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Modern Predators

The Science, Sovereignty, and Sentiment of Wildlife Conservation in Zambia

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I declare that this dissertation is my own original work, and that none of its sections have been previously submitted for publication or examination.



Elizabeth Godfrey Signed on this __17_____ day of __August____ 2013

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Acronyms

ADMADE	Administrative Management Design
AWDC	African Wild Dog Conservation
BBC	British Broadcasting Corporation
CAMPFIRE	The Community Areas Management Programme for Indigenous Resources
CBNRM	Community Based Natural Resource Management
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
GIS	Geographic Information System
GMA	Game Management Area
GPS	Global Positioning System
IUCN	The International Union for Conservation of Nature
LZCS	Lower Zambezi Conservation Society
LZNP	Lower Zambezi National Park
NGO	Non Governmental Organization
NORAD	Norwegian Agency for Development Cooperation
NPWS	National Parks and Wildlife Services
NSF	National Science Foundation
PPZ	Predator Project Zambezi
UN	United Nations
UNEP	United Nations Environment Programme
UM	University of Montana
USAID	U.S. Agency for International Development
VHF	Very High Frequency
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature
ZAWA	Zambia Wildlife Authority
ZIRDP	Zambezi Integrated Resource Development Programme

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Introduction

I arrived at the Predator Project Zambezi (PPZ)[1] in July 2011 as a volunteer. I knew generally from their website that the organization was involved in carnivore conservation:

> [PPZ] is … dedicated to the conservation of large carnivore species (African wild dog, cheetah, lion, leopard, hyaena), their prey, and the ecosystems in which they reside. Our study systems hold some of the greatest diversity and abundance of African wildlife in the region and span a variety of management regimes, from strictly protected to hunted, to communally owned and private lands.

I found PPZ through an advert on Africanconservation.org; they were looking for someone to train and "capacity build" the operations manager. By 2011, I had worked in the conservation sector for over three years, and I was happiest in remote, wild locations. The prospect of living in the Zambezi Valley was an immediate draw.

I spent one night in Johannesburg before my 6:30 a.m. flight to Lusaka. I met a few friends for a drink and, unaccustomed to urban social scenes, it was somehow 4:00 in the morning before I fell dizzily into bed. I missed the 6:30 flight. Four hours and R1500 later, I boarded the 10:30 leg to Lusaka, which would still touch down with enough time for me to catch the last internal flight to Kiambi, the main 'village' in Lower Zambezi (Kiambi is often referred to as a 'town' but, according to Zambian zoning laws, it is still technically classified as a 'village'). The travel was horrible; I had not slept, and my head pounded relentlessly. I even had to ask a Texan tourist, armed with a large hunting rifle, to lend me twenty dollars so that I could purchase the $50 entry visa for which I was unprepared. I sheepishly texted the CEO of PPZ to ask if he could please bring $20 to the Kiambi airport so that I could reimburse the hunter. Humiliating – all of it. So much for first impressions.

After that never-ending day, I settled into life at PPZ. I had no plans for the duration of my stay and, for the first time in a long while, I did not want to predict what the near future held. In part, I blame my haziness upon arriving at PPZ as an excuse for why I never had a clear picture of the organization's objectives. When I returned in June 2012 to study the mechanisms of "a Western conservation project in Africa," I quickly realized the over-simplification of my topic. Embarrassingly, after living with PPZ for three months in 2011, and volunteering remotely for an additional nine months, I did not recognize that PPZ wasn't definitively a "conservation" organization, nor could it be simply classified as "Western". What had I been *doing* for the past year?

I began this ethnography as a way to think through why "Western conservation" organizations feel unwelcome in Africa. I had experienced this discord myself and read widely about the hurdles, threats, and other difficulties faced by those who work in the

[1] To maintain the privacy of the organization, its personnel, and affiliates, I have disguised locations throughout this ethnography and used pseudonyms for all of my informants. Accordingly, I have chosen not to include maps or details on the relevant wildlife areas in Zambia.

name of African non-human species. What was the crux of this disharmony? I knew, from my three-month volunteership, that PPZ faced a number of in-country setbacks and so I chose to study the organization – how it functions, how it struggles – as a lens through which to unravel this seemingly continental phenomenon. Why does PPZ elicit strong suspicions about their work, especially when they approach the politics in Zambia cautiously and with deference? What comprises the palpable unease around the organization and what they do?

When I returned in 2012, after my initial shock in realizing how confused I had been, I slowly began to forgive my mistakenness. In Zambia, it is not transparent what PPZ means to accomplish through carnivore research or for whom such research is meant. PPZ is funded primarily through the World Wide Fund for Nature (WWF) Netherlands, and the organization serves as the scientific voice to WWF and to the Zambia Wildlife Authority (ZAWA) on the condition of carnivores in Zambia. Specifically, PPZ collects data on carnivores, which is done through a variety approaches such as radio-collaring animals, using camera traps, studying carnivore prey species and the indirect effects of their predators, experimenting with novel ways of tracking and identifying carnivore populations (more in Chapter Four). Once collected and deciphered, the information obtained and produced by PPZ cycles into an intricate network, a global machine, of international conservation concern in which WWF is a key player. PPZ operates with the language and ethos of these abstracted, Northern conservation institutions, specifically as an example of their supporting and qualifying scientific components. Because of this anchorage elsewhere, within an invisible but manifestly powerful system of conservation control, the methods and motives of the organization are impenetrable to many people in Zambia, including ZAWA officials. The money, attention to, and international connectedness of PPZ are obvious; but how the research ultimately benefits the people who reside with Zambian carnivores is not explicitly resolved.

As an agent of the international conservation network, PPZ is met with daily resistance that echoes larger, national objections to eco-protocols and instructions on how sovereign African governments are meant to prioritize their lands. There is deep-seated national doubt about wildlife professionalism in Zambia and its inaccessible connectedness to Euro-American powers. In the winter of 2011, during Michael Sata's campaign for the presidency, he promised to do away with ZAWA and hand management of protected areas over to chiefs and government officials. Wildlife belongs to the Zambian people, he reminded the country.[1] I asked several Zambians during this time why this was a campaign point, why people wanted to imagine the end of ZAWA.

"People see ZAWA as the enemy," Dennis Phiri, the Assistant Ecologist for ZAWA in the Zambezi Valley explained. "But we're not worried. He cannot just do away with ZAWA." Dennis was right: instead of re-assigning management of protected areas, Sata dissolved the ZAWA management board immediately after election without specifying his desired outcome of the decentralization of wildlife authority.

People see ZAWA as the enemy because they restrict those individuals who want to hunt either for subsistence or profit. They also act as the emissary for their Norwegian funders, who insist that Zambian national parks are to be effectively protected. But there are endless accusations directed at ZAWA scouts who are said to intercept local hunters and then illegally hunt themselves; indeed, NORAD (The Norwegian Agency for

Development Cooperation), pulled their funding from ZAWA in 2012, a decision that was rumoured to be related to ZAWA corruption. One of Sata's next orders was to free a number of incarcerated poachers – 670 in total – across the country. Once released, poachers fatally attacked ZAWA officials. Despite promises of further release, Sata had to slow his poacher liberation agenda after these events.[2]

Although Sata became quickly known and ridiculed for his rash decisions,[3] the resulting focus on ZAWA and its sloppiness tells us something more about the attitude towards the concealed mechanisms of conservation in Zambia. The disestablishment of ZAWA appealed to the majority of Zambian citizens, especially those who live alongside the country's national parks. Yet these are people who are told time and again that their future economies rely on the tourism industry, an industry that is fuelled by the intactness of wilderness. Why then do they despise the wildlife authority, the wildlife keepers, so intensely?

This tension can be located in the colonial legacy of conservation in Zambia and the varying, antagonistic definitions of what is 'natural' in Africa. It raises questions about state sovereignty in the postcolonial era, specifically with respect to how states are or are not allowed to decide the value of their own national, natural resources. In many ways, the dynamics in Zambia highlight a crisis of postcolonial eco-modernity,[4] which can be observed, felt, and learned from the daily obstructions of PPZ. The abstracted power with which PPZ operates becomes the source of deep suspicion for those who witness the organization in action and leads to conspiracy theories about the *real* business of conservation and how this business robs Zambians of their natural wealth.

Issues around wildlife and wildlife protection are confounding and uncomfortable in most of the wild areas of Zambia, certainly those in which PPZ works. It is within these complicated histories and viewpoints that PPZ has introduced carnivore research as another component to conservation. But they did not arrive as a small unit of detached scientists; rather, PPZ has always necessarily been implicated in a wider network of internationally produced statistics and opinions about the conditions of African wildlife (and, by proxy, about 'Africa' as such). Consequently, the work of PPZ is never just about research focused on carnivores; instead it epitomizes the policies, priorities, and promises from the Euro-American apparatuses of (to use Richard Grove's term) green imperialism.

I am interested in the ways in which PPZ scientists expose, through their everyday activities and interactions, the problematic, veiled fields of power that underlie all organizations and projects borne from the 'global nature' ideology. Throughout my time in Zambia, I tried to get close to the most uncomfortable moments of distrust between PPZ, ZAWA, and the general Zambian publics. I tried to extrapolate larger narratives of postcolonial and neo-colonial entanglements and exclusions through the ways in which ZAWA refused to fully accept PPZ and the gestures through which PPZ validated their significance. This was not always easy. The disquiet around African wildlife seeps into the most commonplace conversations and works its way through national policies, one line emails, and spontaneous moral acts on behalf of carnivore well-being. To interpret these moments for their socio-historical reasoning and for their (dis)connectedness to conservation institutions was both exhausting and unavoidable. These moments of ethical

judgement, the questions of conspiracy, the mutual demonstrations of doubt and righteousness occur daily in the context of PPZ. They are the means through which one can begin to unravel how terms like 'conservation' and 'global nature' affect everyday postcolonial negotiations of modernity. Furthermore, the definition of 'modernity' keeps shifting in ways that continually move – or keep – the locus of sovereign power elsewhere. Through PPZ I try to make sense of these modernizing agendas and how they delegitimize national priorities in favour of international programmes that are – still – dictated by 'Western science'.

It took me over a year and intensive scrutiny to understand the intended focus of PPZ and to locate the organization within larger, international schemes for conservation. Perhaps my un-composed arrival set the tone of confusion, or perhaps the objectives of carnivore research, and how the research mobilizes conservation agendas, are not easily deciphered. The minutiae of how PPZ functions on the ground in Zambia disrupt the objective paradigm of scientific enquiry and elicit further suspicion about what the organization actually accomplishes. By watching PPZ, I was able to appreciate that the rights to (protect) wild areas, and the 'universal' importance of conservation, are troublesome subjects. Although my perspectives here are not unique, I intend this ethnography to reinforce that no Euro-American funded wildlife professionalism is straightforward, no wildlife organization can be "just research" or "just conservation". Rather, organizations like PPZ are produced through and further advance the historically complex and hegemonic machines of conservation, which ultimately decide – on behalf of former colonies – how and for whom wildlife and protected areas should be managed.

HISTORICAL CIRCUMSTANCE

"The history of conservation in Africa has a legacy which remains important in framing the attitudes of rural communities towards any conservation initiatives now proposed," Richard Grove and David Anderson say by way of introducing their collection on the history of colonial conservation (1987: 8). In the twenty-five years since these perspectives were first published, the decision-making around conservation priorities continues to operate from its Euro-American headquarters, with its engineers producing even more technological theory to help determine and ensure the future of world ecosystems. The ways in which current concerns over disappearing and vulnerable nature have come to fruition, however, have their roots in Euro-American attachment to a particular imagining of the natural world (Fairhead and Leach 1996). The notion of a pristine natural garden, as both protected from human populations and a venue for personal regeneration amidst the industrialized absurdity of the over-developed world, began to saturate the European psyche in the Romantic period (Grove and Anderson 1987). At the turn of the 18thth century, Edmund Burke enlarged the concept of the Sublime as antithetical to beauty; a sensation of fear and awe as opposed to one of aesthetic appreciation, which too influenced European interpretations of the vastness and wildness of Nature (Burke 1800/1990). The Romantic writings on animals also evidence the rise in subjective attachments to and appreciations of the non-human (Kenyon-Jones 2001). Across the Atlantic, this Edenic vision was incorporated into the founding ethos of Yellowstone National Park, and more widely valued as the United States too began to

sacrifice forests for factories in their own initial processes of modernization (Kaufmann 1998). In turn, national parks, with both their aesthetic and sublime allure, became important domestic features in re-defining the identity of American elites (Beinart and Coates 1995).

In response to European natural resource depletion, imperial powers looked to the colonies to replenish resource stocks and harvested extensively the timber on African islands. It was in self-conscious reaction to the overwhelming exploitation of African resources that early themes of colonial conservation began to circulate (Grove 1995). Simultaneously, the indigenous African flora sparked the curiosity of European botanists, who initiated the imperial inquisition into the wonders of Africa.[5] This scientific exploration raised even greater concerns about the destruction of African forests, with the first publications to this effect emerging in the 1850s (Grove 1987: 31). As the scientific appraisals broadened, so too did interest in the unknowns of the African wilderness. Wild fauna became the target for colonial passtimes, and the Hunt emerged as an ideology and discipline for the white man in Africa. More than sportsmanship, the best Hunters were self-proclaimed natural scientists who shipped their specimen trophies back to the metropole for public display (Mackenzie 1987).

In the late 1800s, colonial attention turned to the apparent decline in the numbers of African mammals, which again prompted a European-led programme to protect the remaining wild populations for the benefit of the colonizer. Native Africans were banned from hunting, re-named as poachers, and the plans for more controlled wild spaces began to surface. The original scientific justifications for game reserves were formulated by naturalist-Hunters, who themselves embodied specific Anglo notions of separating civilization and wilderness (Mackenzie 1987). Game reserves were delineated at the expense of those individuals with claims to the land, resulting in widespread removal of the inhabitants of wildlife areas, with scientific motives dominating the "discourse of preservation" (Beinart 2007, 150). As Grove and Anderson elaborate, these historical wounds of conservation are still open, and the new nature philosophy continues to estrange the rural residents surrounding national parks (Ramutsindela 2004). The modern day distrust of conservation in Africa includes the role of the white scientist, who, with his predictions and observations, helped to drive the vehicle of conservation into action for both the plant and animal kingdoms. After a long period of protectionist, exclusionary approaches to conservation, in the 1980s, these procedures were re-evaluated and programmes with 'community focus' (such as community-based natural resource management, CBNRM) began to appear, with CAMPFIRE in Zimbabwe as the leading example. These programmes have been subsequently analyzed for their shortcomings in both community and conservation objectives, and wide bodies of academic and popular literature have been written on the hows and whys of their deficiencies (cf. Dzingirayi 2003, Marks 2001, Wainright and Wehrmeyer 1998).

One of the cited reasons for specific CBNRM collapses has been their sustained, older structure of hierarchy: new ideas on non-human protectionism imported from Euro-America, with emphases on the supposed 'universal' benefits of saving wildlife and wilderness (Adams and Mulligan 2003). Programmes like CAMPFIRE, or ADMADE in Zambia, arrived with exorbitant amounts of international funding and faces, with the goal to educate on the hot topics of global concern: biodiversity loss, unsustainable development, species decline. These programmes reiterated that changes in African

lifestyles (no poaching, less desertification, fewer children), could help slow, or better yet reverse, the natural devastations caused by over-population and improper land and resource management. In other words, CBNRM programmes delivered the overarching message that Africa is still "not yet" at the level of socio-environmental development of Euro-America (Chakrabarty 2000, Spierenburg et al 2006). The 1980s was the decade in which the United Nations Environment Programme (UNEP), Conservation International, and the Convention on Biodiversity emerged, and when WWF began its Africa programme (1983) – all with science-based plans to save life on Earth.[6] These organizations now have satellite offices across Africa, supporting a plethora of projects, with the macro-goal of helping Africa catch up with the ethos of planetary preservation. Memoranda and conservation documents are drawn up and signed by the host countries; as Pamela Chasek, founder of *Earth Negotiations*, a service that reports on UN environmental negotiations, explains, "effective environmental management seems to demand that countries cooperate openly and put their signatures on international agreements, treaties, and conventions," (Chasek 2001: 22). Through such agreements, nation-states become objectified as participants in a Euro-American led programme for environmental management. What I will demonstrate, however, are the many subtle ways in which participants – both signatories and rural 'beneficiaries' of conservation – retrieve and confirm their subject positions in order to resist global demands (Chakrabarty 2000).

What I want to underscore in the context of this ethnography is the prescribed authority given specifically to the scientist within the development of the conservation sector. Part of the resistance that PPZ faces in Zambia is inextricably tied to the (neo)colonial control over 'global' environmental management, but PPZ too, I believe, represents the specific role of scientific discourse within the conservation institution. The human relationships around conservation are a complex dialectic involving more than frustrations over who gets to decide on hunting quotas and park boundaries. They involve demonstrations – both formal and discreet – against the lack of state sovereignty and state control over national, non-human biopolitics. When ZAWA refuses PPZ access to the park, when the President of Zambia tries to disband wildlife authorities and free incarcerated poachers, these actions speak directly to the history of white decision-making on behalf of (for the betterment of) African countries, and they challenge the terms of eco-modernity towards which post-colonies are meant to strive.

TRACKING

Because of my familiarity with everyone at PPZ, the idea that I would study them became an ongoing joke. "Are you done with your ethnogram yet?" Alex asked me repeatedly, refusing to validate my project or discipline.

"Write this!" Max would often say as he relayed particularly memorable events. He even got irritated with me once when I did not record a conversation between him and Alice about a hyena that, despite their doubts, made a full recovery from his snaring wound.

More often, though, my constant watching, questioning, and note-taking evoked humour.

"Take notes on this," Alex stated as he flicked me off.

I took notes on many of these jokes, and I was never without my journal and pen, scribbling furiously as the others spoke about logistics, dinner ideas, scientific theories, frustrations with ZAWA, and more. In the vehicle, I tried to steady my notebook on my knee as I jotted down what was happening, who was talking, where everyone was seated. The unsteadiness of vehicle movement quickly proved this to be ineffective, so I waited for brief moments of stillness when someone climbed to the roof rack to radio track, or got out to change a flat tyre. On foot, checking camera traps, I leaned against the hood of the Land Rover, against mopane trees and colleagues' backs, to make sure I had all interactions and movements sufficiently described.

I decided right away that I did not want to use a voice recorder. So much of what happens between the staff of PPZ is familiar, intimate, and revealing (in Chapter Five, I discuss this in depth) that I did not wish to over-expose anyone with recordings of these moments. Additionally, the relationships between PPZ and ZAWA are often tense and uncertain (the focus of Chapter Two) and I was afraid that a recording device between them would further complicate dynamics.

In my tent, late at night, I wrote furiously about what happened over dinner, or my thoughts on the day's events. Even though PPZ staff often stay up late in the office to talk, enter data, and prepare papers and grants, I did not have the energy to sit up with them most nights. I still don't fully understand how they are able to function on so little sleep amidst such heat and constant activity.

Eventually, my note-taking became commonplace, and while the profane gestures and comments about my fieldwork never subsided, by July nobody glanced twice at my erratically moving hand. I appreciated the light heartedness around my project; however it also instilled in me an even greater sense of responsibility and anxiety. Everyone at PPZ trusts me implicitly and the nature of my 'ethnogram', what might come out of it, was never questioned. People spoke openly, uninhibitedly, about their everyday angers and letdowns, and I was conscious throughout my fieldwork of not compromising them professionally or personally. I certainly did not want to betray their faith in my discretion. This writing picks and prods at daily PPZ functions and raises questions and concerns about research and conservation both within Zambia and more broadly. My focus on PPZ is not an attempt to scrutinize the organization as an autonomous unit but to show exactly the opposite: that the objectives of conservation organizations can never be self-determined. To do this, I situate its science, connections, and ethos within a larger discourse of international conservation mandates.

Field Site-ings

The base for PPZ operations, containing most of the organization's infrastructure, vehicles, and resources, is in the Zambezi Valley. This is also the site where PPZ began. The Zambezi Valley, in Zambia's Lusaka Province (which borders Zimbabwe), incorporates the Lower Zambezi National Park (LZNP) and its Game Management Areas (GMA), the ZAWA managed spaces adjacent to the park in which controlled and safari hunting is permitted. Kiambi is the name of the most central village, and the airport, banks, and government offices all identify their addresses as Kiambi. I refer to the location of this PPZ base as Lower Zambezi, the Zambezi Valley, and Kiambi interchangeably as they all share one general geographic space. The PPZ base is within a

cellular coverage area, and the offices are equipped with landlines, a desktop computer and printer, as well as satellite internet.

PPZ also conducts research in Sioma Ngwezi National Park with a basic mobile campsite. Wilderness Safaris, the main tourist operator in Sioma Ngwezi, often allows PPZ to set up camp near their facilities so that the researchers can use staff ablutions and cooking areas. Wilderness Safaris also permits PPZ to use their internet as there is no cell phone reception throughout the park. In Western Park, on the Angola border, the PPZ camp has a number of fixed dome tents, a kitchen area, and thatched ablution with running water. The main game area of Western Park, where both the PPZ and a tented tourist camp are stationed, is called Nyika. There is no cell phone reception in Western Park and, through a repeater and booster, only occasional and limited internet access.

ID Guide

My main interlocutors (whose identities I disguise with pseudonyms throughout this dissertation) were the individuals who compose PPZ within Zambia. I existed alongside all of them day in and out for roughly four months of fieldwork. There are no real boundaries between the people at PPZ, both physically and metaphorically, which makes for both a strong connectedness between its employees and a tight-knit, exclusive organization (more on this in Chapter 5). While I reminded myself daily to maintain a degree of distance, I was equally committed to the studied successes and obstructions.

Dr. Alexander Moore is the CEO of the Predator Programme Zambezi. He took over African Wild Dog Conservation (AWDC) in 2008 and expanded the organization to include all five major carnivore species in Zambia: lion, leopard, hyena, cheetah, and wild dog. He also established PPZ sites in both Sioma Ngwezi and Western Park. Alex hails from Butte, Montana and despite his years outside of the U.S. as a wildlife field biologist, he retains many of his rural western mannerisms. Alex completed his PhD through the University of Montana (UM) where he remains an affiliated lecturer. As a field scientist, Alex detests the management side of his role and thus defers and delays those responsibilities whenever possible. He is dry, sarcastic, crude, and can transform even the darkest of moments with his American-flavoured humour.

Alice Banda is one of the PPZ field staff. Up until May 2012, she only worked with PPZ as an intern during her term breaks from the University of Toronto. She stood out from a young age as an exceptionally intelligent student and was sponsored throughout her secondary school studies and her BSc degree in Canada. Despite her international travels and degrees, Alice is still most at home in Kiambi, where she would like to permanently re-settle upon completion of her MSc (she hopes to begin graduate school in the U.S. next September). Alice is always smiling, and, although petite and unassuming, her personality has a way of saturating any atmosphere. She is liked by everyone, and her generosity and effectiveness make the operations of PPZ much smoother. Alex says that Alice will one day take over from him as the PPZ CEO.

Maxwell Greenberg came to PPZ as a field assistant in 2010, directly after he graduated from the University of Vermont. Max studied marine biology in college and so

the African bush research lifestyle was new to him. He didn't miss a beat: within months he was knowledgeable about all of the studied species, a self-taught mechanic, and the person who maintained fieldwork momentum. Max has a warm, welcoming disposition, and he always takes the time to explain carefully what he's doing in the field and why. He initially led the education programme with Kiambi Secondary School students and he continues to teach his colleagues on a daily basis. In 2011, he wrote a successful leopard camera trap study proposal, which he carried out in 2012. He will begin his Master's degree at UM in January 2013.

Ison Banda is a student in Lusaka at the University of Zambia in Environmental Studies. He is from Kiambi and was a few years behind Alice at Kiambi Day Secondary School. Ison is a quiet, diligent intern at PPZ, where he works in-between semesters. Unlike anyone else at PPZ, Ison keeps his appearance polished, and even goes into the field with crisp looking jeans and button down shirts. After insisting that his winter coat was in fact meant for women, Alice managed to capitalize on Ison's chic wardrobe. With new funding for an enhanced education programme in 2012, Ison designed a camera trap study with the secondary students and coordinated their dry season data collection.

Jan Visser is Dutch. This is the excuse everyone at PPZ makes for him when he writes a curt email or speaks with a condescending tone. Jan initially came to PPZ as a volunteer and then joined as a paid ecologist when WWF awarded the three-year grant for carnivore research in 2010. Jan loves photography. He is more interested and aware than the others of the general ecological makeup of the systems in which PPZ works. Jan broadcasts his experience across Facebook and blogs, uploading all of his professional-looking images. He was re-located from Zambezi Valley to Western Park in 2012 to lead the fieldwork of a wildebeest grant from WWF (after the Serengeti, Western Park comprises the largest wildebeest migration trek in Africa). He is the most reserved of PPZ staff and lacks the same American crassness as Alex and Max. Jan is now in his mid-30s, and while he loves the life of a field ecologist, he is also aware that these settings – especially Western Park – come at the expense of extended social and romantic possibilities.

Dr. Armstrong Milimo does not technically work for PPZ. As an experienced veterinarian who headed the ZAWA Veterinary Department for years, Armstrong is a well-respected wildlife professional across Southern Africa. With assistance and direction from Alex, Armstrong was successful in his application for a Fulbright Scholarship to undertake a PhD at UM, with Prof. John McIntosh as his supervisor. (John is a close friend, colleague, and mentor to Alex, who will also oversee Max's Master's degree.) Armstrong spends most of the year now in Montana but he returned to Zambia in May 2012 to begin his fieldwork in Sioma Ngwezi, where he studies the effects of disease in prey species. As a licensed Zambian vet, Armstrong is allowed to immobilize animals across the country and often assists PPZ with radio collaring and de-snaring.

Dr. Zach Fox just finished his PhD at UM with John McIntosh as a supervisor. Zach's fieldwork was focused on lion ecology in Kenya, where he also incorporated studies on the indirect effects of lion on their various species of prey. When PPZ and UM

were awarded funding from the National Science Foundation (NSF) to study these indirect predator-prey effects in Zambia, Zach was assigned as the post-doc in-country coordinator. Armstrong receives partial funding from NSF and contributes to the research and so Zach assists and guides Armstrong with his fieldwork. While he certainly shares the same humour as Alex and Max, Zach is a milder personality and a gentle, humble field scientist. When Zach arrived in June 2012 for his first season in Zambia, he brought his wife Claire for a two-month visit before she had to return to the U.S. for her Master's degree.

These are the individuals with whom I interacted the most during my fieldwork but they represent only a portion of the extended PPZ global network. Kanga Mayaba is a seconded ZAWA scout who runs the carnivore research in Western Park. He will travel to UM in January 2013 to begin his Master's degree, also with John as a supervisor. Daniel Hempel, who was a PhD student of John's at UM, co-wrote the NSF grant with John and Alex and is included as a scientific voice in the study designs and analyses. As a student, Dan helped John pioneer the ideas behind predator-prey risk effects (discussed further in Chapter Four) through their studies on elk and wolves in Yellowstone.

Dr. Frank Thanas of University of California, Berkeley is a consulting scientist for PPZ. He specifically helps with the statistical models and conceptual frameworks for most of the study designs.

Francesca Pinna began as a volunteer for PPZ in 2010 and she split her time between California and the Zambezi Valley for almost two years. Before she found PPZ, Francesca ran her own environmental NGO, but eventually collapsed under the pressures of management. PPZ acted as both a refuge and a stepping-stone for her, and Francesca eventually left to start her own carnivore research organization in Mozambique.

Moses Phiri, Doreen Banda, and Fred Zimba oversee the PPZ camp in Lower Zambezi as camp hand, housekeeper, and watchman respectively. Doreen has worked for PPZ the longest, when it was still AWDC, and she alone keeps the PPZ camp organized and functional. When Doreen takes her four days of leave each month, the camp falls into complete disarray and everyone counts the hours until her return.

