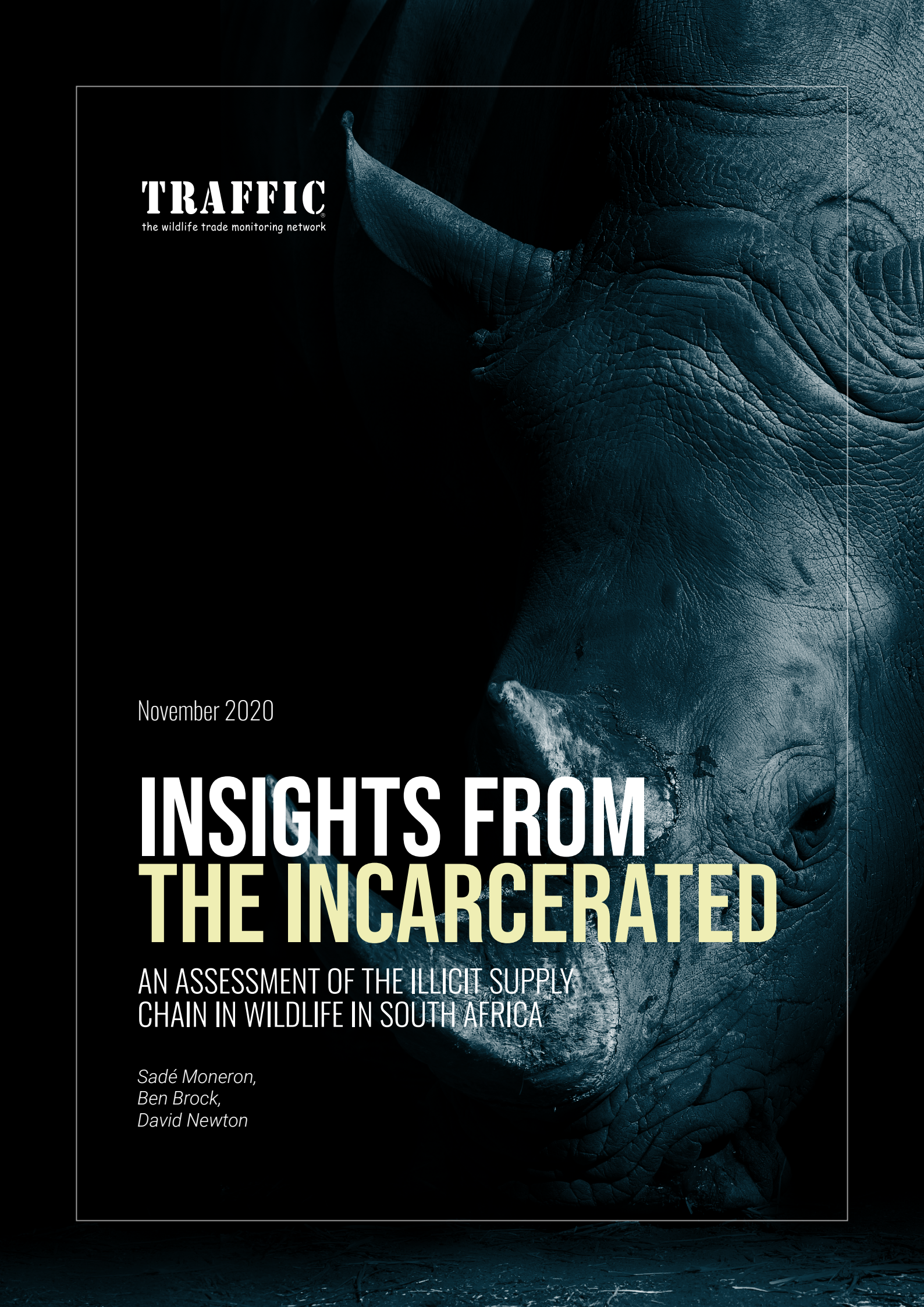


TRAFFIC
the wildlife trade monitoring network

November 2020

INSIGHTS FROM THE INCARCERATED

AN ASSESSMENT OF THE ILLICIT SUPPLY CHAIN IN WILDLIFE IN SOUTH AFRICA

Sadé Moneron,
Ben Brock,
David Newton

TRAFFIC REPORT

TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

SUGGESTED CITATION

Moneron, S., Brock, B., Newton, D. (2020). *Insights from the incarcerated: an assessment of the illicit supply chain in wildlife in South Africa.* Cambridge, UK.

LEAD AUTHOR

Sadé Moneron

ADDITIONAL AUTHORS

Ben Brock, David Newton

PROJECT SUPERVISOR

Camilla Floros

PUBLISHED BY:

TRAFFIC International, Cambridge, United Kingdom.

ISBN: 978-1-911646-29-7

UK Registered Charity No. 1076722

DESIGN

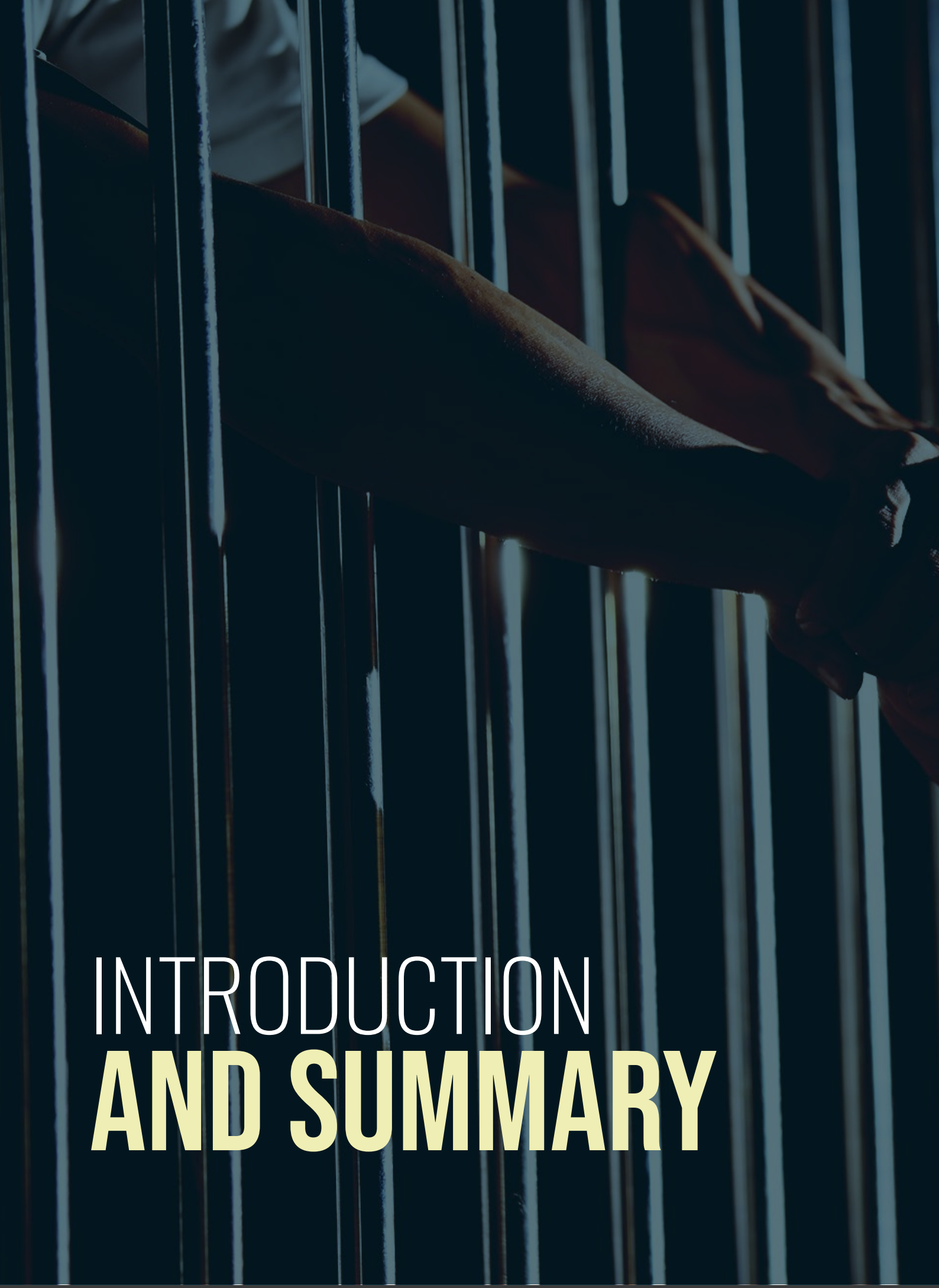
Marcus Cornthwaite

ACKNOWLEDGEMENTS

The preparation, development and production of this publication was made possible with funding provided by Arcadia—a charitable fund of Lisbet Rausing and Peter Baldwin.

This report was produced under the ReTTA project (Reducing Trade Threats to Africa's Wild Species and Ecosystems Through Strengthened Knowledge and Action in Africa and Beyond). The authors especially thank the offenders who voluntarily participated in the research and the Department of Correctional Services in South Africa for granting permission and access to the offenders. Appreciation is also extended to the University of Witwatersrand's Human Research Ethics Committee for the granting of ethical clearance. The authors also extend thanks to the numerous Senior State Advocates and individuals from the Asset Forfeiture Unit of the National Prosecuting Authority, as well as investigators from the South African Police Service and the Eastern Cape Provincial Department of Economic Development, Environmental Affairs and Tourism, who all provided valuable time and insights. The authors also thank Julian Rademeyer who drove the initial stages of this project and Kimon de Greef for his external review of the report and valuable comments. Technical reviews and ongoing support were provided by TRAFFIC colleagues Camilla Floros, Ellen Khomo, Markus Burgener, Thomasina Oldfield, Gayle Burgess, Stephanie Pendry, Dominique Prinsloo, Katrina Mole, Julie Gray, and Richard Thomas. The authors also thank Marcus Cornthwaite for the design and layout of the report.

TABLE OF CONTENTS



INTRODUCTION AND SUMMARY

SCALE AND VALUE OF THE ILLEGAL WILDLIFE TRADE

The illegal trade in wildlife and wildlife products globally is estimated to be worth more than USD72 billion annually, ranking alongside the illegal trafficking of narcotics, arms, and humans. This illegal trade, like other transnational crimes, involves a complex network of various individuals with the ultimate goal of moving the commodities from source to consumer. Based on the need to understand better the *modus operandi* of these criminal networks, this study interviewed 73 offenders incarcerated in 25 of South Africa's correctional centres for offences related to the illegal trade in wildlife. The focus of the study was to uncover how offenders were recruited, the structure and *modus operandi* of these criminal networks, to gain insight into facilitators of these crimes on the economic value of the commodities at different stages in the supply chain and associated benefits for offenders. It was hoped that this research would also form the basis with which to engage with law enforcement to gain a better understanding of the current constraints and challenges faced by these agencies to perform their duties. Understanding the constraints and challenges of these agencies will enable interested stakeholders to identify solutions that may mitigate these constraints.

This study found that most offenders either participated in the initial activity of the illicit wildlife supply chain—the poaching of the wildlife; or participated in supporting roles such as the transport or the storage of the wildlife commodity. Very few individuals (<10) were involved in the recruitment of offenders, or the sale of the commodity to domestic or international buyers or intermediaries. The wildlife commodities targeted by offenders included abalone, cycads and rhino horn. The structure of these networks typically involved the sourcing of the commodity, the subsequent trading between one or more intermediaries, before it was exported or sold to end consumers. Different facilitators were identified by the offenders including corrupt government and private sector individuals.

DISRUPTING ILLEGAL WILDLIFE TRADE NETWORKS

Given the context of these findings, law enforcement efforts which target, arrest and prosecute the individuals further along the supply chain would have more impact in disrupting IWT networks than simply arresting and prosecuting ground level offenders such as poachers. The arrest of ground level offenders could potentially lead to the unravelling and disruption of IWT networks if these arrests are treated as the first step in a broader investigation to identify, arrest and prosecute the individuals further along the supply chain. Additionally, a better understanding of the current challenges faced by law enforcement agencies will be as important as arresting and prosecuting these offenders. Insights into the difficulties (which may be at a strategic or operational level) experienced by law enforcement personnel in carrying out their duties may assist stakeholders (government, civil society and the private sector) in identifying applicable solutions or interventions to mitigate these challenges.

