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UNIVERSITY OF CALIFORNIA
SANTA CRUZ

**SCRATCHING ABOUT (*FATO-FATO*): EROSION, GOVERNANCE, AND
THE COMMODIFICATION OF WATER IN LESOTHO**

A dissertation submitted in partial satisfaction
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

ANTHROPOLOGY

by

Colin B. Hoag

June 2017

The Dissertation of Colin B. Hoag is
approved:

Professor Anna Tsing, chair

Professor Andrew Mathews

Professor Danilyn Rutherford

Professor James Ferguson

Tyrus Miller
Vice Provost and Dean of Graduate Studies

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List of Abbreviations

ABC	All Basotho Congress
ANC	African National Congress
BCP	Basutoland Congress Party
BNP	Basotho National Party
BPA	Basutoland Progressive Association
CDSP	Community Development Support Project
DC	Democratic Congress
DF	Department of Forestry
DMA	Disaster Management Authority
DRRM	Department of Rangeland Resources Management
DSC	Department of Soil Conservation
FSSP	Food Self-Sufficiency Programme
GA	Grazing Association
GIS	Geographic Information System
GOPA	Gesellschaft für Organisation, Planung und Ausbildung
ICM	Integrated Catchment Management
LADB	Lesotho Agricultural Development Bank
LCD	Lesotho Congress for Democracy
LDF	Lesotho Defence Force
LHDA	Lesotho Highlands Development Authority
LHRF	Lesotho Highlands Revenue Fund
LHWC	Lesotho Highlands Water Commission
LHWP	Lesotho Highlands Water Project
LLA	Lesotho Liberation Army
LLB	Lekhotla La Bafo (Commoner's League)
LNDC	Lesotho National Development Corporation
LNWMGA	Lesotho National Wool and Mohair Growers Association
LPCM	Lesotho People's Charter Movement
MAFS	Ministry of Agriculture and Food Security
MCA	Millennium Challenge Account
MDTP	Maloti Drakensberg Transfrontier Project
MEMWA	Ministry of Energy, Meteorology, and Water Affairs
MFLR	Ministry of Forestry and Land Reclamation
MFP	Marematlou Freedom Party
NDVI	Normalized Differential Vegetation Index
NP	National Party (South Africa)
NSS	National Security Service
ORASECOM	Orange-Senqu Commission
PoEE	Panel of Environmental Experts (World Bank)
SACU	Southern African Customs Union
SADC	Southern African Development Community
TCTA	Trans-Caledon Tunnel Authority

TRC
UNDP
WCD

Transformation Resource Centre
United Nations Development Programme
World Commission on Dams

ABSTRACT

Scratching about (*Fato-fato*): Erosion, Governance, and the Commodification of Water in Lesotho

Colin B. Hoag

For over a century the enclave state of Lesotho has acted as a labor reserve for South Africa's mining industries. With the decline of the migrant labor economy in the 1990s, many people in Lesotho lost their primary source of income: wage remittances from family members working over the border. During that same period, the Lesotho government hung its hopes on becoming another kind of reserve for South Africa: a water reservoir. A Treaty between the two countries initiated the Lesotho Highlands Water Project (LHWP), a multi-billion dollar effort to dam and divert water from the mountains of Lesotho to the arid industrial areas south of Johannesburg. However, the rise of the LHWP has raised concerns that degradation stemming from land mismanagement in the upstream catchment could imperil the water economy, prompting erosion control programs and land use reforms. This dissertation examines the logics and consequences of such programs, the water production infrastructure of which they form a part, and the broader ecology of life in an economic "periphery." Based upon 15 months of ethnographic field research, I show how efforts to produce water commodities rely on colonial soil conservation techniques that represent modes of governance more than ecological measures *per se*. Following the colonial legacy of figuring Lesotho as a politically walled-off but economically dependent territory, the goal of governance then and now is to maintain a relationship between unsustainable multispecies livelihoods, on the one hand, and political quietude, on the other. Elites

in Lesotho construct water commodification as a national priority, thereby arguing that erosion control is necessary. Erosion control is presented as a technical matter when in fact it is a political one, as nonsustainability is not a failure of local management but rather an architectural feature of a regional political economy: land degradation stems from Lesotho's historical experience as a "periphery" to the South African "core." Settler colonialism by white Afrikaners; population growth and class struggle within Basotho society; and colonial promotion of wool and mohair production together put intense pressure on the mountain rangelands where LHWP dams are now sited. Today's nonsustainable livelihoods are maintained through the innovative livestock production strategies of rural Basotho, and through a tenuous politics of distribution established by elites, whereby payments for water are channeled toward concentration and corruption but trickle down to rural livelihoods through development and environmental management programs. In making this argument, I present ethnographic and historical accounts of the symbolic production of water as a national natural resource; the development of soil conservation work parties called *fato-fato*; the establishment of rangeland management associations; peasant and state understandings of land degradation; and the development of a wool, mohair, and mutton export economy that promotes rural livelihoods but also rangeland degradation. My findings contribute to interdisciplinary literature on state-making, environmental conservation, and natural resource politics by describing the symbolic and material infrastructures required for water production, and by showing how history and political economy insinuate ecological processes.

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University's Department of Social Anthropology, studying with David and then on to PhDs at Aarhus University and Santa Cruz. As with Hopkins's *Selected Poems*, Joan had altered the course of my life. Thank you, Joan.

