The impact of the COVID-19 pandemic and lockdown regulations on wildlife poaching hotspots and trafficking routes in southern Africa

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1. Abbreviations and acronyms

ASWJ	Ahlu-Sunna Wa-Jama's
CBNRM	Community-based natural resource management
CITES	Convention in Trade of Endangered Species of Wild Fauna and Flora
COMESA	Common Market for Eastern and Southern Africa
COVID-19	Coronavirus Disease of 2019
DRC	Democratic Republic of Congo
ETIS	Elephant Trade Information System
IPLC	Indigenous Peoples and local communities
IUCN	International Union for the Conservation of Nature
IWT	illegal wildlife trade
KAZA	Kavango Zambezi
MIKE	Monitoring the Killing of Elephants
PIKE	Proportion of Illegally Killed Elephants
SADC	Southern African Development Community
SANParks	South African National Parks
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
WHO	World Health Organisation

2. Executive summary

Introduction

This report presents the findings of a research study on poaching hotspots and trafficking routes in southern Africa conducted between June and October 2021. The key objective of the study was to update poaching hotspots and trafficking routes in, through and out of southern Africa, with a specific focus on the impacts of the COVID-19 pandemic, lockdowns and associated public health measures that were implemented to flatten the infection curve in the subregion. The follow-up study builds on the strength, weaknesses and lessons learnt from an initial study undertaken in 2019, updates poaching and trafficking trends, and analyses whether there may be factors other than the outbreak of the pandemic that could explain the current wildlife crime situation in southern Africa. In addition to focusing on the poaching and trafficking of savanna elephants (*Loxodonta Africana)* and forest elephants (*Loxodonta cyclotis)* and the two African species of rhinoceros, black rhinos (*Diceros bicornis)* and white rhinos (*Ceratotherium simum*), the study also looked at illegal wildlife trade (IWT) in body parts of lions (*Panthera leo*) and the four pangolin species found in Africa: black-bellied pangolin *(Phataginus tetradactyla)*, white-bellied pangolin *(Phataginus tricuspis*), giant ground pangolin (*Smutsia gigantea*) and Temminck's ground pangolin *(Smutsia temminckii).*

Methodology

A mixed research design was used for this study. Primary data collection involved one-on-one loosely structured interviews and written correspondence with 50 experts and two group discussions. A review of scholarly literature, technical reports and media was undertaken to supplement interview data. TRAFFIC provided access to their online wildlife trade portal (www.wildlifetradeportal.org) which documents poaching incidents, arrests and interdictions of wildlife species.

Outbreak of COVID-19 disease in southern Africa

On 11 March 2020, the World Health Organization (WHO) declared the outbreak of the COVID-19 disease a global pandemic. Over the next three months (March to May 2020) the virus spread throughout the continent with Lesotho the last African state to report its first case on 13 May 2020. Most SADC countries experienced three waves of COVID-19 infections between March 2020 and October 2021. With the exception of Tanzania, SADC member states followed WHO public health guidelines and social distancing measures to flatten the infection curve. Most SADC member states implemented states of emergencies, national disaster regulations or hard lockdowns for a minimum of 21 days in March and April 2020. International borders were closed, and air travel was suspended in most jurisdictions.

Impacts of the pandemic and lockdowns on wildlife protection

By May 2020, major tourist destinations had imposed travel restrictions, closing totally or partially their borders to international tourists resulting in revenue and job losses. Impacts on protected area tourism in Africa have been devastating in terms of visitor numbers, local livelihoods, procurement, conservation and environmental services. Most of the region adopted quarantines, localized lockdowns and/or sanitary fences or zones in the beginning stages of the pandemic, adjusting restrictions as infection rates increased or decreased. Many respondents commented on the "chilling impact", "teachable moment" or "COVID holiday"

of controlling the movement of people, goods and services during the early days of lockdown. Although roadblocks were instituted and people had to carry permits in many jurisdictions, law enforcers were enforcing lockdown regulations and thus were not on the lookout for criminals or suspicious goods. In essence, trafficking of illegal goods including wildlife had become less risky as law enforcement and customs officials were not conducting searches. Most SADC member states implemented a complete or partial shutdown of government offices including the court systems. While many lawyers and prosecutors in bigger cities were geared up to do virtual consultations and meetings, magistrates and prosecutors in district and regional courts often lacked the bandwidth, upload speed and technological savvy in the first weeks of lockdown.

Poaching trends and patterns

Poaching statistics and observations by experts confirm that there was a reduction in poaching of charismatic megafauna (elephants and rhinos) across most of the sub-region in the early days of the pandemic. However, the "chilling effect" was short-lived for rhinos. Rhino poaching has picked up in South Africa's Kruger National Park and private reserves, and continues in Botswana where the Okavango Delta was identified as a poaching "hotspot". Elephant poaching appears to have decreased and not only for reasons linked to COVID-19 control measures but also due the disruption of wildlife trafficking networks in Tanzania and Malawi and successful implementation of other protective measures. The Monitoring the Killing of Elephants programme has recorded a continent wide average of 0.3, the lowest level of the Proportion of Illegally Killed Elephants since inception of the programme in 2003. The unweighted PIKE estimate for 2020 in southern Africa is 0.22 thus confirming a downward trend in the illegal killing of elephants in the region. Lion poaching and the trafficking in body parts appear to be localised to lion range states and specific landscapes in South Africa, Mozambique and Tanzania. Pangolin poaching and trafficking appears to have increased with seizure data and observations by experts painting a worrisome picture.

Trafficking trends and patterns

Most experts agreed that trafficking of illegal wildlife and body parts slowed down during the initial lockdown period of March to September 2020. Restrictions on air travel disrupted wildlife smuggling and trafficking via cargo and commercial flights out of the subregion. Easy to conceal in check-in or carry-on luggage, the usual mode of smuggling rhino horn out of the region would be to use mules on airplanes. However, due to no to low volumes of flights departing from southern Africa to destinations located in Asian markets, there was a pause in rhino trafficking during 2020. Investigators believe that rhino horn was stockpiled in the intervening period and as soon as borders and air travel started re-opening, rhino horn trafficking reignited.

Key trafficking hubs for rhino horn remain Maputo International Airport in Mozambique and OR Tambo in Johannesburg, South Africa. An interesting new trend documented by several regional and country experts was that traffickers were focusing more on using shipping routes onboarding container ships, sailboats or dhows to move wildlife contraband. Sail boats and dhows are used to transfer wildlife contraband along the African coastline. In some instances, small fisher boats would meet cargo ships and transfer wildlife contraband at sea for transit to overseas markets.

Research respondents recognized the growing importance of overland routes from "poaching hotspots" to trafficking hubs and transhipment points. Ancient trade routes that span the East African coastline from Mozambique via Malawi to Tanzania and Kenya and bush routes in the KAZA region are important smuggling routes. Another area where a lot of cross-border trafficking occurs is along the Linyanti Rivers and Kwando Rivers in Angola. Many respondents were concerned about the DRC route. Respondents said that ivory and rhino horn poached north of South Africa is taken to DRC via Zambia; there are many formal (five legal border points) and informal border crossings between the two countries. The Zambezi region of Namibia was identified as a key trafficking route and with the town of Katima Mulilo and several nearby villages acting as hubs and safehouses for poachers and traffickers.

Traffickers use motorbikes, private taxis and buses to move wildlife contraband from the poaching site to an internal trafficking hub or to an international transport node – airports or seaports. Ivory is too heavy and bulky for conventional means of transportation other than trucks or large vehicles. Research respondents identified the cities of Maputo, Lusaka, Luanda, Johannesburg, Katima Mulilo, Dar es Salaam and Kinshasa as major trafficking hubs in the region. A new bridge at Kazungula border post has been identified as a big opportunity for wildlife traffickers. The ports of Durban, Beira, Luanda, Maputo, Walvis Bay and Dar es Salaam are the key exit points and transhipment hubs for wildlife contraband leaving southern Africa for overseas destinations.

Respondents mentioned that stockpiling of wildlife contraband had increased as the usual exit routes were temporarily unavailable to traffickers. There were two linked trends: Firstly, some stock-piled older wildlife products (especially rhino horn and ivory) entered the market once lockdown regulations started lifting. Secondly, recently poached wildlife and products were stock-piled in anticipation of normal trafficking routes and modes of transportation reopening (e.g. air travel reopening) and higher prices might be paid for wildlife contraband.

Research respondents said that COVID-19 had assisted in pushing logistical, payment and trade -related activities on-line. Over the past decade more consumers have been buying wildlife products on-line – this shift has been accelerated by the pandemic and related health restrictions. Wildlife products are either couriered or posted to customers.

Since the mid-2010s researchers and law enforcement have observed the rise of wildlife processing facilities in southern Africa. Skilled artisans are carving and working on ivory and rhino horn in Chinese-owned processing operations in southern Africa, exporting the worked product to Asian markets.

Other factors that affected wildlife poaching and trafficking in the intervening period

Experts believe that the arrests and convictions of Yunhua Lin and 12 other members of his prolific wildlife trafficking network in Malawi have disrupted an important poaching and trafficking node in East Africa. Likewise, the arrest of Yang Fenglan in September 2015, a Chinese businessperson and long-term resident of Tanzania known as the "Ivory Queen" and the arrest and conviction of Boniface Matthew Mariango (nicknamed "Shetani" – the devil in Kiswahili) are seen to have contributed to reduced ivory poaching and trafficking in the subregion.

While some countries have made strides in developing dedicated wildlife crime strategies, others have been less successful and continue to face capacity constraints, silo thinking and in-fighting amongst different law enforcement agencies, the army (in countries where the army assists in disrupting wildlife crime), and private security actors.

Most respondents mentioned bribery and corruption facilitating wildlife poaching and trafficking in the private and public spheres. A novelty is that wildlife trafficking networks are recruiting specific people as transportation or cargo experts. The corruptibility of an official is seen as an important job requirement.

Conclusions and recommendations

There is no doubt that the COVID-19 pandemic and associated quarantine and lockdown regulations impacted wildlife poaching and trafficking, as well as protective and conservation measures implemented to disrupt IWT. While some impacts are short-lived such as the temporary suspension of air travel and linked smuggling routes, others may be long-lived if not permanent including the migration to digital wildlife trading and payment systems of poachers, traffickers and consumers. As we are still in the pandemic it is too early to draw definite conclusions. However, it has become clear that illegal supply chains and networks were quick to adapt to the new lockdown realities (they are shock resistant) and proved resilient whereas legal wildlife economies, especially those involving international tourism, are struggling to bounce back (they are shock sensitive).

The report ends with the following recommendations:

- Community responses and participation key to success
- Intelligence-led policing crucial for disruption of criminal networks
- Dog units play important role in contraband detection
- Legal framework and regulations remain important
- Nodal policing and whole-of-society responses show promise

3. Introduction

In 2019, Chemonics though its VukaNow activity commissioned a study on poaching hotspots and trafficking routes of elephant ivory and rhinoceros horn in the Southern African Development Community (SADC) region. The report provides a baseline study on hotspots and routes in and pre- 2019 (Chemonics International, 2020). The emergence and spread of a novel corona virus - severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), causing the coronavirus disease of 2019 (COVID-19) has affected all spheres of our social, political and economic lives including biodiversity conservation and wildlife protection.

Although the original source of viral transmission to humans remains unclear, initial reports suggested that the spillover event may have happened at a live animal market in Wuhan, China in late 2019 (Aguirre et al., 2020). Several early cases of people testing positive for COVID-19 were linked to people working at the Huanan Seafood Market. Based on evidence from the previous coronavirus diseases and scientific research into the origins of SARS-CoV-2, the zoonotic origins hypothesis suggests that bats and pangolins might be the likely origin. Some researchers point to an unnatural origin of the coronavirus however their conclusions were not supported by clear scientific evidence at the time of writing (Domingo, 2021). The outbreak of the pandemic and the possibility of future zoonotic spillovers from wildlife to humans have amplified debates on how best to disrupt illegal wildlife trade and the importance of recognizing wildlife trafficking as a serious crime (Doody et al., 2021). Several wildlife conservation organisations have issued calls for blanket bans on wildlife trade on the basis of public health concerns including banning all commercial trade in wildlife for human consumption and closure of live wildlife markets (Challender et al., 2020). Others regard legal and sustainable wildlife trade as an important element of post-COVID-19 economic recovery plans, especially in southern Africa where rural livelihoods and biodiversity conservation largely depend on the wildlife economy.