USD72 BILLION
annual worth of illegal wildlife trade globally

SOUTH AFRICA
is a key source, transit, and destination country

TRANSNATIONAL NETWORKS
of organised criminal harvesters, transporters, processors, exporters, and importers move goods

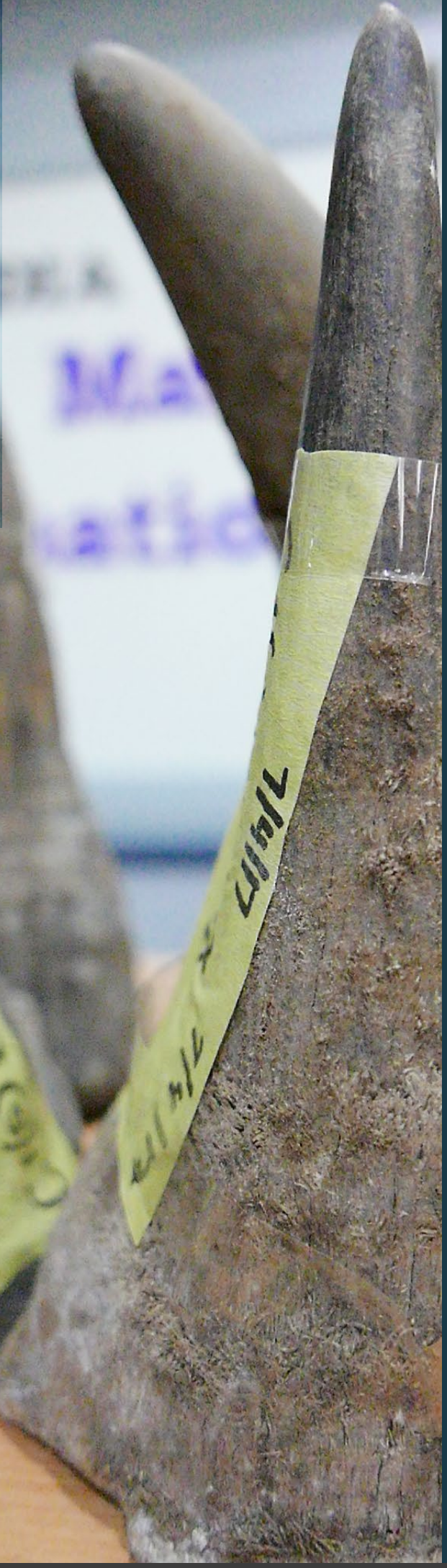
CONTEXT AND BACKGROUND

SOUTH AFRICA AND THE **ILLEGAL WILDLIFE TRADE**

The illegal trade in wildlife and wildlife products (IWT) globally is estimated to be worth more than USD72 billion annually, ranking alongside the illegal trafficking of narcotics, arms, and humans (May, 2017). South Africa is a key country in the illicit trade in wildlife because of its role as a source, transit and destination country (Organisation for Economic Co-operation and Development [OECD], 2016; Utermohlen & Baine, 2018). In the last decade, more than 8,200 rhinoceros (*Ceratotherium* spp. and *Diceros* spp.) have been poached[1] for their horn in South Africa to supply the illicit market (Department of Environment, Forestry & Fisheries [DEFF], 2020), while an estimated 37,000 tonnes of South African Abalone *Haliotis midae* was illegally harvested between 2000 and 2016 (Okes *et al*., 2018). South Africa has also been implicated in the illicit trade of other wildlife commodities[2] such as elephant ivory (*Loxodonta* spp.), shark fins (subclass Elasmobranchii), big cat parts (*Panthera* spp.), pangolins (*Manis* spp.), reptiles (class *Reptilia*), cycads (*Stangeria* and *Encephalartos* spp.) and succulents (Anon., 2014; CapeNature, 2020; Chelin, 2019; Donaldson & Bösenberg, 1999; National Prosecuting Authority [NPA] of South Africa, 2020; Okubamichael *et al*., 2016; United Nations Office on Drugs and Crime [UNODC], 2020; South African Revenue Service [SARS], 2019; Utermohlen & Baine, 2018).

IWT, like other transnational crimes, involves a complex network of various individuals with the ultimate goal of moving the wildlife commodities from source to consumer. This movement of goods requires different responsibilities from the harvesting, transporting, storage, processing, exporting, importing, and distribution of the product to the end-consumer, sometimes thousands of kilometres away from the original source (Liddick, 2011). There is growing awareness and interest in information about the structure and *modus operandi* of IWT networks, including information about transport routes, concealment and financial flows for these commodities (Asia/Pacific Group on Money Laundering [APG] & UNODC, 2017; UNODC, 2020; World Bank, 2018). This information can assist in providing empirical data that can be used to disrupt and dismantle transnational organised criminal networks involved in the illegal wildlife trade.

[1] Poaching refers to the illegal hunting, killing, capturing, harvesting, collection or removal of wild fauna or flora or any of its derivatives or parts.
[2] Commodity in this report means the whole animal or plant, dead or alive, or a part or derivative derived from an animal or plant that was traded.



AIMS AND **OBJECTIVES**

Given this context, this study aimed to deepen the understanding of the *modus operandi* and structure of networks engaged in IWT in South Africa by interviewing offenders convicted for their involvement in such activities.

The study also set out to gain insights into how offenders were recruited into trafficking networks, what facilitated the movement of the commodity, and what the economic value of the commodity was at different stages in the supply chain. A better understanding of how these activities occurred enables legal authorities to respond more effectively to or prevent such crimes in the future. This study will also form the basis with which to engage with law enforcement to understand better the current constraints and challenges faced by these agencies to perform their duties (capacity, funding, corruption, etc.). Understanding the constraints and challenges of these agencies will enable interested stakeholders (including civil society, government institutions, and the private sector) to identify solutions that may mitigate these constraints.

96 MILLION
ABALONE
illegally harvested between 2006–2016

CYCADS
ILLEGAL TRADE
is the main threat to their survival in the wild

8,200
RHINOS
poached in the last decade

METHODS

Interviews with offenders were face to face and semi-structured, using pre-designed interview questions, and were conducted between August 2018 and May 2019. The questions asked in the interviews were used more as a guideline to steer the conversation between the interviewer and interviewee so as to encourage an informal fluid conversation as opposed to a structured survey. The interview questions covered six main themes, shown on the right.

TRAFFIC identified convicted offenders (who received custodial sentences) through online news media, government press releases, interviews with prosecutors, and using TRAFFIC's Wildlife Trade Information System[4]. While an initial total of 178 offenders was identified (for offences related to abalone, cycads, pangolins, reptiles, and rhinos), only 90 offenders were approached to participate in the research. This was based on TRAFFIC's access to the offenders at the time of the study, which was influenced by the availability of South Africa's Department of Correctional Services (DCS) to facilitate the research and the offender's availability to partake in the research. It was found that some offenders had since been released on parole; had been transferred to another facility; or had been transported to attend a court hearing on the day of the proposed interview. Additionally, there were 17 offenders that opted not to participate in the research. TRAFFIC completed interviews with 73 offenders who had been convicted for offences related to abalone, cycads and rhinos and who were distributed across 25 correctional centres in eight of the nine provinces in South Africa (Figure 1).

INTERVIEW **QUESTION THEMES**

1. **IWT ACTIVITIES**
   the offender's participation in IWT activities
2. **MODUS OPERANDI**
   including recruitment, planning and carrying out of the activity
3. **AVOIDING DETECTION**
   methods of transport and concealment for wildlife commodities
4. **VALUE**
   or payment mechanisms[3]
5. **ORGANISED CRIME**
   structure of the criminal network
6. **ADDITIONAL ROLE**
   the role of other facilitators for the illegal movement of wildlife commodities

RESEARCH ETHICS

TRAFFIC acknowledged and abided by all protocols related to interviewing incarcerated individuals by obtaining research ethics approval by a recognised research ethics committee in South Africa (Protocol number H180321, obtained from the University of Witwatersrand) and the Department of Correctional Services. TRAFFIC also acknowledged additional challenges including sampling bias, the use of interpreters and the verification of information. Further details of the research ethics and limitations of the study are included in the corresponding section in TRAFFIC's report The People Beyond the Poaching **traffic.org/beyond-the-poaching**.

[3] All price information collected and reported in this study was adjusted for inflation to reflect equivalent 2020 values. The exchange rate of ZAR17.10 to one USD was used throughout, obtained from Oanda.

[4] This system contains information on wildlife seizures and criminal cases from open sources as well as information collected by TRAFFIC when carrying out surveys.

CHALLENGES IN **ASSESSING PRICE DATA**

Price data are difficult to assess accurately, especially in illegal markets due to a number of challenges. Price and income information was collected during this research from the interviewed offenders for the commodity itself (value per kilogramme/commodity) and the amount paid to individuals along the supply chain for their activities in IWT. The price information collected was sporadic in that the data were for different years, from different poaching networks, and from a relatively small sample size of offenders. Price data may also fluctuate over time as a result of influencing factors such as the exchange rates between different currencies, as or when individuals are arrested and new buyers are found, or as individuals negotiate different pricing. Furthermore, adjustments for inflation were applied to the full range of price data collected (to reflect equivalent 2020 prices). This may add to the bias as the prices for wildlife commodities may not have adjusted in the same way as South Africa's inflation rate. Despite the challenges in accurately assessing price information, the price data collected can still reveal valuable information about the economics of the illegal wildlife supply chain.

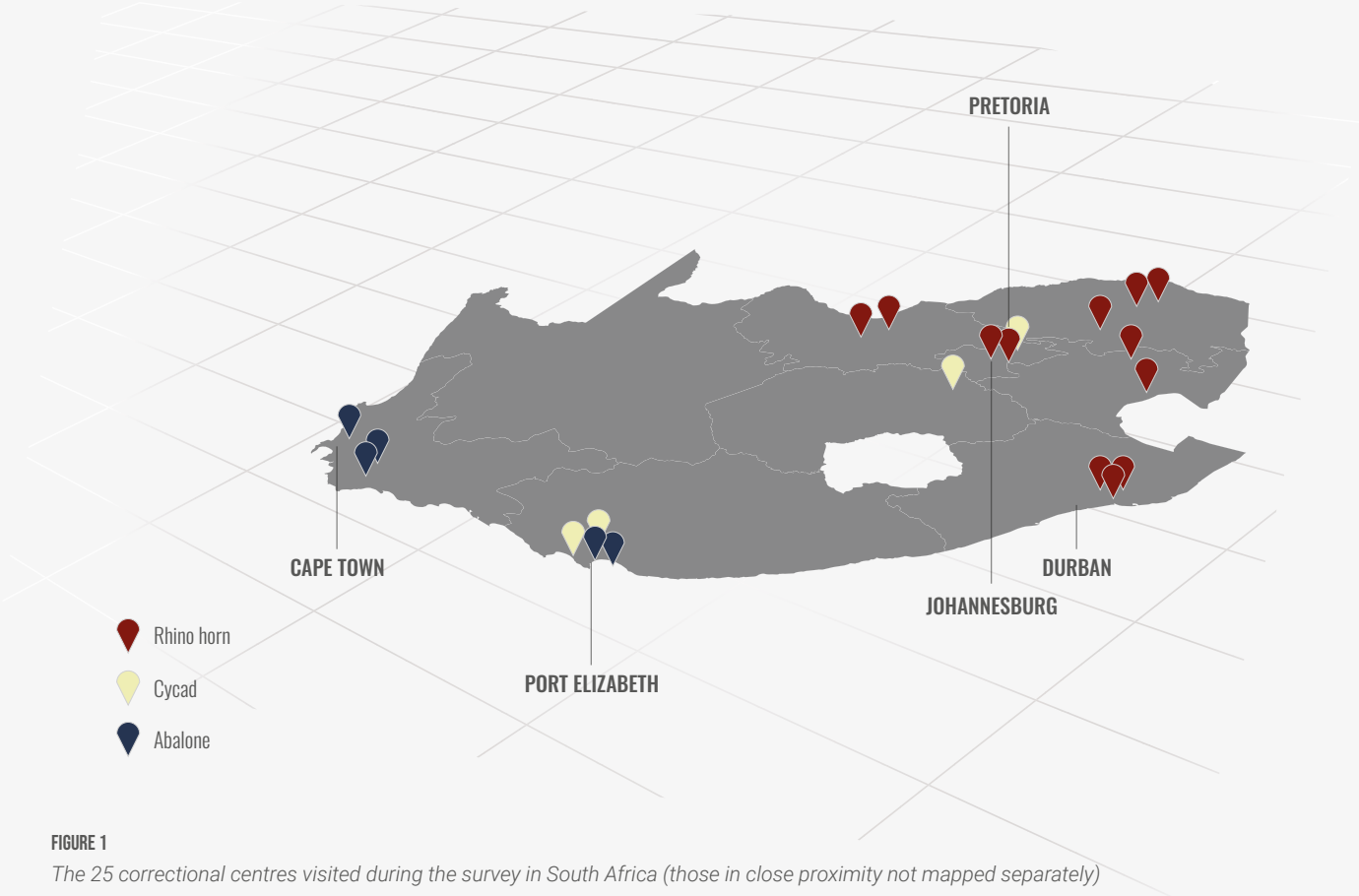


FIGURE 1

The 25 correctional centres visited during the survey in South Africa (those in close proximity not mapped separately)

73 OFFENDERS WERE INTERVIEWED

49 UNIQUE COURT CASES WERE REPRESENTED

74% WERE INVOLVED IN RHINO RELATED OFFENCES

15% WERE INVOLVED IN ABALONE RELATED OFFENCES

11% WERE INVOLVED IN CYCAD RELATED OFFENCES

OVERVIEW OF **FINDINGS**

The 73 offenders interviewed represented 49 unique court cases concluded between 2009 and 2019, with the majority (80%) of cases finalised between 2015 and 2019. Of the 73 interviewed offenders, most were incarcerated for their involvement in the illegal trade in rhinoceros (rhino) horn (74%) with other offenders incarcerated for abalone (15%) and cycad (11%) offences. Interviewed offenders stated that they participated in a range of activities sometimes fulfilling more than one role along the illegal wildlife supply chain including the harvest, transport, storage and processing, and the sale of the commodities to domestic or international intermediaries.

THE STRUCTURE AND *MODUS OPERANDI* OF ILLEGAL WILDLIFE SUPPLY IN SOUTH AFRICA

Interviews with offenders revealed that the illegal trade in abalone, cycads and rhino horn in South Africa followed a similar pattern to other legal and illegal supply chains where the commodity was sourced, traded through any number of intermediaries (including local buyers, consolidators, exporters, importers or retailers), where it could be processed or remanufactured, and then sold to consumers (APG & UNODC, 2017; Broad *et al*., 2003; Duffy, 2016; Kasterine *et al*., 2012; Robinson *et al*., 2018).