In Lesotho, I have incurred many debts over the years. I use pseudonyms for my informants, so I will not thank them by name. But my gratitude goes out to the many people in Mokhotlong, Mapholaneg, Mofolaneng, Butha-Buthe, and Maseru who shared their time and thoughts and expertise with me. In particular, I want to thank the people I refer to as Motlokoa and Masilo. Nt. Motlokoa welcomed me into his home and helped me with my work with such genuine good-heartedness that I am still trying to figure out how he did it. I can say the same for Masilo, a conservation worker at the Ministry of Forestry and Land Reclamation (MFLR) with an amazing and large heart. I am critical of his employer (and him, to a certain extent) in the pages below, but I hope he understands that I do so with the utmost respect and friendship. I would like to thank the MFLR in general for facilitating parts of my research, including especially Dr. Ratšele Ratšele.

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(Needless to say, the people I've mentioned above and all the people I name below are not responsible for any errors, omissions or misjudgments in this dissertation.)

People at Wits University in Johannesburg have been hugely important to my scholarly direction, teaching me about the vital contributions to social theory made by

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This dissertation has taken an unusual path. After finishing my qualifying exams at UCSC, I spent another year in Oakland, waiting to secure funding for my research. (Our son, Eamon, was born at the end of that year, too. Love you, Eamon!)

While waiting, I took courses in rangeland ecology and soil science at UC Berkeley's Department of Environmental Science, Policy, and Management, where I benefitted hugely from conversations with people at the Bartolome Lab, including James Bartolome and Felix Ratcliffe. My work had increasingly demanded an understanding of the ecology of land degradation, as well as a methodology to account for both cultural and biophysical worlds. Toward the end of the academic year, an opportunity presented itself to me when Anna invited me to join her in Aarhus, Denmark to be a part of the interdisciplinary research program, AURA: Aarhus University Research on the Anthropocene. I applied to inscribe as a PhD student in the Section for Ecoinformatics and Biodiversity, Department of Biological Sciences, Aarhus University. I am so grateful to Anna for that opportunity and the many challenges it entailed. I decided to include a chapter from that dissertation in the present dissertation in order to draw the two closer together—it appears here as Chapter 5. In compliance with UCSC regulations, I make the following statement: The text of this dissertation includes a reprint of the following previously published material: “The Ovi-Caprine Mystique: Livestock, Livelihoods, and Landscapes in Postindustrial Lesotho.” The chapter was authored solely by me, but it was supervised jointly by Jens-Christian Svenning (main supervisor) and Anna Tsing (co-supervisor). That dissertation was submitted in December 2016 and successfully defended in February 2017 with the title, “Stability and Change in African Environments: An Historical Ecology of Rangelands in Lesotho.”

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Association (AAA). I was fortunate enough to present a version of Chapter 4 at the 2016 STS/EAAST meetings in Barcelona on a panel titled, “The Experimental Life of Plants.” At the 2016 AAA Meetings in Minneapolis, I was part of a brilliant panel titled, “Postcolonial Anthropocene: More-Than-Human World Systems.” My thanks to the organizers and participants for helping me to think through my arguments about the articulation between capitalism, colonialism, and ecology for Chapter 4 and beyond. Chapter 5 is better for having received questions and comments during a presentation at the Department of Anthropology, University of Berne, Switzerland. Many thanks to Laura Affolter for organizing that visit.

My committee members are my mentors and heroes—so sharp, so committed, and so helpful. Their comments on this research project have opened up so many doors, while also helping me to close others that I needed help closing. I owe so much to each of them. Thank you.

Anna deserves special thanks. If I can call myself a scholar today it is because of her. I thank her for helping me to see my material clearly, for pushing me to be bold, and for taking me seriously. I have not always followed her advice, but usually because I hadn’t yet realized that she was right. If she has an opportunity sometime soon, I’d like to go for a walk in the woods with her.

Finally, I would like to thank my family—especially my wonderful parents, Eugenia and Peter Hoag (February-May was such an incredible time!)—who have helped make this whole thing possible: Bret Hoag (you are an inspiration to me), Melissa Hoag, Maureen Fralick, Douglas Keenum, Greg Fralick, Katrina Fralick,

Nadine Fralick, the late Stanley Fralick, John Kelley, Wendy Houlihan, and others. Over the course of these past 10 years of graduate school they have given Corinne and I stuff; they have stored stuff for us in their houses and garages; they have picked us up from the airport and dropped us off; they have shipped stuff to us in the mail; they have watched our kids; and they have been simply loving people. Thank you. And, of course, our sons, Eamon and Eske: I love you guys so much! I'm struggling to keep up with you—you're teaching me faster than I can take it in. It seems like I'm always learning yesterday's lesson today, but everything is going to be OK.

Finally, I dedicate this to Corinne. How could it be otherwise? As I write, it's just two weeks shy of 10 years ago that we got married and left the Bay Area for graduate school in Vermont and Johannesburg, only to find out later that we'd be heading to Santa Cruz, Aarhus, and Lesotho again. Since then, she's helped me stay happy and focused; she's helped raise our kids; she's paid the bills; she's endured so many difficult moves; and so on and so on and so on. It hardly needs saying, but her ideas are running all through this dissertation. My name's on the title page, but it's hers, too.

Colin B. Hoag

Stan Fralick's Desk

Granite Bay, CA

June 1, 2017

For Corinne

Note on Sesotho Pronunciation and Usage

In this dissertation, I use the Sesotho orthography of Lesotho, which differs from that of South Africa. Because it includes several characters and sounds that will be unfamiliar to English-language readers, I make brief mention of the most relevant ones here.