This report presents the findings of a follow-up study conducted between June and October 2021. The key objective of the new study was to update poaching hotspots and trafficking routes in, through and out of southern Africa, with a specific focus on the impacts of the COVID-19 pandemic, lockdowns and associated public health measures that were implemented to flatten the infection curve in the subregion. The follow-up study builds on the strength, weaknesses and lessons learnt from the initial study, updates poaching and trafficking trends, and analyses whether there may be factors other than the outbreak of the pandemic that could explain the current wildlife crime situation in southern Africa. In addition to focusing on the poaching and trafficking of savanna elephants (*Loxodonta Africana)* and forest elephants (*Loxodonta cyclotis)* and the two African species of rhinoceros, black rhinos (*Diceros bicornis)* and white rhinos (*Ceratotherium simum*), the study also looked at illegal wildlife trade (IWT) in body parts of lions (*Panthera leo*) and the four pangolin species found in Africa: black-bellied pangolin *(Phataginus tetradactyla)*, white-bellied pangolin *(Phataginus tricuspis*), giant ground pangolin (*Smutsia gigantea*) and Temminck's ground pangolin *(Smutsia temminckii).*

The report starts with reflections on the research design, methodology and limitations. The findings have been structured around key themes that emerged during data collection and analysis.

4. Research design and methodology

The 2019 baseline study was a qualitative study which employed the estimate-talk-estimate technique (ETE) also known as Delphi technique. ETE is a systematic and qualitative method of forecasting by collecting opinions from a group of experts through several rounds of questions. While the method is widely used to inform policy decisions (Landeta, 2006), the sample size for the 2019 study was small and whittled down during consecutive rounds of expert elicitation. The brief for the follow-up study was to ensure broader regional coverage and a bigger sample size.

Although quantitative studies are traditionally associated with being more robust, positivist and objective (Creswell and Creswell, 2017), the approach was deemed unsuitable for the purposes of this study. Qualitative studies offer rich and detailed accounts of the structure and functioning of criminal networks and illegal economies as illegality tends to impede the use of conventional research sources and techniques, and imposes strong constraints on the interpretation of available information (Thoumi, 2003: 2). Moreover, with regards to crime mapping and trend analyses, the problem with quantitative studies is that there are not enough reliable and accessible crime and interdiction data available in Africa (Fioramonti, 2014), and even less so on wildlife poaching and trafficking in southern Africa (Hübschle, 2010). In terms of data access, law enforcement agencies are often reluctant to share such data with the public for security and proprietary reasons. Poaching statistics are often unreliable as counting methods differ[1] and there are no crime scenes per se when live animals are taken (e.g. pangolins). Trafficking data consists of interdiction/seizure data of actual wildlife or wildlife parts seized during law enforcement operations. It is generally believed that only 10% of illegal goods are detected and seized worldwide (Wyatt, 2013).

A mixed research design was used for this study. Primary data collection involved one-on-one loosely structured interviews and written correspondence with 50 experts and two group discussions. A review of scholarly literature, technical reports and media was undertaken to supplement interview data. TRAFFIC provided access to their online wildlife trade portal (www.wildlifetradeportal.org) which documents poaching incidents, arrests and interdictions of wildlife species. There was thus a small aspect of quantitative analysis. Data entries from the TRAFFIC wildlife trade portal allowed for verification, triangulation and general trend analysis. A caveat as regards the TRAFFIC wildlife trade portal is that the data captured on the portal does not constitute official government-verified data but rather open-source data gleaned from traditional and social media sources.

The research process is detailed below:

Sampling: Both purposive and snowball sampling were employed. One-on-one interviews were conducted with wildlife investigators, analysts, researchers, investigative journalists, NGO representatives, representatives from regional organisations and conservationists. Most research respondents were country or sub-regional wildlife crime experts. Several research participants were based in protected areas or national parks and their knowledge was thus local context specific. There was limited data on Angola, the Democratic Republic of Congo

[1] As an example, newly born and young rhinos are not counted in poaching statistics in some jurisdictions.

(DRC), Malawi and Mozambique in the 2019 study. Interviews were held with five experts from Angola, two in Malawi, four in Mozambique and one expert from the DRC to fill in the gaps. Several regional experts also assisted with sketching trafficking routes through the DRC.

Data collection: The interviews were open-ended and engaged research respondents on their knowledge of wildlife poaching and trafficking trends and the impact of COVID-19 and associated lockdowns. The duration of interviews ranged between 45 to 90 minutes. With the exception of two in-person meetings, the interviews were held on digital videoconferencing platforms or smartphone applications including WhatsApp, Signal and Telegram. The choice of digital platform depended on the research participant's preference, their bandwidth and cyber-security considerations. Informed consent, anonymity and confidentiality were ethical cornerstones of the study. The interviewer took detailed notes during the interviews and where permission was granted the interviews were recorded and transcribed. Interview data was also compared, verified and triangulated with data entries on TRAFFIC's wildlife trade portal.

Data analysis: Interview data and field notes were digitally captured, anonymised and coded to protect the identity of participants. The qualitative data analysis programme NVivo was used to analyse poaching and trafficking patterns and trends.

Limitations: There are both strengths and weaknesses of undertaking interviews on-line. Key weaknesses are best summed up in terms of the digital divide between urban and rural Africa, the cost of data and the distrust of secure transmissions on the Internet. Building rapport and trust with a stranger on the other end of a digital device is difficult especially when it involves discussions on crime and criminality. Key strengths are linked to the flexibility of setting up interviews at a convenient time to both the interviewer and interview participant. While a concerted effort was made to obtain and verify data on poaching and trafficking trends in the DRC, many of the referrals did not respond to interview requests or had left the country due to COVID-19 lockdowns and quarantine requirements. One DRC expert was interviewed while several experts from neighbouring countries and regional experts had good information on the DRC.

5. Usefulness of the terms “poaching hotspots” and “trafficking hotspots”

Several research respondents were uneasy with the concept of “poaching hotspots” and “trafficking hotspots”. With the exception of rhino poaching in South Africa’s Kruger National Park and the Okavango Delta in Botswana, there were no static or localized poaching hotspots where elephants, lions or pangolins were specifically targeted. Respondents spoke about landscapes or nodes of concern. As an example, one respondent (I02) said that it was “difficult to pinpoint a location for elephant poaching when their ranges are basically just the whole of Botswana.” In reference to trafficking hotspots, respondents pointed to entire border regions such as the Zambezi region in Namibia, ancient trade and smuggling routes in East Africa, cities such as Lusaka and Luanda or the 60 km stretch of the M1 highway between Dedza and Ntcheu in Malawi (which is the international border between Malawi and Mozambique). Respondents said that there were high volumes of wildlife trafficking in these regions and along these routes but they would not call them “hotspots”.

The unease with the term “hotspot” might be linked to the origins of the concept. Crime hotspots in the field of criminology and crime science are usually located in urban neighbourhoods with high levels of substance abuse and/or high crime rates in the Global North (Carter et al., 2021, Eck et al., 2005, Johnson and Bowers, 2008, Malleson and Andresen, 2015). The concept has been imported from northern contexts to mostly rural African landscapes. In South Africa, the Institute for Security Studies is looking into models of evidence-based policing (EBP) to assess whether hotspot policing could lead to crime prevention or diversion (Newham and Rappert, 2018).

The sparse literature on poaching hotspots and wildlife trafficking routes in southern Africa suggests that researchers use several concepts to depict what is perceived as a geographically delimited locations with high poaching rates. Gore and colleagues (Gore et al., 2016) explore how public risk perceptions affect poaching in biodiversity hotspots. Ecologists and conservationists often refer to landscapes within which they operate. The notion of landscape echoes with the concept of “harm landscapes” which was coined by Berg and Shearing (2018). Harmscapes (the shortened version) capture the notion that contemporary risks and associated harms require a departure from traditional crime and justice models. Contemporary harmscapes are characterized by both radical uncertainty and unpredictability (Mutongwizo et al., 2021, p. 2). Building resilience – “resilience policing” – has become a new approach to deal with crises that are difficult to predict including harms associated with extreme weather events, biodiversity extinction, pandemics, and terrorism. In the literature on trafficking, multiple concepts are used to study the movement of illegal goods from the source to the market. This includes Castells’ notion of spaces of flow, policing of or through flows, supply or value chains, trafficking hubs or transhipment/trafficking routes (Hübschle, 2019, Hübschle and Shearing, 2021, Van Schendel and Abraham, 2005, van Uhm, 2016, Amicelle et al., 2017).

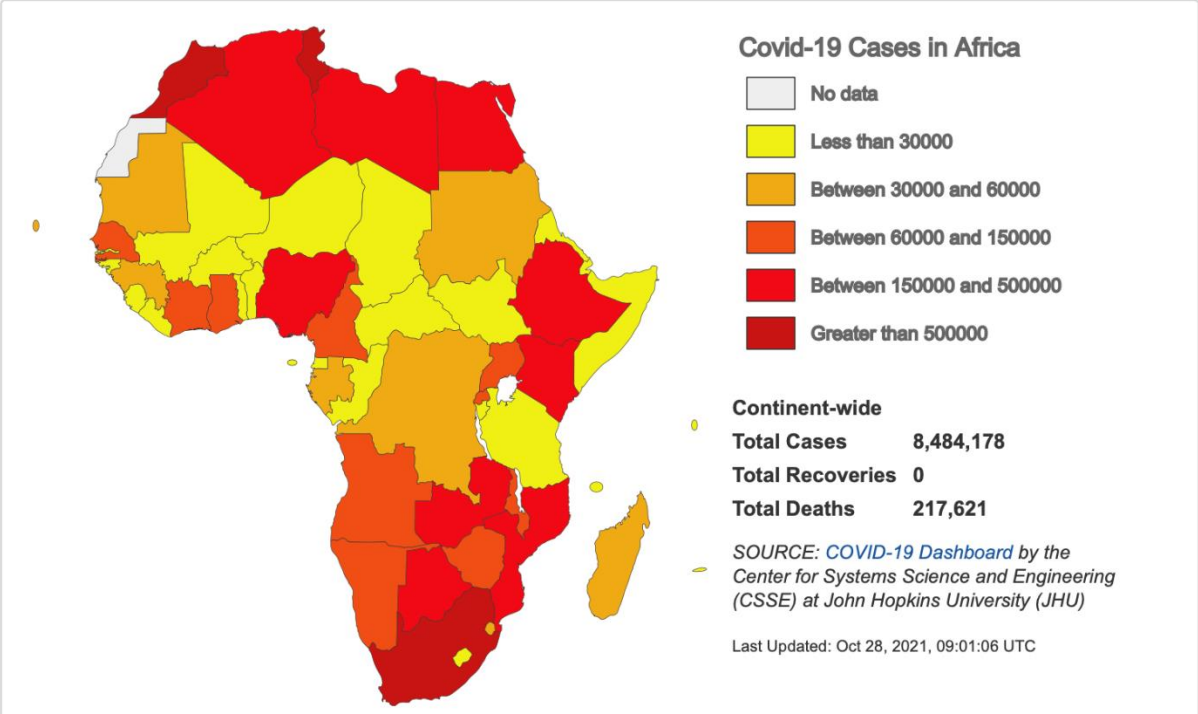
Despite the reservations about the usefulness and appropriateness of the “hotspot” concept, it assisted in delineating what type of data was required. As an open-ended and unstructured interviewing style was used, the consultant was able to redirect questions when the use of the concept was deemed inappropriate. It is suggested that broader concepts such as

harmscapes, trafficking hubs and flows be applied in future studies. The rationale for this is the idea that poaching and trafficking “hotspots” operate in a broader ecosystem of connections, dependencies and influences.

