

**CRIME, CULTURE AND COLLECTING: THE ILLICIT CYCAD MARKET IN
SOUTH AFRICA**

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THESIS

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Abstract

It is widely accepted that illicit markets are driven by specific contextual factors that determine their nature and scope. Two points in particular have not been explored in the literature on wildlife crime. First, while illicit markets around commodities such as drugs and weapons are fuelled by consumers arguably in need of, or addicted to, the product, the desires of buyers that shape wildlife markets are often shaped by cultural norms which may seem irrational to outsiders. Second, given that wildlife markets are seldom as stringently regulated as those in respect of drugs, weapons or other commodities, the nature of the criminal enterprises that source, move and sell the products are possibly very different. The study examines these two factors – the culture of markets and the degree of criminal enterprise or organisation within them – through a case study of a largely unexamined environmental crime market in South Africa, that of rare cycad plants. Cycads are widely exploited, moved and sold in the country by a network of increasingly criminalised operations. State action against these markets is not a priority and has had only few successes in limiting the trade of an increasingly scarce plant. A detailed examination of the market and its consumers suggests that it is strongly shaped by a particular South African culture which draws on (often mythical) connections to the land, including its fauna and flora. Ironically, those active in the market argue that their objective for doing so is conservation, even if illicit collections are the prime threat to the species. Although the academic and conservation community have attempted to develop and implement conservation tools and strategies, limited law enforcement and regulatory mechanisms have produced a flexible illicit market where a set of intermediaries play the key role. While the market shows signs of internal competition, it operates relatively openly, and does not display the levels of violence of other criminal markets in similar stages of development.

KEYWORDS: cycads, illicit markets, culture, criminal enterprise

Plagiarism declaration

I know the meaning of plagiarism and declare that all of the work in the dissertation, save for that which is properly acknowledged, is my own.

Jonas Torgersen

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Chapter 1: Illicit markets

Illicit markets embrace a substantial portion of economies around the world and involve trade of illegal and/or regulated commodities. Even though it is difficult, perhaps impossible, to measure, estimates propose that black market products are worth about US\$1.64 trillion, which represents two percent of the totality of legal market transactions (US\$77 trillion). The most prominent markets include prostitution, illegal gambling, counterfeit electronics, marijuana, cocaine, prescription drug use, counterfeit drugs and electronics (Havoscope, 2017). Unsurprisingly, the size of the licit economy correlates with the size of its illicit counterpart although some countries are home to a disproportionate amount of black markets (Schneider, Buehn & Montenegro, 2010). While countries such as the United States and China are particularly exposed to clandestine economies, globalisation gives rise to transnational markets that blur the line between legal and illegal trade (Andreas, 2004). Like their legal counterparts, illicit markets are multifaceted systems of trade that fluctuate in character over time and place.

Illegal trade, crime trade, crime industry, and enterprise crime are only a number of concepts that attempt to encompass the meaning of crime as business (Von Lampe, 2015). While these concepts are often used interchangeably they generally encompass the role and activities of organised crime groups or networks in managing or controlling such markets. In fact, the study of organised crime was initially an effort to understand the increase of mafia style activities and markets during the latter half of the 20th century (Cressey, 1969). However, contemporary research emphasises concepts such as illicit markets, illegal governance and criminal networks (Von Lampe, 2015). According to Williams (2009), “Illegal markets involve at least four separate categories of commodities and services: (1) prohibited goods or services, such as drugs or commercial sex; (2) regulated commodities, such as antiquities or fauna and flora; (3) taxed commodities, such as cigarettes; and (4) stolen

goods, such as cars” (p. 107). Thus, the definition undermines the focus on criminal syndicates and acknowledges that individuals partake in the trade of prohibited, regulated, taxed and stolen commodities.

The nature and scope of illicit markets fluctuate to a significant degree because of diverse systems of nonconforming transactions. Indeed, it is important to analyse the difference between the wide array of markets that fall outside of the rules and conventions of traditional institutions (Feige, 2016). For example, black markets refer to markets that involve unlawful elements or noncompliant behaviours while grey markets involve the trade of commodities through legal, yet unintended or immoral, distribution channels (Naylor, 2004). In addition, informal economies evade taxation and governmental monitoring, which increase the likelihood of integrating black or grey economies (Feige, 2016). Hence, unobserved markets are characterised by noncompliance and secrecy, whereas their socioeconomic and political impacts depend on the importance of the regulation and severity of the violation.

More specifically, trade of prohibited, regulated, taxed and stolen commodities is a concern because of its potential to cause harm to human virtue and public welfare, although measures of the latter concepts are subjective by nature. Ever since the abolition of the slave trade in the 18th century, civil rights organisations, in conjunction with humanitarian judicial decision-making, have sought to ban markets that violate basic human rights (Arlacchi, 1998). In the aftermath of World War I and World War II, international conventions, multilateral treaties and domestic legislation were implemented to combat the most notorious commodities such as drugs, weapons and humans (Arlacchi, 1998). More recently, trade of antiquities, logged timber, tobacco, biological organs, counterfeit medicine and automobile parts as well as currency have been prohibited or regulated because the adverse impacts associated with the markets (Warchol, 2004; Tjihuis, 2006; Staake et al., 2009).

Although the aforementioned markets arose as a result of demand, the desires of consumers stem from the legal but also the cultural context, which forces subsequent criminal enterprises to respond in accordance with the specific circumstances that drive the market. For instance, numerous illicit markets, such as illegal trade of alcohol and tobacco, transpire to evade taxation, so the price of illegal goods outcompete legal counterparts (Feige, 2016). The criminal enterprises must therefore steal the products or purchase them in other states before smuggling them across borders, which involves a level of risk that depends on the legislation within those states. Furthermore, drug markets involve consumers that are addicted to and subsequently need the product, and stringent legislation along with severe sentences require the criminal enterprises to implement clandestine distribution channels (Reuter, 2009). In addition, the extreme profit margins, without access to criminal and civil courts as well as other entities that could manage disputes, lead the enterprises to operate in ways that ensure the subsistence of the organisation, such as hierarchical command, violence and bribery (Andreas & Wallman, 2009). Outside of drug markets however, the particular culture of other individual markets has not been widely examined and the expanding literature on organised crime most often addresses the interaction between illegality and a set of market conditions (scarcity, costs of delivery and protection, etc.). Yet it could be said that criminal enterprises form in response to the culture of the market and the desires that drive the consumers to purchase the commodities that are often rational and economic in nature.

The illegal wildlife trade

On the other hand, the contextual factors that drive the illegal wildlife trade and the criminal enterprises that arise in response are very different from traditional illicit markets. The illegal wildlife trade is a small, but significant, portion of the totality of illicit markets. It is gradually receiving more attention from governments, scholars and non-governmental

organisations as some estimations suggest that it is the second largest illicit market in the world (Zimmerman, 2003). Although the shadow figure is substantial, the licit market is worth some US\$159 billion per year while the illicit market is annually worth approximately US\$6 billion (Zimmerman, 2003). However, as there is no standard method to measure the value of wildlife, other estimates can be markedly different. For instance, Galster (2008) suggests that the illicit wildlife trade is worth between US\$10 billion and US\$20 billion. Nevertheless, legitimate traders suffer immense monetary losses and the negative environmental impacts are beyond calculation.

Importantly, the illegal wildlife trade involves “the collection, harvesting, possession, processing, acquiring or transporting of wildlife for the purpose of purchasing, importing exporting, selling, bartering or exchanging” (Burgener et al., 2001). The activities relate to any wild animals or plants, but also its derivatives, including endangered, protected and regulated species (South & Wyatt, 2011). Yet, the variety of wildlife products is manifold and purchased by a range of different actors, such as collectors, game farms and circuses. What is more, animal parts are sold for use in African and Asian medicines or as clothing, rugs and decoration in the case of pelts. Several plant species are also poached for holistic medicines and decoration, and marine species are exploited to meet the demand for delicacies throughout the world (Warchol, 2004). Consequently, each market has a set of specific characteristics related to the desires of the consumers and the criminal enterprises that form around the markets.

The desires that drive illegal wildlife markets tend to be based on subjective considerations and may often appear irrational to observers. One such example relates to the myths surrounding certain products. That is, the rhinoceros market is driven by the fact that a subset of the Vietnamese population believes that ivory cures cancer and hangovers, and improves virility (Martin & Stiles, 2003). In a similar vein, the monitor lizard is thought to be

an aphrodisiac in southern India and Malaysia (Parameswaran, 2006) and its reproductive organs feature in black magic rituals in Pakistan (Hashmi et al., 2013). Moreover, the populations of many shark species are declining at an unprecedented rate because their fins are considered as a delicacy in Southeast Asia even though they are relatively tasteless and the shark fin soups are flavoured with broth (Clarke, Milner-Gulland & Bjørndal, 2007). In South Africa, the body parts of African cats can be purchased at traditional markets for holistic medicine purposes and leopard paws are used as talisman against bad luck, for instance (Warchol, 2004). These are just a few examples of wildlife and wildlife products that are being consumed for reasons that lack empirical support and the common denominator is that a set of myths and/or particular cultural context shape the markets.

Another driver relates to the subjectivity of collecting behaviour, which also threatens the survival of certain species. The reptile trade is dominated by European and North American collectors who travel to countries with populations of protected lizards and snakes in order to smuggle rare specimens for private collections and trade. Likewise, the bird trade is fuelled by collectors and dealers who want the most exotic species and legal traders are often being robbed of their most valuable species (Warchol, 2004). Moreover, albeit understudied, palaeontologists have raised concerns about the increasing black market surrounding dinosaur fossils, which targets high-income earners who use them as collectibles or artwork (Ortiz, 2014). Research has shown that collecting is an activity that stimulates the achievement orientation of the collector and although it may have positive effects on the collector, collecting wildlife and wildlife products can threaten species with extinction (Belk & Wallendorf, 1994; Holt & Thompson, 2004; Nusbaumer, 2011).

As a result, the criminal enterprises that respond to these market demands must operate and organise around the contextual factors that drive them. For instance, the rhinoceros trade is characterised by poaching, theft and distribution networks. Since the trade

is transnational in scope, the poaching networks are usually made up of local and often disadvantaged poachers who are either working in conjunction with distributors or incentivised by the market value (Ayling, 2012). Theft networks steal rhino horns from government or private stockpiles and Hewitt (2012) points out that Europol had logged 57 thefts and 12 attempted thefts of rhino horns from museums and private collections. These networks are connected to the distribution networks such as domestic retail networks or transnational smuggling networks (Ayling, 2012). In the latter case, the intermediaries purchase the horns from poachers and subsequently identify customers with the means to smuggle the horn out of the country (Warchol, 2004). Therefore, the transnationality of the trade requires the criminal enterprises to function as small syndicates that oversee each component of the market.

In the case of the market around the abalone, a threatened marine snail, which is considered as a delicacy in South Africa and Southeast Asia, the criminal syndicates operate somewhat differently. That is, researchers have noted that Chinese organised crime syndicates, in conjunction with local gangs, utilise networks to poach, transport and trade the delicacy for outrageous profits (Steinberg, 2015). As marginalised groups in South Africa rely on the abalone economy, the market subsisted in the aftermath of criminalisation, which was a response to the overexploitation of wild populations (Goga, 2014). However, a study found that state officials received bribes from stakeholders and government departments appeared to depend on the proceeds of confiscation to sustain funding (Goga, 2014). Accordingly, the criminal enterprises are more organised than the ones that sustain the rhino market, which is a consequence of the distribution networks between South African and Chinese gangs as well as the legislation that prohibits the trade.

In recent years, governments, scholars and international organisations have launched conservation initiatives and awareness campaigns to save the remaining populations of white

and black rhinos. These include means such as legalising the trade, flooding the market with stockpiles, and implementing a semi-permanent regulated trade under the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Fortunately, the populations of the southern white rhino have increased from 50 in the early 1900s to about 20000 in 2008 even though it is threatened again by the recent poaching crisis (Save the Rhino, 2016). Furthermore, Australian conservationists are attempting to transport rhinos to Australia to preserve the species, which reflects the level of interest and concern (Australian Rhino Project, 2017). Yet, most conservation initiatives and public awareness campaigns are fruitful because the commodity is an emblematic mammal, comparable to dolphins or whales, and organisations illuminate characteristics people can relate to.

Cycads in South Africa

Plant species, on the contrary, receive far less attention and funding though they are necessary for the maintenance of life. Not only do they regulate the water cycle and store carbon dioxide, plants are also, directly or indirectly, the source of all food (Chrispeels & Sadava, 1977). Indeed, oxygen is a by-product of photosynthesis whereby plants convert light energy to chemical energy, which fuels organisms and subsequently provides energy for life on Earth (Field et al., 1998). Additionally, plants are the mainstay of all habitats and are even used in prescription drugs (Abelson, 1990). Therefore, although one in eight plants are threatened with extinction, the level of public outrage is relatively meek.

An example is the way in which poachers and traders harvest a wide range of threatened cycads to a point where drastic interventions are needed to save the species, which is a trend that has been largely ignored by the public. In fact, the demand for rare cycads is so high that Kirstenbosch Botanical Gardens, in Cape Town, chose to cage its most valuable

specimen, belonging to the *Encephalartos woodii*, which is extinct in the wild and worth about ZAR6000 per centimetre.



Figure 1. Caged cycad (*Encephalartos woodii*) exhibited at the Kirstenbosch Botanical Gardens

Cycads are cone-bearing seed plants with wooden trunks and a crown of large evergreen pinnate leaves (Giddy, 1974). Until recently, it was thought that they were remnants from the Jurassic period but contemporary research proposes that cycads stem from an evolutionary explosion that initiated about 12 million years ago (Condamine et al., 2015). The plants occur throughout sub-tropical and tropical regions in the world, and can be divided into three families, *Cycadaceae*, *Stangeriaceae* and *Zamiaceae* (Donaldson, 2003). In Africa, cycads occur in 13 countries and the majority of plants are part of the *Zamiaceae* family.

A staggering 38 out of the planet's 308 species of cycads occur in South Africa with 29 endemic species. These are divided into the genera *Encephalartos* and *Stangeria* although 37 of the species fall within the former. In fact, the entire genus *Encephalartos* is listed in Appendix I of CITES. The International Union for Conservation of Nature (IUCN) has listed ten species as Vulnerable (VU), 12 species as Critically Endangered (CR), four species as

Endangered (EN) while four species are listed as Extinct in the Wild (EW) (Raimondo et al., 2009). Unfortunately, the biology of cycads contributes to their susceptibility for extinction. That is, small population size, restricted geographical range size, slow life history and high trophic levels are factors associated with heightened risks of extinction (Purvis et al., 2000). Cycads are slow-growing species and require large aggregations of individuals, both male and female, to enhance fertilisation success and yield seeds (Donaldson, 2003). However, it is estimated that seven species have less than 100 individuals left in the wild and the aforementioned attributes significantly increase the risk of extinction without radical and swift interventions (Raimondo et al., 2009). Therefore, cycads are the most threatened taxonomic group of organisms in the world.

