LUND UNIVERSITY

Lund University Master of Science in
International Development and Management
May, 2023

The Plight of the Pangolin

Key patterns enabling the illegal wildlife trade of pangolins in Namibia
- a multi-perspective case study

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Abstract

The pangolin is the most trafficked mammal on earth and is believed to be on the brink of extinction. However, in many affected countries including Namibia, research and conservation efforts do not match their endangered status. Despite strict wildlife legislations, the level of illegal wildlife trade remains high, especially impacting Namibia's rural communities. Thus, the aim of this thesis is to disclose the key enabling factors and underlying power relations fueling this trend in Namibia and, consequently, derive effective conservation and policy implications.

The approach of this thesis is a multi-perspective case study which creates a holistic view of this understudied topic. As a method, we chose six key groups of stakeholders to participate in semi-structured interviews. The obtained data was further structured and analyzed through a social-ecological systems approach paired with a political ecology lens.

We derived key enabling factors such as the lack of overall cooperation and knowledge exchange between all subsystems as well as the exclusion of important stakeholders. The pangolin, being a non-charismatic species, also suffers insufficient funding, due to its lack of value for the tourism- and hunting industries. Further, entrenched asymmetric power relations were found to be one of the root causes. In this defunct system, the marginalization of rural communities creates a vicious cycle of insecurity and poverty resulting in illegal activities such as pangolin poaching.

Key Words: *pangolin, illegal wildlife trade, conservation, wildlife, Namibia, poaching, communities, power, political ecology, social-ecological system*

Word count: 14937

Acknowledgements

As the submission of this thesis marks the end of two years studying International Development & Management at Lund University (LUMID), we would like to thank the program and teachers for the great experience, enriching classes, and discussions, and for preparing us for the real world of development. Moreover, we are grateful to have met our fellow LUMIDers with whom we have gained friendships and a source of inspiration.

To the best supervisor, Torsten: Thank you for introducing us to the SES Club, for your guidance, support and being patient with our endless emails and questions.

We would like to express special gratitude to the International Center for Local Democracy (ICLD) as well as the Crafoord Foundation for providing us with the financial resources to pursue our fieldwork and data collection.

Kelsey, thank you for letting us into your world of pangolin conservation. You and your work are so valuable in protecting pangolins, and your support helped make this thesis come to life.

The study would not have been possible without our incredible interviewees who trusted us with their valuable insights and took the time to support this project.
Me we a - to the Ju/'hoan San community in Nyae Nyae who took as us in in the most kind, loving and open way. You trusted us with your knowledge and let us into your world. We are so grateful that you gave us this opportunity. #oma, thank you for not only being an incredible pangolin ranger but also our translator and friend throughout this experience.
Daniel, thank you for providing me, Carina, every day with endless matcha lattes, hugs, and love. For that I am forever grateful.

And of course, we would like to thank our friends, and family for their continued support, guidance, and patience throughout these two years and especially during the last weeks leading up to the completion of this thesis.

Lastly, we thank each other for great teamwork, trust, support, and friendship before, throughout and after this memorable experience.

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List of Abbreviations

CBNRM	Community-based Natural Resource Management
CITES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
ECU	Environmental Crime Unit
IUCN SSC	International Union for Conservation of Nature - Species Survival Commission
IWT	Illegal Wildlife Trade
MEFT	Ministry of Environment, Forestry and Tourism
NASCO	Namibian Association of CBNRM Support Organisations
NCE	Namibian Chamber of Environment
NCO	Nature Conservation Ordinance of 1975
NGO	Non-Governmental Organization
NPWG	Namibian Pangolin Working Group
OECD	Organisation for Economic Co-operation and Development
PCRF	Pangolin Conservation and Research Foundation
PE	Political Ecology
SES	Social-Ecological System
TA	Traditional Authority
TAM	Traditional African Medicine
TCM	Traditional Chinese Medicine
UNEP	United Nations Environment Programme
UNODC	The United Nations Office on Drugs and Crime
UNCAC	United Nations Convention against Corruption
WTN	Wildlife Trade Network
WWF	World Wide Fund for Nature

List of Definitions

Agency	Agency is here forth defined as the capacity of individuals to have the power and resources to make things happen and fulfill their potential (Britannica Encyclopedia, 2023).
Biodiversity	"Biodiversity is the variety of life on Earth, it includes all organisms, species, and populations; the genetic variation among these; and their complex assemblages of communities and ecosystems." (UNEP, n.d.).
Community-Based Natural Resource Management	Community-based natural resource management (CBNRM) attempts to return the rights from the state to rural communities giving them the responsibility to manage their land and the respective natural resources on it in a sustainable, traditional way. The premise is that the conservancy will be self-sustaining in generating income through a vivid wildlife population which generates incomes through tourism or trophy hunting (Heffernan, 2022).
Conservation	Conservation can be defined as the care and protection of the earth's natural resources which includes maintaining a healthy biodiversity, as well as a functioning environment (National Geographic, 2023).
Communal Conservancy	"A Namibian communal conservancy is a community-based institution that has obtained conditional rights to use the wildlife occurring within a self-defined area. To establish a conservancy, an elected committee must meet all the requirements given by the Ministry of Environment and Tourism (MET) in the 1996 amendment of the 1975 Nature Conservation Ordinance. Once these requirements are met, the Minister will declare the new conservancy in the Government Gazette." (Conservation Namibia, 2023). In this thesis we refer to it simply as 'conservancy'

Corruption	"We define corruption as the abuse of entrusted power for private gain. Corruption erodes trust, weakens democracy, hampers economic development, and further exacerbates inequality, poverty, social division, and the environmental crisis." (Transparency International, 2023).
Development	Development in our study is defined as a process of transformation, and progress with the premise to facilitate a higher quality of life through economic, environmental, and social improvement of a certain region or population (UN, 2023).
Global South	"The phrase 'Global South' refers broadly to the regions of Latin America, Asia, Africa, and Oceania. It is one of a family of terms, including 'Third World' and 'Periphery,' that denote regions outside Europe and North America, mostly (though not all) low-income and often politically or culturally marginalized. The use of the phrase Global South marks a shift from a central focus on development or cultural difference toward an emphasis on geopolitical relations of power." (Dados & Connell, 2012).
Illegal Wildlife Trade / Trafficking	Illegal wildlife trade or trafficking is any environment-related crime that involves the illegal trade, smuggling, poaching, capture or collection of endangered species, protected wildlife (including animals and plants that are subject to harvest quotas and regulated by permits), derivatives or products thereof (Wildlife Conservation Society, 2023).
Lobbying	Lobbying activities describe interactions where actors try to influence the actions of politicians or government officials to their own benefit, especially of those involved in policy and legislation making (Merriam-Webster.com, 2023).
Poverty	Living in poverty is defined as living below the national poverty line and therefore, not having the monetary or natural resources to fulfill one's basic needs (The World Bank, 2017).

Protected Species	Protected species can be described as “threatened, vulnerable or endangered species which are protected from extinction by preventive measures.” (European Environment Agency, 2023).
Tragedy of the Commons	“The tragedy of the commons refers to a situation in which individuals with access to a public resource (also called a common) act in their own interest and, in doing so, ultimately deplete the resource.” (Spiliakos, 2019).
Trophy Hunting	Trophy hunting can be defined as the shooting of carefully selected animals – big game such as elephants – with an official government permit, often in exchange for a high fee, mostly paid to the government as well as to the owners of the hunting ground (Carwardine, n.d.).
Wildlife Crime	“The illegal poaching, smuggling or transport of a specific animal product or species (such as rhino horn or elephant tusks) by criminal groups or individuals for the purpose of financial profit or other material gain.” (Chelin, 2023). However, the implication of this term will be further elaborated on in the discussion section.

1. Introduction

1.1 Motivation of Study

The pangolin is the most traded mammal on earth (WildAid, 2016). All eight pangolin species are considered vulnerable to critically endangered and believed to be threatened with extinction (PSG, 2019). An estimated 23.5 tons (about 200,000 pangolins) were trafficked in 2021 alone (TRAFFIC, 2023; WildAid, 2023). Paradoxically, many people have never heard of the pangolin and thus, research and conservation efforts do not yet match their endangered status. The lack of international responsibility, hence, continues to enable their eradication (Wintersgill, 2020).

Illegal wildlife trade (IWT) is one of the biggest drivers of the loss of this species (Iordăchescu et al., 2022). The supply chain of IWT begins with often impoverished rural community members being recruited as low-level poachers by local middlemen, forced into illegal activities to fulfill their basic needs (TRAFFIC, 2020). These are also the ones mostly caught by law enforcement while the higher levels remain unimpeded (ibid.). The demand drivers are the end consumers mostly situated in Vietnam and China (Gayle et al., 2020). There, pangolin parts are a sought-after ingredient in Traditional Chinese Medicine (TCM) and as a status symbol (Wang et al., 2020). The Convention on International Trade of Endangered Species (CITES) bans all trade of pangolins. However, their high trade value surpasses the fear for penalties, providing highly sophisticated and armed syndicates with a high supply of new low-level recruits (CITES, 2021).

To unravel the obscure but sophisticated trade networks of IWT, a growing body of research is concerned with exploring the social-ecological system (SES) of IWT and related conservation efforts (Gore et al., 2023). Thereby, political ecology (PE) approaches are a novel but well-proven addition to deconstruct the inequalities and power structures that underlie such systems (Duffy, 2022). A particular quest for the school of thought as well as practitioners is therefore to unravel the root causes and key drivers of such environmental degradations (Constanino et al., 2012). Thereby, they disclose a recent shift in conservation governance away from community conservation to highly militarized anti-poaching units (Hitchcock, 2019; Duffy, 2022).

A similar movement can be observed in Namibia, one of the most understudied countries concerning pangolins as well as illegal wildlife trade (Prediger, 2020). Here, wildlife legislation

demands one of the highest penalties for pangolin poaching with suspects facing up to 25 years in prison while the Operation Blue Rhino[1] is one of the first intelligence based anti-poaching units in Africa (Denker, 2022; Rooikat Trust, 2020). Nevertheless, there are few dismantled pangolin syndicates, and a recurring high number of pangolin trade incidents (Rooikat Trust, 2021; Lesser, 2022).

The illegal hunting and wildlife trade has significant impacts on Namibia's rural communities (Naro et al., 2020). The Nyae Nyae Conservancy, the oldest communal conservancy in Namibia, home to the Ju/'hoan San, follows a CBNRM approach which advocates the community's governance over their land and natural resources (Gargallo, 2015). However, most conservancies rely on hunting and tourism, both industries that are increasingly threatened by IWT (Amon, 2021). Additionally, rural poverty and unemployment is a major issue in Namibia, forcing many people to search for any kind of livelihood opportunities to survive (Naro et al., 2020). IWT syndicates take advantage of these circumstances offering 'quick money' for pangolins, which can be caught without any tools or weapons, making it an easy catch for opportunistic hunters (Heighton & Gaubert, 2021).

Due to the pangolin being a non-charismatic species, it faces a major lack of awareness and interest, leaving a huge research gap that has yet to be filled (Thomson & Fletcher, 2020). The little research that has been done assumes, however, that they play an existential role in their ecosystem (Prediger, 2020).

The plight of the pangolin is a matter of urgency that has yet not received enough attention. In the middle of the biggest biodiversity loss of all time, exploring the key enablers in becoming the most trafficked mammal on earth, has never been more significant.

1.2 Aim and Research Questions

As described in the section prior, the IWT of the Temminck's pangolin could not only cause the loss of an important species but, furthermore, has severe ecological, economic, and social implications for Namibia and its population (Naro et al., 2020; Prediger, 2020). With the pangolin

[1] Operation Blue Rhino with the Blue Rhino Task Team is a collaboration between the Namibian Police Protected Resources Division and the MEFT Intelligence and Investigation Unit to support law enforcement and prosecution efforts in wildlife crime with operations funded by the Rooikat Trust (Denker, 2022; Rooikat Trust, 2020).

as the most trafficked mammal on earth while also being severely understudied, we believe that more research on them is needed to provide sustainable conservation efforts. Thus, the aim of this thesis is to disclose the key enabling factors and patterns fueling this trade and, consequently, derive effective conservation and policy implications.

Our analytical approach is hereby twofold: In applying the Ostrom's (2009) social-ecological systems framework (SES) we aim to shed light on key stakeholders and their interactions within the Namibian IWT system. Ultimately, a holistic picture of key interactions and their respective outcomes is derived. To disclose underlying power structures that shape and reproduce those key interactions, a political ecology (PE) lens will be applied. The combination of both approaches offers the opportunity of connecting specific power relationships to their wider ecological outcomes while also facilitating a more detailed and explanatory conceptualization of processes within this complex system (Ingalls & Stedman, 2016; Birkenholtz, 2011). As pangolin trafficking in Namibia is a fairly novel field of research, a case study is the most adequate approach to unravel first insights and create a baseline for future research (Creswell & Poth, 2018).

Due to the limited scope and case focus, this study does not include other important factors such as the role of private businesses as well as the demand side of IWT. However, other researchers such as Iordăchescu et al. (2022) and Veríssimo et al. (2020) have already begun to explore these topics.

The following three research questions aim to encompass a holistic approach to pangolin trafficking in Namibia:

1. *What are enabling interactions between key stakeholders in the social-ecological system of the illegal pangolin trade in Namibia?*

While we seek to answer the first research question in our analysis, key interactions will be situated in a global context through the last two questions in the discussion of our findings:

2. *What are key enabling factors and how are they situated within the social-ecological system?*
3. *How are key patterns reproduced or contested in the context of power relations in the local and global system of pangolin trade?*

1.3 Significance of Study

Our thesis contributes to two academic fields. For one, it adds a new social-ecological system (SES) to this network approach. The examination of important stakeholders and the implications of their interactions for facilitating illegal wildlife trade can be used as a base for future researchers to gain a deeper understanding either of certain interactions or of the roles certain actors play in the issue.

Secondly, we hope to contribute to the field of the political ecology of illegal wildlife trade through adding significant entrenched power relations to this academic strand. In this realm, we also contribute to the discussion of how framing introduced by powerful actors can shape our view of IWT and therefore render contextual politics of poaching invisible.

Additionally, we aim to be a voice for the pangolin species and advocate its importance and the urgency of its plight. Besides enlarging the baseline of pangolin research, our thesis should encourage researchers, media, and international organizations alike to allocate efforts and budgets on a scientifically informed basis and, thus, to species that are most in need, even if they are not charismatic megafauna.

Lastly, the significance of this study concerns our distinct case and the fate of rural communities in Namibia. The particularity of the case revolves around different key actors in Namibian conservation such as governmental institutions, NGOs, and the Ju/'hoan San and their approaches to conservation. The interactions between these stakeholders and their different perspectives are key components to the successes and failures of Namibian pangolin conservation and local empowerment. We hope to reflect the voices of marginalized communities and raise awareness for the importance of their perspective as key primary informants on the matter.

Identifying sustainable solutions against illegal poaching will not only support conservation literature but will equally benefit studies on the empowerment of rural communities.

1.4 Outline of the Study

In the following section we introduce the Temminck's pangolin, its current role in IWT networks, and the Namibian conservation governance. Next, the literature review will provide a critical perspective of said governance. In addition, the concepts, and consequences of charismatic species and CBNRM are discussed, focusing on the pangolin and its respective place within them.

Thereafter, a presentation of the analytical framework, the SES, and the applied PE theory will explain the twofold approach. The fifth chapter discloses the chosen methodology of semi-structured interviews and participant observations as the qualitative data collection methods while also pointing out important ethical considerations and limitations. Our findings are then presented and analyzed in chapter six, answering the first research question. The subsequent discussion chapter scales these findings into a larger concept in placing them in the local SES as well as in the context of global power relations and, thus, answers the last two research questions. The final chapter concludes this thesis in revisiting the aim and main findings.

2. Background

2.1 The Temminck's Pangolin

Their Ecology & Role in the Ecosystem

There are eight extant species within the pangolin family, four in Asia and four in Africa (Soewu & Sodeinde, 2015). The Temminck's ground pangolin (*Smutsia temminckii*) is one of the four African pangolin species and the only one occurring in Namibia (Pietersen et al., 2020). In this thesis we refer to it simply as "pangolin". Pangolins weigh ca. 10 kilograms and measure up to 140 cm in length. Pangolins have keratin scales covering their entire body (except for face, belly and inside of limbs), are nocturnal, and live in burrows (Pietersen et al., 2020; Gaudin et al., 2020). When threatened, they curl up into a ball-like shape and their scales form a protective shield against predators (Gaudin et al., 2020). Due to its passive defense mechanisms, pangolins are easy targets for people and can be collected without weapons. Pangolins are solitary animals, meeting only for mating, and have home-ranges of ten to 15 square kilometers for males and slightly smaller ranges for females (Pietersen et al., 2020). Females usually carry one pup once a year, which stays with the mother for a few months after birth before becoming sexually mature at the age of two (ibid.). Their slow reproductive rate combined with a sensitivity to captivity-induced stress make them particularly vulnerable to poaching (WildAid, 2016).

Figure 1: The Temminck's Pangolin (Smutsia temminckii) (Pietersen, 2023)

Pangolins are a natural pest control: Each pangolin can eat about 70 million ants and termites per year through which they control the populations of these insects (Soewu & Sodeinde, 2015). An overpopulation of ants and termites has negative effects in ecosystems and can cause crop damage (Chao et al., 2020). Through their burrowing habits, pangolins may also contribute to soil processes, such as soil mixing, aeration and creating flow paths for gas and water, further representing their role in their natural environment (ibid.).