6. The COVID-19 pandemic and lockdown regulations in southern Africa

On 14 February 2020, the first confirmed case of COVID-19 in Africa was announced in Egypt. By early March 2020, tourists and travellers returning from overseas trips to Europe and North America tested positive for COVID-19 in several SADC member states. On 11 March 2020, the World Health Organization (WHO) declared the outbreak of the COVID-19 disease a global pandemic. Over the next three months (March to May 2020) the virus spread throughout the continent with Lesotho the last African state to report its first case on 13 May 2020. Most SADC countries experienced three waves of COVID-19 infections between March 2020 and October 2021. Driven by the highly transmissible Delta variant, the third wave wreaked havoc in the SADC region with many hospitals and public and private health facilities unable to cope with the high numbers of patients with severe infection between June and September 2021. Due to limited resources and overstretched public healthcare systems, it is believed that COVID-19 infections and mortalities remain underreported in Africa. At the time of writing the report in late October 2021, 8.5 million cases of COVID-19 and more than 217,000 deaths had been officially reported in Africa (Worldometer, 2021). According to an assessment undertaken by the WHO, six in seven COVID-19 cases have gone undetected in Africa (World Health Organisation, 2021). In light of the slow roll-out of vaccines and vaccine hesitancy in southern Africa, a fourth wave was predicted towards the end of 2021/early 2022. By October 2021, only 30% of Africa of the continent's 54 nations had fully vaccinated 10% of their population against the disease. Just under half of African countries that have received COVID-19 vaccines have fully vaccinated 2% or less of their populations – this includes most SADC member states (World Health Organisation, 2021).

Graphic 1: COVID-19 cases in Africa – status 28 October 2021



Source: Center for Systems Science and Engineering and John Hopkins University (2021)

With the notable exception of Tanzania, SADC member states followed WHO public health guidelines and social distancing measures to flatten the infection curve. Tanzania's President John Magufuli a COVID-19 denialist declared the country free from the virus in June 2020 after three days of national prayers. No official COVID-19 restrictions were implemented in Tanzania when most of the world went into hard lockdown in March 2020. The last reported official figures of a total of 509 cases and 21 deaths were released in April 2020 after President Magufuli suspended nationwide tracking of COVID-19 cases (Busari and Princewill, 2021). Public perceptions about the severity of the COVID-19 outbreak in Tanzania and Zanzibar were hard to gage as COVID-19 reporting was censored (Interview I27). However, many businesses, NGOs and private individuals implemented their own COVID-19 health measures such as mask wearing, social distancing and sanitization (Interviews I21 and I25). After several high-ranking government officials died from COVID-19 related complications including Zanzibar's Vice President Seif Sharif Hamad in February 2021, it became clear that COVID-19 infections and mortalities had not spared Tanzania and Zanzibar. President Magufuli died in March 2021. The official cause of death was heart failure although there were unconfirmed rumours that he passed of COVID-19 related complications. Magufuli's successor President Samia Hassan has implemented COVID-19 restrictions and established a COVID-19 Task Force since taking office.

Most SADC member states implemented states of emergencies, national disaster regulations or hard lockdowns for a minimum of 21 days in March and April 2020. International borders were closed, and air travel was suspended in most jurisdictions. Zambia and Tanzania allowed commercial air travel to continue uninterrupted. However, most international airlines suspended international flight routes during the initial lockdown period. Other restrictions included localized lockdowns and quarantine zones in Angola, Namibia and Zambia. Angola instituted a sanitary fence around Luanda as 30% of the country's people live in the metropole. Residents arriving or departing from the city had to do PCR tests (Interview with I13). Entry of foreign nationals was suspended and returning citizens were required to undergo up to 14 days of quarantine in most SADC member states. Night-time curfews and restrictions on public gatherings were introduced and remained in place in many SADC states in October 2021.

7. Impacts of the pandemic and lockdowns on wildlife protection

Research respondents had divergent views on the impacts of COVID-19 related restrictions. Of particular significance to wildlife conservation, poaching and trafficking were the following restrictions with varying levels of enforcement and national variation:

- Temporary suspension of air travel
- Temporary closure of international borders
- Temporary closure of airports and seaports
- Reduced staff in non-essential public services
- Restrictions and/or limitations on local, provincial and regional travel
- Restrictions on travel for leisure
- Limitations on public and social gatherings
- Issuance of essential permits
- Roadblocks and enforcement of COVID-19 regulations
- Closure of national parks, reserves and lodges
- Non-essential staff working from home, being laid off or reduced wages
- Restriction on informal economic activities

7.1 Devastating impacts of COVID-19 on international tourism

Restrictions on international travel have had a hugely negative impact on the global tourism industry. By May 2020, major tourist destinations had imposed travel restrictions, closing totally or partially their borders to international tourists resulting in revenue and job losses. Impacts on protected area tourism in Africa have been devastating in terms of visitor numbers, local livelihoods, procurement, conservation and environmental services (Spenceley et al., 2021).

Many tourism-reliant protected areas, community conservancies/community-based natural resource management areas and private reserves had to lay off staff, rotate staff or reduce wages. Local procurement of goods and services and payments to community initiatives have also been negatively impacted (Gandiwa, 2021). Research respondents also reported that construction and infrastructure developments were impacted in parks and reserves as there were limitations on gatherings, meaning that no more than 50 construction workers could be on site at one time (Interview I24). Community outreach and programming linked to the development and expansion of the wildlife economy were negatively impacted as programme staff could not travel to rural communities during the initial lockdowns. Donor funds also started drying up as many community projects rely on a contribution or fees linked to entrance fees and occupation rates at national parks and reserves.

Several respondents mentioned however that conservation organisations have started to be more innovative and creative around income generation, moving away from a tourism- or hunting-based income models only. There has also been an increase in domestic tourism, contactless and virtual tourism and novel conservation financing such as direct payments or charitable contributions to wildlife conservation (Braczkowski and Biggs, 2021).

7.2. Restrictions on the movement of people and goods

Most of the region adopted quarantines, localized lockdowns and/or sanitary fences or zones in the beginning stages of the pandemic, adjusting restrictions as infection rates increased or decreased. Many respondents commented on the "chilling impact", "teachable moment" or "COVID holiday" of controlling the movement of people, goods and services during the early days of lockdown. One respondent (Interview I06) explained that roadblocks and the deployment of the army in South Africa had a deterrent impact initially as people, trucks and vehicles were not supposed to be on the move. Thus, anyone traveling in the first three weeks of lockdown would have been intercepted and asked about their business. Criminal networks adapted quickly and started carrying special or essential work permits. The definition of essential services was also variable across the subregion. A law enforcement agent surmised (Interview I01): "So as much as some countries almost ground to a halt, some of our neighbouring countries were still relatively active. Also what their definition for essential services is, is very variable. So who knows, timber trucks could have moved through, you know cold storage trucks could have still moved around."

7.3 Impact on wildlife crime enforcement and criminal justice system

Although roadblocks were instituted and people had to carry permits in many jurisdictions, law enforcers were enforcing lockdown regulations and thus were not on the lookout for criminals or suspicious goods. In essence, trafficking of illegal goods including wildlife had become less risky as law enforcement and customs officials were not conducting searches. Searching people, vehicles or properties constituted a potential health risk as limited information was available on the transmissibility of the virus at the time. Sniffer dogs and their handlers were also off-duty during the early days of the pandemic.

Regional organizations and enforcement bodies that rely on member subscriptions experienced massive funding shortfalls as members were unable to honour subscription payments (Interview I17). Regional police networks were unable to carry out wildlife crime fighting activities as they were not allowed to travel regionally (Interview Code I17). A Namibian anti-poaching expert talked about the impact on intelligence operations (Interview Code I10):

> "The problem is things aren't great but also the problem is and this is where COVID has played a role, is travelling to Angola is very difficult so had it not been for COVID, our investigators would have gone to Luanda and would have challenged these new key people, I think our team does have an idea of one or two people of interest but it's difficult to travel there."

In terms of law enforcement in parks and reserves, anti-poaching experts commented that 2020 was a "COVID holiday" because movement was restricted. A research respondent from South Africa said (Interview Code I09):

> "Poachers couldn't move and they couldn't move horn. And, and it was a lovely holiday with a downward trend despite the fact that you had less rangers on the ground. And that was not everywhere, a lot of rangers like in Kruger and like in National Parks stuck to their guns but there was always the pressure to say there has been an incident so you isolate or you've got comorbidities. We had despite the fewer rangers, enough rangers to still do the job and the poachers were inhibited in movement. And that teaches us a lesson."

Research respondents also spoke about their own journeys with COVID-19. One respondent in Malawi mentioned that at the height of the pandemic there were 20 cases of COVID-19 infection amongst staff members in a National Park. Respondents also talked about many rangers and conservation staff dying from COVID-19 related complications.

Most SADC member states implemented a complete or partial shutdown of government offices including the court systems. While many lawyers and prosecutors in bigger cities were geared up to do virtual consultations and meetings, magistrates and prosecutors in district and regional courts often lacked the bandwidth, upload speed and technological savvy in the first weeks of lockdown (Interview I16). In places, the digital divide has been bridged and court cases take place in person or on virtual platforms were taking place in the second half of 2020. COVID protocols were introduced in court rooms and during court proceedings. There was a backlog and slowdown in getting cases processed by the police and judiciary. An expert from Malawi (Interview I26) mentioned that although he had observed a huge number of adjournments, sentencing remained fairly consistent but the time to complete a trial (conclusion rate) dropped dramatically. Justice delayed has implications for the accused in terms of how long they may be remanded in custody. More than 50% of those who filed successful bail applications in Malawi, disappeared not to be seen again. Elsewhere in the region, respondents observed that more bail applications appear to have been successful.

Decongestion of prisons was also a consideration during the COVID pandemic. Less custodial sentences were passed in some jurisdictions. Most notably, in South Africa, President Cyril Ramaphosa paroled more than 19,000 low-risk prisoners who had passed their minimum detention period as social distancing in correctional centres was impossible due to overcrowding.

Other COVID-19 control measures and restrictions that directly affected wildlife poaching and trafficking will be discussed in the following sections.

8. Poaching trends and patterns

8.1 General observations

Poaching statistics and observations by experts confirm that there was a reduction in poaching of charismatic megafauna (elephants and rhinos) across most of the sub-region in the early days of the pandemic. However, the "chilling effect" was short-lived for rhinos. Rhino poaching has picked up in South Africa's Kruger National Park and private reserves, and continues in Botswana where the Okavango Delta was identified as a poaching "hotspot". Lion poaching and the trafficking in body parts appear to be localised to lion range states and specific landscapes in South Africa, Mozambique and Tanzania. Pangolin poaching and trafficking appears to have increased with seizure data and observations by experts painting a worrisome picture. Both lion bones and pangolin scales have been touted as medical intervention against COVID-19 infection. Research respondents remarked that there had been an increase in bushmeat hunting and hunting for meat or protein. For example, an increase in bushmeat trade for local consumption was documented in Lusaka but there was also a reported increase in commercial transnational bushmeat trafficking going to the DRC. These networks are organised: they were not only paying in cash but they were also bringing other goods to barter for bushmeat like solar panels and household electronic items (Interview I10). With regards to opportunistic poaching (not syndicated or linked to organised crime) a poaching expert from Botswana remarked (Interview Code I105b) that people had become a lot more desperate and were willing to take greater risks. Another important aspect were massive increases in the poaching and trafficking of succulent plants in South Africa. Poachers have been targeting caudiciform species and conophytums with a number of bulb (geophyte) species also becoming more frequent in recent plant seizures. The following genera have been most targeted:

- *Adromischus*
- *Anacampseros*
- *Conophytum*
- *Larryleachia*
- *Pelargonium*
- *Othonna*
- *Tylecodon*
- *Eriospermum*
- *Gethyllis*

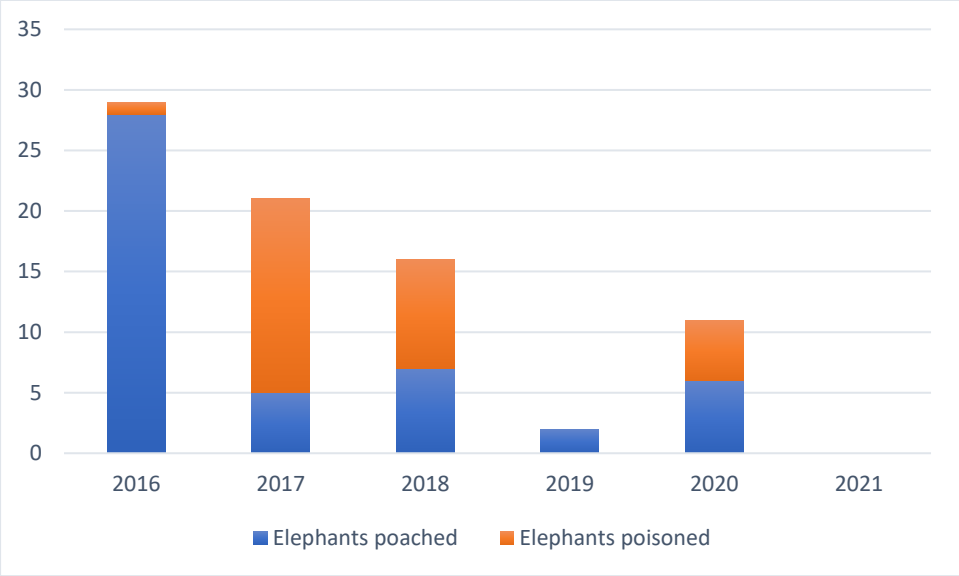
Succulent plants are collected across South Africa, although over the past two years, the Succulent Karoo biome, particularly regions close to the West Coast in the Northern Cape have been particularly hard hit by wild succulent plant poaching. Thirty succulent plant species were updated on South Africa's Red List website and work is underway to bring up-to-date the IUCN Red List of Endangered Species (personal communication with Tasneem Variawa, SANBI, 2021).