- In multi-syllabic words, primary emphasis is given to the penultimate syllable. Thus, *setulo* (chair) is pronounced “seh-TOO-loh.”
- Hard consonants such as *t* or *p* are not aspirated unless followed by an *h*. Thus, *lerato* (love) and *ipata* (hide) are not aspirated, while *lithapo* (roots) and *phafa* (whip) are.
- Similarly, the consonant *ts* as found in the word *tsamaea* (go) is unaspirated, except when a diacritic is used as in *tšepo* (trust).
- When placed in front of an *i* or a *u*, an *l* modifies to a *d* sound. Thus, *lumela* (hello) and *lifate* (trees) are pronounced “doo-MEH-la” and “dee-FAH-te.”
- As with other languages belonging to the so-called Bantu group, Sesotho is organized around a set of noun classes, most of which are recognizable by having distinct prefixes. When nouns are made plural, they are assigned a different prefix according to their noun class. For example, the words *motho* (person) and *moruti* (priest) modify to *batho* and *baruti*, respectively, whereas the words *sefate* (tree) and *setho* (member) modify to *lifate* and *litho*.
- It is custom, when addressing or discussing specific persons, to use a pronoun denoting their gender and marital status, such as *ntate* (married man), ‘*me*

(married woman), *abuti* (boy or unmarried man), and *ausi* (girl or unmarried woman). Thus, when one speaks of a man named *Thato* who is married, he would be described as *Ntate Thato*. The abbreviation “Nt.” is often used in place of *Ntate*. Except when presenting dialogue in the pages below, these pronouns are not used for ease of reading.

INTRODUCTION

FROM LABOR RESERVE TO WATER RESERVOIR

It was the 1950s in Basutoland and the British colonial administration struggled to make its territory profitable. Basutoland had little economic potential, with its extremely mountainous terrain, limited arable land, and few natural resources. In the 1950s, Basutoland's Director of Public Works Peter Ballenden hired the engineer Ninham Shand to investigate the possibility that water could be stored in the country's highlands and sold to neighboring South Africa—for irrigation on farms in the Orange Free State and for industry in the Transvaal. The National Party under D. F. Malan was in its early years of majority rule since ascending to power in 1948. The National Party created a substantial political base of white Afrikaners on a platform

of racial segregation, the promotion of Afrikaner economic interests, and greater independence from the British Commonwealth. As the government implemented its policies of Apartheid under then Native Affairs Minister Henrik Verwoerd—who would later succeed Malan as Prime Minister—fears arose over future water scarcity in South Africa’s economic heartland, the industrial and commercial areas surrounding Pretoria and Johannesburg. One of the world’s largest urban centers not located on a major river or other source of freshwater, the Pretoria-Johannesburg conurbation faced severe limits to its growth. Nevertheless, the gold and diamond mining there yielded incredible profits, drawing in secondary industries and an ever larger human population.

The idea of damming those mountain valleys was not merely a market reaction, pairing supply with demand. It had been debated earlier in the century as a means of preventing floods from damaging farms in the Orange Free State. The white Afrikaners who owned them complained that intensive and unregulated grazing in the Basutoland highlands was causing soil erosion and undermining the mountains’ ability to store and slowly release water over the course of the year. They believed that the de-vegetation of rangeland due to overstocking and “misuse” was causing water to flow too quickly through the watercourse, leading to desiccation. Basotho (i.e., people from Lesotho) were called upon to cease farming and even to leave the mountain areas altogether, despite the inexistence of reliable data showing that such their farming methods did indeed contribute to erosion (Driver 1999; Beinart 1984; Showers 2005). The British proposed the construction of a dam to mollify those

farmers, but also their political leaders in the Union of South Africa, who used issues such as these to pressure the British to cede Basutoland, Bechuanaland, and Swaziland to the Union. Those pressures subsided with time, but Ballenden and Shand reimagined highland dams in Basutoland as a means to produce water in service of South African industry.

During Shand's visit to the Oxbow area in Northern Basutoland, now Butha-Buthe District, he was struck by the hydrologic potential of the area. With excitement, he concluded that, if his elevation calculations were correct, water could be stored in those mountains and transferred to the Transvaal by gravity through tunnel and canal. A dam at Oxbow could supply water to farmers in the Free State and to the entire Witwatersrand without the need for costly pumping (Ashpole 2004).

Geopolitics and financing challenges intervened to delay the project after it was formally presented to the newly independent Lesotho government in 1967. As international opposition to Apartheid intensified during the 1970s and early 1980s, Lesotho became a "frontline state" in the fight against South Africa's racist regime and Prime Minister of Lesotho Chief Leabua Jonathan—initially friendly to the Apartheid government—drew international aid into the country by exploiting this position (Coplan & Quinlan 1997). Nevertheless, the South African government was increasingly interested in the water scheme as projections of growth and water demand made action on the issue appear urgent (Tempelhoff 2003). In 1986, just ten months after Jonathan was toppled in a military coup that was likely supported by South Africa (Beresford & Pitso 1986; Turton 2003), a Treaty was signed to move

forward with the Lesotho Highlands Water Project (LHWP). With financing from the World Bank, Lesotho was to become a *water reservoir*—a structural condition whose socioecological and political consequences are the subject of this dissertation.

It was not the first time that Lesotho had been enrolled as a kind of “storage infrastructure” for South African industry. For more than a century, Basotho men and women had migrated to South Africa for work in the mines, as domestic workers, and as manual laborers. Like the former South African “homelands,” sometimes referred to as “Bantustans,” Basutoland was positioned as a “periphery” (Wallerstein 2004) to the South African “core” in a race-based political economy, whereby Africans’ land was expropriated except the most barren, crowded territories of Southern Africa. This compelled people in these labor reserves to work in industrial centers—but with their movements regulated through passbooks and work permits in accordance with labor demand (Wolpe 1972). Indeed, Lesotho then and now bears an uncanny resemblance to those Bantustans, even though it is a “real country”: an ethnolinguistically homogenous labor reserve for South African industry, with very little manufacturing or arable land (Ferguson 2006).