Their Role in Namibia

All mayor threats to the pangolin population are human made (Pietersen et al., 2020). In Namibia, pangolin populations are unknown (Pietersen & Challender, 2020). However, due to an overall decreasing trend, it can be assumed that the Namibian pangolin is declining as well (Pietersen et al., 2019). Some of the biggest threats to the population can be attributed to IWT, poaching for local demand as bushmeat or Traditional African Medicine, and accidental electrocution through electric fences, which are common on farmland in Namibia (Challender et al., 2014). When getting in contact with low-line electric fences, the pangolin uses its protective mechanism of curling up, through which it gets entangled with the fence, ultimately causing electrocution and death (Pietersen et al., 2020).

2.2 The Illegal Wildlife Trade of Pangolins

To comprehend the dynamics within a system revolving around the illegal trade of pangolins, understanding the demand and supply chains of IWT in general is essential. This chapter will therefore introduce the markets and networks behind IWT as well as its detrimental consequences. Further, we will elaborate on the special case of pangolins in Traditional Chinese Medicine (TCM).

Illegal Wildlife Trade

The consequences of illegal wildlife trade (IWT)[2] range from security threats, biodiversity loss, and undermining of local and global economies, to facilitating the spread of zoonotic diseases, ultimately endangering human wellbeing (Gore et al., 2022; Harfoot et al., 2018). However, the determinants of IWT remain unaffected: caused by the persistent consumer demand, enabled

[2] IWT is an umbrella term encompassing the illegal commercialization of both flora and fauna species (UNODC 2020; Gore et al. 2023). In this case, the focus lies on illicitly traded wild animals or their body parts (ibid.).

through constrained socio-economic contexts, and enforced through high profit all the way to local livelihood objectives (Di Minin et al., 2022; Hübschle & Shearing, 2018).

The high resilience, adaptivity and success rate of wildlife trade networks (WTNs) are based on three main strategies. Corruption is one the main facilitators of IWT in strategically and functionally ensuring the success of the illegal trade on different stages on the supply chain (Costa et al., 2021). Secondly, WTNs operate strategically through sub-networks and clear task-distributions (Ayling, 2013; Costa et al., 2021). Finally, their top-down mechanism secures the profit of the "big players" and their control of the lower levels of the supply chain through decentralization of specific functions (Costa et al., 2021; Duffy, 2022; UNODC, 2020).

This mechanism starts with the poachers and hunters at the bottom of the pyramid harvesting the species from the wild, opportunistically or organized, often being considered the ‘foot-soldiers’ (Duffy, 2022; see Figure 2). The primary accumulation of wildlife products is done by the local middlemen who need to have a certain social capital or to gain the poacher's trust (Costa et al., 2021). Wildlife products are then consoled in an urban trading hotspot where they change hands from urban to international intermediates (UNODC, 2022; Duffy, 2022). These traffickers orchestrate the supply of the product and span the bridge between buyers and suppliers. Often being high-level government officials or powerful businessmen, their wealth and political influence protects them from the authorities (Hübschle, 2017; Duffy, 2022). The IWT pyramid is ruled by the so-called kingpin, the head of the syndicate (ibid.; see Figure 2).

However, the most powerful actors within the chain are not the kingpins but the end consumers. Through demand creation, they are the ones attaching commercial value to the species and therefore own the power of the rise or fall of illegal wildlife trade (UNODC, 2022; Duffy, 2022; Gore et al., 2022).

The issue of IWT is on the radar of law enforcement, politicians, and scholars. However, the scientific findings about WTNs are scattered and the modus operandi of the syndicates remains poorly understood (Gore et al., 2022; Chelin, 2019).

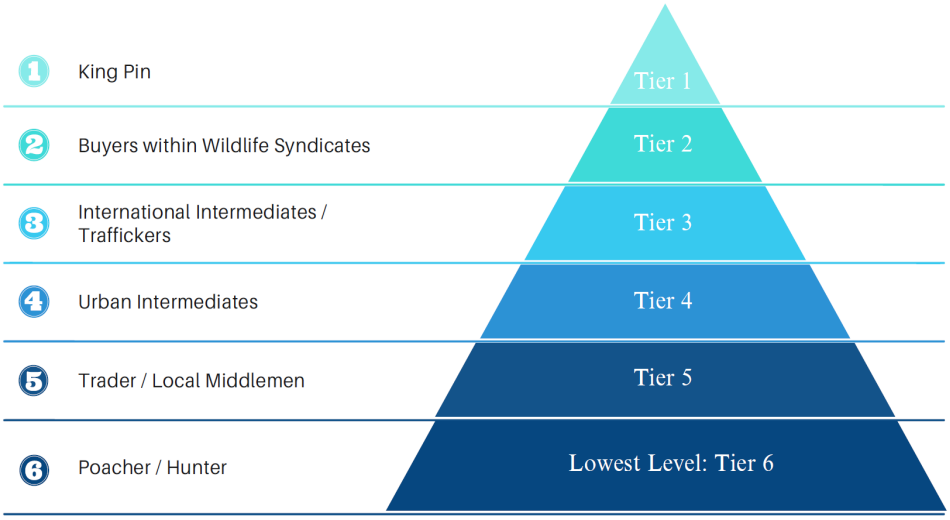

Figure 2: Pyramid of IWT Supply Chains. Information assembled from UNODC (2020), Duffy (2022) & Gore et al. (2022). Illustrated by the authors (2023)

The Case of Pangolins

There are multiple markets driving the IWT. Traditional Chinese Medicine (TCM) is an old and culture-driven alternative medical practice using animal products such as rhino horn, tiger cake or pangolin scales for their alleged healing abilities (Wang et al., 2020; WildAid, 2016). Although sources and numbers vary, an estimated 23.5 tons (about 200,000 pangolins) were trafficked in 2021 alone (TRAFFIC, 2023; WildAid, 2023).

In 2013, dynamics changed when the decline in the Asian species through their overexploitation and the exponential demand for pangolins in Asia resulted in the merging with the small African market (UNODC, 2020; see Figure 3). In Africa, where pangolins were mostly hunted for their meat, the scales were no longer discarded as the involvement with the sophisticated Asian IWT syndicates made their international trade profitable (Chelin, 2019).

Following this trend, it is not surprising that the traffickers use the same networks and routes as ivory and rhino horn (see Figure 3; UNODC, 2020). Moreover, there is increasing evidence that the syndicates are the same and therefore operate under the same top-down schemata as presented in the last section (UNODC, 2020; AWF, 2023).

In addition, participation in the illicit trade of pangolins is often opportunistic and comparably easy: no heavy equipment is required to catch a pangolin compared to rhinos or elephants (Heighton & Gaubert, 2021; TRAFFIC, 2019).

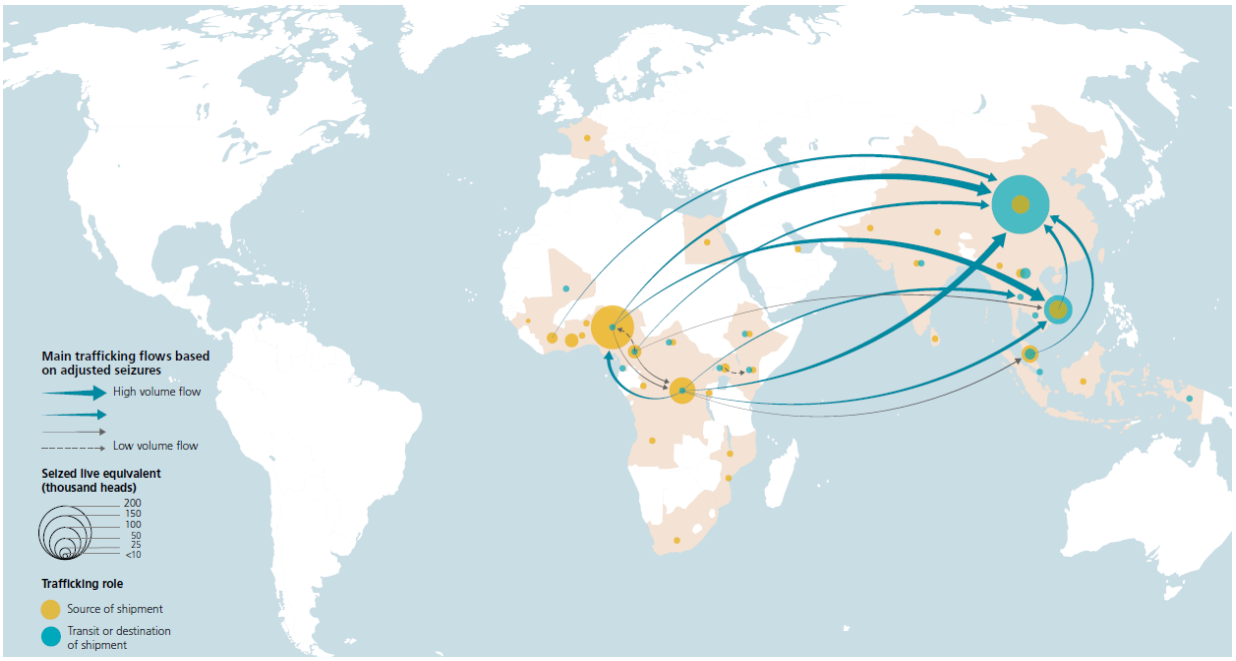

Figure 3: Trafficking Map of Pangolin Scales (2007-2018) (UNODC, 2020:65)

Up to 15 actors can be involved in the value chain, with increasing prices along the chain. To the end consumer, scales are sold for up to 600 USD per kilogram (Heighton & Gaubert, 2021; TRAFFIC, 2019.; see Figure 4).

Table 1 Actors involved in pangolin scale trafficking and their costs and income (Uganda)

	HUNTER →	TRADER →	INTERMEDIARY →	TRAFFICKER
Income	US$ 2.5 - 9/kg scales US$ 4 - 14 per live pangolin	US$ 13-40/kg scales (consolidate to 10 kg)	US$ 135 commission per delivery (10 - 16 sacks, 50 kg each)	No data available
Costs	*Supplies:* US$ 3 to 5 per hunter (or per pangolin?)	*Storage:* US$ 40 per month *Car to city:* US$ 100-134 *Driver:* US$ 27 *Bribes*: US$ 27 - 100	No data available	No data available

Figure 4: Value Chain of Pangolin Trafficking, Example from Uganda (UNODC, 2020:69)

All in all, there is no reliable data on pangolin population counts, however, rare sightings and seizure rates underline predictions for populations to decline up to 30 - 40% in the next decade, resulting in all eight species being on the brink of extinction (WildAid, 2016; Challender et al., 2020).

2.3 Wildlife Conservation in Namibia

Namibia has an extensive diversity of flora and fauna due to its varying landscapes and geographical and climatic diversity (World Bank, 2023; Goudie & Viles, 2015).

Among Namibia's wildlife are the African elephant, the pangolin and the largest population of black rhino left in the wild (WWF Namibia, n.d.). Yet, the value of these species and their parts has led to an increase in IWT in Namibia (MEFT, 2021). Namibian laws prohibit illegal wildlife trafficking and aim to protect endangered species, such as the black rhino and elephant as well as the pangolin (Gobush et al., 2022; Emslie, 2020). Information and details about the Namibian wildlife legislations as well as prosecution efforts can be found in Appendix VII.

Privately-owned land covers almost half of the country's area, followed by communal land, and state-owned areas, mostly nature reserves and national parks (Melber, 2019: see Figure 5).

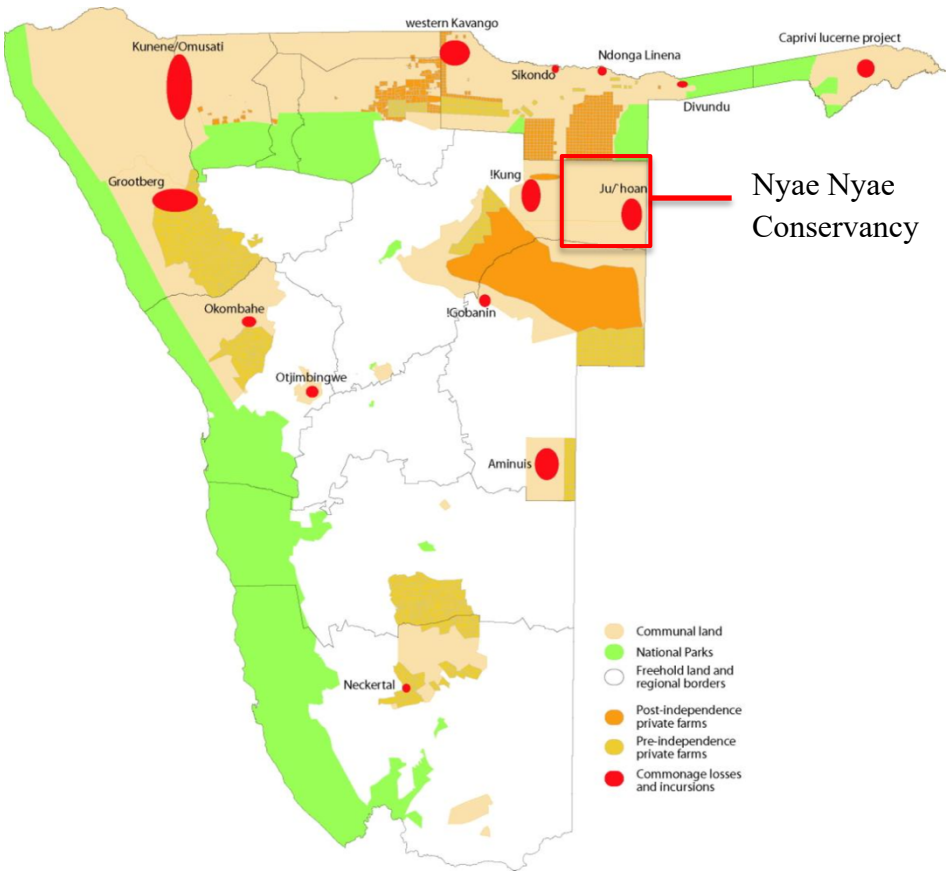

Figure 5: Communal areas in Namibia & Nyae Nyae Conservancy (Mendelsohn et al. 2012:3; modified by authors)

Conservancies, Communities & CBNRM

The addition of Article 24A to the Nature Conservation Ordinance in 1996 introduced conservancies into the land system, which allows for communities living on communal land to form a legal entity with which they can manage and utilize wildlife for their benefit (NCO, 1975; NACSO, 2023a).

To be able to do the latter as well as protect natural resources in communal conservancies, the Community-Based Natural Resource Management (CBNRM) program was introduced. The idea behind CBNRM is to conserve wildlife populations that generate income from tourism and trophy hunting, while also sustaining hunting for food in the communities as well as generate livelihoods (MEFT, 2023a; NACSO & MEFT, 2023a; NACSO & MEFT, 2023b). Today, there are 86 conservancies in Namibia covering about 20% of the country's land area and a population of roughly 240,000 people (NACSO, 2023b; WWF, 2023a). Unequal land distribution is a colonial legacy and community members in conservancies are the most vulnerable and marginalized people in Namibia (Melber, 2019). Although since independence poverty has declined, it is still among one of the most economically unequal countries in the world with about 17% of the population living below the poverty line (World Bank, 2023).

Nyae Nyae Conservancy, the oldest communal conservancy in Namibia registered in 1998 in the northeast of the country, is home to the Ju/'hoan San, Ju/'hoansi, often called San "Bushmen" (NACSO, 2023c; Gargallo, 2015). The Ju/'hoan San are an indigenous Namibian ethnic group and one of Namibia's oldest inhabitants (Gargallo, 2015). They are hunters and gatherers and have a traditional relationship with nature and wildlife (ibid.).

Protecting Pangolins

Because of its status as a vulnerable species and its cultural importance to indigenous groups, there are strategies in place to protect the extant pangolin population in Namibia (Pietersen et al., 2019). Several international NGOs[3] and the IUCN SSC Pangolin Specialist Group working within wildlife and nature conservation have contributed to the protection of pangolins (PSG, 2023). One local NGO with the focus on pangolins is the Pangolin Conservation and Research Foundation (PCRF). PCRF combines conservation projects with local development and works on the

[3] e.g., World Wide Fund for Nature (WWF), the German Development Bank (KfW) and TRAFFIC (WWF Namibia, n.d.; KfW, 2023; WWF, 2023b).

expansion of research to fill the existing knowledge gaps about the species (PCRF, 2021). To help with the coordination of conservation efforts and research, the Namibian Pangolin Working Group (NPWG) was established in 2020 as collaboration between state and NGOs (NCE, n.d.; Prediger, 2021). The NPWG recognizes the need for a management plan, guidelines and protocols, more research in key areas as well as awareness raising and education as strategies to help the pangolin population in Namibia (NCE, n.d.).

Additional background information can be found in Appendix VII.

3. Literature Review

This chapter elaborates on the relevant literature in the field of pangolin conservation and illegal trade. First, the drivers for and measures against illegal pangolin trade in Namibia are discussed, revealing the interlinkages of development and IWT. Afterwards, the concept of "charismatic species" and resulting consequences for the pangolin will be problematized. Lastly, "CBNRM" will be examined to set the stage of the case study and disclose how pangolins are currently falling through this business model.

3.1 Discussion of the Illegal Pangolin Trade in Namibia

The Interlinkages of Development and IWT

Only recently have scholars begun to call for in-depth research on the motivations, social situations, and perceptions of the often neglected 'foot soldiers' of IWT: the poachers (TRAFFIC, 2020; Naro et al., 2020). Naro et al. (2022) argue that only if the perspective of the poachers and the system they live in is fully understood, can the anti-poaching measures be successful and sustainable.