TRACING

I begin this ethnography by revealing the ethics and values that play into the kind of scientific work that PPZ undertakes. Through the anthropocentric prejudgements of the people who comprise the organization, in Chapter One, I show that these decisions reflect the subjectivities and social constructions inherent in this line of scientific work (Latour 1987). Moreover, I discuss the contradictory examples of inter-species care and concern that emerge when field scientists 'live with' their species of study (Kirksey and Helmreich 2010), and how these examples disclose the "ideological fiction" of a detached observer (Haraway 2009: 13). I continue by looking at the extra-research activities in which PPZ is involved, including the re-theorizing and re-building of the Western Park ecosystem (Hughes 2005) and the biopolitics behind such plans (Foucault 1990).

Chapter Two focuses on the suspicions and distrust that form around PPZ, how they manifest, and what they represent. I situate this scepticism in relation to West and

Sanders' (2003) compiled discussions on transparency and modernity, and how "occult cosmologies" work to decertify and unveil "what the hidden hand [of hegemonic powers] is actually doing, how it is doing it, and to whom" (Comaroff and Comaroff 2003: 298). I look closely at the development of Zambian protocols for endangered species, and how such classifications are constructed and disseminated to the countries that support vulnerable fauna. I weave this into a broader conversation on global nature (Tsing 2005, Rodrigues 2006, Ceballos et al 2005, Frank et al 2000), eco-modernization (Spaargaren et al 2000, Magubane 2003), and how these international terms affect notions of state sovereignty in the post-colony (Chakrabarty 2009, Worby 2003, Dzingirai 2003).

Chapter Three highlights how particular notions of masculinity are sustained and reinforced through the structures of PPZ. The history of the colonial Hunt and the Hunter as natural historian (Mackenzie 1987, Wonders 2005) have developed rather unambiguously into contemporary versions of wildlife dominance, such as photographic safaris, "green hunting," and the conservation enterprise more generally (Brower 2005). Moreover, the constant maintenance and upkeep that is necessitated by scientific conservation in 4x4 terrain, and the struggle for the foreign men of PPZ to discover new competencies in the unfamiliar African bush, reflect a legacy of conflicted European self-valuation (Hughes 2006).

Chapter Four sketches the scientific workings of PPZ and how these interpretations manifest in their various studies and surveys. I briefly touch on the particularities of Euro-American borne scientific paradigms, what counts as an 'objective' perspective, and how older, imperialistic frameworks can still reverberate – however unintentionally – through modern day scientific engagements (Latour 1991, 2004, and 2010; Feyerabend 1975; Alvares 1988; Dupre 1994; Clark et al 1997; Adams and Hutton 2007; Nandy 1988; Haraway 1989). I then unpack the moments through which the façade of objectivity is abandoned and when the personal, protective tendencies of PPZ scientists become unavoidably real.

Lastly, in Chapter Five, I show the deeply interpersonal connections that develop within PPZ. The juxtaposition between fieldwork and camp life reveals a gendering of place and the respective personas that different spaces allow (Grinker 1997). I examine the activities in all of the PPZ locations in an attempt to make sense of the "unknown knowns" that fuel particular decisions (Zizek 2010) and how and why PPZ maintains a certain public image. I highlight the nurturing uniqueness and contemporary "predatory care" within PPZ organizational culture (Pandian 2001) and how the peculiarities of this culture are exacerbated by the small number of employees and confined environments. Finally, I focus on the transplanted elements of American familial traditions that feature at the PPZ camp and how continued commitment to these customs emphasizes the international anchorage of the organization.

Chapter 1: Naturalizing the Natural

"We always try to take a different route in and out," Jan says as I duck and shield myself from the miombo branches, which snap and ricochet off the vehicle as we move. This is standard terrain for sections of the main game area, the most popular tourist section of the Lower Zambezi National Park: various species of miombo, patches of mopane, rampant tsetse flies. As a result of their inaccessibility, these dense pockets are the preferred denning sites for wild dog. It is Kaingo Pack that we are after, 9 dogs in total, the den recently discovered by PPZ through a radio collar on one of the dogs. Timothy, the ZAWA scout assigned to PPZ, avoids the vegetation more elegantly and easily than I do from his seat in the back. Everyone at PPZ is accustomed to extreme off-road driving ('bush-bashing'). These vehicles are stripped of their roofs, doors, and windshields, which allows for more reliable tracking signals (less material interference), but they often return from the field with vegetative debris littered throughout: evidence of a hard day's work.

Using his GPS to re-locate the exact place, Jan drives in slow circles, looking for the den. He recognizes a slight mound of sand and points it out to me. The pups must be underground with one of the adults; the rest are out hunting. We make our way back towards the road, and Jan is careful to drive a different route out of the woodland. Once back on the road, Jan stops abruptly. I assume this is my cue to hop on top of the roof rack with antenna and receiver so that we can locate the rest of the pack, but instead he opens his door and gets out of the vehicle. Timothy and I turn to watch him: he reaches down, picks up two small branches, and then leans over again. He swings suddenly to his left and throws the branches off the road, into the woodland. When he returns to the driver seat, I look at him inquisitively.

"Dog shit. Don't want anyone to bother them."

"Anyone?"

"Guides. Lion. They have it hard enough as is."

I felt slightly uncomfortable when Jan returned to the car and I avoided looking back at Timothy. It took me a while to make sense of why this action was unsettling. It was Jan, not the ZAWA employee, who took liberty over Kaingo Pack by moving their faeces, which suggests that he believed – in his capacity as scientist, conservationist, PPZ – that he had the right to interfere if it 'helped' the dogs. Why did Jan think it appropriate to assume this role, especially in front of an official from the Zambian wildlife management body? Who or what has instilled this sense of authority in him, and why did the ZAWA scout not intervene?

This moment raises the question of (assumed) privileged access, both physically to the species in question and to knowledge about their well-being. To act with sovereignty over an endangered species is a 'right' that many conservationists justify based on the proven fragility of the animals: "they have it hard enough as is". But what happens in these interventions is not isolated to the acts of randomizing vehicle tracks or moving canine faeces; rather, they symbolize a 'globally' advocated perception on how protected spaces and protected species should be treated. In the vehicle it was Jan, not

Timothy, who felt responsible for protecting wild dogs and Timothy who deferred to Jan, as proxy for larger conservation authorities, on what is suitable where endangered species are concerned.[1]

ECO-SYSTEMATIZING

The uneasy reversal of authority in the above scene – the supervising scout deferring to the supervised researcher – is further complicated by the pretext of 'scientific research'. Donna Haraway has extensively probed the fiction of objectivity that is all too obvious in the historical development of anthro-biological primate science. This fiction, she explains, "hides – and is designed to hide - how the powerful discourses of the natural sciences really work," (Haraway 1989: 13). The discourse of field science also claims to fulfil an equitable, evaluative component of conservation: "[r]esearch and monitoring play a fundamental role in identifying, describing, and evaluating dynamics, limiting factors and threats to species and ecosystems," reads the PPZ website.[2] These measures for qualifying and quantifying are advertised, implicitly, as unprejudiced: data collection is not meant to involve opinion, it is a process of accumulating the facts. But as Haraway unveils through her experiences with primate researchers, and as Jan demonstrated, the sociality and affect that shape and are shaped by scientific practices are consistently detectable and blatantly contradictory when projects and organizations claim to operate without subjectivity (Latour 1987).

When PPZ scientists go into the field to observe their subjects and also see and act on opportunities to help save certain individuals or the species as whole, they violate their own terms of objectivity.[3] Since ZAWA scouts always accompany PPZ outings (more on this relationship later), these decisions and actions are seen and publicly known. A romantic identity of being the saviour of endangered species seems to lie just beneath the ideal of emotional detachment associated with the vocation and personas of PPZ scientists. Yet these two identities are not discreet and, as seen through their everyday operations and priorities, the boundary between detachment and affective investment becomes an indistinguishable blur (Latour 2004). Thus, there is always an undercurrent to PPZ scientific work -- something more than pure fact collection. Perhaps it is awareness of the unacknowledged protectionist agendas of PPZ that contributes to ZAWA suspicions (Chapter Two); or maybe it is the implication that ZAWA does not do enough to aid species survival that results in tension between the organizations. Either way, the evidence of PPZ emotional attachment to carnivores in Zambia that runs throughout this ethnography compromises their self-ascribed position as impartial observers and it too interrupts the premise of detachment that structures their episteme (Haraway 1989, Latour 1999, Foucault 1972).

The underlying assumptions that internationally condoned researchers and conservationists bring to their specific places of work can be unravelled through these actions of control.[4] The displacement of faeces is one example of the implied sovereignty that organizations within the conservation institution are able to exercise. When one (re)moves natural matter, when one damages vegetation, certain environmental 'global' politics and priorities are revealed. For example, in Western Park, as I will detail later in this chapter, PPZ assisted African Parks (the South African based wildlife management

NGO that runs Western National Park) in the translocation of lion from Sioma Ngwezi in a sustained effort to re-build the lost Western Park ecosystem. African Parks has envisioned the future of Western Park in the terms of David Hughes's Third Nature: as a landscape of hitherto dormant potential to become, once again, a great African wilderness (Hughes 2005). With a research station in Western Park, PPZ is necessarily complicit in this 'natural' realization as their research aids park management. 'Nature,' in this context, is a place revered for both what it is said to have once possessed (expansive ungulate herds, thriving lion prides), and for the possibility to 'go back,' to re-constitute, this specifically imagined state of the wild (Dowie 2009).

Sovereignty, in the case of Western Park, has been shifted away from Zambia. African Parks arrived with the money and international support to take over the park and, under pressure from international partners, Zambia accepted (Personal communication, May 2012).[5] WWF-Netherlands, the same funders behind PPZ, are one of the primary donors to African Parks in Western Park. So African Parks decides, with the help of PPZ and global backing of WWF, on the biopolitics of the area. They determine what gets to live and die in Western Park and they (attempt to) establish the conditions for particular species survival.

I begin this chapter with a glimpse at the history of conservation in the Zambezi Valley, and why this term – conservation – carries such weight, especially with an organization like PPZ. I then look through various points of judgement and authority by PPZ in relation to their studied species, which are best considered in the context of past Lower Zambezi conservation interventions. It is in these moments, I show, that the international bodies of conservation and wildlife protection are read and revealed. The connectivity between PPZ and Euro-American conservation rationales influences how PPZ conducts itself and how the organization is perceived in Zambia. It speaks to the "vast social, economic, and political enterprise" of wildlife organizations within the conservation institutions (Aronowitz 1988: 323). Towards the end of the chapter, I discuss how these Northern dictations for the sake of 'global nature' are met on the ground, in the everyday scepticisms of foreign wildlife motivations.

POACHING RHINOS

Residents in the Zambezi Valley have a potent reaction to the term "conservation," which is largely – if not entirely – due to *Save the Rhino*, an NGO formed in the 1980s to secure the nearly extinct black rhino population in Lower Zambezi. The organization was formed by a group of white safari guides and tour operators in Lower Zambezi who travelled to Europe, the United States, and Canada to give talks at prestigious universities and make sure their mission to secure the remaining Zambian rhinos was well broadcast (Personal Communication, December 2012). They gained a substantial support base; but, in the end, the organization was not able to save the rhinos and the species vanished in the late '80s (Astle 1999). As a result, the association between a conservation organization and the impending disappearance of their subject species was – and still is – highly suspected by Zambian publics.

In response to the declining rhino population, and its implied prognosis for the extended demise of Zambian wildlife, the National Parks and Wildlife Service (NPWS)

of Zambia held a workshop with both local and international representation to brainstorm on how best to protect Zambia's wildlife resources (Lyons 2000, 17). As a result of this workshop, two community-based natural resource management (CBNRM) projects emerged in the 1980s, known as the Administrative Management Design (ADMADE) and the 'Zambezi Integrated Resource Development Programme' (ZIRDP)[2]. They were funded, respectively, by USAID, in partnership with the Wildlife Conservation Society (WCS), and the Norwegian Agency for Development Cooperation (NORAD). Individually, these programmes tried to incentivize conservation by availing a portion of safari hunting profit, by various means, to the communities around Lower Zambezi. Both programmes persisted into the 1990s, with the ethos of ZIRDP eventually incorporated into the formation of ZAWA in 1998 (Wainwright and Wehrmeyer 1998). USAID funding to ADMADE, over one million U.S. dollars in total, was phased out in 1999/2000, after which point WCS began a new community-based conservation initiative to encourage subsistence farming livelihoods for former poachers (Marks 2001, Lyons 2000). These community-conservation approaches appeared in reaction to the loss of rhinos, but they were introduced in the face of local dubiousness and distrust of the agents and mechanisms behind conservation agendas, especially in the residential areas adjacent to national parks. Today, PPZ faces this legacy, and the disquiet around international wildlife conservation can be detected even in some of the ZAWA managers, who too are scrutinized for their ill-attention to the fate of Zambia's endangered species.

TECHNOLOGIES OF CONTROL

John McIntosh is a senior professor at the University of Montana (UM), and he is the principle investigator of the National Science Foundation (NSF) grant that was awarded to UM and PPZ in 2012.[7] John oversees the research methodology for the NSF predator-prey risk effects study, and he is responsible for management of NSF funding both in the U.S. and in Zambia. He arrived in Zambia in early June 2012 for a two-week visit to Sioma Ngwezi and Lower Zambezi. The night before his return flight to the U.S., John, Max and Jan discovered the Kaingo Pack den for the first time. They returned to camp around dinnertime, John aglow with excitement: "We could hear the pups inside!" Later that night, before bed, John phoned his family in the U.S. to share the day's news. The next morning, when Alex returned from taking John to the airport, he stepped out of the vehicle and walked directly to Jan's desk: "We need to call the tour operators and tell them, vaguely, where the dog den is and that walking safaris should not go in that area."

Max asked him if something had happened on the way to the airport, why was he so fired up about concealing the den? "Have you ever seen a three-legged hyena?" Alex asked him. "A three-legged lion?" Max shook his head, confused. "Well I've seen plenty of three-legged dogs." The implication was that the dogs, a fragile species, needed more protection. Two nights later, when Jan, Timothy and I went to look for the dogs, Jan asked Timothy to keep the location of the den in confidence.

Max set up a camera trap at the dog den a few days later.[8] On that same trip, he, Ison, and Timothy saw the dogs kill a bushbuck. The next day the pack still looked full, so Max assumed that the dogs had killed again. The following day, Jan and Zach sat with

[2] Name changed to obscure the geographical location of the referenced CBNRM projects.

the dogs for hours, and they even saw the alpha female call the pups out of the den. “I knew they were comfortable, but I didn’t know they were *that* comfortable,” Jan marvelled. Jan and Zach downloaded photos from the camera traps, one of which showed a hyena walking past the den. When the dogs started to leave for their evening hunt, Jan et al. followed them out of the miombo and onto the adjacent road. The dogs immediately walked into three lions, the Nsolo pride, one of the PPZ collared prides. “When does that ever happen,” Jan shook his head in amazement, “that you run into a collared lion by total coincidence?” The dogs started to alarm and jump in circles. The lions had killed a warthog close by and they surrounded the kill, presumably to prevent the dogs from stealing the carcass. The dogs moved off quickly and Jan, Zach, and Timothy stayed with the lions.

The next day, Max went back to the den. He downloaded photos from the camera traps and saw images of the alpha female carrying the pups out of the area. The pack abandoned the den.

On the 29th of June, Max and Alex drove out early into the GMA to look for a different dog den in the area south of PPZ camp. They managed to find the den, which was equidistant between two hunting concessions. Jan said that he’d stumbled across a blog for one of the lodges, which mentioned a den in this area. “Email the lodge and ask them to not go fucking near the den,” Alex (sort of) joked, in his typical dry and profane style. Jan had already commented on the post to say that the den was in a poor game-viewing area: thick bush, hard to see. “It’s actually great for game viewing though: big open area,” Alex mused. Jan knew as much, but purposefully misled the lodge so as to hide the den.

Also in late June, Alex went to look for a pack of dogs in the north of the park known as the Hot Springs Pack, which has two dogs collared by PPZ. At first he could not pick up a signal: perhaps the pack had dispersed. But the next day he found them with several pups: “really beautiful looking dogs.” Alex spoke about the frequency with which dogs tend to disperse in the Valley and what he called their “volatile behaviour”. “It must be from snaring,” he stated, his theory as to why dogs in this region behave much differently than studied packs in Botswana. Elsewhere in Africa, packs can be comprised of dozens of dogs. In Lower Zambezi, Hot Springs is one of the larger known packs with 19 individuals, including the new litter of pups. Alex set up two camera traps at the Hot Springs den to monitor their activity.

A couple of weeks later, Alex returned from an overnight in that same area, where he used call-in speakers and bait to lure a snared



Figure One: Jan fastens a collar onto a sub-adult male lion. While immobilized, animals can still detect surrounding movements and so blindfolds are used to keep them calm. This particular male was collared, in part, to render him less appealing as a safari trophy (with the collar meant to disrupt the aesthetic of the Hunt).

hyena in order to dart the animal and remove the wire. He also downloaded photos from the Hot Springs camera and saw that a fire in the area had swept over the den. The dogs moved the pups and re-located.

The fluidity between the researcher and protector persona reveals the subjective attachments involved in the study of and 'living with' endangered species. Despite Jan's effort to keep the whereabouts of the den discreet, lion found the dogs and the pack moved on. Camera traps served as investigative tools in both instances, which are meant to capture the activities of species that are not usually witnessed by humans. They detect heat and movement and take multiple, high-quality photos in close succession until the stimulus is no longer detectable. This 'behind-the-scenes' knowledge gave PPZ a better sense of how the animals behaved and a means to watch over them. But, for both the Kaingo and Hot Springs Packs, the cameras did not serve their purpose for very long; both packs vacated the areas shortly after the cameras were deployed. PPZ could not scrutinize their actions, nor could they supervise their well-being.

The Collar Economy

The very notion of collaring an animal, adorning it with a piece of material that marks a subject of research, affords PPZ a sense of control over finding the individual and access to its otherwise invisible activities. Collars are not, however, a guaranteed means of locating animals; they emit signals over a limited distance, so one already has to be within reasonable proximity to the individual to hear its indicator. Collars can also be gnawed or destroyed by other animals (a particular issue with hyenas), their batteries die, and they malfunction, especially in the rains. While they are not always reliable tools for tracking, collars represent the privileged access of researchers. A regular VHF collar that emits a standard tracking signal will be sold, in its most basic construction, for approximately $300 USD. The more expensive satellite and GPS collars can cost up to $3000 USD a piece.[9] Moreover, to put a collar on an animal requires the time of a qualified veterinarian or someone with a license to immobilize animals. To immobilize an animal involves various combinations of anaesthetic drugs, which must be purchased from a veterinary supplier. In other words, radio and GPS collars denote connections to national and international markets for specific engagements with, and management of, wild species. These animals are marked, monitored, and in a sense known within an exclusive realm of people – researchers, conservationists – who can afford restricted interactions.

Collars provide data and they provide access to data. Through the collars, PPZ is able to find the animals more efficiently and, unlike the lodges and other visitors, PPZ has permission to drive off road. In these otherwise private sections of the park they are privy to the wondrous happenings of wildlife in its intimacy: pups encouraged out of the dens, frenetic encounters between predator species. PPZ is more likely to know when and why these species uproot their packs; they can document these otherwise unseen and unrecorded alterations. GPS collars show how the animals move: how far in each direction a pride of lion will wander; the home ranges of adult male hyenas; the relation of dogs to river systems throughout the wet and dry seasons. These locations allow PPZ to conceptualize carnivore activity in a way that is distinct from any other resident or visitor to Lower Zambezi, Sioma Ngwezi, or Western Park. Guides may spot the same

pride or pack kilometres from the first sighting and surmise the distances travelled. But to have these patterns mapped out – to be able to see on a screen the precise movements over a set period of time – reveals the exclusiveness of this technological form of knowledge gathering.

Signals through an antenna and receiver, however, or a constellation of waypoints, are also limited means of explanations. Camera traps can only capture what happens directly in front of them. What occurs behind the camera, what happens in the absence of humans, why an individual animal moved from waypoint to waypoint, are examples of the uncertainties that PPZ can surmise but not confirm. The mark of a collar is evidence of desire for more information, for partial access to the otherwise inaccessible patterns of elusive species. And in order to gain this access, one must necessarily be connected to a Northern market for this particular kind of wildlife study. PPZ purchases collars from Telemetry Solutions in the U.S., Global Supplies is another collar and tracking equipment manufacturer in South Africa. The tools and means for this work in Africa are almost always imported. The results, the data collected, the behaviours and patterns identified are, in turn, exported as the gathered material for scientific publications, the evidence that further funding should be granted, and the foundations for Masters and PhD degrees.[10]

"The highest emphasis on the data collected is placed on peer-reviewed scientific papers," Alex answered in response to an interview question about what becomes of PPZ data. "If the quality of research passes peer review, it is legitimate. We try to make sure that the data goes through that, and then we can use peer-reviewed articles for policy and popular articles. But we can't always wait and we can't always have enough data; it can take years to get out peer-reviewed articles. Our data is used to inform management as quickly as we can, so that would be ZAWA and African Parks. But we do not promise raw data to people," he emphasized. "People who are not scientists view that as odd. The bottom line is that raw data forms the basis for funding, students' graduate degrees hinge on that. We share data amongst ourselves but we do not provide it to outside collaborators; if we do that, we risk losing the data. If we do provide any data, we insist on an intellectual property agreement. I strongly believe that raw data does not need to be provided."

The importance of control over how the work of PPZ is organized, and its proprietary interpretation and publication, is not always appreciated. One of the managers of African Parks who works in Western Park has requested that Alex share the GPS locations of various collared animals. This is another value in the collar: what it allows and what it produces remains the property of those who manage its functions. The collar is not only an expensive material item but also a valuable tool for generating more income. What it reveals can potentially lead to further study, more questions, and new technological methods to decipher exactly what happens in the invisible realms of wilderness.

The collars connect these species to the international arena of wildlife study and interest. Predators are the most popular species across the study sites and they receive a kind of international attention and exposure that is unique to charismatic and endangered megafauna. There is an implied broadening of knowledge that occurs when the information from these devices is transmitted abroad; the global community of wildlife fans and conservationists are satiated with numbers and descriptions, and what matters is

that they think that they know the statuses of wildlife -- one step further to being able to control these conditions. The general public pays attention, stories about wildlife engross the global North, and researchers and conservationists are devoted to learning more.[11] The more the researchers know, the more confident they are in predicting future patterns, and can thus contribute more substantially to discussions about how to ensure species' futures.

One lioness, Chamilandu, named for an area outside of the park that she frequents,[12] had a GPS collar that was set to drop off in early August.[13] After the drop off date for a collar passes, it will cease to transmit a signal and thus locating the lion reverts to chance. Alex was frantic about retrieving this collar in the beginning of August; he scheduled multiple aerial tracking flights through a private charter company to get a GPS location on her from the air, which he then used to try to find her on the ground. Tracking flights are expensive – around $500 for an hour of flying – and they are not included in any of the PPZ budget lines. "I don't care," Alex said. "We will zero the account to get that collar. If we lose the collar, if we lose all of that data, then why are we here? We have to justify why we do what we do and if we don't have the data then how can we?"

Afterwards, Alex told me that when he fitted this collar on Chamilandu he super-glued the ends that were meant to separate at the time of drop-off. The issue was not that the collar would be physically lost (it was secured on the animal), but it would stop working, no signal would transmit, and so she would be more difficult to find. Alex and I conducted an aerial search in late August, and although he picked up a signal on the edge of the park, neither he nor Zach could find her on the ground thereafter. In the meantime, Alex had heard a rumour about an injured lioness. "If that's her and she dies, we lose the collar," Alex said to Zach before he left for three weeks in Western Park. "Find her."

In early October 2012, she still had the collar. Max, Alice, and Ison packed for several nights to look for her. "Okay, see you the night after next," Max said before they drove off. "You will stay out until you find her," Alex corrected him.

They found her after two days, with other members of her pride, lying in thick riverbed sand. Having run out of water, Max and the others raced back to camp to re-stock on supplies; they were in and out in twenty minutes. Alex followed shortly thereafter, with several litres of water (to keep the animal cool during immobilization), his dart gun, drugs, and camping supplies. Dr. Banda, a veterinarian from a district 50 kilometres away, and a ZAWA scout accompanied him for the darting. They rushed to camp in the early afternoon to collect water and other supplies, but forgot a jerry can with an additional 20L of diesel. En route to meet Max and the others, who were waiting at the lions, they ran out of fuel. Two employees of a nearby hunting concession eventually passed them and they promised to bring diesel. They returned over an hour later and Alex was then able to continue towards Max. As Alex approached the riverbed, the vehicle got stuck in the sand and Alex, using one of the emergency satellite phones, called Max to tow him out. Finally, hours after they had left camp, Alex and the others arrived at the pride. The darting went smoothly, the collar retrieved, and a new collar fastened. The convoy returned to camp at 3:00 the next morning. After a few hours of sleep, Max held his breath as he began to download the collar's GPS data. It worked. Within an hour, he had a Google Earth map generated of over a year's worth of her movements.

The desperation, determination, and expense that were deployed in an effort to maintain control over this one collar attest to the daily emotions involved in wildlife research. The panic generated over the potential loss of the collar was not just an attempt to secure a very expensive piece of research equipment, though of course that was a consideration. Rather, this collar symbolized personal and organizational success in 'knowing' the animal and its data would act as an indirect gateway for further funding. The collar held the evidence of research productivity and the benefit – both personal and professional – of this kind of research. It also served as a tool for confirming the PPZ role within the international conservation alliance. To lose this collar would have been both an economic and immaterial loss and, moreover, it would have de-privileged the specificity of the scientists' engagement.

(RE)CASTING AND (RE)BUILDING

The collar connects the researcher, the conservationist, to the information that is meant to help determine how the species should be managed to ensure its long-term survival. It is a point of access for these species to the international world of conservation and wildlife enthusiasts, to funding bodies, and to the ecological academy. Through scientific and popular publications and through publicity material, the collars speak to and connect an eager Euro-American audience to the details of some of Africa's most sensational mammal populations. Indeed, in some research projects the signals from collars are broadcast online so that the general public can follow the plights of particular species through the collared individuals.[14] The longevity of these projects is contingent upon continued international interest; and continued international interest is demonstrated through research funding for further enquiries into how these species survive.

Debates over which habitats and conservation policies are "best" for specific species do not always reach conclusions from international conservationists. In Zambia, for example, the issue around legalized predator safari hunts has been long debated. Additionally, there are many conflicting opinions on how parks should be governed for the benefit of their wildlife[15]: should they have fences, should extinct populations be regenerated, what forms of human intervention are necessary? The international powers of conservation have, however, unanimously concluded that certain species are rapidly declining and wildlife managers must now prioritize their sustainability. The tourism sector reiterates the urgency for both particular populations and nature writ large: "Endangered species: Wildlife to be viewed before it's too late".[16] [17] The implied message of international conservation interventions, of the dozens of WWF, WCS, CI, IUCN, and other satellite offices across Africa, is that African countries cannot ensure the future of these species without Euro-American support and direction.