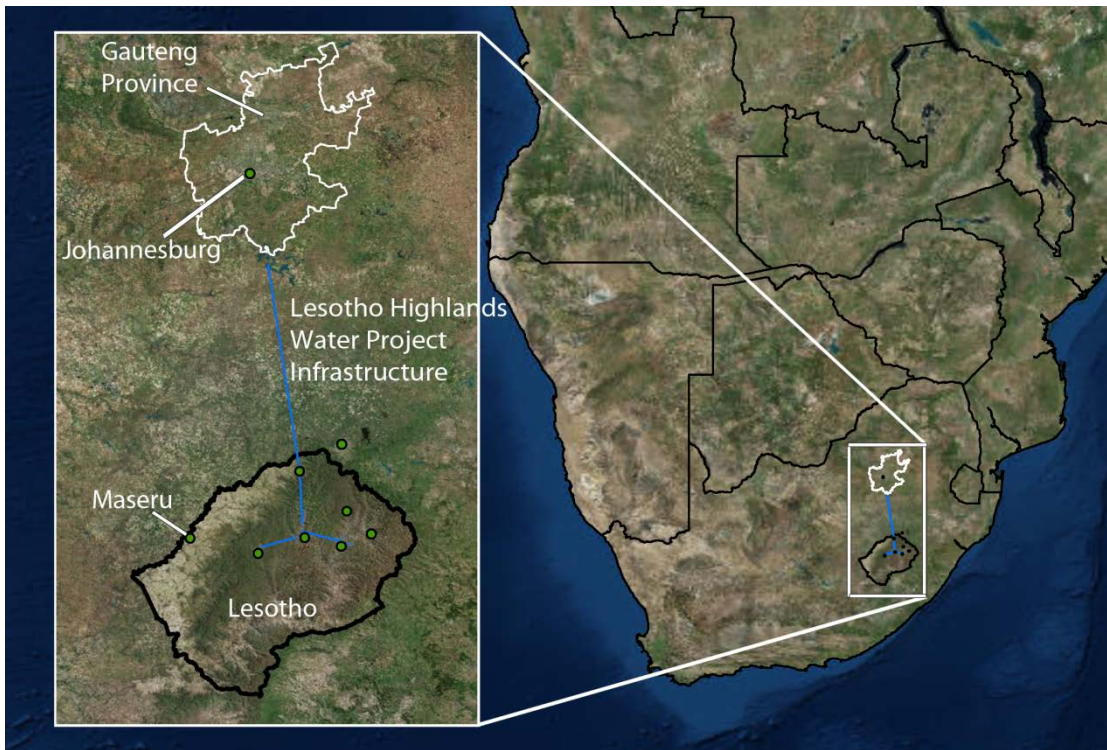


Figure 1: Map of the Lesotho Highlands Water Project. Map created by author in ArcMAP 10.3 (ESRI).

If Apartheid-era Bantustans were part of an infrastructure of economic production that sought to regulate the flow of labor, justified through a dubious racial logic of essential cultural difference (Dubow 1992; Erasmus 2008; Bowker & Star 2005; *inter alia*), Lesotho today is part of an infrastructure of economic production that seeks to regulate the flow of water, justified through a dubious natural resource logic of essentialized national sovereignty (Furlong 2006; see also Rutherford 2012a). Supporters of the water project describe the LHWP as an example of mutually beneficial “economic integration” between South Africa and Lesotho: Lesotho has

abundant water and South Africa faces acute water demand.¹ By selling water that it “does not use,” as they describe it (see Chapter 1), Lesotho’s political and economic position is said to be bolstered. If the 1986 coup does not give the lie to this putative economic exchange among equal partners, then South Africa’s 1998 spearheading of a Southern African Development Community (SADC) military mission to secure the LHWP’s Katse Dam does. Amidst political unrest in Maseru after a disputed election result, Lesotho’s Prime Minister requested SADC assistance to restore order. South African Defence Force troops were sent to Maseru, but a contingent was also sent to Katse Dam, where they promptly gunned down 13 Lesotho Defence Force (LDF) soldiers as they scrambled in confusion from their barracks. Far from a neutral economic exchange, the LHWP stands as an example of South African domination of its smaller neighbor.

Storage infrastructure is not straightforwardly technical or unproblematic, as recent work in anthropology has shown (Carse 2015; von Schnitzler 2016; Anand 2017; Chu 2014; Larkin 2013). Infrastructures require maintenance. Apartheid collapsed when its contradictions became untenable and people organized against it. Unlike the subsequently dissolved Bantustans, Lesotho remained intact, and it continues to struggle with the paradoxes of its sovereignty (Ferguson 2006). Being completely surrounded by South Africa, its border struggles to cope with the intensity

¹ Climate change and population growth forecasts suggest that future water security in South Africa is imperiled (Kings et al. 2015; Kings 2015; Hosken et al. 2016; Tempelhoff 2003), compounded by the City of Johannesburg’s aspirations to become a “World City” (Nastar 2014).

of human and commercial traffic (Crush 2002; Coplan 2010; Steinberg 2005). Since the severe contraction of Basotho employment opportunities in South African mines in the 1990s, when gold prices dropped, mines mechanized, and the South African government more heavily favored domestic over foreign labor, people in Lesotho have struggled to make ends meet (Crush 2010).