There have been three recent studies on the matter concerning Namibian, Ugandan and South African poachers, which all resulted in similar findings, namely strong linkages to vulnerable social-economic situations (TRAFFIC, 2020; Naro et al., 2022; Harrison et al., 2015). All, exclusively male, poachers interviewed were characterized by little or missing education, living in rural areas, having little or no income, providing for multiple people, as well as being un- or informally employed (ibid.). Although most of their income activities are dependent on a healthy biodiversity for their survival (i.e., farming, forestry, tourism), most of them believe that wildlife is a natural resource and as such meant to be exploited or even eliminated because of human-wildlife conflicts (TRAFFIC, 2020). The low awareness on the role of wildlife stands in stark contrast to their high awareness regarding wildlife laws (ibid.).

Di Winin et al. (2022:4) notes that "[p]overty is another important enabling factor [...]". All three studies agree that most low-level poachers lack finances to fulfill basic needs with little to no options to fulfill them in a legal way.

Local middlemen or 'recruiters' are aware of the desperation of people in such vulnerable situations and often use it to their own advantage (Naro et al., 2022). Naro et al. (2022) refers to the "dependency mechanism" when local businessmen provide goods or services on credit to people without secure employment and hence, no resources for payback.
Dissatisfaction or frictions between community members and their conservancy can also serve as a catalyst for illegal poaching and other illegal activities (ibid.). Wenborn et al. (2022:389) also underlines that, "[I]n the conservancies that have no revenues and cannot provide employment or benefits to the communities, the feedback is that poaching for bushmeat has been increasing.".

Namibia: A Role Model for IWT Legislation?

In Namibia, the biggest critique of the legislative framework revolves around the fact that most people arrested for IWT are low-level poachers and the syndicates remain largely undetected (Odendaal, 2022). Odendaal (2022) identifies the lack of monetary incentives as well as ineffective coordination within law enforcement as some of the main reasons. Challender et al. (2020) agree that better communication, sophistication, and training among officials is needed to address the shortcomings in Namibia's law enforcement to take down IWT syndicates. The lack of transparency and cooperation and of an intelligence cycle between different levels of authorities are the underlying roadblocks to successfully address IWT in the country (Odendaal, 2022; Challender et al., 2020; Naro et al., 2020).

Organizations who engage with accused and convicted poachers themselves such as TRAFFIC (2020) stir up another issue in the Namibian prosecution system: the sentencing. They emphasize that the right of accused poachers to receive legal aid is undermined by the fact that they still need to pay NAD 350, which many of them cannot afford (ibid.). The burden of young men who provide for their family to be in prison does not only concern the prisoner but moreover his family without any income during incarceration (TRAFFIC, 2020). Further, the hope for a lower sentence if guilt is pledged early, puts the arrested person in a vulnerable situation (Helm, 2019).

3.2 Charismatic Species versus Pangolins

Conservation of wildlife species has been steered by public interest, and the funding and policy changes that are influenced by it (Harrington et al., 2018). In this chapter, the framing of species

as ‘charismatic’ is problematized in conservation work, and what this means for the conservation of pangolins in Namibia.

Discussing Charismatic Species

Animal species are termed ‘charismatic’ when certain aspects apply that are introduced by Lorimer (n.d.), namely the species’ aesthetic, ecological, or corporeal charisma. These characteristics often apply to the so-called flagship species in conservation, the species that are communicated the most to the public to create and increase awareness for conservation as a whole and, consequently, to generate funds (Albert et al., 2018). This bias is debated in literature as non-flagship, non-charismatic species that may be in the same or even greater need for protection can easily be forgotten by the public and therefore receive too little funding for conservation projects (Entwistle & Stephenson, 2000; Ducarme et al., 2012).

Africa’s flagship species are also known under the term “Big Five”: lion, leopard, buffalo, rhinoceros (black and white), and elephant (Caro & Riggio, 2014). These species are not only well-known globally and therefore able to generate funding for their own protection but are also essential for economies in Africa benefiting from wildlife tourism and trophy hunting of these animals (ibid.). As trophy hunting of pangolins does not exist and ecotourism inclusive of pangolin sightings is still a niche in the overall tourism sector, pangolins arguably do not benefit Namibia’s economy (to the same extent) as the occurrence of the “Big Five” do (Di Minin & Hausmann, 2020; MEFT, 2023b; MEFT, 2023c).

Critical Review of Pangolin Conservation in Namibia

On the website of the MEFT[4], information on pangolin conservation in Namibia is scarce: there is no species management plan for pangolins for public review, only appearing in their Annual Progress Report and Annual Wildlife Crime Report when assessing achievements in law enforcement and prosecution of poachers (MEFT, 2023d; MEFT, 2023e; MEFT, 2023f) There is, however, information such as conservation and management plans for elephants, for example, and advertising of charismatic species among Namibia’s key attractions (MEFT, 2023b; MEFT,

[4] The Ministry of Environment, Forestry and Tourism (MEFT) oversees the implementation of the regulatory framework stated in Namibia’s wildlife laws (Odendaal, 2022).

2023g). This also holds true for NGOs like the WWF Namibia: in their Strategic Plan for 2022 to 2026 they recognize the need to "focus on currently under protected species", naming pangolins as one of the latter, however then only mentioning pangolins one other time, while elephants are mentioned 22 times in the document (WWF Namibia, 2022:11).
These findings are alarming, as conservation strategies and action plans are necessary to initiate adequate conservation measures for the effective protection of threatened species (Hoffmann & Challender, 2020).

3.3 Setting the Stage of CBNRM – but where is the Pangolin?

Hereinafter, we shed light on successes and failures of Namibia's CBNRM conservation and business model to examine who benefits from the country's most widely applied conservation approach, and how the pangolin is falling through the cracks of the system (Gargallo, 2015).

CBNRM – Who benefits?

Namibia's conservancies are often named as a flagship model for CBNRM and communal empowerment, which should be followed by other African nations (Gargallo, 2015).

However, Jones et al. (2016:19) emphasizes that, "Communal land is held in trust for the benefit of traditional communities by the state", therefore, communal conservancies in Namibia do not own any land rights within their conservancy. Thus, the feeling of land tenure insecurity is a pressing issue in Namibian communities fueled by increased illegal fencing, no equal distribution of benefits that result in intra and inter-community conflicts (Gargallo, 2015; Schnegg & Kiaka, 2018). In Nyae Nyae Conservancy, homeland to the ethnic minority of the Ju/'hoan San, those asymmetric power structures and law insecurity result in tensions between them and the Herero. The Herero started to settle on Ju/'hoan San land in 2008, breaking both state and constitutional laws, while the traditional authorities (TA) of the Ju/'hoan San feel little agency to counteract it and state authorities remain silent (ibid.).
The recurring themes of capitalism, dispossession, and exclusion have been found in multiple CBNRM programs and are often described as the 'elite capture of benefits' which will be a main focus throughout our study of this subsystem (Wenborn et al., 2022; Huntley, 2023). Schnegg & Kiaka (2018:113) relate the skewed distribution of the CBNRM's business model to the tragedy

of the commons: “To transform wildlife into global commodities, CBNRM creates ‘new’ commons”, which thus open the opportunity to be exploited by other user groups as private investors.

From a conservation perspective, evidence shows how certain species such as elephant, lion or black rhino populations are recovering since community conservation has been introduced in Namibia (Huntley, 2023; Gargallo, 2015; Tavolaro et al., 2022). Still, the criminalization of wildlife use can result in illegal hunting, endangering wildlife, and their habitats (Gargallo, 2015).

Pangolins Falling through the Cracks

To this date, little is known about the correlation of community conservation and pangolin trafficking. Most studies are from Asia while for Africa the scientific literature published by Challender et al. (2020) to date remains a lonely voice (Suwal, 2015; Li et al., 2022). CBNRM is named as an opportunity for pangolin conservation, still, concrete strategies are missing. Including communities in pangolin research and monitoring programs can provide job opportunities (Fowler, 2020). Pangolin rangers do exist in Namibia to a yet limited extent: Nyae Nyae is the only reported conservancy offering this livelihood opportunity for eleven community members, facilitated through the local NGO, PCRF (ISSU, 2023; Prediger, 2022). However, as pangolin conservation cannot generate profits through tourism or trophy hunting for conservancies, they do not fit into the CBNRM business model. Therefore, the monetary source for ranger salaries and alike remains unknown.

The government introduced the Pangolin Reward Scheme[5] which has led to several arrests (Rooikat Trust, 2020). Namibian authorities, however, admitted that such reward campaigns can result in unwanted consequences such as spreading awareness on the monetary value of an illegally traded pangolin (ibid.). Lastly, measuring the success of conservancies on pangolin conservation will remain a challenge, as the state’s annual game counts do not include pangolins (CCN, 2023).

In CBNRM programs today, pangolins are falling through the cracks. However, some conservation approaches are on the rise and need to be revisited in the future.

[5] The MEFT introduced the Pangolin Reward Scheme in 2017, offering a monetary reward in exchange for information, which reportedly resulted in some arrests (Rooikat Trust, 2020).

4. Analytical Framework & Theory

This chapter introduces the SES framework, upon which the adaptation of the latter is performed in order to fit our most relevant findings. Then, the theoretical approach used to analyze our data is presented. Finally, we elaborate on the application of the analytical framework combined with the theory to utilize the strengths of both in guiding the analysis following this chapter.

4.1 Social-Ecological Systems Framework

As this study aims to gain a holistic understanding of the driving forces and enabling patterns of the illegal trafficking of the Temminck's pangolin, the SES is our framework of choice. It is a widely recognized framework in qualitative research providing the relevant tools to shed light on all parts of a complex system, disclosing its actors as well as their interconnections and resulting outcomes (Dressel et al., 2018).

Introducing the Social-Ecological Systems (SES) Framework

A SES is a complex system which consists of multiple subsystems; the respective Interactions (I) between the subsystems result in Outcomes (O) that further affect and shape the SES (Ostrom, 2009). Within this system, Ostrom (2009) identified the subsystems Resource System[6] with the Resource Unit[7], Governance System[8], as well as the Users of the Resource Unit, with Interactions between all components and Outcomes shaping and further influencing the resource and governance systems. These subsystems can be viewed as separate parts of the SES while the interactions between them generate outcomes that in turn have repercussions for the subsystems (Ostrom, 2009). A set of variables can be attributed to each subsystem of the SES, with multiple sub-variables further concretizing the characteristics of the variables (ibid.). With the identification of these variables, the complexity of the SES can be more easily analyzed and understood (ibid.)

[6] Resource System refers to a specific area containing the Resource Unit, e.g., a park with trees and wildlife (Ostrom, 2009).
[7] Resource Unit means the resource being used in the SES, e.g., an animal, trees, water (Ostrom, 2009).
[8] Governance System encompasses, e.g., rules, institutions and organizations that govern the use of the Resource Unit (Ostrom, 2009).

Adapting the Social-Ecological Systems Framework

Some adaptations of the SES framework in McGinnis & Ostrom (2014) are applied in this study, firstly, using the subsystem Actor instead of Resource User. As is explained in McGinnis & Ostrom (2014) and observed by us in the real-life context, it is crucial for the analysis to include stakeholders in the SES that are not direct users of the Resource Unit but through interactions with other subsystems have a great impact on the issue, nonetheless. The second adaptation allows for the use of multiple subsystems of the same category, e.g., to have multiple Actors and Governance Systems within the same SES (McGinnis & Ostrom, 2014). With these adaptations, the hereinafter applied subsystems are the following: Resource Unit (RU) and Resource Systems (RS) in the ecological sphere, and Actors (A) and Governance Systems (GS) in the social sphere. Subsystems that are not part of the SES but influence it from the outside are the Social, Economic, and Political Settings (S) as well as the Related Ecosystems (ECO). We provide a description of each subsystem in the context of this study in the first part of the analysis chapter. A selection of applicable variables for the Interactions and Outcomes is made in Figure 6, since not all variables are relevant for all types of research (Ostrom, 2007).

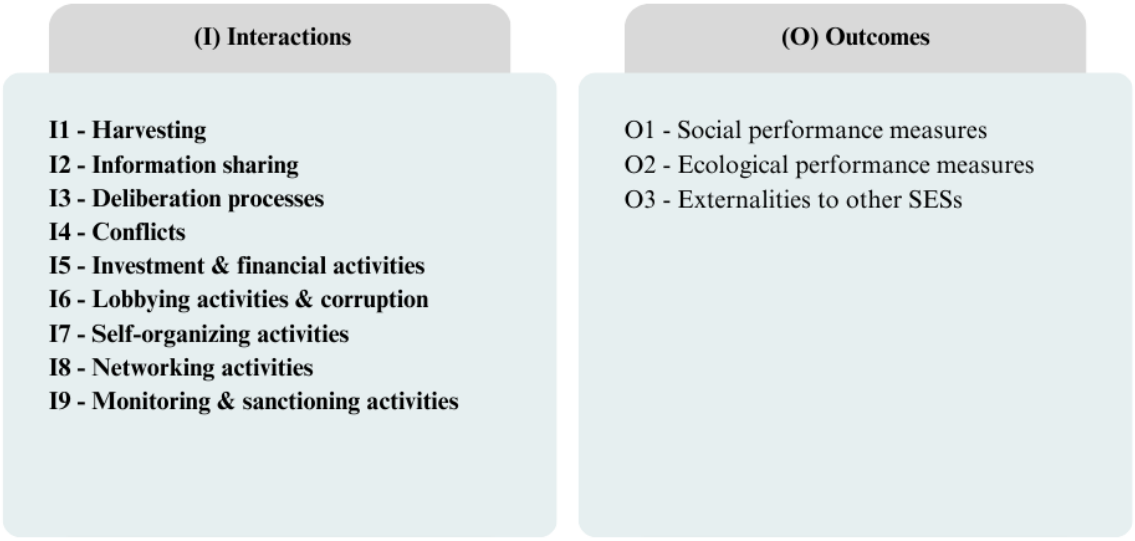

Figure 6: Interactions and Outcomes in the SES with their respective second-tier variables (Figure modified from McGinnis & Ostrom (2014), created by the authors)

Due to limitations in scope of this study as well as through the application of the political ecology lens on power relations, we will focus on the Interactions and Outcomes[9] in the SES that facilitate IWT of pangolins in Namibia. The Related Ecosystems (ECO) and impacts on the latter will be excluded and there will be no breakdown of the subsystem characteristics into variables.
To help with the selection of relevant variables, political ecology theory serves as a guide to create an analytical focus, which we discuss in the following section (McGinnis & Ostrom, 2014).

4.2 Political Ecology

Introducing Political Ecology

Political ecology is a wide multi-disciplinary academic field concerned with disclosing underlying power structures in the constantly shifting dialogue in society-environment relationships in a particular region, system, or case (Blaikie & Brookfield, 1987; Zimmerer & Bassett, 2006; Foucault, 2007). We henceforth use a combination of two definitions: The often claimed first and most Marxist definition of political ecology was introduced by Blaikie & Brookfield (1987), explaining that the term derives from debates concerning ecology entering into dialogue with the political economy where the role of the state and its power are catalyzed through powerful groups and result in the marginalization of the system's *losers.* This thesis also incorporates modern definitions of political ecology, which emphasize the importance of narratives as well as different *actors* with their own agencies concerning access and power over natural resources (Stott & Sullivan, 2000).

Ingalls and Stedman (2016) further note that political ecology is based on two main assumptions: (1) an unequal ecological exchange of costs and benefits which reproduces the asymmetrical power networks; (2) environmental degradation is both the reason and outcome of the marginalization of social groups, whereby the system's power asymmetries further aggravate this degradation.

Thus, political ecology offers powerful analytical tools which can be instrumentalized to deconstruct power dynamics and inequalities that underlie environmental degradation such as biodiversity loss through the illegal poaching of an endangered species. Moreover, it scales the

[9] O1 - Social performance measures: e.g., efficiency, sustainability, equity; O2 - Ecological performance measures: e.g., ecosystem resilience, biodiversity, sustainability (Ostrom 2009)

issue into a larger global perspective with drivers of environmental degradation outside the local system.

The Political Ecology of Wildlife Crime & Conservation

Political ecology has become a staple theory in unpacking modern conservation issues (Constanino et al., 2012; Duffy, 2022).

For one, PE continues to address the highly debated progression on the merge of conservation and militarization also known as *green security,* dismantling its effects particularly on the incrimination of marginalized communities (Duffy, 2022). Political ecologists have also pointed out important power-implications of CBNRM such as the potential reproduction of power asymmetries that might further marginalize groups in already vulnerable situations (Constantino et al., 2012). In summary, PE recognizes that wildlife conservation issues are themselves spatial and economic in nature. "Marginal people are drawn into competition with wildlife in their mutual search for alternatives to overcome survival constraints." (Akama et al., 1996:344).

Furthermore, political ecologists are now on the forefront concerning not only wildlife conservation but IWT specifically (Massé et al., 2021; Iordăchescu et al., 2022; Duffy, 2022). Green-collar crimes[10] have also recently been studied by Constanino et al. (2012) using a PE lens to disclose how and why environmental crimes are created by placing them in a wider context of socio-economic political systems.

In this realm, Duffy (2022) flagged the implications of framings such as who defines something as a *wildlife crime* as well as the narrative around *poachers* in reproducing colonial power structures. Adding to the discussion, political ecologists emphasize that modern security approaches do not recognize global inequalities in the supply chain of IWT (Massé et al., 2021; Constantino et al., 2012; Duffy, 2022). In this context, PE can facilitate highlighting the vicious cycle of unequal impacts of IWT framings and policies which further reproduce power asymmetries and, thus, pressure marginalized groups further into illegal activities (Constanino et al., 2012; Duffy, 2022).

[10] "Green-collar crimes are environmental crimes committed by legally registered companies involved in illegal activities or which use their infrastructure to facilitate illicit trade in wildlife" (Iordăchescu, 2021:3).