The structure and *modus operandi* of the illegal trade in these three wildlife commodities in South Africa, while different from each other, were also similar in many aspects. For example, the offenders who were employed as poachers were mostly males under the age of 35, from marginalised communities who were either unemployed or informally employed, with little access to alternative economic opportunity. These individuals were Mozambican, South African and Zimbabwean nationals.

Individuals that occupied these ground level positions (such as poachers, transporters, processors or storers) in the illicit supply chain changed frequently as circumstances changed, displaying high levels of fluidity in these roles. For example,

if one individual was arrested, his role was replaced either by an existing member of the network or by a newly recruited individual. This was evident in rhino poaching groups and in abalone transport and storage. Additionally, offenders also worked to access and occupy roles further along the supply chain, recognising the increased financial rewards in these positions.

Offenders that occupied intermediary roles within the supply chain were mostly responsible for the recruitment and employment of poachers and transporters; and controlled the movement of the wildlife commodity both domestically and internationally. These intermediaries, particularly with regards to abalone and cycads, explained how their activities and roles progressed over time as they managed to evade arrest or imprisonment. One offender stated that his first activity was the role of "front vehicle". The offender was paid to drive in convoy with another vehicle which was transporting abalone and acted as a lookout for law enforcement. He stated that shortly afterwards he started transporting the abalone as the "back driver" as this role paid more money than his previous activity. Over time, he stated that he had saved some of the cash and become his "boss's partner" by investing some of his cash to purchase more abalone from the divers:

> "I got involved in such a small little point and it just snowballed from there. I became "a boss" – responsible for recruiting drivers, procuring premises for storage and drying, and ensuring the safe delivery of the processed abalone to our Chinese buyers who control the export out of the country. The whole thing just perpetuated to the point that even now I am still not sure how it all happened.
>
> – INTERVIEW 6

The illegal trade in abalone and rhino horn differed from the illegal trade in cycads in that the destination market for these two products were mainly East and South-East Asia. The demand for cycads was mostly domestic, with cycads being highly prized by wealthy individuals living in economic hubs in South Africa.

IWT **HOTSPOTS, TRANSPORT AND CONCEALMENT**

Illicit trade in abalone, cycads and rhino horn in South Africa was concentrated in areas where (1) wildlife products could be sourced, (2) cities or towns with sufficient transport infrastructure for domestic and international transport, and (3) in the case of cycads, where consumers resided.

Interviewed offenders reported that poaching locations were selected based on prior knowledge of the distribution of the targeted commodity i.e. abalone occurred along Western Cape and Eastern Cape coastlines, and Kruger National Park housed populations of rhino. This information was considered "common knowledge" amongst the interviewed offenders. Some offenders stated that they actively researched the whereabouts and distribution of the targeted wildlife. For example, one offender said he conducted internet searches on the locations of private game reserves which housed rhino populations, while another researched the natural distribution of cycads across South Africa.

For some poachers, other factors also played a role in their selection of locations, including ease of access or the influence of corruption. One offender explained that his cousin worked at a privately owned reserve when someone approached him to enquire about the presence of rhinos within that reserve and offered money in return for facilitating the poaching of a rhino. This employee recruited his cousin, experienced in hunting animals, to poach a rhino for its horn in that reserve.

Once a wildlife commodity had been harvested, it was usually transported by vehicle to major economic centres with sufficient transport infrastructure. These included cities with airports or seaports in South Africa, such as Cape Town, Durban, Port Elizabeth, Pretoria and Johannesburg, and in Mozambique, in Maputo and Beira. Transport of the commodity in many instances involved the use of two vehicles, one "front vehicle" that drove ahead of the vehicle carrying the commodity (the "back vehicle"), which acted as a lookout for law enforcement activities and facilitated the delivery of the commodity. The main roads and border posts linking these areas were commonly used to transport the wildlife products. Concealment while in transit ranged from simple methods such as placing the wildlife commodity in a plastic bag or covered in plastic sheeting to more complex methods such as modified hidden compartments within vehicles, altered suspension of vehicles, or hidden amongst legal items such as potatoes or plastic.

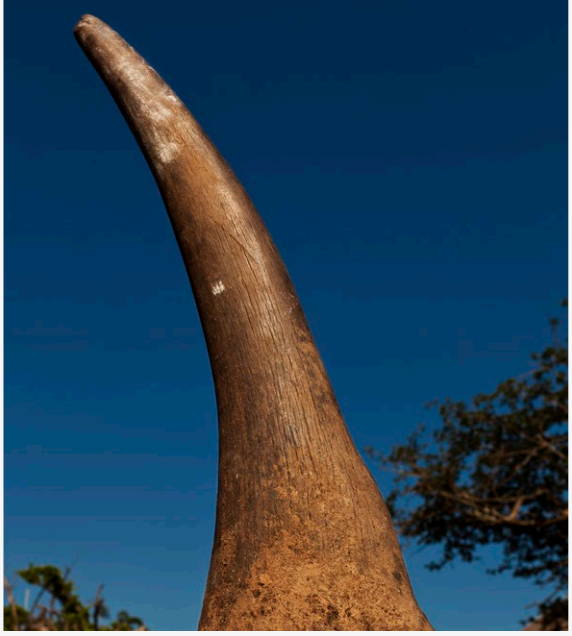
FACILITATORS OF IWT ACTIVITIES

The co-operation of government officials, private sector individuals, and local community members was identified by offenders as direct or indirect facilitators of IWT activities.

Nearly a quarter of the interviews with offenders alluded to elements of corruption within the illicit trade in wildlife in South Africa. These ranged from bribing government customs officials at airports, or border posts to facilitate the movement of an illegal wildlife product from one country to another, to the active involvement of rangers, police officials or soldiers in poaching and transporting wildlife commodities.

Some offenders stated that private sector individuals, such as those practicing law or those within the financial sector, facilitated certain activities related to IWT. For example, one offender responsible for the sale and export of abalone reported using lawyers and accountants to launder his proceeds. In addition, some rhino poaching offenders reported paying traditional healers for remedies to protect them when poaching. Other rhino poaching offenders relied on employees working at or contracted to private game reserves or national parks to inform them about the presence of rhino or facilitate the transport of poachers within the reserve.

Several offenders also claimed that many people residing in the same communities as abalone and rhino poachers, transporters and intermediaries knew who the individuals were that were engaged in IWT activities, but these members of the community did not inform law enforcement agencies about the suspects or their suspected activities. Many offenders claimed that these individuals therefore indirectly facilitated IWT activities.


DETAILED RESULTS
FOR EACH COMMODITY

The following paragraphs will detail the structure of the illicit supply chain, the roles and responsibilities of individuals, *modus operandi* of activities, the value of the commodity at different stages, and the subsequent earnings for offenders. This information is contained in three distinct sections, one for each of the three commodities involved in this study—abalone, rhino horn and cycads.

THE ILLICIT SUPPLY CHAIN **IN SOUTH AFRICAN ABALONE**

This study interviewed ten offenders incarcerated for their involvement in the illegal trade in abalone in South Africa. These offenders were South African nationals and participated in one or more activities including the transport, storage, processing, and purchase and sale of abalone to domestic and international intermediaries or buyers. All these activities occurred prior to the export to East Asia, where abalone is consumed as a highly sought-after seafood delicacy.

SCALE AND VALUE OF ILLICIT ABALONE

South African Abalone is one of five endemic marine mollusc species occurring in a patchy distribution from Port St. Johns in the Eastern Cape through to Saldanha Bay in the Western Cape. Estimates suggest that the abalone population is declining, having decreased by 35% between 2005 and 2014 (Lehohla, 2016). It is a highly sought-after species being harvested both legally and illegally with almost all of the catch being exported to Asian markets where it is consumed as a high-value delicacy. Previous research undertaken by Okes *et al*. (2018) found that the economic value of the illegal abalone trade was estimated at over ZAR10 billion (~USD891 million) between 2000 and 2016 (an annual average of ZAR628 million). In 2016 alone, the estimated total weight of poached South Africa Abalone was 3,244 tonnes, this equates to over 9.5 million animals (Okes *et al*., 2018).

ZAR10 BILLION
ESTIMATED ECONOMIC VALUE OF ILLEGAL ABALONE BETWEEN 2000 AND 2016

35% DECREASE
OF SOUTH AFRICAN ABALONE POPULATIONS BETWEEN 2005 AND 2014

STRUCTURE OF THE ILLICIT SUPPLY CHAIN

The illicit abalone supply chain in South Africa in its most simplified form comprised divers who sourced the abalone from the sea; intermediaries who purchased the abalone from the divers, processed the abalone, and then sold it to exporters, who exported the processed abalone to East Asia (Figure 2). Interviewed offenders also identified many other supporting roles (including boat owners, drivers, carriers, processors, etc.), as well as confirming that the distinction of roles was not always clear-cut, and that one individual could occupy multiple roles, or work to access higher roles in the supply chain. For example, one exporter purchased abalone direct from the divers and was responsible for processing and exporting the abalone to Hong Kong Special Administrative Region (hereinafter "Hong Kong"). In addition, some intermediaries did not process the abalone and sell to the exporter but instead sold their purchased abalone to other intermediaries, inserting themselves as an additional intermediary or middleman in the supply chain.

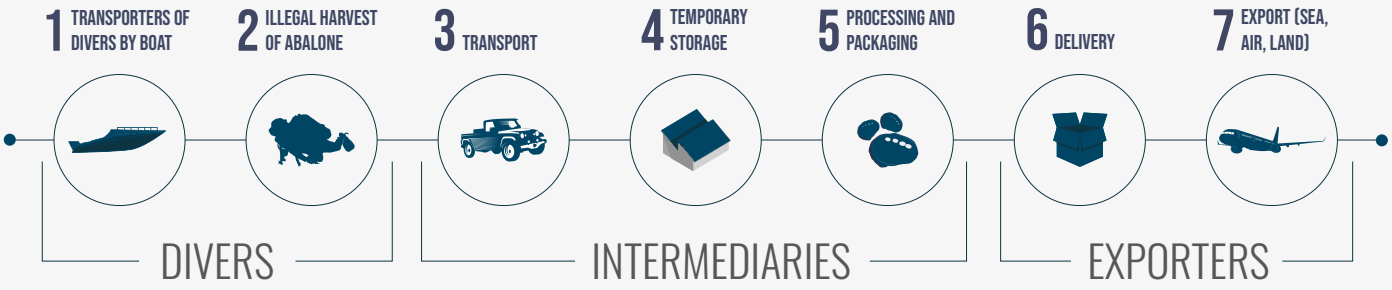


FIGURE 2
A typical simplified illicit abalone supply chain in South Africa, as reported by interviewed offenders

The majority of divers came from marginalised coastal communities who lived in close proximity to areas in which abalone occurs naturally. This included communities situated within the City of Cape Town and the Overstrand municipality in the Western Cape and communities living within the Nelson Mandela Bay municipality in the Eastern Cape.

The intermediaries were also South African nationals living in similar geographic regions to the divers. According to some intermediaries interviewed, the buyers that purchased and exported the abalone were Chinese nationals living in Gauteng province, who controlled the export out of South Africa. In contrast, two of the interviewed offenders stated that they were responsible for exporting the abalone to Hong Kong while another exported to Mozambique (where he stated his buyers would control the export to Hong Kong from Mozambique). All three of these offenders were South African nationals.

MODUS OPERANDI
POACHING

Interviews with offenders revealed that most poaching occurred at night, with boats (usually "rubber ducks"[5]) being launched after 7pm and returning in the morning before sunrise. One intermediary who also owned boats, rented the boats out to divers and he stated that between eight and ten divers could occupy one boat at any one time. Divers used scuba diving equipment (sometimes rented from the boat owner), torches, a flat blade or screwdriver, and netted bags for their poaching expeditions. The same offender said that most divers were not qualified scuba divers, and inexperienced divers simply learnt from the more experienced divers on how the equipment was used. Once the abalone

[5] Common term in South Africa for rigid inflatable boats.

was removed from the rocks, it was placed in netted bags and when full, the diver returned to the surface and the bag was placed on the boat. Divers usually harvested anywhere between 25 kilogrammes and 100 kilogrammes of abalone per night. One offender claimed that on one occasion, ten divers were able to harvest 1.8 tonnes of abalone near Port Alfred (equating to 180 kg per diver).