Just as the infrastructure of South African labor reserves required “upstream” mechanisms both material (e.g., borders and passbooks) and social (e.g., kinship relations and ethno-national identities), so too does the water reservoir require upstream material and social mechanisms. This dissertation explores the infrastructural work—ecological and social—that goes into making economic peripheries like Lesotho and the nonsustainable multispecies livelihoods it engenders. Based on 15 months of field research, I describe how water is put forward as a national priority, justifying the imposition of circumspect conservation measures with ecological and social consequences. This includes the countrywide production of physical conservation structures that do little to stem erosion, as well as the institution of grazing associations that complicate rather than streamline rangeland management. As applied, these conservation measures ignore the historical processes that drove land degradation in the past and fail to address the structural forces that continue to encourage it. Such upstream engineering is critical to maintaining this infrastructure of economic production, but it is also strategically applied and disavowed by water engineers. In short, erosion control in Lesotho is vital to water production but also to state-making—it is a form of governance.

Consider the upstream work required to maintain Lesotho’s alpine wetlands, which LHWP boosters sometimes refer to as “*lisiu tsa khauta e tšoeu*” or, “silos of white gold.” The wetlands occupy the plateau of the Lesotho highlands, the headwaters of the Senqu/Orange River system, which wends its way 1,400 miles from Lesotho to the Atlantic Ocean on South Africa’s border with Namibia. Holding extraordinary amounts of water in their deep, peaty soils, these wetlands help regulate streamflow, preventing floods and slowly releasing water, thereby extending the seasonal life of ephemeral streams through the dry, winter months (Preez & Brown 2011; van Zinderen-Bakker & Werger 1974; Jacot-Guillarmod 1962). The wetlands are also referred to as “sponges” in the conservation community for this reason.² But because they serve as water points for livestock in these high altitude regions, degradation linked to livestock trampling has become an object of concern for the LHWP, the Lesotho government, and a host of non-governmental organizations

² During a conversation with one conservation official about why wetlands conservation is important, he cast about his office for a sponge. Unable to find one, he described wetlands’ water storage capacity and said it could be understood by taking two cups with some water in them, placing a sponge in one and then turning them upside-down. The official worked for a wetlands conservation scheme sited in the Mokhotlong District operated by the consultancy firm GOPA called Protection of the Orange-Senqu Water Sources – SPONGE – Project.

The notion that the wetlands act as “sponges” is a metaphor not uncommon to Southern African conservation. As William Beinart (1989: 56) points out, forestry scientists such as F. E. Kanthack in the Cape in the first decades of the 20th century asserted the importance of forests as sponges that can retain precipitation in the soil and slowly release it. He saw aggressive state intervention in preventing veld burning and overstocking as key to watershed management, like K. A. Carlson (1913) in the Orange Free State who criticized Basotho grazing practices in then Basutoland.

interested in conservation.³ Grazing can cause gullies to form, and rainfall is immediately lost as surface runoff; no longer trapping organic matter, they are less able to maintain water purity. A study by Marneweck and Grundling (1999) concluded that Lesotho's wetlands stored 36% less water than is their potential due to degradation. Though hydrologists and geomorphologists have found that factors other than livestock contribute to wetland degradation, such as burrowing rodents (Hall et al. 1999; Mokotjomela et al. 2009; Nüsser & Grab 2002; Grab & Deschamps 2004), livestock impacts are clear to any observer (see Figures 3 and 4).

³ The GOPA website (GOPA n.d.) states the following: "Despite the importance of the high mountain wetlands as local and regional water source, they continue to be degraded, mainly because of uncontrolled livestock grazing and trampling, infrastructure development, siltation and erosion, encroachment by cultivation and overexploitation of resources."

A report prepared for the Millennium Challenge Account's (MCA) National Wetlands Conservation Strategy found that wetlands account for some 22% of GDP and 30% of total employment either directly or indirectly (Mott MacDonald 2013), a finding of questionable value given the ambiguities surrounding such a calculation, except in testifying to anxieties about the problem.



Figure 2: Livestock grazing in wetland. Photo by the author.



Figure 3: Sheep grazing in wetland, near a gully. Photo by the author.



Figure 4: Slumping wetland edge near a watering point for livestock. Photo by the author.

Degraded wetlands not only diminish the quality of the water that enters Lesotho’s highland streams—they lead to an increase in the energy of water flowing downslope, carrying sediment and organic matter as it passes into reservoirs. This diminishes reservoir capacity when sediment piles up, threatening water transfer infrastructure like the water intakes that connect reservoirs to South Africa. Concerns about whether the highlands can store and regulate the flow of water are longstanding in Lesotho, as noted above. But a recent report by the World Bank found that LHWP reservoirs are silting up “at an alarming rate,” and that as a result “the LHWP might bury itself in a few decades” (Hitchcock et al. 2011:22, 16; see also Lewis et al. 2015; Hirst 1995). In 2017, LHWP engineers told the *Lesotho Times* newspaper that documented sedimentation at ‘Muela and Matsoku reservoirs alone could in the near future prevent Lesotho from supplying water to South Africa. If or when that happens, Lesotho would stop receiving payments for water export. At the same time, Lesotho would face financial penalties payable to South Africa, being contractually bound to supply water through 2044. All the while, it would need to continue servicing its debt to the World Bank for construction of the LHWP (Kabi 2017).