8.2 Elephant poaching and trafficking

Elephant poaching appears to have decreased and not only for reasons linked to COVID-19 control measures but also due the disruption of wildlife trafficking networks in Tanzania and Malawi (discussed in a separate section detail below) and successful implementation of other protective measures. According to incident data on elephant poaching and poisoning events

in SADC member states entered into TRAFFIC's wildlife trade portal (TRAFFIC, 2021), the high volumes of elephant poaching incidents seen in the late 2000s and early 2010s have subsided across the region: 48 elephants were poached and 31 elephants were poisoned between 1 January 2016 and 30 October 2021 across southern Africa (please note that these are cases documented by TRAFFIC and do not constitute official statistics). More importantly, the Monitoring the Killing of Elephants (MIKE) programme has recorded a continent wide average of 0.3, the lowest level of the Proportion of Illegally Killed Elephants (PIKE) since inception of the programme in 2003. The unweighted PIKE estimate for 2020 in southern Africa is 0.22 thus confirming a downward trend in the illegal killing of elephants in the region (MIKE, 2021).

Graphic 2: Elephant poaching and poisoning incidents captured in TRAFFIC's Wildlife Trade Portal in SADC (2016- 2021)

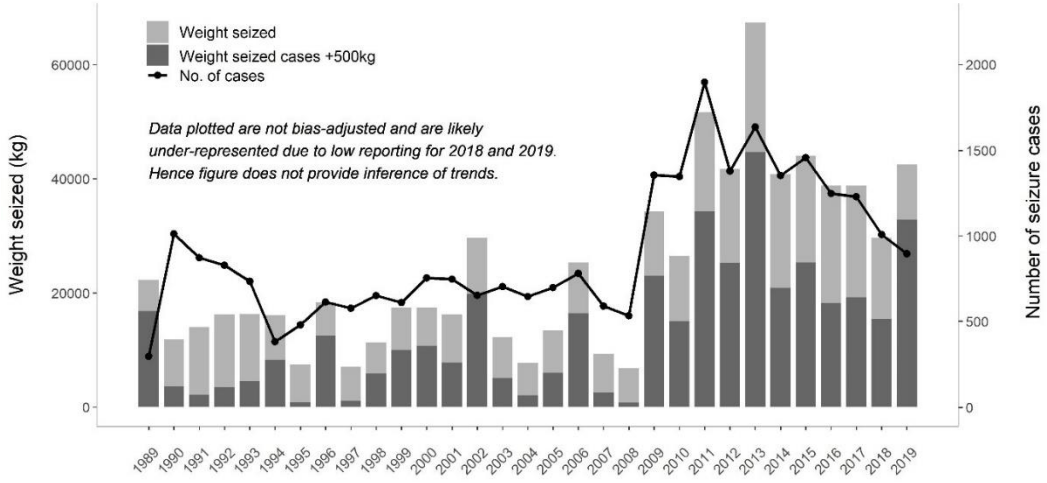


Source: TRAFFIC, *Wildlife Trade Portal* (accessed 30 October 2021)

Most experts observed that reduced elephant poaching had led to the release of stockpiled ivory as seizures increased in 2019 (see Graphic 3). According to Daniel Stiles of the Global Initiative against Transnational Organised Crime (2021), the two largest single ivory seizures on record happened in China (7.48 tonnes) and Vietnam (9.12 tonnes) in 2019. Ivory seizures dropped in 2020 as the pandemic is likely to have impeded the ability of ivory traffickers to smuggle their consignments and of law enforcement agencies to detect them (more on this in a separate section below).

Law enforcement experts remarked that besides the bulkiness and weight of ivory, it also takes a long time to remove tusks from elephant carcasses. China which used to be a key market for ivory has banned all ivory trade and law enforcement agencies have been enforcing the ban. Although there are unconfirmed reports that Communist Party insiders and wealthier members of society still have access to ivory and rhino horn (Interview I06), incentives to participate in elephant poaching and trafficking seem to have been flipped: The risk of detection at poaching sites and in transit have rendered elephant poaching a high risk and low value enterprise.

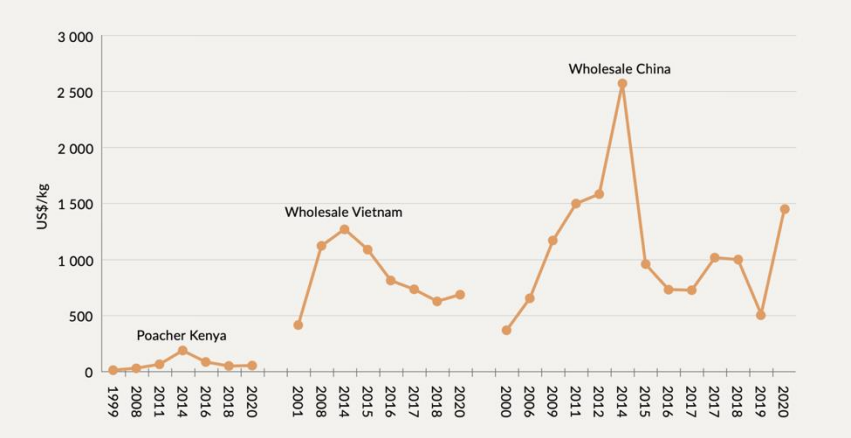
Graphic 3: Number of ivory seizure cases and weight seized by year from 1989 - 2019[2]



Source: CITES, Elephant Trade Information System 2021 https://cites.org/esp/prog/etis

Major conservation NGOs (Wildlife Justice Commission, 2021; personal communication with TRAFFIC November 2021) have also documented waning interest in ivory among traders which is attributed to the ivory ban in China and a declining trend in wholesale prices of raw ivory since 2015. However, Daniel Stiles of the Global Initiative against Transnational Organised Crime (2021) observed that raw ivory prices were starting to rise again in 2020, especially in China where the price for raw ivory had rebounded to more than US $ 1000 after dropping to far below the peak in 2014 (see Graphic 4).

Graphic 4: Raw ivory price trends at the poacher and import country wholesale points in the trade chain, using Kenya, Vietnam and China as examples, 1999–2020



Source: Stiles (2021), Global Initiative against Transnational Organised Crime

[2] The graphic is based on data submitted up to 8 July 2020 that were ETIS validated.

A cause for concern is the flaring up of poison poaching, especially in Zimbabwe were most of the poisoning incidents occurred. According to conservation officials interviewed for a baseline study on wildlife poisoning trends in the Great Limpopo Transfrontier Conservation Area, the primary target in some poisoning incidents in and near South Africa's Kruger National Park may have been vultures destined for muthi markets and traditional healers (Hübschle, 2021). Experts also warned about increased human-elephant conflict being reported in Namibia and Tanzania.

8.3 Trends in rhino poaching in SADC

The two African rhino species – white and black rhinos – survive in nine countries in Africa: Botswana, eSwatini, Kenya, Malawi, Namibia, South Africa, Tanzania, Zambia and Zimbabwe. Limited officially sanctioned and open-source population and poaching data is available for eSwatini, Namibia and Botswana. The IUCN African Rhino Specialist Group (AfRSG) has documented decreasing rates of rhino poaching year on year in southern Africa since the peak in 2015 (see Graphic 5). The daily poaching rate had dropped to 1.35 rhinos per day, the lowest rate since 2011 (Knight, 2021). However while regional rhino poaching rates may be improving, rhino population numbers are hanging in the balance.

Graphic 5: Poaching of African rhinos between 2006 and 2020

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total (2008–2020)
Botswana	0	0	0	0	0	0	2	2	1	0	1	0	18	31	55	110
Chad													0	0	0	0
DR Congo	0	0	2	2									2	?	?	6
Eswatini	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3
Kenya	3	1	6	21	22	27	29	59	35	11	10	9	4	4	0	237
Malawi	0	0	0	0	0	0	2	1	1	1	1	1	0	0	0	7
Mozambique	0	9	5	15	16	10	16	15	19	13	5	5	8	6	2	135
Namibia	0	0	0	2	2	1	1	4	30	97	61	44	57	45	31	382
Rwanda												0	0	0	0	0
South Africa	36	13	83	122	333	448	668	1004	1215	1175	1054	1028	769	594	394	8887
Tanzania	0	0	2	0	1	2	2	0	2	2	0	2	0	0	0	13
Uganda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zambia	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Zimbabwe	21	38	164	39	52	42	31	38	20	50	35	36	34	82	12	635
Total	**60**	**62**	**262**	**201**	**426**	**532**	**751**	**1123**	**1324**	**1349**	**1167**	**1125**	**894**	**762**	**494**	**10417**
Poached/ day	**0.16**	**0.17**	**0.72**	**0.55**	**1.17**	**1.46**	**2.05**	**3.08**	**3.63**	**3.70**	**3.19**	**3.08**	**2.45**	**2.11**	**1.35**	

Source: Knight (2021)

According to the AfRSG, the official southern white population count hovers around 18,000 white rhinos, representing a 12 % decrease over the past decade (International Rhino Foundation, 2021). However, based on recent rhino population data released by South African National Parks (SANParks), the outlook for white rhinos looks rather bleak with some conservationists estimating a 24 percent decline over the past decade (2010 to 2020) in southern Africa (International Rhino Foundation, 2021). Considered critically endangered, black rhino numbers are estimated between 5366 to 5630 individuals showing positive population growth.

The massive decrease in white rhino numbers is linked to the high rate of rhino poaching and impacts of drought conditions on replacement rates in South Africa which is still home to the world's largest white rhino populations (Ferreira and Dziba, 2021). However, an annual report released by SANParks in February 2021 documented a 67 percent decline of the white rhino population in Kruger National Park. Once home to the world's largest white rhino herd of more than 10,000 individuals, numbers have dropped from an estimated 10,621 in 2011 to 3,549 individuals in 2019 (Ferreira and Dziba, 2021). Research respondents estimated that total rhino numbers may have dropped to less than 2,000 rhinos in 2021. A scientific paper published by SANParks scientists (Ferreira et al., 2021) estimated that between 2475 to 2752 white rhinos were living in the Park in 2020. Black rhino populations in Kruger National Park have also seen population decreases from a high of 507 individuals in 2017 to 202 individuals in 2020 (Ferreira and Dziba, 2021). One research respondent with privileged information on rhino poaching trends in South Africa and across the region surmised that "the onslaught in Kruger in my words is the most protracted and intensive against a specie in a park in modern history (Interview I09)."