Another offender claimed that there were sometimes up to 60 boats per night that went out with abalone divers. Divers and diving groups worked together insofar as alerting each other about police or patrol boats. They did not work together to identify reefs where abalone occurred or share any of the profits. This was explained by one offender as follows:

> "There are different groups, but they still talk to each other, because it's them against the police. They also have block watchers [lookouts] everywhere. So, they'll inform each other if there is a patrol boat launching or seen nearby in the vicinity. They help each other in that way, but when they bring the stuff [abalone] out, they do their own thing.
>
> – INTERVIEW 68

TRANSPORT, WEIGHING STATION AND TEMPORARY STORAGE

Once the abalone reached the shoreline, carriers employed by the divers shucked[6] the abalone and delivered it to drivers who were employed by the intermediary to transport the abalone to a pre-determined weighing location. Drivers would be notified of a collection of abalone on the day, and the driver would be told where to meet and at what time by receiving phone calls from the intermediary or other trusted employees of the intermediary. The weighing location was a property of one of the drivers, or property indirectly leased by the intermediary. One offender stated that he purchased a truck and installed scales so that they could weigh the abalone at a different location each time to avoid detection by law enforcement. The abalone catch per diver was weighed and recorded. These weights were sent to the intermediary and the associated cash payments due to the divers was organised. The intermediary would pay the divers at a later stage (sometimes recruiting other individuals to deliver these payments). Subsequent to the weighing process, the abalone was placed into large bags which could hold between 400 kg and 800 kg of abalone and these bags were collected and transported to another location where the abalone would be temporarily stored in freezers. One offender allowed the temporary storage of abalone on the property he was renting after being approached by a family member of a friend asking to rent out the garage on the property to store abalone for a monthly fee. Recruitment of offenders appeared to occur through family and friends, as opposed to the recruitment of offenders unknown to the criminal network.

One offender reported that there were different drivers for different activities. For example the driver who collected the abalone from the carriers and delivered it to the weighing station would not be the same driver who collected the abalone from the weighing station and delivered it to the temporary storage location. Some offenders also stated that there were at least two vehicles used when transporting abalone. One vehicle drove ahead of the vehicle which was carrying the abalone. The use of mobile phones for communication was essential for these activities. One offender claimed that his "employees" (specifically drivers, storers, or packers) were often strangers and communications were via him, while other offenders reported that drivers between the two vehicles knew each other and communicated directly, while keeping the intermediary informed of their movements.

[6] Separated and removed the shell from the body of the abalone

PROCESSING AND PACKAGING

While abalone can be sold and exported in its frozen state, offenders claimed that it was more lucrative to supply processed, dried abalone to the buyers. Processing facilities were usually indirectly leased by the intermediary using identification documents of other individuals. One offender stated that he used identification documents of some of his employees, family members or front companies. This statement appeared to corroborate with another offender's statement who said that he was employed at an illegal processing facility as a general worker and stated that his employer had used his identification documents on the lease agreement for the property without his knowledge.

Processing facilities would usually be selected in secluded areas away from busy towns "due to the obvious odour stemming from the abalone so you would have to select a farm or somewhere away from society." (Interview 68). Processing facilities were said mostly to occur in Gauteng, or municipalities within or adjacent to the cities where the abalone was harvested. Intermediaries interviewed claimed that Chinese nationals would be employed to process the abalone and these individuals would be employed through connections with their counterparts responsible for importing the abalone from South Africa. One offender claimed that the individuals usually came from "rural areas in China" and they would not receive compensation while living in South Africa but that their families in China would be paid on their behalf.

> "It is mostly Chinese nationals that can cook that stuff [abalone] because there's a certain way that it has to be cooked. Because if you overcook it, it's not right, when you undercook it, it's not right. So, there's a certain procedure to follow to get a proper effect. Obviously, the quality determines the price. If your quality is bad, you're going to get a bad price.
>
> – INTERVIEW 68

The processing of abalone can take anywhere between three and 20 days depending on the size of the abalone and involves the use of equipment such as pots, gas burners, shelving, fans for ventilation, etc. until the abalone is dried (Okes *et al*., 2018). Once the abalone is dried, it is usually packaged into the method of concealment chosen by an intermediary who had to be "innovative" (Interview 6) when deciding how to transport the abalone. Offenders stated that they packaged abalone in potato bags, or concealed them in coffins, speaker boxes, modified hidden compartments, or under the guise of public transport transporting individuals from one destination to another, as explained by one offender:

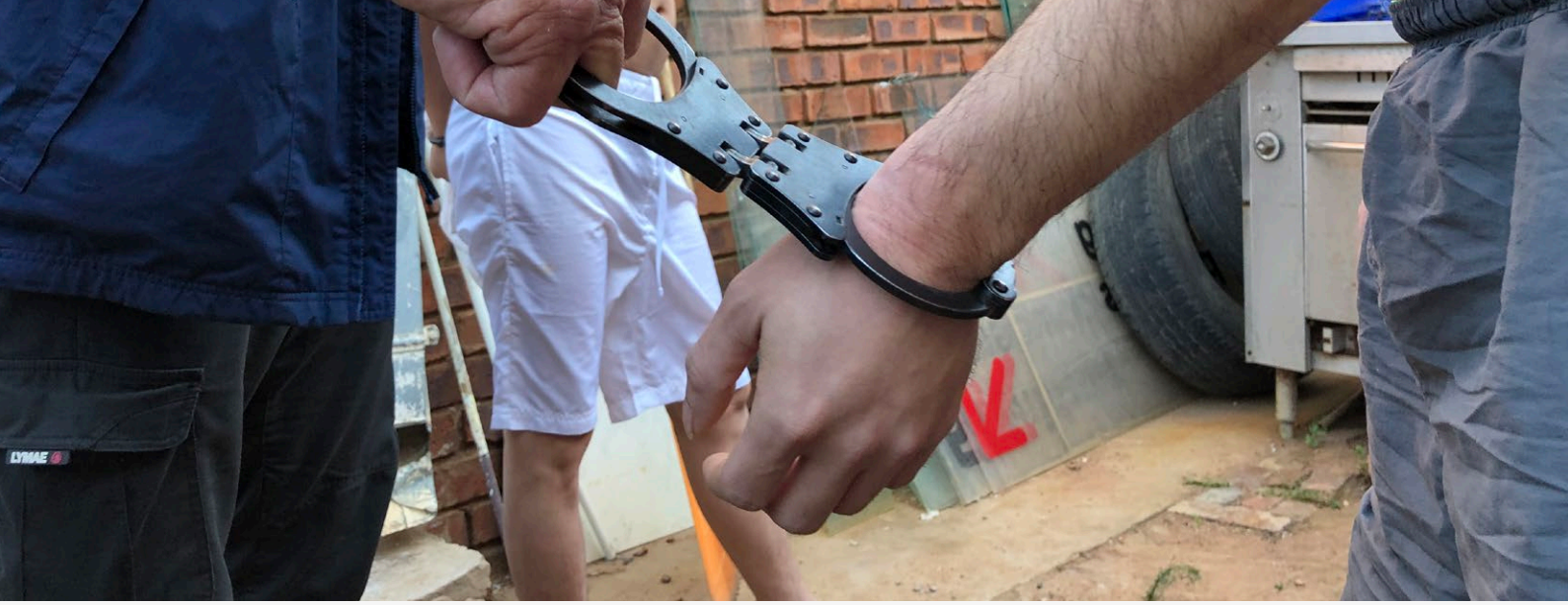
> "So, we got a taxi [minibus taxi] and then we got big speakers and boxes and seats and everything to make it look legit… Just before the border we would pick up anybody that wanted to go across [the border]. They did not know they were sitting on millions of Rands of abalone.
>
> – INTERVIEW 6

EXPORT

Only three offenders interviewed were involved in activities relating to the export of abalone out of South Africa. Hong Kong was said to be the importer for the abalone and abalone arrived in Hong Kong by sea or by air. One offender reported exporting the abalone by road to Mozambique where the buyers of the abalone would be responsible for the export to Hong Kong. He stated that the buyers would make use of Maputo International Airport and Beira International Airport for these exports. For exports out of South Africa, both Cape Town International Airport and OR Tambo International Airport were cited, with the abalone being transported as cargo sometimes declared as other goods such as recycled plastic, dried fruit or other legal seafood products (Interview 6, 19, 21 & 68). Abalone was also exported by sea from Cape Town and Durban harbours (Interview 19 & 21).

These offenders also made claims that the bribing of government officials facilitated the export of abalone out of South Africa, particularly at airports and land borders. The magnitude of payments differed depending on the situation. For example, one offender claimed to pay an official "a few hundred South African Rand" to allow their vehicle to pass through the border unchecked while another claimed to have one of his employees look into the spending habits of an official and subsequently coerced the official by paying for some of these expenses:

> "I got my assistant to track one of the customs officials, and to find out what the official likes to do on weekends…where he likes to go and what he likes to do in his spare time. It just so happened that he liked to visit the casino each week…from there we used to give him credit vouchers for the casino so he can have some fun. After some time, we asked him to do us a favour in return. This favour was obviously to allow our consignment safe passage through the airport.
>
> – INTERVIEW 19



DIVERS
REPORTEDLY EARNED
ZAR300–450/KG

BOAT OWNERS
RENTAL FEES PER DAY:
~ZAR12,000

DRIVERS:
REPORTEDLY EARNED
ZAR5-15/KG

TEMPORARY STORAGE:
REPORTEDLY EARNED
ZAR12/KG

INTERMEDIARIES:
EXCLUDING OR BEFORE EXPENSES, REPORTEDLY EARNED
ZAR4,400-5,300/KG

Prices shown above have been adjusted for inflation

ECONOMICS OF THE SUPPLY CHAIN

Price information was collected from the interviewed offenders for the commodity (value per kilogramme) along different stages in the supply chain, including the amount of money paid to various supporting individuals for their activities or roles in the supply chain. This section (including Figure 3) details where price information was obtained and reflects the income earned and expenses incurred for different activities.

All offenders reported to being paid or paying their employees in cash in South African Rands. Divers earned between ZAR300–450 per kilogramme (~USD17–26 per kilogramme) of abalone poached. Divers then paid their assistants (such as carriers) and rental fees to the boat owner. The rental fee for the boat rental was approximately ZAR12,000 (~USD700) per day and this amount was split between the divers on the boat (between eight and ten divers). The divers' assistants were paid on average ZAR500 (~USD29) per bag (as opposed to per kilogramme) for carrying the abalone from the beach to the driver who collected the abalone. One offender claimed that on average, divers earned between ZAR10,000 and ZAR20,000 (~USD585–1,170) per dive.

Drivers were paid different amounts depending on whether they carried the abalone in their vehicle or if they drove in convoy with the vehicle carrying the abalone. Offenders claimed that drivers earned between ZAR5 and ZAR15 (<USD1) per kilogramme of abalone being transported. The drivers were also reimbursed for fuel use and other expenses while transporting abalone. One driver claimed to earn approximately ZAR10,000 (~USD585) per week for transporting abalone.

The individuals responsible for the temporary storage of the abalone earned approximately ZAR12 (<USD1) per kilogramme of abalone. Another offender who temporarily stored abalone at his residence claimed to earn a pre-determined amount of ZAR20,000 (~USD1,170) per month regardless of the quantity of the abalone stored at his premises. This same offender claimed that other individuals storing abalone earned approximately ZAR30,000 (~USD1,755) per month.

According to the sale price information received from offenders, intermediaries earned the equivalent of between ZAR4,400 and ZAR5,300 (~USD257–310) per kilogramme of dried abalone—between five and ten times higher than the price that they originally purchased it for (prices adjusted for inflation). This profit margin excluded any expenses incurred by the intermediary including the payment of processing, transport, labour, and any other operational costs. One exporter stated that he would charge his customers for some of these operational costs in addition to the cost of the dried abalone, including storage and transport fees. One offender claimed to sell between three and four tonnes of abalone every month—the equivalent of between approximately ZAR8–10 million (~USD467,836–684,795) per month at the time, according to the offender.

The intermediaries interviewed were not aware of the subsequent sale price after they sold the product to the exporters but some suspected that "they must have sold it for a lot more if you see the lifestyles they are living" (Interview 72). Lau (2018) conducted surveys on the retail price of dried South African Abalone available in Hong Kong

between 2016 and 2017. After adjustments for inflation (for equivalent 2020 values), the estimated average retail price for dried South African Abalone ranged between ZAR8,000–24,000 (~USD467–1,403) per kilogramme depending on the size and quality of the abalone. This estimated retail price could be between two and five times higher than the price reportedly paid to intermediaries, bearing in mind the difficulties in accurately calculating and verifying the price information collected.