Wetlands represent just a subset of conservation fears that livestock-induced land degradation could imperil Lesotho’s water resources, with increasingly louder calls to protect LHWP reservoirs by attending to rangelands at large in the upstream catchment (Institute of Natural Resources 2015; Kabi 2017). Since the late 1990s, a variety of large-scale conservation projects have been carried out in the name of

Lesotho's water, including the ambitious but ill-fated Maloti-Drakensberg Transfrontier Conservation Project (MDTP, 1988-2008; Büscher 2013), the Millennium Challenge Account (MCA, 2010-2015) and GOPA (2013). Watershed management has become its own genre of aid in Lesotho.

In response to concerns about watershed condition, Integrated Catchment Management (ICM) programs were belatedly put in place by the Lesotho Highlands Development Authority (LHDA)⁴ in LHWP catchments during 2005-2010 with a budget of M18.8 million (US\$ 3.1 million). ICM is defined as “a process bringing the various parties and interests in a catchment together through regional land and water management plans to achieve whole catchment improvements” (European Union 2016). Though it is cloaked in language that suggests innovative conservation techniques, the programs closely resemble the soil conservation and rangeland management programs carried out by Lesotho's Ministry of Forestry and Land Reclamation (MFLR) for decades,⁵ based on my own observations and review of reports. All the same, the European Union recently announced a large-scale effort to expand ICM dramatically for the sake of Lesotho's water resources. Because the language is characteristic of so many conservation projects in Lesotho, I quote the statement here at length:

⁴ The LHDA is the administrative body responsible for implementing the LHWP Treaty.

⁵ The MFLR was responsible for these programs at the time of research. Lesotho's civil service has been reorganized numerous times since independence, and soil conservation works were the responsibility of other Departments and Ministries over the years. In 2015, the MFLR was reconstituted as the Ministry of Forestry, Range, and Soil Conservation.

For many years, Lesotho has been having problems with land degradation and erosion. Although erosion is a normal occurrence in mountainous areas, the extent of it in Lesotho has become dramatic. It's estimated that every hour Lesotho is losing around 4,500 tonnes of fertile top soil (or up to 300 lorry loads) carried away in rivers flowing into South Africa. As a result, dongas at numerous hill sides are widened during each rainy season and farmland continues to disappear. One of the main reasons for the loss of soil is the over-exploitation of the often fragile hills, wetlands and plains. Overgrazing by livestock, indiscriminate gathering of woody biomass for fuel, and unsustainable land-use practices are all contributing to the problem of soil erosion and land degradation and thus threatening the livelihoods of rural Basotho families. This has resulted in reduced agricultural production in the catchment areas, with less maize per hectare and less crop production overall. The dams, which are meant to store water, are silting up, and the changes in water flow patterns are diminishing the hydropower potential in the country. Climate change is likely to accelerate these negative trends. (European Union 2016)

The history of erosion mitigation in Lesotho is long and fraught (Driver 1999; Showers 2005), calling into question whether future efforts such as ICM can succeed—except as mechanisms for rural governance. Kate Showers (2005; see also Singh 2000), for example, showed how the British colonial administration in pre-independence Basutoland disregarded local land management expertise as backward while asserting their own as authoritative, and subsequently used the country as a laboratory for their new soil erosion mitigation methods. Instead of stemming soil erosion, however, these methods actually increased it, a fact disregarded or forgotten by later generations of officials, who created a new round of anti-erosion measures based upon the same prejudices. My research traces a line from Showers' conclusions into present-day conservation efforts. In both cases, measures are proposed that neglect the history and particularity of land degradation and insert foreign, technological fixes instead. In the process, local voices are ignored and the

dominance of foreign solutions is asserted, while national elites manage to advance their own political projects in the process (see Ferguson 1994).

This does not mean that the process is not contested, contingent, and evolving with the times, however. As I show here, conservation-as-governance is a project that has been redesigned over time to accommodate changes in the regional political economy, and one which takes shape around the specific beliefs and practices of those people involved. What constitutes proper land use and watershed management hinges on ideas about how grazing practices relate to water's complex interaction with soils, grasses, and other landscape features. During my field research, I found that there was agreement between livestock owners and conservation workers that rangeland condition was poorer than it once was, but there was disagreement as to how to define it and how to attribute a cause for it.⁶ Whereas herders, livestock owners, and other ordinary people tended to define "land degradation" narrowly to refer to a loss of forage grass for animals caused by increases in the number of large wool and mohair growers and delays in the timing and quality of the rains, conservation workers in government, the LHDA, and NGOs tended to see land degradation in broad terms to encompass soil erosion, shrub encroachment, and insufficient forage, caused by peasant mismanagement and irrationality.⁷

⁶ Among scientists, too, there is disagreement as to the causes and cures of soil erosion in any given context (Blaikie 1985; Trimble & Crosson 2000; Kiage 2011).

⁷ The English word "degradation," as used in by civil servants and conservationists in my conversations with them sometimes referred to soil erosion, sometimes to diminished forage productivity, diminished vegetative cover, diminished water-retention capacity, or a series of those in combination. While there is no direct



Figure 5: Man riding through Mokhoabo-Motšo Valley. Photo by the author.

