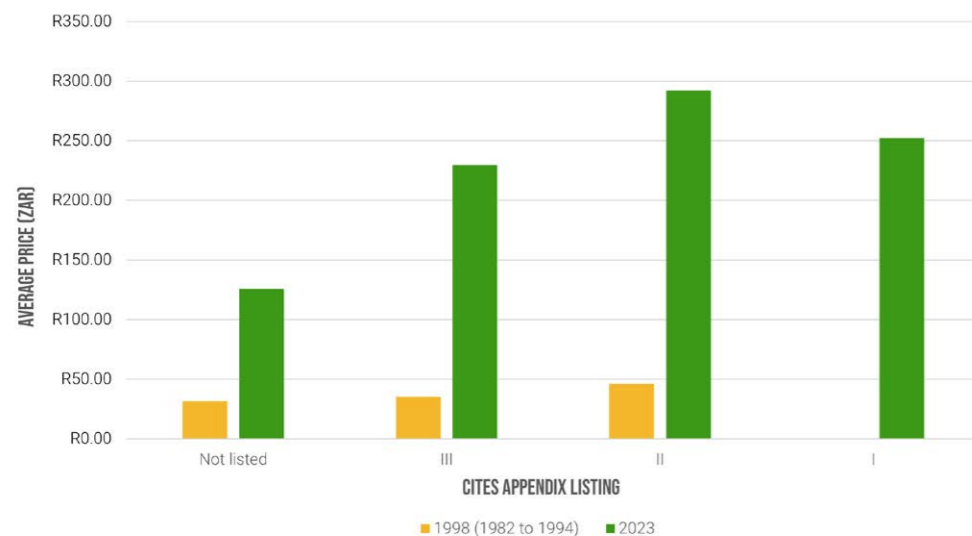


FIGURE 5. Graph showing the average price from TRAFFIC's 1998 dataset and the 2023 dataset for species listed on CITES Appendices I, II, and III and those not listed on CITES.



For the 2023 dataset, across all seven countries, there is a correlation between listed species and higher prices for both IUCN Red List statuses (Gini index: 0.20; Figure 6) and CITES Appendix listings (Gini index: 0.45; Figure 7). As an example, a correlation between listed species and higher prices was seen in both the US data (IUCN: 0.19, CITES: 0.51) and DE data (IUCN: 0.14, CITES: 0.68), with a stronger correlation in CITES Appendix listings than in IUCN Red List statuses. There is no correlation between listed

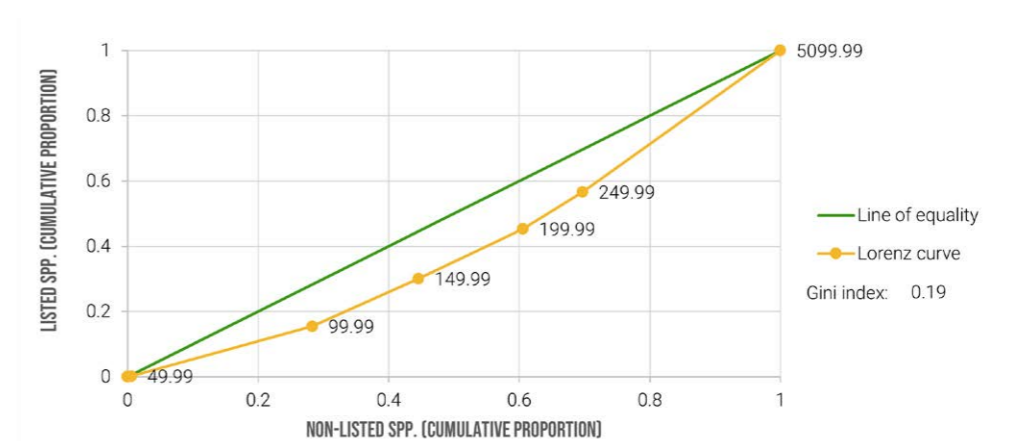
species and higher prices in South African data (IUCN: -0.07, CITES: 0.03). The exact cause of this is unknown.

Many succulent species were listed on CITES Appendix I as far back as 1975. However, the succulent species listed in the 1998 dataset were not listed on CITES Appendix 1 at the time and species listed on CITES Appendix I in 1998 were not part of the records included in the 1998 dataset.

FIGURE 6. Graph showing the correlation between listed species and higher prices for the IUCN Red List statuses across all seven countries: the Czech Republic (CZ), Germany (DE), Spain (ES), Netherlands (NL), United Kingdom (UK), United States (US), and South Africa (ZA). The line of equality is a graphical representation of listed species in the population being distributed evenly in the price categories. The Lorenz curve is a graphical representation of some degree of a shift away from this line, i.e. showing a correlation between listed species and higher prices.



FIGURE 7. Graph showing the correlation between listed species and higher prices for the CITES Appendices across all seven countries: the Czech Republic (CZ), Germany (DE), Spain (ES), Netherlands (NL), United Kingdom (UK), United States (US), and South Africa (ZA). The line of equality is a graphical representation of listed species in the population being distributed evenly in the price categories. The Lorenz curve is a graphical representation of some degree of a shift away from this line, i.e. showing a correlation between listed species and higher prices.





Mesembryanthemum digitatum

WHO?

Demographics of role players in the illegal succulent supply chain

According to interviewee responses, the following patterns regarding the demographics of role players, specifically illegal harvesters, intermediaries, exporters, organisers, syndicate leaders and financiers in the illegal succulent supply chain, can be distinguished. There was little knowledge of the roles of importers/wholesalers and retail traders.

Illegal Harvesters

According to the interviewees, men carry out most of the poaching activities. However, female involvement has been seen in recent years. Interviewees described illegal harvesters as mostly young, between 18 and 30 years old; however, the recruitment of children (younger than 18 years) by their parents was mentioned, and the reason for this is that children are less likely to receive severe punishment. In recent years, there has been evidence that younger and older individuals work together, as the

latter may have more knowledge of the local area and the plants growing there. Interviewees suggested that some of those involved in illegally harvesting plants are impoverished and from low-income households or are unemployed (See Case Study on Who). Most commonly, South Africans harvest succulents illegally, and some interviewees specified that the ethnic group, Rastafarians, also harvest plants for their own traditional use (See Case Study on Why). On occasion, Namibians, Zimbabweans, and Saudi Arabians were also believed to have been involved in illegally harvesting succulent flora.

Intermediaries

There is limited information on the demographics of the intermediaries involved in the succulent trade, such as couriers, collators, and safe house operators, however their nationalities are well known. According to interviewees, intermediaries include South

Female involvement in the illegal succulent trade

has been seen in recent years

Africans, Chinese nationals, Zimbabweans, Pakistanis, and members of the Rastafarian religious group.

Exporters, Organizers and Financiers

According to interviewees, exporters were of Asian descent (Chinese nationals), and most of the illegal harvesting was organised by these individuals living in South Africa. They are considered wealthy and own property, which is used for collating illegally harvested succulents.