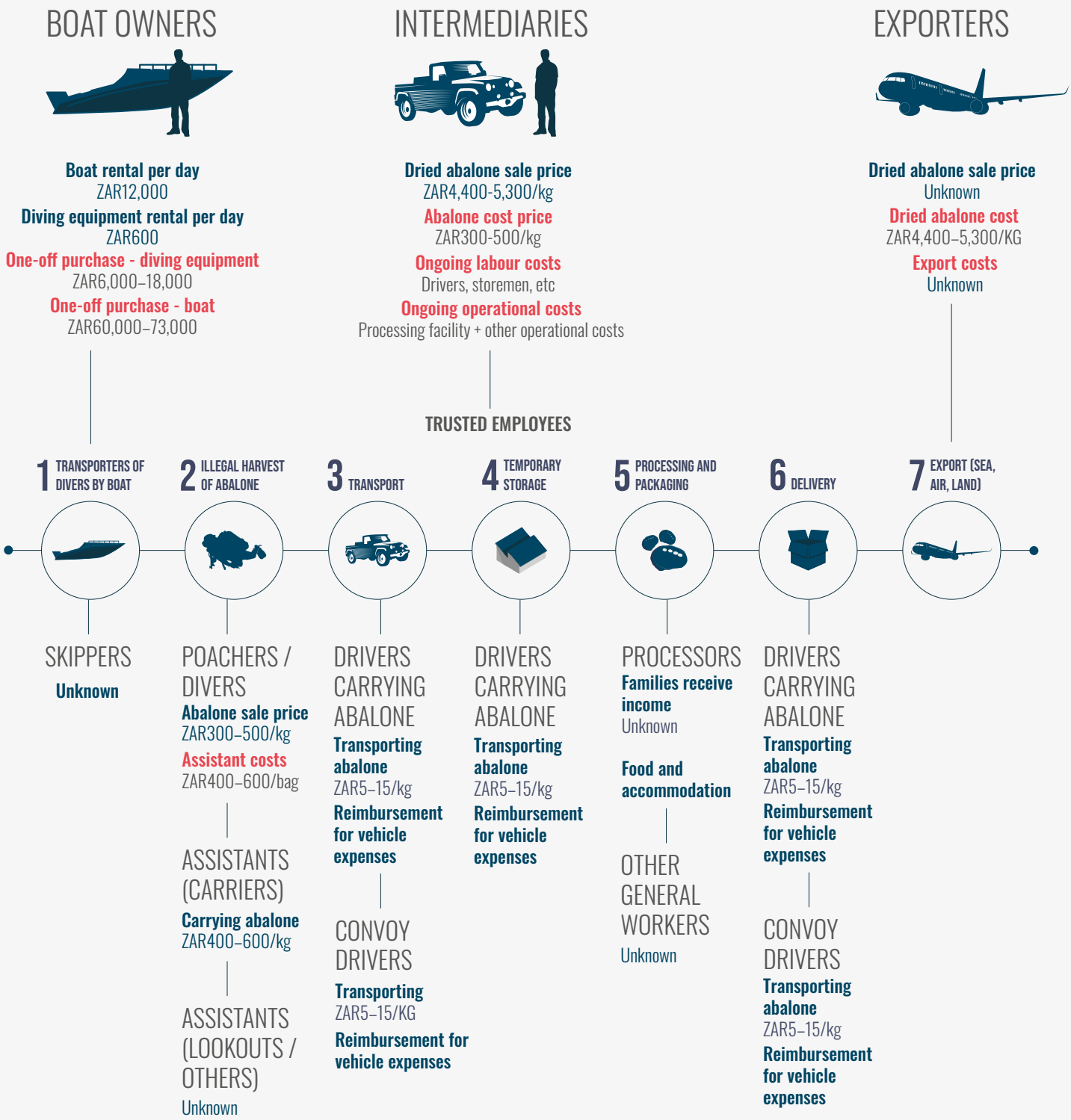


FIGURE 3

The structure and economics of a typical illicit abalone supply chain in South Africa, as reported by interviewed offenders and adjusted for inflation (income incurred by actors is represented in blue while expenses are represented in red)

THE ILLICIT SUPPLY CHAIN IN **RHINO HORN IN SOUTH AFRICA**

This study interviewed a total of 54 offenders related to the illicit trade in rhino horn. The majority of these offenders (45, ~83%) stated that they were only involved in the activity of poaching and were not involved in any other activities such as the subsequent transport or sale of the commodity to an intermediary. The remainder of the offenders were involved in a variety of activities including the poaching, domestic and international transport of rhino horn, the recruitment of poachers, or the sale of rhino horn to intermediaries. Among the 54 offenders was one female, and their nationalities included Mozambican (54%), South African (41%), Zimbabwean (4%) and Chinese (1%) (Table 1).

IWT ACTIVITIES CONDUCTED BY OFFENDERS	NATIONALITY OF OFFENDER			
	CN (N = 1)	MZ (N = 29)	ZA (N = 22)	ZW (N = 2)
Poaching of rhino for its horn	-	28	18	2
Transport of rhino horn domestically or internationally	1	-	2	-
Informer to poachers regarding location of rhino	-	1	-	-
Recruitment of poachers or transporters	-	1	2	-
Sale of rhino horn to domestic or international intermediaries	-	2	3	-

TABLE 1
The nationality of offenders and their self-reported participation in IWT activities.

THE SCALE AND VALUE OF THE ILLICIT SUPPLY CHAIN

South Africa has the highest population of rhinos globally—75% of African rhinos occur within South Africa's borders. While the total rhino poaching numbers have been decreasing in South Africa since 2015, it is estimated that nearly two rhinos are killed every day in South Africa for their horns. Between 2010 and 2016, it is estimated at least 31 tonnes of rhino horn entered the illegal market (Moneron *et al.*, 2017). Based on raw whole rhino horn price information received by intermediaries and poachers interviewed, this could represent ZAR2–4 billion at market (~USD117–234 million).

STRUCTURE OF THE ILLICIT SUPPLY CHAIN IN RHINO HORN

Information collected on the structure of the networks illegally trading in rhino horn was less comprehensive compared to information collected on the illicit trade in cycads and abalone. This could be as a result of interviewing offenders mostly involved in the activity of poaching as opposed to offenders involved in other activities along the supply chain.

A typical flow of rhino horn appeared to move from the poachers who killed the rhino and removed the horn from the source (government owned park or private reserve) and supplied it to their recruiter or boss; this "poaching boss" then supplied the horn to another intermediary for a designated amount of cash per kilogramme of horn (Figure 6). One offender stated the horn was traded with an additional intermediary before the horn was exported out of South Africa to Mozambique. In addition to the core actors described above, there were many supporting actors who facilitated the activities by transporting either the commodity or the individuals involved, or by supplying equipment such as firearms and ammunition.

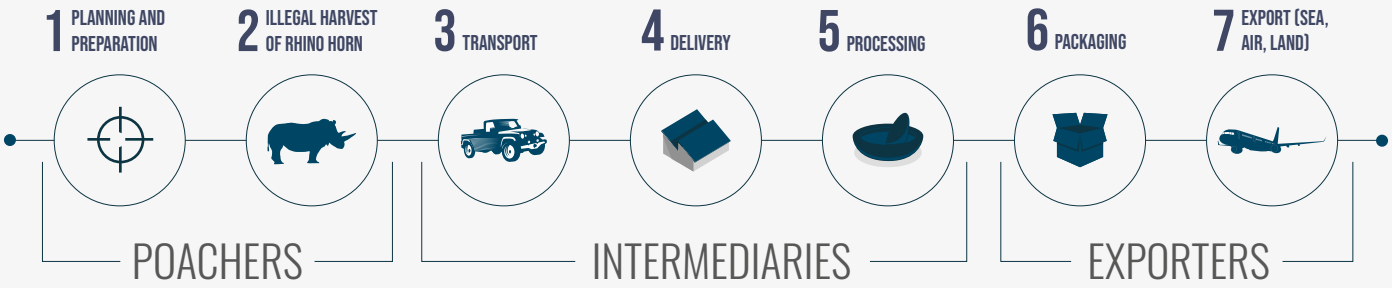


FIGURE 6
A typical illicit supply chain of rhino horn in South Africa, as reported by interviewed offenders

This research interviewed 48 offenders who were involved in the activity of poaching rhinos for horn. The majority of poachers had low education levels, were unemployed or informally employed and came from marginalised communities adjacent to public or private parks or reserves which housed populations of rhino in South Africa or Mozambique. Most poaching groups consisted of experienced repeat offenders who were usually responsible for shooting the rhino, alongside first-time offenders who were responsible for other roles such as the removal of the horn or the carrying of food and water.

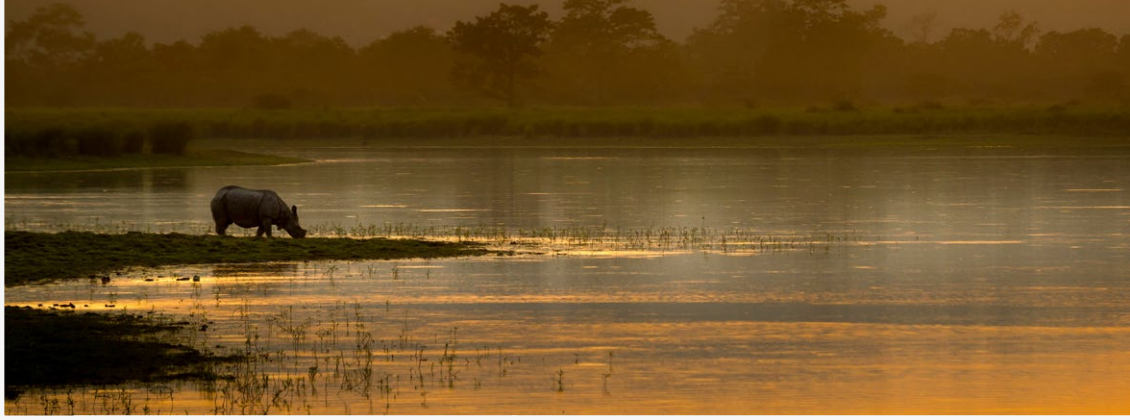
While this study only interviewed three offenders involved as "bosses" or intermediaries, most offenders involved in poaching suggested that their bosses were either South African or Mozambican nationals who resided in neighbouring towns or cities adjacent to the communities where poachers were recruited from. One offender stated that his "boss" was a Zimbabwean national.

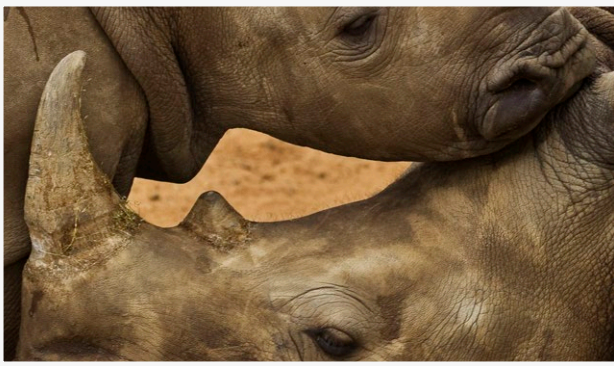
Nationals of Chinese and Vietnamese origin residing in economic hubs in South Africa and Mozambique were reportedly the buyers of the rhino horn according to numerous offenders interviewed. While this study was unable to collect information on other actors involved in the supply chain, previous research conducted by TRAFFIC and others confirmed that rhino horn has been processed in some instances in Africa before it is exported to countries/territories such as mainland China, Hong Kong, and Viet Nam (Hart, 2017; Moneron *et al*., 2017).

MODUS OPERANDI
POACHING

Approximately half (55%) of the offenders involved in rhino poaching were recruited through their immediate social networks, either friends or family members. These offenders admitted that their friends and family were either already involved in rhino poaching or had been approached by someone engaged in IWT. Getting approached by or meeting a stranger was also cited by offenders (26%) while the remaining offenders admitted that they volunteered to become involved in rhino poaching after they saw others reaping the economic benefits. Below are two extracts from separate interviews in which offenders explained the different responses they received when volunteering to poach rhinos:

> "In the village I live in, there are many guys who are able to afford things like cars and houses that I couldn't. I went up to one of them one day and asked him how he is able to afford the things he has and the things he wants. He told me he was a poacher. I asked him if I could go with him and he said that I could go with him the next time he goes, and he will show me how things work.
>
> – INTERVIEW 36





> "I was born in South Africa, but my parents are originally from Mozambique and we returned to Mozambique when I was younger. In the village where I stay, there are poachers there and they are living a good life. They are having cars and houses and I wanted that. I asked some of them if I could go with them, but they told me 'only people who use muthi[7] can go with'. I grew up with my father and we did not use muthi so I couldn't go with them. That is when I convinced a family member to come with me. Another poacher we met organised a gun for us and me and my family member went to Kruger
>
> – INTERVIEW 38

PLANNING

Many offenders stated that rhino poaching events were pre-planned between the individuals involved, which usually included the poachers, drivers and the "boss" who supplied the firearm and ammunition. These "planning sessions" sometimes occurred within local taverns. The more experienced offenders advised the first-time offenders of the park or reserve they were going to target and of the procedures needed to be followed in order to obtain the horn, as described by one offender:

> "We did have a strategising conversation with the other guys beforehand. The most experienced ones shared with us how everything was done, especially how to remove the horn from the rhino. This information was mostly discussed at the taverns
>
> – INTERVIEW 24

[7] Common name for traditional medicine in southern Africa

Follow up instructions to individuals were sent by mobile phone or in person and these instructions consisted of information such as where individuals should meet as well as the day and time. One offender claimed that these instructions happened on the day of the event. The "poaching boss" delivered the firearm and ammunition to the poachers at this time and the poachers would subsequently make their way to the park or reserve.

One offender claimed that before they entered Kruger National Park, their boss would take them to a traditional healer in order to verify that "their path will be clear" and free from intervention by rangers. Five other offenders also made mention of the use of traditional medicine before embarking on poaching expeditions. One offender claimed that if they returned with rhino horn and successfully sold it, they would have to pay the traditional healer part of their profits.

POACHING

Depending on the distance between the park or reserve and where the poachers were situated, and their access to a vehicle and driver, some poachers walked to the park or reserve while others were reportedly dropped off by a driver near the fence of the reserve. For example, one offender from a village in Mozambique reported that entry into Kruger National Park was easy because the park is "so close, only a short walk away." (Interview 45). Most offenders said that entry into the park or reserve was usually under the fence where dongas[8], had occurred after heavy rains. Other offenders claimed that they climbed over the fence or stated that the fence was broken or damaged and subsequent access into the park or reserve was easy, as described below by one offender:

> "When we arrived [at Kruger National Park], we scouted the place for security personnel. We were lucky enough to find a site where the fence was loose and also, there were dongas that made it easy for us to invade the park. There was a vehicle that brought us to the park and would also come fetch us after the job.
>
> – INTERVIEW 24

The majority of offenders claimed to have entered into the park or reserve at night (between 6pm and 9pm). Offenders stated that they encountered and shot a rhino early in the morning close to sunrise (between 4am and 6am) when visibility improved. Offenders claimed not to spend more than one day in the park or reserve due to fears of detection by law enforcement. Offenders claimed that if they did not encounter a rhino by the next day, they would exit the park and try again on a different day. Offenders were very aware of the increased enforcement efforts, particularly in Kruger National Park.