This disparity—explored in Chapters 3 and 4—sets up a series of problems for range management, including the establishment of a contested economy of signs surrounding landscape reading and historiography. For example, in March 2014, I visited the Khubelu Valley in the mountainous Mokhotlong District with a civil servant named Sechaba from the Lesotho Government’s Department of Rangeland Resources Management to observe a meeting of a local grazing association. The civil

translation of “degradation” in Sesotho, the verb “*ho fokola*” (to be weak, barren, or to falter) has similar connotation, as used in my conversations with herders, livestock owners, and others in the rural Mokhotlong District. However, though it can be a catch-all for “poor condition,” the condition to which people refer is typically a lack of grass. A common response I received to the question, “How are the rangelands?” (*A joang makhulo?*), was “Hey, you know, they are in poor condition. There is no rain, no grass.” (*He, aa fokola. Pula ha e eo, joang ha bo oo.*) See Gay (1984) on Basotho disinterest in soil erosion as a livelihood problem.

servant had called the meeting to encourage them in their efforts at managing grazing in the high plateau areas that were under their control. The LHWP is currently building the massive Polihali Dam lower in the Khubelu Valley, and there has been concern about livestock-induced degradation of the Upper Catchment, as noted above. Conservation workers are promoting Grazing Associations that might help prevent more wetland degradation. Grazing associations are community-run cooperatives, comprised of members who pay dues and collectively manage rangeland access on behalf of Principal Chiefs (see Chapter 3). As we drove up the valley to the meeting, Sechaba pointed out the shrub-covered pastures to me and shook his head. “Do you see that? These people are ruining their pastures.”

After a prayer and a speech by the Chair of the Grazing Association, Sechaba began, customarily, by telling the group his full name and the village where he was born, in the urban lowlands of Leribe District, he explained with a slight smile on his face that people from Leribe refer to this mountain district of Mokhotlong as “*lihlahleng*,” the place of shrubs. The crowd erupted in shock and some laughter, with shouts of disbelief and offense: “*Haibo!*” “*Aikona!*” Sechaba continued for another 10 minutes, upbraiding them about their lack of organization and the importance of protecting parts of the range. “Is that true?” I asked him after we left. “Do people in Leribe really call this area *lihlahleng*?” I had never heard that. “No,” he said, throwing his head back and laughing. “That’s just motivation.”

The scene taught me about how land degradation was understood by conservation workers and how knowledge about it traveled via a set of signs, enabling

a slippage between livestock, shrubs, soil erosion, and water—and acting as a conduit for urban prejudice against rural people. That is, the presence of shrubs indicated land degradation, soil erosion, and threats to the watershed, regardless of the fact that shrubs and soil erosion do not generally co-occur and shrubs may in fact prevent soil erosion through their deep root structures and protection of the upper soil layer from rain splash.

More broadly, the situation reveals that erosion control is a form of governance in Lesotho—not an ecological measure. Building on decades of erosion-based governance, soil conservation is inspired today by this water economy. This dissertation explores how erosion control as governance works on the ground, describing how elites construct water as a national good to extend control into the countryside. Rural people are blamed for land degradation, but without a clear sense of the ecological process. In fact, as I show in the pages below, it is Lesotho’s status as an economic periphery—a reserve of labor and water—within Southern Africa that drives degradation. Land degradation in Lesotho, while sometimes misidentified in the ways described by other researchers in political ecology and environmental history (e.g., Leach & Mearns 1996), is very real. But it stands as a classic example of what Piers Blaikie (1985) called “off-site” factors: those indirect or structural factors that may have determined how the direct factors occurred. That is, the immediate cause of an erosion gully in Lesotho might be overgrazing, but that human disturbance of the soil only makes sense when understood in reference to the political economic forces that circumscribed people’s choices about how and where to graze

their animals in the first place. In such a case, it might make little difference whether one management scheme or another is used if the structural forces remain the same. Lesotho's rangelands constitute shadow ecologies of South African industry (Swanson 2015; Dauvergne 1997).

Thus, the country's rangelands are infrastructures of production in at least three distinct senses: they are the spaces in which rural Basotho can eke out a living, producing wool for global textile markets and meat for South African butcheries; they are the media through which water is produced for export; and they are the sites at which the Lesotho government enacts a program of governing its population, producing an economy of signs and a politics of distribution that serve to maintain a precarious political quietude.

At the center of water politics in Lesotho are landscapes—their condition and their description. Landscapes are material and semiotic, the historical products of living non-human ecological processes, geomorphological processes, and human manipulation; as well as the historical products of perception and representation (Sauer 1925; Tsing 2015a; Mathews n.d.). Landscapes are enacted differently by differently situated people, who draw upon specific empirical materials in their theorization of landscape genesis (as in the case of contrasts between conservation workers and livestock owners) and who thereby advance different politics. As described in this dissertation, landscapes are profoundly diverse: they are resource frontiers, sources of water, sources of wool, and sources of forage. They are emblems of chiefly mismanagement, of former grasslands, or of former shrublands. They are

filled with snakes, jackals, criminals, and irresponsible young men. They embody Lesotho's pasts, presents, and imagined futures. Landscape-making in the Lesotho highlands tells a local story of (post)colonial structural violence, and a broader story of land-based water politics.

The Terrestrial Politics of Water in the Anthropocene: Erosion as Governance in an Economic Periphery

Water rightly occupies the center of contemporary anxieties about the future of life on Earth in the Anthropocene (e.g., Sivapalan et al. 2014), the proposed geologic epoch to follow the Holocene, characterized by unprecedented, global human disturbance. From rising sea levels to increasing droughts, floods, and hurricanes; from glacier retreat to contests over agricultural and urban water supply, water impacts are many, and they are felt differently along lines of class, race, and gender as literature in anthropology and political ecology has shown (Hastrup & Rubow 2014; Carey 2010; Barnes 2015; Braun 2010). Efforts to address those problems do not merely focus on water, but often on the infrastructure used to capture it and the landscapes through which it passes (Carse 2014; von Schnitzler 2016; Anand 2017). Attending to the terrestrial or infrastructural politics of water shows that dams like those in Lesotho are not simply “temples of modernity” in projects of state- and nation-building (Baviskar 1997; Colson 1971; Kaika 2006; Worster 1985). They entail “upstream effects”—forms of social and ecological engineering—that seek to teach rural people to become better citizens through improved natural resource stewardship (Bhabha

1990; Von Schnitzler 2016) and to keep them from migrating to the cities in large numbers, as in the case of British colonial soil conservation in East and Southern Africa (Beinart 2000; MacKenzie 1998; Maddox 2002).