In Western Park, African Parks has endeavoured to "[put] the ecosystem back together" after the degradation from the Angolan Civil War (Africa Geographic 2011: 40). Where lions were once the dominant predators, now hyena have assumed the role of top carnivore as all lion but one, Lady West, vanished as a result of the war. Similar to the PPZ relationships to their studied species, African Parks built up emotional attachments to animals in Western Park, most publicly with Lady West. Indeed, National Geographic made a film about Lady West, entitled *The Last Lioness*:

> A haunting call echoes across the [Western Park]. There is no answer, there hasn't been for years. She has no pride, no support – she alone must safeguard her own survival. Her name is Lady [West], and she is the Last Lioness. Isolated by a scourge of illegal trophy hunting that wiped out the rest of her species in the region, Lady [West] is the only known resident lion surviving on Zambia's [Western Park]. For four years, cameraman [Henry Bracht] watched her lonely life unfold, until, in her solitude, she reached out to him for companionship.[6]

There is something about 'living with' animals that leads to deep interspecies engagements, writes Eben Kirksey and Stefan Helmreich in their paper on multispecies ethnography (2010). This 'living with' animal subjects may indeed lend to the affection that develops around individuals such as Lady West, or around saving entire populations. Organizations like African Parks and PPZ constantly try to protect their subjects, in the process exposing the fictional elements of their objective/research-driven focus. To name this contradiction is not to shame PPZ or its publicized detachment; rather, it is to show that all of the engagements around wild, charismatic megafauna reveal the very personal and political nature of their functions. It is to show that 'living with' and living for non-human animals is always driven by the perspectives with which one comes to the field and indicative of the Euro-American obsession to save and protect the vulnerable species of Africa. To name these subjective and 'globally' endorsed viewpoints helps to disentangle the complexity around wildlife research and conservation and make sense of national scepticism and distrust of organizations like PPZ. There are indeed other, protective motivations behind researching carnivores, which channel Northern concerns over African management of endangered species. Further, these concerns implicitly assume that African management in general has 'not yet' adequately conformed to eco-modernist precepts and practice (Ferguson 1999). These international provocations have worked to shift the powers of decision-making – from ecosystem reconstruction to moving dog faeces – away from the theoretically autonomous post-colonies.

In 2009, African Parks re-introduced three male lion to help Lady West rebuild her pride, two of which survived the approximately 500 km displacement. The plan was for these males to mate with Lady West and, over time, slowly repopulate lions in Western Park. Despite several mating episodes, Lady West did not conceive. In 2011, African Parks re-introduced two young females, with the hope that these younger lionesses would successfully mate with the males and revive their species.

In October 2011, Stephen Cunningham from Africa Geographic wrote an article about the cooperation between PPZ and African Parks in reassembling Western Park:

> While restoring the populations and diversity to historic levels is one of the most obvious objectives in ecosystem rehabilitation, understanding the dynamics and interactions between species within a carnivore community is the real key to effective management and conservation of these vitally important animals (Cunningham 2011: 40).

While both females survived the relocation, they did not react to their surroundings or to the male lions in the prescribed fashion. Both took off from the central area of Western Park, Nyika, where Lady West and the two males were resident. Through their collars, the females were located in the northern area of the park, close to the Angolan border. Alex darted one of the females and brought her back to Nyika, yet she

soon vanished again. In April 2012, one female was discovered dead, presumably from injuries caused by a snare wire. The other female was located in the far north and in May 2012 African Parks brought in a helicopter and veterinarian to dart her from the air. Alex, Dan (a visiting collaborator on the NSF Grant), and the park manager for African Parks followed in a vehicle. The vet darted her from the helicopter and she ran directly into a pool of water. As Alex reached the spot where the helicopter had landed, he saw the veterinarian wade towards her, with a pistol in one hand for protection, waiting for her to fall unconscious so that he could immediately lift her head out of the water.

Alex and Dan ran in behind him and Dan grabbed her by the tail, ready to help pull her back onto dry land. As he took hold, in her partially drugged state, she turned to growl at him. As soon as the drugs took effect, Alex, Dan, and the vet heaved the 150 kg animal out of the water and lifted her onto a stretcher. The helicopter pilot elevated the aircraft and steadied it exactly in line with the men and the stretcher so they could slip the animal easily onto the helicopter. The pilot and vet flew straight to the Nyika enclosure where, it was decided, the female would be held in an attempt to suppress her tendency to roam. Two months later, the vet darted Lady West to put her in the enclosure as well, in the hope that the two lionesses would bond – a further attempt to encourage the young female to remain with the other lions.

These grand interventions show the hands-on side of wildlife management. In this episode, the collar allowed the researchers and managers to locate the animal and target her for more pre-arranged relocations. The human directive for bringing these lions into Western Park was to re-populate the species. In this instance, the collar served as the tool for knowledge and physical control over the animal. The physicality of the above operation was extreme: hauling the lion out of water, running with her on a stretcher. An operation to move her, quarantine her, and tame her to act according to the restored ecosystem agenda. I wonder how many helicopters have airlifted human patients out of Western Province, Zambia? How these episodes must befuddle the Zambezi fishermen, who see aircrafts primarily, or exclusively, in association with the management of wild animals.[18] African Parks owns a single engine Foxbat A22 aircraft that often flies between the Nyika airstrip and Racana, the closest town. Tens of thousands of dollars in time and equipment were invested in this one act, which symbolized an entire future for the lion population of Western Park.

What transpires in these moments of ecosystem manipulation is attempted sovereignty over 'the natural'. This desired control is one for which there is endless Euro-American funding; indeed, WWF-Netherlands also has a European project underway called "Rewilding Europe".[19] The disappearance of lion as the primary carnivores in Western Park has created an opportunity for hyena to occupy this unique niche. The landscape has changed. The project of reversion, however, exemplifies the internationally fuelled desire to keep the African bush familiar and in-line with older Europeans notions of the 'wild' colonies.[20]

In the same article, Cunningham ends with optimism for the revival of Western Park:

> More lions are slated for reintroduction in the near future and, while full restoration will take many years, the sight of a lion pride with cubs splashing across the waterlogged plains would be a prophetic omen of [Western Park's] imminent recovery (Cunningham 2011: 44).

Despite material access, despite helicopters and veterinarians, this prophetic omen is not yet in sight. Three lion out of five have died in the project of re-writing Western Park history (the other male disappeared recently after wandering into Angola; he is presumed dead). Lady West never conceived, and the other female was forcibly returned to the other lions twice. Even with the technology and the support of international donors, African Parks and PPZ have not yet succeeded as the sovereigns over Western Park.[21]

MONITORS

The flow of information from carnivore to researcher as allowed through the collar is, in many ways, similar to the interpretive role of researchers for their supporting conservation organizations. To sponsor the accumulation of knowledge about particular wild species and spaces is to partake, vicariously, in the adventure of collection. International conservation bodies want to see certain methods enacted and questions answered; they will fund specific elements of a research project to ensure that their interests permeate how 'the natural' is understood and managed. Moreover, some funders will demand that requirements be met before they actually disseminate money.

"Donors will tell ZAWA: 'you must do this first,'" Dennis Phiri, Assistant Ecologist for the ZAWA Zambezi Research Station told me. "And so we rush to do it. And then … nothing. This is how ZAWA gets treated. There is always a form of weak trust between ZAWA and funders."

The principle behind these kinds of relations, however, is not unique to ZAWA. For PPZ, funding is to an extent contingent on output; PPZ must provide well-collected and researched information on its focus species and prove that the organization is contributing to management decisions and broader Euro-American knowledge. This funding provides both the organization with the means to undertake such study and it allows its supporting conservation bodies perceived control over the future of Zambian wildlife. Furthermore, the logistics of entry into the protected areas are controlled by ZAWA: a ZAWA scout must accompany each PPZ excursion into the parks, and he must be present at all immobilizations, both within and outside of protected areas. The high-end tourist lodges in Lower Zambezi demand certain etiquette around their properties and guests requiring PPZ to schedule their work according to lodge locations and activities (e.g., game drives). The hunting industry – the largest revenue generator in Lower Zambezi – does not want researchers in their hunting concessions despite their obligation, as mandated by ZAWA, to hand over tissue and blood samples from all lions shot on trophy hunts.

All of these expectations, restrictions, and requirements result in a complicated matrix of contested control around who gets to decide on the fate of these species. PPZ tries to conceal and protect their species of study; ZAWA permits and restricts access to these species; poachers set snares that entangle carnivores and their prey; funders have specific expectations as to how predators should be treated; tourists – consumptive and non-consumptive – carry their own perspectives on why carnivores matter and how they are meant to be captured; Zambezi Valley residents hold their respective understandings and histories with predators. These tensions are ever-present and they comprise the social context within which PPZ operates. 'Global' politics overhang each action and these

competing notions of how the area should be managed, how certain species should be treated, chafe one another on a daily basis. To borrow Anna Tsing's (2005) metaphor and prerogative, it is intellectually useful to view the friction that develops as a result of these competing motivations as more than simply incompatible priorities.[22] There is something else that can be cultivated from these dynamics, something that tells us more about the global precedents set for wildlife management, by whom and for whom they are set, and why this matters in the post-colonial world of conservation. What emerges on the ground is the contemporary, unavoidable messiness around how African countries are meant to re-modernize according to the terms set by their Northern allies.[23] PPZ, through its evident capital and material claim on a number of individual animals, constantly represents and inherently speaks for these Northern mechanisms of eco-control.

MANIPULATED CONSERVATION

The ever-increasing human populations around protected areas have had and will continue to have effects on the environment of the area. More people require more food, and hunting, both for subsistence and commercial gain, is likely to increase. Snaring animals as a cheap, quiet alternative to rifles will become more prevalent. This kind of impact on the land surrounding national parks will have repercussions for protected areas, and resident species – both carnivores and their prey base – will decline further. When ecosystems are put under this kind of increased human pressure, often the top non-human predators are the first to vanish; they typically need big tracts of land and that land is increasingly otherwise occupied.

This is the advertised trajectory along which many of Africa's wild places currently proceed. And it is on this trajectory that the globalizing movement for 'saving nature' and rebuilding nature encounter priorities for rural development that favour more direct access to urban livelihoods. The significance of rural to urban development, and moving out of and beyond the African wilderness, is particularly salient in Zambia, which experienced an economic crisis in the 1970s and '80s that resulted in mass urban to rural ('reverse') migration. This economic crisis came after the 'modernization' and urbanization of Zambia in the 1960s when it was considered a "middle-income country," on the same lines of the less developed European nations (Ferguson 1999: 5). Thanks to the booming copper industry, people in Zambia briefly enjoyed "first class" modern lives with some of the everyday luxuries – fancy clothes, steaks in restaurants – of developed nations. When the economy crashed, however, Zambia as it was in the 1960s vanished, the country was again demoted in the "worldwide ranking of things," and "modernity became the object of nostalgic reverie, and 'backwardness' the anticipated (or dreaded) future" (Ferguson 1999: 12-13).

Ferguson uses this episode in Zambian history to highlight the "mechanisms of membership, exclusion, and abjection upon which the contemporary system of spatialized global inequality depends" (Ferguson 1999: 236). In other words, the terms of modernity, which are negotiated by those countries that are the most developed, the most modern, are set and re-set according to their informed perspectives on what is 'best' for (the "not yet" there countries') democratic development and what is 'best' for the planet. Unlike in the era of African industrialization, the current themes of advancement are on maintaining wildness and incorporating environmental sensitivity and green philosophies

into plans for national growth. Eco-modernization has become an essential component of the socially modern world and if 'developing countries' want to catch up, at least socially, to Euro-America, then they must too re-adjust their own national prerogatives (Spaargaren et al 2000). Bringing wild back is the new modern, which means there is now a different, revised set of questions (What is the material of that suit? How was the cow slaughtered?) and goals for 'sovereign' states to address before they can be accepted as such.

In November 2011, the PPZ base in Lower Zambezi was robbed in the middle of the night. An unknown number of intruders broke into one of the office buildings and stole thousands of dollars worth of equipment. By coincidence, Jan got out of his tent to use the toilet and his movements must have interrupted the theft. When the break-in was realized the next morning, the majority of the office materials, including a desktop computer, an additional laptop, food, camping equipment, phones, and more were all in place. The only items missing were one laptop computer, a Canon camera and its accessories, and lion tissue samples from the deep freeze.

What can explain the choice to steal lion samples over and above expensive electronics and equipment? For PPZ scientists, the material that is deemed valuable in the context of an internationally funded research organization speaks to 'global' conservation priorities. Perhaps the theft was an attempt to gain access to these exclusive international markets for saving African species, these markets that supply multiple Land Rovers, a host of computers, and three bases full of gear. "We are here for the data"; the data, the samples, are what secure the sustained inclusion within these markets. The more analyzable species samples that are collected, the more there is to discern; the more papers and prestige that come from these activities, the more money that is likely to appear for future support. These samples are of the highest symbolic value for PPZ and they are also the most important link in the chain to further funding; they represent both the abstract and material economies of wildlife (Suzuki 2011: 602). So while everything else in the office lay untouched, the most valuable assets were, in fact, removed.

Moving faeces and removing frozen lion tissue are both political acts by people who disagree on the prioritization of wildlife in Zambia. The former is an attempt to improve the chances of carnivore survival in a country that, implicitly, does not do enough to protect its species; the latter is an affront to the international conservation economy that revolves around non-human species in Zambia but does not manifestly benefit Zambians. The materiality of the wild has obvious monetary value, which makes it worth saving for some and for others worth selling. This antipathy hinges on questions of control over non-human biopolitics: in this world of post-colonial sovereignty, why is it acceptable that organizations like PPZ are internationally safeguarded in their research and conservation of certain species, when the sale of wild meat or animal skins might bring immediate, identifiable returns? How do Zambians, in their every day sensibilities, reconcile the controls that are still placed on formerly-known-as-third-world nations by the now eco-modern, environmentally conscious North?

In this chapter, I have examined some of the confounding, contradictory, and creative ways in which control and management take shape around carnivores in Zambia.

The perceived and received privileges that are evident through the activities of PPZ echo a contested history of conservation in the Zambezi Valley. The difficulties that develop along the PPZ path to knowing and saving carnivores provoke deeper questions about national sovereignty and what it means for organizations like PPZ to have the support and power they do. The technologies and the gestures of PPZ are consistent reminders that they are entwined within the Euro-American institutions of conservation, from which the wider publics of Zambia – including the Zambia Wildlife Authority – are excluded. This alienation, to which I now turn, is opposed by ZAWA through their restrictions on PPZ and it is otherwise traversed quietly, but resolutely, through the doubts and disbeliefs of Zambian onlookers.

Chapter 2: Wildlife Sensibilities in the Post-Colony

"When ZIRDP came in the 1990s, they talked to villages, they used drama and other means, with the message that conservation can bring money; they had printouts and drawings and they told us that we own the animals. Those were better days for conservation. ZIRDP gave cash to anyone with a national registration card; I got 14,000 ZMK and I bought 2 KGs of sugar. This was a time of heavy poaching and people had an evil feeling about conservation. The message of ZIRDP was that these are your animals, you should get the benefits. Giving cash was the fastest way to get people's attention."[1]

Dennis described for me some of the first public uses of the word "conservation" by foreigners in the Zambezi Valley, specifically the Zambezi Integrated Resource Development Programme (ZIRDP), a community-based conservation strategy that was implemented from the late 1980s until late '90s with funding from NORAD.[2] The financial and other support for ZIRDP were eventually blended with the wildlife management unit when it transitioned from National Parks and Wildlife Service (NPWS) to the Zambia Wildlife Authority (ZAWA) in the late 1990s. ZIRDP was subsequently criticized for presenting residents around the Lower Zambezi National Park with cash handouts; but, as Dennis explains, this was a direct method to promote the correlation between conservation of wildlife and monetary rewards.

Beyond the methodology, ZIRDP delivered a powerful message: these are your animals and you must benefit. Benefits were defined by ZIRDP as immediate remuneration, and this approach made an impact; almost 20 years later, Dennis can still remember exactly how much money he received and what he purchased. Effective conservation can sweeten your existence: this was the sentiment iterated and reiterated through the community-based approaches to conservation.

But this strategy did not reflect the everyday outcomes of wildlife conservation; people do not see these kinds of material returns on a regular basis or in such directness. Rather, the "benefits" come in the form of job creation, through a market for healthy wildlife that is appreciated by international tourists.[3] By not killing the animals, by ensuring that their habitats and corridors remain intact, the residents of the Zambezi Valley will contribute to the long-term survival of their species and landscapes. The longer these populations remain, especially those that attract the most attention and the most income, the more revenue will flow through the Zambezi Valley. And with more money available in the area, the chance that it will manifest in people's everyday lives is greater.

The messages of ZIRDP and another community-based programme that ran concurrently, the Administrative Management Design (ADMADE)[4], specified that residents alongside protected areas ultimately have control over their surroundings; ultimately they are the owners and managers of these species. They did not, however, clarify the limits to the definition of 'ownership' for both the people who live with wildlife and the countries that house endangered species. An owner, in the most conventional understanding of the noun, has sovereign choice over that which s/he owns. Ownership in the context of community-based natural resource management, however, is

managed within a particular framework, delineated by the canon of international conservation, which a priori dispossesses any one person, community, or country 'ownership' of "global priority" species.[5]

Organizations like PPZ enter this conversation with the scientists who help determine how parameters of 'ownership' should be set. They are meant to provide local governments and wildlife management bodies with "solid bases for establishing conservation priorities," (Ceballos et al 2005: 603). In other words, they lay the factual groundwork from which larger policies and schemes for environmental protection are to be constructed. The nation state is supposed to serve as the primary actor to ensure such policies are carried out (Frank et al 2000). In so doing, the nation state cooperates within a particular discourse of environmentalism, one that asserts the importance of the 'global' and the worldwide benefit of effective national conservation (Frank et al 2000). This discourse of environmentalism is also dictated by the impending urgency of saving certain species and spaces: this is the reason why CITES broadcasts their "Red List of Threatened Species," so that action can be taken to salvage their futures (Rodrigues 2006). The level of anxiety around protecting certain fauna depends on where it is geographically located, and direct action is prioritized for countries that are "identified as being most at risk, having both exceptionally high richness and endemism and exceptionally rapid rates of anthropogenic change," (Ceballos et al 2005: 603). It is in countries like these where "an unprecedented international effort will be needed – one requiring the development of both new attitudes and institutions," (Ceballos et al 2005: 606). In other words, the global must supersede the local so that international conservation institutions can "stimulate local authority by providing a big-picture perspective on the current and projected status of biodiversity on the planet," (Ferrier et al 2004: 1101).

This 'global' morality over the protection of biodiversity is communicated daily through organizations like PPZ that are commissioned to speak for Nature (Tsing 2003: 164). PPZ represents this global agenda, which is set and controlled by the leading international environmental institutions (for example, UNEP, IUCN, CITES, CI, WWF, WCS). These institutions, through their projects and publications, "make claims for nature and for the globe," but they do so through universalizing terms that make it difficult to discern who is included in this global agenda and who is left out (Tsing 2005: 112). Equally, they make it hard to know exactly when a nation should be allowed in, when its conservation policies are sufficient enough to qualify the country as compatible with environmental, eco-modern precedents. In other words, revised and effectively implemented conservation policies represent more than just 'respect' for national Nature; they demonstrate the social evolution of the country towards the new modern "attitudes" of sustainable living and securing non-human life on earth (Spaargaren et al 2000). The process of eco-modernizing is part of the latest system of global social order through which the post-colonies – those countries with exceptional natural richness – become "labs of modernity" (Magubane 2003: 99, Spaargaren et al 2000). It is in these labs that the new instruments for becoming modern are intended to help create environmental subjects who must then negotiate how they can 'catch up' to the Euro-American exemplars.

The aspirations for new modernity and 'environmentalities'[6] are "stimulated" through the same geographical hierarchy that induced the industrial phase of African modernity in the 1960s, '70s, and '80s, and the colonial policies of pre-independence (Agrawal 2005). These sustained (now Green) imperialistic undertones of international mandates do not go undetected in post-colonial nations. Eric Worby (2003), through an analysis of the current state of Zimbabwean political affairs, tries to make sense of why Robert Mugabe responded as he did to perceived threats to national sovereignty: "the sovereignty of states is implicitly accepted as absolute in international law; yet the question of the limits and legitimacy of sovereign authority are constantly called into question," (59). This judgement also manifests through the policies and priorities of international conservation institutions: they 'help' post-colonial countries to manage their wild areas for the 'global good' and, in the process, dispossess these nations of their sovereign right to categorize wildlife protection according to domestic values. The resulting "post colonial suspicion of the universal" then appears in unexpected, peculiar forms, which challenge the disguised agents of the environmental mission to Africa (Chakrabarty 2009: 220).

As a means to engage the "evil feelings about conservation" and the possible contradictions of conservation operations, the Zambian publics of Lower Zambezi make use of "occult cosmologies," defined as "systems of belief in a world animated by secret, mysterious, and/or unseen powers," (Sanders and West 2003: 6, Comaroff and Comaroff 2003, White 2000). I experienced such suspicions towards PPZ through the rumours and accusations of possible illegal and elicit components of their research. These doubts are interpreted by PPZ as a result of insufficient communication, a fault for which they readily take responsibility. But the anxieties about wildlife research and conservation are much bigger than PPZ.[7] These suspicions also emerge in reaction to other NGOs and wildlife professionals that arrive in Zambia, and they speak to the general distrust of hegemonic conservation policies. These stories of wildlife theft point and prod at the unknown, forceful mechanisms behind global environmentalism and, in the process, they confront the latest criteria for modernity. They identify that through the workings of global conservation, Zambia and Zambians are deprived of something that is difficult to substantiate. Instead, they speak their disquiet through rumour[8]: PPZ (and the institutions for which it works) is taking something away from us. Exactly how they function is not clear, which is why they are monitored, restricted, and publicly questioned: all of these tactics serving as means to get closer to the hidden powers of their operations. In the process, the people of Zambia who are made to live with the latest logics of conservation push against the promise of global good and future environmental benefit by insisting that these agendas are not transparent, not honest, and somehow leave Zambia with less than it had before.

This chapter looks at the disconnections between the paramount international conservation discourse and the people who live in and manage wild areas. The language of wildlife ownership in the Zambezi Valley has a long history. Community-based natural resource agendas appeared across southern Africa in the '80s and Zambia was one of the first pilot countries. While the programmes may have been scrutinized heavily for their shortcomings,[9] the message that they delivered was heard: What is here belongs to you. However, exactly how wildlife was meant to 'belong' to the residents of Lower

Zambezi, or to the country of Zambia, was not specified through community-conservation programmes but instead remained – and still remains – with the invisible world of conservation decision-making. ZAWA, as I will describe at length later in this chapter, has to consistently perform for these conservation authorities and their demonstrations are marked with resistant tones. PPZ serves as a constant reminder of the power, control, and priorities of outside wildlife regulators and, in turn, the organization is met with the lived exhibitions of this resentment. It is not just ZAWA that displays these discordant standpoints. Rather, the various publics around Zambia's protected areas harbour deep suspicions about the activities and ethics of foreign conservationists and researchers. Contrary to the dismissive comments that I occasionally heard from international conservationists, these outlooks are not irrational.[10] Quite the opposite: it seems as though the doubts around wildlife organizations stem from a larger sense of isolation from the new 'global' terms of modernity.

MATTERS REMOVED

Dr. Armstrong Milimo was trained as a veterinarian at the University of Zambia, and he continued to complete his MSc in wildlife health at the University of London. Thereafter, he was appointed state veterinarian of Botswana and went on to become Head of Veterinary Services for ZAWA. He is now a PhD student at the University of Montana and is completing his fieldwork in Sioma Ngwezi Park in conjunction with PPZ. I interviewed Armstrong during his trip to Lower Zambezi in June 2012. Alone in the outdoor office, I sat on the weight-lifting bench, which often doubles as a chair, while Armstrong positioned himself in a more conventional seat across the room. Armstrong is a tall, thin man in his 40s, with a gentle demeanour that reveals almost immediately his deep religious convictions. This was the first time I had been alone with Armstrong during his brief stay in Lower Zambezi, and the interview allowed for a relative moment of calm in the otherwise whirlwind visit from the NSF collaborators.

I asked him – as a former ZAWA employee – if he could comment on the tensions that surround ZAWA's relationships to foreign conservation NGOs. He replied that "ZAWA has suspicions but no proof and so they become resistant." When I asked him to elaborate, he was reluctant. Towards the end of the interview, I brought this up again and he was a bit more forthcoming: "There were suspicions about disappearing carnivores, like lions in Western park and elsewhere; lions vanish and ZAWA suspects that they were taken by foreign visitors. All of these planes coming in, and they think the animals are going out with the planes. So they suspect this, but they won't confront it and then when someone comes in who wants to dart, they are resistant but won't necessarily talk about their reservations."

This was the first time that I was introduced to this widespread, national suspicion around Zambian wildlife. At first, like most of us in Zambia who fit the category of foreigner interested in wildlife, I thought: but why would foreigners want to take carnivores? Aside from the growing market for lion bones, to which someone claiming conservation as a profession is presumably not connected, what would be the use? Lion are not rhino, and even their valuable structures are worth only a fraction of a rhino horn. But then I thought of the translocation in Western Park. What did people think when they were told that the helicopter was used to airlift lion?

"It started with *Save the Rhino*," Alice explained. Alice represents a middle ground between international conservation and Kiambi wildlife perspectives. She was identified as an exceptional student early on and was academically sponsored throughout her secondary studies in Zambia. She then received further sponsorships to study in London and Canada. She returned in May 2012 from the University of Toronto with a BSc in biology and she now works fulltime for PPZ. As someone who has grown up on the outskirts of the Lower Zambezi National Park but with substantial international schooling, Alice's interpretations were immensely helpful to me. She is acutely aware and appreciative of the tension around conservation, but she has also had many arguments with friends and members of her family over the significance of wildlife research. While she values her academic interests and profession, Alice is also sensitive to how the activities of PPZ are comprehended and the anxieties that develop around conservation and research.

"This area hasn't had a history of conservation organizations for the long-term. The only one that has been here is *Save the Rhino* and it came too late. But it led to the association of conservation organizations and the disappearance of whatever species that they claim to conserve. Phil Berry [a long time British safari guide in the Valley] started working with *Save the Rhino* and they disappeared. The suspicion was that they shot the rhinos and sold their horns. I understand why people feel like this. You hear stories about groups of people ferrying animals in and out of the park. I heard one story of an overland truck taking a leopard from the park and then the truck broke down on its way to Lusaka, the drugs wore off, and the leopard fled. I understand how stories fuel suspicion; it's about helping people to understand how the two situations are different. Rhino poaching was a big syndicate across Africa and it came into Zambia in the 1980s. For wild dogs, there is no market for their bones and skin.

"I don't think that people separate research and conservation. The biggest suspicion is that you extract something that you dart and then you sell it to make money. I think 80% of the people here think like that, it's very widespread. It is the first thing you hear when you start talking: 'I have this suspicion.' PPZ started as African Wild Dog Conservation and said they were here to conserve wild dogs, same as *Save the Rhino* said they were conserving rhinos – and then they disappeared. People feel cheated out of possibly valuable wild dog bones and tail – that there must be a market for these and they're not aware of it. They suspect PPZ of stealing wild dogs, and they think this is happening in my backyard and I'm supposed to benefit from it. Guys come in and take our stuff and make money from it."

Ben, the operations manager for the Lower Zambezi Conservation Society, explained to me how these sentiments affect the reception of PPZ in the Zambezi Valley. "When the Rhino Trust came in, there were a lot of rhinos. PPZ is being viewed as the same; wild dogs have disappeared. Older people who saw the rhinos wiped out think that PPZ is the same. Some people who bring out these stories actually worked for *Save the Rhino Trust*. They think NGOs are taking the animals out to be kept in zoos. It's the issue of taking something that belongs to them. That is the feeling that people share after three or four beers."

"I get questions from people when I'm home, especially when I wear my PPZ t-shirt," Moses said. Moses is the camp hand and trainee mechanic at the PPZ base in Kiambi. "People have suspicions about PPZ and how they might play a role in the low number of carnivores, just as *Save the Rhino* came in and the rhinos disappeared. But I ask them: what would they do with a captured or killed carnivore? A carnivore is a not rhino."

The lasting suspicions about *Save the Rhino* certainly affect how PPZ is viewed in Lower Zambezi; but, as indicated by Armstrong, this distrustful association of conservation organizations and researchers extends beyond Zambia's Lusaka Province. If PPZ is well-equipped to study these animals, if there are cars, campsites, planes, then obviously there is money. "People make a distinction between conservation organizations and lodges," Alice said. "When they see car loads of tourists, they know how the money comes in. But how do you explain a non-profit? Why do they settle in the bush and not in town, people ask. What do they want to do in the bush that they're hiding?"