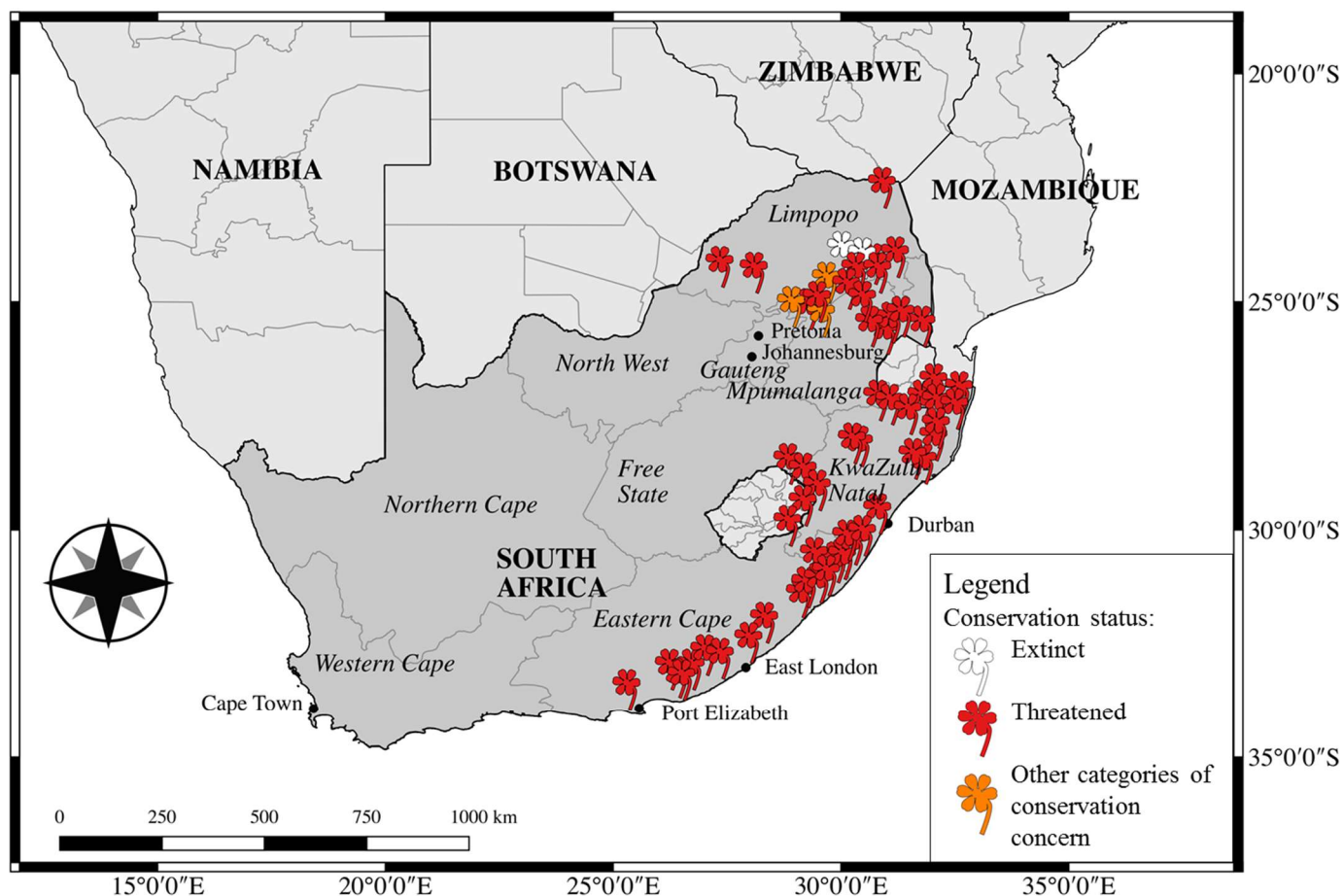


Figure 2: Approximate distribution of cycads in South Africa according to conservation status as per the criteria in the SANBI Red List of South African Plants (SANBI, 2017. Retrieved from <http://redlist.sanbi.org/>)

Poaching and trade of cycads

Natural scientists have flagged the cycad's threatened status for decades and cite poaching, habitat destruction, invasive species and muthi (traditional) collections as the greatest threats to the survival of the species. Although reducing the risk of invasive species and maintaining natural habitats are important endeavours, removal of wild cycads from their natural habitat is the dominant cause of population decline (Dyer, 1965; Giddy, 1974; Goode, 1989; Goldings & Hurter, 2001; Donaldson, 2003; Burgener, Snyman & Hauck, 2001; Warchol et al., 2003). Certainly, addressing poaching and trade could potentially save a number of species from extinction but also prevent vulnerable species from future threats. South African cycads are naturally rare, which is exacerbated by habitat destruction, through urbanisation, alien plant species and traditional use for magical/medicinal purposes as well as harvesting from the wild.

A study conducted by Donaldson & Bosenberg (1999) underpins the decline in the genus *Encephalartos*. By photographing 130 *Encephalartos* sites between 1904 and 1966 followed by a repeat photograph in 1999, they found that poaching for trade and removal for horticultural purposes accounted for 80 percent of population decline. The authors point out that habitat loss, invasive species and muthi harvesting merely had minor impacts on the populations. In a similar vein, Victor & Vold (2003) argue that although urban residential and industrial development, agriculture as well as overgrazing threaten cycad populations in the Albany Centre of Floristic Endemism, South Africa, poaching and trade are the primary causes of population decline. In addition, the population recovery time is extremely lengthy as a loss of 30 plants would take 422 years to recover (Raimondo & Donaldson, 2003) and the risk of extinction does not seem to deter collectors from procuring plants since the estimated number of cycads in private collections may exceed one million individuals (Donaldson, 2003).

More recently, conservation biologists have attempted to explain the characteristics of the illicit cycad market and to describe the individuals involved. Donaldson (2008) argues that disadvantaged people harvest seeds and plants for private collectors who mediocly compensate them while nurseries harvest seeds legally and place them on the international market. The actors involve facilitators, intermediaries and runners, which reflect the hierarchy of analogous illicit markets. For instance, the ivory market involves poachers, intermediaries and often foreign end-buyers, but is obviously more violent through the use of weapons and anti-poaching strategies, which are more likely to lead to confrontation (Hübschle, 2016). Since the cycad trade is regulated rather than prohibited and lacks attention from law enforcement, government and media, the likelihood of violence is low. Indeed, violence in illicit markets usually occurs due to internal competition and/or to stave off law enforcement interventions (Andreas & Wallman, 2009). Apart from some burglaries conveyed by the media, the literature suggests that the majority of poaching and trade remains unreported while any confrontation is likely to occur after-the-fact reducing the likelihood of violent encounters.

For instance, in the province of Limpopo, in the northeastern part of South Africa, researchers found that local people harvested the species *Encephalartos transvenosus* for sustenance and traditional medicine but also sold them to private collectors (Ravele & Makhado, 2009). The authors pointed out that children and elderly people used the plant for nourishment whereas youth and adults poached them to subsidise their income. Unfortunately, exploitation of disadvantaged people is a common theme across illicit markets, and drug markets even involve runners who sell drugs, or themselves, to support their addiction. However, in Limpopo, poaching is a consequence of opportunism in a context of poor socioeconomic status, which is a difficult condition to counteract (Ravele & Makhado, 2009).

Thus, it would be more pragmatic to prevent facilitators and intermediaries from benefiting rather than prosecuting and sentencing poachers.

A range of assumptions regarding the illicit cycad market emerges from the literature. Retief, West & Pfab (2015) developed three typologies to describe the people that participate in and empower the trade in South Africa: (1) the opportunist seeks out poachers to buy or harvest cycads in order to facilitate trade and subsequently profit, (2) the egotist parade rare, large and expensive cycads, presumably to elicit envy, respect or status, and (3) the naïve is a person that is corrupted by misconceptions about the cycad trade, which might lead him to being exploited by traders. However, these typologies are not supported by empirical evidence nor do they encompass the variance in individual behaviours and motivations. For instance, facilitation of trade is not only arranged by opportunists as evident in the law enforcement and court data, which suggests that some of these offenders have criminal records (see Appendices 1-2). Moreover, the authors argue that “greed and ego are difficult to change, but misconceptions can be changed” (p. 13). Yet, the notion that individual characteristics are static is debatable (Srivastava et al., 2003; Mroczek & Spiro, 2003). Even though the authors reiterate important ideas and concerns, the typologies do not contribute to the understanding of the illegal cycad market in South Africa.

Medicine and magic

Cycads are not only harvested for trade but also for traditional medicine and magic. In South Africa, several ethnic groups use the plant as an ingredient in so-called magic potions and as an emetic, which is an agent causing vomiting (Osborne et al., 1994). Furthermore, researchers found that two shops at two different traditional markets in Durban, KwaZulu-Natal, sold 3410 specimens of *Stangeria eriopus* in July 1992 for medicinal purposes and magic. They argued that the quantity was so substantial that it threatened the plant population

(Osborne et al., 1994). In fact, the root of the cycad is used to treat headaches as well as injured cattle-teats. Also, the Natal Grass Cycad (the only species in the *Stangeriaceae* family in South Africa) is listed as Vulnerable by the IUCN due to harvesting and habitat degradation caused by upgrades to the N2-road in the Eastern Cape (IUCN, 2016).

In another study, Cousins, Williams & Witowski (2011) found that several *Encephalartos* species (25 out of 37 species in South Africa) were traded in the Faraday market in Johannesburg and the Warwick market in Durban; also for traditional medicine and magic. The most frequently traded plants were *Encephalartos natalensis* (Vulnerable), *E. villosus* (Least concern) and *E. ghellincki* (Vulnerable). Importantly, only small plants are harvested in full while the bark is stripped off larger plants, which may pose conservation challenges since cycads grow slowly and require mature plants to reproduce (specimens can age beyond 1000 years). The authors pointed to another distressing trend where shops sold threatened plants, shut down the business before detection and relocated under a different name. However, it is important to note that traditional markets merely account for five percent of cycad population decline (Donaldson & Bosenberg, 1999). A recent report, though, argues that bark harvesting for medicinal use led to “the complete loss of populations in KwaZulu-Natal and the Eastern Cape” (Department of Environmental Affairs, 2016, p. 22) without specifying the plants to which they referred. They argue that demand is increasing around the country as a result of availability, which, if true, is another important factor to examine.

The international trade

Many researchers claim that the market reaches beyond the borders of South Africa. In a study from the United States, which examined somatic embryogenesis and regeneration of endangered cycad species in order to determine whether such processes could aid the preservation of cycads, the authors made strong claims about the nature of the market without

substantiating the arguments (Litz et al., 2005). For example, “*In situ* conservation has not been very effective for a few reasons: (1) habitats of many cycad species have been destroyed for subsistence agriculture; (2) large scale theft of rare species; and (3) the illegal international trade in rare species” (p. 75). As such, Litz et al., (2005) suggested that there is an illegal international trade in rare cycad species without providing references or arguments for the existence of such a market. Indeed, anyone engaging with the literature would certainly expect to come across a widespread international market, fuelled by South African cycads, as it is cited as a threat in most relevant literature. Likewise, while the United States and Japan used to import Mexican cycads despite the CITES ban on international trade (Burns, 1990), the trade is now substantially reduced, presumably due to the absence of a domestic market.

An analysis of the illegal wildlife market in southern Africa, which is the only study using social science methods, makes no mention of an international market (Warchol, Zupan & Clack, 2003). The only known case of illegal export of South African cycads emerged in 2003 where the US Fish and Wildlife Service arrested six men who were subsequently charged with illegal trafficking of rare cycads after a sting operation. A well-known South African collector residing in Queensland, Australia, and a person from Sandton, South Africa, along with three others from Queensland, Australia, Harare, Zimbabwe and Gauteng, South Africa, transported cycads to the United States worth US\$542000 (Department of Justice, 2003). Additionally, a Mexican national was also charged for purchasing cycads worth US\$200000 from one of the traffickers. The operation found that the smugglers harvested endangered cycads and exported them to the United States by falsely declaring the species under Appendix II of CITES and stating that the export was intended for commercial purposes. Furthermore, the indictment also involved two additional South African nationals who imported cycads worth US\$300000 to the United States and a further four people were charged with different offences related to cycads and/or rare plants (Department of Justice,

2003). These cases remain the exception rather than the rule however and the evidence of widespread international market for illicit cycads should be treated with caution.

Conclusion: why the focus on cycads?

Illicit markets make up a substantial portion of the overall economy but governments and scholars tend to focus on markets that cause immediate harm to people such as those around drugs and weapons. Trade of wildlife and wildlife products directly harm the environment and indirectly harm human wellbeing since the vulnerability of species can create an unfavourable domino effect in ecosystems. Although plants are vital to all life, the public seems less worried about extinction rates and governments spend less time to counteract the exploitation of individual species. More specifically, the cycad is a plant species that is threatened with extinction as a consequence of widespread poaching and trade, which is fuelled by collectors, particularly in South Africa. While the market has been described by conservation biologists, the lack of literature on its culture and criminal enterprises leave a vacuum of knowledge that must be filled to understand the illicit cycad market.

Chapter 2 will examine the wide array of regulation and legislation associated with cycads, including international conventions as well as domestic and provincial legislation. These are important factors to consider when examining the illicit cycad trade because it is an integral part of the context actors operate within. Thereafter the concepts of culture and criminal enterprises will be discussed in relation to the illicit market since they make up the foundation of the research question and inform the analysis. Accordingly, following the research question, the methodology will be outlined, including challenges, methods and analytical strategies.

Chapter 3 will examine the culture of the illicit cycad market, including the desires to collect, the extent of the market in South Africa and the competing agendas that govern the discourse between collectors and conservationists. Given the particular culture presented, Chapter 4 will analyse the criminal enterprises that transpire to cater for the market, such as the organisation of actors and the way in which they operate within the South African context, but also the conservation strategies they must respond to and the discourses that dominate amid conservationists and media outlets. The thesis concludes with a short summary of the argument and some policy directions.

Chapter 2: Regulating and examining the market

The regulatory mechanisms around the cycad are complex and the sources of law derive from international conventions as well as national and provincial legislation. Even though South Africa ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1975, its implementation in national legislation only occurred 29 years later through the National Environment Management: Biodiversity Act 10 of 2004 (NEMBA) and further by the Threatened and Protected Species Regulations of 2007. In the meantime, the provinces have regulated activities related to cycads very differently and law enforcement has been poor throughout the country.