Syndicate leaders

There was no clear consensus from the interviewees on who they think syndicate leaders are, but they have their suspicions. A woman born in the Eastern Cape but of Chinese descent is suspected to be a syndicate leader in South Africa. Additionally, Chinese nationals, Mozambican nationals, and German individuals living in South Africa are suspected to be "lieutenants" or trusted entities within the organisational hierarchy. One interviewee suspected that a member of the Rastafarian religious group was also a trusted entity within

their organisational hierarchy. One interviewee believed that the syndicates have two to three groups of illegal harvesters working for them and that multiple syndicates operate across South Africa. The different ethnic and cultural groups involved suggest that there are different criminal groups, or syndicates, who are involved in similar criminality and who possibly use shipments that get sent out by a single exporter/broker.

Consumers

The interviewees believe that consumers range from naïve online purchasers who lack awareness of the consequences of their purchasing behaviours, such as stimulating the demand for illegally harvested plants, to specialist collectors who knowingly seek rare, novel, or "authentic" wild specimens. Most of the demand is believed to be coming from the United States (US), Europe and Asia. However, some interviewees believe there are local consumers within South Africa, but to a far lesser extent.

CASE STUDY ON WHO

In South Africa, members from local communities were driven to engage in illegal activities, such as illegal succulent plant harvesting, because of limited economic opportunities and complex socio-economic challenges (Chironda, 2023), which were exacerbated by the COVID-19 pandemic (Anon. 2024). Before 2020, it was evident that local and international private collectors and nursery owners visited South Africa and harvested plants themselves at low levels. However, this changed with the onset of the Covid-19 pandemic, subsequent lockdown restrictions and the increased demand for house plants

(Marsh 2020). This led international role-players to use social media platforms to recruit local South Africans to harvest plants on their behalf (Chironda, 2023). Individuals from across the Western and Northern Cape Provinces, including those in impoverished communities, were financially incentivised to get involved and harvest plants to generate an income, contributing exponentially to the succulent plant poaching crisis. It is imperative that local communities are engaged to combat succulent plant trafficking and that they see direct benefits from the conservation of these species and their habitats.



A person handling a succulent plant. Local communities, facing economic hardship, are often engaged in illegal harvesting.

WHAT?

Species and growth forms

When interviewees were asked which succulent plant taxa were being traded illegally, they specified 15 genera overall, seven specific species, and three groups of plants. *Conophytum* was mentioned most often (13) compared to the next most mentioned genus, *Lithops* (5). It was suggested that pachycauls and caudex plants are becoming more popular, along with variegated/crested species. Interviewees mentioned the growing interest in specific bulb

species and other ornamental plants in recent years (See Case Study on WHAT). According to seizure data obtained for the period 2019 to 2023, 1 129 780 succulent plants were seized according to the following categories: dwarf succulents (979 447), geophytes (75 299) and caudiciforms (69 004), along with other groups (3 196) and some individuals that could not be identified (2 834; Table 1).

TABLE 1

Different growth forms and total numbers of seized individuals between 2019 and 2023.

GROWTH FORMS	2019	2020	2021	2022	2023	TOTAL
Dwarf Succulent	57 570	74 511	295 420	298 039	253 907	979 447
Geophyte	222	1477	16 726	32 349	24 525	75 299
Caudiciform	477	2 251	15 244	16 938	34 094	69 004
Other	480	332	1975	74	335	3 196
Unknown	30	97	69	1 686	952	2 834
TOTAL	58 779	78 668	329 434	349 086	313 813	1 129 780

Eight interviewees felt that the taxa in trade had changed in the past five years. There were conflicting opinions on the trade in *Conophytum*; three felt the trade was moving towards the genus, two felt it was moving away, and three felt it was consistent. Other plants recognised by interviewees as being traded more recently include *Cotyledon*, *Gibbaeum*,

Tylecodon, *Eriospermum*, *Lolita*, *Albuca*, and bulbs. Based on seizure data for 2023, the genus *Conophytum* is still the most seized genus in the illegal succulent trade, followed by *Eriospermum* and *Tylecodon* (Table 2). Other genera recognised by interviewees were listed on the top 20 genera seized by law enforcement in 2023 (Table 2).

On the next page: 1. *Tylecodon paniculatus*, 2. *Pelargonium triste*, 3. *Gibbaeum nuciforme*, 4. *Pelargonium psammophilum*, 5. *Haemanthus coccineus*, 6. *Pelargonium aff. graveolens*, 7. *Crassula portulacae*, 8. *Albuca ciliaris*, 9. *Othonna cacalioides*, 10. *Eriospermum currorii*, 11. *Anacampseros albissima*, 12. *Lithops schwantesii*, 13. *Gethyllis villosa*, 14. *Brunsvigia comptonii*, 15. *Crassula enaleana*, 16. *Muiria hortenseae*, 17. *Tylecodon cacalioides*





Seized succulent plants awaiting sorting and potting.

TABLE 1
The top 20 succulent genera and their quantities seized by law enforcement in 2023.

GENUS	QUANTITY
<i>Conophytum</i>	960 774
<i>Eriospermum</i>	30 230
<i>Tylecodon</i>	24 033
<i>Gethyllis</i>	14 497
<i>Avonia</i>	13 225
<i>Othonna</i>	8 531
<i>Anacampseros</i>	8 448
<i>Muiria</i>	5 969
<i>Bulbine</i>	5 773
<i>Albuca</i>	5 264
<i>Pelargonium</i>	3 677
<i>Gibbaeum</i>	3 410
<i>Haemanthus</i>	3 324
<i>Drimia</i>	3 279
<i>Portulacaria</i>	3 207
<i>Lithops</i>	3 107
<i>Crassula</i>	2 972
Unidentified	2 802
<i>Strumaria</i>	2 784
<i>Brunsvigia</i>	2 684



In 2023, the **Conophytum** genus was the most seized succulent taxon in South Africa.

Prices

When asked how the prices of plants are determined, nursery owners said that it is based on numerous factors, including the plant's size, age, cultivar, variety, special mutations, colour morphs, scarcity, and market prices. Most notably, nursery owners said they do market research, looking at the prices of plants advertised by other online nurseries, before

deciding on a price. One interviewee said he "just makes his price" based on competitors' prices and whether the plant has been listed on their website. Another said that one must sometimes "thumbsuck" to determine the plants' prices. This suggests that the monetary value of these succulents is arbitrary and somewhat random.

CASE STUDY ON WHAT

Based on the growing numbers of seizures of geophytes and caudiciforms since 2021 (Table 2), it seems as though there is a shift from traditional dwarf succulents, or at least a trend towards the inclusion of a greater variety of species, including ornamental plants such as geophytes, and flowering plants. The globalisation of ornamental plants and the use of genetic material by industrialised countries ("floral colonisation") has received little attention, yet 83% of commercial flora in the USA had a foreign origin, with 453 species from South Africa (Reinten *et al.*, 2011). The most ornamentals are produced in the Netherlands (35%), Italy (18%), and Germany (11%); however, production in Africa has increased over the last decade, with Kenya in the frontline followed by Tanzania, South Africa, and Uganda, (Netnou-Nkoana and Eloff, 2012).