4.3 Applying the SES Framework with a PE Theory Lens

The previous section provided an overview of the strengths of the SES framework in providing a holistic picture of the complex human-environment interactions (Dressel et al., 2018). However, recent critiques address insufficiencies of Ostrom's (2007) framework concerning the lack of engagement with power relationships and how they are shifting Interactions and Outcomes within the SES (Ingalls & Stedman, 2016). Therefore, we apply the SES framework with a PE lens and, thus, bring both approaches into productive conversation to generate novel insights into the investigation of patterns enforcing illegal wildlife trade.

The importance of power within a social-ecological system has already been emphasized and applied by other scholars in recent literature (Ingalls & Stedman, 2016; Birkenholtz, 2011). These approaches offer the possibility of linking specific power relationships to their broader ecological outcomes (Birkenholtz, 2011) while also creating a more detailed and explanatory conceptualization of processes within a complex system (Ingalls & Stedman, 2016).

Therefore, the critical engagement between both fields provides the best of both worlds: a focus on power relations and -asymmetries results in a more informative understanding of the social-political dynamics within the complex society-nature interface of illegal pangolin trafficking in Namibia.

5. Methodology

This section discusses and reflects upon the methodological choices underlying the analysis. In the first part, the research design is disclosed, followed by the research method for data collection, and data analysis. Finally, limitations are reflected upon as well as the ethical considerations for this study.

5.1 Research Design

The base for this thesis is a qualitative, inductive and instrumental multi-perspective case study, which allows for the inclusion of diverse views and opinions of various stakeholders (Creswell & Poth, 2018). The variety of perspectives involved is necessary to comprehend the interconnectedness of complex systems (ibid). Using the definition by Simons (2009), a case study is "an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular [...] system" (Simons, 2009:21 in Rebolj, 2013). The case study design therefore allowed for the investigation of the intricacy of the social-ecological system in Namibia in which IWT is possible. Furthermore, conducting a case study is a common approach in qualitative research to investigate novel phenomena (Creswell & Poth, 2018).

Although case studies are snapshots of a particular moment in time and environment and may not be directly applicable to other scenarios and contexts, this study aims for a holistic approach which can provide a first overview on patterns enforcing IWT of an endangered species in Namibia, which future research can build upon (Rebolj, 2013).

5.2 Research Method and Data

Semi-structured Interviews and Sampling Process

In total, we conducted 32 semi-structured interviews with six important groups of stakeholders: government and prosecution officials, local experts, international NGOs, media, farmers, and community members of the Ju/'hoan San (see Appendix II: List of Interviewees). The reasons for choosing this conservancy were manifold: Nyae Nyae is the oldest conservancy in Namibia, thus their inhabitants can provide insights on the long-term effects of CBNRM in wildlife crimes. It is also the only conservancy with pangolin rangers.

Semi-structured interviews were chosen for their flexibility allowing new narratives to unfold while at the same time guiding the participant in line with the aspired research theory (Galletta, 2013:1-3). This data collection was further enhanced by participant observation, which will be touched upon in the next section.

The questions were derived from an interview guide that was structured in introduction, background, followed by the SES-Subsystems of pangolin IWT. Follow-up questions arose after each topic respectively, concerning new information that had unfolded during the interview and was not predictable beforehand (see Appendix I: Interview Guides). Open-ended and follow-up questions can effectively dismantle new truths from the participant's point of view, which can also create space for the voices of marginalized communities (Bryman, 2016). It also has proven to enrich the quality of data, especially in a yet understudied field like pangolin poaching where the unfolding narrative is not predictable (Scheyvens, 2014). Due to the heterogeneity of the interview groups six different interview guides were used, while the common thread remained the same (see Appendix I: Interview Guides).

The sample originated from purposive sampling with the criteria of working directly with or being affected by pangolin poaching in Namibia (Kvale, 1996). The first interviews were established through contacts made during the internship at PCRF, continued by purposive sampling. The initial interviews further created a snowball sampling effect as they provided us with the possibility to speak to other valuable contacts that were of high relevance to our case study (Brymann, 2016). This process was continued until the conducted information reached a point of saturation, with no more relevant data emerging in the process (Walliman, 2006).

Participant Observation

Creating the in-depth understanding necessary for this multi-perspective case study, we fully immersed ourselves into the realities of different stakeholders affected by pangolin poaching. Therefore, Carina Martens firstly pursued a three-month internship at a local pangolin research organization, PCRF. This was followed by one month of fieldwork by both authors, part of which was spent with the Ju/'hoan San in Nyae Nyae Conservancy. This participant observation enhanced our understanding of the information that emerged from the interviews through

empathizing with their views of the environment, politics, and society (Scheyvens, 2014; Walliman, 2006).

We firstly participated in a post-release monitoring study of pangolins in the Nyae Nyae Conservancy together with PCRF, pangolin rangers as well as government officials. Afterwards, we stayed in the Nyae Nyae Conservancy without other organizations or government officials involved, participating in the daily lives of the Ju/'hoan San as well as community activities with their traditional authorities (headmen). This helped us to be seen as individuals not attached to an organization or the government while gaining trust in the community as well as key insides into their reality, agency, and decision-making processes. The use of field notes helped us detail our initial reactions, thoughts, and reflections of these situations (see Appendix IV: Excerpts of Field Notes).

Our observation approach was unstructured to leave space for all important events occurring during our stay and helped us establish bonds of trust in the communities and make valuable connections with new respondents (Kapiszewski et al., 2015).

5.3 Data Analysis

To systematically organize and interpret our collected data, a thematic analysis was carried out. This method focuses on identifying commonalities and patterns across a dataset, which can then be analyzed in accordance with the research questions posed (Braun & Clarke, 2012).

We conducted an inductive approach to thematic analysis by making ourselves familiar with the transcribed interviews first, identifying codes thereafter which then, finally, were combined into themes (ibid).

The participant observations throughout Namibia were an asset in identifying important themes as we became aware of certain dynamics ourselves while conducting our fieldwork, applying the political ecology lens as we gathered information on the components within this SES.

Upon finalizing the data collection, interview recordings were transcribed using the transcription software Otter, followed by the first round of analysis carried out by hand in identifying similar codes across all interviews. In the second round we further sharpened the codes keeping in mind the underlying framework and theory. Lastly, the themes were revisited in the third round and the coding scheme was finalized (see Appendix III: Coding Scheme).

Altogether, it was an iterative process throughout, revisiting our coding as we improved our understanding of the complexity of the data collected to arrive at the final themes.

5.4 Limitations

Some limitations to this case study must be named in order to understand how the results of this study can be interpreted and built upon in future research.

Firstly, the illegal wildlife trade of pangolins in Namibia cannot be studied in a defined isolated setting. The trade itself is based on international demand and operated by international syndicates and processes (TRAFFIC, 2020). Therefore, a limitation of this study is certainly the superficial inspection of the trade routes and demand side of illegal pangolin trade. However, the scope of this thesis does not allow for the incorporation of this part of the system. Whenever they proved to be key elements of our study, its direct influences were named.

The nature of a case study suggests that the results cannot be generalized to all conservancies and communities in Namibia. Therefore, we suggest that in the future, an additional quantitative research method (e.g., surveys) could incorporate even more perspectives and thus, create a generalizable picture. In this concern, the absence of private companies as interviewees also has a similar reasoning: the lack of direct contacts complicated the search for suitable interviewees in the private sector while being limited by the scope of the thesis.

Our positionality certainly must be considered as a limitation in this study. Being white foreigners with Western backgrounds can create false expectations in a conservancy that relies on the support of mostly white project workers from international NGOs and could have altered responses in interviews (Schech et al., 2018). Therefore, we were always transparent and open about our role as students and what the intentions of our study were. In addition, our positionality certainly altered our analysis and interpretation of the obtained data while we tried our best to integrate all stakeholders' perspectives respectively.

Another limitation was potentially being associated with PCRF and the Namibian government due to our former working relations in the conservancy. This could further have influenced the information the Ju/'hoan San were willing to provide as they are monetarily dependent on both

entities (Scheyvens et al., 2014). To mitigate this risk, we conducted all interviews by ourselves, and we assured complete anonymity to our participants.

Lastly, our modified interview guides for the different interviewee groups could be seen as a scientific limitation to this study. However, we tried to keep the core subjects as similar as possible. This being said, semi-structured interviews are supposed to be rooted in the experience of each interviewee and, considering the widely different realities the participants are living in, the answers will naturally differ (Galetta, 2013).

5.5 Ethical Considerations

As this study involved the collecting of highly sensitive data that included information about criminal activity, several ethical considerations needed to be made.

Firstly, all interviewees are given anonymity in the publication of this study. There are no names of participants listed in our analyzed findings or in any appendices. Before conducting interviews, we made sure to disclose to the participants the aim and intentions of our research, whereafter we were given verbal consent by the interviewees to use the received information in our thesis. The collected data is of high confidentiality which was treated by us accordingly. Secondly, we were cautious to not include questions in our guidelines or ask any follow-up questions that could lead to self-incriminating statements by the interviewees (Scheyvens et al., 2014).

As positionality influences how research is conducted, we were self-aware of our positionality as white European women when conducting interviews with the Ju/'hoan San (Massoud, 2022). Despite this self-awareness, it must be acknowledged that the rendering of the Ju/'hoan San's views is nonetheless influenced by our positionality. To create a trusting relationship with the community and decrease any potential biases, it was beneficial that Carina Martens had visited and established relationships with community members in the Nyae Nyae Conservancy during her internship prior to our field trip together. Additionally, having a community member act as our interpreter was helpful in creating a bridge of trust which further facilitated a great will to participate in our study (Kvale, 1996). To alleviate the language barrier, we learned basic terms of the local language, which was very much appreciated by the community.

To be able to give back our retrieved knowledge from all interviews to the communities, we ensured them to share our final study in a short summary which will be translated by our former interpreter (Hatch, 2002). All participants of the study will receive this thesis in its entirety.

5.6 Joint Thesis & Division of Labor

Due to similar interests and the opportunity to do more in-depth research as a team, we decided to work collaboratively on this thesis. Both of us pursued data collection jointly, traveling through Namibia together to conduct interviews. As we are from the same ethnic and academic background, working together did not influence our aforementioned positionality. We worked on all parts of this thesis equally, which means that we have the same understanding of all sections within our study. For further description of our division of labor see Appendix V: Joint Thesis.

6. Analysis & Interpretation of Findings

6.1 Overview of the SES of Illegal Pangolin Trade in Namibia

This section encompasses the results of our data analysis with the aim of answering the first research question:

> *What are enabling interactions between key stakeholders in the social-ecological system of the illegal pangolin trade in Namibia?*

We hereafter analyze our findings with a focus on the Interactions (I) between the SES subsystems highlighted in chapter 4.1 (see Figure 7). Each interactivity will further be analyzed concerning underlying power structures, asymmetries, and dependencies between the subsystems. The SES subsystems application & interview group abbreviations can be seen in Table 1.
Additional findings which might be interesting for future studies, but we did not find to be key interactions can be found in Appendix VI.

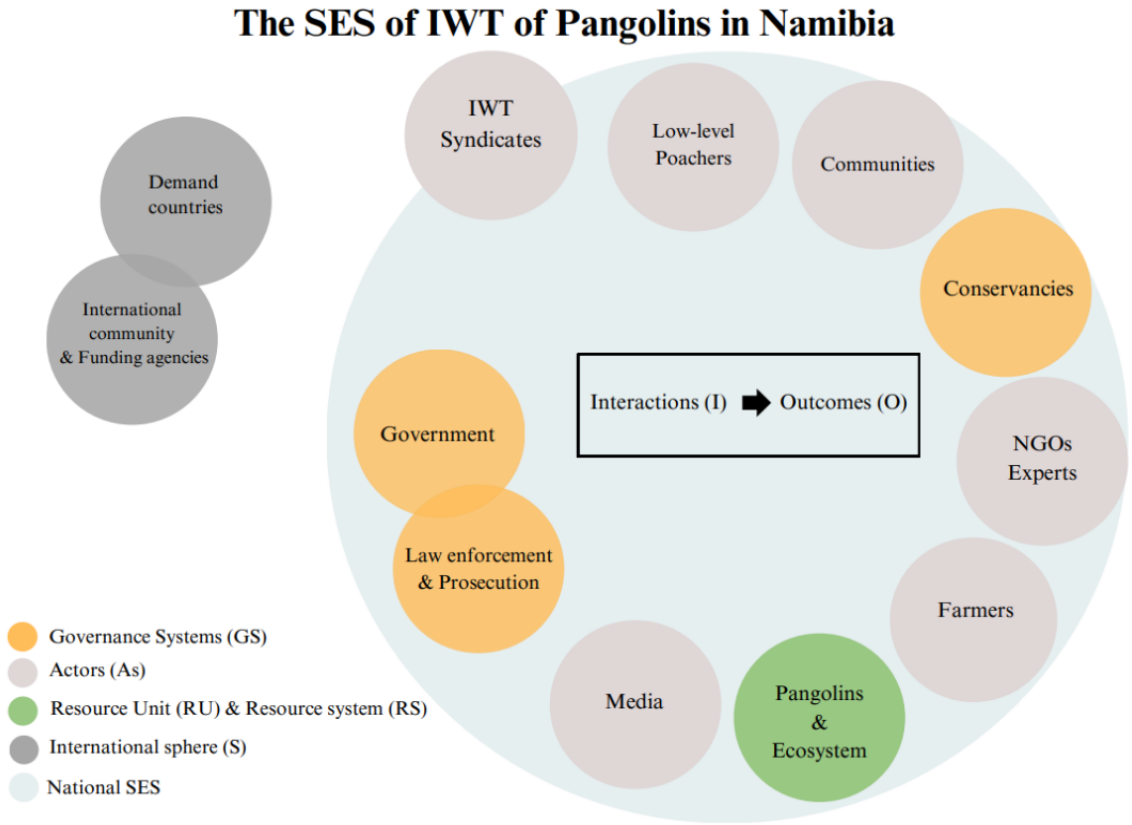

Figure 7: The SES of IWT in Namibia with identified subsystems. modified from Ostrom (2009), created by the authors.

Table 1: SES subsystems application & interview group abbreviations (Created by the authors, 2023)

SES subsystem	referring to	group abbreviation in interview references
Resource Unit (RU)	Pangolins (see chapter 2.1)	-
Resource System (RS)	Pangolin habitat (see chapter 2.1)	-
Actors (A)	Communities Ju/'hoan San community members in different villages in Nyae Nyae Conservancy	C
	Poachers opportunistic low-level poachers	-
	IWT syndicates	-
	Media journalists	M
	NGOs international NGOs active in wildlife conservation Namibia	NGO
	Experts of IWT or wildlife/pangolin conservation	E
	Farmers commercial farmers on private-owned land	F
Governance Systems (GS)	Namibian government: State authorities involved in prosecution, law enforcement, legislation, or conservation of wildlife. Conservancies as legal entity	GS
Social, Economic and Political Settings (S)	CITES; international governments; international funding agencies; international community; end consumers of pangolin products (in demand countries)	-

6.2 Interactions & Outcomes

I1: Harvesting

Harvesting refers to the removal of pangolins out of their natural habitat. The pangolin's extant population in Namibia is unknown as is the number of animals taken out of the wild, poached, and trafficked (Interview 5, E).

> *The one species where we're severely lacking data and intel is the pangolin, we have no idea how many pangolins we have. And that's because it's a species that hasn't been studied to that extent.* (Interview 3, GS)

> *But it's important to realize that we do have confiscations of other wildlife products that are confiscated by chance or through information. We don't really have that for pangolin.* (Interview 2, M)

Simultaneously, there is disagreement and uncertainty among experts about the consequences of continued exploitation of the species and whether a total extinction of pangolins would lead to extensive ecological issues (Interview 3, E; Interview 7, E). These information gaps create an issue of agency for researchers and conservationists when applying for funding, as the urgency of pangolin protection from an environmental perspective cannot sufficiently be backed by research (Interview 5, E).

The act of 'harvesting' pangolins is commonly hunted by opportunistic poachers (Interview 7, E; Interview 4, GS). In the case of Nyae Nyae Conservancy, interviewees stated that Herero and other ethnic groups come onto the land of the Ju/'hoan San to either take pangolins out of the wild themselves or to ask a member of the Ju/'hoan San community to do it for them (Interview 4, GS; Interview 6, C): "[T]he Hereros from this side, they come in, they do the poaching [...] They have connections" (Interview 1, C). Whether the chain of power ends with the Ju/'hoan San or the Herero, both ethnic groups are exploited by the middlemen and syndicates that take advantage of their vulnerability to recruit cheap 'foot-soldiers' to do the poaching for them (Interview 2, GS; Duffy et al. 2022).

I2: Information Sharing

A substantial and critical lack of interaction in information sharing permeated all groups that we interviewed, of which the most detrimental will be highlighted in this section. The withholding of information impacts agency which leads to power imbalances within the SES (Ahlborg & Nightingale, 2017).

Firstly, the Ju/'hoan San in Nyae Nyae have limited access to education, which reinforces the community's vulnerability and contributes to asymmetric power dynamics through the withholding of knowledge (Interview 7, C; Adolf & Stehr, 2016). One of the reasons for limited access to education for children is poverty, as described by a community member:

> *They say here [...] it was a free education [...] but we actually pay for our children. And most of the people don't have money. But it's like the children must wear a uniform. And just imagine if I'm not working and my wife is not working and the whole family is not working, where will that child get the school uniform? And that is playing a big role at school, they will send you back.* (Interview 2, C)

Most children of the Ju/'hoan San community do not finish school (Interview 1, C; Interview 2, C). The schools are operated by the Herero with Herero teachers teaching the students in their language; one interviewee stated that Ju/'hoan San children are mistreated by Herero teachers and often sent home without stating a (valid) reason (Interview 2, C).