This issue gets at the crux of the discomforts around 'global' conservation efforts. The concern that foreign conservationists are taking something, that this agenda for 'global' nature serves the interests of only a select group of people, is of course much more comprehensive than just PPZ or *Save the Rhino*. These are the kinds of stories that people rely on in an effort to make sense of their alienation; how they "expand ways of better coping with the forces that animate their world," (West and Sanders 2003: 17). For the people who reside in Lower Zambezi, these forces are not entirely clear; they are abstracted inequalities, the international mechanisms that get to decide how wildlife should be treated and understood. When organizations like PPZ and *Save the Rhino* arrive to wilderness areas, they reiterate – through their very presence – that the people who live alongside wildlife are the recipients, not the writers, of internationally set conservation protocols. And while these protocols are meant to be transparently for 'global good,' there is still no manifest betterment to those who are supposed to gain from wildlife conservation. In turn, these suspicions serve to "decertify power's claim to transparency, calling attention to its hiddenness behind an impenetrable façade" (Ibid: 16). How the powers of conservation function, what their agents in the forms of PPZ and *Save the Rhino* do to fuel this mysterious, unseen world of conservation control, are questioned and rejected through rumours of conspiracy.



Figure Two: Jan holds open a male lion's mouth for incisor measurements and photographs. He has a syringe in his left hand to take blood samples.

What's more, PPZ does, in fact, take wild matter in the form of faeces, blood, tissue, hair samples, and photographic documentation. All of this information is eventually exported, and the bio-matter, photos, GPS points, and observations are channelled through an international system of academic analysis. These get used to help the powers of conservation make sense of

carnivore populations in Zambia. The information is published and publicized in Euro-American journals. Aside from the reports sent to a limited number of ZAWA managers, the material on these species evaporates from Zambia and the only people made manifestly more affluent from its export are the researchers themselves.

The justification for this kind of foreign-managed research is that it contributes to a larger plan to sustain carnivore populations, a task from which everyone in Zambia and the world at large will benefit. More carnivores lead to more tourism, which results in increased revenue to the areas and eventually to people's pockets. This is the story that is widely sold in areas like Lower Zambezi. Yet still people do not trust this linear allegory; they are aware that there is more to this agenda, that there are greater, discreet powers at play. As a result, the neoliberal nature of the conservation enterprise – that the behaviour of people in Zambia will be driven by a market for conservation, which can be effectively incentivized if it leads to personal profit – is destabilized and its myths of individual gain are exposed. The only individuals who are seen to prosper are the agents and affiliates of the conservation organizations.

When PPZ was robbed, carnivore matter was taken. Perhaps the samples were identified by the intruders as the valuable stuff for wildlife professionals and they obstructed its export accordingly. Or perhaps their disappearance was an act of re-claiming: this matter – in all of its worth – belongs to the Zambezi Valley. Either way, this act revealed the intensity of distrust around PPZ, especially because the samples were stolen before most of the expensive material items in the office. It also, perhaps, helped to confirm public suspicions: PPZ keeps frozen predator pieces in their freezer. They probably ship and sell these. They do take carnivores out of Zambia.

Human Dispositions

The physical removal of carnivores is a suspicion that does not circulate quietly. The day I scheduled an interview with Alex, he was called in to see the Area Warden for ZAWA over such suspicions: "Public concerns over wild dog research," was the one-line subject of his email. The warden had received an anonymous report over concerns about the current state of wild dog populations and how PPZ might negatively affect wild dog sightings. Alex said that this is not the first time he has been summoned over an anonymous report; this has happened in the past with both wild dog and lion.

As a result of this meeting Alex agreed to explain to the District Commissioner the roles and functions of PPZ, as well as give an update on wild dog and lion populations. That same day, Alex and I went for a tracking flight and picked up Shanzi, the Area Ecologist for ZAWA, to accompany us. As soon as Shanzi got in the vehicle, he continued the conversation.

"People are sceptical that they used to see more wild dogs," Shanzi said. Alex was frustrated that ZAWA would not give a name for the complainant.

"Wild dog sightings are actually increasing so the information is wrong. There needs to be more communication," he responded, "just like with *Save the Rhino*."

I asked Shanzi if ZAWA ever addresses these questions directly with the complainants. In the 2010 "Zambia's Conservation Strategy and Action Plan for the African Lion," Alex was consulted as a reviewer and the importance of standardized scientific information for carnivore research was stipulated. ZAWA requested that PPZ

undertake this research on their behalf and formed an official Memorandum of Understanding with PPZ. And yet, there is no defence of PPZ or its activities whenever issues are vocalized; ZAWA always defers to PPZ for an explanation and makes the organization defend itself.

These instances help to unearth the superficiality of ZAWA support and show that such scepticism and concern over conservation activities are felt even at the management levels. In August 2011, after more than a year of being able to conduct vehicle-based observations on their own, ZAWA demanded that PPZ always have a scout accompany them on outings. To observe animals from a vehicle is exactly the activity for which tourists come to Zambia, but no tour operator is required to have a ZAWA scout on game drives. To hire a scout costs money and so this mandate could be seen as an easy way for ZAWA to generate income. Or it could be read as a more complicated restriction and gesture of distrust.

Timothy Banda is the ZAWA scout assigned to accompany PPZ on their outings. "My role with PPZ is just to monitor them, what they're doing," Timothy responded when I asked him about his position with the organization. He said that he appreciates the work done by PPZ in their own monitoring of carnivores because it is important to give tourists information on species numbers, and it is important for ZAWA in their decision-making around hunting quotas. I asked Timothy if people inquire about his work with PPZ: "They ask why I'm monitoring [them]. I just answer that I'm assigned to stay with them for a year." Timothy could not or chose not to go into further detail about this arrangement; perhaps he himself never asked his managers at ZAWA why PPZ requires a monitor. But the supervision of PPZ by ZAWA is not unobvious: PPZ staff have to drive into Kiambi centre to collect scouts or they pick them up at the ZAWA offices and so this arrangement is publicly visible.

In addition to *Save the Rhino*, an American couple named Mark and Delia Owens also shaped the precedent of international conservationists in Zambia. The Owens worked in North Luangwa National Park (bordering Malawi in the east of the country) during the '80s, and what began as a small-scale effort to protect that region from hunters turned into a war between the Owens and 'poachers' in the park. Their militant agenda eventually culminated in a publicly broadcasted shooting of a suspected poacher by the Owens' son. They fled the country and never returned, despite repeated demands for their arrest and trial.[11] The Owens story demonstrates (albeit in the extreme) the assumptions of sovereignty that are also imported when conservationists with internationally designed agendas arrive to save another nation's wildlife. This is a salient example of how the power instilled in particular conservationists can lead to real conflict and combat over biopolitical control. And because the U.S. government and their funders refused to surrender the couple to the national, judicial processes of Zambia, the Owens' – and by extension other foreign conservationists' – license to act according to international and not domestic judgement was reinforced.

Because this couple worked in North Luangwa, their story is told less in Lower Zambezi than are the effects of *Save the Rhino*, but many people know the legacy. Brighton Makula, the former Operations Manager for PPZ, worked for the Owens years ago, and he describes them as truly horrible people. But they were allowed – with support from their international funders – to set their own terms, to vanish in the invisibility of

the bush and conduct themselves without any regulations. It is not a surprise that the term 'conservation' is so arresting in Zambia, nor is it surprising that anyone who claims the profession is regarded critically. The attitudes of Zambians towards conservation seem to have hardened since the days of buying sugar with safari hunting revenue, which is perhaps in reaction to the now extensive, internationally set regulations for wildlife. As a result, ZAWA has assumed stronger bureaucratic control and, at times, non-cooperation; "weapons of the weak" are drawn to exhibit some authority over the areas that are supposed to be managed according to Zambian priorities (Scott 1985).

UNDER-WRITING

PPZ is suspected 'by 80%' of the general public of extracting carnivores, and they are also questioned by ZAWA, their theoretical allies in the conservation of wildlife. If ZAWA had the resources to conduct this kind of research and monitoring on their own, if ZAWA were supported by WWF for carnivore study and not PPZ, how might these dynamics in Lower Zambezi be different? Would ZAWA be able to acquire access to the international conservation arena with the same fluidity? When Alex took over as CEO from African Wild Dog Conservation (AWDC) and expanded the organization to include all major carnivore species, the organization was already supported by WWF-Netherlands. A new funding cycle enhanced that support, with supplemental backing through Australian zoos and U.S. universities. Now there is additional funding from the National Science Foundation, new vehicles, and new faces that come and go as a result of these funds. Armstrong's university fees and fieldwork are funded by NSF; Kanga Mayaba, the Project Leader for PPZ in Western Park, will begin a Master's at the University of Montana in 2013, also funded by NSF; Zach Fox is paid as a post-doc through NSF. "I like how NSF has become personified," Zach remarked at some point in the field season, amidst several discussions on the kinds of equipment and logistics that NSF could fund. "Can NSF pay for this? Will NSF fund that?"

PPZ represents a set of elite connections for the international staff and volunteers and its Zambian employees and affiliates. The organization is connected and connects people – biologists – to the powers and precedents of international conservation bodies as well as to the world of wildlife scientific study and academic research. They are tied to wealthy institutions that are largely inaccessible to the residents of Zambia, and the reminders of this inaccessibility – the faces of visitors, the publicity around PPZ Zambian staff going abroad – are constant. International biologists are people who prosper from the world of international conservation in ways that most residents in wildlife areas do not. For PPZ, the benefit comes from the materiality of the carnivore as a subject of science; the carnivore serves as a gateway to international economies of research and conservation.

Missed Connections

The work of PPZ, however suspect, is officially permitted and necessitated in Zambia as part of a national and regional carnivore conservation programme. ZAWA has published several reports on lion conservation strategies since the early 2000s, which followed an international mandate for countries with lion populations to ensure that these

numbers remain at sustainable levels. In 2005, ZAWA published the "Field Manual to Facilitate Lion Study in National Parks, Game Management Areas and Open Areas in Zambia." The introduction includes the rationale for the report: "The commencement of this initiative to conduct Lion study is based on the current international pressure to amend Appendix listing for lion from Appendix II to Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) … Despite the lack of accurate estimates of the lion population in the country, Zambia feels that the species does not qualify for an instantaneous uplifting to Appendix I. Unjustified uplifting to Appendix I would have serious ramifications on the Safari hunting industry in Zambia.

"In view of the foregoing, Zambia as a range state is required to collect reliable and systematic data on the status of lion in the country. This data will be used in the effective and efficient conservation of the species countrywide and to justify the lions' retention in Appendix II or ascension to Appendix I" (ZAWA Field Manual 1).

In other words, through this report ZAWA is responding to international pressure to re-conceptualize the value of the lion from a source of income to less tangible, but internationally promised, modern wealth. That is not to suggest that ZAWA only understands the species as revenue-generating; in the 2005 and subsequent reports on the conservation status of the lion, ZAWA stipulates that the species is of *socio*-economic significance, specifically of cultural importance for its symbolic value. But throughout the conservation reports of 2005, 2008 and even 2010, the language bespeaks dwindling sovereignty: "Over the last ten years, the conservation fraternity has expressed concern regarding the lack of empirical evidence [for lion population estimates]" (ZAWA 2008). Thus it is the international conservation fraternity, as opposed to ZAWA itself, that is concerned over the lack of "uncorroborated data" on lion numbers in Zambia (ZAWA Lion Conservation Report 2008).

In response to these demands, ZAWA stipulated in all three of these conservation strategy reports the need for baseline surveys (2008) and adequate scientific data (2010). But the performance to meet these requirements is always qualified as a response to international fraternal demands: each report opens with the mention of the 2004 CITES conference, which began the conversation around amending the status of the lion as a threatened species. These conservation strategies are documents drawn up in reaction to the pressures of this conference; they are not, by contrast, in dialogue with the issues and concerns that the conference raised. ZAWA, in these reports, suggests that Zambia is discrete from said international fraternity. They are expected to meet certain criteria as a wildlife management body, and the acceptance of their activities by CITES is crucial for continued lion export (e.g., skins from trophy hunts) and wildlife income.

CITES is one of the international conservation powers that puppeteers ZAWA's (and Zambia's) access to the world of conservation approval. ZAWA is obligated to perform these report-writing tasks and is pressured to include the Euro-American institutions of conservation through organizations such as PPZ. As a management body, ZAWA is on the periphery as a recipient of, not partner in, conservation decision-making. "These are your animals and you must benefit" were the words of the ZIRDP employees who moved through the Zambezi Valley. But, as these documents stipulate, the decisions over species, especially those categorized and enumerated in the various international

conservation Appendices, are mandated and regulated by a remote group of people who speak for the 'global' benefit of species' survival.

"The first reaction from many members of the local community and the general public when ever a lion is sighted in their viewing is to have the lion killed … [Community Resource Boards] are unable to or simply ignore to associate income from lion as a species," (ZAWA Lion Conservation Report 2008). In the face of conservation hegemony, there is, along with the cosmologies, refusal to comply with the terms of engagement. This again presents an affront to the neoliberal philosophy behind the proposed conservation trajectories: people 'ignore to see' economic gain in the shape of a lion, and, in so doing, refuse to behave as the puppets of an invisible wildlife market.

"Export of live specimens," the report goes on, "for zoos and captive breeding facilities are not common but given the current trends in science and the need to enrich populations experiencing loss of genes, export of live specimens cannot be ruled out" (ZAWA Lion Conservation Report 2008). This is the "Local and International Trade" section of the 2008 report, in which lion trophies are mentioned as an international export, "lion parts and derivatives" are noted as national lion products, and live animals are considered as scientific specimens. This again highlights the extractive principles of international science; and, while not common in 2008, the trend was anticipated as another potential source of revenue from the species. In 2010, the wording of this section was modified from "cannot be ruled out" to "would be permitted" (ZAWA Lion Conservation Report 2010).

The "current trends in science" are not elaborated in either report, but ZAWA identified "science" as a source of national income from these species. This adds even more context to the testimonies of Armstrong, Alice, Moses, and Ben; the concern over the exclusive profitability of science is not localized to any one area of Zambia but is reflected in national reports. The individuals who comprise PPZ are accepted as part of the international fraternity from which ZAWA is not only alienated but to which it is also accountable. PPZ is funded by WWF-Netherlands, the staff have degrees from reputable international universities, and thus they – like the Owens – can operate with internationally condoned authority. ZAWA is restricted by resources and personnel to conduct such research and monitoring, but they are also inhibited by their peripheral relationship to the foreign bodies that validate these assessments.

In addition to the monitoring, there are other ways in which ZAWA makes their scepticism known. Alex is a member of the Honorary Wildlife Rangers in the Zambezi Valley, a group of wildlife professionals and enthusiasts who have been given authority over illegal activities in the park. Steve White, one of the founders of Zambezi Wildlife Education Trust, and Jessica Frank, CEO of the Lower Zambezi Conservation Society, are also members. As per the agreement with ZAWA, every Honorary Wildlife Officer is allowed free, unaccompanied entry into the park. Every Officer except Alex. "Don't even get me started," is all he can muster when asked about this restriction. At the end of August, Alex tried to enter the park via the pontoon on his own; he was promptly turned away and he drove directly to the ZAWA offices to complain. Timothy was not available that day. "These scout issues are killing us, we need to have a scout live on site," is an almost daily gripe at PPZ.

Additionally, PPZ received specific funding for a park and GMA-wide lion survey in the Lower Zambezi, which was slated for October 2012. Alex organized a

Peace Corps volunteer, Jacob, to conduct the survey along with a ZAWA scout. A vehicle was purchased from the UK, equipped with a trailer and additional parts. All logistical elements were in place. Yet, despite the specified need for these surveys in all of the ZAWA lion-related publications, ZAWA could not or would not allocate a scout. Alex impressed upon the Area Ecologist the need to designate a specific ZAWA employee to accompany Jacob for a month. Nothing happened. As a result, PPZ was forced to cancel the lion survey for 2012 and it is now postponed for 2013, contingent again on cooperation from ZAWA.

The Area Ecologist for Zambezi, Shanzi, is a perpetually nervous man. He is tall and gangly and carries himself with awkward self-consciousness. All of the limitations that he places on PPZ are communicated through nervous giggles and avoided eye contact. He has also expressed concern over the potential personal implications for him if anything goes wrong during PPZ fieldwork. In 2011, he told Max: "If something happens, then President Obama will contact Zambia, the government will contact ZAWA, and I will be responsible." This comment was received with laughter at PPZ; but through such anxiety, Shanzi emphasizes the global connectedness and power of PPZ as an organization so much so that the President of the United States is perceived – even if only superficially – to be indirectly entwined with their operations. As a result of this invisible, threatening international power, Shanzi tiptoes uneasily around PPZ: on the one hand, he does not fully trust the organization's work, as demonstrated by his repeated emphasis of the anonymous wild dog concerns. But on the other, he fears the unseen but still perceptible strength of support behind PPZ.

Uninvited Influences

There is a palpable discomfort that surrounds the relationship between PPZ and ZAWA. The fieldwork of PPZ, the work that is meant to influence ZAWA decisions, depends on ZAWA cooperation. It depends on access to the areas in which carnivores reside. In order for fieldwork to be conducted, for data to be collected, ZAWA has to facilitate the means through which PPZ operates. The mandatory accompaniment of a scout was implemented in 2011 and the outright restriction of any unmonitored PPZ activity was enforced thereafter. Even though PPZ acts as an informant to ZAWA on the condition of carnivore populations, ZAWA still does not trust its activities or alliances.

The position of PPZ against these doubts has become increasingly frustrated. PPZ is accountable to WWF (and, by extension, a larger conservation arena) and they expect a certain degree of productivity, defined largely by fieldwork and data collection. There is thus manifest stress that builds at the PPZ base when Timothy is not available, when Shanzi is uncooperative, when other scouts have restricted windows of time to fill-in. The need for a scout becomes desperate and when this need cannot be met, the atmosphere of the organization is one of despair.

The documented "cooperation" between PPZ and ZAWA represents Northern requirements for specific wildlife agendas. ZAWA is obligated to include the people and organizations that confirm Zambia's participation in international conservation regulations. But PPZ is not warmly invited; in fact, it is hardly invited at all. PPZ is tolerated as an organization that must be allowed to interact with Zambian carnivore species so as to appease international scrutiny and controls. Although I never asked any

PPZ staff member directly, I imagine they would all agree that work would be more efficient without ZAWA restrictions. They might say, or at least feel, that ZAWA obstructs productivity. Why does Alex have a different set of rules for park entrance than every other Wildlife Officer? Perhaps ZAWA does not want Alex to enter the park under the guise of an officer because he might actually track collared animals. And so what if he did? What would be the harm of someone with whom ZAWA has an official agreement, who has been consulted on national carnivore conservation publications, someone who assists ZAWA with anti-poaching patrols, carrying out approved research? The dilemma is that official approval does not mean acceptance; and the involvement of PPZ for specific research does not mean that the organization is wholly, or at all, welcome. In the initial response to the CITES regulations, ZAWA made clear its antagonistic opinions and begrudging allowance for research and monitoring activities. To allow Alex unrestricted access to the park would demonstrate a level of comfort with this type of research that is not, and probably has never been, present.

On July 30th Alex received a call from Jessica, who explained that she had just been delivered a letter saying that her darting license was revoked effective immediately. The letter also requested that Jessica "surrender" all of her drugs and equipment. The same letter, addressed to Alex, would arrive at PPZ shortly. Alex and Jessica are the only two people in the Zambezi Valley with licenses to immobilize animals and there is no veterinarian based in the area. Alex and Jessica are both white, although Jessica is a Zambian citizen and has lived almost her entire life in the country. In order to de-snare, the animal must be immobilized and without Alex or Jessica able to dart, no animals in Lower Zambezi can be attended to in a timely manner. ZAWA will not fund a vet from Lusaka to travel for this purpose; instead, they expect PPZ or LZCS to pay these costs, which are extreme. Additionally, there would be hours, if not days, worth of travel to get a vet from Lusaka. The reasons for this decision were explained as follows: Firstly, ZAWA does not want white people taking jobs away from Zambians (they did not acknowledge Jessica's nationality); and secondly, Alex and Jessica are not trained veterinarians, nor do they qualify as para-vets.[12]

The disregard of Jessica's citizenship suggests that, through her connections to the international conservation arena, her whiteness trumps her Zambianness. She has access to the (white) Euro-American conservation powers and thus to their knowledge, networks, and resources. In this sense, she "belongs awkwardly" in and to Zambia, and this incident reflects the trajectory of "post-belonging" – how Euro-Africans establish their modern place in the post-colonies – that David Hughes discusses in relation to Zimbabwe (Hughes 2010: 141). It also underscores that the intersection of race and citizenship is still sticky and fragile for white African nationals, especially around historically piercing topics like land management. The global nature discourse was initiated by Euro-American (white) scientists, and the structure of the conservation institution remains the same: predominately Euro-American scientists (like the ones at PPZ) show which species and which places are in need of the most international conservation attention. The CEOs of WWF, WCS, UNEP, CI, and IUCN are all white, and four out of five are male. When the processes of eco-modernizing are initiated along familiar colonial lines, when the white countries of Euro-America lay the 'global' ground rules for the black nation-states of Africa, race becomes a compulsory environmental

topic. In Jessica's case, her whiteness and its resulting privilege have afforded her the kinds of international associations that she has needed to support her NGO, which included obtaining her darting license in South Africa. By taking away the right to dart and attempting to take the instruments of darting as well, ZAWA again drew their own 'weapons' at the power of 'global'/white conservation, in which Jessica and her organization have necessarily been implicated.

When this news originally emerged, Alex was livid; he had personally trained veterinarians in ZAWA on how to immobilize animals and he felt betrayed. Jessica was more understanding and hopeful; she spoke with confidence right from the start about overcoming this decision, which she viewed as temporary. Both Alex and Jessica refused to hand over any equipment to ZAWA. After a series of meetings in Lusaka, ZAWA agreed that LZCS and PPZ could continue to dart under the supervision of a qualified veterinarian. This would still involve high costs, but was a slight conciliation.

This restriction is perhaps also linked to ZAWA unease over the potentially unknown scientific capital that might be extracted from immobilized animals; the uncertainty over how – exactly – the values of international conservation are realized. The mention of quality assurance, that Alex and Jessica are not vets, is also worth noting; both of them were trained and licensed to dart in South Africa, which further demonstrates the (historical) unease over foreign qualifications. Indeed, shortly after independence, Zambia began the process of "Zambianization," through which qualified black Zambians replaced white expat managers (Ferguson 1999: 11). The legacy of this priority – to deny the authority of unquestioned white, foreign professionals – has thus been long established. Within this context, questions over who assumes the authority to certify 'valid' qualifications and 'expertise' is a central axis of contention and undoubtedly picks at the open wound of colonial memory in Zambia.

(IN)TOLERANCE

This chapter has shown how the complexities around wildlife stakeholders manifest in lived contexts. When contemporary conservation organizations arrive in the post-colonies, they encounter a conflicted process of eco-modernization; they witness countries simultaneously contesting and submitting to the latest expectations of the environmentally aware North. In Zambia, the messages and methods of past organizations have introduced the internationally constructed concept of how people are meant to understand the wealth of their wildlife. *Save the Rhino* wiped out the rhinos; or, at least, it highlighted the unclear role of foreign conservation in the process of extraction. ZIRDP delivered sermons of ownership, which were reinforced with cash returns. The Owens killed a 'poacher'. Today, the residue of these international involvements and the present-day conservation prerogatives compliment each other in their sustained sovereignty over national wildlife decisions. PPZ, through its mandate and international backing, experiences and mirrors these histories daily. ZAWA is forced to accept PPZ in order to appease Euro-American agencies focusing on the conservation of individual of species and to show appreciation for the "current trends in science". While PPZ does operate (somewhat) effectively in Zambia, and while a handful of ZAWA employees seem to genuinely appreciate the organization, they come up regularly against

this begrudging acceptance and reluctance. In Zambia, this conservation tension is widespread and diverse: it is felt by the individuals who live near protected areas, the wildlife managers who oversee the parks, the researchers who study them, the directors who write mandates and permits – all of these histories, alienations, and authorities overlap and intersect one another daily.

"Unless we intend to live in a virtual world, it's in everyone's interest to maintain as many species as possible," Claire, Zach's wife, told me in our interview. But, in the world of international conservation, the interests of "everyone" are decided by a select, educated few.[13] The concerns that arise about PPZ in Zambia demonstrate the conscious awareness of hegemony at work through international science and conservation.[14] [15] Without the ability to name the powers at play, residents of Lower Zambezi and ZAWA imagine their way into the palpable unfairness through stories of carnivore smuggling and other examples of how the institutions of conservation try to disengage valuable wildlife from Zambia. These stories are a means to work through an otherwise invisible conspiracy to disenfranchise Zambia of the natural assets over which it, as an autonomous nation, is meant to be sovereign.[16]

Chapter 3: Competency in the African Bush

The loss of darting privileges was more than just another complication to the scientific productivity of PPZ. The disarmament took a toll on Alex's demeanour and sense of overall effectiveness, as well as his confidence in the efficacy of the organization. When Jessica and Alex got together to discuss the revocation, Jessica told me that Alex sat in gloomy silence. "Why did you even bother to come?" she asked him. He was not himself for days after the letter arrived; he made less-than-joking comments about quitting, going home, and why he (and PPZ) was even in Zambia.

For Alex, the ability to dart and have control over the data that is collected by PPZ is of practical and symbolic importance. Practically, without Alex being able to perform immobilizations, PPZ becomes reliant on a veterinarian for this work, resulting in unrealistic logistics and expenses. Symbolically, the ability to dart validates Alex's experience with and knowledge ('domination') of animal biology. To dart an animal requires specific combinations of anaesthetic drugs and an accurate aim to particular areas on the animal's body. An animal should only be darted under certain conditions: the individual animal must be positioned with its shoulder or rump directly visible and must be accessed through extreme terrain without other potentially curious or aggressive carnivores. In September 2011, I sat in a vehicle with Alex for four hours as he looked for an opportunity to dart and collar a wild dog. The dogs were skittish and Alex could not find a satisfactory angle. He often speaks of when he darted a wild dog in Western Park while being observed by park donors. Their repeated requests for descriptions and updates were distracting and caused Alex an enormous amount of stress.

This sense of control that comes with darting is essential to the way in which PPZ has been run. Alex would fly and drive between PPZ sites – nearly 2000 km – to dart and collar individual animals. While exhausting, this role also emphasized that Alex had a capability and power beyond most of the individuals with whom he works. Even though he is not a vet or para-vet, Alex was still legally qualified to immobilize animals, for both scientific (collaring) purposes and in order to de-snare. While Jessica also had this ability in Lower Zambezi, Alex became the designated person to de-snare animals in Sioma Ngwezi and Western Park. Tourism operators in and outside of the areas would contact Alex when they sighted a snared individual. Alex would then fly out to find and attend to the animal and was treated with a certain reverence by these lodges for his ability to act as animal rescuer.

Moreover, the dart gun and its symbolic authority have helped to shape the character of masculinity around PPZ. I focus this chapter on that identity. Specifically, this chapter explores how constructions of masculinity are re-shaped and re-affirmed in the context of African wilderness areas. It also unveils the unavoidable parallels between Euro-American hunting ideologies and darting – the new "green" version of hunting. How does this (socio-historical) undomesticated lifestyle – chasing carnivores, de-snaring animals – contribute to individual and collective senses of power and productivity? How does the work of research and conservation speak to particular notions of manliness?