South Africa contributes substantially to world trade in ornamental plants and cut flowers (Reinten *et al.*, 2011). South Africa's flower production ranks as one of the most efficient contributors to economic development and growth (Netnou-Nkoana and Eloff, 2012). The turnover earned per hectare for cut-flower farming is high, which has the potential to be

successful in South Africa (Berkman 2024). According to the Atlas of Economic Complexity³, South Africa was the 3rd largest exporter of "plants" from Africa in 2021. Kenya's gross export was USD880m (3.38%), followed by Ethiopia's growth export of USD240m (0.92%), followed by South Africa, which exported USD111m (USD0.43%) worth of plants. This was out of USD26.1 billion in total gross exports for 2021. In comparison, the Netherlands was the largest exporter in the world at USD12.3 billion in 2021. Plants include flower bulbs, live plants, cut flowers and other parts of the plant.

However, many indigenous species are not economically used and, therefore, simply unavailable in cultivation. As a result, wild harvesting is the only way to access these species and the volumes needed to satisfy the increased demand. There is an urgent need for planning and coordination at a national level to maximise the opportunities presented by the exceptionally rich floral wealth of South Africa, to incentivise a legal and sustainable trade in these plants and to ensure that local communities benefit from this potentially valuable resource (Reinten *et al.*, 2011).



Boophone haemanthoides

³<https://atlas.cid.harvard.edu/>

WHERE?

LEGAL TRADE

Overview

Importers reported approximately 6.8 million kg (an average of 253 000 kg annually) and approximately 1.2 million specimens⁴ (an average of 46 000 specimens a year) of commodities from CITES listed and EU Annex D succulents (hereafter 'listed succulents') directly imported from South Africa between 1995 and 2021. Most of these imports were for commodities from parts or derivatives⁵ of listed succulents, ≈ 517 000 specimens reported by number for live specimens. Parts and derivatives reported by mass in kg were mostly extracts (83%; ≈ 5.6 million kg) and powder (10%; ≈ 690 000 kg), and by number were mostly leaves (59%; ≈ 433 000 specimens) and timber pieces (13%; ≈ 94 000).

Sources

According to the CITES Trade Data, most of the ≈ 6.8 million kg and ≈ 730 000 specimens

of parts and derivatives from listed succulents were reported to be wild-sourced (95%), whilst the ≈ 517 000 live specimens were mostly reported to be artificially propagated (95%).

Destination Countries

Live specimens

Three importing countries accounted for over 85% of legal direct imports of live specimens from listed succulents from South Africa between 1995 and 2021: Belgium (42%; ≈ 217 000 live specimens from 28 species), Germany (32%; ≈ 167 000 from 230 species) and USA (12%; ≈ 61 000 from 51 species) (Figure 8). A total of 23 other importing countries each account for 3% or less of all direct imports from South Africa between 1995 and 2021.

Approx. 6.8 million kg & 1.2 million specimens

were imported directly from South Africa between 1995 and 2001 according to importer reports.

FIGURE 8.

Map showing the top importing Parties of live specimens from CITES listed and EU Annex D succulents directly imported from South Africa between 1995 and 2021. Data shows trade reported by importers for commercial purposes. Source: CITES Trade Database. Produced in TradeMapper.



⁴Imports of over 50 million seeds of *Hoodia gordonii* reported by Namibia in 2008 were excluded from the analysis to avoid skewing the results, and because many of the other species are listed with CITES annotation #4, which exempts seeds from being reported in trade.
⁵Parts and derivatives are defined as bark, carvings, chips, cosmetics, cultures, derivatives, dried plants, extract, fibres, flowers, leaves, medicine, powder, roots, seeds, specimens, stems, timber pieces and wax.



The flower season in South Africa attracts thousands of tourists from all over the world.

Germany was the top importer of live specimens of listed succulents between 1995 and 2004 and Belgium in most years since 2005. Aside from these years with higher-than-average quantities, Germany imported consistent quantities of live specimens from South Africa, averaging ≈5 800 a year until 2018, but reported little to no imports between 2019 and 2021.

Quantities of live specimens of listed succulents imported by Belgium from South Africa have generally declined since 2008, from an average of ≈ 15 000 per year between 2003 and 2008 to an average of ≈ 10 000 annually between 2009 and 2018. A higher-than-average quantity of 26 000 were imported by Belgium in 2019 before a sharp drop to zero in 2020 and ≈1 200 in 2021.

The USA has reported imports of live specimens of listed succulents from South Africa in most years between 1995 and 2021, with increased quantities imported since 2011 (average of ≈ 1 000 a year from 1995 to 2011 to ≈ 5 900 from 2011 to 2018). At the time of writing, the USA had not yet reported CITES Trade Data for 2020 and 2021. Still, South Africa reported direct exports of 5 000 live specimens to the USA in 2019 and ≈ 53 000 in 2021, indicating a sharp recent rise in live specimens of listed succulents.

FIGURE 9.

Map showing the top importing Parties of parts and derivatives from CITES listed and EU Annex D succulents directly imported from South Africa between 1995 and 2021. Data shows trade for commercial purposes in specimens reported by importers in mass in kg. Source: CITES Trade Database. Produced in TradeMapper.



Belgium and Germany have reported trade data for all years covered by the analysis, so this recent decline in reported imports shows a genuine reduction in direct imports of live specimens of listed succulents from South Africa by the two Parties between 2020 and 2021. The cause of this decline is not clear but future monitoring of reported imports by the USA can help to determine if there is a continued trend toward more imports of live listed succulents by the USA and less by the two European countries.

Parts and derivatives

Seven importing countries account for 92% of all legal direct imports of ≈ 6.8 million kg of parts and derivatives from listed succulents imported from South Africa between 1995 and 2021; Germany (28%; ≈ 1.9 million kg), Italy (24%; ≈ 1.2 million kg), Argentina (21%; ≈ 1.5 million kg), Japan (8%; ≈ 550 000 kg), France (5%; ≈ 341 000 kg), Spain (3%; ≈ 236 000 kg), and Australia (3%; ≈ 226 000 kg) (Figure 9). A total of 26 other importing countries each account for 2% or less of all direct imports.

Germany, Italy, Argentina, Japan, France, Spain, and Australia

account for 92% of succulent parts and derivatives legally imported from South Africa.