Due to the early dropouts of children, there is limited access and capacity for income opportunities or the pursuit of higher education later on, which results in less agency in decision making institutions and processes (Interview 7, C). Less representation therein could result in further impoverishment if the needs of the community are not considered. This, in turn, would make community members more vulnerable to criminalization and, thus, to poaching activities.

The Ju/'hoan San experience exclusion by the government through the withholding of information: community members reported a lack of information on compensations and pension as well as of development projects in their villages (Interview 6, C; Interview 8, C).

> *So government was having a plan in our area, they started with N#ama Pan and give them goats so that they can start benefiting from it. So then later on, they just - when they didn't even tell us*

> *anything or the reason why - they just left us and went, so no one has an idea of that.* (Interview 8, C)

Understandably, distrust and frustration with the government could be inferred from their statements and demeanor in the interviews. Without knowing if and when what kind of development projects take place in their villages, community members are less resilient as they have no agency in planning. A critical lack of information sharing also manifests itself in the small amount of media reports on the plight of the pangolin, fueling a lack of awareness on the subject matter:

> *I think it is totally neglected [in the media], totally underexposed and I think the awareness of pangolin and the pangolin importance on our ecosystems is not known. I think there is a lot of misconception about the pangolin.* (Interview 1, M)

Media coverage, however, is a double-edged sword: bringing attention to pangolins and their endangered status can also create further demand or supply as the public will understand what is rare is also valuable (Interview 1, M; Interview 2, M).

I3: Deliberation processes

Deliberation processes refer to consultation between subsystems in the SES; the issues with deliberation processes between experts and parts of government, as well as between the Ju/'hoan San and the Nyae Nyae Conservancy are henceforth analyzed.

Deliberation processes are often undermined between conservationists, experts, and parts of government as some government officials often do not consult experts when making decisions on conservation efforts:

> *[...] [G]overnment isn't really taking into consideration what the experts in the field are saying, they're just making knee-jerk reaction decisions on wildlife.* (Interview 6, E)

Decisions made by the MEFT are, allegedly, often uninformed of current research findings and project successes which means existing governmental conservation measures are likely to be at least partially inefficient (Interview 5, GS; Interview 6, E).

There are deliberation processes between Nyae Nyae Conservancy and the Ju/'hoan San community as they have representatives in the conservancy council and can (potentially) influence decision-making for their land in annual meetings (Interview 1, C). Being represented in the communal conservancy means the Ju/'hoan San can exercise legitimate power, and community members are in favor of the decision-making structures in place within their conservancy (Interview 6, C; Interview 3, C; French & Raven, 1959). The headman of a village we visited described these benefits:

> *For [the headman] it's very good because you collect information, you hand it over to the [conservancy] office and office [...] respond and you bring responding back to the village, and on the end they present it to the higher meeting which they call the Annual General Meeting, so it's quite very good.* (Interview 3, C)

However, due to the lack of or limited information the communities receive about conservation, the effectiveness of decision-making for pangolins and other wildlife in the conservancy can be questioned.

I4: Conflicts

Conflicts are herein defined as "conflicts of interest" between two actors or interactions which outcomes further result in anger, resentment, or distrust for at least one of the actors involved.

The "Harvesting" section suggested that most poachers found in our case study are not from the Ju/'hoan San but rather other ethnic groups living around or within the Nyae Nyae Conservancy (see I1: Harvesting). As the poaching of wildlife has detrimental economic, social, and environmental consequences on the affected area and their inhabitants, there is a strong resentment from Ju/'hoan San against (pangolin) poachers (Interview 6, C; Interview 4, C; Interview 8, C): "So, they see where there is more money, where they can come, like, I would say rob us" (Interview 8, C). However, the extra-community conflicts between the Ju/'hoan San and other ethnic groups ("Kavangos"; "black people"; "Hereros") are more deeply rooted than poaching activities (Interview 9, C; Interview 2, C; Interview 1, C). Land-tenure insecurity, the exploitation of natural resources, unemployment, and government favoritism are only some of the issues named by the Ju/'hoan San (ibid.).

> *Because here - because of uneducated kids, and most of problems that we have in the past, we are sitting like this and different tribes are the owners of our ground, it seems like that. So, then our life is like the hand of black people.* (Interviewee 7, C)

Dispossession, exclusion, and marginalization of an ethnic minority do not only result in asymmetric power relations, furthermore they are instruments to achieve just that (Wenborn et al., 2022; Suell, 2022). In addition, the dominating groups can engage in illegal activities which the marginalized group has no power to counteract (Interview 9, C; Interview 7, C). In the Nyae Nyae Conservancy, the shop owners create a dependency through credit systems, an often-used approach by middlemen to force new recruits into poaching:

> *So normally they will come take credit from the shop, and then the people they still add whatever - or how do you call it, and then they can pay more.* (Interviewee 8, C)

In contrast to their homogenic opinions about other ethnic groups, the Ju/'hoan San's view of their conservancy is multi-fold. While they see the positive sides such as community projects, traditional decision-making processes, the freedom of hunting traditionally as well as new livelihood opportunities, there are still active conflicts evolving around a lack of support such as education, participation, and financial insecurity (Interview 2, C; Interview 1, C; Interview 7, C).

> *I would say our conservancy it's the first gazetted conservancy, but so far, we're only dependent on trophy hunting.* (Interview 1, C)

When asked why the conservancy suddenly stopped the drought relief measures, an interviewee answered:

> *We don't know, there's no reason, no one come to the village and tell us, "Look, we changed or something new is coming," or why are they stopping, or they stopped giving this.* (Interview 9, C)

Being unprepared and uninformed about such changes results in conflicts and distrust in the conservancy office and furthermore, degrades the resilience of the communities. This further fuels the vulnerability for illegal income activities and possibly a disobedience of conservancy rules (i.e., the protection of certain species).

Similar resentments are being held against the government. Although they are an independent conservancy, they feel that being inhabitants of Namibia, the Namibian ministry still must own up to their responsibility to address the issues of a lack of education, illegal occupation of land by

other ethnic groups as well as a high unemployment rate in the Nyae Nyae Conservancy (Interview 2, C; Interview 6, C).

> *It's like favoritism, kind of, of things that people are playing in Tsumkwe. And it's very bad. We have been reporting things.* (Anonymous)[11]

However, they acknowledge the importance of a good relationship with the government and are afraid to express their feelings: "I actually hate government, but I cannot say that" (Anonymous); "When we talk about government in our area, it's too much, it is too much dangerous" (Anonymous). Those expressions do not only indicate a certain type of oppressing governance of some officials as well as a strong power asymmetry but moreover a huge crack in an important relationship.

I5: Investment Activities

'Investment activities' is here forth interpreted as important financial activities with implications for pangolin trade.

> *You know, this person could have seen all the awareness campaigns that have ever been rolled out, but he doesn't - at the end of the day, he doesn't have money coming in to feed himself or his family.* (Interview 1, NGO)

The most important issue that was raised throughout all groups and by close to every participant was: "Funding. Everything revolves around funding" (Interview 1, GS). Hereby, it is common that NGOs and related projects are mostly relying on external funding. However, in Namibia the government as well as its law enforcement and prosecution are also heavily relying on external funding and investments while still claiming complete control over its distribution (Interview 1, NGO; Interview 4 GS; Interview 6, E).

> *That's a big problem with government funding especially, because sometimes they'll just identify what they think is a priority.* (Interview 6, E)

[11] Some critical quotes remain fully anonymous to protect our interviewees.

Firstly, small to middle range NGOs as well as experts in Namibia complained that they rely on external funding as public funding is minimal, volatile, or impossible to obtain (Interviews 6 & 7, E).
Additionally, during our stay in Namibia we observed how volatile the funding environment can be, with already signed agreements being canceled from one day to another.

Also, projects and plans of local NGOs are severely influenced by the government regulations on funding (Interview 5, E).

> *[...] there's significant investment, but it has to be continuous because it's not just - the moment it stops the moment, you know, conservation stops, it needs to be continuously funded, to make sure protected areas exist.* (Interview 1, NGO)

Changing the perspective from the Actors to the Resource Unit, a similar lack of support, funding and conservation measures for pangolins unfolds. For the pangolin, a lack of awareness and prioritization as a non-charismatic and non-income generating species through hunting or tourism leads to a tight budget and less recognition in important decision-making processes (Interview 3, NGO; Interview 4, GS; Interview 7, E).

> *[...] if an animal has value, it's - you can make [...] money from it, you can make money to protect it, if it has no, if you don't, can't make - it sounds terrible.* (Interview 1, GS)

Or said differently, "if it pays, it stays" (Interview 2, M). The pangolin is the only protected species in Namibia without an approved management plan, which would bind prosecution and law enforcement to effective, transparent, and cooperative procedures in pangolin conservation (Interview 7, E).[12] The resulting severe lack of research, willingness to cooperate and lack of information leads to often insufficient post-release treatment and monitoring, and, finally, in avoidable deaths of pangolins (Interview 5, E; Interview 1, GS).

> *To be honest, in many cases, I don't think they [the government] really care what happens to the animal after it's released.* (Anonymous)

[12] Last year, a management plan for pangolins was created, however it has not been approved by the cabinet yet and therefore is not a binding document (Interview 7, E).

Lastly, the negligence of pangolins in international and public investment leads to severe insufficiencies in anti-poaching efforts such as too little equipment, training, and inconsistent income within conservancies (C; GS; E, NGO; M).

> *But to make sure that you aren't paying the minimum salary that you're actually paying them properly, because they are putting their lives on the line.* (Interview 1, GS)

This claim also highlights a severe issue concerning public servants working in positions that can be key supply chain stages of IWT. A great lack of investment and hence support and recognition of workers in key positions along IWT was disclosed throughout multiple interview groups (i.e., NGO, M, GS, E). Beside a low salary, one of the results is a severe lack of capacity in key sectors leading to overworked staff, who lack important resources to facilitate effective work such as equipment (e.g., vehicles, technology) as well as monetary resources to fulfill their basic needs during work hours:

> *You need food, because you're working long, long, long hours, sometimes there is no money for you to buy.* (Anonymous)

Often a lack of proper training leads to insufficient border controls, which provide an easy way out for IWT syndicates:

> *Because sometimes, you know, you could just be a simple customs officer who thinks: 'Yeah, let's check this.' But you don't know what you are really checking.* (Interview 5, GS)

Lastly, the psychological exertion of staff working in anti-poaching is not sufficiently acknowledged and supported. Our interviews revealed a severe lack of investment prisonization and recognition of the latter.

> *So, you know, it's not easy. You shoot somebody, it also goes into your mind. So, we need support on some of the things like that.* (Interview 2, GS)

As another consequence, "you're starting to lose some good people" (Interview 1, GS). Therefore, close to all government conservation and anti-poaching activities such as the Blue Rhino Task Force are privately funded and therefore dependent on the donor's goodwill and their agendas (Interview 1, E; Interview 4, GS). "So, everything we do, not everything, but 95% of what we do

is privately funded" (Anonymous). However, the Namibian government is not only dependent on funding but moreover on international investments in the Namibian economy:

> *Yes, I think for the conservation sector, it's definitely international investment, and maybe also exploitation of natural resources. I mean, we see it with ReconAfrica in the Kavango.* (Interview 2, NGO)

Conflicting interests concerning the dependency on investments for conservation of natural resources while the latter are exploited by the investing companies is a key paradox in the work of the government (Interview 2, NGO). Such investments sometimes also have consequences for local communities:

> *And communities don't benefit from it in any way. So again, what's happening is you're taking so much away from a community, and you're pretty much - I mean, what can happen is a lot of those communities may be forced to move because of the mining company, and that can drive poaching as well.* (Interview 6, E)

The further exploitation of natural resources and marginalization of impoverished communities is also a danger for pangolin habitats as well as an increasing risk of pangolin poaching which further results in a vicious cycle, beginning, and ending with a need for more funding (Interview 7, E).

I6: Lobbying activities & corruption

Lobbying activities describe interactions where actors try to influence the actions of government officials to their own benefit, especially of those involved in policy and legislation making (Merriam-Webster.com, 2023).

There is a conflict of interest in legislative authority in Namibia due to the hunting and tourism lobby; especially the hunting lobby is majorly involved in legislation, which is why updated laws for wildlife protection are not passing through cabinet as fast as they should (Interview 1, M).

> *Trophy hunting has been very successful in influencing nature conservation policies, which I think is tragic, […] because a lot of that stuff influenced the disappearance of many of our wildlife.* (Interview 1, E)

This results in less effective conservation work as legislation that reflects the growing urgency of action is needed to successfully undermine IWT. At the same time, the concept of CBNRM and

therefore also income generation in communal conservancies is dependent on the funds that hunting, and tourism generate; as one community interviewee stated, “our backbone is the trophy hunting” (Interview 1, C).

Lobbying also happens on the big scale: CITES was seen as a problematic convention by interviewees, as it is considered to be a stage for power play between states as opposed to an effective platform to decide on international conservation strategies (Interviews 1 & 4, NGO).

> *[...] CITES, it’s - as much as it’s good at what it does at these committee meetings, it’s really countries pushing their own agendas. So what they do is they meet with other countries to get them on board to vote for things that they want to happen.* (Interview 1, NGO)

Cooperation with the demand countries for joint conservation efforts is viewed as difficult or even impossible as the participating nations tend to push their own agendas and interests (Interview 3, E). These decisions of the political elite undermine efforts on the ground as without formal, big-scale collaboration between the supply and demand countries of IWT, decisions on the ground will remain a drop in the ocean (Interview 3, E; Interview 3, M).

Although not a lobbying activity, the phenomenon of corruption came up many times in interviews. Many interviewees including government officials confirmed that there is indeed corruption within the Namibian government or government agencies, specifically in the wildlife sector. As one interviewee stated, it is “corruption that is permissible by a constantly defunct [...] system” (Interview 4, NGO). Many reasons were mentioned for the prevalence of corruption, such as officials being underpaid, sections being understaffed, and an overall lack of incentive to do their job properly (Interview 5, GS; Interview 4, NGO). In this “defunct system” it is also possible for wildlife trade syndicates to smuggle products out of the country, for operations to be sabotaged and for staff working in the GS to cooperate with wildlife crime syndicates (Interview 6, GS; Interview 3, NGO). “[...] Syndicates have unfortunately infiltrated every level of government and security, and they’re exposing it” (Interview 6, E). Consequently, this facilitates IWT and creates further distrust of actors in the GS which hinders effective collaboration.

The misuse of funds among NGOs was stated by one interviewee that said, “nine times out of ten, the funds are not being used [for] what it is supposed to be used for” (Interview 6, E).

I7: Self-organizing activities

Self-organization, in this context, happens through the communities' application on communal land for the formation of communal conservancies and the management of the latter to create a legal entity that grants them access to wildlife (NCO, 1975; NACSO, 2023a). Communal conservancies in Namibia often cover large areas with low population density; in Nyae Nyae Conservancy, the population density is 0.37 people per square kilometer (NACSO, 2023b; NACSO, 2023c).

Ostrom (2009) recognizes the issue of a RS that is 'too big' while at the same time lacking proper monitoring of wildlife and, in this case, of shooting permit behavior could lead to individuals getting away with shooting too many animals than they are formally allowed to or even with poaching:

> *[...] [S]o what happened under the community based natural resource management model is that they then implemented the shooting self permit system. So they would go to the committee, "Listen, we have 80 gemsbok on our conservancy, so we will now shoot 20 of those [...]", and they shoot out 40. Because nobody's there really counting. [...] So there's always this tendency towards overexploiting.* (Interview 3, M)

CBNRM aims to generate long-term benefits from sustainable management of wildlife populations (NACSO & MEFT, 2023a), assuming a delayed return economy, which is foreign to the Ju/'hoan San and other communities (Interview 2, E; Interview 4, NGO). This imposing of Western notions on traditional cultures in Namibia is not only a reflection of the former power-asymmetric colonization, but it also poses the risk of individuals disregarding CBNRM and "self-organizing" to over-harvest wildlife in order to make quick money to satisfy their immediate needs (Interview 2, M; Ostrom, 2009).

I8: Networking activities

Networking activities refer to any collaborating interactions between subsystems and are important for the pooling of expert knowledge. However, in this section, the critical lack of networking activities in parts of the SES is analyzed, which results in exclusion and in the exercise of legitimate power that is often unsupported by expertise (French & Raven, 1959).

Farmers as Actors are left out in the SES even though 47% of Namibia consists of farmland and the danger of electric fences for pangolins is mostly found on farms (The Global Economy, 2020; Challender et al., 2014).

In wildlife conservation, there is a lack of networking interactions between them and other Actors as well as the GS. Two farmers stated the issue of not knowing who to contact regarding an injured pangolin on their property or when being approached by pangolin sellers (Interviews 1 & 2, F). This shows an apparent lack of networking between farmers and conservationists. The apprehension noticeable in demeanor and statements of interviewees when asked about government cooperation was apparent, with one farmer even stating that:

“Farmers try to get as little interaction with the government as possible” (Interview 1, F). The overall exclusion of farmers means important stakeholders in pangolin conservation are left out.

This represents a missed opportunity for effective conservation while at the same time creating grounds to mishandle pangolins on their farms or even increasing likeliness of either poaching animals themselves or subliminally supporting poachers by not reporting illegal activities to the government. One interviewee describes being approached by a poacher in front of their farm:

> *And then there was a car in front of the gate. [...] And then the guy [in the car] just said, "Okay, we got a pangolin in the back." And they tried to sell it to us.* (Interview 2, F)

There is a critical lack of networking between Namibia and other (neighboring) governments, which manifests itself in the lack of cooperation when combating IWT: although it is an international problem, there is little cross-border cooperation between neighboring countries (Interview 6, E; Interview 2, GS). The failure to share expert knowledge may cause prosecution work to be less effective, as syndicates operate across borders and nations.