The removal of the horn was conducted using an axe or panga[9] and placed into a plastic bag and into a backpack. The removal process took between five and 20 minutes depending on the offenders' skills. One offender claimed that vultures began to circulate within a few minutes after they shot the rhino and they had to move quickly to avoid detection by rangers. Many offenders (~92%) claimed to be arrested by law enforcement personnel while still within the reserve or park..

DELIVERY TO "POACHING BOSS" AND SUBSEQUENT SALE TO INTERMEDIARIES

Twelve offenders reported that they were able to exit the park or reserve and delivered the rhino horn to their recruiter (this includes repeat offenders who successfully poached on previous occasions and evaded arrest in those instances). Some poachers admitted that they travelled with their recruiter to sell the horns to an intermediary while others stated that their recruiter travelled separately to sell the horn and upon return gave them cash for their efforts. Some offenders claimed that the more experienced poachers would accompany their recruiter to sell the horn, however the first-time offenders did not.

[8] Common name for gully erosion caused by surface water in South Africa

[9] A broad-bladed knife similar to a machete

One offender who participated as a driver admitted that he received a phone call from the "poaching boss" advising him to collect the poachers, firearm, and rhino horns from a designated pick-up point near the reserve in Limpopo province. Upon collection, they travelled to the residence of the "poaching boss" who they would collect and travel in two vehicles to the intermediary's residence in Gauteng province to sell the horns. The offender stated that one vehicle which held the rhino horns would travel approximately five kilometres behind the front vehicle, which acted as a lookout for law enforcement.

Upon arrival at the intermediary's residence, the rhino horns were weighed, and they received cash (in South African Rands) in return for the horns. The money would be concealed in large black bags and the poachers, driver and boss would return home, sharing the profits. The offender stated they split the profits equally (between the five of them) and then some of the poaching group would reimburse others for expenses such as fuel and vehicle use.

Some poachers (who did not accompany their accomplices to sell the horn) stated that they were unaware of the value of the horn and they accepted any amount of cash that was given to them, regardless if they thought they should have earned more. This is described below by two offenders involved in separate rhino poaching cases:

> "I think they [his accomplices] used to rob us because the first time I poached they gave me 30,000 [South African Rand] (~USD1,755). When we went to poach again for a second time, I was arrested and convicted. After that, I heard some poachers were getting a lot more money than what we earned. That is when I realised, even our bosses are robbing us
>
> – INTERVIEW 36

> "They [his accomplices] don't tell us [the value of the horn] it depends how much money he will get when selling the horn, even if we know that they robbing us we just take what they are giving us
>
> – INTERVIEW 37

Interviews with some offenders suggested that there were multiple intermediaries between the poachers and exporters. Interviews with two offenders claimed that there were three intermediaries before the horn was delivered and sold in Mozambique, reportedly to a Vietnamese national for suspected subsequent export. The money made from the sale of the rhino horns in Mozambique was distributed through each of these intermediaries, each taking a share in the profits before the remainder of the profits was split equally among the poachers.

EXPORT OUT OF AFRICA

The majority of offenders interviewed were unaware of where the final destination of the rhino horn was or what the rhino horn was used for. Only one offender interviewed from this study was involved in the export of rhino horn out of Africa. This offender claimed to meet and become friends with an individual while on holiday in southern Africa. The offender stated that after two months, this individual offered money in return for the offender agreeing to carry one piece of luggage to Hong Kong. The offender obliged and was arrested at OR Tambo International Airport in South Africa after customs officials discovered rhino horn contained inside the luggage. A similar *modus operandi* has been reported in other unrelated cases where Asian nationals that travelled to Africa for work or leisure agreed to carry luggage containing pieces of rhino

horn on behalf of someone else (Anon., 2018; Nguyen, 2020). More recent cases have involved South African nationals transporting pieces of rhino horn in their luggage from South Africa to Asia. For example, one South African man was sentenced to 10 years imprisonment in October 2019 after customs officials at Noi Bai International Airport, in Viet Nam found approximately 14 kg of rhino horn in his luggage (Linh, 2019). Another South African man was convicted and sentenced in April 2020 to 17 months imprisonment for agreeing to transport 11 pieces of rhino horn to Viet Nam from Johannesburg, South Africa. The offender was arrested at Changi Airport in Singapore while in transit to Ho Chi Minh City (Alkhatib, 2020).

ECONOMICS OF THE ILLICIT SUPPLY CHAIN IN RHINO HORN

Less than 15% of offenders claimed to have knowledge of the value of rhino horn, while other offenders claimed to be promised a specified amount for the job. The remaining offenders either claimed to be unaware how much money they were going to earn, or they chose not to divulge this information to the interviewer.

Where price information was available, it was adjusted for inflation to reflect current equivalent prices (as price information was collected for different years) and presented in Figure 7. Some first-time poachers who claimed to be responsible for cutting off the horn or carrying food and water claimed to be promised between ZAR28,000 and ZAR60,000 (~USD1,637–3,508) for their efforts, while other poachers and drivers who shared equally in the profits with their accomplices earned between ZAR62,000 and ZAR124,000 (~USD3,625–7,251). The value paid to the intermediary or "poaching boss" differed between ZAR81,000 and ZAR135,000 (~USD4,736–7,894) per kilogramme.

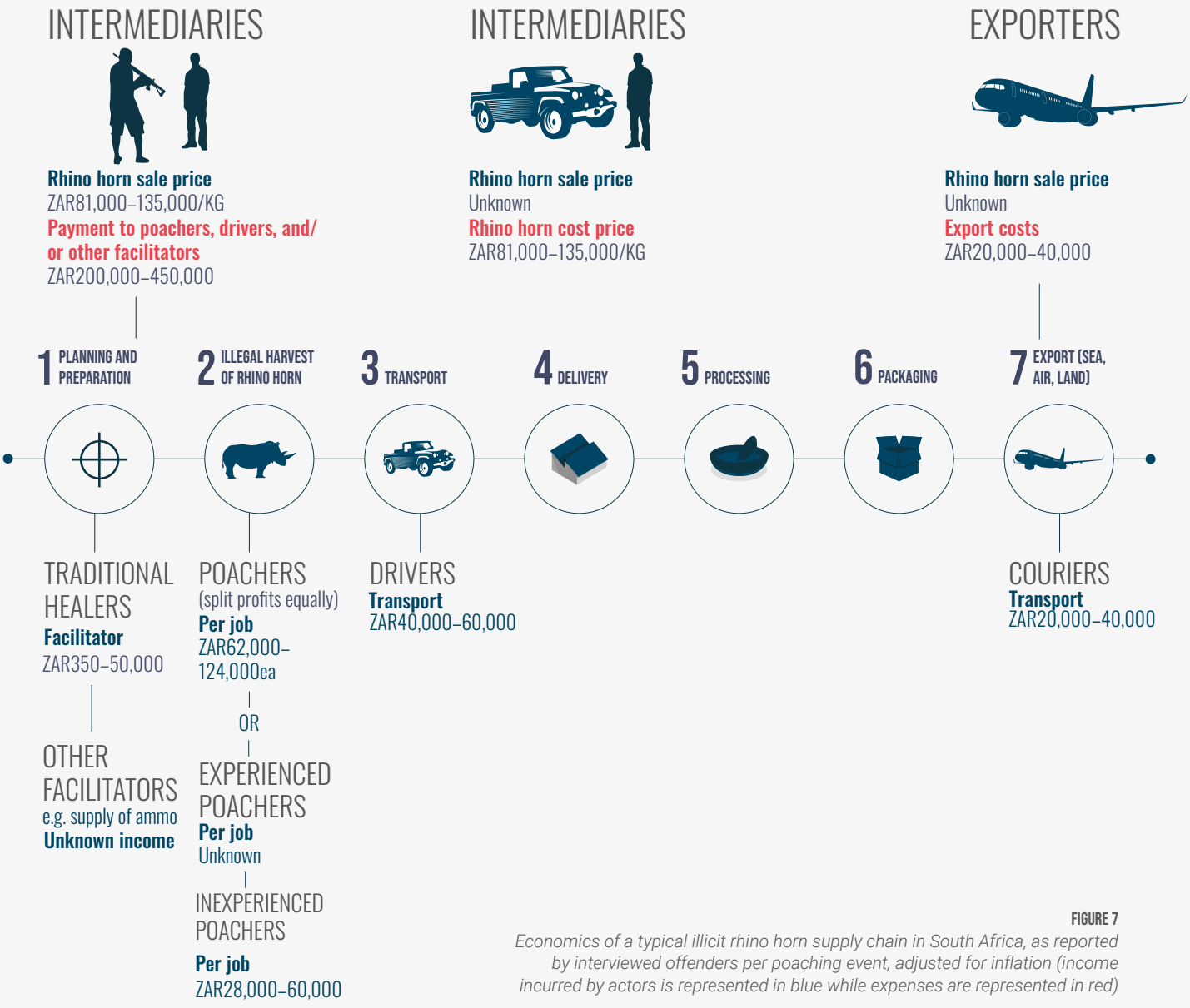


FIGURE 7
Economics of a typical illicit rhino horn supply chain in South Africa, as reported by interviewed offenders per poaching event, adjusted for inflation (income incurred by actors is represented in blue while expenses are represented in red)

THE ILLICIT SUPPLY CHAIN IN **CYCADS IN SOUTH AFRICA**

This study interviewed nine offenders incarcerated for the illicit trade in cycads. Seven of the offenders were Zimbabwean while two of the offenders were South African. Seven offenders interviewed were actively involved in the illegal uprooting of cycads, while one participated as a driver and the other's primary role was to sell cycads to intermediaries and retailers and recruit poachers to uproot cycads around South Africa.

THE SCALE AND VALUE OF THE ILLEGAL CYCAD TRADE

South Africa is a hotspot for cycad diversity, with 38 indigenous species occurring within its borders. Cycads are the most threatened plant family with three of South Africa's species having been classified as Extinct in the Wild, 12 species recorded as Critically Endangered, four are Endangered and nine are classified as Vulnerable (see the International Union for Conservation of Nature's Red List of Threatened Species [IUCN Red List]). Populations of cycads have continued to decline mostly as a result of illegal harvesting (Okubamichael *et al*., 2016). Information supplied by the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) in the Eastern Cape suggests that between 2011 and 2019, over ZAR18.5 million worth of cycads have been removed illegally within the Eastern Cape province (DEDEAT, *in litt*. to S. Moneron, September 2019).

STRUCTURE OF THE ILLICIT SUPPLY CHAIN

The illegal supply chain for cycads in South Africa was found to be different to the illegal trade in abalone and rhino horn in that the dominant market for the cycads was reportedly domestic rather than international (Torgersen, 2017; Interviews, 2018; Interview, 2019). Although there is evidence that an international market existed (Torgersen, 2017; United States Department of Justice, 2003), the findings from interviews with offenders did not reflect this. This study is unable to confirm whether this finding is as a result of the growing domestic demand for cycads, or as a result of interviewed offenders not being aware or forthcoming about information on any subsequent export of cycads.

The networks of the illicit trade in cycads consisted of poachers, intermediaries, retailers and consumers (Figure 8). Poaching groups were usually formed as a result of a lead poacher or recruiter (intermediary) who sometimes employed individuals on false pretences (by not informing them about cycads or the illegal nature of the activity) to uproot the cycads identified by the intermediary (Interview 5, 7, 8, 9, 13, and 75). These individuals then traded the cycads with other intermediaries who in turn sold the illegally harvested plants to individuals involved in the retail sale of cycads to end-consumers. End consumers may be aware or unaware of the illegal sourcing of the cycads when purchasing them (Torgersen, 2017). As with other criminal networks, individuals recognised the increased financial rewards further up the supply chain and worked to access these higher roles. For example, one intermediary stated that after learning that the individual who bought cycads from him resold the plants on for a larger profit, he started working directly with the retailers and bypassed this additional intermediary.

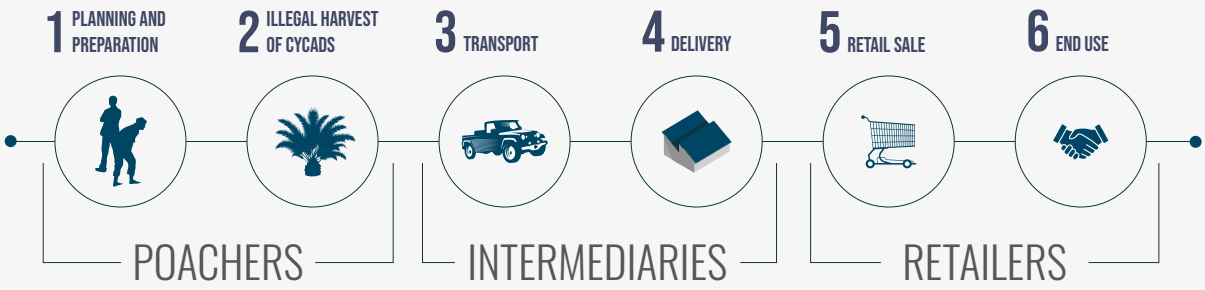


FIGURE 8
A typical illicit cycad supply chain in South Africa, as reported by interviewed offenders

The offenders involved in poaching and transporting cycads claimed they were unemployed and were living in large metropolitans (such as Johannesburg and Port Elizabeth) within South Africa to seek employment due to the lack of economic opportunity in areas where they grew up. All of the offenders were male, with the majority being between the age of 27 and 36 years old at the time of the arrest. One poacher was over 50 years old at the time of his arrest.