The 'weapons' with which ZAWA defends its authority over PPZ require patience, persistence, and purpose to divert. PPZ is asked to defend its presence and

ethics on a consistent basis, which they do with fortitude. These politics affect how the individual characters within the organization are formed, and they contribute to the PPZ insistence on its own capacity to address logistical and mechanical hiccups. As the previous chapter shows, there is resistance around PPZ and what the organization signifies about foreign conservation principles. In order to withstand the criticism, the people who work for PPZ have to be forthright about their purpose and values, and they are determined to be in the field, to play their part for species conservation, despite unavailable scouts or annulled licenses. These reactions bespeak not only the contested role of PPZ in Zambia, but also the specific ways in which the Euro-American personnel of PPZ conceive of their research/conservation mission. In the face of carnivores, wilderness, political relations, and assets that could easily vanish, the people of PPZ believe they have to be tough. This toughness, I show, discloses the perceptions of manhood that are imported along with the 'global' Nature ethos and its associated narratives.

The loss of the dart gun compromised Alex's perceived efficiency as a researcher and conservationist: without the gun, he could neither initiate new data collection, retrieve data, nor save individual animals from deliberate or accidental poaching. In the desperation over Chamilandu's collar, part of the urgency came from knowing that even if the animal appeared, PPZ could not retrieve the collar without its relevant supervisors present. Alex lost his grip on this essential aspect of PPZ work, which proved devastating in both the material and abstracted realms of PPZ operations.

THE RE-INVENTED HUNT

The Hunt emerged as a colonial ideology at the turn of the twentieth century, with Euro-American leaders such as Lord Randolph Churchill and President Theodore Roosevelt promoting male excursions into "raw wilderness" (MacKenzie 1987: 53). More than an adventure, through both the act and the locations of the Hunt, white men were able to assert and define their emerging masculinities (MacKenzie 1987). The motifs throughout hunting narratives of the colonial era were focused on unpredictable and dangerous habitats of big game species, the dramatic encounters between hunter and prey, and the trophy symbols (skins, horns, skulls) with which the hunter, as victor, returned home (Wonders 2005). All of these components helped to build an identity of white, dominating gentleman in Africa, amidst land and species that were both challenging and validating to conquer.[1] Today, big game hunting is not as commonplace and the 'sport' is controlled by international regulations on which species, in what quantities, can be shot. Safari hunting is even further restricted to elites, primarily from Euro-America, who pay significant fees to shoot legally in Africa. Most of these Hunts now take place in fenced game reserves but in Zambia there are open hunting concessions along the borders of national parks. In Lower Zambezi, the Zambezi River only acts as a seasonal boundary allowing animals to cross over into the hunting concession areas where they then become targets for modern day versions of the imperial Hunt.

Photography – "camera hunting" – has also been identified as a non-consumptive method to capture specific game animals. In the early 1900s, Roosevelt spoke about hunting in conjunction with plans for conservation and he encouraged other means through which men might dominate the increasingly rare North American wilderness

(Brower 2005). Through this new method of 'shooting' game, the trophy as a symbol of accomplishment could still be obtained in photographic form (Brower 2005). Despite new technologies, the premise of the trophy Hunt or trophy excursion remains complicit within the ethos of colonial domination. The desire for "manly solitude in rough and savage terrains of wild nature far away from the confines of the domestic world of women," can still be read through the actors and identities of foreigners in remote areas of Africa, especially conservationists, who often partake in animal immobilizations (Wonders 2005: 283). The act of darting an animal involves the same backdrop as the Hunt: a dangerous, exciting adventure to shoot and surmount. In fact, this mode of "green hunting" was commodified in the early 2000s and sold to international hunters as a "darting safari". As one South African tourism website explains, this version of hunting is "a unique synergy between sport hunting and conservation, allowing trophy wildlife to be shot and wildlife research and management to be conducted at the same time."[2] What's more, "green hunting" offers even more of a thrill because "[n]ot only must the animal be shot from close range, but darted animals are highly unpredictable – sometimes charging or bolting."[3] Just as the Hunter prided himself on his natural, pseudo-biological knowledge (Mackenzie 1987), so too must the "green hunter" have an awareness and understanding of the species he targets.

There have been other versions of "green hunting" sold (for example, shooting endangered fauna with paint ball guns[4]), all under the pretence of conservation: the money generated from these excursions goes towards the research and protection of the target species. These "darting safaris" have been heavily criticized and banned in some areas[5] but their popularity in Euro-American markets reveals the pervasive draw of this type of hunting activity. "Green hunting" provides the venue through which foreign hunters can submit to socio-historically constructed desires to master and tame the wild. These motivations are always on the surface of research and conservation initiatives like PPZ, which manipulate 'natural wilderness' through immobilizations and trophy collection in the form of scientific specimens. (In the 2011 annual report, Alex described the areas in which PPZ works as "unfettered, unfenced, massive, and raw.") It is not a coincidence that all of the foreign men on the ground at PPZ are in their 20s and 30s and without partners for the majority of the year. The manliness of this profession is entangled with specific, learned notions of what it means to be competent in the wild. In the context of international conservation agendas, this toughness also means flexing (internationally permissible) sovereignty over endangered species through biopolitical control: darting a wild dog to remove a snare or fastening a collar on an adult male lion so as to disrupt the aesthetic of a potential Hunt are both acts



Figure Three: An example trophy photograph from a "green" tourist Hunter in South Africa; the Hunter is holding a dart gun. Image found on the Hunter's online blog: http://i186.photobucket.com/albums/x70/AnthonyMarr/hunting/27945_124723474207147_100000084858979_316939_145006_n.jpg.

that are meant to grant these animals extended life. In other words, the powers of conservation, the modern white man's African adventure, have superseded hunting supremacies; the international conservation institutions now decide how many animals are allowed to die in each wild area and organizations like PPZ give them the facts to support these decisions. In the process, PPZ exhibits its bestowed authority by direct attempts to save and tame individual animals (recall the Western Park lioness) and does so through a peculiar conception of how white conservationists must conduct themselves in order to triumph in the African bush.

ROUGH SETBACKS

One morning in mid-June, Alex walked into the office and announced, "I just got an email from Frank [a consulting scientist in the U.S.]. None of the wet season transect data is usable. The scouts did not walk the transects properly and we can't use any of it." Max and I both looked up at him, not sure of what to say. "I swear, the minute you stop micro-managing …" He stared blankly. "I'm going to work in my tent for the day."

Loss of data and subsequent mood deflations occur simultaneously. A few days later, Max learned that a number of PPZ biological samples that were being stored by African Parks in Lusaka were, after months of taking up fridge space, thrown away. Alex was speechless. When Alex feels as though he has allowed the productivity of PPZ to slip, he is largely incapable of social interaction. The general atmosphere of the PPZ base is directly related to these punctures. Max, who is perhaps the most accommodating and admiring of Alex, is especially affected by such realizations. Later in the afternoon, Alex came out of his tent and started to make jokes, which immediately revived Max. *It's like they have the same moods*, I noted.

Or perhaps they have the same sense of how effectiveness is defined. To be in the field as much as possible, to see many carnivores, to follow them for days, to document their behaviour, to take down their waypoints, to collect their faeces: a constant flow of scientific movement equates to productivity. One morning in late July, I awoke early to find Alex in the outdoor office, his head against his left hand, hair and clothes dishevelled. "We are so behind on everything," he groaned. He left shortly thereafter in search of the Hot Springs Pack and en route texted Max a few times about organizing with the lodge next door to borrow their scouts. When Max did not immediately respond, Alex messaged me to get through to him. Because scouts are required for PPZ fieldwork, they are the ties between PPZ and its output. The lack of consistent scout availability invoked panic in Alex that morning and continued to be the source of perpetual stress.

The need for the scout is, in itself, an affront to the capabilities of PPZ staff. Alex worked for years with wildlife in the Antarctic, Alaska, Yellowstone, and Botswana. He trusts his ability to manage potential threats, whereas ZAWA scouts have a reputation for their nervousness in the bush: when my mom visited, the scout on her morning walk ran from a charging elephant while the tour guide stood his ground. One of the hosts at a tourist bush camp said that the scouts sleep in the vehicles during most activities. "It's a joke," she said, "it's laughable." When I dropped Timothy off one night, equipped with his .458, he asked me if I could leave him directly in front of his house, just in case there were loitering elephants.

Timothy gets annoyed when someone from PPZ forgets to pack salt for camping meals; he told Zach that "leftovers are for dogs", implying that he wanted freshly cooked food in the field. By contrast, when he is on his own, Alex overtly chooses to go into the field without any camping equipment or food. "I've got no food and no equipment – that's the way to do it," I've heard him say more than once before taking off for the night. When he and Max snuck into the park on their own, angry and frustrated by Timothy's absence and ZAWA prohibitions, they took one bag of crisps and a bottle of water between them. "That's the way to do it," Alex announced before they left. When Zach first arrived at PPZ, he told me privately that he felt he was viewed as a wimp because he liked to pitch a tent at night. "It's a matter of being comfortable in a tent or miserable on the hood of the car. It takes 5 minutes to set up a tent." Zach was not yet acclimated to the rough-it mentality of PPZ men.

This ruggedness publicizes a certain image of PPZ. "They have a great life," Diane told me with a direct and un-amused expression. Diane is a well-known presence in the Zambezi Valley, where she has lived for over twenty years. She acts as a freelance guide and runs a training programme for aspiring safari guides in Lower Zambezi. Originally from the UK, she has now settled permanently in Kiambi. I met her by chance at a tourist camp and, when I mentioned my affiliation to PPZ, she crossed her arms and squinted. She immediately told me that she is not fond of the organization. "They run around the bush, chasing carnivores, no restrictions, no one to say 'you're going too far.' If there is meaningful work coming out of PPZ, I haven't seen it." She also opposes the means through which PPZ studies animals. "They don't look at the social impact of collaring a lion pride. I have known this one lion since she was three months old. She was collared and they told me that the collar would come off in 18-20 months. The collar just came off now, 12 years later. And I learned she was re-collared." (I did not think to point out that Alex only arrived in Zambia in 2008, and that the organization before PPZ, African Wild Dog Conservation, was not around for seven years beforehand – nor did they collar lion.)

Diane is an attractive lady in her early 40s, with a shortly cropped haircut and trim build. Throughout the entire interview, she maintained one tight-lipped expression and took any opportunity she could to reiterate her stance against this kind of research and PPZ in general. Even my attempts at more light-hearted conversation were unsuccessful. "Alex and Jan don't even know about cub mortality. If you ask the guides, they know, they just don't share with PPZ. One lioness up here had five cubs last year and they all died; I know because I buried one myself. If they aren't even getting the real numbers, then there is no validity in that." Diane also cited an incident where a collared lion died. "I can't prove it was the collar. If I could I would just be angrier."

Diane is an anomaly among ex-pats in Lower Zambezi: she is openly lesbian, with a traditionally male job, yet she is highly respected among the guides. Because of her race and nationality, Diane is someone who could choose to partake in the international conservation 'fraternity.' Instead, she largely detests it. "It's all a waste of time. Conservationists would do more for wildlife by handing out condoms." But perhaps it is partly the authority and male dominance of the wildlife research arena that repels her. "Alex's defence is data. Our [guides'] evidence is anecdotal; his supposedly is not … They create their own hurdles when they come in with the attitude of having superior

knowledge and that tends to ruffle up people's skins. I have 30 years with wildlife and I get talked to like I'm a 5 year old child without any knowledge of stats."[6]

The Mechanics of Movement

PPZ identifies one of its biggest hurdles as the ability to effectively collect data, which is not the consistent, uninhibited process that Diane imagines. In the next chapter, I will address some of the condescension that she attributes to the activities of science, but for now I will introduce the tools of research mobility and access. Most significantly (and prohibitively): the vehicles. The three primary field vehicles owned by PPZ are military 110 Land Rovers: two diesels (with license plates ending in the numbers 42 and 43), and one petrol (referred to as "the petrol"). All three vehicles were organized through Ryan Clawson, the manager of one of the major Zambian tourism circuits and PPZ Board Member. Ryan found these vehicles through a man in Tanzania who specializes in the second-hand sale of 4x4 cars and parts. Ryan committed to four of these military Landies: three for PPZ and one for himself. Each vehicle cost $5000 USD plus an additional $6000 for shipping and import. It was only after the vehicles arrived in Lower Zambezi did Ryan inquire into their histories. All four vehicles had been donated by the British army to Singapore in 1989 and were used for undisclosed activities. Since they arrived, maintenance has been constant. "Never again," Ryan shook his head when I asked about future purchases through this dealer.

When I arrived at PPZ in early June 2012, I was told right away that the 42 recently had another engine fire. Max was alone at camp when I turned up, and he informed me that a gasket had blown on the 42 and it needed to go to the workshop. I couldn't get the vehicle to start, so eventually the workshop mechanics arrived with a car and towrope. Moses later approached Max with an example of the gasket that they needed to replace. Max poured over his 300-page manual on Land Rover parts to try and identify the part and its number.

Another Land Rover, Series III model, was donated to PPZ by an Australian couple. This vehicle is painted a deep yellow, has the PPZ logo in large depiction on both sides, and the body is entirely covered with dog prints. Because of its flamboyancy, the car is mainly used as part of the education programme, taking local students into the park for their various activities. Towards the middle of June, the fuel pump on the Series III broke while in the park and just before dinner one evening, Alex had to rush out with the Land Cruiser (which arrived with the NSF collaborators) to tow them back to camp.

After the gasket was blown on the 42, Alex decided that it should stay at the workshop and have the engine overhauled. This left the 43 and a newly purchased, second-hand Defender for fieldwork, which was bought with NSF funding (and, consequently, referred to as the NSF vehicle). The alternator bracket on the 43 broke on the 22nd of June; when Alex attempted to drive it to the workshop, a loud-pitched squeaking noise stopped him. Max and Alex spent hours under the vehicle and hood trying to work out the source of the noise.

The 42 returned from its overhaul at the end of June. On the 28th, I awoke to Max under the hood, and Zach and Claire packing the car for a two-night excursion into the park. They all climbed into the vehicle and Max turned the key. Nothing. He tried six times, after various periods of rest, to get the engine going but after one initial turn over,

nothing happened. They got out and tried to push start it four times in a row – nothing. Max went immediately to the workshop to get a mechanic, overwhelmed by all they had planned for those two days: meeting with one of the Chiefs, deploying camera traps, locating the Hot Springs Pack, and meeting Alex for an overnight. The mechanic reported that he was too busy with tourism vehicles to attend to the 42.

The Series III had not started for weeks and no one had yet investigated the issue. Max managed to start it and he and Zach planned to tow the 42 to the workshop and then drive to town to pick up the NSF Defender, which had been left at the LZCS base by Alex that morning before an anti-poaching foot patrol. The Series III broke down six times on the way to town and at each breakdown Max performed roadside maintenance to re-start it. Alex walked back to camp after the patrol, his mood consumed by the vehicle failures. When I stepped into the indoor office, he was sitting silently, dripping in sweat from the patrol.

"You don't look happy," I observed.

"Well, I'm pretty pissed off."

I left to work in the less-tense outdoor office, where Max was busy shifting and sorting various papers and notebooks.

"Is everything alright?"

"It's just that everything is going wrong today," he replied.

The following day, both the Series III (which Max believed to be fixed) and the NSF Defender were packed and ready for the delayed park trip. At 8:30, Zach and Claire started off in the Series III. At 8:40, Zach phoned Max to ask for a tow back to camp.

When I went out with Max, Alice, and Chuma (ZAWA scout) in mid-July to check Max's camera traps, we drove through an especially thick patch of miombo and, as a result, the track rod on the 43 got badly bent. During our lunch break, Max took off the track rod and attempted to bend it back into shape. Both he and Chuma banged on the metal with stones and logs until it was at a drivable angle. A few days later, Zach did the same thing with the NSF vehicle but he didn't have the proper hammer to re-straighten the rod and was less experienced with ad hoc bush mechanics. As a result, a two-hour drive back took him close to five hours. About a week later, the Chichele lion pride, in pursuit by two males known as the Puku Ridge coalition, were moving close to the PPZ camp. Max went out in the 43 to follow them. Shortly after he left, he called to see if Alex was back yet with the newly revamped 42; the 43 was having trouble starting. He wasn't, but Max decided to race back to camp, throw all of his gear into the NSF vehicle, and leave again immediately. Alex returned to camp later that evening only to receive a call from Max around 22:00 to say that he was stuck in a thick strip of sand. Alex left with the 42 to pull him out. They returned after midnight.

One morning in the beginning of July, I awoke to find Alex leaning over the hood of the 42 with Ison. Earlier that morning, Kafana Lodge called to report that the collared Chichele female had a snare. Max and Alice had already left to find her, while Alex organized for Shanzi and Jessica to attend the de-snaring. While Alex was waiting for them to get ready, he instructed Ison on various aspects of a Land Rover engine. He showed him what must be checked before each trip into the field: cracks, leaks, water, oil. "I need to spend a morning with you and Alice in the workshop going over all of this in detail," he said to Ison. "A lot of things are easily fixable as long as you know what's

wrong and what to do." Ison listened attentively. "When I initially got into the field, I thought: I know animals, I am a good biologist. I will be fine. But I didn't know cars."

The 42 was sent to Lusaka in the beginning of August to have the engine properly overhauled – a more extensive process than what was completed in the Kiambi workshop. In Lusaka, the vehicle would have a better chance of receiving the proper mechanical attention, especially necessary since it was designated for an annual conservation-4x4 fundraising event. At the time of writing (November 2012), the 42 is still sitting in a mechanic's yard in Lusaka. It did not make it to the 4x4 event and it still will not start.

RECONSTRUCTED MASCULINITIES

These issues of vehicle competency and responsibility are always at the fore of PPZ fieldwork. As Alex has said, the ability to attend to these mechanical failures is essential to keep moving. Most of the lodges in the Zambezi Valley exclusively use Land Cruisers, which make issues with Land Rovers difficult to address. There are no bona fide Land Rover mechanics in Lower Zambezi; even in Lusaka, the Land Rover workshops are run largely by self-proclaimed specialists. As a result, the employees of PPZ have to rely heavily on their own knowledge of these vehicles and their individual capacities to attend to broken fuel pumps and misshapen track rods. This is an important induction for newcomers to PPZ: to develop an understanding of how the vehicles function and how to take care of them. Now, whenever Ison and Alice are in the camp, they are forced to participate in all maintenance activities, from electrics to patching and changing tyres.



Figure Four: Max and ZAWA scout Chuma change a flat tyre on the 43 Defender.

This kind of competency around PPZ is directly related to the way in which the PPZ staff understand themselves as successful field biologists – especially the men of PPZ. PPZ vehicles are essential in order to access the areas in which their studied species move and reside, and in order to reach these areas, the vehicles must be in sound mechanical states. When they fail, or when they are used to such a degree that they breakdown, an abnormal silence settles over the camp and personnel; without the ability to move, no fieldwork can be conducted. Without the ability to fix the mechanic mishap and continue the fieldwork, the productivity of the organization comes to a halt. Moreover, these are not just any vehicles; they are models that promise the same kind of privileged access that is reminiscent of the imperial Hunt. The primary advertising language for Land Rovers insists that they "bestow on the driver the liberty to 'conquer' space" and they allow for the "mastery and consumption of inaccessible terrain" (van Eeden 2007: 351). The names of Land Rover models confirm

this sense of forced admission: Defender, Freelander, Discovery, Range Rover (van Eeden 2007: 353). This language brings to mind the image that Diane has of PPZ: perhaps the colonial connotations of vehicles such as Land Rovers give the impression of larger, dominant motivations.

Certainly the "mastery" involved for PPZ begins with the vehicle. As Ison and Alice were being instructed, the researcher must know his or her instruments. In September 2012, PPZ received two new volunteers: Warren, Max's older brother, and Jacob, a Peace Corps volunteer in Zambia who extended his programme to assist with PPZ fieldwork. As part of their introduction to the organization, both were thrown into the vehicle mechanics and they spent many hours in camp under the hoods of the NSF vehicle, 43, and Series III. When Warren and Jacob drove into town to lead a lecture at Kiambi Day Secondary School, unbeknownst to them the cap on the oil filter was missing and oil leaked continuously en route. Alex left camp a few hours later and instantly saw the trail of oil and realized the cap was gone. As a result, Max – having just returned from two nights in the field – rushed to town to tow them back. Fortunately the engine did not seize, but might have if they had continued to drive. Both Jacob and Warren returned nervous and embarrassed that they had not noticed the leak, which emphasized their lack of full competence and still-developing manliness in the context of PPZ. As Max's older brother, Warren struggled more with this process of acquiring an entirely new set of skills. I met him in the beginning of October 2012, less than one month after he arrived. He described his experience thus far as "humbling".

To work in the kinds of environments in which PPZ operates requires more than just biological and ecological interests in the species. In order to access the species as closely as PPZ does, the vehicles must first overcome the terrain: they must withstand thick woodlands and deep sands. The comparative lightness of Land Rovers makes them more desirable than Land Cruisers, but they are also the less popular make of 4x4 in Zambia. The logistics involved with repairing the many issues that arise as a product of this fieldwork are complicated and time consuming, often requiring PPZ employees to work on the vehicles themselves. The ability to overcome vehicle dilemmas becomes an important element of PPZ identity.

The productivity of PPZ is inextricably wound into vehicle mechanics. Physical movement, the ability to navigate through dense landscapes, and the understanding of what might break or bend as a result of such navigation are at the core of how PPZ employees understand their own capabilities. Perhaps this sense of self is also heightened for the foreigners on the project, who not only have to adapt to new physical and social surroundings, but also need to prove themselves as competent and masculine within African wild spaces. This sentiment is implicitly emphasized by the Euro-Americans who have already learned and settled into their roles; now, the newcomers must also find a suitable place. When I asked Warren how long he intended to remain as a PPZ volunteer, he said: "We'll have to see. If I'm not useful, then there is no point in me being here."

The complexes of productivity and masculinity are layered between the scientific output and social reputation of the organization. The fieldwork does not move forward without literal acceleration. The pressure to live up to expectations from other PPZ employees, Zambian officials, and an international fraternity of conservationists and scientists can be immense. The conservation and scientific world in Africa is a male-

dominated field and, moreover, a field latent with a certain kind of foreign and Northern conception of dominance. Foreigners in Africa do not come with historically significant engagements with African species; they learn through their comparative experiences and their researched knowledge. For Max, Jan, Jacob, and Warren, Zambian wilderness areas were their first contacts with African megafauna. Alex had worked in Botswana with wild dogs, but previously his biological experience was in the continental U.S., Antarctica, and Alaska. So not only do PPZ foreign staff battle various national and international angles of scrutiny, but they are also continuously trying to re-affirm and locate themselves in landscapes that are incomparable to their known environments.[7]

Equipped



Figure Five: The Wyatt family in an advertisement for *American Guns*. Image found at: http://images.tvrage.com/shows/30/29746.jpg

When I arrived in June 2012, Max's entertainment of choice was a TV show called *American Guns*. *American Guns* centres around a family of four, the Wyatts, who own a gun shop in Denver, Colorado. The first episode I watched featured a priest who wanted a custom made pistol for an annual shoot-out held in the area. The shoot-out comprised a competition of weapons and handlers: who could draw and fire the fastest. The episode showed a pistol being manufactured and tested in the shop and, when it was ready, the shop owner surprised the priest with a simulation of the shoot-out he had organized in a remote desert area outside of the city. As part of the simulation, Mr. Wyatt had constructed various "sins" (e.g., a man drinking alcohol) at which the priest was meant to shoot. The priest fired at each of the cardboard constructions and screamed, "Go to Hell!" Mr. Wyatt charged the priest $5,000 less than the advertised price for the hand crafted pistol. The discount resulted in a dispute between Mr. and Mrs. Wyatt, but Mr. Wyatt held firm his stance that he "could not charge a priest that much money."

Other episodes of *American Guns* involved a big-breasted woman who ordered a pink handgun; another showed a muscular, bearded man ordering a gold-plated pistol. The latter cost approximately $2,000 USD. I was surprised and assumed gold-plating artwork would be more expensive. "You can actually find it for less," Max clarified. I asked how he knew this.

"I looked it up."

"Before or after you saw this episode?"

"Before."

Max admitted that had watched every single *American Guns* episode. This particular reality TV show is popular in the U.S., especially in the southwest, and it satisfies a general cultural fascination with firearms. A few months later, when James Holmes shot at a crowd of moviegoers,[8] I wondered how shows like *American Guns* might contribute to gun-related violence in the United States. The Wyatts are an attractive

family, the daughter Paige and her mother are similarly shaped, with exactly the kinds of curves and manicured looks that one might expect of women who sell firearms for a living. The overt message, through both the Wyatt women and the nature of the shop's sales, is that guns are sexy -- even for priests. And there exists a strong correlation between the attractiveness of both the firearm and the person who carries it and the self-assuredness of that individual.

"If everyone was packing heat in that movie theatre, this wouldn't have happened," Max joked after the initial phase of horror over the Colorado shootings settled. His joke reveals a certain American reliance and obsession with firearms for both their aesthetic and symbolic qualities. When Alex lost his darting license, the blows he took to his senses of competency and masculinity were unmistakable. For Alex, the loss of the firearm had unique meaning for him as an American man, specifically one from Butte, Montana. Jessica, on the other hand, did not react as strongly.

There are various pillows strewn about the PPZ camp illustrated with target circles in four corners and the centre that are used regularly to practice the aim and precision of darting. During my interview with John McIntosh, the supervising academic for the NSF Grant, he and Alex took turns firing Alex's dart gun at a pillow positioned a few metres away. Hettie, a South African volunteer who arrived in late July to re-build the PPZ website, had no idea what these symbols meant. She brought one to me: "Why are there weird circles and dots on my pillow?"

Aurora shootings, the massacre of young children in Connecticut,[9] reality weapon sitcoms, and targeted pillows share certain geographical affiliations and perspectives. *American Guns* is set in Colorado, the same state as the movie theatre tragedy. The relevancy of this kind of weaponry and how it is engaged is developed through specific national, or sub-national, firearm frenzies. Moreover, conservation on the whole has become an increasingly militarized industry;[10] the term 'conservation' in Zambia is now synonymous with anti-poaching. But each actor within the wildlife industry brings his or her own distinct contextual relationship to weapons and wildlife. The PPZ employees from the United States, most notably Alex, the CEO and rural Montana native, represent this cultural fascination with (American) guns. Even though the researched species in Zambia are not shot to kill, they are still the targets of a modern version of the (green) Hunt. The reality shows and real life episodes reinforce these particular angles of aim. U.S. weapon fanaticism is well-known to the rest of the world; and, in North Luangwa, Zambia, an American conservationist shot and killed a man in the name of his profession.

CONTEXTUAL FITNESS

The vehicles, the weapons, and the degree to which knowledge of each is essential to become tough and manly in the bush, are woven into the personas of Euro-American PPZ men. The former operations manager for PPZ, Brighton, was heavily criticized for his inability to function within the time-sensitive and demanding environment that encompasses PPZ research methods and schedules. Prior to PPZ, Brighton had worked for ten years as a manager of a nearby lodge. He was good at his job and came highly recommended. While the tourism and research industries are distinct, both require reliable vehicles and logistical imaginations behind day-to-day activities. PPZ employees marvelled at how Brighton could have functioned – and

functioned well – as a camp manager given his almost constant state of paralysis in the face of PPZ demands. This stagnation is not unusual, however, if one considers not only the unpredictable and abrupt plans around PPZ fieldwork but also how this pressure relates specifically to Euro-American conceptions of production.

This productivity must also be taken in the context of studying species that are elusive and difficult to find, even with radio collars. When a lodge informs PPZ of a wild dog sighting, there is instant mobilization to find them. And if the team is not ready when the phone rings, if the vehicles do not start, if the scout is unavailable, if the dart gun is restricted, then what is left in the wake of would-be productivity is collective impotence. Brighton was not connected to these sentiments; he got the message that he wasn't doing his part, which was ultimately why he left, but I don't think anyone at PPZ appreciated the disconnect. Alice and Ison also take the logistical and mechanical setbacks in relative stride. The stress of inactivity affects the foreign men of PPZ in a way that is almost intangible and indecipherable outside of their own understandings of diligent work.