I9: Monitoring & Sanctioning Activities

The Namibian legal and prosecution system (GS) of IWT results in certain Interactions between different Actors of the SES, which in the following are summarized under “Monitoring & sanctioning activities”.

"In most cases" prosecution successes of pangolin poaching are based on tip-offs[13] from communities (Interview 5, GS). Community members who either saw or heard of a suspicious activity are incentivized to report such information (Interview 5, GS). Therefore, the MEFT introduced the Pangolin Reward Scheme in 2017, offering a monetary reward in exchange for information, which reportedly resulted in some arrests (Interview 7, E: see Figure 8).

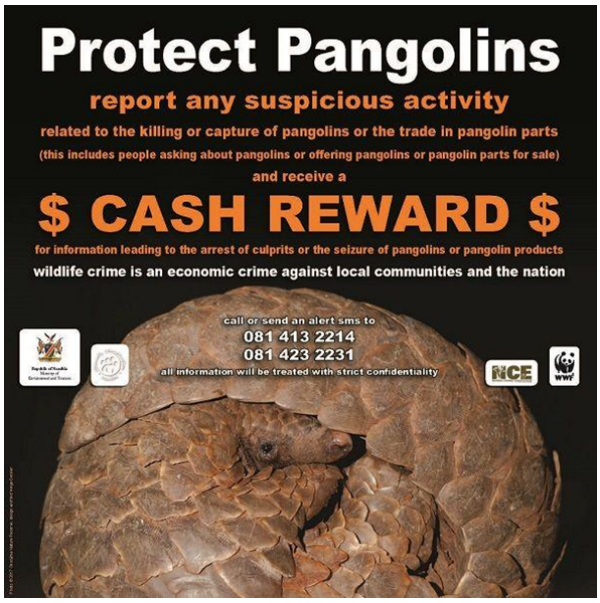

Figure 8: Pangolin Reward Scheme Poster (Namibian Chamber of Environment (NCE) n.d.)

However, interviewees criticized the system to be a double-edged sword: "Are we by offering rewards not creating a market or is there really a market?" (Interview 4, GS). In addition, misunderstandings of the system have led to people poaching or capturing pangolins to receive a reward:

> *So that's the danger of putting a reward system out there, especially for people that are desperate. Then they don't understand. And they just see the money aspect.* (Interview 3, GS)

Paradoxically, the system's success relies on a good and trusting relationship between the government and rural communities. However, Namibian wildlife legislations are still causing frictions of the latter (Interview 5, GS; Interview 2, M). Strict laws and their enforcement fuel a fearful view of the government:

[13] "to give someone information, often about something dishonest or illegal that is happening" (Cambridge Dictionary, 2023).

> *"Whenever we have pangolin, we're afraid because the first thought: you'll be sent to police."* (Interview 1, C)

In a broken relationship based on fear and distrust, many illegal activities will stay in the dark. A lack of mutual understanding was further disclosed when a government official mocked the Ju/'hoan San's traditional beliefs of the pangolin as a sign of good luck:

> *So, we tell the people: the good luck is now for at least four or five years, you don't have to look for your food, the government will provide you bedding and food in prison for you. Good luck with that.* (Anonymous)

The same black and white thinking was present in many interviews when talking about convicted poachers and wildlife crimes. The contested notion of *wildlife crime* was often used in sentences that simultaneously were justifying strict penalties and highly militarized anti-poaching units.

> *But you also need to see the positive side of things that Namibia set a real sign to the wildlife crime sector, to the wildlife* ***criminals****. […] Like the stricter penalties for* ***wildlife crimes,*** *[…] the intelligence and investigations unit, you have the Blue Rhino task team, you have the Wildlife Protection Services Division of MEFT.* (Interview 2, M)

A recurring theme was the framing of poachers as 'evil', even though the motives and severity of crime differs immensely for each individual and tier of the IWT supply chain (Interview 7, E).

> *We're just treating poachers as like evil. […] we have to start treating them as humans with needs, and we need to do things to satisfy their needs so that they don't turn to illegal crimes. We think of prisoners as people who like, don't have feelings.* (Interview 1, NGO)

This framing is mirrored in the sentences favoring monetary power: penalties can either be paid or will be converted to a prison sentence, and forcing a first-time impoverished poacher into prison where he is not able to support his family (Interview 4, GS). While on the other hand, favoring actors higher up in the chain who have more resources and often monetary support from syndicates (Interview 6, GS). Those penalties fuel asymmetric power structures that further lead to poverty and poaching to fulfill one's basic needs. A key aspect about low-level pangolin poachers is that they mostly act opportunistically and many of the convicted poachers are first-time offenders:

> *It's no hardcore criminals, it's basically villagers who were looking after goats and then they found the live animal and taking it.* (Interview 4, GS)

However, there are no rehabilitation facilities in Namibian prisons resulting in a high rate of repeated offenders (Interview 4, GS).

> *Why are we not doing better rehabilitation? Why are we not doing initiatives to make sure that they don't do it again? So reoffending rates are probably extremely high because the guys go out, they don't have a guaranteed job. They don't have any sort of source of income. And chances are they go back in because they know what to do.* (Interview 1, NGO)

Prosecution statistics also reveal that the current system focuses on low-level poachers rather than high-tier actors and syndicates. This was often attributed to a lack of monetary funds, capacity, and training (Interview 1, NGO). IWT syndicates were also said to have significantly more resources than Namibian law enforcement resulting in significant asymmetric power relations:

> *Let's face it, the bigger guys are the bigger guys because they're smart, and they haven't gotten caught yet, and they've kind of developed ways to evade the system.* (Interview 4, NGO)

> *There is not one of them [poachers] that we so far can link to syndicates.* (Interview 4, GS)

The small number of Wildlife Courts as well as the lack of magistrates' capacity, training, and monitoring were also highlighted to result in inconsistent court decisions and sentencing (Interview 7, E). The lack of capacity results in a huge case-backlog and leads to convicts escaping on bail and, hence, avoiding conviction. Lastly, certain legislation is very outdated, often not adhered to and flexibly implemented creating little deterrence for corruption offenders and IWT syndicates.

> *A lot of times, I mean, legislation is in place and actually also the rules and regulations, but they're not adhered to. Legislation just stays and then times change, circumstances change, and you need to adapt.* (Interview 2, NGO)

> *Like if it benefits someone to enforce it, then it will happen. If it benefits someone to not enforce it, then it won't happen.* (Anonymous)

7. Discussion of Findings

This chapter provides a discussion of our findings and answers the second and third research questions: *What are key enabling factors and how are they situated within the social-ecological system?* and *How are key patterns reproduced or contested in the context of power relations in the local and global system of pangolin trade?*

In the first section, we summarize the key interactions and situate them within the SES (see Figure 9). Their resulting Outcomes (O) will be linked to enabling or enforcing IWT of pangolins in Namibia. In the second section we discuss our findings within global power contexts and lastly, derive policy implications.

7.1 Situating main Findings within the SES

A major finding is the inefficient or in some cases non-existent cooperation of stakeholders representing subsystems in the SES, including an overall deficiency in information sharing, networking, and deliberation activities. Collaborating, however, is arguably important for conservation and therefore affects ecological performance (O2). Following the results of this study, this lack of cooperative action is evident also by the exclusion of farmers and private landowners as important actors in the SES, who own and live on most of the land in Namibia and therefore within the Resource System (RS) yet are uninformed about the illegal trade of pangolins and conservation efforts to save the latter. Inefficient collaboration also stems from pushing through own agendas in the conservation sector, infiltrating Actors in the SES as well as the Governance Systems which adds a major roadblock in cooperation.

Another core issue in pangolin protection in Namibia is insufficient funding for the cause. Budget allocation on the government side at this stage does not seem to prioritize conservation of species altogether, which accounts for a multitude of issues downstream, such as a dearth of incentive in staff working in conservation leading to poor decisions or vulnerability to criminalization. Additionally, funding that is available is often either misallocated or misused by NGOs (A) and Governance Systems alike.

The destitution and marginalization of ethnic communities (A) in Namibia was the most given reason for why opportunistic poachers engage in illegal pangolin trade, as described also by

Kervankiran et al. (2020). We assume that poverty amplifies vulnerability to be bribed into criminal behavior that can guarantee quick money, which makes the Ju/'hoan San, for example, susceptible to be exploited. If caught, community members would not be able to afford monetary sentencing, which means they face imprisonment while suspects that are of less destitute condition can pay their way out. While imprisoned, there are no resocialization efforts, which constitutes a high number of repeated offenders and affects social performance (O1).

On an international scale (S), inefficient conservation cooperation between countries in CITES, a lack of inter-governmental law enforcement and prosecution collaboration, as well as the dependency of the Namibian government on international funding agencies contribute to the IWT of pangolins (O3). Additionally, a lack of or inconsistent border control at already porous borders to Angola and Botswana as well as bribable or untrained customs officials at international ports add to the facilitation of wildlife trafficking.

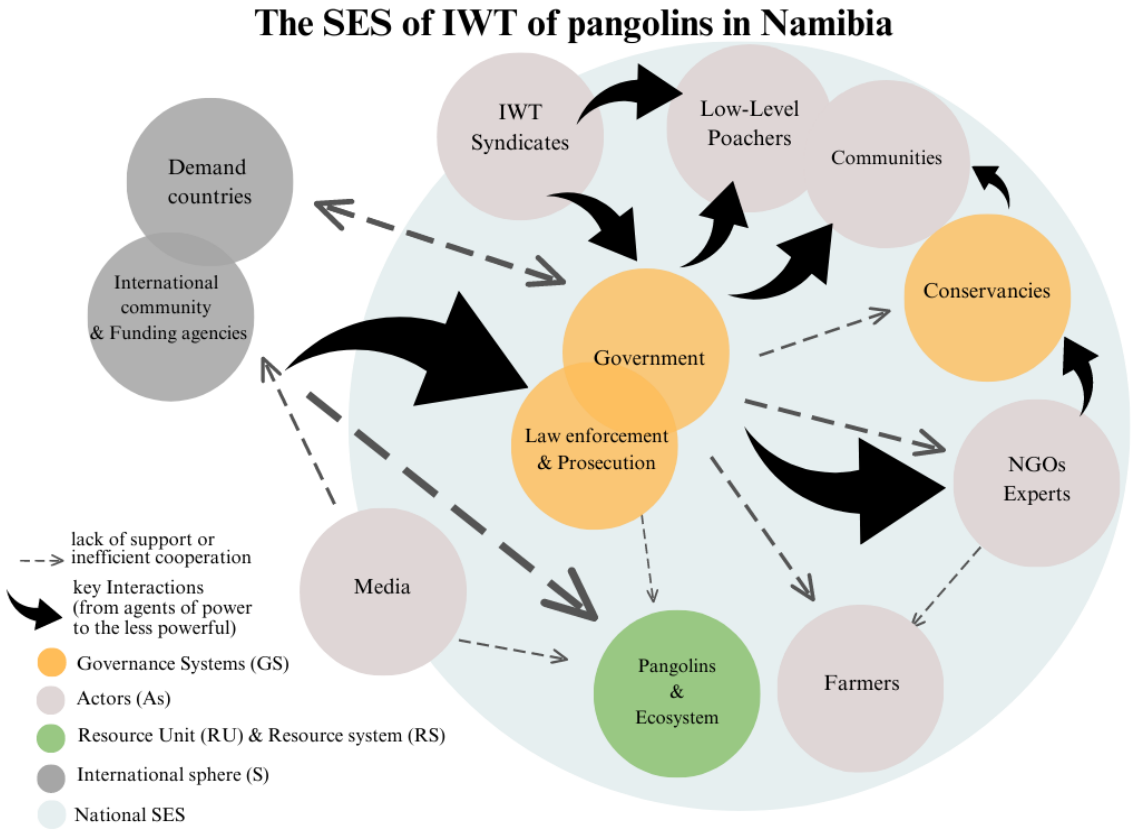

Figure 9: The SES subsystems and their connections through Interactions. Figure modified from Ostrom (2009), created by the authors.

7.2 The Political Ecology of the Illegal Wildlife Trade of Pangolins

Our findings disclose deeply entrenched power-relations within the SES which are connected to larger global patterns. In the following section we will answer the third research question:

How are key patterns reproduced or contested in the context of power relations in the local and global system of pangolin trade?

Framings Matter

Narratives and framings can alter the way we think about certain issues, how we behave, act, and decide (Constanino et al., 2012; Duffy, 2022). Certain framings and corresponding narratives of pangolin trade were prevalent throughout all interviews from NGOs, law enforcement and even communities. The poaching of pangolins was rigorously considered a *wildlife crime.*

Those expressions must be carefully used and reflected upon as they obscure local historical, economic, or social power dynamics and, thus, "renders this contextual politics of poaching invisible" (Duffy, 2022:43). It creates a biased view of convicts as 'ruthless criminals', intentionally and per choice violating laws to 'satisfy their greed for quick money', regardless of environmental impacts.

Duffy (2022:41) also highlights that, "the term 'poaching' is inadequate because it does not capture why local forms of hunting persist, even when such hunting is against the law." Pangolin trade therewith claims a special place in the IWT industry as the interviews revealed that in contrast to the hunting of other commercially valuable species, it does not require planning or weapons (Heighton & Gaubert, 2021; TRAFFIC, 2019). Hence, farmers, herders, or community members could opportunistically harvest pangolins as also disclosed by all our interview groups.
Therefore, a distinction between subsistence and commercial poaching of pangolin in Namibia is of great importance. For one, to draw attention to the persistent colonial legacies who still have legislative power to define who a poacher is. But moreover, to reflect the heterogeneity of powers in the justificatory framework and corresponding penalties, which is not yet the case in Namibia. To this date the Namibian prosecution model has not yet provided an effective distinction between opportunistic, unarmed pangolin poachers and highly armed and trained rhino or elephant poachers (Interview 4, GS).

Such misconceptions lead to homogenic legislative systems that do not reflect the heterogeneity of reasons why people hunt pangolins or other species. Consequently, the often-forceful responses marginalize already impoverished communities while leaving loopholes and legal inconsistencies which further enable and result in IWT (Duffy, 2022).

The Dependency Paradox

The 'Dependency Paradox' is henceforth used as an umbrella term to describe the interdependencies between different stakeholders in pangolin trafficking in Namibia that have also been found in other systems (Naro et al., 2022; Iordăchescu et al., 2022). Ironically, potential opportunities and essential needs of cooperation to facilitate conservation often rather result in competitions and the exercise of constitutional, reward or expert power as disclosed by our interviews (ibid.).

Firstly, the harsh competition for funding and investments often leads to budget allocations that prioritize lobbying over informed and effective decisions (Ducarme et al., 2012). The government favors the conservation of its charismatic species for tourism and because funding for those is easier to obtain, but there is also a clear shift to a securitization of conservation (Duffy, 2022). The interviews underscore this assertion as militarized anti-poaching strategies (i.e., Blue Rhino Task Force) and high sentences were named as the biggest successes in pangolin trade in recent years.

This strategic labeling of IWT as a security threat has been observed by scholars in multiple international contexts who also disclosed an interesting connection to the availability of larger funding budgets (Duffy, 2022; Kashwan et al., 2021). Therefore, it is not surprising that militarized law enforcement agencies in Namibia are expanding, supported by funders such as the Rooikat Trust (Interview 2, GS). Meanwhile, governmental conservation budgets and funding are significantly decreasing.

Besides, the depletion of Namibian natural resources by foreign companies has been accepted by the government as they are dependent on economic investments. Such investments have widely proven to degrade the habitat of endangered species and affect marginalized communities living with wildlife, forcing them further into illegal activities (Naro et al., 2022).

Another missed cooperation opportunity is unraveling as communities being key primary information sources on pangolin poaching are not consulted in IWT legislations and law enforcement measures (Interview 6, E; Interview 1, NGO). Although governmental institutions recognize communities as a potential valuable source of information, this is not reflected in their actions. Extrinsic motivation through monetary incentives such as the reward scheme is the only channel through which IWT related information sharing is encouraged. This severe disconnect between those responsible for anti-poaching measures and primary informants results in misguided decisions and a missing out on critical factors concerning pangolin poaching and trade (Naro et al., 2022). The missing seats at the political table, especially for the Ju/'hoan San, show the persistent underlying colonial power structures that shape conservation in Namibia. This narrative is now also deeply entrenched in people's minds, as some Ju/'hoan San have given up hope to ever have a voice in the ministry (Interview 2, C).

Therefore, a holistic approach with close communication between key informants such as poachers of rural community members and decision makers is needed to bridge different information sources and facilitate effective pangolin conservation.

The Marginalization-IWT Nexus

The hypothesis that poverty and environmental degradation are a closely linked issue has been explored in many forms and contexts also known as the poverty-environment nexus (Lufumpa, 2005; Anagnostou, 2021; Stocking, 2021). Our case study adds to the discussion as it exposes a close link between marginalization of communities and a growing vulnerability to being forced into illegal wildlife trade in Namibia.

Often, rural populations with little resources and limited livelihood opportunities, like the Ju/'hoan San in Namibia, are dependent on their environment and the use of natural resources to survive. The desperation to sustain themselves and their families is thereby said to undermine environmental sustainability (Lufumpa, 2005). However, we argue that blaming poverty and limited resources is too simplistic and, moreover, that the root causes of overexploitation of commercially valuable species lie with the powerful, not the marginalized. In the case of the Ju/'hoan San, the lack of agency in holding other ethnic groups accountable for their illegal ecological exploitation on their land is one of the key enablers of environmental degradation.

Indeed, scholars such as Stocking (2021) identified secure property rights to have a positive impact on the environment such as increased investment and better treatment of the land.