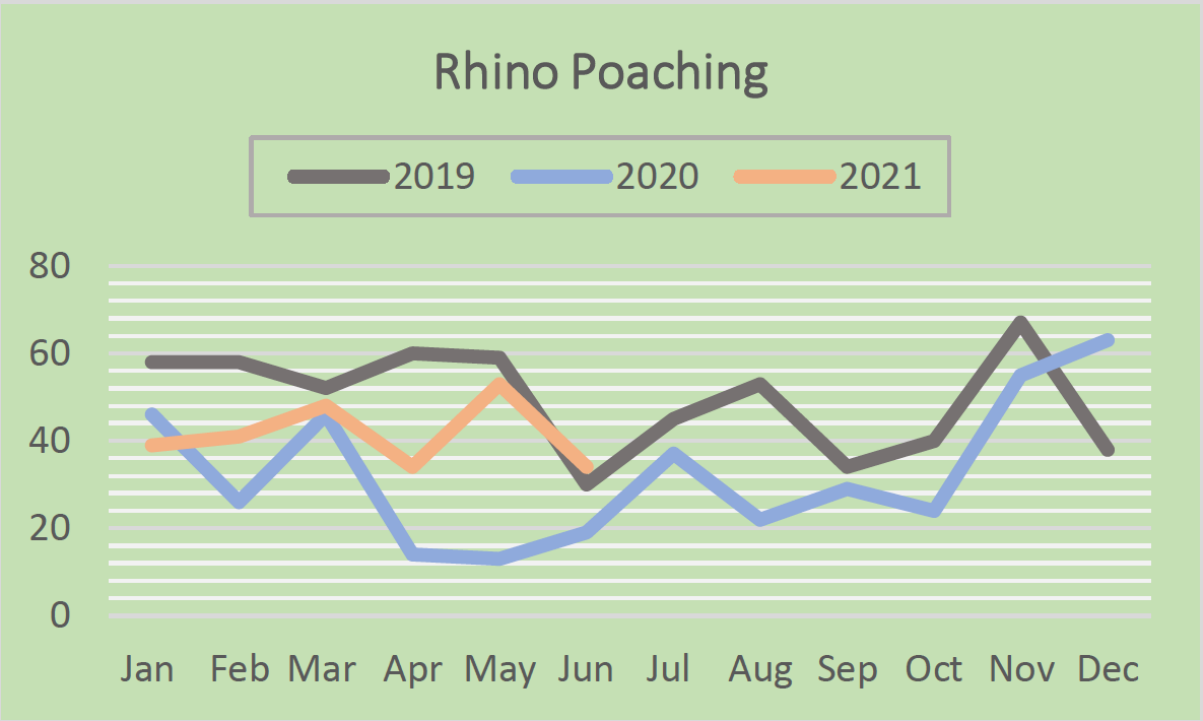
The initial COVID-19 lockdown had a positive but brief impact on rhino poaching rates in the Kruger National Park (see Graphic 6). Scientists noted a significant reduction in poaching incidences when COVID-19 restrictions imposed controls on all elements of the illegal supply chain. During South Africa's initial lockdown Levels 4 and 5 rangers recorded 14 carcasses. Trends from 2017 to 2019 predicted 68 carcasses for the period (Ferreira et al., 2021). However, the "poaching pause for rhinos in Kruger" was short-lived as the easing of restrictions resulted in significantly higher numbers of poaching incidences per day during 2020 compared to predicted numbers for the same period by trends from 2017 to 2019 (Ferreira et al., 2021). Other than restrictions on movement, rhino horn kingpins experienced cash flow problems during lockdown. One respondent said (Interview Code I18):

> "And then the next thing also happened is that guys want to go and hunt but where they normally got paid R100 000 to R150 000 if he was successful with the horn. The kingpins only offered them R15 000 now because they didn't have cash. So the guys there said no we are not going to risk our lives for R15 000 and that is also one of the reasons why hunting went down."

The COVID-19 holiday was short-lived: Kruger National Park remains a regional rhino poaching hotspot. National Parks and reserves in South Africa's KwaZulu-Natal Province have experienced less poaching incidents than in previous years. However, there has been an uptick in poaching incidents on private land. With more than half of South Africa's rhino

population under private ownership in 2021 (Interview I06),[3] this trend is not surprising. Private rhino owners were negatively affected by the COVID-19 lockdown as income-generating activities including international tourism and trophy hunting were shut down during the initial lockdown and have been slow to recover. Private rhino owners have reported a fivefold increase in security costs over the past decade which has resulted in some private owners divesting in rhinos and a concomitant 75% decline in the auction price for live rhinos. Others have used the opportunity to buy more rhinos leading to consolidation of private rhino ownership (Balfour and Dziba, 2021). The high cost of securing rhinos and other high-value wildlife species poses a barrier-to-entry for individuals and communities from previously disadvantaged backgrounds into the wildlife economy thus delaying transformation towards more inclusive conservation systems in South Africa.

Graphic 6: Rhino poaching incidents in South Africa (1 January 2019 to 30 June 2021)



Source: Department of Forestry, Fisheries and the Environment (2021)

Balfour and Dziba (2021) note that due to security challenges on private properties, a tendency towards higher densities of rhino being kept on many private properties. Under such conditions as well as recurring droughts, there is not sufficient natural grazing and rhinos are provided supplementary feed as well as veterinary care. Due to the escalating costs of maintaining private rhino herds, many private rhino owners are advocating for a legal trade in rhino horn to cover their costs. However, the High-level Panel of Experts for the Review of Policies, Legislation and Practices on Matters of Elephant, Lion, Leopard and Rhinoceros Management, Breeding, Hunting, Trade and Handling (2020) recommended phasing out

[3] One private rhino owner estimates that more than 10,000 rhinos are held in private hands in South Africa. A rhino expert estimated the number to be around 7,000.

intensive management and rhino captive breeding operations. The ministerial committee was set up in 2019 to review policies relating to the management, breeding, hunting and trade of lions, rhinos, leopards, and elephants. It was also recommended that trade in rhino horn should not be approved until the recommendations of an earlier Rhino Committee of Inquiry recommendations and the Rhino Action Plan were met.

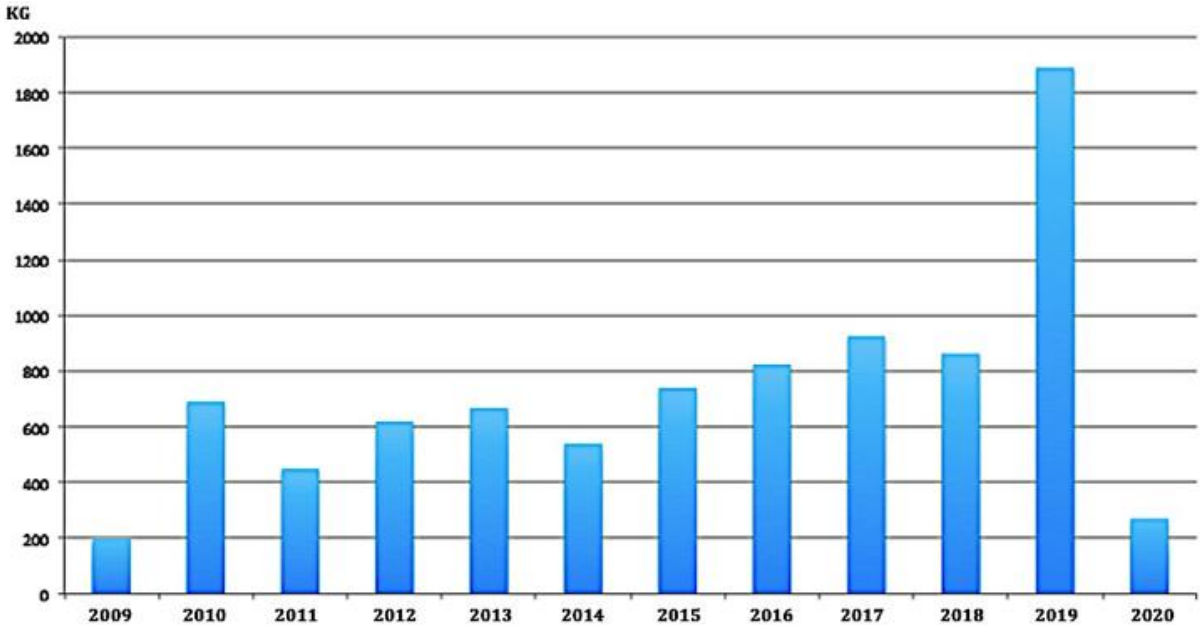
Rhino poaching has spiked in Botswana since 2019. Ninety-two rhinos were poached between 2019 and October 2021 compared to a total number of seven rhino poaching incidents between 2010 and 2018. In October 2021, Wildlife and National Parks Director Kabelo Senyatso announced that all remaining rhinos would be moved out of the Okavango Delta to sanctuaries across Botswana (Mguni, 2021). Research participants identified Moremi Complex as a rhino poaching "hotspot" (Interview E02). According to TRAFFIC wildlife trade portal (TRAFFIC, 2021), almost all rhino poaching incidents between 2018 and 2021 occurred in the Okavango Delta. Chief's Island, Mombo Island and Moremi are noted as places of concern. One respondent (I20) observed that COVID-19 restrictions may have facilitated rhino poaching as "tourism and hunting came to a standstill and traditionally hunting and tourism is the eyes on the ground in the concessions outside the main areas where the poaching occurs." Respondents also mentioned in-fighting, capacity constraints, corruption and limited coordination between different enforcement agencies involved in anti-poaching, intelligence gathering and wildlife crime investigations.

Home to the only free roaming black rhinos in the world, Namibia has noted a decline in rhino and elephant poaching. By July 2021 nine rhinos had been illegally killed by poachers, the lowest number in eight years for the same period.

With regards to volumes of rhino horn trafficking across Africa, Global Initiative for Transnational Organised Crime researcher Dan Stiles noted that almost 2000 kg of rhino horn were seized in 2019 but this figure dropped to 480 kg in 2020 (see Graphic 7). It needs however to be noted that the 2019 seizure of approximately 1940 kg was a departure from earlier years. The seizure data for 2020 is still comparatively low to data from pre-2019 and is more than likely linked to the outbreak of the COVID-19 pandemic and quarantine measures.

Stiles also notes that rhino poaching and prices were decreasing from 2016 onwards. In part these trends may be explained by increased law enforcement disruption and decreasing consumer demand for rhino horn. However, there is limited empirical evidence for either. However, the release of more rhino horn from private captive rhino harvesting sources may provide an alternative explanation. Stiles argues that commencing in 2015, private harvested horn may have started replacing poached horn reducing both rhino poaching and prices. Most of the seizures were made during transport and shipping either departing or arriving or sometimes in transit (personal communication with Dan Stiles, September 2021). The same rhino trafficking routes are used – rhino horn is either moved to the Gauteng province in South Africa or to Maputo from where it is ferried to Asian markets.

Graphic 7: Rhino horn seized worldwide between 2009 – 2020



Source: Dan Stiles (personal communication, 2021)

Rhino horn was trading for approximately US $15,000 per kg in Vietnam in 2020 (personal communication with Hoai Nam Vu Dang, August 2020). An investigation by the Batswana newspaper Sunday Standard claimed that rhino and elephant poachers were paid as little as US$ 5 per day in 2020 (Motlhoka, 2020), which appears an unusual rate as rhino poachers get paid for the product - poached horn - and not for the effort. Rhino poachers in South Africa were paid between ZAR 2 000- 5 000 (US $ 120 – US $ 320)[4] in 2021 depending on their role. The shooter is paid the most as they have the added responsibility of keeping the hunting rifle safe and returning it. The current rate hovers between ZAR 25 000 to ZAR 35 000 (US $ 1 590 – US $ 2 220). Poachers are paid more in Mozambique as they often leapfrog to another level thus not only poaching but also fulfilling transportation and other logistical functions (personal communication with organised crime expert, November 2021). In 2020, shooters in Mozambique were paid 2 142 US $/kg (personal communication with Carlos Pereira, 2020).