Regulation and legislation

While poaching and trade are rampant in South Africa, a number of regulatory and legislative measures have been implemented to protect the species. The most significant legal framework is CITES (also known as the Washington Convention), which is a multilateral treaty that was put into effect in 1975 (Sand, 1997). The purpose of the convention was to protect the survival of species by prohibiting trade in threatened animals and plants, which is a much-needed piece of international law because of extensive wildlife poaching and trafficking throughout the world and particularly in Africa. What is more, the convention encourages member states to implement domestic legislation and other mechanisms, such as specialised law enforcement agencies and prosecution offices, to prevent poaching and trade of vulnerable species (Vié et al., 2008). To date, 183 states are signatory to the convention, and South Africa ratified the treaty in 1975. Despite this wide agreement, member states implement legislative frameworks to effectuate the convention at various rates and the degree of enforcement differs. In general, member states emphasise suppressing markets that cause

direct harm to people, such as those around drugs and weapons, rather than conserving flora and fauna (CITES, 2017).

Approximately 29000 plant species and 5000 animal species are protected by CITES whilst import, export, re-export and introduction of species must be authorised by a system of licensing. This system relies on three appendices that determine the level of threat to species and generally involves a rigorous application process for endangered species and a less extensive process for vulnerable species (CITES, 1975). As such, Appendix I denotes species that are threatened with extinction, Appendix II refers to species that may become threatened without strict regulation, and Appendix III includes species that a member country has deemed potentially threatened as a consequence of unsatisfactory control mechanisms (CITES, 1975). South African cycads, including all species of the genus *Encephalartos*, are predominantly listed in Appendix I. As a result, cycads are subject to a significant international legal framework, which is effectuated by the introduction of domestic legislation.

In South Africa, the National Environment Management: Biodiversity Act 10 of 2004 (NEMBA) is a statute that appeared in the government gazette the 1st of August and came into force the 1st of October in 2004. Its primary function is to prohibit and regulate invasive species in order to protect local biodiversity and does so by introducing a legal framework that controls 559 invasive species as well as 560 prohibited species that the state forbids individuals and corporations to import into the country (NEMBA, 2004). Invasive species include plants, fungi or animals, which may pose adverse effects to local biodiversity since they are not endemic, or native, to a specific geographic locality (Clavero & Garcia-Berthou, 2005). Moreover, NEMBA aims to introduce sustainable management and conservation of biological diversity, the sustainable use of indigenous biological resources, fair and equitable sharing among benefactors from bio prospecting in relation to indigenous biological

resources, and to co-operate governance (NEMBA, 2004). NEMBA also establishes the South African National Biodiversity Institute (SANBI) whose purpose is to manage its objectives through research, education and conservation (NEMBA, 2004). Indeed, the absence of a scientific body in CITES requires member states to establish the relevant bodies required to undertake research and conservation (Sand, 1997).

The legislation also involves the protection and preservation of cycads through restricting certain activities related to poaching and trade. Section 56 of NEMBA allows the Minister of Environmental Affairs to publish lists of species that are threatened so that no further legislation is required to protect such species in the future. A list including most species of cycads (excluding *Encephalartos ferrox* and *Encephalartos cycadifolius*) was distributed in 2008 as a measure to protect the plants from harmful activities (NEMBA, 2013). In a similar vein, Section 1 of NEMBA states that restricted activities concerning threatened or protected species can only commence after obtaining a permit regulating that activity. Consequently, the Threatened or Protected Species Regulations (TOPS) was implemented in 2007 to regulate the permit system (Government Gazette 29657, 2007). Moreover, the Minister may prohibit activities that can adversely affect the survival of the species and implement prohibition notices; which was instigated for cycads in 2012. The penalties for engaging in proscribed activities with respect to cycads include fines (up to three times the commercial value of the cycad or ZAR10 million or imprisonment up to a maximum term of ten years, or both).

Provincial legislation in South Africa is an additional legal framework that may be utilised to regulate and conserve cycads as well as prosecute offenders (see Appendix 3). As evident in Appendix 3, every province has one or more statutes pertaining to nature conservation but the effectiveness of these differ markedly. The Scientific Authority of South Africa (2012) argues that, prior to the implementation of NEMBA in 2008, legislation and

enforcement was particularly weak in Gauteng, KwaZulu-Natal and the Eastern Cape, which exacerbated the problem in those provinces. In addition, they claim that enforcement must improve to fulfil the requirements of the national legal framework and cooperation is essential since poachers and facilitators operate throughout the country. Thus, exhaustive legislation and sufficient resources must be present in all provinces to ensure satisfactory prevention, conservation and prosecution mechanisms

Yet, an interim cycad letter was issued by Gauteng province in 1994 as a result of capacity constraints, which created a legal loophole where requirements to possess, sell donate or transport cycads became void (Pfab, 2012; Retief, West & Pfab, 2015). As such, documentary proof was satisfactory to obtain permits and poachers removed cycads from the wild in order to legalise them through the Gauteng permit system (Pfab, 2012). However, the temporary process was withdrawn in 2011 when the province issued a press release demanding the public to comply with TOPS and apply for permits. The legal loophole is still an issue today as cycads that were obviously poached are traded with the necessary documentation.

In KwaZulu-Natal, the authorities did not issue possession permits, which led to poached cycads being legalised and merged in private collections and parental stock. Furthermore, in the Eastern Cape, possession permits were only enforced after the implementation of NEMBA and property owners with unpermitted cycads were given cycad site registration letters (Pfab, 2012). Similarly, Giddy wrote in 1995 that plants could easily be laundered by transporting cycads between provinces as the ordinances in the Cape provinces and KwaZulu-Natal did not require proof of acquisition from the seller (Giddy, 1995). Therefore, even though the government and provincial governments seem to stress the conservation of endangered species, the history of meagre legislation and lack of resources still provides a context where illicit trade is possible.

A permit is required to own any indigenous species of cycads in South Africa. That is, for all species of *Encephalartos* and *Stangeria*. This has been a prerequisite since the implementation of CITES in the 1970s and cycads harvested before the convention can be possessed but not sold (Retief, West & Pfab, 2015). Prior to the introduction of NEMBA and TOPS regulations, permits were issued in accordance with provincial legislation based on different criteria. As such, permits issued before February 2007 were cancelled and owners were asked to re-register all cycads (Pfab, 2012). Permits allow the applicant to undertake restricted activities under NEMBA such as transporting, conveying, exporting, importing, buying, selling and donating cycads.

More specifically, the prohibition notice that was communicated in the Government Gazette No. 35344, listed a number of restricted activities with respect to wild and threatened or protected *Encephalartos* species: “Collecting, plucking, uprooting, destroying; exporting from the Republic of South Africa, selling, trading, buying; receiving, giving, donating, accepting, acquiring, disposing; importing into the Republic of South Africa, conveying, moving, translocating; or possessing, exercising physical control (except where permits have been issued, prior to the publication of this notice, for plants that form part of legally obtained parental stock)” (Government Gazette No. 35344, 2012). In addition, several restricted activities also apply to artificially propagated specimens of threatened or protected *Encephalartos* species: “The export from the Republic of South Africa of specimens with a stem diameter of more than 15 cm except for the following dwarf species (namely *Encephalartos caffer*, *E. humilis*, *E. cupidus*, *E. cerinus* and *E. ngoyanus*) which cannot be exported if the stem diameter is more than 7 cm” (Government Gazette No. 35344, 2012). Thus, the provisions set out in the legislation is fairly extensive and restricts virtually any activities related to cycads.

In practice, an inspection official will, upon appointment, examine the plants and document species name, height of stem and diameter for a ZAR50 application processing fee. The officials, however, are often underqualified and rely on the applicant to identify the species. According to a nursery website based in Gauteng, “simply draw up a list (Excel), fill in the form, pay your ZAR50 bucks and submit” (Cycad World of Innovations, 2017). Consequently, the current mechanisms for regulating cycads are weak and collectors exploit the system. Nevertheless, there are many signs that indicate whether or not cycads were poached in the wild, including: microchips, deformed stem (e.g. crescent-shape), stem diameter variations, long stems with small leaf bases, several side branches, burn marks, cut marks and absence of leaves, to name a few (Retief, West & Pfab, 2015). Hence, inspection officers should be able to determine if cycads are legally or illegally acquired and collectors should also contact relevant stakeholders if noticing the aforesaid signs.

Closing the gap in the literature

The literature thoroughly describes the biology of cycads and the necessary strategies to conserve the species. It also stresses that poaching and trade is the predominant threat to the survival of the species, which is widely documented, and acknowledged by scientific authorities in South Africa (Donaldson, 2003; Department of Environmental Affairs, 2016). Even though certain studies address the illegal wildlife trade in Africa, southern Africa and South Africa, none of these have examined the illicit cycad market, including its culture and the subsequent formation of criminal enterprises. In fact, the literature tends to analyse wildlife markets and organised crime through an economic lens by way of supply and demand.

As mentioned, while the illicit markets around certain commodities are driven by consumers in need of the product, such as addiction in the case of drugs, the desire of buyers

that shape wildlife markets are often subjective and seemingly irrational. These desires relate to myths about animal and plant species, as well as derivatives thereof, including the effects of holistic medicine, magic and even religion. In addition, collectors amass wildlife and wildlife products to satisfy the achievement orientation of the collector but also to boast to likeminded individuals about the value of the products. Therefore, it is important to understand the contextual factors and the desires that drive the illicit markets.

As mentioned, criminal enterprises form in response to the culture of the illicit markets. Everything from the nature of the consumers to the legislation regulating its utilisation shape the way in which the suppliers organise and operate. For instance, drug markets involve a constant supply of consumers who engage in culturally dependent consumption and associated rituals, massive profit margins and stringent legislation (Von Lampe, 2015). As a result, the numerous criminal enterprises that form in response to such a context must cater for the clandestine nature of the consumers, compete for territory and evade law enforcement, which may lead to violence (Andreas & Wallman, 2009). On the other hand, the criminal enterprises that arose in response to the demand of ivory are very different. These cater for affluent customers who purchase the product from facilitators who in turn pay poachers and intermediaries with political influence and connections (Hübschle, 2016). In addition, the transnational nature of the market provides different contextual landscapes and actors must operate and organise around various legal frameworks and responses from law enforcement. Hence, the culture of the markets influences the degree of criminal enterprise or organisation within them.

Therefore, given the particularly understudied concepts of culture and criminal enterprises, this study seeks to contribute to the literature by answering the research question: “What are the cultural and the contextual factors that drive the illicit cycad market in South Africa and the nature and scope of the criminal enterprises that form in response?”. As the

study is explorative, the purpose is to unravel the intricacies of the market, and through developing an empirical account of the market, one can provide policymakers, conservationists and law enforcement with information that may guide further prevention strategies.

Challenges

Numerous challenges present themselves when studying illicit markets and organised crime. The data can be more difficult to access since the nature of the field involves behaviour that is recorded by bureaucratic government institutions such as the police, courts and corrections (Von Lampe, 2015). Moreover, observing offenders is often problematic as individuals may feel threatened by the researcher and university ethics committees might question the safety of interacting with organised criminals. Likewise, developing a representative sample with acceptable response rates is extremely challenging so very few studies generate primary quantitative data. As such, the qualitative interview is the most common method and generally involves interviews with experts, law enforcement, victims and offenders (Ritter, 2006).

Since researchers that choose to study illicit markets and organised crime often examine several incomplete sources of data to form a comprehension of the subject matter, the results are vulnerable to fragmentation as well as dubious validity and reliability. For instance, interview data might contain hearsay and over or underestimates of information (Von Lampe, 2015). It is therefore important to accurately represent the data and not make assumptions about the presence or absence of data without substantiating the assertions. Yet, there are no constitutive elements that hinder the study of illicit markets and organised crime but contextual encumbers that one can overcome.

Interviews

A total of three provinces, Gauteng, Eastern Cape and Western Cape, were identified using a non-probability strategy, namely the purposive sampling method, because of the disproportionate amount of documented poaching and/or trade of cycads. Within those provinces, prosecutors, scholars and biodiversity enforcement officers were contacted since they represent key stakeholders that could provide instrumental information regarding the illicit cycad trade. As a result, seven persons were interviewed, which was a desirable number that would ensure sufficient breadth but also avoid theoretical saturation.

More particularly, two prosecutors and one biodiversity enforcement officer were selected in Pretoria and Johannesburg, Gauteng. Additionally, one law enforcement officer was identified in East London, in the Eastern Cape. Finally, one representative from Kirstenbosch Botanical Gardens and one from the South African National Biodiversity Institute were selected in the Western Cape as they are considered as leading authorities on cycads. All participants were contacted via e-mails and subsequent interviews, in person or by phone, were conducted once clearance from the ethics committee at the University of Cape Town was obtained.

The participants were provided with a copy of the ethical clearance along with a consent form before the interviews commenced, either in person or by email. Moreover, the interviews were conducted using open-ended questions (see Appendix 4) that were posed to every single interviewee, which allowed the researcher to exercise discretion with respect to follow-up questions (Bryman, 2016). Note that potential follow-up questions were carefully considered before the interviews to ensure that they served their intended purpose. The duration of interviews was between 40 and 90 minutes and involved a brief introduction to build rapport, which was reflected in the first question. After the interviews, the names were

exchanged with numbers according to the order in which they were interviewed (e.g. participant 1) to ensure anonymity and confidentiality.

Document analysis

Several documents were analysed in order to add context, verify and understand the information that transpired during the interviews. Since a number of participants presented facts and anecdotes, which were imprecise, ambiguous or otherwise necessitating elaboration, a variety of documents were analysed. In particular, newspaper articles were examined to unravel incidences or trends but also to determine whether the narrative that was presented by participants was communicated by the media. By searching for the key words “cycads”, “trade”, and “poaching” in all national and relevant regional newspapers, a total of 42 articles related to cycads were found (see Appendix 5). In addition, the search yielded several articles regarding gardening and tourism, which were disregarded. Lastly, a variety of secondary sources were scrutinised to contextualise the findings. These comprised every webpage related to cycads in South Africa, ranging from government information sites to nurseries, as well as social media sites and interest groups. Within the websites, the abundance of public communication, including letters, were read and analysed.