The often rather singular focused agents such as environmental NGOs or ministries are challenged with such cross-cutting issues (Stocking, 2021). Single projects such as pangolin rangers address pangolin conservation in a more holistic way. However, more efforts are needed to include rangers and communities as important agents to strengthen their resilience against outside shocks such as financial insecurity that can be exploited by IWT syndicates. Lastly, putting the blame on impoverished communities is a constant colonial narrative implied by the rich to divert attention from oneself (Anagnostou et al., 2021). Quite the opposite, Lunstrum & Givá (2020) found the international rise of illegal pangolin trafficking to be connected to increasing income levels which are further creating new consumers, as the wealthy produce the demand for such wildlife products. In addition, agents of power in ministries, international NGOs or in large pharmaceutical companies for TCM are the ones creating and reproducing a system in which IWT syndicates can operate profitably (ibid.)

In summary, in a world where demand of wealthy consumers drives the IWT, marginalized communities are the suppliers at the very end of the chain forced to accept the unequal exchange of the least benefits and the highest risks within a system ruled by governments, NGOs, and private companies enforcing rules and sanctions in the name of wildlife conservation.

7.3 Policy Implications

In the facilitation of IWT of pangolins, marginalization, and exclusion of rural communities in vulnerable situations portrays one of the key factors. Creating agency within communities by facilitating real participation in including them in important decision-making processes and making them true agents of their own land, education, and job creation is the base for secure future planning and in consequence more resilience against shocks such as COVID-19 or droughts (UN, 2021). Communities must be given incentives for and benefits from conservation, including livelihood opportunities managed by communities themselves.

Transparent information sharing and including indigenous knowledge in conservation and anti-poaching programs are important as communities are key informants and managers of pangolin

habitats as well as flora and fauna on their land. Transparency is needed not only within the conservancy system but also in governmental and NGO budget allocation and processes to avoid misuse of funds and ensure a collaborative relationship between funding agencies and other stakeholders.

Overall, there is a need for closer cooperation between all stakeholders to increase information sharing and expert knowledge exchange to account for better informed decision making in pangolin conservation (Naro et al., 2022). In this realm, a mandatory pangolin management plan for all stakeholders could facilitate effective and transparent measures. Furthermore, the inclusion of and support for convicted poachers is essential to better understand and tackle drivers of poaching, and to prevent repeated offenses (Interview 1, NGO; TRAFFIC, 2020). Conservation approaches should take cultural differences of beneficiaries into consideration to avoid imposing foreign concepts and, therefore, to ensure cooperation of rural communities.

Investments in training and awareness campaigns are needed for, one, law enforcement and border officials to be mindful of possible instrumentalization by syndicate members to facilitate trade, and two, for farmers and Namibian citizens overall to understand the severity of pangolin trade in Namibia and its implications.

8. Conclusion

8.1 Purpose and Research Questions Revisited

The purpose of our study was to uncover what factors and patterns contribute to the facilitation of illegal trade of pangolins in Namibia as this has been an understudied issue. Our aim was to provide a holistic view in a case study of key stakeholders' involvement in the issue of pangolin trade and to demonstrate the interlinked nature of issues that arise in the fight for pangolin protection. Furthermore, we analyzed underlying power structures and agencies that shape said key interactions. For this, we used the SES as a guiding framework and applied a PE lens when analyzing the main findings.

Regarding the factors that enable IWT of pangolins in Namibia, we disclosed a diversity of factors showing its complexity and interconnectedness. Furthermore, we identified several core issues within the SES that serve as catalysts for the possibility of illegal pangolin trade in Namibia, foremost insufficient cooperation, a lack of funding, the marginalization of rural communities as well as inefficiencies on an international scale.

The SES is shaped by underlying power dynamics and asymmetries which are continuously reproduced. The framing of pangolin trade and poaching contributes to the contestation of colonial power structures and rendering motives and responsible politics invisible. Dependencies created in the funding realm lead to problematic budget allocation and strategies to fight IWT. Moreover, a dependency paradox was uncovered where rural communities' information is relied on to identify poachers while communities hold no decision-making power in poaching matters and are not represented in government. Lastly, marginalization and exclusion, not only poverty in itself, are an issue that is reinforced also by other stakeholders in pangolin conservation by further utilizing colonialism-inherited structures to shift blame in a simplified narrative of greed in the destitute as reason for poaching.

8.2 Considerations for Future Studies

Future studies should incorporate the demand side to the exploration of factors enabling IWT of pangolins, putting the issue into a global perspective to ensure a fully holistic approach to the issue. As private companies are a big part of the overall SES in influencing the Resource System through, for example, industrial mining, their role should be explored in future studies (Iordăchescu et al., 2021). Our analysis was structured by the Interactions within the SES, which were not further broken down into multiple variable layers; variable layers should in future studies also be analyzed for all subsystems of the SES to give a more detailed understanding of characteristics of each subsystem (Ostrom, 2007). The Related Ecosystems (ECO) subsystem of the SES was not considered due to scope limitations of our study. To incorporate this part, future research on the implications of IWT of pangolins and their endangerment is needed to justify speaking of effects for other ecosystems that can as of now only be assumed.

In general, research gaps still exist about the pangolin's ecology, their trafficking, and about the best conservation approaches for this species. More research is needed to assess the state and distribution of the extant pangolin population in Namibia and to understand the drivers of IWT (Denker, 2022). Additionally, how the concept of CBNRM could become a self-sustaining conservation method, independent of additional outside support from funding agencies must be explored further. We also encourage research on empowerment and conservation with a focus on underlying power asymmetries and, therefore, including community members as research participants and partners instead of study objects. In this realm, exploring the harmful effects of conservation measures such as restricted access to land and natural resources can deliver essential insights in the successes and failures of conservation approaches today.

Finally, the plight of the pangolin must be acknowledged by international researchers in order to unravel more about the role of the pangolin in the local and global ecosystems and to save the most trafficked mammal on earth.

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Appendix I: Interview Guides per Group

Group 1: Communities

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself and the role in your community?	If ranger, when did you become a ranger and what did you do prior?
View of pangolins	What do pangolins mean to you and the community? Can you give an estimate of the current pangolin population in Nyae Nyae? How has it changed in your lifetime?	 If declined, why do you think that is?
Poaching	What might be a reason for people to catch, kill or sell a pangolin?	Do you think there are people who poach in your community or are they from outside?
Conservation	Do you believe in the protection of wildlife? What do you think about the employment of pangolin rangers? Are you aware of any protective measures in place that are supposed to suppress pangolin poaching?	If so, what are your ideas on how to best protect wildlife?
Outside support	What is the relationship between the community and the government like? Do you receive any outside help with conservation or with the community?	Do you think there is enough support? If not, would you appreciate help from outside or not?

Group 2: NGOs

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself? What is your background in conservation?	What projects are you working on right now? How does your work relate to pangolins?
Pangolins	Can you give an estimate of the current pangolin population in Namibia? How has the pangolin population developed over recent years? Is there a management system in place when it comes to protecting pangolins?	If not, what are the issues in getting an estimate? If declined, why do you think that is? If yes, what does it entail?
IWT	What are the root causes of IWT in Namibia?	Why do you think people poach? How has IWT in Namibia developed in recent years?
Consequences of IWT	What are the major social and environmental consequences of IWT in Namibia?	What impact would pangolin extinction have?
Achievements & challenges	What have been key achievements for you in conservation so far? What have been major challenges for you in conservation in recent years? What emerging challenges are you expecting in the next years?	What do you attribute challenges in conservation work to?
Expected changes & hopes	What are key changes in conservation that will happen in the future or are happening now? Do you have any hopes for what should happen in conservation? / How would you move forward?	What do you think about ecotourism as pangolin conservation method?
Other reflections	Is there anything else you deem relevant that you would like to add?	

Group 3: Government, Prosecution & Legal

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself and your position?	How does your job relate to wildlife or pangolins?
Pangolin poaching	What is the government's stance on pangolin poaching? *or* How would you describe the current prosecution efforts regarding pangolin poaching?	Do you think there is enough being done against pangolin poaching?
Legal & management system	Please describe the legal system to protect wildlife/pangolins. Is there a management system in place when it comes to protecting pangolins?	 If not, why? Is something being done about this?
Poachers	Who are the people mostly caught/prosecuted for pangolin poaching? (one-time offender, syndicate, or other)	Have you been able to link them to syndicates?
Achievements & challenges	What have been key achievements for you in conservation so far? What have been major challenges in conservation from a governmental perspective in recent years? *or* What have been major challenges in prosecution in recent years? What emerging challenges are you expecting in the next years?	 What do you attribute challenges in conservation work to?
Expected changes & hopes	What are key changes in conservation that will happen in the future or are happening now? *or* What needs to be done to improve prosecution efforts? Do you have any hopes for what should happen in conservation? / How would you move forward?	 Do you think this will happen in the future? Why/why not?
Other reflections	Is there anything else you deem relevant that you would like to add?	

Group 4: Experts

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself?	What is your background in conservation? *or* What is your research focus?
Pangolins	What aspects of pangolins are of interest to you? What are some key findings about pangolins that you have disclosed? What do you think needs to be studied further when it comes to pangolins? What are research gaps?	 Why do you think these gaps exist?
IWT	What are the root causes of IWT in Namibia?	Why do you think people poach? How has IWT in Namibia developed in recent years?
Consequences of IWT	What are the major social and environmental consequences of IWT in Namibia?	What impact would pangolin extinction have?
Achievements & challenges	What have been key achievements in your work so far? What have been major challenges in your work in recent years? What emerging challenges are you expecting in the next years?	 What do you attribute challenges in conservation work to?
Expected changes & hopes	What are key changes in conservation that will happen in the future or are happening now? How would you move forward?	What do you think about ecotourism as pangolin conservation method?
Other reflections	Is there anything else you deem relevant that you would like to add?	

Group 5: Farmers

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself?	How do you relate to conservation of wildlife in general?
Pangolins	Have you encountered pangolins on your farm? How is your relationship to pangolins? Have you encountered any issues with the animal or other wildlife on your farm? Do you know what other farmers do when they encounter an injured or dead pangolin on their farms?	If not, do you know if there are pangolins on your farm?
Conservation	What is your stance on wildlife conservation?	Do you have any protected species on your farm?
Electric fencing	Do you use electric fencing?	If so, why? Do you know of the potential dangers of electric fencing to wildlife and pangolins specifically? How high above ground are your fences?
Relationship with government	Have you collaborated with the government in the past when it comes to being a release-site? Would you want for your farm to be a release-site for wildlife? What is your relationship to the government?	If not, would you want for your farm to be a release-site for wildlife in general or pangolins specifically?
Other farmers	Do you know the stance of other farmers when it comes to wildlife (protection) and electric fencing?	If not, is there communication between farmers and/or farmers and conservationists about these issues?
Challenges & hopes	What are some challenges that farmers are facing? What would you hope for in the future?	What do you attribute these challenges to?
Other reflections	Is there anything else you deem relevant that you would like to add?	

Group 6: Media

Topic	Question(s)	Follow-up question(s) [Examples]
Background	Could you introduce yourself and what you do?	If unclear, how does your job relate to wildlife?
Pangolins & poaching	Have you reported on pangolins or pangolin poaching?	If so, how often, and why did you think the topic is of public interest?
Media exposure	What do you hope to achieve through media exposure of this topic?	Does media exposure also pose risks?
IWT	What are the root causes of IWT of pangolins in Namibia? What are the major social and environmental consequences of IWT of pangolins in Namibia?	Why do you think people poach? How has IWT in Namibia developed in recent years? What impact would pangolin extinction have?
Achievements & challenges	What have been key achievements in your work so far? What have been major challenges in your work in recent years? What emerging challenges are you expecting in the next years?	What do you attribute these challenges to?
Expected changes & hopes	What needs to be done to increase effectiveness of prosecution or conservation efforts? Is there anything you hope will change in the future when it comes to conservation?	How likely do you think it is for those changes to be implemented?
Other reflections	Is there anything else you deem relevant that you would like to add?	

Appendix II: List of Interviewees sorted by Interview Group

Group Number	Group Name	Interview Number
C	Communities	1
C	Communities	2
C	Communities	3
C	Communities	4
C	Communities	5
C	Communities	6
C	Communities	7
C	Communities	8
C	Communities	9
NGO	Non-Governmental Organization	1
NGO	Non-Governmental Organization	2
NGO	Non-Governmental Organization	3
NGO	Non-Governmental Organization	4

GS	Government, Prosecution & Legal	1
GS	Government, Prosecution & Legal	2
GS	Government, Prosecution & Legal	3
GS	Government, Prosecution & Legal	4
GS	Government, Prosecution & Legal	5
GS	Government, Prosecution & Legal	6
E	Expert	1
E	Expert	2
E	Expert	3
E	Expert	4
E	Expert	5
E	Expert	6
E	Expert	7
E	Expert	8
F	Farmer	1

F	Farmer	2
M	Media	1
M	Media	2
M	Media	3

Appendix III: Coding Scheme

Type of Interaction	Interactions	Outcomes	Sample Quotes
I1: Harvesting	No information about amount of incidents	Less successful law enforcement efforts	*[T]he Hereros from this side, they come in, they do the poaching [...] They have connections*. (Interview 1, C).
	Not much information on consequences	Less awareness and in return less funding	
	Opportunistic pangolin poaching	Can be anyone, easy to harvest	
	Poaching on Ju/'hoan San land by other ethnic groups	Land insecurity and no agency of Ju/'hoan San	
I2: Information Sharing	Limited education of Ju/'hoan San	No education in conservation, unemployment, poverty, vulnerable to illegal activities	*So. government was having a plan in our area, [...]. So then later on, they just - when they didn't even tell us anything or the reason why - they just left us and went, so no one has an idea of that.* (Interview 8, C)
	Withholding of information by GS & conservancy office from community members	Frustration of Ju/'hoan San, lack of agency, less resilience, more vulnerable to illegal activities	
	Little media reports on pangolin	Less awareness, less funding, less conservation	
	All groups withhold information from each other	Less effective cooperation, less effective conservation, uninformed decisions	

Type of	Interactions	Outcomes	Sample Quotes

Interaction			
I3: Deliberation Process	Little consultation of experts and NGOs by government	Uninformed conservations decisions, frustration of experts / NGOs	*[G]overnment isn't really taking into consideration what the experts in the field are saying, they're just making knee-jerk reaction decisions on wildlife.* (Interview 6, E)
	Consultation in conservancy exists but is uninformed	Lack of effective decisions on conservation and pangolins	
I4: Conflicts	Poaching of other ethnic groups on Ju/'hoan San land	Conflict between groups, no agency to act against poaching	*I actually hate government, but I cannot say that.* (Anonymous) *When we talk about government in our area, it's too much, it is too much dangerous.* (Anonymous)
	Land tenure insecurity and exploitation by other ethnic groups	Conflict between groups and land insecurity can lead to illegal activities	
	Ju/'hoan San mixed opinions on conservancy	Distrust in conservancy can undermine conservancy values (e.g., wildlife protection)	
	Ju/'hoan San feel neglected by government	Fear and distrust in government, although relationship important to combat poaching	
I5: Investment Activities	All groups in SES rely on funding	High dependency, conflict instead of cooperation, less agency	*[…] if an animal has value, it's - you can make [...] money from it, you can make money to protect it, if it has no, if you don't, can't make - it sounds terrible.* (Interview 1, GS) *But to make sure that you aren't paying the minimal salary that you're actually paying them properly, because they are putting their lives on the line.* (Interview 1, GS)
	Little funding for conservation & pangolins	Less conservation and anti-poaching efforts for pangolins	
	Little funding and support in government agencies, i.e., law enforcement, border control, customs	Uninformed, overworked, and demotivated staff at important IWT points	
	Conservancies not self-sustaining	Unemployment, poverty, demotivation	

Type of Interaction	Interactions	Outcomes	Sample Quotes
I6: Lobbying and Corruption Activities	Strong hunting lobby	Hinders conservation efforts	*[...] syndicates have unfortunately infiltrated every level of government and security, and they're exposing it.* (Interview 6, E)
	CITES political agendas	power play between countries as opposed to cooperation in conservation	
	Corruption	Undermines integrity, fuels poverty, and facilitates IWT on all levels	
I7: Self-Organizing Activities	Communal conservancy too big to be monitored effectively	Illegal hunting and poaching cannot be monitored, easy to get away with	*Because nobody's there really counting. [...] So there's always this tendency towards overexploiting.* (Interview 3, M)
I8: Networking Activities	Farmers are left out as important group	No cooperation with important owners of pangolin habitat, lack of conservation on farms and reports of pangolin trade	*Other networks are important, I think [...] it'll be important that, again, sort of maintaining those relationships with government and with other NGOs, because you don't do that and just drop by the wayside.* (Interview 3, NGO)
	Lack of networking between countries	Syndicates operate across borders, but law enforcement does not, easier IWT	
	Lack of networking between NGOs	Less information exchange on effective conservation techniques	
I9: Monitoring & Sanction	Outdated laws, uninformed courts	Uninformed decisions in court; many escapes while on bail	*There is not one of them [poachers] that we so far can link to syndicates.* (Interview 4, GS) *So reoffending rates are probably extremely high because the guys go out, they don't have a guaranteed job. And chances are they go back in because they know what to do.* (Interview 1, NGO)
	Reward System but only monetary motivation	Important key informants are only consulted after crime, based on money	
	Framing of poachers as criminal and evil	No rehabilitation, repeated offenders	
	No prosecution of syndicates, only low-level poachers	Syndicates simply recruit new poachers and continue to operate	

Appendix IV: Excerpts of Field Notes and Pictures

Before the data collection

- In the field with PCRF
- Meeting the pangolin rangers, who are Ju/'hoan San
- They are very dedicated at their work, passionate for the protection of the pangolin,
- We spend the whole day in the bush, installing camera traps and searching for burrows

  More info about the rangers cannot be included for security reasons
- Visiting Nyae Nyae for the first time: The landscape is beautiful, the way of live is simplistic and in harmony with nature
- They have small houses made of clay
- Each village has one water point installed by the UN
- They received fresh meat from a conservancy hunter and dried it in the sun

During the data collection

The first weeks we spent in Windhoek interviewing experts, NGOs, media representatives, farmers, and government officials. With the acquired knowledge we set out into the field.