This chapter has concentrated on some of the intra and interpersonal structures of PPZ in an attempt to highlight how the organization's subjectivities are re-worked by its socio-physical environments. I began with the loss of the dart gun, yet another attempt to disarm the agents of global conservation. I then turned to other examples of how PPZ tries to take control and mould its own perceptions of competency. This chapter has identified the role of weapons within PPZ as not only the tools for research but also cultural instruments that reveal particular perspectives on firearms, constructions of maleness, and logics of control. These manifest in repairing vehicles and learning about weapons; they also appear throughout the language of 'science' and intellectual interpretations of wildlife.

The scientific stance of PPZ is perhaps the most profound reason why Diane dislikes the organization and why ZAWA watches these activities so closely: with specific tools and degrees, PPZ implies a superior, more acute sense of (the future of) Zambian fauna. Diane asserts an equal if not greater hold on the carnivore populations through guides' direct observations and experiences. Her complaint is not that scientific methodologies are useless, but rather that they are broadcast as more advanced. How do these power crusades play into the scientific protocols of PPZ? How does PPZ balance the limits set within Zambia with the academic and other expectations from the various conservation institutions? Through the lens of PPZ scientific activities, I begin to situate these questions within the larger sets of concerns over PPZ exclusivity and the opaqueness of global conservation purpose.

Chapter 4: Methods of Scientific (Dis)Order

The hunt for information in the context of PPZ cannot be separated from the particular sculpting of manhood that I addressed in the previous chapter. The insistence on data and the various routes of access to the data are directly linked to a historical sense of masculinity and self-sufficiency in the wild.[1] The physical, natural, and anthropogenic interruptions of data collection are barriers that must be tackled and overcome with forthright confidence. The vehicles require roadside repairs, the scouts must be arranged, the suspicions around research must be countered, the organization defended, assets must be guarded, the species monitored and protected. The individuals within PPZ must keep all of these elements in balance and be able to attend to multiple setbacks and interruptions simultaneously. In the world of foreign conservation, it is not only the wildlife but also the in-country officials and publics that need to be managed. In effect, each staff member and volunteer at PPZ has the responsibility of oversight: it is his or her job to ensure that this fragile array of relationships and structures remains functional. When the research design is disturbed, when darting licenses are revoked, samples stolen, and transects mis-walked, the pace of research and species' protection slows. This pause - not moving forward, not obtaining data, not checking up on packs and prides - is what paralyzes the PPZ collective sense of productivity and purpose.

The scientific conservation acted out by PPZ complicates the historical and intellectual contexts in which the organization operates. This information moves through a limited system of analysis and consumption, which increasingly involves more influence from the environmentally conscious private sectors (Adams and Hutton 2007). The 'conclusions' of many of these wildlife assessments is that "further research needs to be conducted" (Barnett et al 2006; Macdonald and Sillero-Zubiri 2002); in other words, there is much more to be done in order to secure sustainable futures for "important" species and places.[2] Despite – or perhaps even because of – cross-border and cross-discipline attention to wildlife conservation, the advertised ideological shift in the sector appears to be confounded by a persisting legacy of 'Western' (scientific) perspectives and research practices that reveal (historical) wildlife fetishes as often as they conclude wildlife 'facts' (Fairhead and Leach 1996, Latour 2009).



Figure Six: Kiambi Secondary School students in the field, learning the scientific method. Here, they fill in their data sheets with observations.

Beyond the scientific research, community involvement for organizations like PPZ is inextricably linked to a certain mode of interpretation. While PPZ organizes fieldtrips and programmes for local schools, all of their efforts are subsumed in the dominant Euro-American scientific episteme. School children are brought into the field to observe, form

hypotheses, collect data, and analyze – an ideology of scientific method that is enveloped by a particular tradition of the 'real' and the 'rational' (Alvares 1988). Yet, there are tangible affective motivations that can be read through the guise of PPZ wildlife research and conservation, despite the insistence on detached objectivity (Haraway 1989). The levels of physical and emotional investment around animals are perhaps most unavoidable in acts of darting, which publicly expose the concerns and character of wildlife research (Aronowitz 1988: 328). Nevertheless, conservation scientists arrive with commitments to one version of objective enquiry, which in turn precludes other dispositions towards 'facts' and 'truth' (Haraway 1989; Latour 1999; Foucault 1972).

In its skeletal form, the Baconian belief in a "truth-scale" of scientific methodology has remained stagnant since the seventeenth century (Bajaj 1988). According to Bacon, this truth scale could only be achieved if all individual prejudices were disregarded – something he believed to be central to scientific collection (Feyerabend 1975). Furthering Bacon, Enlightenment philosophers reinforced for the European world the correlation between science and objectivity and the substance of rational, logical modes of observation (Serres 1990). Rational superiority was the logic behind the British Empire and central to the British scientific discipline and can still be located in the missions to eco-modernize the areas of the world that are "not yet" up to speed with Euro-American environmentalities (Bajaj 1988: 51; Stafford 1989: 3; Thomas Kuhn quoted by Bajaj 1988: 53).

Today, scientific discourse is used as the discerning voice in matters of the environment: science unveils the 'facts' from which conservation management decisions can then be made. In this chapter, I identify how the collection of autonomous facts involves certain beliefs about what this evidence means, specifically how these facts are said to communicate the 'realities' of carnivore populations in Zambia. This fetishization of carnivore matter exposes – to use Latour's neologism – the 'factish' nature of scientific deduction and how the divide between the imagined world of carnivore well-being and the 'reality' of carnivores in Zambia is never dichotomously divided (Latour 2009). Science-based management, however, with commitment to stand-alone facts, persists as the rigid protocol for implementing many conservation policies (Berkes 2004; Gunderson et al 2002). Through this structure, a specific esoteric knowledge form is privileged and only this interpretation, presented in a form that is accessible to scientific audiences and conservation authorities, 'counts' as the 'data' for wildlife management decisions (Alvares 1988).

The hegemony of Euro-American scientific conservation approaches has been widely critiqued (Irwin 1995; Nandy 1988; Haraway 1989; Stafford 1989), as have the dynamics of knowledge and power associated with a certain kind of reductionist scientific philosophy (Adams and Hutton 2007). But European scientific ontology has remained conceptually constant since the 1600s, beginning inductively with observation, followed by hypothesis formation and the "interplay of subordinations between describing, articulating into distinctive features, characterizing, and classifying" (Foucault 1972: 57). For PPZ, however, the systematic practice of induction and deduction can only be as steady as their contexts allow, and the restrictions placed on the scientific work shape the results just as significantly as the prescribed methods. In the process, the suspicions and doubts about PPZ seep into each scientific activity and, in turn, influence how Zambian 'nature' is both fetishized and factualized. Perhaps the

sanctioning of what is the 'truth' about Zambian carnivores and how this implicitly celebrates the foreign expert over the 'local' guide renders the science of conservation an even more invasive mode of authority (Latour 2004).

This chapter probes the scientific work of PPZ and how it is conceptualized, enacted and processed. In examining the methods and workings of field ecology, I purposefully disentangle some of the contradictions around *the* scientific perspective.[3] As this chapter will reveal, the methods and understandings about the work of PPZ are not fixed and oftentimes not even organized. These processes are always dialogical, always shifting, and must adapt to the actualities of Zambian politics. The conversations, confusions, and opinions about the purpose and practice of carnivore ecology reveal the inherent messiness surrounding PPZ fact accumulation, which extends from the conceptual conversations to the everyday fieldwork. The day-to-day activities of PPZ do not, in fact, disclose the theoretical order of a polished scientific enterprise. Many studies and sub-studies are entwined within the PPZ mission, and to attend to all of these, both practically and metaphysically, often results in manifest chaos. Despite the imperialistic undertones of the scientific method, its modern day conservation exploits betray the conflictions of this ideological pursuit.

Nevertheless, in the context of conservation 'Western science' once again acts as the qualifying justification for a certain Euro-American driven protocol. Once again, the implication is that this science will help the powers of conservation to push the "not yet" there African authorities to become up to the measure of the eco-modern global North.[4] When researchers from Euro-America enter the field laboratories of wildlife ecology, they arrive with well-manicured understandings of how one initiates scientific studies. "When [we] come in and speak scientific jargon, people feel intimidated: they might go along with it, but they don't really understand why," Max surmised in our interview. Perhaps it is not solely the "jargon" that causes withdrawal but rather what it represents and whom a priori it excludes. How Euro-American projects are initiated and what they assume can still imply older imperial associations, even if unintentionally. How does one de-colonize the scientific method?

IMPORTED AIMS

The continuous stream of data collection that is desired by PPZ not only allows the organization to quantify their successes to funders but also reassures PPZ staff that they are effectively advancing knowledge of species. Both Alice and Max mentioned in our interviews their uneasiness surrounding the studied carnivore unknowns. For example, Alice hears conflicting reports from her neighbours and friends about wild dog sightings. The more the animals are tracked, found, observed, and monitored by PPZ, the more likely these lingering uncertainties will be known as concrete numbers, facts, and the



Figure Seven: Camera trap set along a game trail as part of Max's leopard survey.

'real' story about wild dogs in the Zambezi Valley.

One method through which PPZ tries to access these unknowns, specifically for leopard, is through camera trap surveys in the Lower Zambezi National Park. The population of leopard in the park has yet to be quantified, and to date no other scientific surveys of leopard have taken place. With support from the Richmond Foundation, Max was able to purchase twenty-four top-of-the-line camera traps, which he deployed in the dry season for an 80-day camera trap survey. The sites were determined by mapping a grid onto Google Earth, for which he used distances and spacing from other leopard surveys in similar habitats. Every three weeks, Max moved the cameras to a different location but visited them almost weekly to download photographs. This population estimate survey employs a technique known as mark-recapture: the number of unique individuals re-captured on the cameras.

Another mark-recapture technique was used in a detection dog survey in Western Park. In partnership with Working Dogs for Conservation, an NGO in the United States, PPZ designed a cheetah survey in Western Park using scat-sniffing detection dogs to identify cheetah scat. In this study, the mark-recapture of unique individuals was done through genetic analysis of the scat. The first objective of this survey was to estimate cheetah population size and/or density within a defined study area. Additionally, the study aimed to predict cheetah ranges and boundaries and learn how the current cheetah range in Western Park extends eastward, towards or across the Angola border. Secondary to these initial objectives, the study hoped to estimate cheetah home range size and the degree of overlap; compare range data with the data collected through collars; contrast dog-based and human-based survey methods (i.e., compare detection rates between scat detection dogs and human-based distance sampling); evaluate the genetic diversity of cheetah to contribute to a regional genetic diversity evaluation; decipher where cheetahs are geographically in relation to competing predators (primarily hyena); and extrapolate the status of cheetah in the Greater Western Park ecosystem.[5]

The primary funding to PPZ comes through WWF-Netherlands, which supports the general research and monitoring of all major carnivores across Zambia. In 2012, PPZ and the University of Montana were awarded National Science Foundation (NSF) funding to study predator-prey risk effects across the three ecosystems in which PPZ works. Risk effects in the context of NSF mean non-consumptive effects of carnivores, specifically the potential nutritional and other costs for prey species under a known threat of predation (i.e., with carnivores in the area). The concept was pioneered by Professor John McIntosh and his students in Yellowstone National Park, where they identified particular behavioural responses of elk under the threat of wolf predation. The costs of these responses ("risk effects") were measured in an effort to understand their mechanisms "using endocrine, nutritional, and demographic data," (McIntosh et al 2011). "Logic and empirical data both suggest that risk effects play a part in most predator-prey interactions," (McIntosh et al 2010: 2). Furthermore, "logic and empirical data both suggest that predation risk can affect ungulate dynamics by inducing behavioural responses with nutritional costs that ultimately reduce reproductive rates," (McIntosh et al 2011: 6). Thus, the NSF grant and researchers hope to apply this risk-effect model to the common ungulate prey species that interact with PPZ studied carnivores.

Specifically, PPZ researchers attend to ungulate spatial formations, what they choose to eat, and how they balance time between vigilance and grazing. When

carnivores are identified in the area, PPZ conducts prey surveys by watching how groups of ungulates react in the known presence of predators. Their approach is largely based on observation, with faecal collection to determine the animals' nutritional intake. Systematic line-transects are driven to conclude the population sizes of ungulate species, spatial distributions, habitat use, and calf-cow ratios. A substantial amount of carnivore data existed at the start of the NSF grant through years of WWF-funded PPZ research. However, as the NSF grant necessitates research on both predators and their prey, new methods were introduced to evaluate prey densities. The line transects are mapped onto GIS and then ground-truthed to determine their drivability (i.e, are they accessible by vehicle). The length of the transect line per system varies between 100 and 125 sq. km. with all transects sub-divided into shorter segments (at the discretion of the driver) for data analysis.

The overarching objective of the NSF work is to test how risk-effects correlate with rates of direct predation and which attributes must be identified in predators, their prey, and the environment to best predict the magnitude of risk effects in the wild. Zach Fox incorporated risk-effect theory into his PhD fieldwork in Kenya, the reason he was assigned as the post-doc in-country supervisor for the NSF/PPZ work. This kind of comprehensive survey will give a "truly general understanding of predators and limiting effects on prey populations," (McIntosh et al 2011: 15).

This study in particular connects PPZ to other global projects of science and conservation, both in the academic ties to other scientists and in replication of its structure. The original risk-effects surveys were carried out in Yellowstone;[6] Zach started his work in Kenya; and now it has arrived in Zambia. Through risk-effects, predators and prey are documented, analyzed, and connected in new ways; conversations about the unique predator-prey encounters always involve references to other international sites of study. This is a globalizing project that not only connects an international scientific 'community' to the carnivores of Zambia but also links non-humans in a comparative, intercontinental exploration of indirect predator effects. The world of accepted scientific inquiry is far-reaching, with many resources, all of which accentuate the global connectedness of its invitees. Indeed, upon completion of his work in Kenya, Zach drove his field vehicle, the one Land Cruiser affiliated to PPZ, down to Zambia; John and Dan flew out in May as part of the NSF funding; Armstrong's PhD in Montana is sponsored through this grant. The imaginings of American academic ecology have the power to exist widely and infiltrate existing conservation programmes, and they have now been brought to Zambia, via PPZ, for further scientific consideration.

STUDIED AND STUDDED DESIGNS

The manifest happenings around these scientific encounters differ between studies and the ways in which techniques and rationales are implemented. For the leopard study, Max deploys twenty-four camera traps, two per site, which are active at each site for a three-week period. All cameras are confined within the park boundary, the locations pre-determined by mapping a GIS-constructed grid onto Google Earth. Max drives into most of the sites, bashing and bending through thick woodlands, and finds a suitable game trail on which to set the traps. He checks cameras weekly with at least one scout and often other PPZ staff and interns. After downloading photos, Max and others refasten the

cameras to the trees, then crawl back and forth along the game trail to ensure that the height and aim of the cameras are at the correct angles to detect activity.

For the detection dog survey, the scientists involved in the planning decided that dogs should walk specific transect lines according to grids mapped in GIS. All transects had to be up-wind to maximize the dogs' olfactory responses, and dogs would be let off-leash to find scat. There were long discussions prior to the survey between Alex, Megan Edwards (the CEO of Working Dogs for Conservation), and Dr. Frank Thanas, a collaborating scientist for PPZ who lectures in the United States. Frank, who was not familiar with detection dog surveys and could not find enough significant scientific literature on the technique, posed several questions and suggested various ways in which the team could organize the spacing and distances of the transects. Over email, Megan suggested a 1.5 x 1.5 m design and Frank immediately inquired if she had literature "where this design has been used?" Megan explained that, for the dogs, her personal experience found this particular grid size "doable".

Further exchanges ensued about how the design should be mapped corresponding to the subsequent analysis. Frank suggested occupancy modelling, an analytical technique with which both Alex and Megan were unfamiliar, as a means to mitigate the potential biases from dogs not detecting present scat. "If the probability of detection is less than 100%, if the dogs do not pick up every scat in a plot, then estimates that do not account for this would be biased, and would lead to under-estimates of range and population size," Frank explained. Occupancy modelling takes this bias into account because it requires multiple visits to each square. This method necessitates the "simple assumption of uniform detection probability across all squares" and the subsequent model would reflect the estimate of detection probability within the squares, regardless of whether or not the dogs could find scat.

"M represents effort, where M equals the number of revisits/square. I haven't thought much about how mark-recapture works in this context and I'd love to see a well-modelled example paper that has utilized it with scat detection dog data," Frank continued. Frank was able to find one recent paper, which was a straightforward methodological approach to using scat detection. Megan highlighted the high number of non-target scats that were sent to the lab in this study, which she attributed to the survey style: dogs were allowed to go where they wanted, which could have, she argued, been driven by the interests of the dogs rather than scent detection. She emphasized the need for directed and controlled dog handling.



Figure Eight: Max conducts vehicle-based NSF prey observations. He is looking at impala in the distance.

The NSF prey observations require a standardized data sheet with different codes for animal behaviour. Observers record behaviour – either by hand or into a voice recorder – at five-minute intervals for approximately 30 to 60 minutes. If one of the ungulates defecates during observation, the scat is collected once the observational period concludes. For driving prey transects, there is (or should be) one driver/navigator and

two observers: one for the right side of the vehicle, the other for the left. Transects should be driven under 15 kilometres per hour, ideally in a straight line. All species of ungulate are recorded as well as the surrounding habitat. These transects are meant to give an indication of ungulate density in relation to habitat, distance to river, and proximity to the park's boundaries. For logistical reasons, namely the requirement for a scout inside the park, the approach in Lower Zambezi was modified to include prey transects both in and outside of the Lower Zambezi National Park. The presence of lion prides, wild dogs, and hyena outside of the park's boundary also helped to justify this alteration to the original design.

There are many other examples of PPZ scientific programmes, some of which fall within the broader WWF carnivore research and monitoring grant and others that are slightly distinct. In addition to the above, Max, with John's supervision, is working on a paper that explores a new statistical model for lion population estimates. In 2011, Max was denied NSF funding for his graduate studies on the grounds that he had no publications to his name. Completion of this paper and its successful publication will hopefully make his second-time application stronger. Alice is interested in reproduction rates in lions and would like to centre her future Master's work on testing for hormones in lioness scat. To track and follow the reproductive success of lions is nearly impossible as cubs cannot be collared and lionesses keep them hidden until they are old enough (6-8 weeks) to start moving on their own. Alice's project investigates an indirect way of understanding the success of reproduction in female lion by testing their hormones through genetic material.

THE RIGHTS OF METHODOLOGY

While distinct in their specific focuses and methodologies, all of the research that surrounds PPZ speaks to the larger objective of learning and understanding the behaviour, patterns, structures, and populations of these elusive megafauna and their effects on prey species. This approach will satisfy broad academic enquiries into the species and influence the general thinking around carnivore conservation for worldwide organizations like WWF. But the fundamental appeal of these animals is not only that they are sensational, dominant predators, but they are also symbolic indicators of an African ecosystem in balance. "My biggest concern is over wild dogs," John described as we chatted across the outdoor picnic table. Aside from the occasional turn to practice a shot with the dart gun, he attended seriously to each question. "If they go extinct, it is an ethical failure. If people do not care enough to avoid the impacts on these species, then that is morally wrong."

Here, John echoed the inherent ethos of Euro-American conservation organizations, which, through their sculpted sets of concern, assert ethical claims to the endangered species of the world. Equally, they (and John) insist on 'global' political entitlements to ensure that certain populations remain at sustainable levels, which are confirmed through organizations like PPZ. Especially now with the NSF grant, PPZ tries to understand not only the macro-image of carnivores in Zambia, but also the nuances and subtleties of these species and their relationships to one another, to their species of prey, and to the surrounding human populations. While the action of this fieldwork takes

place in Zambia, the process by which the research is disentangled from logistics, through which the raw data of coordinates and bio-matter are combed, tested, and analyzed, occurs in U.K. and United States laboratories. In these kinds of academic settings, researchers are equipped to handle the pieces of predators that are shipped trans-Atlantically and decode collected facts on Zambian wildlife. Throughout all of these intertwined research projects, the carnivore or prey matter ultimately 'speaks for itself' and is therefore considered the factual (factish) basis for a certain story on the status of carnivore populations -- precisely why the lion sample theft was such a devastating event. Without the stools, and the blood, and the hair, PPZ researchers are not able to perform the crucial acts of analysis and thus not able to extrapolate the results.

However, not all analysis takes place in a university laboratory. Max, for example, sat at his monitor and looked closely at the line and spot patterns on the bodies and limbs of leopard in order to identify individuals. He called me to verify for him once that a jagged line on the right side of one leopard was more abrupt than a similar pattern on another photographed individual, meaning the two were distinct animals. He sat for hours, sometimes until the early morning, going through these photographs, trying to pinpoint uniqueness. Occasionally I heard a cheer or clap from the outdoor office, which I came to know as the sounds of successfully re-captured leopard (and, more broadly, an effective population estimate method).

Despite the ID-books, data sheets, and protocols, a fair amount of how the information is collected and documented depends on the collector. When John visited, he gave a de-briefing session on ungulate observation and hunt-follow procedures. Alice asked him how to identify the start of a hunt. "Use your best discretion," he replied.

In our interview, Jan expressed his concerns over a variety of species in Zambia. "Eland numbers are unnaturally low," he said. I asked him how he knew what was unnatural versus natural?

"A gut feeling. You hear people say that they used to see herds of hundreds of eland."

Via email, I asked Jan about the history of lion in Western Park and how everyone was so sure that there were once viable populations. "I think I remember [a tour operator] saying he has a picture from 1996 of a lioness with 7 males," he replied.

Alex has mentioned on a number of occasions that he believes the wild dog populations in Zambia are volatile due to high rates of poaching and snaring.

Despite this well-vocalized opinion and in contrast to John, Alex emphasized the role of research as that which lies outside of individual speculation. "If PPZ were to leave," Alex said, "they [ZAWA] would be back to relying on people's values and opinions." One afternoon, before I left to give a lecture on scientific formulas to Kiambi Day Secondary School, Alex insisted that I explain the formula in a specific way: distinguish – clearly – between what is value and what is fact.[7]

Alice told me that the only PPZ species that concerns her in Zambia is wild dog. "Lions a little bit," she continued, "but in talking to people, I don't think there has been an alarming drop in terms of numbers." Jan, Max, Alex, John, and Zach, however, expressed concern about all carnivores. These differing opinions influence the lenses through which various researchers regard the carnivore situation in Zambia. They might also affect how various individuals understand the urgency. John, for example, thinks that

wild dog could go extinct in his lifetime, which would represent a collective moral failure on the part of Zambians. On the other hand, Alice's concern about wild dogs relates to the conflicting reports from people in Kiambi: some say they never see dogs, while others claim to spot them often. "Just the fact that there are so many conflicting reports and different views … we don't know what's going on."

SCIENTIFIC RETURNS

In addition to the underlying morality of carnivore research, there is an economy of science that motivates researchers to engage in this line of work. When I asked John about the significance of this research, he said that it was firstly important to ecologists.

Zach presented his opinion: "Organizations that stick around have the potential to pay big dividends." On another occasion, I asked Zach why publishing was so important.

"To get a good job," he immediately responded. "Fortunately or unfortunately that is how you are graded."

"The NSF work is redefining how people think about carnivore research," said Max proudly in his interview. Cutting edge ecology comes with a large degree of financial and academic support.

"The primary measuring stick is peer-reviewed publications," Alex explained. "If the research passes peer-review, then it is legitimate."

"I want to share a line from one of the NSF post-doc reviewers," Zach continued, "'It looks like Zach has done extensive fieldwork in Africa; but until I see publications, it's hard to know what any of it means.' I think that's a valid criticism. Until you see publications, it's all anecdotal." In other words, the research Zach conducted in Kenya and the work of PPZ in Zambia does not actually mean anything, cannot be substantiated or labelled as 'worthwhile,' until such time as it appears in a specific format to an international audience of qualified assessors. This line of work is thus field-based with judgements of legitimacy from both the institutions of conservation that need 'the real story' on specific species and the scientific academy, which controls the scholarly measuring stick.

And yet local circumstances always influence the scientific product through conflicting and competing *un*-scientific priorities. Zach enacted a change in structure for prey transects and observation to suit the restrictions placed on PPZ movement. Alex lost his license to dart. Likewise, the international body of scientific scrutinizers does not follow a set of standardized, ubiquitously plausible criteria in their evaluations. Despite the heretofore meaninglessness of Zach's past work, he was ultimately awarded the NSF post-doc position, which means that other reviewers did not share the same values and opinions about his rate of publication. Megan Edwards was dissatisfied with the methodologies employed in past detection dog surveys and (jokingly) took offense when Frank suggested that the Western Park survey adopt an aspect of these models. In this industry of logic and empirical experiences, one that is fuelled by academic reputation and the desire help define the conservation status of studied species, how does one extrapolate and admit the governing moral order?

Regrettably, I did not push John further to talk about his personal values regarding wild dogs, but I wonder if he would have responded so unhesitatingly when he was conducting field research of his own, before his acceptance into the scientific academy.

Dr. Gary Ellis, a predator ecologist in South Africa who is now in his 60s, also spoke to me openly about the motivations for his cheetah study in the Kgalagadi Transfrontier Park.[8] "I don't pretend that what I do will make any difference to cheetah survival," Gary announced. "I do it because I like it. The only thing that will make a difference to cheetah survival is if people stop reproducing." These subjective points of scientific departure are probably not unique, but the ease with which both of these long-time, older, academic ecologists spoke about their perspectives was something that surprised me. Perhaps the morality of wildlife research and conservation becomes more prominent and undeniable the longer one remains in the business of scientific objectivity.

OBSCURE(D) RESULTS

What is the primary objective of the Predator Project Zambezi? This was the question with which I began all interviews of PPZ staff.

"To ensure a future for large carnivores," was the automatic response from Jan, Max, and Alice. This is also the headline on the PPZ informational brochure: "A Future for Large Carnivores." The correlation between research and the subsequent increase in knowledge of the species and the theoretically increased capacity to manage them seems to be an obvious and logical rationale. This is the purpose of wildlife research organizations: to provide further information, to devote all of their time to exploring the unknowns, and then to hand over the information to wildlife managers. But the matrix within which PPZ operates is not this straightforward; by contrast, the organization is always in conversation and competition with other international carnivore ecologists and WWF projects that strive to understand the same patterns and apply for the same position within the global conservation mission. And, over and above the functions of PPZ as an organization, there are the individual academic pursuits of each of its staff members, almost all of whom incorporate their work with PPZ into higher degrees or enhance their academic credentials through peer-reviewed publications.

The gain from this research is not discreet, even in the most remote areas of PPZ operations. Through their assets and constant flow of international faces, PPZ is unambiguously directed at the global world of conservation from which Zambia, as a yet-to-be-fully-eco-developed state, is ultimately excluded. Through PPZ, a selected set of experienced and talented ecologists are able to further their academic careers overseas and PPZ projects a lot of publicity around these "capacity-building" and educational accomplishments. In October 2012, one of the representatives from WWF-Netherlands suggested a BBC documentary on the life and times of Alice Banda. Shanzi, the ZAWA ecologist, mentioned to Alex that he had been accepted for a degree in northern Europe, implying that he wanted sponsorship from PPZ. A former student from the Wildlife College in South Africa biked over 20 km to PPZ on a stifling hot October morning to present a hand-written request for funds to expand his studies. Ison, who is scheduled to graduate from the University of Zambia in 2013, is often mentioned as the "next in line" to receive graduate funding. PPZ is viewed as an exclusive gateway to an otherwise inaccessible international arena. These requests are not just made to PPZ as an organization with obvious financial support; they are made to PPZ as a catalyst for accessing modern, global institutions. In some respects, this is the kind of reputation that PPZ desires; the organization wants to be appreciated for its educational programmes and

as having 'empowered' Zambians to receive international degrees and exposure. But the extent to which PPZ can facilitate these arrangements is limited both by funding and by Zambians with existing, acceptable environmentalities.