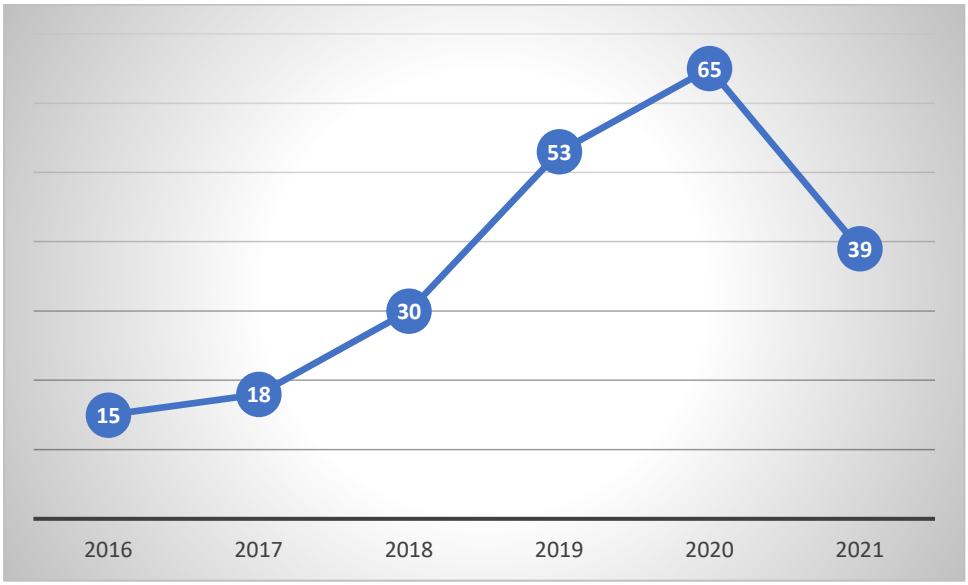
8.4 Pangolin poaching and trafficking

Pangolin poaching and trafficking cases across the region continue to be a cause for concern. Both experts and poaching statistics seem to indicate that pangolin poaching and trafficking incidents are rising. In looking at poaching and trafficking data captured on the TRAFFIC wildlife trade portal, the recorded incident data actually increased for 2020. It needs to be noted the wildlife trade portal is an interactive tool that displays TRAFFIC's open-source

[4] The exchange of US $ to ZAR quoted on oanda.com on 22 November 2021 was applied. 1 US $ traded for ZAR 15.71.

wildlife seizure and incident data (see Graphic 8). There may well have been additional incidents that were not captured.

Graphic 8: Poaching and trafficking of pangolin incident data recorded on TRAFFIC wildlife trade portal between 1 January 2016 to 30 October 2021



Source: TRAFFIC (2021), Wildlife Trade Portal

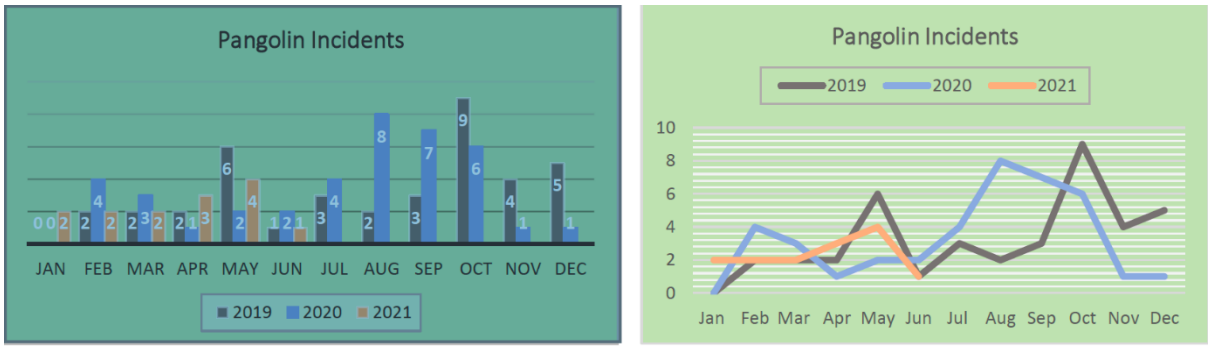
Of these pangolin poaching and trafficking incidents, 74 were registered in Namibia, 59 in South Africa, 35 in the DRC, 14 in Malawi, 12 in Zambia, 4 in Angola and in several other jurisdictions. Research respondents from Malawi noted that there had been an uptick in pangolin poaching and trafficking in Malawi. Namibian wildlife authorities said that pangolins were the most trafficked among the high-value species in Namibia during 2020 with 74 animals being seized. This represented a reduction in seizures compared to previous years (129 animals in 2019 and 88 in 2018). Only eight of the 74 animals seized in 2020 were alive; most seizures consisted of skins (Intelligence and Investigation Unit et al., 2021, p. 13). Likewise South African law enforcement officials confirmed that they had seen increases in pangolin being trafficked across the Namibian/South Africa border by opportunistic poachers trying to find a market in South Africa. However, pangolin poaching and trafficking were not major wildlife trafficking concerns (see Graphic 9).

Cases of pangolin poaching are particularly difficult to document as poachers often catch live animals leaving no visible crime scene behind. Research respondents did mention that much of the pangolin trade appears to be opportunistic. One respondent said that pangolin protectors doing intelligence gathering were approaching people to buy pangolins for the "pangolin market" thereby enticing people to capture pangolins (Interview I10). Respondents mentioned that there was both a local and international market for pangolins. Live animals are often destined for local markets and restaurants while dead pangolins, scales and skin are headed for international markets, predominantly located in Asia. One respondent (Interview I14) remarked that many international shipments of pangolin are shipped together with ivory,

suggesting that either the same supply networks or transporters are involved. With regards to pangolin trafficking through Malawi one respondent said (Interview I23):

> "Pangolin trade you've got an individual or two individuals, predominantly from Mozambique walking across a border with a pangolin. …And so what we're seeing is, again, we feel a reflection of a decentralized market where quite a significant number of pangolins were being purchased and consumed for food in the major cities, largely a Chinese community being the consumers."

Graphic 9: Pangolin trafficking incidents in South Africa (1 January 2019 to 30 June 2021)



Source: Department of Forestry, Fisheries and the Environment (2021)

Trafficking experts pointed to the DRC as a smuggling conduit for pangolin - one of the inland routes to Nigeria from where a lot of recent seizures in Asia had shipped. Pangolin scales remain sought after in Asia and retail prices have risen since 2017. The Wildlife Justice Commission (2021) has documented an increasing prevalence of mixed shipments of ivory and pangolin scales from Africa to Asia. They predict that pangolin scales could be substituting ivory in illegal wildlife markets in China in the future.

8.5 Lion poaching and trafficking of bones and other body parts

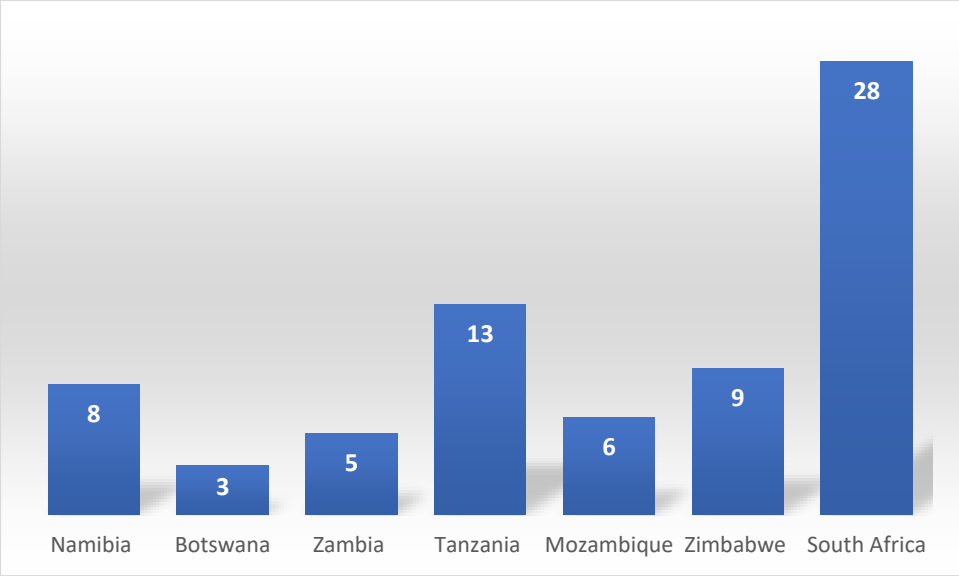
Views on lion poaching and the trafficking of body parts including claws, teeth, bones, skins, fat and gelatine cakes made from bones were divergent amongst research respondents. While some respondents talked of an uptick in lion poaching in northern Mozambique, South Africa and Tanzania, others said that many cases of lion deaths were poisoning incidents linked to human-carnivore conflict.

Livestock farmers and community members would lay out poisoned meat in an act of retaliatory poisoning. In some instances, claws, faces, teeth or bones were removed from poisoned carcasses (also compare with Hübschle, 2021). An expert (Interview I02) commented that although there might be few lion poaching cases in Botswana, human-wildlife conflict reports had "skyrocketed". A study conducted by TRAFFIC documented that some lion body parts had local markets including claws, teeth, skin and faces whereas bones

were destined for Asian markets. However, teeth and claws were the most common, internationally traded lion commodity from both Tanzania and Mozambique (Mole and Newton, 2021).

Data captured in TRAFFIC's trade portal suggests 5 out 67 incident reports involved lion poisoning (TRAFFIC, 2021). The majority of reported incidents involve seizures of lion claws, teeth and bones. TRAFFIC did not record lower incident rates since the outbreak of COVID-19 (see Graphic 10).

Graphic 10: Number of lion poaching and trafficking incidents in selected lion range states between 1 January 2016 and 30 October 2021



Source: TRAFFIC (2021), Wildlife Trade Portal

The majority of cases of lion bone trafficking originate from South Africa where the last legal lion bone quota was issued in 2018. Since 2019, any lion bone exports out of South Africa are illegal. The majority of the High Level Panel of Experts also recommended that South Africa should no longer allow captive breeding of lions, keep lions in captivity or use lions or their derivatives commercially. It is unclear what will happen to existing lion breeding facilities in South Africa but some conservationists fear that breeders might euthanise their lions and sell their body parts into illegal markets. Two respondents said that lion breeders might move to Namibia as the country's legislation might allow captive breeding facilities.

9. Trafficking patterns and trends

9.1 Trafficking slowed down

Most experts agreed that trafficking of illegal wildlife and body parts slowed down during the initial lockdown period of March to September 2020. A representative of a regional wildlife crime enforcement body (Interview I17) reported that they had documented a "slow down" in the trafficking of certain species especially with regards to the trafficking of elephant products and rhino horns. Countries such as Zambia, Kenya, Uganda and Tanzania had reported declines "because of the COVID situation, because trafficking of these [elephant products and rhino horn] mainly depend on the availability of airlines, shipping, but then there was this disruption." Discussed in further detail below are changes in trafficking routes and modalities. Respondents remarked however that despite the restrictions wildlife seizures were ongoing throughout the lockdown period. This was also confirmed by entries into the TRAFFIC wildlife trade portal where seizures were noted throughout 2020 and 2021.

9.2 Shift from air to sea travel

Restrictions on air travel disrupted wildlife smuggling and trafficking via cargo and commercial flights out of the subregion. Easy to conceal in check-in or carry-on luggage, the usual mode of smuggling rhino horn out of the region would be to use mules on air planes. However, due to no to low volumes of flights departing from southern Africa to destinations located in Asian markets, there was a pause in rhino trafficking during 2020. Investigators believe that rhino horn was stockpiled in the intervening period and as soon as borders and air travel started re-opening, rhino horn trafficking reignited.

Key trafficking hubs for rhino horn remain Maputo International Airport in Mozambique and OR Tambo in Johannesburg, South Africa. However, security because of COVID-19 regulations "has been tightened up a lot so this had made airports a lot less attractive as a means of transporting." (Interview I15b).

Shipping ports and airports were all closed during the initial lockdown period. Traffickers faced conundrum of wanting to off-load illegal wildlife products but being unable to do so and thus facing possible detection or raids. One respondent observed that large quantities of rhino horn were intercepted during several seizures at OR Tambo International Airport shortly after the "hard" lockdown regulations were lifted in South Africa (Interview Code I18).