Week 1

- Meeting traditional chiefs, they are very nice, all of them are elders. Some of them are blind and cannot walk
- We meet owners and workers in the shops, gas stations and veterinary gate, they are all Herero or Kavangos
- We are learning a bit of the local language and accent which is the click language
- The kids are very happy, they play with self-made toys, some go to school, some don't
- We see some of them walking to school, which takes hours
- Some are hitchhiking, some live in children "hostels" by the school

Week 2

- We are part of a post-release monitoring expedition with PCRF and people from MEFT as well as the pangolin rangers

- This study included GPS tracking, tagging and medical investigations on post-released pangolins in the wild. Those observations gave us valuable insights in the work environment and conditions of people on the forefront of conservation
- They all work dedicated day and night to find wild and post-release pangolins
- It's hard to find them, they are very shy. Even with camera traps we are not fast enough to tag them. **More info about the work can as this is highly confidential information**

Week 3

- We start the interviews in Nyae Nyae
- PCRF talked to the conservancy office beforehand, they granted the interviews as they know and respect the NGO
- The villagers are happy to see us, some of them have met Carina before, all villagers know each other, new persons would be recognized right away
- One ranger knows English and the local language of the Ju/'hoan San, so he translates in exchange for nutritious food for him and his family
- Each interviewee also receives a bag of calorie-intensive and nutritious food as well as their favorite tea
- It's hard to meet with the conservancy office, they have the only car and are always on the run, finally we get 15 minutes, the conservancy manager is also Ju/'hoan San

Week 4-5

- Interviews go very well, they are all very open and seem to trust us
- They raise the issue of unemployment in their community, they all want to work
- Some are scared or hesitant to talk about the government
- Some feel that the conservancies are being left behind, they feel insecure about the future
- They are all very grateful for the pangolin rangers and other ranger programs
- We speak to many elders who told us about their Annual General Meeting where the traditional authorities of all villages meet
- Then we left to conduct further interviews with other experts, NGOS and government officials

Pictures

Picture 1: Interview in the Nyae Nyae Conservancy

Picture 2: On the search for pangolins with PCRF and the pangolin rangers

Picture 3: Camera traps at a pangolin burrow

Picture 4: Village in Nyae Nyae

Appendix V: Reflection on Joint Thesis

What we did	Who did it
Data collection in Namibia and online	Carina Martens & Sophie Berstermann
Transcription of interviews	Carina Martens & Sophie Berstermann
Coding of interviews	Carina Martens & Sophie Berstermann
Thesis text (Equal distribution of writing with collaborative planning of each chapter prior to writing process)	Carina Martens & Sophie Berstermann

Benefits of doing a joint thesis:

- **Jointly conducting interviews:** Gave us the opportunity to ask a variety of questions; one person would keep the interview guides in mind, take notes while the other would ask questions and vice versa - made interviews feel less forced and more natural; we could talk about our impressions and discuss first ideas/themes arising from interviews.
- **Jointly transcribing interviews:** In case some recordings had auditory disturbances, it was helpful to have four ears to listen to the recordings; division of labor was helpful as we had 32 interviews to transcribe.
- **Jointly coding interviews:** Discussions with each other about main themes in interviews and figuring out the coding scheme allowed for concise codes; division of labor in coding interviews, again, saved time with 32 interviews to code.
- **Jointly writing thesis text:** discussions with each other about each chapter, what it should include, what is important information, etc. were beneficial as the complexity of the issue needed a focus on specific background and literature review topics.

Disadvantages of doing a joint thesis:

Although a group project, we still had the same limitations of scope in this thesis (15,000 words), which meant that we had to compromise on what we each deemed important to include in the thesis.

Final Reflection: Having worked as a team on such an extensive and intensive project has highly improved our team working abilities as well as time management and organizational skills. It was a valuable experience for our later career and future team projects.

Appendix VI: Additional Findings

I1: Harvesting

The Ju/'hoan San themselves expressed affection towards pangolins, calling them "lucky animal[s]" indicating that when seeing one "this is now the right time when the rain comes" (Interview 4, C). The Ju/'hoan San's reverence of the animals and natural resources they live off allows for the conclusion that the only reason for poaching would be their destitution and a need to fulfill basic needs. As one of the experts we interviewed stated:

> *They hold [pangolins] in high esteem culturally. With the research I have done, [...] [the communities] all see them as a spiritual totem, a bringer of good luck, a bringer of the rain. So to actually poach a pangolin out of your environment is actually against your culture, and it's against your leadership.* (Interview 3, E)

I2: Information sharing

Not only do the Ju/'hoan San report limited access to education, but also a lack of education in wildlife crime (Interview 4, C). A lack of education on IWT could lead to the spread of misinformation and potentially increase vulnerability to being approached by middlemen.

> *So our kids have to learn more about the conservation and illegal things, so that they cannot grow up with poaching problems.* (Interview 4, C)

I4: Conflicts

A different type of conflict takes place when coercive power is used to influence someone's actions. Concerning interviews of different groups, middlemen often use threats (hurting or killing the person or their family) to force rangers or government officials to engage in IWT activities (Interview 1, NGO; Interview 1, GS).

I5: Investment Activities

Foreign investments that are said to boost the economy, further often not only degrade the environment but further marginalize communities through forceful replacement, forcing them into illegal activities.

And communities don't benefit from it [foreign investment] in any way. So again, what's happening is you're taking so much away from a community, and you're pretty much - I mean, what can

happen is a lot of those communities may be forced to move because of the mining company, and that can drive poaching as well. (Interview 6, E)

Secondly, the critique of CBNRM models in Namibia has been a recurring theme during our interviews. Interviewees disclosed that although the initial idea behind the concept is appreciated, most conservancies are still relying on single source incomes and are not self-sustaining but rather also dependent on international funding (Interview 1, C; Interview 2, NGO; Interview 3, E). “Most conservancies, I would say, close to half of them aren't really self-sustaining yet.” (Interview 3, NGO).

Community members also expressed the need for change in Nyae Nyae:

> *So we are struggling with our life and we really need help from outside people to come at least they're the ones who are thinking for us so if they are having plans.* (Interview 7, C)

Those statements do not only show a huge dependency on external organizations but furthermore a lack of agency of the Ju/’hoan San and their will to follow NGOs and their own agendas. Such dependency as well as single source income streams impact the diversity of livelihood opportunities and fuels unemployment. Further, NGO projects in the Nyae Nyae Conservancy were often described as very volatile and time limited, creating further food and financial insecurity which again fuels the community’s vulnerability to engage in illegal activities (Interview 9, C).

Moreover, the government allocates a huge part of received fundings to their tourism-generating species (Interview 5, E; Interview 2, NGO).

> *So, unfortunately, being the most trafficked mammal, there still has not been funding to match that status.* (Interview 7, E)

When asked the question as to *why* the government is not investing more in such important sectors, many respondents pointed out that corruption and uniformed budget allocation over many years have brought Namibia in an economic crisis, fuelled by COVID-19 (Interview 1, G; Interview 6, E).

I6: Lobbying Activities

Lobbying is an issue in the distribution of resettlement farms[14]: the government does not consider what persons might make good farmers when distributing land but decides this based on personal or political connections (Interview 1, F). This exercising of legitimate power means that farmers of resettlement farms often lack knowledge, money, and overall capacity, however, to properly take care of the farms; they also often abandon farms and have them poorly supervised when gone, resulting in poaching on their farms or otherwise misuse of natural resources and wildlife (Interview 7, E; Interview 1, F).

[14] In the Agricultural (Commercial) Land Reform Act of 1995, the Namibian government stated the intent to have a land reform and to distribute land to "Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been socially, economically or educationally disadvantaged by past discriminatory laws or practices" (Government Gazette of the Republic of Namibia, 1995).

Appendix VII: Additional Background Information

Illegal Wildlife Trade

Wildlife trade networks (WTNs) operate worldwide through transnational organized crime syndicates, straddling licit and illicit workforces through organized and unorganized cross-border supply chains (Gore et al. 2022; Chelin 2019). Although, WTNs are diverse and dynamic in nature, relevant organizations such as OECD (2018), Chelin (2019), as well as UNODC (2020) argue that WTNs in different continents and regions share common characteristics: They often exploit trade routes and mechanisms of licit supply chains, overlap with other illicit supply networks and are often an indication for weak governance and social difficulties (Gore et al. 2022).

International policies and agreements such as the Convention on International Trade in Endangered Species of Wild Flora (CITES), frameworks by the United Nations (UN) Convention against Corruption (UNCAC) as well as the UN Convention against Transnational Organized Crime (UNODC) try to counteract IWT by regulating and restricting wildlife trade and therewith impact national legislations (Chelin, 2019; CITES, 2021; UNODC, 2023). The African Union also presented a cross-border strategy to address IWT in Africa (Chelin, 2019).

Despite the lack of scientific evidence, pangolin parts, specifically their scales (keratin), are said to cure rheumatism, increase blood circulation, promote lactation in nursing women and heal wound infections (UNODC, 2020; Wang et al., 2020). Often the scales are ground up by pharmaceutical companies and used as an invisible ingredient in pills (Jin et al., 2021). Wang et al. (2020) found pangolin medicine in 34% of the shops and 66% of the hospitals during their study in China. Thereby, they also disclosed the lack of awareness of pangolin as an ingredient by end sellers as well as consumers (ibid.). Lastly, pangolin meat is treated as a delicacy and status symbol (WildAid, 2016). Traditionally, pangolins have also been hunted for their meat and Traditional African Medicine (TAM) for many years in various African nations, including Namibia (Chelin, 2019).

Recent seizures disclose that most pangolin shipments intercepted in Asia originate in Africa as well as an increasing trend in the trade of live pangolins. However, official Figures only show a small fraction of the actual number of poached pangolins, and incomplete records further hinder

accurate statistics (UNODC, 2020). Scholars believe that the recent increase in seizures could also stem from the introduction of stricter international laws and policies: In 2016, CITES shifted pangolins from Appendix II to Appendix I and further prohibited any commercial trade of all eight pangolin species (Chelin, 2019; UNODC, 2020). In 2020, China delisted pangolins as an ingredient in their pharmacopeia, no longer supported by health care insurance, however the demand for pangolins as part of ethnomedicine remains high (Omifolaji et al., 2020). In response to the ongoing threats, the IUCN further re-established the SSC Pangolin Specialist Group in 2021 to address the current research and conservation gaps. (IUCN, 2023)

The Namibian Legal System

Formerly colonized by Germany and South Africa, (further) nature conservation was needed after independence as during occupation the colonizers exploited the country and, among others, its wildlife population (Gissibl, 2016; Lenggenhager, 2018). Today, Namibia is among few countries to include conservation of wildlife and nature in its constitution (Odendaal, 2022). Article 95 (l) in the Namibian Constitution, which came into effect with the country's independence from South Africa in 1990, states that the government shall adopt policies aimed at the "maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future" (Namibian Constitution, 1990). Namibian laws and policies to protect wildlife including the Nature Conservation Ordinance of 1975, the Game Products Trust Fund Act of 1997, the Prevention of Organised Crime Act of 2004, the Environmental Management Act of 2007 as well as the Controlled Wildlife Products and Trade Act of 2008 (Odendaal, 2022). The latter was amended in 2017 to substantially increase penalties for anyone in illegal possession of, dealing or trading with certain animals, or the manufacturing of a controlled wildlife product; these animal species are listed in Appendix I, among which the pangolin can be found (Government Gazette of the Republic of Namibia, 2017).

The Ministry of Environment, Forestry and Tourism (MEFT) oversees the implementation of this regulatory framework (Odendaal, 2022). After a spike in rhino and elephant poaching in the mid-2010s, several measures were taken to effectively tackle wildlife crime, for instance the implementation of Operation Blue Rhino with the Blue Rhino Task Team, a collaboration between the Namibian Police Protected Resources Division and the MEFT Intelligence and Investigation

Unit to support law enforcement and prosecution efforts in wildlife crime with operations funded by the Rooikat Trust (Denker, 2022; Rooikat Trust, 2020). Further, the Office of the Prosecutor General created the Environmental Crime Unit (ECU) as well as the (temporary) establishment of Special Courts focusing on processing wildlife cases only (Denker, 2022). With the start of Operation Blue Rhino, the Integrated Database of Wildlife Crime in Namibia was created as a tool that encompasses data on wildlife mortalities, law enforcement and prosecution efforts (Rooikat Trust, 2021). The majority of arrested suspects were Namibian nationals (87%) followed by Angolan nationals (6,5%) (ibid.).

Namibia's legal and prosecution system is often named as one of the role models in wildlife protection (Odendaal, 2022). By law, Namibia also recognizes the importance of biodiversity as a matter of poverty alleviation and economic growth (ibid.). However, poaching of pangolins has not yet been met by prosecution and law enforcement success due to weaknesses in frameworks, a lack of juristic capacity and the mismanagement of communal land (Lessing, 2018). Wildlife strategies in southern Africa prioritize certain species, exposing others such as pangolins to criminal networks who tap into these loopholes (Chelin, 2019).

All in all, to increase the success in addressing IWT and facilitate successful prosecutions the current Namibian jurisdictive and legislative system should be revised and adjusted, specifically relating to a fair treatment of species, bail, seizures as well as prioritizing wildlife crime through more capacity in i.e., wildlife courts (TRAFFIC, 2020; Chelin, 2019; Odendaal, 2022). In addition, biodiversity management plans, especially for all endangered species should be put in place to ensure effective, transparent, and intelligence-driven communication between the different levels of authority (Chelin, 2019; Odendaal, 2022). Still, most of the studies did not specifically mention the pangolin, which has - in contrast to rhinos and elephants - no approved management plan.

The Role of Corruption in IWT

High levels of corruption are a key catalyst for IWT (OECD, 2018). The role of corruption in IWT is multi-fold and differs in scale as high-level actors spin their web of corrupt relations in all levels of the supply chain from low-level border officials, local politicians to ministers (Costa et al., 2021; Hartwig, 2022).

The most critical dimension of corruption in IWT is 'institutional' as its consequences are long term (OECD, 2018). Multiple studies found that IWT policies as well as management systems in African countries are riddled with corruption, further influencing far-reaching decisions on that matter (OECD, 2018; Van Uhm & Moreto, 2018; Hübschle, 2017). Moreover, "Africa loses at least $50bn annually as a result of illicit financial flows from foreign companies doing business on the continent […]." (Adejola, 2022).

This loss of state income further impacts poverty in the country and can additionally result in a lack of conservation budget facilitating IWT (Hartwig, 2022). Countries with high levels of corruption lack effective anti-corruption law enforcement, especially in remote areas to counter corruption (OECD, 2018). Therefore, the risk of being caught is relatively low and if so, there is little accountability, low sentencing as well as a lack of transparency and awareness to inform the wider population (OECD, 2018; Bannister, 2020). Lastly, low-level corruption such as rangers, customs or police play a major role in the IWT system (Moreto & Lemieux, 2015). Especially in places where wildlife governance is mostly centralized, people might feel little responsibility to protect wildlife (OECD, 2018).

The fact that those kinds of corruption do happen on a huge scale, without being detected for a long time and in countries known to be one of the most corrupt-free on the African continent shows the Fishrot scandal in Namibia (Bannister, 2020). This case underscores the role of corruption in IWT, biodiversity loss and hindering economic recovery (Hartwig, 2022). However, it is important to note that those kinds of tax-evasions are not an isolated case but moreover an example for continued colonialism in the exploitation of Africans, while Western countries such as Iceland remained unharmed by the scandal (ibid.). Although Namibia has multiple corruption laws in place, a lack of capacity, resources and funding hinder their successful implementation (Odendaal, 2022).

Scholars agree that to effectively address corruption, it must become a priority for governments, donors, and the media alike (Hartwig, 2022; Bannister, 2020; OECD, 2018). Only if corruption is treated with transparent, accountable, and strong procurement procedures can such measures be successful (ibid.).

CBNRM

According to Heffernan (2022:481), CBNRM is based on three main goals, namely "economic development, environmental conservation, and community empowerment". *Economic development* is to be facilitated through making conservation commercially viable through joint ventures between the private sector and local communities mainly relying on sharing benefits generated through the tourism industry as a 'win-win' situation (Schnegg & Kiaka, 2018). The second pillar *environmental conservation* is ought to be realized through multiple approaches, as through 'traditional' conservation practices, the feeling of ownership of resources as an intrinsic motivation to protecting 'their' land and, lastly, attaching a direct commercial value to flora and fauna through income generating activities (Dyer et al., 2014; Gargallo, 2015). Thereby, the benefits generated through conservation are expected to outweigh the costs arising from the concomitant restrictions such as limited land use (Khumalo & Young, 2015). *Community empowerment* refers to participatory environmental management where the reclaiming of rights shall increase a community's power of agency (Meyer & Börner, 2022).

In that matter, studies by Jones et al. (2016) and Huntley (2023) highlight Namibia's unique pre-conditions as to having a low population density, so-called charismatic wildlife, clearly defined community rights within their policies as well as immense support from NGOs and the government. Lastly, they highlight the direct income channel from tourism towards the community without involvement of the government (ibid.).

Additionally, Fowler's (2020) suggested "behavior change campaigns" for communities could raise short term awareness but without other values added to the pangolin, the benefits from selling a pangolin for TCM still remains a great temptation, especially for people living below the poverty line (TRAFFIC, 2020).