Based on interviews with offenders, most intermediaries, retailers and consumers were South African nationals living within the Gauteng province. Statements from interviewed offenders claimed that the retailers purchasing the cycads were mostly nursery owners who then sold the cycads to their consumers. Consumers were thought to be the wealthy elite residing in Johannesburg and Pretoria who purchased the cycads for their gardens (Interview 10, 12, & 75).

MODUS OPERANDI
POACHING

The identification of locations with naturally occurring cycads was crucial given the rarity and decline of cycads in South Africa. One offender claimed to partner with someone who had previously been involved in illegally uprooting cycads and knew areas where cycads were located in the Eastern Cape, Mpumalanga, Limpopo and KwaZulu-Natal provinces. Poaching groups usually consisted of between two and six individuals with a mixture of experience between them. One or two poachers would be repeat offenders who had experience on how to uproot and remove the cycads (without damaging the plant), alongside the others who were usually first-time offenders. Nearly half of the offenders interviewed claimed they were hired "to cut down trees" and were unaware that the activity they were engaging in was illegal. These statements corroborate with another offender's claims that he used to recruit poachers to uproot cycads without informing them of the illegality of the activity:

> "You have to have somebody who knows how to take it [cycad] out carefully, because if it is not done properly, by the time you sell it and replant it, it may die. So, I would have one, maybe two, group leaders who knew what to do. I would pay them more than the other guys who I would recruit because I needed extra hands to help carry. These guys, whom I usually picked up in town, were unemployed people looking for day jobs. They don't know about cycads and I don't tell them. I would pay them much less than the others.
>
> – INTERVIEW 75

The poachers would usually be dropped off at the location where the cycads were and be advised by their boss about which cycads were to be removed. All equipment necessary to uproot the cycads was supplied by their recruiter (such as pickaxes, spades, cutters, bags to place plants into, etc.). One offender stated that they uprooted a variety of different sized cycads. Once the cycads were uprooted, the poachers notified their boss by mobile phone and their boss arranged a driver to collect the poachers and the poached cycads.

In most instances, poaching occurred on both private and publicly owned land without the owners' knowledge. One offender stated that he had approached private farm owners and offered money in return for the cycads on their property. The offender claimed that some of these farmers accepted his offer. Poaching durations also differed depending on the number of cycads being removed. One offender claimed that in one day he and his team were able to remove more than 20 cycads, while other offenders stated the removal of nearly 100 cycads took them two to three days. Offenders claimed that most areas with cycads are situated on farms or land which were vast in size and difficult to navigate, so there was little fear of detection by law enforcement.

TRANSPORT AND DELIVERY TO INTERMEDIARIES OR RETAILERS

Once the cycads were loaded onto the vehicles (usually pick-up trucks), they were driven direct to the intermediaries' or retailers' personal properties. These properties were usually residences or smallholdings located within the City of Johannesburg or City of Tshwane (Pretoria) in Gauteng province. The cycads were "simply covered with plastic sheeting while being transported to Jo'burg [Johannesburg]" according to one offender.

One offender stated that he used to make use of his own personal pick-up truck to transport cycads from the Eastern Cape to Gauteng but changed this *modus operandi* after he became fearful of arrest and potential confiscation of his vehicle. This offender subsequently hired pick-up trucks and recruited a driver to collect and transport the cycads to Gauteng.

SALE OF CYCADS TO CONSUMERS

According to an interview with one repeat offender, retailers who purchased cycads were able to supply permits for the illegally harvested cycads and subsequently sold them to consumers with accompanying permits. The offender stated that most illegally harvested cycads were laundered through nurseries, either to be sold to unsuspecting consumers unaware of the origin of the plants, or to consumers who knowingly purchased the illegally harvested cycads.

ECONOMICS OF THE ILLICIT SUPPLY CHAIN

Price information for the illegally harvested cycads was difficult to obtain as one offender stated that different species of cycads were sold for different prices "depending on how rare the species was and what size the plant was." (Interview 75). The price was also determined by the seller's knowledge of the value of the cycads. For example, one offender stated that when he first started selling cycads his knowledge of cycads and their value was limited and he received approximately ZAR60,000 (~USD3,508) for 20 cycads he illegally harvested. As time went on, he stated that he visited nurseries and used the internet to conduct research on the value of cycads being sold and subsequently

negotiated with the buyers for a higher price going forward. The intermediary stated he then began earning more than ZAR100,000 (>USD5,847) for 20 cycads.

Information was also collected on the renumeration received by various individuals along the supply chain (Figure 9). Two first-time offenders who were recruited to uproot cycads in the Eastern Cape were told they would be paid the equivalent of ZAR750 per day (<USD44, prices adjusted for inflation). These two offenders, reportedly both from Zimbabwe and living in Johannesburg at the time were unemployed and said they were recruited under false pretences. Other first-time offenders were said to be paid up to ZAR2,000 (~USD117) per job (over 2–3 days), while repeat poachers could earn up to ZAR7,500 (~USD438) per job.

A driver who was recruited for the use of his vehicle to collect poachers and deliver them to the poaching site approximately 80–100 km away, and then collect them upon completion was paid the equivalent of ZAR1,900 (~USD111). Another offender who continued to trade in cycads for four years before being arrested was paid ZAR20,000 (~USD1,170) for collecting cycads in KwaZulu-Natal and delivering them in Gauteng.

All offenders interviewed stated that transactions for the poached cycads were paid in cash in South African Rands. While one intermediary owned a company registered in South Africa, he claimed never to launder the cash through his business and instead kept his earnings as cash and used the cash to purchase vehicles and other assets.

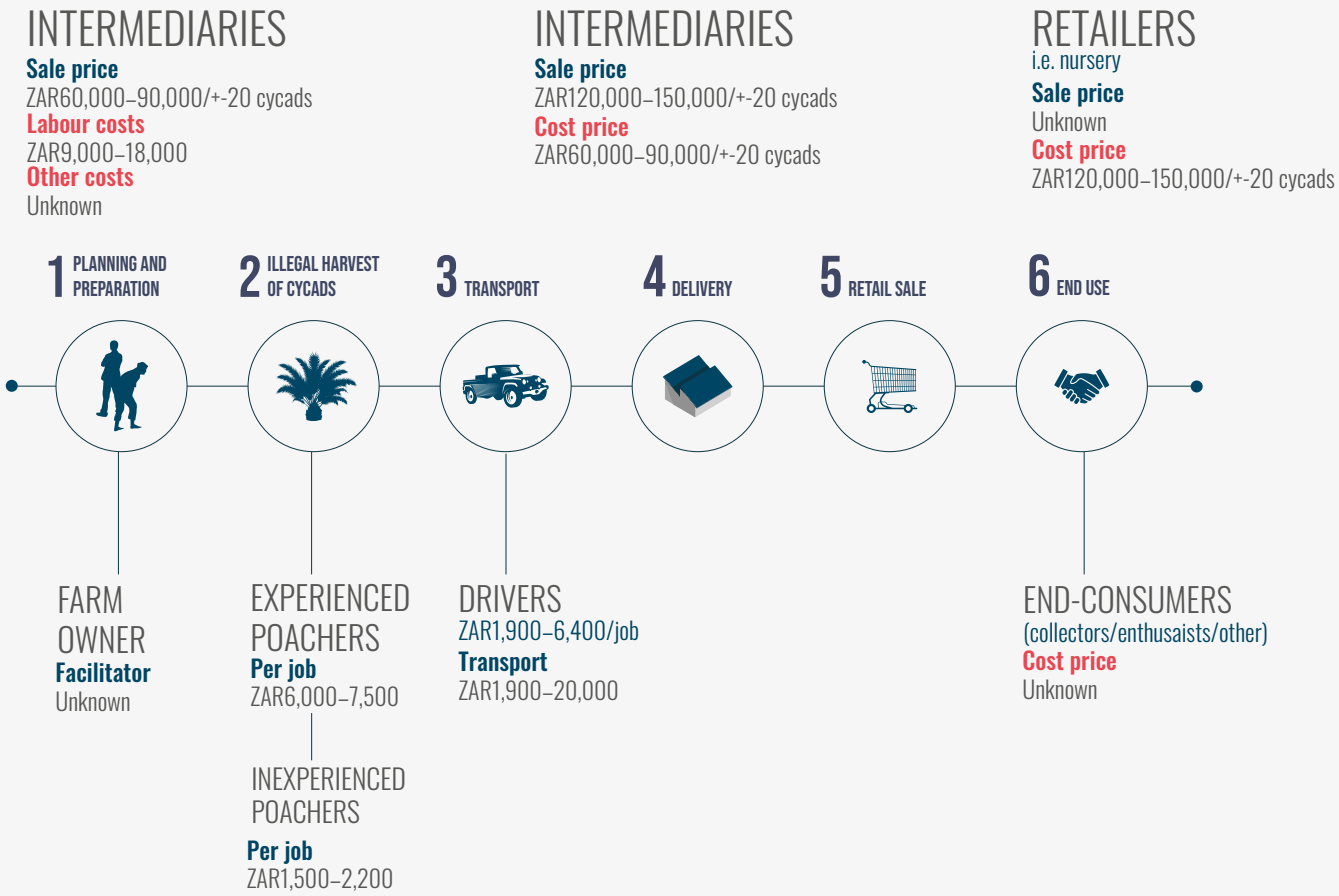


FIGURE 9

Economics of a typical illicit cycad supply chain in South Africa, as reported by interviewed offenders, adjusted for inflation (income incurred by actors is represented in blue while expenses are represented in red)

CONCLUSION

This is the first study to have conducted interviews with a variety of different wildlife offenders (abalone, cycads and rhino horn) incarcerated in correctional centres in South Africa. Despite the limitation of not interviewing other offenders involved in the trade in other wildlife commodities, this study was able to garner insights into the operational dynamics of IWT in South Africa. This report forms part of a broader set of objectives emanating from this research, which also sought to understand the factors that influenced offenders to engage in IWT.

Despite the difference in the wildlife commodity involved, similar patterns existed in the structure of their IWT networks. This study found that poachers were responsible for the sourcing of the wildlife commodity, thereafter the commodity was traded through any number of intermediaries where it could be processed or remanufactured, and then sold to consumers or exporters.

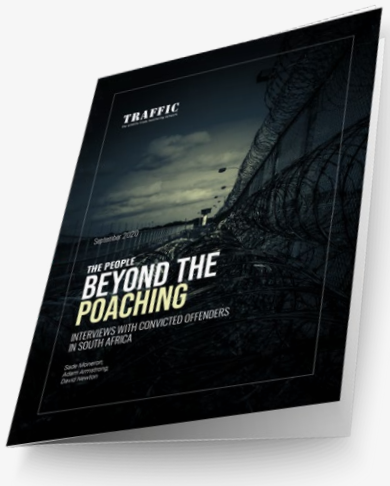
This study found that most offenders either participated in the initial activity of the illicit wildlife supply chain—the poaching of the wildlife; or participated in supporting roles such as the transport or the storage of the wildlife commodity. Very few individuals (<10) were involved in the recruitment of offenders, or the sale of the commodity to domestic or international buyers or intermediaries. Individuals that occupied these ground level positions (poachers and transporters) in the illicit supply chain were found to change frequently as arrests of these individuals occurred. These roles often carry the highest risk of detection by law enforcement, whereas their subsequent arrest and prosecution does little to disrupt the overall illicit trade in these commodities. Senior members of IWT networks knowingly allow these people to take the most risk for the illicit enterprise safe in the knowledge that if they are arrested, they are easy to replace.

Given the context of these findings, opportunities to target the individuals responsible for recruiting ground level offenders and controlling the illicit movement of these commodities to domestic or international buyers would have more impact in disrupting these IWT networks. The arrest of ground level offenders could potentially lead to the unravelling and disruption of IWT networks if these arrests are treated as the first step in a broader investigation to identify, arrest and prosecute the individuals who these ground level offenders are acting on behalf of. The identification of the current challenges (and applicable mitigation interventions) faced by law enforcement agencies will be as important as arresting and prosecuting these offenders. Subsequent potential interventions could include the use of financial investigation strategies that follow the money, analysis of communications or cell phone data, the identification of vulnerabilities through social network analyses, anti-corruption initiatives, and the use of multiple applicable and relevant legislation in initiating arrests, charges and prosecutions.

OPPORTUNITIES

TRAFFIC acknowledged additional opportunities for intervention that may prevent engagement in IWT by individuals. Further details of these recommendations are included in the corresponding section in TRAFFIC's report The People Beyond the Poaching.

Given the context of the findings of this report and the need to target the individuals further along the supply chain, the following opportunities are identified:



1

AN UNDERSTANDING OF THE CHALLENGES FACED BY LAW ENFORCEMENT AGENCIES IN INVESTIGATING INDIVIDUALS FURTHER ALONG THE IWT SUPPLY CHAIN

This research could act as a basis for gaining a better understanding of the challenges faced by law enforcement agencies in investigating, arresting, and prosecuting the individuals profiting the most from the illegal trade in wildlife. Insights into the difficulties experienced by law enforcement personnel in carrying out their duties may assist stakeholders (government, civil society and the private sector) in identifying applicable solutions or interventions to mitigate these challenges.