Descriptive statistics

The study examined the available descriptive statistics such as annual reports from law enforcement and quantitative studies in the field of conservation biology to see if the information elicited during interviews and throughout the document analysis was coherent. Triangulation also sheds light on different aspects of the market whereby descriptive statistics, however incomplete, indicated possible trends and meaning, while document analysis highlighted other elements that the interview were unable to grasp. More specifically, a summary of notable and successful prosecution cases between 2010 and 2016 in South Africa

(see Appendix 1), and a summary of law enforcement data, including identification and estimated value of confiscated cycads from the Eastern Cape between 2011 and 2016 (see Appendix 2), were used to illuminate the findings.

Analytical strategy

The qualitative research software NVivo was used to follow Strauss & Corbin's (1990) coding strategy and analyse the responses to the open-ended questions as well as the documents. This procedure involved open coding which refers to "The process of breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss & Corbin, 1990, p. 61). Axial coding ensued thereafter as data were restructured to explore associations between categories including conditions, context, action/interactional strategies and consequences. The last stage was selective coding during which the researcher established the core category while methodically searching for relationships between the main category and other categories in order to validate relationships (Strauss & Corbin, 1990). The coding and recoding of data continued until the point where theoretical understandings became apparent. Hence, the coding method was applied to both interviews and documents since triangulation of data transpires when it is integrated within grander codes and themes (Bowen, 2009).

Chapter 3: The cycad market: Collectors or criminals?

The cycad market in South Africa is characterised by unique cultural and contextual factors that shape the way in which the actors interrelate and operate. That is, the desires of the buyers are, on the face of it, seemingly irrational, which pose extraordinary challenges to conservationists, government officials and other stakeholders with an interest in preserving the remaining cycad populations. Likewise, the regulation and legislation around the commodity are less stringent and poorly enforced, than more notorious products, such as drugs and weapons, which creates a space wherein collectors can exploit, move and sell cycads without much trouble. Indeed, the interview and document analyses found a range of cultural and contextual factors that inform the market, including the drives and motivations of collectors (see Appendices 6-7). While the open coding of the interviews and documents revealed two major categories, context and market, the subcategories involved status symbol, masculinity, exclusiveness, corruption, domestic market, national collections, international market, black market and grey market. These categories represent the concepts that emerged in relation to the culture of the cycad market and several of these were supported by the descriptive statistics (see Appendices 1-2). Therefore, this chapter will present the findings that relate to the culture of market, including collecting behaviour and connection to the land as well as examine whether collectors are criminals or not.

Cycads as status symbols

As mentioned, over 75 percent of South African cycads are listed as vulnerable or worse on the IUCN Red List of Threatened Species and populations are rapidly decreasing. The principal reason for population decline is the demand for rare cycads on the illicit cycad market (Participant 1-5, 2016; Participant 6-7, 2017). Although seedlings can be purchased from nurseries and the legal market could satisfy the demand, collectors desire mature cycads

(Participant 6, 2017). Indeed, the plants require between 12 to 15 years to reach adult stage so protected cycads found in the wild are more valuable than their more abundant counterparts that may be purchased from nurseries (Participant 6, 2016). To illustrate this point, arrest data from the Eastern Cape show that all the 634 cycads confiscated between 2011 to 2016 were listed on the IUCN Red List suggesting that poachers target rare species (see Appendix 2). Furthermore, as certain species are becoming increasingly scarce and difficult to harvest, collectors are willing to accumulate less threatened cycads but which have acquired unique characteristics by growing in rough terrain (Participant 1, 2016). Therefore, the exclusiveness of the cycads is one of the main motivations to amass collections.

South African cycads are indicators of perceived social and economic standing among individuals with the cultural and economic means to appreciate their subjective value. A number of newspaper articles referred to the plants as status symbols and collecting rare specimens for status was predominantly engaged by South Africans even though foreign collectors amass significant cycad collections overseas (Cape Times, 2016). Furthermore, an interview participant asserted that “owning a rare cycad displays wealth and intelligence in a way owning luxury cars does not” (Participant 5, 2016). While the advertising of legal commodities, including luxury brands such as Rolex watches and Ferrari vehicles, reach all demographics, albeit targeting affluent individuals, cycads are marketed through personal networks and culture. In other words, “the collectors are part of a culture of opulence that is all about ego but in a smart and subtle way” (Participant 5, 2016). Cycads are more exclusive than select commodities as the remaining wild populations of some species comprise less than 100 individuals, which is reflected in the price. For instance, the market value of the species *Encephalartos latifrons* stolen at the Kirstenbosch Botanical Gardens in 2015 was estimated at ZAR700000. Hence, the rarity of the cycads contributes to their value and desirability among collectors.

Connection to the land: The roots of collecting

A recurring theme is the collecting behaviour that individuals display through legal and illegal actions. The fact that legal cycads and other plants can be purchased at nurseries suggests that the collectors desire *something* else. That something is certainly subjective as any number of plants would serve the practical function of decorating a garden or adding to its beauty. A newspaper article in the Cape Times (2016) described the so-called “green needle” as an instance of collecting mania where collectors assign meaning and status to exhaustive collections. Likewise, an interview participant argued that collectors amass cycads in much the same way people collect stamps or model-planes (Participant 5, 2016). Indeed, an abundant body of literature suggests that collecting stimulates the achievement orientation of the collector (Belk & Wallendorf, 1994). It is therefore evident that the motives of collecting individuals extend beyond gardening and decoration.

The research found that every single collector known for owning illicit plants or massive collections, which may contain illicit plants, was male. That is, the interviews, documents, court files and arrest data exclusively referred to men. For instance, a Cape Times article (2016) described an auction that highlighted the particular displays of masculinity which dominated the space and suggested that male participants made vulgar and masochistic remarks while bidding for cycads. Such observations correspond to Whiteley’s (1997) notion that collecting represents alternative mechanisms for asserting traditional masculinity around which rituals of homosocial interactions ensue. Certainly, an abundant body of research claims that collecting is a gendered activity whereby men are more likely to collect expensive items as well as objects with more social prestige than women (Holt & Thompson, 2004; Nusbaumer, 2011).

More specifically, the interviews emphasised that most collectors are white men that identify as Afrikaners, a southern African ethnic group that descended from Dutch settlers, who often claim that cycad conservation must be done through collection and propagation. However, collecting refers to “the selective, active, longitudinal acquisition, possession and disposition of an interrelated set of differentiated objects (material things, ideas, beings and experiences) that contribute to and derive extraordinary meaning from the entity (the collection) that this set is perceived to constitute” (Belk et al., in Pearce, 1994, p. 158). Indeed, the findings suggest that the meaning collectors ascribe to flora and fauna, including cycads, stem from a particular South African culture which draws on (often mythical) connection to the land. The social and political history of South Africa, including the establishment of national parks, is vital to appreciate the perception of wildlife conservation among ethnic groups. According to Carruthers (1995), “it forms an integral part of state strategies of resource management that were based on white-self-interest, Afrikaner nationalism, ineffectual legislation, elitism, capitalism, and the exploitation of Africans” (p. 1). Ever since the former province of Transvaal implemented legislation to protect wildlife by creating game reserves, indigenous populations have been dispossessed and dominated by systems that upraise wildlife above humanity. The dichotomy between white conservation and black subjugation is still evident in contemporary South Africa whereby local people call for the abolition the Kruger National Park in need of agricultural land while the park has become “a place of almost sentimental pilgrimage for white South Africa, a reminder of a (romanticized) past which urbanisation and economic development has displaced” (Shaw & Rademeyer, 2016, p. 9). The formation of national parks, dispossession of Africans, environmental conservation and ongoing land claims make wildlife and wildlife products subject to political and sociohistorical connotations that penetrate the fabric of South African society.

These contemporary contextual elements stem from a history of Afrikaner nation building that emphasised the mythical connection to the land. The settlers brought along a strong religiosity that became a significant part of that connection, which was reinforced by certain historical events. As the English exerted undue influence in the region, which was not endorsed by Dutch-speaking inhabitants of the Cape Province, many of whom had migrated northward during the Great Trek, the subsequent nation building in the north east emphasised cultural and linguistic feats that were rooted in Calvinism and nurtured on farms in rural areas (Akenson, 1992). While Calvinism was the most predominant doctrine of Christianity in the South African republics, the Second Boer War cultivated the notion that Afrikaners were chosen by God to exploit the land (Akenson, 1992). As such, the idealisation of nature is both religious and cultural although these are difficult to disentangle given the context.

Although a significant proportion of Afrikaners hold Christian beliefs, the notion that every farmer across the provinces believe in dogmas of scripture is far-fetched. While Akenson (1992) points out that farmers often perceive the yielding of their crops as a blessing or curse from God, it is impossible to determine the degree to which such beliefs are held nowadays. However, the research did find support for the idealisation of land, which stems from the longstanding history of Christian nationalism. The interview participants argued that Afrikaners collect cycads because of their fondness for farming and nature, which cannot be separated from their mythical history. Furthermore, users of several South African websites and forums employ divine language when referring to the plants by describing them as godlike and heavenly. The connection to the land can be exemplified by the interest group Cycad Friend's mission statement: "Instead of encouraging legal trade through facilitating an international process and declaring a market, regulation prevents freedom of artificial propagation, even in the case of legally-obtained, domestic cycads – by which we are protected in the constitution as we are enjoying the fruits of this earth of which all may do in a

sustainable and responsible manner” (Cycad Friends, 2017). Accordingly, the symbols attached to the cycad indicates that it signifies something beyond a plant, which, if not make collectors feel closer to the Abrahamic God, at least connects them to the land.

The extent of the illicit cycad market

These desires constitute the foundation of the domestic market, which is the predominant threat to the species. In South Africa, the province of Gauteng represents the economic and political hub and includes the major cities of Pretoria and Johannesburg. A substantial number of collections is situated within gated communities in the wealthiest suburbs where collectors plant illicit cycads among their licit counterparts (Participant 1, 2016). Johannesburg is characterised by suburbs that are difficult to access due to physical security measures such as walls, blocked streets and security check-points. As such, a participant argued that “estimating the number of collections is a difficult, if not impossible task since researchers require permission to access certain neighbourhoods” (Participant 6, 2017). Nonetheless, a street survey that was conducted in 1994 estimated that there were about 20000 collections and up to one million cycads in Pretoria, which most likely account for fewer cycads than in neighbouring Johannesburg. In ten percent of these gardens, researchers observed rare cycads (Participant 5, 2016; Participant 6, 2017). Furthermore, the court files (see Appendix 1) indicated that some poachers transported the cycads across borders toward Gauteng and the law enforcement data (see Appendix 2) showed that almost half of the poachers arrested in the Eastern Cape were listed as inhabitants of Gauteng.

In recent years, other provinces, such as the Western Cape, have experienced increased demand for cycads. Ever since the former curator of the Kirstenbosch Botanical Gardens in Cape Town, John Winter, launched the annual Garden Fair and Plant Sale in the 1970s, the public has shown great interest in purchasing cycads to decorate their gardens (Participant 5,

2016). A participant recall, “they used to line up for the fair and it is still relatively popular – someone even purchased a sucker from an *Encephalartos woodii* for ZAR89000 a few years ago” (Participant 5, 2016). While legal auctions have been commonplace around Cape Town, law enforcement officials and nurseries are reporting a growing number of illicit cycads being poached in the Eastern Cape and transported to the Western Cape (Participant 7, 2017). More specifically, suburbs and towns such as Hout Bay, Paarl and Somerset West, which are principally populated by Afrikaners, are home to significant collections (Participant 6, 2017). Notorious collectors that have been involved in the poaching and trade of cycads also hold large collections in provinces such as the Eastern Cape, Mpumalanga and Limpopo (Participant 7, 2017). Yet, an overwhelming proportion of cycads are eventually transported to Gauteng where the concentration of affluent individuals is higher than any other parts of South Africa.

As collectors trade species that are protected under Appendix I of CITES, the market contains aspects of illegality. In particular, the actors breach national legislation, provincial legislation and international convention when engaging in prohibited activities related to cycads (Participant 2, 2016). Although the collectors claim that possessing and propagating rare cycads contribute to conservation, the trade of protected cycads is a black market by definition. Newspaper articles portrayed the market in a similar fashion, as illustrated by one reporter’s writing, “in the past year, cycad hauls worth almost a million rand have been confiscated – on their way to being sold on the black market to local and foreign collectors” (Mail & Guardian, 2004). Likewise, court files (see Appendix 1) indicated that 19 successful prosecutions took place between 2010 and 2016, which is a fraction of any realistic estimations of total offences, and the law enforcement data (see Appendix 2) from the Eastern Cape shows that 21 individuals were arrested for offences related to the harvesting, transporting and trade of cycads, which underpins the fact that the market is a black market.

However, a number of unintended distribution channels exist due to improper legislation and regulation. Nurseries may use plants that were harvested from the wild to propagate seedlings, which are legal to purchase and export overseas, and the plants could have been purchased from a collector with a permit, which was obtained through unethical means, or permitted under a different species name (Participant 6, 2017). Collectors can even obtain permits for protected cycads by declaring them as a resembling species and export them overseas under Appendix II of CITES, which allows for export under strict criteria (Participant 7, 2017). Interestingly, social media sites and online forums, where cycad collectors gather to discuss cycads, are dominated by requests to identify their plants even though they should have been identified by a permit officer in the first place. Therefore, the cycad market is sometimes referred to as a grey market because of the abundance of legal loopholes but the majority of transactions involve proscribed activities, which makes it a black market.

Another contextual factor that might shape the illicit cycad market in South Africa is the high level of corruption. The newspaper articles stressed that corrupt officials contributed to a context where illicit wildlife trade was possible. One writer suggested that ineffective vetting and corruption on South Africa's borders increased the likelihood of foreign collectors entering the country with mischievous intentions (News24, 2015). Furthermore, "the Western Cape is particularly sensitive to this kind of crime, due to the unique and abundant biodiversity and its popularity among tourists" (News24, 2015). This statement was exemplified by the case of two Spanish nationals who were found guilty of illegally possessing 2248 plants, including cycads, and were sentenced to 12 years of imprisonment and fined ZAR2 million (Cape Nature, 2015, see Appendix 1). The interview participants also speculated about the extent of corruption in regards to cycads since public officials have been involved in exporting illicit abalone and ivory. Indeed, a law enforcement official argued that

permit officers have been implicated in investigations albeit not formally charged (Participant 7, 2017).

On the other hand, the culture of the international market seems markedly different from the domestic market and is more challenging to describe due to a lack of information. An article in a prominent South Africa newspaper argued that “experts say the thefts point to a lucrative international trade run by criminal syndicates that link poachers, often poor and desperate, to wealthy private collectors who prize cycads in the same way as a rare stamp or first edition of a book” (Mail & Guardian, 2014). However, whether these experts refer to the motivations of domestic or international collectors are unclear although an interview participant argued that collectors overseas often want to complete their cycad collections and therefore desire protected species from South Africa (Participant 5, 2016). Nevertheless, male collecting behaviour is universal even though the underlying cultural factors that give collecting meaning are not.