ILLEGAL TRADE

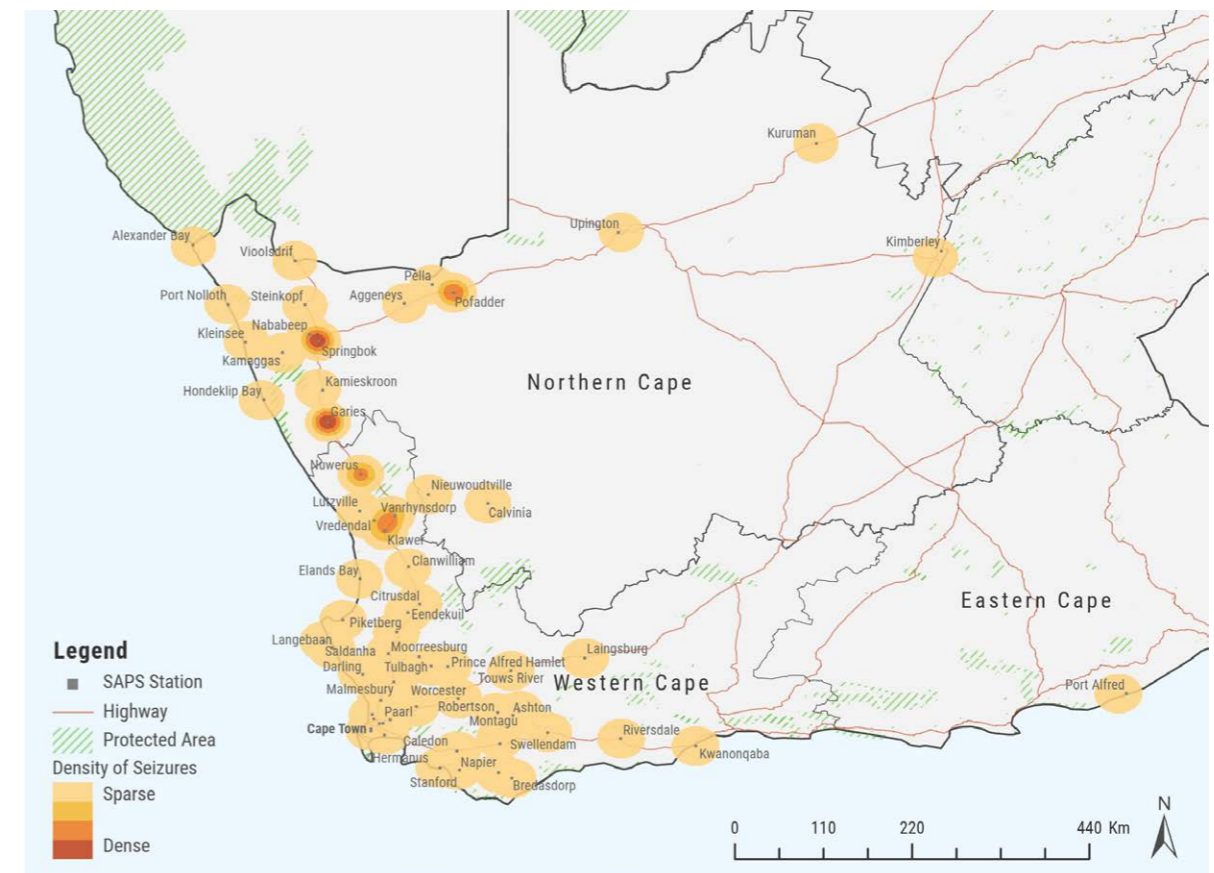
Source Locations and Countries

Most illegally harvested succulents are sourced from government (inside protected areas), private, and communal land (outside of protected areas) in the Eastern Cape, Western Cape, and Northern Cape provinces in South Africa, as well as Namibia (See Case Study on

Where). Based on seizure data for South Africa, most succulents were illegally harvested from the Succulent Karoo Biome (Figure 10). Based on surveys of online trade, succulents are also illegally harvested from other southern African countries such as Madagascar.

FIGURE 10.

Map showing the density of seizures involving succulent plants across South African Police Service (SAPS) stations in the Northern Cape, Western Cape, and Eastern Cape Provinces of South Africa between 2019 and 2023.



Transit Countries

Mozambique, Tanzania, and Malawi have been implicated as transit countries in the illegal succulent trade. There is anecdotal evidence that succulents from the genera *Eriospermum*, *Othonna*, *Boophone*, and *Bulbine* are exported illegally from South Africa but first arrive in China for collation before they are re-exported to the US for sale to nurseries (M. Pillet, IUCN SSC Cactus and Succulent Plants Specialist Group, pers. comms. to D. Prinsloo, June 2024).

Destination Countries

According to interviewees, illegally harvested succulents are shipped from airports in Africa. They are destined for southeast Asia, specifically China, South Korea, Japan, and various European countries (Germany, France, Italy, Spain, Netherlands, Czech Republic, Hungary, and the UK; Figure 11). The US and Saudi Arabia are also consumer countries (Figure 11).



Given their small size, many succulent plants seized by law enforcement require individual planting by hand, which is a very time-consuming process.

FIGURE 11.

Map showing the destination countries involved in the illegal succulent trade as described by interviewees.



CASE STUDY ON WHERE

In 2019, a Japanese national was arrested in the Northern Cape Province in South Africa after being found in possession of protected succulent plants without the required harvesting permit from the provincial conservation authority. The case was finalised, and the offender was deported. In 2021, TRAFFIC obtained data from SAPS from the offender's electronic device. The data contained over 4 300 files comprising 4 212 images and 156 documents. An analysis of these provided insight into the offender's *modus operandi*, related to (1) the preparation and planning of his trips or expeditions and (2) how the offender conducted these trips. A review of the 156 documents contained within the electronic data revealed publicly available research papers,

journal articles, links to webpage articles and databases, and reports that documented the localities of species of succulent plants, mostly those of the *Euphorbia* and *Haworthia* genera, in South Africa and Namibia. The files also contained documents related to planning the offender's trips (such as maps, photos of plants, packing lists, border procedures, and plant quarantine requirements). There were also documents containing price and stock lists for succulent plant species.

Based on the spatial and temporal metadata extracted from 2 335 photographs, it appeared that in 2015 the offender spent two weeks travelling by road through Namibia and South Africa photographing species of succulent



Examples of the illegally harvested succulent plants found in the Japanese trader's possession

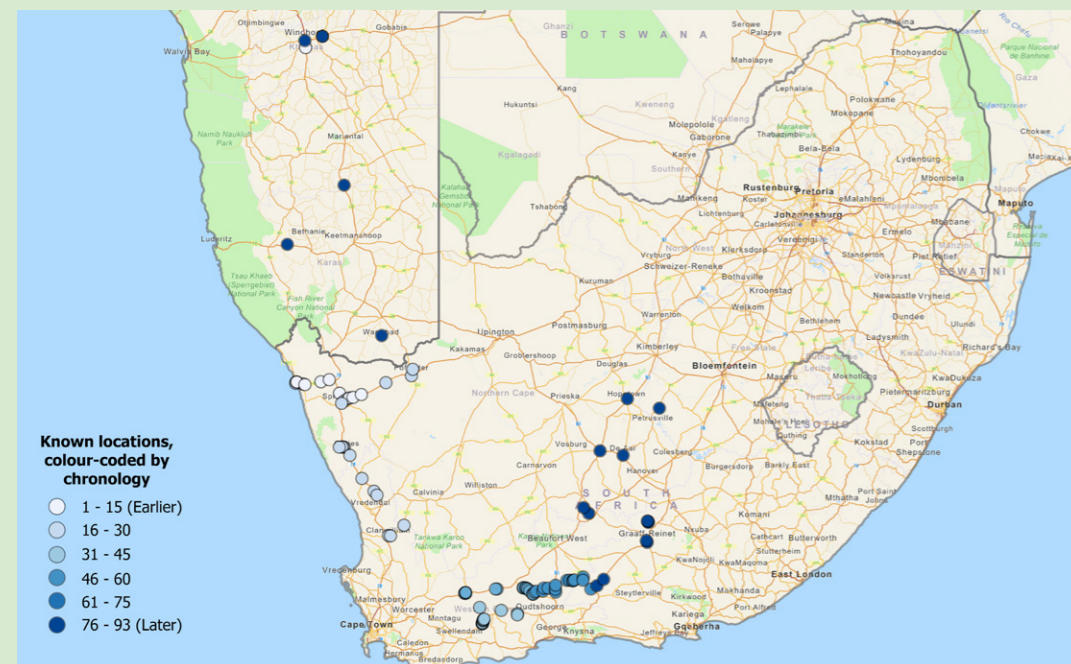
plants. Of the 2 335 images within the folder, 2 029 (~87%) contained close-up images of succulent plant species growing in their natural environment. The remainder of the images contained other trip photos such as accommodation, road signs, food, and people he encountered.