These barriers may be at a strategic or operational level and could include (among others unknown to TRAFFIC): inadequate funding, low priority of wildlife crimes, corruption, insufficient accountability, capacity and resources, training and capability, and ineffective collaboration and co-ordination between and within different institutions. A holistic understanding of all the challenges faced by law enforcement is crucial.

2

THE PROMOTION, ADOPTION AND IMPLEMENTATION OF APPLICABLE INTERVENTIONS THAT ADDRESS STRATEGIC CHALLENGES FACED BY LAW ENFORCEMENT AGENCIES

Interventions that seek to mitigate the challenges faced by law enforcement at a strategic level should be adopted and implemented. These could include among others, the following:

- ✓ Increased prioritisation of wildlife crime
- ✓ Adequate resourcing of law enforcement initiatives
- ✓ Increased accountability across spheres of government
- ✓ Improved collaboration and co-ordination, specifically with key members from different institutions
- ✓ The development of specialised skills within law enforcement agencies, including ballistics, DNA, electronic forensics, species identification, multilingualism, etc.

3

THE PROMOTION, ADOPTION AND IMPLEMENTATION OF APPLICABLE INTERVENTIONS THAT ADDRESS OPERATIONAL CHALLENGES FACED BY LAW ENFORCEMENT AGENCIES

Interventions that address the operational challenges faced by law enforcement should be identified and implemented in collaboration with interested and affected stakeholders. These interventions may differ dependent on identification of the gaps but could include any number of strategies, tools, resources and initiatives, as outlined in more detail below:

3.1. STRATEGIES AND INITIATIVES THAT FOCUS ON **ANTI-CORRUPTION**

Understanding exactly what type of corruption challenges are faced can allow for the development of bespoke strategies to respond. It is worth considering a range of opportunities. For example, this could be compartmentalising the investigation if internal corruption is suspected, to disrupting corrupt individuals that may be facilitating criminal activity. Additionally, a suspected corrupt individual's illegal activities may be disrupted by an Income Tax investigation into unexplained wealth more easily than actually bringing a corruption case to court.

If the corrupt individual can be identified, it may also be feasible to recruit them to become a covert human intelligence source, which may provide invaluable evidence. Alternatively, this recruitment process approach may lead the corrupt individual to believe that their risk of compromise is so great that they cease or at least temporarily reduce their corrupt facilitation.

3.2. **FINANCIAL INVESTIGATION** STRATEGIES

An effective financial investigation strategy is crucial when applied to IWT networks as the individuals typically recruited to poach or transport the wildlife commodity are easily replaceable and their arrests have little effect on the criminal network. By following the money, it is possible to identify the individuals who are profiting the most from these crimes. International anti-money laundering conventions have well established world-wide agreements between different investigative agencies and can be an effective route to building transnational investigations.

3.3. **COMMUNICATIONS DATA ANALYSIS** AND ELECTRONIC FORENSICS

Efforts to pursue electronic communications data should always be considered as part of the investigative strategy. By collecting call data either from a suspect's mobile phone provider or from a phone download, it may be possible to reconstruct the communications around an IWT event. By analysing the series of communications before and after, it may be possible to build a picture of who receives direction and who is notified of the outcome of a crime helping to plot the hierarchy within the network. Similarly, by storing and sharing records of telecoms data it can become possible to find numbers that appear across multiple cases suggesting that they have an important facilitation and command role across multiple criminal events.

Finally, communications data itself such as cell site analysis, first and last'ing [locating the first and last communications event each day over a period of time to identify a true residential address] and hot-five'ing [requesting the identity and billing address for the 5 most frequently called numbers from a suspect's phone] can help build an understanding of hierarchy and wider criminal networks. All these techniques can help locate, track and profile criminal networks. Collection of this material for intelligence or evidence can offer numerous benefits to delivering long-term large-scale disruption.

3.4. **SOCIAL NETWORK ANALYSES** AND OTHER TOOLS

One of the ways to maximise the impact of scarce resources is to apply it to members of IWT networks that are the hardest to replace and whose absence will create the greatest disruption to the criminal network. These may be individuals with rare skills or in positions of value such as corrupt officials with access to border controls, complicit legal or financial professionals that facilitate money-laundering or trade skills such as mechanics that build specialist concealments. Individuals that have specialist linguistic skills or networks of contacts can also be high value targets.

Clearly identifying these individuals requires a good quality intelligence picture of the groups in question and this investment in developing knowledge of the group will typically lead to more effective and impactful enforcement outcomes. With this in mind and given the severity of some IWT sentences, there are opportunities to offer preferential sentences to criminals who are willing to co-operate with law enforcement investigations.

3.5. **THE USE OF MULTIPLE PIECES OF LEGISLATION** TO ENSURE PROSECUTION AND CONVICTION OF INDIVIDUALS

Like many types of crime, IWT networks are likely to contravene a wide range of laws. As a result, it may be worth considering a range of charges. It is clear from the interviews with offenders that charges of trespassing, illegal possession of firearms and ammunition and illegal immigration were routinely used. Given IWT is an acquisitive crime, other approaches could include offences such as racketeering, money laundering, tax evasion, fraud, customs violations, etc.

REFERENCES

Alkhatib, S. (2020). 17 months' jail for man caught at Changi Airport with 11 pieces of rhinoceros horns. *The Strait Times* (SG). https://www.straitstimes.com/singapore/courts-crime/17-months-jail-for-man-caught-at-changi-airport-with-11-pieces-of-rhinoceros#:~:text=Obits.sg-,17%20months'%20jail%20for%20man%20caught%20at%20Changi%20Airport,11%20pieces%20of%20rhinoceros%20horns&text=SINGAPORE%20%2D%20A%20man%20was%20promised,on%20Wednesday%20(April%208). 8th April.

Anon. (2006). Five sentenced for R8m abalone smuggling. *The Independent* (ZA). https://www.iol.co.za/travel/south-africa/five-sentenced-for-r8m-abalone-smuggling-289037. 11th August.

Anon. (2014). Hundreds of dead animals found at South Africa airport. *BBC News* (UK). https://www.bbc.com/news/world-africa-25877368. 31st January.

Anon. (2018). Young Vietnamese caught with four rhino horns at Maputo International Airport – Mozambique. *Club of Mozambique* (MZ). https://clubofmozambique.com/news/young-vietnamese-caught-with-four-rhino-horns-at-maputo-international-airport-mozambique/. 6th March.

APG and UNODC. (2017). *Enhancing the Detection, Investigation and Disruption of Illicit Financial Flows from Wildlife Crime*. APG & UNODC, New York, United States of America.

Broad, S., Mulliken, T. and Roe, D. (2003). The nature and extent of legal and illegal trade in wildlife. In Oldfield, S. (ed). *The Trade in Wildlife: Regulation for Conservation*. Earthscan, London, United Kingdom.

Chelin, R. (2019). *A Question of Scales - Assessing strategies for countering illegal trafficking of pangolins in Africa*. ENACT, Pretoria, South Africa.

DEFF. (2020). Department of Environment, Forestry and Fisheries report back on rhino poaching in South Africa in 2019. [Press Release]. https://www.environment.gov.za/mediarelease/reportbackon2019_rhinopoachingstatistics. 3rd February

Donaldson, J. S. and Bösenberg, J.D. (1999). Changes in the abundance of South African cycads during the 20th century: preliminary data from the study of matched photographs. In Chen, C.J. (ed). *Biology and conservation of cycads*. International Academic Publishers, Beijing, China.

Duffy, R. (2016). The illegal wildlife trade in global perspective. In Elliott, L. & Schaedla, W.H. (eds). *Handbook of Transnational Environmental Crime*. Edward Elgar Publishing, London, United Kingdom.

Erasmus, E. (2017). Twelve people in court after major abalone find. *Tygerburger* (ZA). https://www.netwerk24.com/ZA/Tygerburger/Nuus/twelve-in-court-after-major-abalone-find-20170221-2. 22 February.

May, C. (2017). *Transnational Crime and the Developing World*. Global Financial Integrity, Washington, D.C., United States of America.

Hart, M. (2017). Rhino horn worth R500 000, alleged Lion bones found at house in Wychwood. *Germiston City News* (ZA). http://germistoncitynews.co.za/154695/rhino-horn-lion-bones-found-at-house-in-wychwood/. 20th June.

Kasterine, A., Arbeid, R., Caillabet, O. and Natusch, D. (2012). *The Trade in South-east Asian Python Skins*. International Trade Centre, Geneva, Switzerland.

Lau, W. (2018). *An assessment of South African dried abalone Haliotis midae consumption and trade in Hong Kong*. TRAFFIC International, Cambridge, United Kingdom.

Lehohla, P. (2016). *Environmental Economic Accounts Compendium* Report No. 04-05-20. Statistics SA, Pretoria, South Africa. http://www.statssa.gov.za/publications/Report-04-05-20/Report-04-05-202016.pdf.

Liddick, D. R. (2011). *Crimes Against Nature: Illegal Industries and the Global Environment.* Praeger, Santa Barbara, United States of America.

Linh, N. (2019). Khởi tố 3 vụ buôn lậu hàng hóa qua sân bay quốc tế Nội Bài. Hải quan Online (VN). https://haiquanonline.com.vn/khoi-to-3-vu-buon-lau-hang-hoa-qua-san-bay-quoc-te-noi-bai-104987.html. 17th May

Moneron, S., Okes, N. and Rademeyer, J. (2017). *Pendants, Powder and Pathways – A rapid assessment of smuggling routes and techniques used in the illicit trade in African rhino horn*. TRAFFIC East and Southern Africa, Pretoria, South Africa.

Nguyen, H. (2020). Man gets five years in Hanoi for transporting rhino horns from Africa. *VnExpress* (VN). https://e.vnexpress.net/news/news/man-gets-five-years-in-hanoi-for-transporting-rhino-horns-from-africa-4109005.html. 2nd June.

NPA. (2020). American Sentenced and Banned from South Africa for Theft of Protected Plants [Media Statement]. https://www.npa.gov.za/sites/default/files/media-releases/American%20Sentenced%20and%20Banned%20from%20South%20Africa%20for%20Theft%20of%20Protected%20Plants.pdf. 1st April.

OECD. (2016). *Illicit Trade: Converging Criminal Networks*. OECD Reviews of Risk Management Policies, OECD Publishing, Paris, France.

Okes, N., Bürgener, M., Moneron, S. and Rademeyer, J. (2018). *Empty Shells: An assessment of abalone poaching and trade from southern Africa*. TRAFFIC International, Cambridge, United Kingdom.

Okubamichael, D.Y., Bösenberg, J.D., Hoffman, M.T. and Donaldson, J.S. (2016). Repeat photography confirms alarming decline in South African cycads. *Biodiversity Conservation* 25 (11): 2153–2170.

Robinson, J.E., Fraser, I.M., St. John, F.A.V., Randrianantoandroe, J.C., Andriantsimanarilafye, R.R., Razafimanahakae, J.H., Griffiths, R.A. and Roberts, D.L. (2018). Wildlife supply chains in Madagascar from local collection to global export. *Biological Conservation* 226: 144–152.

SARS. (2019). Customs continues to increase the number of busts year on year: Goods valued at R3.7 billion bust by Customs In the past financial year. [Media Statement]. https://www.sars.gov.za/Media/MediaReleases/Pages/18-April-2019---Customs-continues-to-increase-the-number-of-busts-year-on-year.aspx. 18th April.

Torgersen, J.S. (2017). *Crime, Culture and Collecting: The Illicit Cycad Market in South Africa*. MPhil Thesis. University of Cape Town, South Africa.

United States Department of Justice. (2003). Federal agents arrest six men charged with illegal trafficking in rare plants. [Press Release]. https://www.justice.gov/archive/opa/pr/2001/July/348enrd.htm. 23rd July.

UNODC. (2020). *World Wildlife Crime Report - Trafficking in protected species*. United Nations, New York, United States of America.

Utermohlen, M. and Baine, P. (2018). I*n Plane Sight – Wildlife Trafficking in the Air Transport Sector.* C4ADS, Washington, D. C., United States of America.

World Bank. (2018). *Tools and Resources to Combat Illegal Wildlife Trade*. World Bank, Washington D.C., United States of America.

IMAGE CREDITS

Unless otherwise stated all images are Non-attribution CC2.0.

PAGE	CREDIT
Cover	Donovan van Staden
Inner sleeve	Goddard Photography
1	Sakhorn38
3–4	Elizabeth John / TRAFFIC
7	(*left)* Julian Radameyer / TRAFFIC *(top right)* Mfotophile
8	Sadc Moneron / TRAFFIC
10	(*left to right)* Julian Radameyer / TRAFFIC, Brent Stirton, Vladan Radulovic
13, 15	Julian Radameyer / TRAFFIC
17, 19 *(left)*	Elizabeth John / TRAFFIC
23	Sirirak
25 *(left)*	Olga Ptashko
27	Rudi Hulshof

NOVEMBER 2020

TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

FOR FURTHER INFORMATION CONTACT:
TRAFFIC
Global Office
David Attenborough Building
Pembroke Street
Cambridge CB2 3QZ
UK

+44 (0)1223 277427
traffic@traffic.org
traffic.org

UK Registered Charity No. 1076722,
Registered Limited Company No. 3785518.

TRAFFIC
the wildlife trade monitoring network

ARCADIA
A CHARITABLE FUND OF
LISBET RAUSING & PETER BALDWIN