While detailed evidence of a large international market is missing, several compelling anecdotes suggest that at least some international networks facilitating the trade are present. Even though the National Prosecuting Authority of South Africa only reported one case where an unknown individual attempted to export seedlings from South Africa to Australia and New Zealand, the interview participants provided a few anecdotes of alleged international trade (Participant 2, 2016). For example, one expert claimed that a well-known collector knew of protected cycads that were poached in South Africa and exported through Swaziland to Indonesia. However, these plants were not in the CITES records and must have been registered under a different species under Appendix II in order for the plant to be exported. (Participant 6, 2017). It also seems that *Encephalartos* species are being poached in Zambia, Tanzania and Mozambique to satisfy the South African market (Participant 5, 2016). Finally,

the sting operation in the United States unravelled a syndicate that smuggled South African cycads to collectors in North America (Department of Justice, 2003).

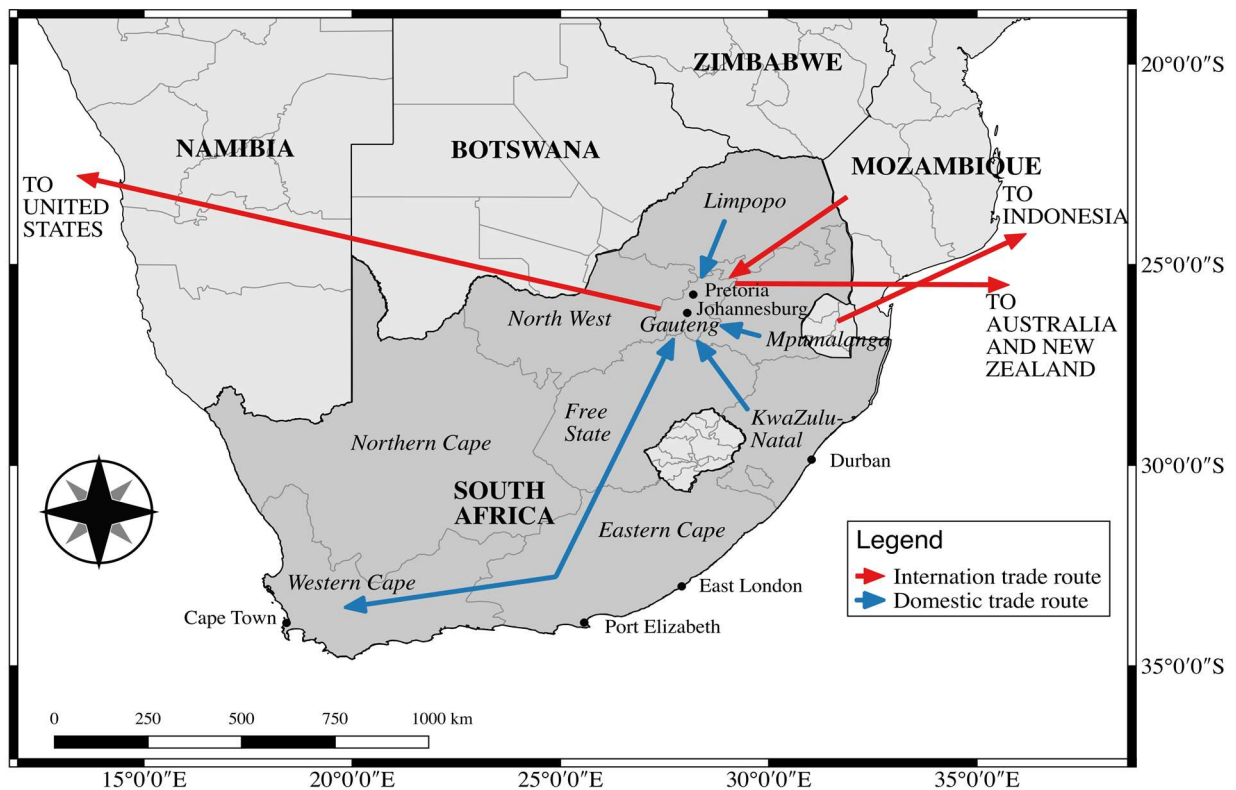


Figure 3: Domestic and international trade routes for cycads (the evidence for the international routes are weak to moderate)

An interesting example from Qatar highlights the potential threat from international actors. Two participants told the story of a late Sheikh who wished to amass the largest collection of cycads in the world. That is to say, an eminent expert received a phone call informing him of a plane with a cargo load of *Encephalartos Equatorialis* (Critically Endangered) and *E. Septentrionalis* (Near Threatened) that was about to take off from Thebe Airport in Uganda (Participant 5, 2016; Participant 6, 2017). The Sheikh had employed a German biologist to locate the cycads and managed to obtain research permits from a senior official in the government. Such permits should have never been issued since Uganda signed CITES in 1991 and the species are listed in Appendix I. Fortunately, the Sheikh discontinued

the collection after visiting the largest private collection in the world as “it had already been done” (Participant 5, 2016). In fact, the collection, which is located in Thailand, was cultivated by a wealthy businessman with close ties to the late King Bhumibol Adulyadej of Thailand. He agreed, however, to participate in conservation strategies proposed by South African stakeholders and does not seem to import protected species anymore (Participant 6, 2017). The story illustrates the collecting behaviour of certain male individuals as he wanted to initiate a cycad collection that would outcompete all other collections while the realisation that his collection would not be one of a kind discouraged him from completing the project. As such, even overseas, the activity of collecting was the principal motivation rather than decoration, gardening or conservation.

Collectors or criminals?

The ongoing argument between collectors and conservationists regarding the impacts of collecting cycads illuminates competing agendas. South African collectors claim that collecting and propagating seedlings from rare cycads is a conservation strategy while conservationists argue that these activities encourage poaching and illegal trade. Indeed, the interview participants posited that some prominent collectors are involved in the legal and illegal trade. Furthermore, the South African national who was charged with exporting protected cycads to the United States is currently running a nursery on the Sunshine Coast in Australia. These individuals are also part of interest groups, which seemingly promote conservation, even though the desire to collect appears to be the stronger instinct. A number of letters written by well-known collectors to public officials, which have been made available online, involve offensive language and personal attacks toward conservationists. For instance, a nursery owner in South Africa notoriously slanders conservationists although the person has been accused for selling protected cycads without the required permits. Moreover,

the President of the Cycad Society of South Africa wrote to the Minister of Environmental Affairs in 2011 in response to the proposed TOPS regulations, “the proposal has been described as having the intellectual subtlety of “fishing with dynamite” and it should be obvious that we would perceive elements of vindictive malice in their actions and the proposed legislation can only be described as punitive in nature”. This statement mirrors a general discourse among collectors which holds that the government is unduly punishing the collectors by implementing unnecessary legislation and subsequently preventing the collectors from creating a legal market. In a similar vein, a collector wrote “the quote in parenthesis in your letter below is not more than fabricated, unsubstantiated drivel and can be traced to a single author” who is being smeared further by another collector, “she literally threw her hands in the air and jumped up and down in her chair and stated that this was now done, Minister signed and there is not turn around” in reference to proposed legislation.

Even though it is possible to gather cycads through legal means by obtaining the required permits and otherwise following the stipulations of the regulations, the legal loopholes, ineffective permit system and strong instinct to collect seem to produce a base of collectors that work around the regulations. Indeed, regulations differ across the provinces and change periodically but it is nevertheless the collector’s responsibility to stay updated on new developments and especially if they claim to value conservation (Participant 7, 2017). Despite the fact that new collectors express difficulties with coming to terms with the legislation on several online forums, they still post pictures of cycads, which should have been identified and permitted by a government official, to ask for help with identification. Furthermore, some collectors may strictly observe the regulation with respect to their licit cycads but plant illegal counterparts to complement the collections, and these people do not seem to consider themselves as criminals (Participant 5, 2016). Notwithstanding, a subset of collectors facilitate poaching and trade punishable through national and provincial legislation,

which signifies intent and subsequently criminal behaviour. Hence, one must differentiate between negligent and dishonest collectors, although a review of online forums for example suggest that numerous individuals seem to have malicious attitudes toward government officials, conservationists and other stakeholders due to strict regulations.

Conclusion

The cycad market in South Africa is shaped by a specific set of cultural factors that emerged out of the historical trajectory and socio-political landscape. When the seemingly irrational desires of buyers are placed within context, they can be explained in greater detail than just a recourse to economic principles of supply and demand. The collecting behaviour is dominated by masculinity but also by a specific South African history that informs the way in which collectors perceive the cycad. While rooted in Afrikaner Calvinism and nationalism, collectors display a strong connection to the land that is informed by socioeconomic and political factors, which in turn, fuel the tendency to idealise nature and its fruits. Furthermore, as the regulation is poorly enforced, collectors can exploit, move and sell the plant easily, and the distinction between collector and criminal is difficult to observe since some are negligent and others are actively trying to obtain illegal plants. The public debate including collectors and conservationists further ignites the stigma associated with collecting cycads even though outspoken collectors certainly resort to malicious slandering in their effort to withstand regulation. Now that the culture of the market has been examined, we turn to the criminal enterprises that supply this market.

Chapter 4: The illegal cycad trade as criminal enterprise

While some collectors perceive themselves as actors of conservation by amassing rare cycads, the activities that are necessary to pursue that goal are often unlawful and the consequences are detrimental to the species. Although these individuals might not consider themselves as criminals in the traditional sense, stakeholders that work to preserve the species certainly perceive them in an unfavourable light. Furthermore, the collectors are often the entrepreneurs of the criminal enterprises that cater to the illicit cycad market and supply the demand for rare species. As such, the interview and document analyses found a range of concepts connected to the criminal enterprises that form in response to the culture of the market (see Appendices 4-5). While the open coding of the interviews and documents revealed two major categories, context and market, the subcategories involved actors, syndicate, monopoly, openness, inherent value, deterrence and conservation. These categories represent the concepts that emerged in relation to the criminal enterprises that facilitate the illicit market and several of these were supported by the descriptive statistics (see Appendices 6-7).

Organised crime and criminal networks

The criminal enterprises that facilitate the illicit cycad market in South Africa are comprised of networks made up of three tiers: poachers, intermediaries and end-buyers. Yet, the most central actor in the network is the intermediary who enables harvesting and trade. Intermediaries seem to be avid collectors with connections and knowledge about cycads and potential buyers. One participant claimed that “white and professional people steal cycads and sell them to rich people in Gauteng” (Participant 3, 2016). However, even though the newspaper articles argued that most intermediaries were from Gauteng, the stories involved farmers from rural areas in other provinces. For example, a farmer in the Eastern Cape was

arrested for poaching cycads and other plants worth approximately ZAR4 million (Herald Live, 2015). Similarly, the police found unlicensed firearms, fake currency, cannabis plants and cycads, among other wildlife and wildlife products, on a game farm in KwaZulu-Natal (Pretoria News, 2012). In fact, the only article that reported possession of cycads in Gauteng was published about 20 years ago and involved four people who were arrested for illegal possession of 45 endangered cycads, which were stolen from nature reserves close to the Swaziland border (Mail & Guardian, 1997).

Furthermore, intermediaries rarely have criminal records and are less likely to be arrested by the police (Participant 2 & 3, 2016). Court files indicated that most poachers were recruited by an intermediary but only one such individual was prosecuted as the evidence was unsatisfactory for a guilty verdict. For instance, two poachers were found with cycads in the vehicle of a well-known cycad smuggler and the prosecutors chose to charge them with theft, trespassing, illegal picking/transporting/possession as well as illegal exporting of cycads instead of prosecuting the intermediary. On the contrary, when the South African Police Service undertook a sting operation during which an undercover police officer sold 20 cycads to an alleged buyer, who turned out to be an intermediary, the person claimed that the trade was irresistible because of its profitability and simplicity (Participant 3, 2016).

Intermediaries typically recruit poachers from socioeconomically disadvantaged communities who receive small monetary rewards for harvesting and transporting the plants. The individuals involved are often Zimbabwean or Mozambique nationals and characterised as opportunistic and desperate (Participants 2 & 3, 2016). However, law enforcement data suggested that 52 percent (n=29) of the offenders were South African citizens and 42 percent (n=23) were Zimbabwean citizens, with no reference to Mozambique nationals (see Appendix 2). None of the poachers had English or Afrikaner names, which suggests that all the poachers were Africans. Yet, these poachers do not specialise in harvesting cycads and have criminal

records, which include violent and property crimes in addition to environmental crime offences (Participant 2, 2016). Indeed, police interrogations reveal that these individuals know very little about cycads and some have been caught with pictures and instructions (Participant 2, 2016). The newspaper articles also depicted the poachers as disadvantaged black men who respond to opportunities since employment, housing and sustenance is scarce in rural areas. For instance, one story involved a 27-year-old male pushing a trolley containing four cycads from a rural village to Port Shepstone in KwaZulu-Natal with the purpose of selling the plants (News24, 2016). A more organised operation included six Zimbabwean nationals who stole 81 cycads from a farm in the Eastern Cape on behalf of an intermediary in Gauteng. The assertion that poachers are disadvantaged was supported by law enforcement data, which suggested that 65 percent (n=36) were listed as unemployed and 20 percent (n=11) were listed as employed in low-skill professions (see Appendix 7).

Even though a significant number of poachers was arrested and prosecuted along with a few intermediaries, it is difficult to describe the end-buyers due to a lack of information. As mentioned, the participants argued that end-buyers are typically wealthy residents of Gauteng who reside in gated communities. In addition, researchers have observed rare cycads during street surveys, which were most likely harvested from the wild, but cannot get access to the properties in order to determine the extent of illegal cycads (Participant 6, 2017). Nonetheless, the National Prosecuting Authority of South Africa has never prosecuted an end-buyer for breaches of domestic or international regulations pertaining cycads. Indeed, one participant argued that “laws do not apply to top people such as lawyers and doctors” as they have the means to remain anonymous (Participant 5, 2016). However, the few end-buyers that have been confronted pleaded ignorance and claimed they were unaware of the fact that their cycads harvested from the wild (Participant 7, 2017).

Although buyers, whose sole involvement is to purchase cycads, are difficult to identify, some collectors operate in a landscape that questions the definition of their participation. By definition, a buyer is “a party which acquires, or agrees to acquire, ownership (in case of goods), or benefit or usage (in case of services), in exchange for money or other consideration under a contract of sale” (Business Dictionary, 2017). As such, a collector becomes a buyer in the moment the individual agrees to acquire a licit or illicit cycad. Interviewees and newspaper articles frequently referred to end-buyers since collectors may choose to trade illegally obtained cycads, which then turns the collectors into intermediaries. In consequence, an individual can either be collector and intermediary or collector and end-buyer.