Indeterminate Accounts

This powerful reputation of PPZ is not, it seems, confined only to the Zambians with whom the organization interacts, but also affects some of the white ex-pats who reside in the Zambezi Valley. I interviewed one of the nearby tourism hosts, Paula, who has lived and worked in Kiambi for years. She was even commissioned to paint the interior of the PPZ office with images of wild dogs. "On PPZ, I don't know much about it: where the money comes from, what they do with it. When I was in Western Park, I talked to Frank [Thanas] about the paper on hunting lions, what a great thing. But I only know because I talked to Frank, I don't know much else. They collar lion." Diane, having heard about this paper from Paula, also referenced it in her interview: "If they are publishing good stuff, we haven't seen it."

Other lodges in the Zambezi Valley know that PPZ conducts research and there is a standard PPZ pamphlet that is left with lodges to pass on to guests. One camp in the southern portion of the park, Mukambi, even has posters and framed information on the work of PPZ and the Lower Zambezi Conservation Society. Yet when I visited the camp and gave a talk to the guides about PPZ, they were still asking basic questions about the research and how it functions. Even the camp manager, Solomon, who invited me to the camp and always offers PPZ food and housing when they are in the area, asked me why lions with collars seem to be more skittish than others. "We can't get close to them with guests," he explained. So despite prominent displays of support around the camp, and Solomon's individual generosity towards PPZ, there is an apparent scepticism and general disconnectedness from exactly what PPZ research accomplishes.

This is in part the fault of PPZ lack of communication about their research to the many different people and communities around their areas of work. But it is also demonstrates the chasm of mis- or non-understanding about how this research operates and for whom. The people who witness PPZ in action see the collars and the vehicles driving in and around the parks; but they are never exposed to how this research works within a larger framework of conservation understanding. This is the nature of scientific research, especially field-based studies: it takes years to accumulate enough information to say anything with confidence and the researchers must justify the delay in findings. But it also speaks to the unknown, mysterious functions of conservation agents, whose presence implies something intangibly discreet.

What is perhaps the most uncomfortable realization about PPZ is that the process of data collection involves physical removal of carnivore specimens. They take matter – in a very literal sense – to analyze. What they take is always exported, and while the direct lines of connection between this matter and the overall function of the organization might not be transparent, it is no secret that this science is valuable. The opaqueness is indicative of a particular kind of conservation science and highlights – despite the attempts by the organization to remain unassuming and quiet – the wealth and power of Euro-American missions to the periphery. The samples get sent North to be understood;

the truths and decisions about Zambian wildlife are revealed firstly through Euro-American processes of deduction and planning. These species and specimens become the property of anyone who can analyze them and their future in the correct eco-modern terms. The subsequent resistance and distrust that arises in Zambia confronts this inequality. What is unambiguous, however, is that when the matter moves and circulates, the publics and priorities of Zambia seem to get left behind.

EXPERT VIEWS

The PPZ science-driven agenda cannot be disguised or disavowed any more easily than its apparent irrelevance to pressing local perceptions and priorities can be denied. Seemingly, the more the organization tries to self-camouflage, the more the questions, rumours, and doubts accumulate. How does one effectively communicate the theoretical motivations behind predator-prey risk effects or to whom this matters? How do chlorophyll concentrations in puku dung affect the everyday realities of wildlife management and people who live with wildlife, especially when these numbers, if returned and interpreted, only ever reach the desks of management officials years later? PPZ has permission to conduct its research and some of the predator monitoring does get reported to ZAWA so they can qualify their lion and other predator hunting quotas. But something else is always happening within PPZ: new surveys, new funding, more equipment. The organization continuously expands, triggering a broader sense of wariness and isolation in those who witness its growth.

The resulting resistance to the powers of PPZ manifests (even by some expats in Lower Zambezi) as aversion to their research and its international systems of support. This disquiet complicates PPZ scientific projects[9] and ZAWA forces the organization to surrender in part to the bureaucratic and other 'weapons' that are drawn locally. In this chapter, I have shown that the ways in which the research focuses of PPZ unravel do not confirm the strict processes of objective fact collection that Alex wanted me to explain to Kiambi students. Logic and empirical data are not the only elements at play; by contrast, the premise for this work is often founded on opinions and values about the importance of these species, moral wrongness and rightness, and the specific interests of wildlife researchers. Perhaps the observable morality of PPZ lends itself to further suspicions of their research, which implicitly (and sometimes overtly) reflects the ethical standpoints of both PPZ and the conservation institutions to which it is attached. In its lived context, the scientific method never corroborates a dichotomous divide between fact and opinion; this line is blurred from the onset, beginning with what is theoretically "doable," and proceeding to the individualized ethical judgements (such as throwing dog faeces off the road) of the scientists themselves.

Chapter 5: Inwardness

What struck me unexpectedly about PPZ when I was introduced to the organization in July 2011 was the interpersonal closeness of its staff. The lines between one as a private individual and a member of PPZ were almost indistinguishable. The geography of the PPZ Zambezi camp – the primary domestic arena – reflects these dynamics. In the main building, the office space is the first room entered from the front door. To the left of this area is a narrow, five-metre hallway, which passes a small kitchen and the bathroom on the right. The wall that separates the kitchen from the bathroom does not reach the thatched roof and, because of the lack of boundary, everything that takes place in either room is publicly audible. Directly across from the bathroom is a storage room, which holds the deep freeze, camping and field equipment, linen, and a spare bed. Alice prefers to sleep in this room when she spends nights at the PPZ camp.

Additionally, the outdoor office is situated directly next to the outdoor bathroom, which is a small structure with no roof and thatch walls. Max's desk is the closest to the bathroom, on the far side of this office. Beginning in 2011 when I jointed PPZ as a volunteer, Max would often – if not always – initiate conversations with me while I was in the shower. We would speak about plans for the day, what happened in the field the night before, and other logistical matters. At some point, I felt inconvenienced when Max was not in the office in the morning because I had learned to count on this dialogue as a way to structure the day. I quickly adapted to the distinctive social relationships in this intimate setting.

In *Living in the End of Times* (2010), Zizek speaks about the "unknown knowns" that influence political decisions and 'global' environmental practices. In reference to a research project into the sociality of bees, he identifies the "unknown knowns" as "all of the anthropocentric prejudices that spontaneously colour and bias our study of them," (259). Like various species of insects, carnivores too have intricate and hierarchical social structures that can be explained and rationalized in the terms of human relations. When said structures are disrupted, the effects of these breaks can alter the chances of survival for individual carnivores and localized populations. Most obviously, wild dog are relatively weak as individual animals and the success of their hunts (and by extension their survival) depends on the efficiency and organization of the pack. Unlike the more robust lion, leopard, and hyena, when wild dogs are under threat, they depend on collective defence. In our interview, John told me that during his fieldwork in the Selous, one of the most trying experiences he had was watching lion dig up and kill wild dog pups out of the den in the absence of the adult dogs.

"It's in these moments when you really struggle with whether or not to interfere."

PPZ staff members will describe their research as an objective mode of carnivore interpretation. However, there is an unavoidable sense of protective responsibility and care that drives the "unknown knowns" of their methods. The people who comprise PPZ are particularly attentive to the details and interactions of their studied species and physical environments, and this awareness seems to stretch beyond the non-human

research. In contrast to the masculinised world of the field, the domestic realm of PPZ can be located within the campsites and through the emotional reactions to the well-being of both the studied species and to each other. The care required in order to 'live with' carnivores (and 'live for' their survival) also extends to the support the researchers afford one another, which renders the PPZ campsites havens of emotional safety. This compassion defines one element of PPZ organizational culture which, along with all social dynamics, is exaggerated by the small number of people and confined working spaces. In this chapter, I present a repertoire of affective expression and social interaction to show how the interpersonal relations of PPZ unfold. I discuss how these dynamics are shaped by particular cultural bearings of the PPZ individuals, with emphasis on the American familial traditions that influence specific social patterns.

The public presentation of PPZ also takes peculiar shape in the staff members' self-conscious deference to Zambian authorities. Through these interactions, the postcolonial conservation sensibilities can be identified as accentuated consideration and tolerance of in-country necessities. While these attitudes are showcased as respect for ZAWA and their politics, this composure in the face of ZAWA restrictions seems to be possible and manageable because of the (self-)understood sovereignty of PPZ. ZAWA can and does interfere with research processes; but PPZ is always bigger and more powerful than its day-to-day activities in the field. This implicit authority is another of the "unknown knowns" of PPZ, through which the global forces of conservation and contemporary forms of "predatory care" are represented and expressed (Pandian 2001). Despite bureaucratic 'weapons,' ZAWA can only ever temporarily agitate but never significantly affect the (invisible) workings of carnivore research.

In this chapter, I depict some of the safety mechanisms with which PPZ subsists in Zambia. The nature/culture dichotomy of PPZ – the manly fieldwork in wild terrain vs. the support systems of the domestic campsite – allows for distinct outlets for culturally constructed needs and impulses (Grinker 1997). In apparent contrast to the constitutions of manhood described earlier, this chapter discloses the homey, sensitive sides of PPZ, which both reiterate and complicate the personal emotional investments in the humans and non-humans of global conservation.

REPOSITIONING

When I first arrived at PPZ in 2011, Francesca, a volunteer from California, was the only other female living at PPZ camp and the only other white/foreign woman involved with the organization. Originally from South Africa, Francesca immigrated to the U.S. in her late teens, married an American man, and eventually started working as an environmentalist. She ran her own environmentally based NGO in northern California until the stress of work forced her to re-evaluate most everything in her life. She quit the job, questioned her marriage, and decided to travel half way around the world to act as a volunteer. Francesca found something significant with PPZ and exactly what she was looking for in that phase of her life: new direction, new environment, new focus. Her experiences in Zambia and with PPZ gave her the clarity that she needed to keep her marriage together and start afresh in the U.S., with her passion for wildlife expanded. Although she didn't continue with PPZ after 2011, Francesca began a new initiative for

lion research in Mozambique; she was asked to consult as a predator ecologist on a Princeton University project; and she decided to pursue a PhD in ecology at Oxford.

Francesca's decision to uproot her life in the U.S. and look abroad for renewed meaning is not in and of itself remarkable. But what did stand out to me, almost immediately after I met Francesca, was the degree to which PPZ helped to shape that path. Not just the carnivore work, or what she learned about managing a research organization, but also the availability and comfort of the people with whom she worked. A couple of weeks after I had arrived in 2011, I mentioned to Jan my recent breakup and I told him that I hadn't spoken to my former partner since I had been in Zambia. This period of silence was a challenge for me and I suppose I thought that speaking about it would help me release the tension. It did. Jan, who is one of the (if not the) most reserved of PPZ staff, told me that when he was offered a job with PPZ he had been living with his long time girlfriend in Holland. She was in medical school and they had recently planned to buy a house together. He accepted the position, they broke up, and didn't speak for a year. At the end of that month, July 2011, she was going to visit him in Zambia – her first trip to the continent. By that time it had been over two years since they had parted ways, but it was clear that Jan had lingering hope that this visit would lead to a new chapter. Perhaps she would see a professional opportunity. "There is plenty of need for doctors here," he said.

Animal Fostering



Figure Nine: Peanut, the ZCP adopted kitten, attempts to climb out of her basket.

In early July 2011, PPZ adopted Peanut, a half wild, half domestic kitten they had rescued from abandonment. Peanut and the rest of her litter were found neglected under a pile of wood near the mechanic's workshop. I remember how I cooed over this tiny animal in the beginning of July, when she was just over a week old and could fit in our palms and, to avoid the cold office floors, would sit and sleep on the tops of our feet. We fed her from a syringe and spent hours together on the internet reading about how to help her urinate. We took turns wiping her with a warm towel to induce urination and we rotated sleeping with her. When she was old enough and strong enough to play outside, Alex was especially vigilant in his watch and would often lock her indoors when he saw a bird of prey overhead or heard baboons nearby.

Peanut survived just over a year before she disappeared in mid-July 2012. Even as a kitten she had always been an aggressive hunter and we presume that she was killed by a larger predator during one of her pursuits. Peanut became so wild that after the age of six months she did not want human affection and would only appear at the PPZ office for food. The former Sioma Ngwezi project leader, Robert, and his wife Sofia stayed at the Lower Zambezi camp over the wet season in 2012, and Sofia, a qualified veterinarian,

was prepared to spay Peanut. She sent an email to me, Max, Jan, Alice, and Francesca to ask which one of us was Peanut's parent so that she could explain the risks of anaesthesia. "Well … I suppose we all are," I answered. When Peanut disappeared, her absence was noticeable not because she was a particularly loving or friendly feline, but because she represented a team effort in raising and caring for a resident carnivore.

This collective effort to care for and protect animals is a consistent theme in PPZ operations, which is true for both research and conservation work in the field and in the unofficial social realms of the camps. Perhaps careers and studies devoted to the 'well-being' of nonhuman species require compassionate personas. There has been a selection of animals nurtured by PPZ after being found attacked or abandoned, including a porcupine, genet, and infant bushbuck. While PPZ staff distinguish their ethics from those revealed through Euro-American animal rights discourses, these affective tendencies can still be seen in not only how they regard their own subjects (see Chapter One), but also how they react to other wild animals, especially those that appear to have suffered (Finsen and Finsen 1994). This almost instinctual reaction to help apparently vulnerable animals is also detectable in the human relationships at PPZ. Indeed, when anyone at PPZ is going through a difficult period, his or her situation is talked about openly, reassuringly, and affectionately mocked in attempts to lift that person's mood.

During a particularly trying day for Alex, Max decided that we should cheer him up with a song that was written for PPZ by two musicians affiliated with the Australian NGO Painted Dog Initiative, whose chairman is on the board of PPZ. He visited from Australia in May 2012 and brought a copy of this song, which he proudly introduced to Alex and Max: "I asked two friends of mine to write a song about wild dogs, and this is what they came up with." The lyrics of the song repeated the fragility of the species and how wild dogs (aka painted dogs) demonstrate themselves as "sharing and caring" animals.[1] Alex had to leave the room to avoid a fit of laughter and Max composed himself long enough to entertain the chairman. In an effort to bring a smile to Alex's face, Max and I crept out of the office and circled to the side of the outdoor shower, which we could hear was occupied. We held the computer close to the thatch and pressed play, stifling our laughter.

"Uh, yes?" came Zach's voice from inside the bathroom. "Shit, sorry!" I whispered. "We thought you were Alex."

With equally clumsy movements, we made our way towards Alex's tent and again started the song.

"I heard you morons by the shower," he laughed. "Turn that god awful song off!"

The song embarrassed Alex and Max, which was perhaps partially a defensive reaction to the (albeit badly written) implications about the protective and affective nature of wildlife conservation.

LENDING HANDS

My mom visited me in South Africa in early June 2012 and we travelled together to Zambia thereafter. She booked herself for a week and a half at the lodge next door, and I planned to join her on game drives and for meals. Max had already corresponded with my mom: when Max travelled to the U.S. for his holiday in 2011, my mom sent him a

package to bring to me in Zambia and included a card to thank Max for being a nice friend to her daughter. I was taunted relentlessly for this note.

My mom's visit to South Africa and the Zambezi Valley was at times trying for both of us; prior to June 2012, we had not spent three consecutive weeks one-on-one together for years. Moreover, I had to endure many communal meals with American tourists at the lodge, whose perspectives on "Africa" were frightening. One evening towards the end of her stay, I walked back to PPZ after dinner with the lodge guests and I nearly exploded: "I just can't stand the way they BREATHE!" Later that night, Max positioned himself outside of my tent and emitted loud, prolonged, inhales and exhales. Later, Max and Alex placed the call-in speakers behind my tent, programmed to play dying buffalo sounds.

In the middle of June, when Armstrong, John, and Dan were in Lower Zambezi for an NSF visit, everyone was out in the field except for me, Armstrong and Alex. Armstrong started to prepare dinner for everyone with cabbage, tomatoes, and capenta (a small sardine-like fish popular in Zambia). I was about to walk next door to eat dinner with my mom, but I stood and talked with him about his research project while he chopped. Alex was in the indoor shower and also joined the conversation. When Alex got out of the shower, he proceeded to cut his fingernails and we spoke over the high-pitched clicks without reaction. Most everyone uses the outdoor shower as it is more spacious, less invasive, and nicer to shower out of doors. Alex, for some reason, prefers the indoor facilities and is used to participating in kitchen discussions while bathing and grooming. In August 2012, he did not appreciate my placing a litter box for the new PPZ kitten in his place of hygiene.

The camp serves as the refreshing station for PPZ. Not only is this the place where everyone comes together to plan and discuss research, but it is also a refuge from the bush. Here, PPZ staff shower, wash clothes, eat, and sleep. It is where they have Doreen, the PPZ housekeeper, to clean up after them. Alex, Max, Zach, and Jan will return from the field with streaks of dirt across their faces, starving, and exhausted. Whereas the field implies symbolic and actual abandonment of all domestic consideration (recall Alex's refusal to take food and camping gear), the camp is a place to recuperate from the toughness and wildness of fieldwork. As the domicile for predominately Euro-American staff, the camp is also a place of recreation where PPZ individuals can play sports, watch movies, and sit around the proverbial dinner table.



Figure Ten: Poster in the outdoor office.

Accustomed Meals

Everyone takes a turn to cook dinner and the people who remain at camp always prepare dinner and leave enough for those who return late from the field. This act of preparation takes on a different pace and energy depending on who organizes the meal. Max always brings his computer and places it atop the fridge to watch *American Guns* or *It's Always Sunny in Philadelphia* while he cooks. His meals often take the most time to prepare since he gets distracted by his computer and forgets to keep up cooking momentum. When Zach's wife, Claire, was at camp for June and July, she would download episodes of *Wait Wait! Don't Tell Me* and silently chop and stir as she listened to the programme. Before Jan left for Western park, he would start a meal and walk back and forth between his computer and the kitchen. Jan liked to cook meat, so he would frequently arrange meals that could sit for long periods in the oven allowing him to spend uninterrupted time at his desk.

Once meals are prepared, everyone sits together to either talk or watch a TV programme. In 2011, much to Francesca's disgust, we spent many if not most evenings in front of the reality TV series *Jersey Shore*, which Jan downloaded for us regularly. I suppose the banality and horrendousness of the show appealed to our own dramatic experiences of (and nostalgia for) reckless roommate days. We joked about making our own *Zambezi Shore*.

The evening meal is a time of re-connection and scheduling. Often more than one person will cook, and everyone is served and sits together. If someone is in his or her tent or in the outdoor office, he or she is always called before the entertainment is set up and food disseminated. If a team has returned from the field, everyone first listens to what they accomplished and, if someone is set to leave early in the morning, the agenda is shared and discussed. This is an important time of day to unwind and regroup and it highlights the degree to which everyone in the organization is involved in the day-to-day arrangements. After dinner, scouts are called to make plans for the following day and then the eggs are boiled, kernels popped, and other field food packed into coolers. Everyone helps to organize the food and equipment whether or not they are going into the field.

This particular ritual speaks directly to idealized American routines of which the familial dinnertime interaction is particularly prominent. In the U.S., these occasions are – even still – stigmatized as evidence of a healthy and communicative family unit (cf. Fiese et al 2002). By transplanting these orthodox American customs, PPZ staff remain consistently connected to familiar social frameworks and thus reinforce their anchorages and attachments outside of Zambia. The global connectedness of PPZ is therefore visible not only in its affiliation to a number of scientific and conservation networks, but also through the daily habits of its individual members. These preferences constitute a specific environment at the PPZ camp, one that is reflective of American values and a safe space to re-habituate to familiar, 'civilised' routines (Grinker 1997).

ORGANIZATIONAL GRAMMAR

June 30th 2012 was the Lower Zambezi Conservation Society Fun-Run, an annual event (in its fourth year) of one initial 10 km race followed by a host of other sporting

activities and competitions, music, and food. The theme is always centred around conservation; during the 10 km race, runners had to grab pieces of paper at four points along the way to prove that they'd followed the prescribed route. Collectively, these four papers read: "Make Conservation A Habit." As a runner, I was determined to place first for the women and I insisted that we leave camp by 6:00 a.m. to be at the event (held adjacent to the airport) no later than 7:00 (the race was scheduled to start at 7:30). Last year, it apparently began close to 9:00 so no one at PPZ was convinced that we had to leave so early.

That morning I woke up everyone up at 5:30. After initial groans, Alex stumbled out of his tent and asked if I had prepared breakfast. As soon as the others showed signs of alertness, a general atmosphere of chaos followed: there was a queue for the outdoor bathroom, everyone had to fill water bottles, everyone had to make coffee, Alex and Max said that they needed to "carbo load" and grabbed rolls with peanut butter. We were all packed into one car: Alex drove with Claire and I upfront; Doreen, Moses, and Alice were in the back seat; and Jan, Zach, and Max climbed into the far back. Alice said she needed to stop at home and change into appropriate clothing and we had to pick up Ison from his house. We managed to leave camp just before 6:30, with a car full of screaming and nagging people. Ison jumped into the backseat next to Alice, wearing black and white chequered earmuffs. "*What* are those?!" Alice asked, laughing.

We pulled outside of Alice's house and gave her approximately 30 seconds before we started to honk the horn and text her to hurry up. After five minutes she emerged with a bag. "Jeeze, you people," she said as she climbed back into the car. We passed truckloads of people, all heading to the Fun Run. LZCS promised cash prizes for the winners of the 10 km and other sporting activities, which brought people from as far as Lusaka (a 3-hour drive). We arrived in time to register, get a bright red LZCS t-shirt, and position ourselves amongst the hundreds of people squashed together to begin the race. After about two kilometres, most people dropped out. I kept a steady pace and I did end up winning for the women, although just slightly, with a barefoot and bra-less girl half my age right behind me.

The rest of the day was filled with beer drinking and eating the selection of egg rolls and meatballs that were cooked en masse. Doreen had recently finalized her divorce and we spent the better part of an hour asking her about her love life and her new, post-marital boyfriends. Through our interrogations, we also unearthed that Alice had been involved with a Tanzanian student, Daniel, when she was at the University of Toronto. "Is he a Canadian-Tanzanian lumberjack?" Alex asked, which prompted a string of jokes about Alice's rugged lover (note the assignment of North American manhood). Jan, after four or five beers, mustered the courage to speak to a fellow Dutch woman whom he had noticed in Kiambi before. We all watched intently as he began conversation and sent him text messages to find out how things were progressing.

The ride back to camp was equally manic: Alice was repeatedly harassed about Daniel, Ison persisted with his earmuffs, Jan was, unbeknownst to him, left behind to carry on his flirtation with the woman. Over 3,000 people turned out for the Fun Run in 2012, a significant increase from the previous years. Two Zambian football players started the 10 km race and took photographs with the winners, and they were of course a big attraction for all of the young men and boys in Kiambi. USAID and a few lodges

were the biggest funders and supporters of the Fun Run. “Conservation is about people too,” said the USAID representative before the race began.

The day at the Fun Run revealed the peculiarities and intimacies of PPZ organizational culture. Even though the commonalities between PPZ foreign personnel and the Zambian camp staff are few, the constant involvement between everyone at PPZ lends itself to familiarity and openness. Moses’s wife suffered a complication in delivery of her last child, which has caused prolonged need for medical attention; Doreen’s mother died abruptly in September 2012, which left her devastated. These hardships also become absorbed into the overarching tenderness of PPZ camp life so when occasions like the Fun Run arise, the unofficial dynamics between the staff at PPZ appear fluid and comfortable. Moreover, Ison and Alice, who can both converse fluently with PPZ camp staff and engage the customs of foreign staff, speak equally in English and Nyanja, which helps to bridge the divide between the American and Zambian worlds at the camp. Ison and Alice, along with Armstrong in Sioma Ngwezi and Kanga in Western Park, reiterate the Zambianness of PPZ and their achievements are widely advertised in reports and presentations to help promote the organization as locally beneficial and relevant.

SUPPORT STRUCTURE

Towards the middle of July, Robert, the project leader for Sioma Ngwezi, started to complain about compensation for him and his partner. Both Robert and his girlfriend Sofia wrote Alex long emails about their unhappiness in the organization, specifically about the amount of money they were receiving for the work. “I did a quick search on salaries in the industry,” Robert wrote, “and Sofia and I are worth $85,000 USD per year.” Despite the absurdity of some of their emails, Alex was genuinely affected by their unhappiness. They criticized him as a manager and accused him of not doing enough to find further funding. “I am not paid enough to write grants myself,” Robert stated in another email, implying that this was Alex’s duty. For close to a week, Alex hardly slept because he did not know how to address the two of them. Robert joined PPZ with a reputation in the southern African conservation and research world for being a difficult employee. Nevertheless, because of his experience with wild dog research in Namibia, Alex decided to include him as the site leader for Sioma Ngwezi. Together they wrote a budget, which had minimal financial contribution from WWF-Netherlands and majority funding from Robert’s supporters in Namibia.

Alex spent a lot of time in his tent during the Robert debacle of July, trying to work out what was fair and how to approach them. Even though the original budget, which they created equally, clearly specified that no salary would come from WWF funding, Alex felt obligated to appease Robert’s demands. In the beginning of August, Zach travelled to Sioma Ngwezi to help Armstrong with the initial stages of his PhD fieldwork. He arrived to a loaded atmosphere: Robert and Sofia were not interested in helping Armstrong with his research and they had visibly spent limited time in the field for PPZ data collection. Moreover, they had made enemies of many employees from Wilderness Safaris, the lodge in the area that provided Robert and Sofia with free accommodation and logistical assistance. When Zach told Alex about the dynamics in Sioma Ngwezi, he went from feeling responsible for their unhappiness to angry. “I have

to get rid of them," he said when Zach finished with his synopsis. "They have to leave before they do any more damage to our reputation."

It took Alex a couple of weeks to collect his thoughts and write to Robert. After consulting the PPZ board about the appropriate course of action, Alex sent Robert a letter to terminate his relationship with PPZ and vacate Sioma Ngwezi under the PPZ permit. Although the letter did not go into specifics, Robert did not object; instead, he organized all of his belongings as instructed and arranged to leave Sioma Ngwezi immediately. Alex knew that this was the right move for the organization but could not help but feel badly for Robert and Sofia, and his self-consciousness about the decision was evident. He spoke to all of us at length about his justifications as a way to work through his personal and professional sentiments. The exodus of Robert and Sofia came with financial repercussions for PPZ, and Zach and Armstrong were tasked with repairing the relationships in Sioma Ngwezi. Alex's inclusion of everyone in this process brought the organization even closer and more internalized, as if this was the collective decision of the PPZ unit.

What ultimately drove Alex to sever ties with Robert and Sofia was not their work ethic or demands, but how they represented PPZ publicly. When Zach visited Sioma Ngwezi in August, he arrived to a stalemate between Sofia and the ZAWA scout Lavdale. According to Sofia, Lavdale did not react with appropriate appreciation when she gave him the food she had selected for his monthly rations. Robert and Sofia assumed an air of entitlement in Sioma Ngwezi and expected Wilderness to provide for them. When these dynamics became clear to Alex, he realized that they had to leave immediately. The relationships that PPZ have with ZAWA and the tourism sector are still fragile. The wrong kinds of people could easily undo these already sensitive and hesitant dynamics, which, he feared, was the current trajectory in Sioma Ngwezi. Moreover, Armstrong had just begun his PhD fieldwork, was overwhelmed by how much information he was meant to accumulate, and needed assistance. Robert and Sofia offered none, which was in stark contrast to the familiarity and routines at the Lower Zambezi camp.

This episode shows the importance placed by PPZ staff on deferential, humble approaches to in-country 'partners'. Aside from Robert and Sofia, everyone at PPZ operates with a delicate appreciation for these relationships, especially in areas like Lower Zambezi where the politics of conservation intersect the national wildlife authority and the tourism and hunting industries. Every foreigner at PPZ presents himself as a self-conscious visitor in the country and tries to circumvent the overarching national scepticism to these organizations. Alex knows that he must entertain every one of the phone calls and emails to report that a collar is "too tight," a carnivore is in distress, or there has been yet another complaint about the suspicious activity of PPZ. This is the necessary protocol to try to subdue postcolonial conservation friction; and when people like Robert and Sofia interfere with a blunt sense of entitlement, the political ties for PPZ become weaker. But aside from their tones and mannerisms, the privilege felt by Robert and Sofia as staff members of PPZ was not out of context. To the contrary, the significance of this kind of research in a global context, as a means to fuel global conservation priorities, is emphasized explicitly through both the language and financial support of the major international conservation institutions. Whereas the rest of PPZ staff downplay their implicit authority by submitting to daily ZAWA requirements, Robert and Sofia asserted the power that they believed themselves to possess.