An interesting new trend documented by several regional and country experts was that traffickers were focusing more on using shipping routes onboarding container ships, sailboats or dhows to move wildlife contraband. Sail boats and dhows are used to transfer wildlife contraband along the African coastline. In some instances, small fisher boats would meet cargo ships and transfer wildlife contraband at sea for transit to overseas markets. As an example: Vietnamese customs officials discovered a shipment of 138 kg of rhino horn and 3.1 tonnes of lion bones in a container imported from South Africa to Da Nang's Tien Sa port in Central Vietnam in July 2021. The shipment owner had falsely declared the imported goods were wood. Regional experts (Group interview Code I25) confirmed that there was little

control as to what happened at high sea and in sea ports. Some traffickers would transport illegal consignments via several jurisdictions (a process often referred to as “layering”) before dispatching the consignment via a sea port to overseas markets.

9.3 Overland routes grow in importance

Research respondents recognized the growing importance of overland routes from “poaching hotspots” to trafficking hubs and transhipment points. Ancient trade routes that span the East African coastline from Mozambique via Malawi to Tanzania and Kenya and bush routes in the KAZA region are important smuggling routes. One respondent said (I08) that poachers and traffickers were unable to move between towns in the KAZA region because of COVID-19 regulations so: “They got from Zambia to Botswana by walking from Zambia into [Namibia’s] Zambezi province, what some people used to call the Caprivi strip [colonial name]. And they taking the product and they are, they are meeting somebody in Zambia. I think the product is probably being taken into Lusaka by vehicle. We do not know exactly from where in Zambia, but it could be somewhere in the Sesheke area.” Another area where a lot of cross-border trafficking occurs is along the Linyanti Rivers and Kwando Rivers in Angola. When the Rivers are dry or water levels are low it is easy to walk or drive a vehicle across the river bed (Interview I05a). The earlier mentioned 60 km stretch of the M1 highway between Dedza and Ntcheu in Malawi (which is the international border between Malawi and Mozambique) is also an important wildlife trafficking route.

Many respondents were concerned about the **DRC route.** Respondents said that ivory and rhino horn poached north of South Africa is taken to DRC via Zambia; there are many formal (five legal border points) and informal border crossings between the two countries. The **Zambezi** region of Namibia was identified as a key trafficking route and with the town of Katima Mulilo and several nearby villages acting as hubs and safehouses for poachers and traffickers.

Traffickers use motorbikes, private taxis and buses to move wildlife contraband from the poaching site to an internal trafficking hub or to an international transport node – airports or seaports. Ivory is too heavy and bulky for conventional means of transportation other than trucks or large vehicles.

Several states in the SADC region introduced partial or total alcohol bans during specific periods when COVID-19 infection rates were increasing (South Africa, Botswana and Namibia – and Kenya not a SADC member state). An interesting observation was made by one respondent with regards to alcohol bootlegging (Interview I05). He said that cross-border alcohol smuggling had increased to feed growing demand. Once the bootleggers had dropped off the alcohol, they would take back with them other contraband which included wildlife products.

9.4 Regional trafficking hubs

Research respondents identified the cities of **Maputo**, **Lusaka**, **Luanda**, **Johannesburg**, **Katima Mulilo**, **Dar es Salaam** and **Kinshasa** as major trafficking hubs in the region. Rhino horn continues to be trafficked via **OR Tambo International Airport** in Johannesburg and **Maputo International Airport**. The introduction of sniffer dogs and a dedicated new prosecutor that oversees the airport has led to several big seizures in Maputo.

A new bridge at **Kazungula border post** has been identified as a big opportunity for wildlife traffickers. Zambia and Botswana funded the US $259 million infrastructure project in order to bypass the Zambezi River barrier and link the DRC, Tanzania and Zambia to South Africa and Namibia via Botswana. A small pontoon boat was used to ferry traffic between Zambia and Botswana across the Zambezi River prior to the construction of the bridge. This slow mode of transport slowed down the movement of traffic resulting in congestion at the borders. Truckers would spend up to 14 days on transit formalities at the border point. The obvious choice was to use the longer route (approximately 200 km) through Zimbabwe to get to South Africa. One respondent said (Interview I20):

> "In the past they were sitting there for two, three days waiting for the paperwork to be done and then they could go across. If you've got a cargo of smuggling stuff then you get pretty nervous if you are sitting there for two, three days. I recently spoke to a truck driver and he said it is so quick now … at the bridge so that is going to help, but one of the things that I have noticed that when it comes to this whole issue of COVID Africa is very strange when it comes to something like this, suddenly they change their focus and they forget about all other things."

The new Kazungula Bridge is a component of the Trans-African Highway Network and the North-South link between the SADC and COMESA free trade areas (Nkala, 2021). Research respondents said that the new bridge appears to be making a huge difference in terms of trade flows to and from Zambia and the DRC. As Zimbabwe has a poor road network with multiple police and vehicle inspection roadblocks and taxes, truckers and tourists will choose the shorter and more convenient route. Respondents said that they were pushing to get the defence force, wildlife department and custom officials to use sniffer dogs. One respondent (Interview I05b) talked about large volumes of contraband going through the border posts prior to erection of the bridge. He said: " It's probably going to be even worse and I'm talking about humans, drugs, weapons, wildlife products. It's phenomenal what's going through this border here and there's a lot of evidence for that."

The ports of **Durban**, **Beira**, **Luanda**, **Maputo, Walvis Bay** and **Dar es Salaam** are the key exit points and transhipment hubs for wildlife contraband leaving southern Africa for overseas destinations.

9.5 Stockpiling of wildlife products and old products entering illicit trade

Respondents mentioned that stockpiling of wildlife contraband had increased as the usual exit routes were temporarily unavailable to traffickers. There were two linked trends: Firstly,

some stock-piled older wildlife products (especially rhino horn and ivory) entered the market once lockdown regulations started lifting. Secondly, recently poached wildlife and products were stock-piled in anticipation of normal trafficking routes and modes of transportation reopening (e.g. air travel reopening) and higher prices might be paid for wildlife contraband. Stockpiling constituted a huge risk for traffickers and transporters as they usually move "wildlife product" quickly (Interview I01). However, elephant tusks are usually stockpiled as it is not cost efficient "to put one or two tusks in a container" (Interview I01). Zambia's ivory stockpile increased by almost 6 tonnes since the outbreak of the COVID-19 pandemic. 70% of the ivory derives from illegal sources. Curiously most of the ivory appears to have been imported from outside Zambia for stockpiling before exportation to ivory markets (Interview I17). Older stockpiled ivory was entering illegal ivory markets from Mozambique and Tanzania. Poacher and traffickers appear to have been holding onto old stock "when things started to toughen up and it was harder to poach, more people were getting arrested, people stockpiled and held it, like local people, local shooters, local poachers (Interview Code I11)."

9.6 Women adapted to changing modes of transportation

A very interesting observation came from research undertaken in the DRC (Interview I07) where women were getting more actively involved in wildlife trafficking before the outbreak of COVID-19 pandemic. They were however taking different modes of transportation to men like motorcycles and private taxis as opposed to traveling in congested buses and mini-vans. These private modes of transportation were ideal for social distancing and are believed to have proven more resilient to exogenous shocks brought about by the pandemic.

9.7 Important elements of the wildlife crime supply chain move on-line

Research respondents said that COVID-19 had assisted in pushing logistical, payment and trade -related activities on-line. One expert remarked (Interview I08) that the online crime ecosystem had changed supply chain dynamics including ordering and shipping the products as well as better online payment options which includes the use of cryptocurrencies. However, the interface between the on-line ecosystem and default world of wildlife poaching and trafficking remains understudied. There is increasing evidence that wildlife traders in consumer markets reach out to local people living near known sites where desired species of fauna and flora are located. Over the past decade more consumers have been buying wildlife products on-line – this shift has been accelerated by the pandemic and related health restrictions. Wildlife products are either couriered or posted to customers.

9.8 The rise of ivory and rhino horn processing operations in southern Africa

Since the mid-2010s researchers and law enforcement have observed the rise of wildlife processing facilities in southern Africa. Skilled artisans are carving and working on ivory and rhino horn in Chinese-owned processing operations. The processed products are then exported to wildlife markets in Asia. Daniel Stiles (2021) surmises that the local ivory processing could be a response to the closure of legal ivory markets in China at the end of

2017, which effectively ended legal ivory processing in China. According to a rhino trafficking expert (I27), rhino horn processing is also taking place in southern Africa. It is believed that jewellery (buddha beats and bangles) and trinkets carved out of rhino horn are easy to conceal as mules simply wear or stow them in carry-on luggage.

10. Other factors that affected wildlife poaching and trafficking in the intervening period

Beyond the outbreak of the COVID-19 pandemic, the introduction of lockdown regulations and the consequences for wildlife policing, protected area management, international tourism and rural livelihoods, there were several other developments that impacted wildlife poaching and trafficking in southern Africa.

10.1 Policing and prosecutorial successes in Malawi, Namibia, Tanzania and Zambia

Experts believe that the arrests and convictions of Yunhua Lin and 12 other members of his prolific wildlife trafficking network in Malawi have disrupted an important poaching and trafficking node in East Africa. Likewise, the arrest of Yang Fenglan in September 2015, a Chinese businessperson and long-term resident of Tanzania known as the "Ivory Queen" and the arrest and conviction of Boniface Matthew Mariango (nicknamed "Shetani" – the devil in Kiswahili) are seen to have contributed to reduced ivory poaching and trafficking in the subregion. Yang was convicted in February 2019 for leading a wildlife trafficking network that trafficked 860 elephant tusks worth more than US $ 6 million. She and two accomplices were sentenced to direct imprisonment of 15 years. An appeal in May 2021 was set aside and Fenglan remains incarcerated. Mariango and his two brothers were arrested on the outskirts of Dar es Salaam in October 2015 while attempting to smuggle 118 tusks worth US $ 863,000. He had links to poaching gangs in Tanzania, Burundi, Zambia, Mozambique and southern Kenya. Tanzania had developed a strategy of intelligence-led investigations including the National Taskforce on Anti-Poaching (NTAP) after losing 60% of its elephant population between 2009 and 2014 (Taylor, 2021).

Successful intelligence-led investigations led to the above-mentioned arrests and prosecutions of two key wildlife trafficking networks in Malawi and Tanzania. Malawi, Tanzania, Namibia and Zambia have made huge strides in their national response to wildlife poaching and trafficking. In Zambia, an 86% conviction rate was recorded for wildlife crimes. While there may be some delays and a reduction in the conviction rate due to COVID-19, the outlook for all four countries is positive with both regional and international experts commenting on the huge strides made by the four jurisdictions.

10.2 Silo thinking and in-fighting in wildlife law enforcement

While some countries have made strides in developing dedicated wildlife crime strategies, others have been less successful and continue to face capacity constraints, silo thinking and in-fighting amongst different law enforcement agencies, the army (in countries where the army assists in disrupting wildlife crime), and private security actors. Botswana got a bad rap as the Directorate for Intelligence and Security, the Botswana Police Service and the CID, the Botswana Defence Force and the Department of Wildlife and National Parks were blaming one another for the escalation of rhino poaching in the Okavango Delta (Interview I20). However, Botswana is not alone in facing in-fighting and capacity constraints. With the exception of the four "success stories" mentioned under the previous sub-section, experts

pointed to many organizational and institutional issues that undermined law enforcement operations. Silo thinking, capacity and training constraints as well as corruption and collusion with wildlife criminals featured prominently (also see next sub-section).

10.3 Bribery and corruption

Most respondents mentioned bribery and corruption facilitating wildlife poaching and trafficking in the private and public spheres. An interesting account was given by a research respondent involved in anti-poaching operations in South Africa (Interview I18):

> "There is a lot of other things happening like in these times where cash is a problem you get more and more government officials that get involved. If we arrest a poacher at the end of the day when we get to the police station his lawyer is waiting there already. They have traffic officials on the pay list. They have doctors on and they have lawyers on, they have police on so these government officials via their official connections is transporting the product free and I think that's also what happened during the COVID time where they were restricted especially the curfew times and where government officials in the execution of their duties could travel that they used them for transport purposes."

A novelty is that wildlife trafficking networks are recruiting specific people as transportation or cargo experts. According to a law enforcement official (Interview I01), the corruptibility of an official is seen as an important job requirement: "The guy that is corrupt from the airport or the customs office is specifically recruited for his speciality and it's not about the commodity, it's about his influences and his access or his skills that gets it out of being detected." Corruption, collusion and bribery was not only restricted to public officials; respondents also mentioned how influential people associated with the broader wildlife economy, private sector and in traditional leadership roles were assisting poachers and traffickers.