Further analysis indicated that the offender may have rented a car (Figure 12) and travelled from Hosea Kutako International Airport (HKIA) in Windhoek, Namibia, through Namibia and entered South Africa at the Vioolsdrift border post. The offender then appeared to travel over 2 500 kilometres through the Northern Cape, Western Cape, and Eastern Cape provinces

before returning to HKIA via the Nakop border post. Using the geographic coordinates contained within the photographic images' metadata, TRAFFIC used ESRI's ArcGIS Pro software to visualise the route taken by the offender (Figure 12).

It appeared that a similar trip was conducted in 2019, which resulted in the offender's arrest and deportation. One thousand eight hundred seventy-seven images were taken during this trip. Still, due to the limited metadata available in the photographs (no geographic coordinates embedded within the metadata), TRAFFIC could only glean limited spatial and temporal data.

FIGURE 12. The offender rented a car to travel through Namibia and South Africa and photographed numerous indigenous succulent plants along his journey. The map charts the route through both countries, with a colour-coded system indicating the chronological progression of his travels. ©South African Police Force (SAPS)



HOW?

Employment

Some interviewees viewed succulent poaching among local communities in South Africa as largely opportunistic exploitation due to economic circumstances. Interviewees described some illegal harvesters as temporary/mobile construction workers, such

as road workers, remote telephone and railway line workers, and diamond miners. On the other hand, it was suggested by some interviewees that illegal harvesters may have a criminal history and may have been involved in other crime types, such as theft and smuggling of

diamonds, drugs, or stolen goods. According to one interviewee, criminals involved in diamond mining in the Northern Cape province in 2018 transitioned to plants in 2019, potentially due to the perception that it is easier work.

Modus operandi

Based on the information gathered from interviewees, it is evident that the modus operandi of succulent poaching is very systematic. Illegal harvesters knew the area before visiting; they targeted specific sites and were usually poached at night. Illegal harvesters use public roads that run through private farms and will spend the night(s) in the field or stay in safe houses in the harvesting area. Plants were removed by hand or using tools such as spades, knives, spoons, screwdrivers, tent pegs, clothing pegs, plastering knives, rocks, or alternative steel tools. Individuals were collected from the field once the plants had been harvested and packed into bags. Transportation of plants within South Africa was described as taking place using vehicles such as small 'livestock farmer' vehicles (to remain inconspicuous), taxis, rental cars, privately owned cars, public buses, or hitchhiking. Coastal roads were used more often than major routes in the Northern Cape. Plants were transported to designated depots or warehouses in Cape Town and other African countries for sorting, organising, packing, and exporting. Cross-border transportation (i.e., between neighbouring countries) took place via roads (using a vehicle or on foot) or by swimming

across local rivers. The local transportation of plants was likened to the illegal movement of rhino horn by two interviewees.

Concealment

The poached succulents were neatly wrapped in cotton wool or toilet/tissue paper for protection and packed into boxes. The boxes used were cardboard boxes, shoe boxes, crockery boxes, or toy boxes, and the bags used varied between plastic bags, animal feed bags, hessian bags, and rucksacks/backpacks (Figure 13). The plants were concealed as/or within toys, dried fruit, ornaments, or household goods (Figure 14). The packaged plants were then exported via a postal service or private courier companies. Cross-continental transport occurred using international airports in South Africa, Namibia, Zimbabwe, Ethiopia, and Mozambique.

Payments

Payments across the value chain were made using cash, electronic bank transfers, gift vouchers, or drugs.

Convergence

Interviewees mentioned the convergence between the illegal trade in succulents and other commodities, including abalone, rhino horn, ivory, and reptiles. In November 2024, evidence of convergence between the illegal succulent plant trade and illegal rhino horn trade was found when both commodities were seized in the same incident (SAPS, 2024).

FIGURE 13. Illegally harvested succulents seized in South Africa, packed in boxes (right) or bags (left) and wrapped in tissue paper for protection (bottom left). © Shadi Henrico, Endangered Wildlife Trust (EWT).



It is evident that **the modus operandi of succulent poaching is very systematic**

FIGURE 14.
Illegally harvested succulents concealed as toys in toy boxes, seized at a private courier. © SAPS STESU



WHEN?

Since the 1990s, the demand for South African succulent plants has existed. However, the interviewees mentioned two key events or periods that may have led to an increased demand for succulent plants:

The 2015-16 El Niño-induced Drought

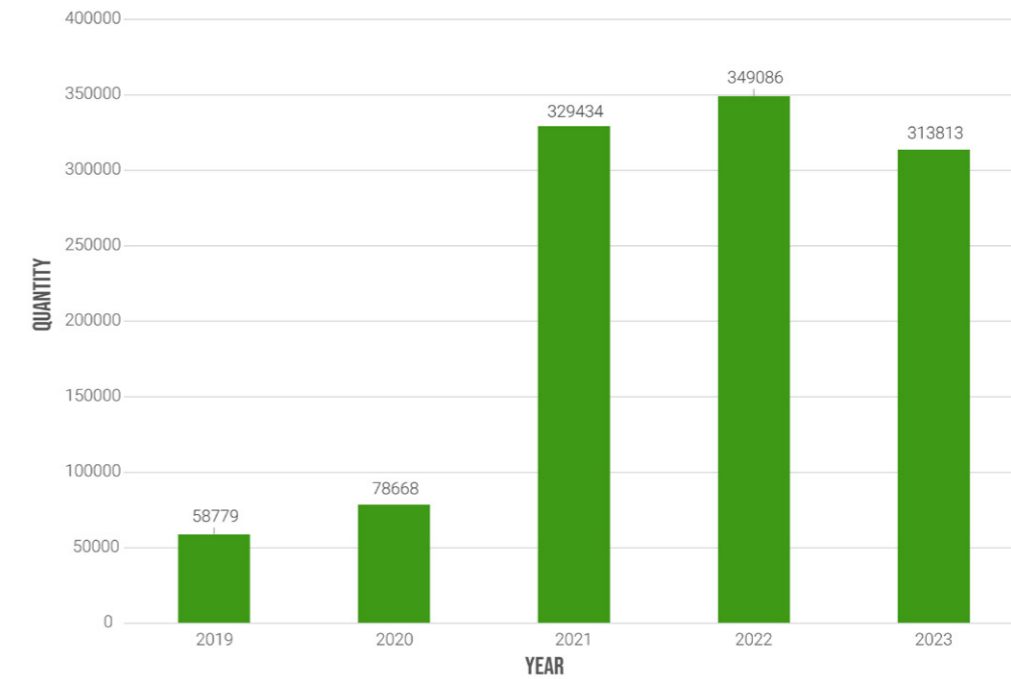
During 2015-2016, El Niño weather patterns resulted in low and erratic rainfall throughout Southern Africa, which resulted in higher-than-normal temperatures and a longer drought season than in the past 35 years (Ainembabazi *et al.*, 2018). As stated by the interviewees, the domestic demand for succulents was driven by the 2015-2016 drought that affected South Africa. There was a sudden demand for plants that require minimal water, such as succulents, for domestic gardens. The common plants available in nurseries were exhausted, and people wanted different and unique plants.