ENDURANCE

The craft of conservation, while managed and ensured from its Euro-American hubs of power, has to be negotiated discreetly in-country so that the politics of eco-modernization are both enforced from above and cultivated from below. To allow blatant authoritative demands from Robert and Sofia would be to regress to an older, more obvious form of (green) imperialism. Now, through national offices with local staff for global conservation organizations and sub-programmes such as PPZ that are meant to develop positive local relationships, the global environmental missions work through multiple angles and levels. The quiet force of this operation lends itself to the conspiracies about PPZ motivations, as I showed in Chapter Two; indeed, despite PPZ courteousness, these suspicions persist. In the postcolonial context of conservation, however, this more discreet hegemony is the expected and approved modus operandi.

All of these instances with PPZ, whether dramatic changes in the organization like Robert's departure or potentially life-changing considerations like Francesca's marriage, are known to everyone. The care and concern that can be widely detected throughout PPZ perhaps speaks to the kinds of people that become involved in the wildlife research and conservation sector. While a particular archetype of manhood is constructed through the fieldwork and mechanics of PPZ, there is a noticeable, engendered adjustment in the camp setting. Here, individual emotions and vulnerabilities become public knowledge and through these shared sentiments, a supportive organizational grammar emerges. These dynamics are amplified by the manifest team efforts to care for one another and the non-humans that are absorbed into the camp and by the less apparent unified protectiveness over the reputation and relations of the organization.

While PPZ receives support both practically and symbolically from international conservation institutions, the people on the ground are responsible for establishing and maintaining the relationships that will facilitate research collection and lend support to the organization's objectives. The connections that PPZ forms and the trust it is able to gain in Zambia help fuel a global project of appreciation for (specifically defined) species conservation and protection. Through organizations like PPZ, the international conservation agents are able to identify local individuals who can represent the African countries that are regarded as "not yet" there and in which they can invest so as to ensure future leaders are inculcated with the 'correct' environmentalities. (For example, WWF proposed a documentary idea to BBC on the life of Alice Banda as a rural Zambian who developed into a scientific conservation leader, and Alex refers to her as the future CEO of PPZ – once she has completed all of her graduate studies abroad.) These are the kinds of individualized impacts that conservation organizations can have: to recruit and train the 'right' local people so that, in the future, the hegemony of conservation can be rendered even less obtrusive with the progressive elimination of its Euro-American interlocutors.

The Signifiers of Conservation Science: Concluding Remarks

Through the mechanisms and routines of PPZ, I have shown that there is in fact something more behind the veil of their research operations. The advertised objectivity of their programme and discipline becomes undone through the removal of dog faeces, the phone calls to lodges, and other examples of how PPZ tries to keep their studied species safe. As monitors, PPZ staff have access to carnivores through various technologies – radio collars and camera traps – that give them exclusive exposure to the otherwise hidden happenings and habits of individual and groups of animals. These technologies not only assist in the process of fact collection but also give the researchers a sense of control over individual animal well-being. In Western Park, the collars on lions were instrumental in manipulating the animals' movements and activities; in Lower Zambezi, the mark of the collar is hoped to prevent certain lions from becoming safari trophies. Through these various grips on carnivore populations in Zambia, PPZ implicitly works to dispossess the country of its wildlife decision-making ability. PPZ is supported symbolically and financially by WWF, which serves as one of the primary meta-organizations to halt the global decline in species and habitats. These attempts to control carnivore biopolitics cast PPZ – as an agent of WWF and international conservation writ large – as a sovereign authority over Zambian wildlife and how it is (meant to be) understood, appreciated, and managed.

This tension around ownership and rights to particular species in Zambia implies other ways in which the country is "not yet" capable of making informed decisions about their environments. The Euro-American push for a new global understanding of modernity, one that puts the protection and conservation of various ecosystems ahead of mass rural development, reiterates particular imperial balances of power. The green Euro-American countries, those nations that have already learned how to safeguard and care for their own natural systems, are again setting the terms for how former colonies can attain international respect. Zambia has ratified the necessary policies and the country subscribes to CITES requirements; but through the rhetoric of official documents, undertones of national resentment and forced compliance are exposed. Moreover, while the Zambian government and ZAWA have to include NGOs like PPZ to qualify the status of endangered species, they too make their aversion to Euro-American organizations known. Indeed, ZAWA acts as a begrudging 'partner' for PPZ, with restrictions implemented and new limitations added on a regular basis. These obstructions are not, it would seem, a reaction to the specific ways in which PPZ conducts itself as the organization consciously asserts its patience and deference. Rather, PPZ represents forces of international environmental power to which the country of Zambia has to submit. This invisible authority is detected more widely in Zambia and is protested through "occult cosmologies" and conspiracy theories that emerge about the *real* motivations of global conservation (West and Sanders 2003).

The power of PPZ is emphasized further by the nationalities of many of its staff members and affiliates. Through the mobility of the organization – a constant flow of international faces and funding – their anchorage elsewhere, outside of Zambia, becomes a further point of alienation. Additionally, the foreign staff of PPZ bring to Zambia their

unique cultural constructions, specifically notions of masculinity and productivity, which become dominant in the enactment of fieldwork. The presence of the white natural historian cum colonial Hunter has a long history in Africa, where the rugged colonizer discovered an outlet for his masculine, untamed impulses. Today, safari hunting of this kind still exists, as does its modern day version of "green" hunting, a re-defined 'sport' that is meant to aid conservation efforts. The specific American attachment to hunting can also be detected through the sociality of PPZ staff, which again emphasizes the foreignness of the organization.

In addition to American firearm appeal, PPZ staff have acute attachments to U.S. universities and to a particular understanding of how research and science is meant to be conducted. The science behind wildlife management provides the facts from which conservation planning is supposed to be based; in other words, the scientific episteme still acts as the hegemonic authority in matters of the environment. PPZ fulfils this role for carnivores in Zambia, so the organization is not only an agent for the global conservation network but also produces the 'truths' about Zambian wildlife. These facts and their portrayals are then pushed into academic journals and popular Euro-American press to further stimulate the Anglo fascination with African megafauna. In so doing, the economic and symbolic value that is generated by PPZ is moved further away from Zambia, evolving instead through the Northern epicentres of conservation and environmental controls.

As a result of the particular PPZ perspectives and interests, and the physical closeness of the working environments, the people of PPZ operate within a unique organizational grammar and routine. Everyone at PPZ actively represents the organization as one that is respectful of the in-country policies of ZAWA, and all conversations with ZAWA officials are negotiated calmly and agreeably. When PPZ representatives jeopardize this image, as was the case with former Sioma Ngwezi researchers, they become a liability not only to PPZ but also to the international conservation mission. In contrast to the former rigid colonial policies of wildlife management, there is now advertised cooperation between Northern conservation emissaries and national environmental managers. In order to upkeep this 'partnership,' the foreign NGOs must maintain composure in the face of policies that do not fit their own conceptions of how best to manage biodiversity. For PPZ, these measured responses are a part of daily life and the raw opinions about ZAWA can only be expressed in camp and amongst the Euro-American staff members. These are often vocalized at dinnertime, when the American ritual of a collective, communicable meal is enacted, accompanied by a variety of American television series. The camp setting allows for the performance of these familiar traditions and provides a safe space through which the domestic, undisguised sides of PPZ staff can be revealed.

Discards of Global Environmentalism

Through this ethnography, I have tried to illustrate the nuanced global connectedness of conservation organizations and their understandings of what it means for a country to be environmentally modern and responsible. These Northern perspectives are not easily transplantable and the attempts to convert former colonies to Euro-American environmental conceptions are often met with recoil and guardedness. Why

does it matter whether or not carnivores remain in existence? For those of us from Euro-America, we have a particular imagination about the African wild, especially the status of charismatic predator species. To us, these animals bespeak a thriving savannah system, one that we have long revered through cartoons, storybooks, and National Geographic productions. To us, the decline of dominant carnivores demands international environmental protocols to ensure a specific, sustained, 'natural' hierarchy between African wild species.

I have thought extensively about whether or not organizations like PPZ can exist transparently. I have wondered if international NGO missions of all varieties should be allowed to persist, as they seem to complicate and betray as often as (or more than) they 'help'. So what if wild dogs go extinct? If their continued existence is not important to the majority of Zambians or the majority of Africans why is a Euro-American led mission to conserve them permitted? I imagine these to be the frustrated thoughts of many African wildlife departments that are constantly pressured from the 'international community' to do more and to do better to protect their countries' natural resources in ways that are recognizable to Euro-American sensibilities.



Figure Eleven: Spotted hyena cubs nervously go to suckle as we watch from the vehicle.

These are some of the larger questions and discomforts with which I left PPZ. What was equally confusing was my complicity in the same histories and associations of PPZ personnel: I too have affective reactions to carnivores, I care about their continued existence, and I can understand the emotional investments of PPZ in Zambian wildlife because I feel them myself. Can I meaningfully critique these global environmental discourses when I choose to work within them? Moreover, I was also a researcher at PPZ in the field of anthropology and my work (this ethnography) generates value for my future career in the same way that the scientific research of PPZ affords academic prestige to its students and scientists. Perhaps this is why no one at PPZ questioned my research, why they all so willingly signed my consent forms, explained in detail their everyday tasks, and sat with me in interviews for hours. We are all academic interpreters of the socio-natural world.

Despite my own self-reservations, I hope this ethnography contributes a detailed perspective on how the powers and contradictions of wildlife research complicate conservation discourse. PPZ declares an objective standpoint towards their carnivore subjects, which is confounded by their everyday actions to save and protect individual animals. ZAWA publicly appreciates PPZ research, yet ZAWA officials continuously stand in the way of data collection. The residents alongside the Lower Zambezi National Park believe PPZ to be involved in elicit carnivore removals and trade, and the work of PPZ is meant, in part, to interfere with illegal forms of wildlife off-take. There is suspicion and distrust from everyone with claims to Zambian wildlife. The purpose of

this ethnography is not to mitigate the tension or attempt to resolve it, but rather to pull the uneasiness apart, expose the layered contradictions (my own included), and try to make theoretical sense of the accusations towards wildlife research. In so doing, I attempt to open a window onto how the international powers of conservation merge and clash with local wildlife perceptions and histories. The irritations and reluctances towards wildlife conservation symbolize broader concerns about national sovereignty and who gets to choose what is worth protecting within a particular country. These doubts challenge the hegemony of conservation by naming and temporarily obstructing its hidden motives to develop post-colonial environmental subjects. They force us – those of us who want to see African savannahs and forests thrive as 'healthy ecosystems' – to hesitate and think critically about the inherent implications of our interests and careers.

CONSERVATION SCREENS

This research takes up Donna Haraway's (1989) enquiry and historicizing of how science, as an academic field and epistemic practice, operates. I have detailed the ways in which PPZ personnel are drawn into a set of practices and ethical imperatives that are shaped by un-contestable modes of scientific interpretation. In the discourses of conservation, these 'value-free' forms override issues of sovereignty and conservation ecology is elevated as an objective arena where politics and ethics have no place. In Zambia, a country that is overtly trying to unburden itself of imperial logic (recall Sata's immediate presidential actions), the scientific/conservation domain works to curb this desired dissociation and delays processes of (internationally condoned) modernization. As social researchers, by exploring the incompatible emotional investments of this principally scientific terrain, we can further expose the impossibility of separating science and affect. By dethroning the strict objectivity of scientific practice, we can promote other subjective, cosmopolitan appreciations of conservation and environmentalism (Tsing 2005) and consider equally the ranges of morality at play. In anthropological studies of conservation methods, through the personal gestures and beliefs of both those who claim an informed perspective and those who resist scientific authority the paradoxes of 'unbiased' environmental review can be explicitly rendered.

Something gets lost when foreign NGOs arrive to the post-colonies with aims to advance Euro-American environmental missions. The residual colonial structure of this North-South relationship does not go unnoticed; to the contrary, there is deep discomfort in government environmental and wildlife departments and within the people who see conservation agents in action. 'Western' NGOs speak for a larger, global process of eco-modernizing, through which the 'behind' post-colonies are meant to catch up to 'global' North. The people of PPZ feel this disquiet daily and yet do not try to make contextual sense of in-country tensions beyond claiming an appreciation for wildlife that is locally absent. In some respects they understand this absence – how can people who live so poorly be expected to care about the future of wild dogs? – but otherwise they (privately) classify ZAWA as economically self-interested and the broader Zambian publics as uninformed.

To refuse to engage these 'setbacks' as rational, coherent forms of distrust is to further the alienation between Euro-American conservationists and local wildlife

managers and observers, provoking even more scepticism and theories of dishonesty. While conservation organizations vow commitment to local priorities, they will not sacrifice their most basic environmental belief: that species survival should be an international prerogative. Moreover, they implicitly expect concessions from the countries and officials with whom they work, namely the state's sovereign right to decide on how to regulate national land and animals.

Like many others in Zambia, I too struggled to understand exactly what PPZ accomplished through carnivore research and conservation. Indeed, the larger effects of PPZ in Zambia are opaque even (or especially) to its own staff members. What we can learn from this disconnect is that the objectives of organizations like PPZ are not self-evident, they are not linear, and they are palpably larger and loaded beyond their surface representations. As PPZ expands its in-country activities, with even more overseas funding and manpower, the threat of its hegemony becomes greater. In turn, the organization is combated and interrogated with new, more robust national 'weapons'. Through these pauses, these quiet carnivore contests, we can begin to see past the shields and instabilities of modern conservationism.

End Notes

INTRODUCTION

[1] http://dailymaverick.co.za/article/2011-10-31-zambian-president-our-wildlife-is-fair-game
[2] http://www.lusakatimes.com/2011/10/24/670-wildlife-prisoners-pardoned/
[3] For example, President Sata announced a mandatory increase in minimum wage by nearly 100% in July 2012, effective immediately (http://www.lusakatimes.com/2012/07/11/government-announces-revised-minimum-wage/). This increase resulted in thousands of people losing their jobs and a sharp rise in food prices: http://www.irinnews.org/report/96398/ZAMBIA-Minimum-wage-leads-to-steep-food-price-rises
[4] I use the terms "eco-modernity" and "ecological modernization" throughout this dissertation, as defined and interpreted by Gert Spaargaren et al (2000) in *Environment and Global Modernity*. In their introduction, the authors explain that "[e]cological modernization theory takes up the task of redefining the borders between modern societies and their social and natural environments … When ecological modernization theorists talk about 'repairing' [the] design fault of modern industrial production, they request that environmental factors not only be taken into account, but also that they are structurally 'anchored' in the reproduction of these institutional clusters of production and consumption," (6). They stipulate that ecological modernization is both "a general theory of societal change on the one hand and … a political program or policy discourse on the other," (70). This theoretical task to "redefine the borders" for modern societies implies a specific sense of modernity, one that necessarily involves environmental consciousness as interpreted and promoted by Euro-America. The theory is also enacted through the Northern international conservation and environmental organizations that set the terms for global environment, thereby pushing societies on the periphery of Euro-America to socially evolve towards their state of eco-modernism.
[5] Indeed, the focus on natural wonders was a prominent motif in the philosophies of Descartes and Bacon, which contributed to the Romantic notion of sublime nature -- see Daston and Park 2001.
[6] http://worldwildlife.org/about/history

CHAPTER ONE

[1] There is extensive literature on the variegated interpretations of the term 'conservation' and its Euro-American historical development as the scientifically driven profession that will save wild species and protected areas, especially in the former colonies. See Grove 1995, Fairhead and Leach 1996, Neumann 1998, Agrawal 1995 and 2002, Moore et al 2003, Simmons 1993, Steinhart 2006, Kelly 2011.
[2] Research page on the PPZ website.
[3] The "eminent threats identified by research" that "require immediate action" are limited to anti-snaring, disease work, human-wildlife conflict, and species reintroduction as explained on the conservation portion of the PPZ website.
[4] See Berkes 2004 and Gunderson et al 2002 for discussions on the authoritative and cardinal role of scientific discourse in the concept and profession of conservation.
[5] Since the acquisition of management over Western Park in 2003, African Parks has tried to forcibly persuade ZAWA to allow them to manage Sioma Ngwezi National Park as well. It is said that ZAWA officials detest the aggressive, arrogant approach of African Parks so strongly that one of the directors threatened to resign before he saw African Parks manage Sioma Ngwezi (Personal communication with anonymous African Parks employee, May 2012).
[7] The NSF grant is entitled "Risk effects in large carnivore-ungulate interactions: relationships between direct predation rates, antipredator responses and the costs of response". Risk effects can manifest by reduced survival, growth, or reproduction, which is what UM, in conjunction with PPZ, evaluates through Zambian predator/prey interactions.
[8] "*Haven't you ever wanted to know and see what moves about when you are not there…? Whether you are in the African bush or even at home? Well now you can with the help of digital CAMERA TRAPS… And you may be very surprised!"* (www.cameratrap.co.za).
[9] In an Africa Geographic article about the work of PPZ and African Parks in Western Park, Stephen Cunningham writes: "GPS collars are more expensive, but offer state-of-the-art technology and extremely *accurate* data," (Africa Geographic October 2011: 43, emphasis mine).
[10] See Barnett et al 2006 and MacDonald and Sillero-Zubiri 1996 for further emphasis on the uses and profits of wildlife research data.
[11] Africa Geographic prints 30,000 copies of each issue (11 per year), with over 10,000 directly to subscribers. Forty-eight percent of these subscribers earn household income of over R60,000 per month (www.africageographic.com/advertise/index.asp). In 2012, the New York Times ran several articles on the state of African wildlife, including "Central Africa's Wildlife Rangers Face Deadly Risks," (31-December-2012); "To Save Wildlife, and Tourism, Kenyans Take Up Arms" (29-12-2012); and "How to Stop Wildlife Poachers" (24-5-2012).

CNN also ran an article in early 2013 entitled: "See them before they're gone: 5 urgent experiences for 2103," two of which involve African wild species and places (travel.cnn.com/5-urgent-experiences-for-2013-114356).

[12] Alex has a particular aversion to proper names for carnivores, which started when he arrived in 2008 to a wild dog named "can opener": "Given the controversial stuff we work on and the high publicity we get, I really didn't need to be managing the appropriateness of common names," he put in an email to me. "In addition when you're trying to ensure that you're seen as an objective research project it can cause complications – for example I'd rather not speak to the Professional Hunters' Association of Zambia about a kitty named "Cupcake" that [a hunter] shot versus an adult male lion 115M" (Personal email exchange, February 2013).

[13] GPS collars typically have a lifespan of approximately 6 months, after which point they will no longer emit signals or collect data. The collars can be programmed to detach and drop off at a certain date/time so that researchers can retrieve them more easily.

[14] http://www.nytimes.com/2013/02/04/opinion/tracking-the-pack.html?hp&_r=1&

[15] These debates centre largely around the use of fences and fines in wildlife management, cf. McAtee 1939, Macnab 1983, and Hoare 1992 for an introduction to this long-time and ongoing consideration.

[16] South Africa safari lodge, Sabi Sabi, website: http://www.sabisabi.com/news/published/1602/endangered-species-wildlife-to-be-viewed-before-its-too-late

[17] Shirley Brooks explores these advertising agendas within the South African tourism industry. Specifically, she investigates the history of Hluhluwe game reserve and its promise of wild African landscapes, which were (re)created at the expense of increasingly alienated local residents, see Brooks 2005.

[6] www.natgeotv.com/za/last-lioness

[18] This story was relayed to me by Alex in Lower Zambezi. Unfortunately time and financial constraints did not allow me to interview anyone in and around Western Park.

[19] Rewilding Europe mission: "Bringing back the variety of life for us all to enjoy and exploring new ways for people to earn a *fair* living from the wild" (www.rewildingeurope.com/programme/mission, emphasis mine).

[20] Grove and Anderson elegantly introduce this European fixation on a particular colonial landscape: "Much of the emotional as distinct from the economic investment which Europe made in Africa has manifested itself in a wish to protect the natural environment as a special kind of 'Eden', for the purposes of the European psyche, rather than as a complex and changing environment in which people have actually had to live," (Grove and Anderson, 1987: 4).

[21] See Agamben 1995, in conjunction with Foucault's biopolitics, for extended theorizing of sovereignty and 'the natural'; sovereignty over 'bare life'.

[22] "Collaboration does, however, draw attention to the formation of new cultural and political configurations that change the arena of conflict rather than just repeating old contests," (Tsing 2005: 161). This "arena of conflict," how it has been shaped and how organizations like PPZ contribute to its modern day modifications, is precisely what I hope to unpack.

[23] I take up the concept of eco-modernization later, with attention to the idea of national eco-rationale and how this new version of modernity acts as "simply the next rung in a social evolutionary ladder that leaves Africa in its usual place: 'behind'" (Ferguson 1999: 16-17).

CHAPTER TWO

[1] Further theoretical writings on the ethos of CBNRM can be read through Anderson and Grove 1987, Hulme and Murphree 2001, Hackel 1999, and Chambers 1994.

[2] For more on ZIRDP, see Wainwright and Wehrmeyer 1998.

[3] Ramutsindela (2009) discusses beneficiation frameworks for transfronteir conservation areas and the "wild" imaginings about how such conservation schemes will 'benefit' local people (176).

[4] For more on ADMADE, see Marks 2001.

[5] Wildlife Conservation Society "Saving Wildlife" mission statement: http://www.wcs.org/saving-wildlife.aspx

[6] I retain Arun Agrawal's neologism to signify the particular political and personal constructions of 'environmental subjects.' One of the components of Agrawal's 'environmentality' is the "emergence of greater concern for the environment and the creation of 'environmental subjects' – people who care about the environment. For these people the environment is a conceptual category that organizes some of their thinking and a domain in conscious relation to which they perform some of their actions," (Agrawal 2005: 162). In this dissertation, I mean the term 'environmentality' to refer to the mentality of 'environmental subjects,' specifically their awareness and need to conserve the environment and its endangered species.

[7] See, for example, Elizabeth Garland's (2008) experiences with wildlife conservation in Tanzania, especially the suspicions of Western field biologists (67).

[8] As Luise White (2000) writes, "Rumour and gossip allocate responsibility; they contextualize extraction … Rumours explain; they naturalize the unnatural" (62). See also Brad Weiss (2002) for analysis on the imaginative connotations of globalizing processes in Tanzania.
[9] There are extensive critiques on CBNRM shortcomings in southern Africa, including specific studies on the effects of ZIRDP and ADMADE. See Marks 2001, Wainwright and Wehrmeyer 1998, Hulme and Murphree 2001, Agrawal and Gibson 1999, Leach et al 1999, Campbell and Vainio-Mattila 2003, Twyman 2000, Goldman 2003, Neumann 1997, L*élé* and Norgaard 1996, Little and Brokensha 1987, Berkes 2004.
[10] Sanders and West discuss these "attempts to paint Other ways of seeing power with the brush of 'ignorance,' 'irrationality,' or 'superstition,'" in their intro to *Transparency and Conspiracy* (12).
[11] Goldberg, Jeffrey. "The Hunted: Did American conservationists in Africa go too far?" *The New Yorker* (2010): 42-63.
[12] Para-vets are defined as veterinary professionals who are trained to assist veterinarians, such as veterinary technicians. Zambia requires that para-vets undergo formalized veterinary training. The Veterinary Council of Zambia established new veterinary and para-veterinary acts in May 2012, http://www.postzambia.com/post-read_article.php?articleId=25584.
[13] This comment from Claire intersects larger discussions on biodiversity and human populations, specifically how and whom the suffix "diversity" includes and excludes; see Anderson and Grove 1987 and Neumann 1998.
[14] I relied on Foucault here to unravel rhetoric of discursive aggression and epistemic impositions, specifically *The Archaeology of Knowledge & the Discourse on Language,* 1972.
[15] For discussions on scientific paternalism, see Bajaj 1988 (in particular his readings of Thomas Kuhn) and Stafford 1989.
[16] See Comaroff and Comaroff (2001) for further discussion on the contradictions of the nation-state and post-colonial national sovereignty in the context of a democratic South Africa.

CHAPTER THREE

[1] These activities came at the expense of African hunting traditions, which also served as rituals of masculine growth, see McCracken 1987 and Marks 1976.
[2] http://www.southafrica.info/travel/wildlife/greenhuntin.htm#.URtfExydOIR
[3] Ibid.
[4] http://www.nspca.co.za/page/23928/Green-Hunting
[5] Ibid.
[6] The esoteric language of scientific disciplines and their monopoly on what 'counts' as facts is interrogated at length by Alvares 1988.
[7] David Hughes discusses this dilemma of white people 'learning the land' in Africa through his brief history and commentary on the eco-politics of Kariba Dam. In this article, he also invokes the alienating rhetoric of J.M. Coetzee, specifically his descriptions of white life in the South African Karoo (Hughes 2006).
[8] More on the Aurora, Colorado shootings can be found here: http://www.nytimes.com/2012/07/21/us/shooting-at-colorado-theater-showing-batman-movie.html?pagewanted=all
[9] In December 2012, Adam Lanza arrived at Sandy Hook Elementary School and killed 20 school children and 6 adults before shooting himself. This event sparked national debate in the United States, initiated by President Obama, on the limits that should be placed on the U.S. constitution's second amendment and tighter restrictions on firearm ownership, http://usnews.nbcnews.com/_news/2012/12/15/15907407-elementary-school-massacre-20-children-among-28-killed-in-connecticut-slaughter?lite
[10] Nancy Peluso looks at state control of natural resources in Kenya and Indonesia and the relationship of international conservation organizations to state 'conservation' processes, see Peluso 1993.

CHAPTER FOUR

[1] See Adams and Hutton 2007 for further discussion on the dominant ideologies of scientific approaches.
[2] World Wide Fund for Nature "Roadmap to a Living Planet" mission statement: http://wwf.panda.org/about_our_earth/all_publications/wwf_institutional_publications/
[3] This angle of critique was influenced by other scientific writings that reveal their own affective and incoherent modes of scientific engagement: Leigh 2005, Macdonald et al 2002, Lewis et al 2011, Lindsey et al 2006, Loveridge et al 2006, Frank et al 2006, Milner Gulland 1992.
[4] The hegemony attributed to a 'Western' scientific episteme is critiqued elsewhere: Irwin 1999, Haraway 1989, Nandy 1988, and Stafford 1989.

[5] This information was drawn from email exchanges between Dr. Frank Thanas, Dr. Alex Moore, and Megan Edwards June-August 2012.
[6] Yellowstone, consequently, was one of the first national parks to fuel the "myth of a society returning to earthly Eden," and the idea that man and nature should be separated (Neumann 1998: 18).
[7] The irony of these opinions juxtaposed with insistence on 'facts' further echoes Latour's 'factish' prerogative (Latour 2010).
[8] As part of an exercise for my 2012 anthropology course, I spoke with Dr. Gary Ellis in a focus group on the significance of wildlife research.
[9] In their book, Fairhead and Leach refer to scientific projects as operating within a "straightjacket of scientific viewpoints" (Fairhead and Leach 1996: 16). However the manifestation of these viewpoints, as I experienced with PPZ, can be astoundingly unconfined, which problematizes the power of the scientific episteme at work (Serres 1990).

CHAPTER FIVE

[1] The phrasing of this song closely mirrors the language within the original African Wild Dog Conservation (AWDC) – the predecessor organization to PPZ – informational pamphlet, written by the former CEO of AWDC: "They are in fact a very social and non-aggressive animal, with all the pack helping to feed and babysit pups, as well as caring for any sick or injured pack members."

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