10.4 Anti-poaching operations are self-perpetuating

A very interesting observation was made by a South African expert who works in the private security industry (anti-poaching). The expert (Interview I18) said:

> "The biggest thing is it goes about the legal side we are losing this war on the legal side because of internal involvement. And I have also got a personal saying that the rhino the anti-poaching industry brings a huge amount of income to government. Now why will they take that income away and have 100s and 1000s of people jobless if the problem is solved… look at the security industry it is not only the physical guys it's guns, it's ammunition, it's fences, it's technology, it's a big spin off."

This comment speaks to the observation by several respondents that very little mention is made about the successes in curbing elephant poaching across the region. Would there be less support for anti-poaching and wildlife security if there were less of a threat to wildlife?

Respondents associated with private reserves and game farms spoke about the high cost of wildlife security and how private industries had not received COVID-19 relief grants (which were available to businesses and individuals adversely affected by the COVID-19 lockdown in South Africa).

10.5 Archaic permitting processes

Most SADC states support legal and sustainable wildlife trade. The Convention on the International Trade in Endangered Species of Fauna and Flora (CITES) regulates international trade. National jurisdictions also have their own internal permitting processes linked to domestic laws and regulations. However, many jurisdictions are not handling permitting through electronic databases but through manual (handwritten) systems. Processes are long and onerous and mistakes creep in easily. One law enforcement expert (Interview I01) observed: ”You can’t apply for the permit and wait three months for it and that is why they fuelling the illegality because of the very nature of the business.”

10.6 Economic precarity remains a concern for community conservation initiatives

Community-based natural resource management (CBNRM) has been on the ascendancy for several decades and plays a leading role in contemporary conservation strategies worldwide. The aim of CBNRM models is to strengthen locally accountable institutions for natural resource use and management, enabling Indigenous Peoples and local communities (IPLCs) to make better decisions about the use of land and resources. Community participation in conservation initiatives has taken a whole range of forms, from comprehensive community-centred approaches where management responsibilities and property rights are devolved to communities to symbolic interventions conducted solely to tick boxes in donor reports. Despite the notable achievements in Namibia and Zimbabwe, fundamental challenges remain. Overall there remain relatively few cases of communities obtaining formal authority over land and natural resources on the land. Centralized control over natural resources persists despite the ubiquitous change in the rhetoric over land and resource management (Roe et al., 2009). Conflicts between local groups and other more powerful actors including both state agencies and private sector investors have arisen.

Since inception CBNRM has shown promise with regards to rural development and biodiversity conservation. However the pandemic and associated regulations have shone a light on long-term sustainability and resilience of CBNRM. Lendelvo et al. (2020) undertook a rapid survey of five communal-area conservancies in Namibia to understand the impact of COVID-19 and regulations in the first few months of the pandemic in 2020. They noted the following interlinked impacts: 1) disruption to management and regular operational processes of conservancies, including 2) effects on conservancy wildlife patrolling and monitoring; 3) losses of revenue and cash flow in conservancy business operations; 4) impacts on Joint-Venture Partnerships; 5) impacts on employment opportunities and local livelihoods; 6) effects on community development projects and social benefits, including 7) disruption to funded projects and programmes; and 8) lack of technical capacity regarding communication technologies and equipment. National governments, the private sector and international

donors have provided COVID-19 relief packages to vulnerable communities and community projects in some jurisdictions. However, like elsewhere in the conservation sector, important discussions need to continue on structural inequities underpinning the CBNRM model, the overreliance on air travel (hunters, tourists, international NGOs, donors) for income streams, and the prospects for alternative livelihoods and conservation funding through tapping into the broader wildlife economy and conservation income grants (compare with Büscher and Fletcher, 2019).

11. Other observations

11.1 Cape Town not a node of concern

The authors of the 2019 VukaNow study had noted that none of the contacted experts had identified Cape Town International Airport or the port facilities as trafficking hotspots. Two leading law enforcement officials were contacted during this study and both stated that Cape Town was not a place of interest when it came to the trafficking of the studied species. There had been a few historic cases. Perhaps an important insight is that all direct flights to Asia depart from OR Tambo International Airport. Direct flights from Cape Town to Asia do no longer exist. It makes little operational sense in terms of opportunity costs, efficiency and the risk of detection to ship wildlife contraband from the eastern regions of South Africa where most of the poaching and trafficking occurs to Cape Town only to fly it back to OR Tambo International Airport.

11.2 Massive decreases in elephant poaching in Zambia, Tanzania and Mozambique

Elephant poaching has decreased across the sub-region. The 2019 VukaNow noted that experts appeared unaware of emerging nodes and hotspots such as Sioma Ngwezi National Park. Neither Sioma Ngwezi National Park or any of the previous elephant poaching and trafficking hotspots mentioned in the 2019 report - North Luangwa National Park, South Luangwa National Park and Kafue National Park - were cited as nodes of concern. Niassa Reserve, Selous Game Reserve and Rungwa-Ruha National Park are no longer considered elephant poaching hotspots in Tanzania. In August 2021, Mozambican President Filipe Nyusi announced that for the third consecutive year, no elephants had been poached in Niassa National Reserve and Gorongosa National Park (AllAfrica, 2021). Niassa Reserve thus no longer qualifies as an elephant poaching hotspot. However, poaching and trafficking of lion body parts and pangolin have been linked to Niassa Reserve.

11.3 Islamist uprising in northern Mozambique

Regional experts mentioned that the Islamist uprising in Cabo Delgado in northern Mozambique has led to shifts and changes in wildlife trafficking hubs and routes in southern and East Africa. Since 2021, the sophistication and scale of attacks by the ISIS-affiliated insurgent group Ahlu-Sunna Wa-Jama's (ASWJ) have increased significantly (Global Initiative against Transnational Organized Crime, 2021). The port of Pemba used to be a major transhipment hub for ivory, lion teeth and claws and timber. According to the Global Initiative against Transnational Organised Crime (GITOC), no known ivory consignments have been shipped from Pemba since 2019. Although widely predicted by experts, ASWJ has not taken control of trafficking routes. Territorial control over key sea and land routes and ports would have allowed the insurgents to tax licit and illicit economies. However, research undertaken by the GITOC in January and February 2021 showed that the insurgent-controlled area and the highly-militarised surrounding region provided a logistical conundrum to traffickers who wanted to move contraband through the area. Damage to road infrastructure, the presence

of security forces and risk of violence pose huge operational risks to traffickers and trafficking routes have changed to avoid the high-risk region (Global Initiative against Transnational Organized Crime, 2021)

12. Conclusions and recommendations

There is no doubt that the COVID-19 pandemic and associated quarantine and lockdown regulations impacted wildlife poaching and trafficking, as well as protective and conservation measures implemented to disrupt IWT. While some impacts are short-lived such as the temporary suspension of air travel and linked smuggling routes, others may be long-lived if not permanent including the migration to digital wildlife trading and payment systems of poachers, traffickers and consumers.

With regards to poaching and trafficking hotspots, a key finding is that there are few traditional hotspots in southern Africa with the exception of Kruger National Park and the Okavango Delta. There are however many harm landscapes of concern where high levels of poaching and trafficking were observed over the past three years (Insertion of the maps?). It should also be noted that law enforcers from several national jurisdictions have observed the cyclical and rotational nature of wildlife crime. Poachers move between conservation areas. When law enforcement pressures and linked opportunity costs rise in one area, criminal networks move to areas where the risk of detection is lower. Rhino poachers operating in South Africa are for example highly mobile and adapt fast. While Kruger National Park remains a hotspot, poachers are focusing less on rhino reserves in KwaZulu-Natal and more on private reserves across a huge geographic area spanning from the Eastern Cape to Limpopo Province. In law enforcement parlance, this phenomenon is called crime displacement. Many tried and tested trafficking hub and routes remain active such as Johannesburg, Luanda, Lusaka, Kinshasa, Maputo, Dar es Salaam and Katima Mulilo. Overland routes and shipping have been more established since the beginning of the pandemic. The ports of Durban, Beira, Luanda, Maputo, Walvis Bay and Dar es Salaam are the key exit points and transhipment hubs for wildlife contraband leaving southern Africa for overseas destinations. Although shut down during the early days of lockdown, Maputo International Airport and OR Tambo International Airport are still major transhipment nodes in the international wildlife trade.

As we are still in the pandemic it is too early to draw definite conclusions. However, it has become clear that illegal supply chains and networks were quick to adapt to the new lockdown realities (they are shock resistant) and proved resilient whereas legal wildlife economies, especially those involving international tourism, are struggling to bounce back (they are shock sensitive).

Several recommendations are listed below:

12.1 Community responses and participation key to success

Indigenous Peoples and Local Communities (IPLCs) have historically been excluded from conservation and protected area management. Yet they are the ones who live in or near protected areas often living off the land, having to deal with the negative and positive impacts of sharing living space with wildlife. They are therefore well placed to either participate in wildlife poaching and trafficking, or to help prevent it – depending on the balance of incentives they face (Cooney et al., 2017). The recognition that IPLCs are not only legitimate but key actors and agents of change when it comes to conservation matters but also important partners in the fight against wildlife poaching and trafficking is increasingly

recognized in on-the-ground activities of diverse conservation crime stakeholders. COVID-19 has impacted livelihoods and incentive structures to conserve wildlife negatively. An important element of post-corona recovery plans has to include the interests and sustainable futures of IPLCs.

12.2 Intelligence-led policing crucial for disruption of criminal networks

Research respondents reiterated the importance of intelligence-led policing and following standard operational guidelines of crime scene management and chain of custody. The disruption of three major wildlife trafficking networks was attributed to excellent intelligence gathering, information sharing and police cooperation.

12.3 Dog units play important role in contraband detection

Dog units play an important role in the detection of wildlife contraband. Regional experts and respondents from countries that had notable successes in curbing the flow of wildlife contraband much of the success could be ascribed to the introduction of K9 or dog units. In some jurisdictions, these units have become a major risk factor to wildlife trafficking networks and some traffickers have issued rewards for killing sniffer dogs.

12.4 Legal framework and regulations remain important

Several SADC states have made strides in strengthening existing legal frameworks and policies or adding subsidiary legislation and regulations. An important element of successful legal implementation involves the training of judicial and enforcement officials who are entrusted with implementing and enforcing new laws and regulations.

12.5 Nodal policing and whole-of-society responses show promise

Several states have implemented whole-of-society responses to wildlife poaching and trafficking. Such responses include multi-sectorial cooperation of state officials, representatives from the private sectors, NGOs, civil society and IPLCs all working towards the common goal of wildlife protection and socioeconomic development of IPLCs.

13. Addendum: Unstructured questionnaire

a. Geographical, economic and political context
    - Major political events in country/region since 2016
    - Major economic developments since 2016
    - Any geopolitical events (e.g. rebel activities, terrorism, etc)

b. Life in the times of COVID-19
    - Impact of the pandemic politically, socially, economically
    - COVID-19 regulations and their impact

c. Rhino and/or elephant poaching in the country/region/transport node
    - Trends and latest developments
    - Changes since COVID-19 pandemic and lockdown?
    - What facilitates poaching (institutional, political, tactical, social, historical factors)?
    - What disrupts poaching?
    - Small wins? Shortcomings?

d. Rhino horn and ivory trafficking in the country/region/transport nodes
    - Trends and latest developments
    - Changes since COVID-19 pandemic and lockdown?
    - What facilitates trafficking?
    - What measures disrupt trafficking?

e. Impact of COVID-19 pandemic and lockdown rules on poaching and trafficking
    - Any general observations on how the pandemic and lockdown have impacted wildlife poaching and/or trafficking?
    - Impact of vaccine roll-out: Return to pre-pandemic status quo or not?
    - Recommendations on how to avoid future pandemics

f. Status of current interventions against wildlife poaching and trafficking
    - List of interventions (law enforcement, anti-poaching, judicial and criminal justice system, supply regulation, etc.)
    - How has COVID-19 impacted interventions
    - Thoughts on innovative methods to disrupt poaching and trafficking

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