The COVID-19 pandemic in 2020

There was a major shift in the role players involved in the succulent trade during the Covid-19 lockdown in 2020. Before the pandemic, foreign nationals from China, South Korea, Japan, and the Czech Republic visited South Africa. They toured/scouted the target areas during the

day (See Case Study on WHERE). They would then return to the area during the evening and remove plants from the veld to smuggle back to their respective countries. Foreign nationals were directly involved in the poaching of plants before 2020. During the pandemic, foreign nationals either could not travel or the perceived risk of getting caught due to the increased presence of law enforcement officials imposing curfew restrictions was too high. It has been suggested that they opted to recruit locals to poach succulents on their behalf and have continued to do it this way ever since. Poaching increased during lockdown because of the economic hardship people experienced during the pandemic, especially in areas in the Northern Cape Province. Before the Covid-19 pandemic, the succulent trade was somewhat informal. However, it became apparent after the restrictions were lifted that it had evolved into an organised crime. The number of succulent seizures in South Africa drastically increased in the years following the COVID-19 pandemic (Table 2 in the WHAT Chapter; Figure 15). It was suggested by interviewees that there might be a link between those involved in the abalone trade and the succulent trade, which would explain the rapid organisation.

FIGURE 15.
Bar graph showing the total quantity of plants (Caudiciform, Geophyte, Dwarf Succulent, and Other) confiscated in South Africa between 2019 and 2023.



CASE STUDY ON WHEN

With regards to cluster-forming/easily spotted *Conophytum* species, there seems to be no link between poaching and their dormancy period during summer, as they are easy to spot and therefore vulnerable in any season (A. Harrower, Senior Botanical Horticulturist at SANBI, pers. comm. to D. Prinsloo, July 2024). However, certain small *Conophytum* species, particularly those from the *Ophthalmophyllum* group, disappear below soil level in their dormant period during the hot summer months, understandably becoming difficult to spot, resulting in lower poaching rates compared to winter. Similarly, for a few *Conophytum* species from the more easterly summer-rainfall areas, their rainfall may come in late summer, making them easier to spot in the following autumn months,

resulting in a surge in poaching (Harrower, 2024). It is, therefore, loosely linked to season but more to rainfall and whether there has been rain. Regarding geophytes, there is a clear correlation between poaching and seasonality (Harrower, 2024). Geophytes, predominantly submerged below the soil and so completely invisible during their dormant period in summer, are more frequently poached during their autumn-winter-spring growing season when they are visible (in leaf or flower). However, this occasionally results in the complete mortality of the plants as certain species cannot tolerate being uprooted during their growing season in full leaf. This poses a significant challenge for the poachers but is a favourable characteristic for geophytes (Harrower, 2024).

Conophytum minutum





South Africa's indigenous plants are a big tourist attraction

WHY?

Why do people engage in succulent poaching?

Interviewees cited financial reasons as the biggest motivator for participating in the illegal succulent trade (Table 3). Most of the individuals who get involved in succulent poaching are unemployed or impoverished. However, it was acknowledged that some individuals who get involved are drug users and are reliant on the trade to sustain these habits. Many succulents are easily accessible, and collection trips can take place quickly and be very profitable depending on the number and species of plants.

Interviewees explained that trespassers gain access to the farms "easily" as they circumvent security by illegally harvesting succulent plants. People are attracted to the trade because it is perceived to be low risk, considering that successful prosecution is rare (especially in the Northern Cape), and penalties are not severe. The reward outweighs the perceived risks. It is also considered a safer option and easier to execute than illegal diamond mining, which may be considered an alternative option.



Financial gain is the primary motivator behind participation in the illegal succulent trade.

TABLE 1

The top 20 succulent genera and their quantities seized by law enforcement in 2023.

MOTIVATION	% (NUMBER OF INTERVIEWEES)
Socio-economic circumstances (such as financial reasons, unemployment/poverty, and drug habits)	79% (11)
Easy (money and operation)	29% (4)
Social conditions (such as attractive gang culture)	14% (2)
Low perceived risk	14% (2)
Greed	14% (2)
Opportunism	7% (1)
The normalisation of corrupt government	7% (1)
Not regarded as a (violent) crime	7% (1)

Why are succulent plants in demand?

According to the interviewees, succulents are mainly in demand in Southeast Asian and European countries for ornamental purposes.

Rare succulents are status symbols and give the owner prestige and bragging rights. This drives collector mentality and exacerbates the

illegal trade of succulents globally. Additionally, consumers living in small apartment buildings with limited space demand portable, durable, long-lived, low-maintenance "natural elements" to add beauty to their apartments. This and the "plant parenting" trend among young people (Ellis, 2022) contribute to the increasing demand for succulents overseas. Succulents are also used in the rooftop gardens of Chinese skyscrapers to increase the value of the building. Locally, succulents are in demand in drought-prone South African gardens as they require minimal water and are easier to care for. It was also suggested that the seeds of certain succulent species are used in rituals or traditional medicine in South Africa.

According to one of the interviewees, the demand for *Conophytum* species drastically increased after a book dedicated to the genus *Conophytum* was translated into Chinese. This book includes descriptions and photographs of all Southern African *Conophytum* species and information on their distribution and best cultivation practices for each species. The book also includes maps indicating the exact location of each species in the Western Cape, Northern Cape, and Namibia. It is believed that this book has been used to identify and locate *Conophytum* species in Southern Africa, increasing the *Conophytum* species in trade and driving the demand.

CASE STUDY ON WHY

Rastafarians, members of the Abrahamic religion in the Western Cape, mainly consist of coloured (a self-identifying term used to describe racially mixed individuals) middle-aged men (Philander, 2011). Interviewees have suggested that Rastafarians are involved in various supply chain steps and have been identified as illegal harvesters, intermediaries and syndicate leaders. Some interviewees suggest that Rastafarians actively seek succulents for medicinal purposes. In an interview by a nursery owner, they mentioned that they were contacted by a local and asked whether they could help with a business plan, as the Rastafarians required seeds for a traditional ritual. They agreed and mentioned they would provide the seeds from the mother stock. The 'clients' then said that it must be wild or field-collected seeds since there is "no medicinal value" in nursery-grown succulents. The interviewee also mentioned that Rastafarians are illegally poaching succulents as it is believed they can be used to cure HIV. Traditional healers (*Sangomas*) in South Africa believe that some succulent plants can increase male virility, cure diabetes, and treat high blood pressure. There is, however, very limited information available on the involvement and engagement

of Rastafarians in the illegal succulent trade in southern Africa, specifically related to the medicinal trade.