The criminal enterprises form in response to the culture of the illicit cycad market and the organisation of these enterprises mirror the context in which they transpire. A number of newspaper articles made assumptions about the way in which actors organise their illegal activities. For example, Environmental Affairs Minister, Edna Molewa, argued in the Cape Times that “transnational criminal syndicates target our iconic species. The most visible of these currently in South Africa are illegal activities targeting our wild cycads, abalone and the illegal killing of rhinoceros for its horn” (Cape Times, 2015). She further claimed that “international criminal syndicates exploited weaknesses in the legal and enforcement system of many countries” (Cape Times, 2015). An article published in 2015 cited an expert from SANBI who suggested that the market entailed “highly organised syndicates using a system of middle men and poachers to target the ancient but highly lucrative plants” (NEWS, 2015). Furthermore, the expert argued that “it is organised crime – there is someone at the top that is organising it, then the middle men who are driving around in bakkies [utility vehicles] and then you’ve got the poachers who probably don’t even know what they are doing” (NEWS, 2015).

The interview data found that actors are not involved in established gangs but rather form small networks or syndicates with the purpose of harvesting cycads (Participant 2 & 5, 2016; Participant 6 & 7, 2017). Indeed, law enforcement data and court files displayed similar results as most cases involved several actors operating in a hierarchical nature. However, certain cases involved poachers who committed one or more offences so the intermediary may be the only static player in the network (Participant 4, 2016). Whether syndicates involve sporadic membership, such as using various poachers for different jobs, the findings recognise three categories of actors that cooperate to enable the market, which raises the question of the illicit cycad market's organisation. Article 2 (a) of The United Nations Convention against Transnational Organized Crime (2004) defines an "organized criminal group" as "group of three or more persons that was not randomly formed; existing for a period of time; acting in concert with the aim of committing at least one crime punishable by at least four years' incarceration; in order to obtain, directly or indirectly, a financial or other material benefit" (p. 5). As there is evidence of syndicates larger than three persons, including an intermediary and often more than one poacher, who travel to harvest cycad populations in more than one province over a significant period of time and consequently commit crimes carrying penalties up to 10 years of imprisonment, the activities fall within the definition of organised crime (Participant 3, 2016; Participant 6, 2017).

However, besides the fact that involvement in organised crime groups may lead to harsher penalties in some jurisdictions, the definition is not as useful to understand the market from analytical perspective (Von Lampe, 2015). In this instance, it is more fruitful to characterise the organisation of actors as criminal networks. Criminal networks are defined as entities involving webs of direct and indirect relations whereby the interaction between individuals is the unit of analysis.

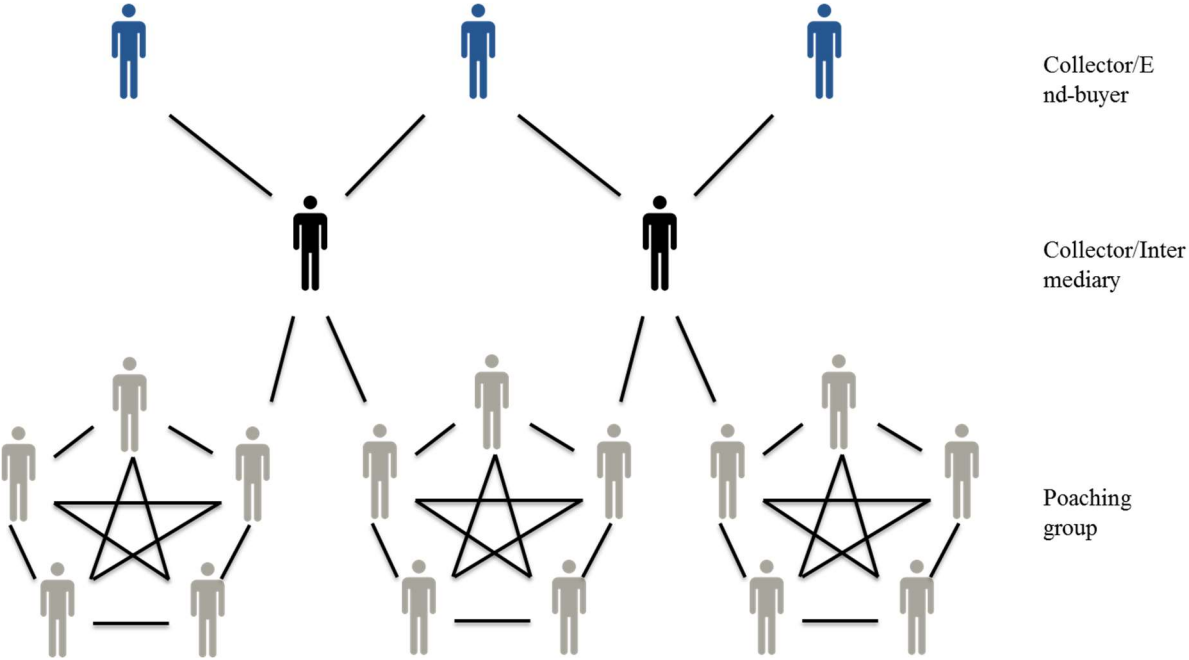


Figure 4: The interaction of individuals in the criminal networks that facilitate the illicit cycad market

Since the actors that comprise the illicit cycad market hold different motivations, the interrelationship between their agendas shape the way in which the market transpires. For example, as the collector is continuously seeking to enlarge his/her collection, the desire to collect is driving the behaviour, and the likelihood of prolonged participation is significant. Contrariwise, the motivations of the poachers seem to be economic and opportunistic so the likelihood of lengthy involvement is much lower and some might even choose to discontinue after compensation. Therefore, although the actors commit organised crime by definition, the nature of the activities seem to emerge in the form of loose and dynamic networks where the intermediaries are the core actors.

The nature of criminal enterprises

A number of implications arise from the type of illegal market that forms around a commodity. The level of restriction and regulation correlates with the level of law enforcement and subsequently the nature of the interaction between the criminal enterprise

and the state. As the illegal cycad trade in South Africa is poorly regulated and law enforcement are not given the resources to efficiently police the activities, the illicit cycad market is likely to continue and plants will accordingly become rarer and more expensive (Participant 1 & 5, 2016; Participant 6, 2017). Indeed, the responses to other illegal markets have been more intrusive such the markets surrounding ivory and abalone (Hübschle, 2016; Steinberg, 2015). From an anthropocentric viewpoint, harvesting rare cycads from the wild are victimless crimes, and law enforcement are more likely to respond to crimes that harm humans. However, the offences that are committed in these networks can be characterised as hybrids of market-based crimes and predatory crimes. Market-based crimes are mutually beneficial provisions of illegal goods and services while predatory crimes are offences where perpetrators gain a benefit at someone else's expense (Von Lampe, 2015). Thus, poaching and trade of cycads are market-based crimes because they benefit every actor of the networks monetarily but arguably also predatory crimes as the actors exploit the environment.

Furthermore, illicit markets are more prone to violence than licit markets for several reasons. To begin with, the actors operate outside of the periphery of social institutions, which confines access to criminal and civil courts as well as other entities that could manage a dispute. Additionally, excessive violence may motivate business-partners, employees and other stakeholders to comply with instructions (Andreas & Wallman, 2009). As a response, law enforcement agencies disproportionately target specific illicit markets based on the perceived threats. However, the inadequate level of government intervention, including law enforcement, makes the illicit cycad market less susceptible to violence. The interview data, document analysis and descriptive statistics did not find any evidence of altercations among criminal networks or reports of violent confrontation between the poachers and the police.

Conservation strategies, deterrence and rational choice

The South African government in conjunction with stakeholders have attempted to implement several conservation strategies to combat the illicit cycad market. Interview participants stressed the necessity of technological tools to successfully prosecute offenders. Since uprooting cycads leaves a large and visible hole on the ground, the most efficient way to procure evidence is to connect the uprooted cycad with the hole but this is very difficult without the necessary equipment (Participant 1, 2016). As such, a few technologies have been developed to prevent poaching such as microchips, microdots, stable isotopes and genetic barcoding (Participant 6, 2017). However, microchips are relatively easy to detect and remove with the aid of metal detectors; microdots fade after heavy rainfall; and stable isotopes and DNA-barcoding are not valuable in court due to underdevelopment (Participant 1, 2016).

On the other hand, newspaper articles consistently framed the illicit cycad market within the government's strategy to combat poaching and trade of wildlife. Indeed, the government has been under significant pressure from domestic and foreign organisations because several emblematic animals, such as rhinos and elephants, are poached and sold on the international market. Most newspaper articles involved quotes from stakeholders that pointed to the importance of conserving South Africa's wildlife as means to preserve opportunities for economic development. For instance, one writer claimed that "one of this country's primary assets, its environment, is under constant threat" (Daily News, 2013). In another article, a curator at the Kirstenbosch Botanical Gardens argued "the Department of Environmental Affairs is spearheading this cycad recovery strategy and the minister has made it quite a priority" (NEWS, 2014). Nevertheless, cycad conservation is facing some unique challenges as the plants are subject to less pressure from domestic and foreign stakeholders as well as less denunciation from the public.

The government and other stakeholders generally employ conservation strategies based on the principle of deterrence. Since the concept refers to the notion that potential offenders abstain from crime in fear of the threat of punishment, the most viable channel to induce such threats is through the criminal justice system. That is, the criminal justice system must detect, prosecute and sentence offenders efficiently to set an example for future offenders. However, the results from the court data propose that perpetrators, which are arrested and prosecuted, receive sentences that range from ZAR1000 or one-month imprisonment, to ZAR100000 and/or ten years (suspended for five years) (see Appendix 1). The majority of the sentences are suspended as 62.3 percent (n=33) of offenders were handed suspended sentences and/or fines while 37.7 percent (n=20) of offenders were sentenced to direct imprisonment (see Appendix 1). In addition, the most serious sentences were given to repeat offenders and offenders who already served a suspended sentence.

Interview participants and newspaper articles consistently called for higher sentences and argued that the maximum penalty for cycad-related offences was too lenient (Participant 1, 2 & 3, 2017; Participant 7, 2017). For instance, a prosecutor suggested that offenders were not deterred efficiently as the sentences were “a slap on the wrist” (Participant, 2). Furthermore, a newspaper article reported that “[the expert] has spent ten years trying to deter the plant thieves, including by inserting microchips in cycads in the wild. If anyone is found with a wild plant in their gardens they face a penalty of up to ZAR5 million or five years in jail for a first offence and ZAR10 million [and/or] 10 years in jail the second time” (NEWS, 2015). However, according to a participant in Gauteng, “enforcement is not very effective” and “preventive work occurs when we look for animal poachers during hunting season, in winter, and happen to see harvested cycads” (Participant 4, 2016). Likewise, courts lack the interest, knowledge and time to efficaciously deal with poachers and the length of some cases have lasted three years or longer and involved several prosecutors; for instance, one court case

saw three different prosecutors (Participant 2, 2016). Moreover, The National Prosecuting Authority of South Africa prosecutes on average four offenders a year even though the number of offences is immensely higher (Participant 2, 2016). Therefore, the response from the criminal justice system is not efficient enough to produce the effects of deterrence and it is unlikely that poachers would be deterred by higher sentences if they do not know the implications of harvesting cycads in the first place.

Another theme that emerged from the analysis was the rational choice theory, which refers to the idea that offenders make calculated decisions based on potential risks and rewards. A researcher argued that from a practical point of view, the plants are relatively easy to uproot, transport and replant even though there is a risk of regrowth failure (Participant 1, 2016). Furthermore, poaching does not require any dexterity and conservationists have found digging tools, clothes and holes left in the soil from harvesting the plant in the wild, which suggest that offenders are not even trying to cover their tracks (Participant 6, 2017). In one case, security officers were dispatched to a remote site to protect a population of endangered cycads, and conservation officers found them sleeping, consuming alcohol and revealing disinterest in securing the site upon inspection (Participant 1, 2016). These incidences in combination with the aforementioned emphasis on technology, to secure evidence of poaching, indicate that stakeholders assume that crime occurs because the routine activities theory of crime continuously come to pass, which is a rational choice perspective. That is, the lack of capable guardians, suitable victims, namely the highly sedentary cycad, and motivated offenders converge in time and space, which lead to the demise of the species. Indeed, poachers will continue to be motivated by profit and cycads will always be suitable victims, so the introduction of a capable guardian (e.g. efficient technology) is the only way to prevent poaching.

The green discourse

The interview participants and newspaper articles misrepresented the threats to cycads and the justifications for preserving the species. Instead of articulating reflective reasons for preserving the remaining plant populations, the participants reiterated a discourse that dominates the literature, including scientific publications, newspaper articles, information booklets and government webpages, which is that cycads are ancient plant species that require protection because several species are threatened with extinction. Yet, such an argument is circular and not satisfactory to convince the public to engage in conservation initiatives. The newspaper articles echoed the discourse and a total of 11 articles emphasised that cycads have been around for millions of years and are living fossils that outlived the dinosaurs by surviving three mass extinctions. For example, “because of their ancient connections, cycads are extremely important scientifically” and “cycads have changed little since the end of the Jurassic Period” (NEWS, 2014). Indeed, the Kirstenbosch Botanical Gardens installed several mock dinosaurs in the cycad collection to emphasise their long-lasting heritage despite contemporary research suggesting that cycads evolved after a cooling period about ten million years ago when dinosaurs were themselves extinct (Condamine et al., 2015). While it is likely that experts are aware of the research suggesting that cycads did not grow alongside dinosaurs, they continue to emphasise the connection in virtually any forum available, which suggests that experts might believe that the public consider cycads worthless in and of itself. Paradoxically, it is their supposed link to long disappeared dinosaurs that seems to make them more attractive conservation prospects. However, one participant highlighted the subjective value of plants and argued that some people appreciate cycads while others are interested in mammals (Participant 1, 2016). Moreover, a curator argued that people could learn a lot from the biology of cycads due to characteristics exhibited such as the formation of wet seeds,

which are currently being researched (Participant 5, 2016). Therefore, the value of cycads is not only contingent on their association with prehistoric animals and stakeholders must frame convincing arguments for the preservation of cycads.