There are 162 plant species in the bush doctor ethnobotany in South Africa, and only seven of these species are used for spiritual purposes by Rastafarians, none of which are succulents (Philander, 2011). There have been mentions of cross-cultural adaptation of remedies and that Rastafarians are adopting traditional healing practices from other cultures (Philander, 2011); however, whether these practices rely on succulent plants remains unknown. According to Harris (2003), *Bulbine frutescens*, widespread across all nine provinces of South Africa (Foden and Potter, 2005), is used by Rastafarians to treat coughs, colds, and arthritis. It is noted that this plant is cultivated for medicinal purposes (Harris, 2003), yet there is no reference to its removal from the wild for medicinal use.

The statement that Rastafarians actively seek succulents for medicinal purposes and are involved in the illegal succulent trade appears to be anecdotal, as there is no empirical evidence to support this claim.



Bulbine frutescens

LEGAL PROCEEDINGS

Over the last five years, there have been significant developments in protection mechanisms for South Africa's succulent flora through the implementation of legislation, a national strategy, and international treaties, including:

• The CITES Appendix III Listing

In response to the rapidly increasing illegal succulent trade, South Africa requested that the CITES Secretariat list 17 species and the *Conophytum* genus on CITES Appendix III (Notification to the Parties No. 2022/081). Since the listing in 2022, CITES permits have been required to export these species from South Africa. Listing a species on CITES Appendix III is a quick way for a country to list a species (relative to listing these in Appendix I and II) and draws other countries' attention to its illegal trade.

The challenge with Appendix III listings is that they are one-sided, serving mostly as a declaration by the listing country that its species are being traded in violation of its national laws and requesting other countries to assist them in controlling this trade. Listings, however, do not require other countries to criminalise trade in this species, and they have little bearing on harvesting since they focus on trade controls. Listings are only as good as their implementation, which is notoriously difficult for biodiversity-rich but resource-poor countries. Listing species on CITES, in general, may also have unintended consequences, such as limiting legal harvesting and trade and potentially increasing the illegal demand for the listed species.

Some of the newly listed succulent species fit the criteria for listing in CITES Appendices I and II, and given that both export and import permits are not required for Appendix III listings, the impact of this listing may be limited. Correlating a reduction in trade to CITES listings is also challenging. CITES listings allow legal trade to be measured (one can cross-check trade with permits). However, it is difficult to measure illegal trade, especially if there is any impact on illegal harvesting, typically measured in seizures or evidence of illegal harvesting. In addition to CITES listings, other factors impact illegal harvesting and trade, including changes

in demand, suppression of supply, availability of products, legal alternatives available to harvesters, difficulty enforcing the law, etc. These are very hard to measure unless first-hand data from harvesters and traders can be obtained. A good example of correlation versus causation is the data on the trade in a commodity that was CITES-listed shortly before the COVID-19 pandemic. It may seem that trade significantly declined in 2020, which 'correlates' with a CITES listing, but it was possibly caused by restrictions in movement.

• The Decision to Charge suspects under National or Provincial Legislation

South Africa has concurrent provincial and national nature conservation legislation. Provincial legislation lists provincially endemic species protected in that province, while national legislation lists species protected nationally. Most succulent species targeted by illegal trade are currently only protected in the provinces where they naturally occur. This means that once these plants are taken across provincial borders, they are no longer legally protected. Ideally, provincially protected endemic succulents should be protected nationally. Still, the consultative process of listing a species on the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA) Threaten or Protected Species (ToPS) list takes time. There has been an attempt to add succulent species to the ToPS list. Still, the revised ToPS legislation was withdrawn due to a court interdict in March 2023 (Anon., 2023), and a revised list was circulated for public comment in November 2023. Because most targeted species are currently only protected provincially, the accused are primarily charged in terms of provincial nature conservation legislation.

When a species protected in one province is seized in another, the accused are typically only charged for possession rather than harvesting since the origin of the plant is often unknown. When a plant is seized in the province where it is protected, additional charges are added. When offences are committed in protected areas, the accused can also be charged for contravening National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA).

• South Africa's National Response Strategy and Action Plan

Not only is there a suite of legislation, both provincial and national, that protects indigenous succulent plants in South Africa, but there is also a national strategy and action plan titled the "National Response Strategy and Action Plan to Address the Illegal Trade in South African Succulent Flora" (Crouch *et al.*, 2022). This document comprises seven objectives, each with key actions and sub-actions, which are intended to be completed by both public and private organisations committed to working together to combat the illegal trade in South African succulent plants. A review of the progress of this national strategy and action plan was completed by Bruwer (2023). Bruwer (2023) pointed out the following key points: 1) cooperation between State and non-state stakeholders has been integral to the response's successes; 2) despite the illegal succulent market's transnational nature, the response is concentrated in South Africa; 3) the volume of seized plants have become unmanageable; 4) resource and staff shortages have overwhelmed those responding to the illegal market; 5) limited law enforcement capacity and allegations of corruption in the Northern Cape Province have caused the response to be driven primarily by the Western Cape; and 6) limited government departments are engaged in implementing the

National Response Strategy, despite its multiple dimensions.

Similarly, the judgements from these specific court cases that have been finalised will set precedents for future cases:

• Addressing the misinterpretation of taxonomy specified in legislation

In 2022, three suspects who pleaded guilty to contravening Section 50 of the Northern Cape Nature Conservation Act, 9 of 2009 (NCNCA) were acquitted after a magistrate dismissed their case based on the magistrate's misinterpretation of the law (Case Number: CA & R 70/2022 and 60/2022). Section 50 prohibits picking, dealing, transporting, trading, exporting, and importing protected plants without a permit. The magistrate dismissed the case because the Ordinance lists the entire Aizoaceae family to which all *Conophytum* species belong instead of listing each species. The magistrate took issue with the fact that the individual species were not listed, arguing that they were not protected and the accused's actions were not unlawful. This was despite the accused admitting wrongfulness and expert testimony confirming that the listing of the entire plant family covered the species in question. The State appealed the case in 2023, and the accused were found guilty of contravening Section 50 of the NCNCA.



Tylecodon tenuis



Trays of seized succulent plants now require long-term care.

• **Penalties are transitioning to reflect the severity of the crime**

In April 2022, suspects were convicted of contravening Section 50 of the NCNCA (Restricted Activities Involving Specially Protected Species/Plants) after illegally harvesting halfmens/elephant trunk, *Pachypodium namaquanum* in the Richtersveld National Park (Port Nolloth CAS 50/8/2020). They were handed down seven years of direct imprisonment, the first direct imprisonment sentence for these offences. Shortly after this case, in June 2022, four suspects were found possessing 2 850 plants from seven different species and were charged with contravening sections 49 and 50 of the NCNCA (Kuruman CAS 109/06/2022). Three of the accused pleaded guilty and received various fines; in default of payment, they were imprisoned. One accused pleaded not guilty and went to trial. He was found guilty and convicted and received a ten-year direct imprisonment. These imprisonment sentences (the length and the fact that they are direct without suspensions) suggest that the criminal justice system has acknowledged the severity of crimes involving flora.