Conclusion

The culture of the cycad market give rise to criminal enterprises that must organise themselves around a set of contextually contingent factors. In South Africa, the illicit cycad market is dominated by poachers, intermediaries and end-buyers who form criminal networks that tend to perpetrate several offences in many provinces. Although the poachers typically consist of disadvantaged individuals, including foreign nationals, from rural areas, the intermediaries facilitate the trade. These intermediaries may also be collectors since they are more likely to have the knowledge and expertise required to undertake poaching and trade. However, the end buyers are more difficult to characterise but the data suggests that affluent individuals in suburban areas of Gauteng, and increasingly other provinces, purchase cycads as status symbols. Since these networks are dynamic, lack internal competition and excessive attention from law enforcement, the level of violence is relatively low compared to markets in similar stages of development. Moreover, the stakeholders, including the media, often reiterate a narrative that misrepresents the nature and extent of the illicit cycad market. More specifically, the notion that cycads are ancient seed plants that stem from the age of the dinosaurs, which must be protected due to the involvement of sophisticated transnational criminal organisations. While the poaching and trade threatens the remaining cycad populations with extinction, the market is predominantly domestic and subject to drives and motivations that originate in South Africa.

Chapter 6: Conclusion

The world's cycad populations are very vulnerable as 82 percent of the 297 identified species are listed as threatened on the IUCN Red List of Threatened Plants (Donaldson, 2003). In South Africa, ten species of cycads are listed as Vulnerable, 12 species as Critically Endangered, four species as Endangered, four species as Extinct in the Wild and seven species have less than 100 individuals left in the wild (Raimondo et al., 2009). As a result, the IUCN has concluded that cycads are the most threatened living organisms in the world, which also makes them valuable to collectors. Poaching and trade have been identified as the principal threats to the species and without rapid intervention, cycads are likely to become extinct in the wild. However, the culture of the illicit cycad market and the criminal enterprises that form in response have unique features which are rooted in South African culture and context.

The research found that the exclusiveness of cycads contributes to their desirability and subsequent market value. Even though the legal market could satisfy the demand, rare cycads are perceived as status symbols in South Africa and affluent collectors amass illegal plants to improve their social standing. The collectors are usually white South African males who demonstrate collecting behaviour linked to masculinity, culture and history. Indeed, the research found that collectors display masculinity through collecting by boasting the value, size and rarity of their cycads. In addition, the collecting behaviour seems to be motivated by a desire to feel connected to the land, which is grounded in Afrikaner Calvinism and nationalism, but is also exemplified through contemporary uses of land such as the romanticisation thereof.

These elements are the building blocks of the legal and illegal domestic markets. Massive collections can be found all over the country even though most of them are found in Gauteng, as the province houses the highest concentration of wealth in South Africa.

Furthermore, the degree of regulation and prohibition seems to explain some of the variation in poaching and trade between the provinces. For instance, the interim cycad letter that was issued by Gauteng in 1994 due to capacity constraints created a legal loophole where requirements to possess, sell, donate or transport cycads became void and collectors could then bring cycads from other provinces to obtain permits. In fact, the market can be defined as a black market since most activities related to protected cycads are illegal and it is difficult to acquire plants without contravening international, national and provincial legislation. Nevertheless, one could speculate about the extent to which collectors collude with government officials to permit cycads that have been harvested from the wild because of the high level of corruption in the country.

The criminal enterprises that have formed in response to the market typically comprise poachers, intermediaries and end-buyers. While poachers are disadvantaged individuals from rural areas or neighbouring countries, intermediaries usually are collectors that see an opportunity to profit. That is, intermediaries tend to recruit poachers, who do not realise the value and regulation surrounding the cycads, to uproot the plants and transport them to end-buyers. Although the information concerning these buyers is scarce, interview participants described them as affluent residents of Gauteng who wish to acquire the most valuable plants to decorate their gardens. Thus, the triad of actors constitute small syndicates or criminal networks that come together to harvest species in rural areas and transport them to collectors. Yet, the level of violence is meagre due to little national or international competition and confrontation between law enforcement and poachers is very unlikely.

The lack of law enforcement and government initiatives to counteract poaching creates a space where legal and illegal markets intertwine. Several legitimate actors have been caught trading protected cycads without the required permits and they are also part of organisations that promote conservation through propagation. As such, collectors utilise public channels,

such as websites, social media and forums, to dispute legislation and conservation strategies. These interactions are often hostile and involve slander of named government officials, which illuminate two competing agendas: collection of cycads and conservation. In addition, collectors do not seem to perceive themselves as criminals but rather as conservationists that must break the law to save the species. It is clear, nonetheless, that many collectors do whatever it takes to acquire the most valuable cycads. Therefore, the government should allocate sufficient resources to law enforcement agencies across all provinces in South Africa as the activities are relatively open. For instance, the specialist law enforcement agency referred to as the Green Scorpions in the Eastern Cape has been very successful in arresting and prosecuting offenders due to interorganisational cooperation and support.

Government agencies and non-governmental organisations have developed conservation strategies to prevent poaching and trade of cycads. Technologies such as microchips, microdots, stable isotopes and DNA-barcoding represent efforts to procure evidence by connecting the uprooted cycad with the roothole. However, these have not been fully implemented due to insufficient funding and it is subsequently very difficult to prove poaching in court. Furthermore, the quality of public communication has been rather unfruitful as conservationists seem unable to articulate *why* the public should care about preserving the species. The discourse is dominated by the cycads' relationship to dinosaurs, which has been rebutted in recent scientific papers, and conservationists argue that the plants must be protected because they are threatened. As such, tailored awareness campaigns could potentially reduce level of threat to species by informing the public about the causes and consequences of cycad poaching as well as providing communities with opportunities to participate in conservation. However, interview participants were extremely pessimistic about the future of cycads and most seemed to believe that they would be extinct within decades. It is therefore necessary to implement conservation strategies that can improve the *status quo*

and guide policy makers toward fertile decision-making. Hence, the research demonstrated that the culture of illicit markets is imperative to understand the formation of criminal syndicates. The cycad market is an excellent example of the subjectivity that lead to the desires of consumers and the detrimental impacts such motivations can have on the environment. While collecting behaviour is universal and rooted in psychological factors, policy makers must take the South African context into account when attempting to counteract the domestic illicit cycad market and the networks that supply the plants. A failure to do so will see the extinction of several important sub-species of cycads.

References

- Abelson, P.H. (1990). Medicine from plants. *Science*, 247(4942), 513.
- Akenson, D. (1992). *God's peoples: Covenant and land in South Africa, Israel, and Ulster*. Ithaca, NY: Cornell University Press.
- Andreas, P. (2004). Illicit international political economy: The clandestine side of globalization. *Review of International Political Economy*, 11(3), 641-652.
- Andreas, P. & Wallmann, J. (2009). Illicit markets and violence: What is the relationship? *Crime, Law & Social Change*, 52, 225-229.
- Arlacchi, P. (1998). Some observations on illegal markets. In V. Ruggiero, N. South & I. Taylor (Eds.), *The new European criminology: Crime and social order in Europe*, (pp. 203-215). London, UK: Routledge.
- Australian Rhino Project. (2017). The Australian Rhino Project. Retrieved from <http://theaustralianrhinoproject.org/>
- Ayling, J. (2012). *What sustains wildlife crime? Rhino horn trading and the resilience of criminal networks*. Transnational Environment Crime Project, 2/2012. Canberra, Australia: Transnational Environment Crime Project
- Bowen, G.A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40.
- Burns, W.C. (1990). CITES and the regulation of international trade in endangered species of flora: A critical appraisal. *Penn State International Law Review*, 8(2), 203-223.
- Business Dictionary. (2017). *Buyer*. Retrieved from <http://www.businessdictionary.com/definition/buyer.html>
- Bryman, A. (2016). *Social research methods*. NY, New York: Oxford University Press.

- Bürgener, M., Snyman, N. T., & Hauck, M. (2001). *Towards a sustainable wildlife trade: an analysis of nature conservation legislation in South Africa with particular reference to the wildlife trade*. University of Cape Town, Institute of Criminology.
- Carruthers, J. (1995). *The Kruger National Park: A social and political history*. Pietermaritzburg, South Africa: University of Natal Press.
- Chrispeels, M. J., & Sadava, D.E. (1977). *Plants, food and people*. London, UK: W.H. Freeman & Co.
- CITES. (2003). *Review of Significant Trade Cycads*. Retrieved from <https://www.cites.org/sites/default/files/eng/com/pc/14/E-PC14-09-02-02-A1.pdf>
- CITES. (2017). *Member countries*. Retrieved from <https://www.cites.org/eng/disc/parties/index.php>
- Clarke, S., Milner-Gulland, E.J., & Bjørndal, T. (2007). Social, economic, and regulatory drivers of the Shark fin trade. *Marine Resource Economics*, 22(3), 305-327.
- Clavero, M., & Garcia-Berthou, E. (2005). Invasive species are a leading cause of animal extinctions. *Trends in Ecology and Evolution*, 20(3), 110.
- Condamine, F.L., Nagalingum, N.S., Marshall, C.R., & Morlon, H. (2015). Origin and diversification of living cycads: A cautionary tale on the impact of the branching process prior in Bayesian molecular dating. *BMC Evolutionary Biology*, 15(65). DOI: 10.1186/s12862-015-0347-8
- Cousins, S.R., Williams, V.L., & Witkowski, E.T.F. (2012). Uncovering the cycad taxa (Encephalartos species) traded for traditional medicine in Johannesburg and Durban, South Africa. *South African Journal of Botany*, 78, 129-138.
- Cressey, D. (1969). *Theft of the nation: The structure and operations of organized crime in America*. New Brunswick, NJ: Transaction Publishers.

- Cycad Friends. (2017). *About cycadfriends*. Retrieved from <http://cycadfriends.co.za/site/about-us/>
- Cycad World of Innovations. (2017). *Possession permit for Gauteng*. Retrieved from <http://www.cycadwofi.com/new-sa-law/35-possession-permit-for-gauteng.html>
- Cycads of South Africa. (2016). *Provincial legislation*. Retrieved from <http://www.cycads.org.za/province.html>
- Department of Environmental Affairs. (2016). *National strategy and action plan for the management of cycads in South Africa*. Arcadia, Pretoria. Retrieved from <http://www.cycadwofi.com/attachments/category/3/NSAP-2016-10-LATEST.pdf>
- Department of Justice. (2003). *Federal agents arrest six men charged with illegal trafficking in rare plants*. Retrieved from <https://www.justice.gov/archive/opa/pr/2001/July/348enrd.htm>
- Donaldson, J.S. (2003). *Cycads: A status survey and conservation action plan*. IUCN/SSC Cycad Specialist Group, Gland.
- Donaldson, J. S. (2008). South African Encephalartos species. In *NDF Workshop Case Studies: Case Study* (Vol. 4).
- Donaldson, J.S., & Bosenberg, J.D. (1999). Changes in the abundance of South African cycads during the 20th century: Preliminary data from the study of matched photographs. *Biology and Conservation of Cycads*. In Chen, C.J (Eds.), *Proceedings of the Fourth International Conference on Cycad Biology*, Panzhihua, China.
- Dyer, R.A. (1965). The cycads of Southern Africa. *Bothalia*, 8, 405-515.
- Feige, E.L. (2016). Reflections on the meaning and measurement of unobserved economies: What do we really know about the “Shadow Economy”. *Journal of Tax Administration*, 2(1).

- Field, C.B., Behrenfeld, M.J., Randerson, J.T., & Falkowski, P. (1998). Primary production of the biosphere: Integrating terrestrial and oceanic components. *Science*, 281(5374), 237-240.
- Giddy, C. (1974). *Cycads of South Africa*. Cape Town, South Africa: Purnell and Sons.
- Goga, K. (2014). The illegal abalone trade in the Western Cape. *Institute of Security Studies*, 261, 1-10.
- Golding, J.S., Hurter, P.J.H. (2001). Perspectives on Cycads in Africa. *Encephalartos*, 68, 30-33.
- Goode, D. (1989). *Cycads of Africa*. Cape Town, South Africa: Struik Winchester.
- Government Gazette. (2007). *National environmental management: Biodiversity Act 2004 (Act 10 of 2004): Threatened or protected species regulations*. Retrieved from https://www.environment.gov.za/sites/default/files/legislations/nemba_threatenedspecies_regulations_g29657rg8638gon152.pdf
- Hashmi, M.U.A., Khan, M.Z., & Nawaz, U.H. (2013). Current status, distribution and threats of *Varanus* species (*Varanus bengalensis* & *Varanus griseus*) in Karachi and Thatta of Sindh. *International Journal of Fauna and Biological studies*, 1(1), 34-38.
- Havocscope. (2017). *Country profile*. Retrieved from <http://www.havocscope.com/country-profile/>
- Hewitt, D. (2012). How the high price of rhino horn fuels European museum thefts. Retrieved from https://www.thestar.com/news/world/2012/07/01/how_the_high_price_of_rhino_horn_fuels_european_museum_thefts.html
- Hübschle, A.M. (2016). *A game of horns: Transnational flows of rhino horn* (doctoral thesis). Retrieved from http://imprs.mpifg.de/imprs_dissertation_series.asp

Joossens, L., & Raw, M. (1995). Smuggling and cross border shopping of tobacco in Europe.

British Medical Journal, 310, 1393-1397.

Lavorgna, A. (2014). Wildlife trafficking in the internet age. *Crime Science*, 3(5). DOI:

10.1186/s40163-014-0005-2

Litz, R.E., Moon, P.A., & Chavez Avila, V.M. (2005). Somatic embryogenesis and

regeneration of endangered cycad species. *Acta Horticulturae*, 692, 75-79.

Martin, E., & Stiles, D. (2003). *Ivory markets of east Asia*. Nairobi, Kenya: Save the

Elephants.

Mroczek, D.K., & Spiro, A. (2003). Modeling intraindividual change in personality traits:

Findings from the normative age study. *Journal of Gerontology*, 58(3), 153-165.

Naylor, R.T. (2004). *Wages of crime: Black markets, illegal finance, and the underworld*

economy. Ithaca, NY: Cornell University Press.

Nusbaumer, M.R. (2011). Rural masculinities and antique tractors: Reliving the men in the

machines. *Journal of Rural Social Sciences*, 26(2), 101-125.

Osborne, R., Grove, A., Oh, P., Mabry, T.J., Ng, J.C., & Seawright, A.A. (1994). The magical

and medicinal usage of *Stangeria eriopus* in South Africa. *Journal of*

Ethnopharmacology, 43(2), 67-72.

Parameswaran, K. (2006). Case series of eosinophilic meningoencephalitis from South India.

Annals of Indian Academy of Neurology, 9(4), 217-222.

Pfab, M. (2012). The cycad extinction crisis South Africa: A failure of our legal system

[PowerPoint slides].

Plagyani, E., Butterworth, D., & Burgener, M. (2011). Illegal and unreported fishing on

abalone – quantifying the extent using a fully integrated assessment model. *Fisheries*

Research, 107, 221-232.

- Purvis, A., Gittleman, J.L., Cowlishaw, G., & Mace, M.M. (2000). Predicting extinction risk in declining species. *Science*, 267(1456), 1947-1952.
- Raimondo, D.C., & Donaldson, J.S. (2003). Responses of cycads with different life histories to the impact of plant collecting: Simulation models to determine important life history stages and population recovery times. *Biological Conservation*, 111, 345-358.
- Ravele, A.M., & Makhado, R.A. (2009). Exploitation of *Encephalartos transvenosus* outside and inside Mphaphuli Cycads Nature Reserve, Limpopo Province, South Africa. *African Journal of Ecology*, 48, 105-110.
- Reuter, P. (2009). Systemic violence in drug markets. *Crime, Law and Social Change*, 52(3), 275-284.
- Retief, K., West, A., & Pfab, M. (2014). Can stable isotopes and radiocarbon dating provide a forensic solution for curbing illegal harvesting of threatened cycads? *Journal of Forensic Science*, 59(6), 1541-1551.
- Retief, K., West, A., & Pfab, M. (2015). Are you involved in the illegal cycad trade? *Veld & Flora*, 101(1), 13-15.
- Sand, P.H. (1997). Whither CITES – The evolution of a treaty regime in the borderland of trade and environment. *European Journal of International Law*, 8(1), 29-58.
- Save the Rhino. (2016). *Legalising the horn trade*. Retrieved from https://www.savetherhino.org/rhino_info/thorny_issues/legalising_the_horn_trade
- Scientific Authority of South Africa. (2012). Non-detriment finding for *Encephalartos latifrons*. Retrieved from https://www.environment.gov.za/sites/default/files/docs/nondetrimentfinding_encephalartos_latifrons.pdf
- Schneider, J.L. (2008). Reducing the illicit trade in endangered wildlife: The market reduction approach. *Journal of Contemporary Criminal Justice*, 24(3), 274-295.

- Schneider, F., Buehn, A., & Montenegro, C.E. (2010). New estimates from the shadow economic all over the world. *International Economic Journal*, 24(4), 443-461.
- Shaw, M., & Rademeyer, J. (2016). A flawed war: Rethinking green militarisation in the Kruger National Park. *Politikon*, 43(2), 173-192.
- Soule, M.E. (1985). What is conservation biology? *BioScience*, 35(11), 727-734.
- Srivastava, S., John, O.P., Gosling, S.D., & Potter, J. (2003). Development of personality in early and middle adulthood: Set like plaster or persistent change? *Journal of Personality and Social Psychology*, 84(5), 1041-1052.
- Staake, T., Thiesse, F., & Fleisch, E. (2009). The emergence of counterfeit trade: A literature review. *European Journal of Marketing*, 43(3), 320-349.
- Steinberg, J. (2005). The illicit abalone trade in South Africa. *The Institute of Security Studies*, 105, 1-14.
- Strauss, A. & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Tijhuis, A.J.G. (2006). Transnational crime and the interface between legal and illegal actors: The case of illicit art and antiquities trade (Master's thesis, Leiden University, Netherlands). Retrieved from https://openaccess.leidenuniv.nl/bitstream/handle/1887/4551/tijhuis%2523master%2523word.pdf?sequence=1&origin=publication_detail
- Victor, J.E., & Dold, A.P. (2003). Threatened plants of the Albany Centre of Floristic Endemism, South Africa. *South African Journal of Science*, 99, 437-446.
- Vié, J.C., Hilton-Taylor, C., & Stuart, S.N. (2008). *Wildlife in a changing world: Analysis of the 2008 ICUN Red List of Threatened Species*. Gland, Switzerland: IUCN.
- Von Lampe, K. (2015). *Organized Crime: Analyzing illegal activities, criminal structures and extra-legal governance*. New York, NY: Sage.

Warchol, G.L. (2004). The transnational illegal wildlife trade. *Criminal Justice Studies*, 17(1), 57-73.

Warchol, G.L., Zupan, L.L., & Clack, W. (2003). Transnational criminality: An analysis of the illegal wildlife market in southern Africa. *International Criminal Justice Review*, 13

Williams, P. (2001). Crime, illicit markets, and money laundering. In PJ Simmons & C de Jonge Oudraat (Eds.), *Managing global issues: Lessons learned*, (pp. 106-150). Washington, DC: Carnegie Endowment for International Peace.

Zimmerman, M.E. (2003). The black market for wildlife: Combating transnational organized crime in the illegal wildlife trade. *Vanderbilt Journal of Transnational Law*, 36, 1657-1689.

Appendices

Appendix 1. Summary of notable and successful prosecution cases between 2010 and 2016 in South Africa

Year	Number of offenders	Offence	Relevant legislation	Sentence	Harvested species
2010	7	Illegal gathering and possession of cycads	Sec. 200 of the Natal Nature Conservation Ordinance 19 of 1974	ZAR30000 or 6 years' imprisonment, ZAR25000/ 5 years susp. for 5 years	
2011	5	Illegal gathering of 95 cycads and entering a world heritage site without written approval	46(1), 4(1)(g) Protected Areas Act Sec. No. 57 of 2003	ZAR8000 or 2 years' imprisonment susp. for 5 years on conditions	<i>Encephalartos ferox</i>
2011	1	Theft of cycads from municipality gardens	Sec. 101(1) of NEMBA	ZAR2000 or 6 months' imprisonment susp. for 4 years	
2011	1			ZAR20000 or 2 years' imprisonment susp. for 5 years	
2012	4	Poaching and transporting two cycads, 1 over 2 m long and worth ZAR18250	Sec. 57(1) of NEMBA	30 months' imprisonment; 4 years; 4 years susp. 5 years	
2012	1	Illegal gathering of 95 cycads	Cycads not listed in TOPS	ZAR90000 or 6 years' imprisonment of which ZAR60000 or 4 years is susp. for	<i>E. ferox</i>

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Year	Number of offenders	Offence	Relevant legislation	Sentence	Harvested species
				5 years	
2012	1	Theft of cycads	Sec. 67(1)(a) Limpopo Env. Man. Act 7 of 2003; Sec. 57(1) NEMBA; TOPS	ZAR30000 or 18 months' imprisonment, additional 18 months susp. for 5 years	<i>E. eugene maraissii</i>
2012	2	Theft of four cycads worth ZAR65250	Sec. 64(1) Limpopo Env. Man. Act 7 of 2003 and Criminal Procedure Act 51 of 1977	6 years' imprisonment	<i>E. eugene maraissii</i>
2012	1	Illegal possession and transportation of 43 cycads	Sec. 62(1) Cape Ordinance, 19 of 1974	6 years' imprisonment, half susp. for 5 years	
2012	6	Gathering and possession of protected indigenous cycads	Natal Nature Conservation Ordinance 15/1974	2 years' imprisonment, susp. 5 years	

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Year	Number of offenders	Offence	Relevant legislation	Sentence	Harvested species
2012	3	Theft of 23 cycads	Sec. 57(1) NEMBA	2 years' imprisonment, susp. 5 years	
2012	1	Illegal possession of ten protected plants	Sec. 203 of Natal Nature Conservation Ordinance	ZAR1000 or one month of imprisonment	<i>Aloes species</i>
2013	2	Sting operation; harvesting 134 cycads worth more than ZAR100000	Sec. 196 & 200 of Natal Nature Conservation Ordinance	3 years' imprisonment	<i>E. ferox</i>
2014	2	Illegal harvesting, transporting, possession and exporting 22 cycads	Cape Nature and Environmental Ordinance 19 of 1974	5 years and 7 years, 2 years susp. for 5 years	
2014	4	Possession of 25 cycads worth ZAR314000, trespassing and theft	Cape Nature and Environmental Ordinance 19 of 1974	7 years' imprisonment, 3 susp. 3 offenders got 5 years and 6 months and vehicle forfeited	<i>E. horridus</i>

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Year	Number of offenders	Offence	Relevant legislation	Sentence	Harvested species
2015	4	Illegal removal and possession of 12 cycads. Theft and trespassing	Sec. 62(1) of the Cape Nature and Environmental Ordinance 19 of 1974	ZAR12000 and 3 years' imprisonment, others 5 years' imprisonment. Vehicle forfeited	<i>E. lehmanii</i>
2015	2	Possession of 2248 plants without permit	Cape Nature and Environmental Ordinance 19 of 1974 and Sec. 18 of Act 121 of 1998	10 years, susp for 5 years, and 2 years susp. 5 years, ZAR2 million confiscated	<i>Aloe pillansii</i> and unidentified cycads
2016	4	Theft of 22 cycads and trespassing	Sec. 62(1) Cape Nature and Environmental Ordinance 19 of 1974	9 years' imprisonment, 8 years, 7 years, ZAR50000 and 18 months Half of the offenders suspended	<i>E. longifolius</i>
2016	2	Theft of 15 cycads	Sec. 62(1) Cape Nature and Environmental Ordinance 19 of 1974	10 years, susp. 5 years, ZAR100000, Two vehicles forfeited, asked to donate parts of his farm	<i>E. longifolius</i>

Appendix 2. Summary of law enforcement data, including identification and estimated value of confiscated cycads from the Eastern Cape between 2011 and 2016.

Year	Number of offenders	Offence	Confiscated species (number of individuals)	Estimated Value
2011	2	Possession	<i>E. Princeps</i> (35)	ZAR200000
2011	1	Transporting	<i>E. Princeps</i> (40)	ZAR22000
2012	6	Possession	<i>E. Horridus</i> (31), <i>E. Princeps</i> (10), <i>E. Altensteinn</i> (2)	ZAR192000
2012	1	Harvesting	<i>E. Princeps</i> (13)	ZAR150000
2012	5	Possession	<i>E. Longifolius</i> (26)	ZAR200000
2013	2	Possession	<i>E. Fredericii G</i> (17)	ZAR255000
2014	5	Possession	<i>E. Horridus</i> (28)	ZAR314000
2014	5	Possession	<i>E. Lehmanii</i> (20)	ZAR240000
2015	5	Possession	<i>E. Longifolius</i> , <i>E. Lehmanii</i> (103)	ZAR1 million
2015	1	Possession	<i>E. Natalensis</i> (18)	ZAR20000
2015	1	Possession	<i>E. Natalensis</i> (21)	ZAR40000
2015	2	Harvesting	<i>E. Princeps</i> (18)	ZAR120000
2015	1	Trading	<i>E. Longifolius</i> , <i>E. Lehmanii</i>	ZAR8 million
2015	6	Possession	<i>E. Horridus</i> (81)	ZAR610000
2015	6	Harvesting	<i>E. Horridus</i> (20)	ZAR180000
2015	1	Harvesting	<i>E. Altensteinii</i> (5)	ZAR100000
2016	1	Harvesting	<i>E. Princeps</i> (80-100)	ZAR1500000
2016	1	Harvesting	<i>E. Horridus</i> (36)	ZAR350000
2016	1	Harvesting	<i>E. Lehmanii</i> (9)	ZAR180000

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Year	Number of offenders	Offence	Confiscated species (number of individuals)	Estimated Value
2016	1	Harvesting	<i>E. Lehmanii</i> (11)	ZAR220000
2016	1	Harvesting	<i>E. Princeps</i> (10)	ZAR310000

Appendix 3. Environmental legislation in the provinces of South Africa (adapted from cycads.org.za).

Provinces	Legislation
Eastern Cape	Eastern Cape Province Cape Nature and Environmental Conservation Ordinance 19 of 1974, and Ciskei Nature Conservation Act 10 of 1987
Free State	Free State Nature Conservation Ordinance 8 of 1969, and QwaQwa Nature Conservation Act 5 of 1976
Gauteng	Gauteng Nature Conservation Ordinance 12 of 1983
KwaZulu-Natal	Natal Nature Conservation Ordinance 15 of 1974, and KwaZulu Nature Conservation Act 29 of 1992
Limpopo	Limpopo Environmental Management Act 7 of 2003
Mpumalanga	Mpumalanga Nature Conservation Act 10 of 1998
Northern Cape	Northern Cape Nature Conservation Act 9 of 2009
North West	Bophuthatswana Nature Conservation Act 3 of 1973, North West Transvaal Nature Conservation Ordinance 12 of 1983, and North West Cape Nature and Environmental Conservation Ordinance 19 of 1974
Western Cape	Western Cape Province Cape Nature and Environmental Conservation Ordinance 19 of 1974

Appendix 4. Open-ended questionnaire for research participants

Question number	Question
1	Could you tell me about your professional background and experience in the field of cycad conservation?
2	What is the status of cycad conservation in South Africa?
3	How would you describe the illicit cycad market in South Africa?
4	How would you describe the illicit cycad market in <<insert province>>?
5	Could you comment on the scope of the problem in South Africa and in <<insert province>>?
6	Is the market unique to South Africa or is there evidence for an international market?
7	Who are the actors involved in the trade?
8	In your opinion, why is poaching of cycads occurring in South Africa?
9	Which prevention mechanisms have been successful in combating illicit poaching and trade of cycads, and are there other strategies that potentially could work better?
10	Are there any other aspects of the trade that we have not discussed so far which you believe is important to mention?

Appendix 5. Sample of national and regional newspapers by province

Province	Newspaper
National	Business Day, Channel Africa, The Citizen, Daily Maverick, IOL, Mail & Guardian, The New Age, Rand Daily Mail, News24, SABC News, Sunday Times, and The Times
Eastern Cape	The Announcer, Netwerk24, Grocott's Mail, Herald Live, Port Elizabeth Express, and Uitenhage News
Gauteng	City Press, Pretoria East Record, Pretoria North Record, and The Sowetan
KwaZulu-Natal	Daily News, Escourt & Midland News, The Mercury, and The Witness
Limpopo	Capricorn, Herald, Limpopo Mirror, and Polokwane Observer
Mpumalanga	Mpumalanga News, Lowvelder, and Nelspruit Post
Western Cape	Cape Argus, Cape Times, Ground Up, Hermanus Times, Paarl Post, Eikestad Nuus, People's Post, Tyger Burger, and Worcester Standard

Appendix 6. Results of the open coding analysis of seven interviews

Major categories	Subcategories
Context	Culture, masculinity, status symbol, exclusiveness
Market	Domestic market, international market, black market, grey market
Organisation	Actors, syndicate, disorganisation, and monopoly
Discourse	Inherent value, deterrence, rational choice pessimism and conservation

Appendix 7. Results of the open coding analysis of 42 regional and national newspaper articles

Major categories	Subcategories
Context	Culture, masculinity, status symbol, exclusiveness, corruption
Market	Domestic market, national collections international market and black market
Organisation	Actors and syndicate
Discourse	Inherent value, deterrence and conservation