• **The involvement of local nurseries in the illegal trade**

In 2023, Anton Nel, the owner of a Weltevrede Nursery in the Eastern Cape province, was convicted of contravening Section 57 of NEMBA after engaging in restricted activities concerning a listed threatened or protected

species without a harvesting permit from the provincial conservation authority (Case Number: RC PE 650-21). He was also charged with contravening Section 63(1) of the Eastern Cape Nature and Environmental Conservation Ordinance 19 of 1974. Nel pleaded guilty, but the case against his wife, Karen, the co-owner of Weltevrede Nursery, and another employee was withdrawn by agreement (Koen, 2023). Karen was also charged with fraud, but after her mental well-being was questioned, these charges were withdrawn (Koen, 2023). Nel pleaded guilty to 7 of 13 charges and was handed down a suspended sentence and a fine of ZAR10 000 (USD548.97 at 2024 rates) for contravening NEMBA. He was also fined ZAR40 000 (USD2 195.88 at 2024 rates) for contravening the Nature and Environmental Conservation Ordinance and ordered to pay ZAR100 000 (USD5 489.69 at 2024 rates) to an NGO working on countering the illegal succulent trade.

• **The future of seized plants**

In response to receiving thousands of seized plants that need interim care, SANBI liaised with nature conservation authorities, the National Prosecuting Authority (NPA), and other role players to establish a plan that affords plants the maximum chance of survival pending the conclusion of criminal proceedings. The NCNCA, for example, allows for live specimens to be deposited with a suitable institution or facility able to house and properly care for

them, pending the outcome of a trial. If such a facility cannot be found, the heads of nature conservation entities may request other stakeholders with the necessary abilities to care for such plants. Once prosecutions have concluded, plants become the property of the State, which can then choose to donate the plants to institutions able to care for them and, ideally, rehabilitate and rewild them. This can help alleviate the pressure on state facilities housing thousands of plants.

• **Deportation of foreign offenders**

Since the illegal succulent trade is facilitated by networks of individuals seeking to benefit from the trade materially, flora crimes can also be charged in terms of the Prevention of Organised Crime Act 121 of 1998 (POCA). POCA lists offences in schedules, and Schedule 1 lists

dealing in, being in possession of or conveying endangered, scarce and protected plants or parts thereof in contravention of a statute or provincial ordinance. POCA can target higher-ranking network members or incidents where a pattern of illegality by a group can be established. It can also be used to forfeit the proceeds of crime. One such example was of 3 Saudi nationals who were apprehended after travelling to South Africa to harvest millions of plants and seeds, including succulents, illegally. They were charged under the Nature Conservation Ordinance No 19 of 1974 and convicted of money laundering under POCA. They were handed down suspended sentences and ordered to pay ZAR2 million (USD109,794 at 2024 rates) to the Western Cape Nature Conservation Board, which governs CapeNature, and the Criminal Assets Recovery Account.

CASE STUDY ON LEGAL PROCEEDINGS

Byungsu Kim, a South Korean national, dubbed “the world’s most notorious succulent thief” was caught with 3,715 plants, illegally poached from California state parks, USA, in 2018 (Anon., 2022; Becket, 2022). He attempted to export the plants back to South Korea before he was arrested, and his passport and personal possessions were confiscated (E. Newcomer, US Fish and Wildlife Service Special Agent serving as the wildlife law enforcement Attaché based at the US Embassy, pers. comm. to D. Prinsloo, December 2023). After Kim was granted bail, he told the South Korean embassy that his passport was stolen and was issued a new one. He fled to Mexico and boarded a plane back to South Korea (Newcomer, 2023). US authorities issued a warrant for his arrest. While going through his confiscated belongings, law enforcement discovered a receipt for a plant nursery in Cape Town, South Africa (Newcomer, 2023). Following this discovery, they contacted a colleague from the Department of Fish and Wildlife who was in Cape Town at the time, working as an embassy attaché and informed him of their findings (Newcomer, 2023).

He contacted South African law enforcement agents from DFFE and SAPS to forewarn them of the possibility that Kim might be heading to South Africa. He also shared Kim’s picture and passport number with the local authorities. Soon after his warning, Kim was arrested in Cape Town in possession of 60,000 endemic *Conophytum* succulents that were hundreds of years old (Hyman, 2020). The Fish and Wildlife officer contacted the South African prosecutor and briefed her on Kim’s case, informing her of his fugitive status and sharing the US report and charging documents with her. Based on this information, she prevented Kim from getting bail in South Africa. After spending a year in custody, Kim pleaded guilty and paid a ZAR2.5 million (USD137 242 at 2024 rates) fine for his crimes before he was extradited to the US to face charges in Los Angeles (Becket, 2022; Hyman, 2020). Kim ended up paying USD3 985 (ZAR72 590.6 at 2024 rates) in restitution fees and was sentenced to two years in federal prison (Anon., 2022). This success story demonstrates the effectiveness of international and interagency collaboration and coordination in combatting illegal wildlife trafficking.



A seized specimen from the *Conophytum* genus

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IMAGE CREDITS

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17	Mike Spies, Namaqua Tours
20	Kristen van Schie
22	Mike Spies, Namaqua Tours
23	Kristen van Schie
	<ol style="list-style-type: none"> 1. Tylecodon paniculatus - Andrew Massyn / iNaturalist 2. Pelargonium triste - Johan van Billon / iNaturalist 3. Gibbaeum nuciforme - Gawie Malan / iNaturalist 4. Pelargonium psammophilum - Campbell Fleming / iNaturalist 5. Haemanthus coccineus - Michael Heuermann / iNaturalist 6. Pelargonium aff. graveolens - Abbie Pearce / TRAFFIC 7. Crassula portulacea - Abbie Pearce / TRAFFIC 8. Albuca ciliaris - Cecile Roux / iNaturalist
25	<ol style="list-style-type: none"> 9. Othonna cacaloides - Nicola van Berkel / iNaturalist 10. Eriospermum currorii - Riana Fourie / iNaturalist 11. Anacampseros albissima - Gawie Malan / iNaturalist 12. Lithops schwantesii - Abbie Pearce / TRAFFIC 13. Gethyllis villosa - Carina Lochner / iNaturalist 14. Brunsvigia comptonii - Alan Horstmann / iNaturalist 15. Crassula nealeana - Abbie Pearce / TRAFFIC 16. Muiria hortenseae - Jean Audissou / iNaturalist 17. Tylecodon cacaloides - Karol Cameron / iNaturalist
26	Kristen van Schie
27, 29	Mike Spies, Namaqua Tours
32	Kristen van Schie
33	South African Police Force (SAPS)
37, 38	Mike Spies, Namaqua Tours
39	Stan Shebsr – Wikimedia
41	Mike Spies, Namaqua Tours
42, 43	Kristen van Schie

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WORKING TO ENSURE THAT TRADE
IN WILD SPECIES IS LEGAL AND
SUSTAINABLE, FOR THE BENEFIT OF
THE PLANET AND PEOPLE.

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