In an economic periphery such as Lesotho, the specific land management regime employed is more or less immaterial to land condition. But, as Piers Blaikie (1985) famously showed, the driving factors behind land degradation often have little to do with the “management strategy” and a lot to do with what he called the offsite or “non-place-based” factors. If an agricultural practice engenders soil erosion, one must consider the political economy that limits the choices peasants can make and not simply the technological fixes available. This does not mean that people do not care which regime is used or that it does not affect them materially. But the response of soils and vegetation to different grazing regimes might vary minimally if the structural conditions remain. In Lesotho, conservation is governance, suggesting a form of “techno-politics” (Von Schnitzler 2017; Mitchell 2002; Hecht 2012). Before moving on, it will be important to establish the geography, origins and conditions of Lesotho’s position as a periphery.

From Granary to Labor Reserve...

Lesotho is generally described in terms of two geographical regions: the lowlands and the highlands. The lowlands, in the western part of Lesotho, are an extension of the South African Highveld plateau, and in fact never drop below 3,000 feet above sea level. Although they constitute only one third of Lesotho’s surface area, they contain

most of its arable land and some 80% of the country's 2.2 million citizens. Rising abruptly from the lowlands are the mountains of the Maluti Chain, which mark the western side of the highlands. These mountains, along with the Drakensberg Chain on Lesotho's eastern border with South Africa, stretch the length of the country from north to south, and reach altitudes of almost twelve thousand feet. Although the highlands are sparsely inhabited, even the farthest reaches are utilized by Basotho herders who are hired by stock owners to keep sheep and goats at distant cattle posts during the summer months. Cold air drifting in from the eastern coast of South Africa some 150 miles away leads to orographic precipitation when it meets the steep Drakensberg Chain. From the origin of the Senqu/Orange River system, on the western side of the escarpment, water flows westward out of Lesotho and through South Africa 1,300 miles to the Atlantic Ocean.

The historical forces that shaped the formation of the nation-state of Lesotho have a direct bearing on the country's contemporary relationship to water and watershed management. Lesotho emerged out of the rubble of warfare, environmental degradation, capitalism, and colonization in 19th and 20th-century Southern Africa. Refugees fleeing the Zulu wars in the southeastern regions of South Africa during the early 19th century came to occupy the western side of the Drakensberg Mountains, where white, Afrikaner settler colonists were establishing farms after fleeing British rule in the Cape Colony (Moodie 1975). Under the leadership of a minor chief named Moshoeshe, who established himself through strategic alliance and patronage, those refugees coalesced into a single group that would eventually be called "the Basotho."

Their polity came about through a combination of “internal” political struggle (as, for example, people from the ruling Koena clan asserted themselves and their language); through alliance with French missionaries who codified that language in grammars, documented their cultural practices in ethnographic monographs and histories (Casalis 1965 [1861]; Ellenberger 1912; see Thornton 1988), and advised them on diplomatic matters; and in opposition to Afrikaner and British efforts to divest them of their land and resources. After several decades of war with the Boer settlers, Moshoeshoe was compelled to request “protectorate” status under the Crown in 1868 and sign away a large tract of fertile land to the Boers in the process.⁸ The British agreed to annex Basutoland as a means of insuring themselves against the increasing power of the Orange Free State Afrikaners.

Just two years earlier, in 1866, the largest diamond deposits in the world were discovered at Kimberly; in 1884, the largest gold deposits in the world were discovered on the Witwatersrand. The British Hut Tax pushed Basotho into the cash economy and migration to work on the mines, but so did Basotho interest in purchasing newly available consumer goods such as plows and guns (Murray 1981). The influx of cash from mining wages allowed Basotho to purchase agricultural inputs and increase their production enormously, exporting grain to neighboring Orange Free State, today thought of as the breadbasket of South Africa. They did so to such an extent that one observer referred to Basutoland as the “granary of the Free

⁸ The “conquered territories” continue to have political and symbolic significance in contemporary Lesotho among ordinary people (Coplan 2000, 2001).

State” (Murray 1981). Basotho used their guns to fend off continued threats to their sovereignty by Afrikaners and the British. Indeed, when the colonial administration of the Cape Colony eventually attempted to disarm the Basotho they ignited the Gun War of 1880-1, an unsuccessful campaign that cost the British a staggering 4.75 million pounds and left them stunned. The Basotho retained all of their weapons and even refused to pay the license fee that was imposed (Poulter 1979). According to Peter Sanders (2010) they were the only African nation-state to successfully resist colonial invasion. More important was the fact that the Cape Colony ceded control of Basutoland to the British Empire itself. The policy of “indirect rule” was applied by a newly installed British High Commissioner, leaving Basotho chiefs substantial authority to administer customary law, including in the regulation and distribution of land (Poulter 1979), a form of legal dualism that continues to exist today.⁹

South African tariffs, cheap United States American and Australian grains that flooded South African markets, and crippling droughts all conspired to undermine the Basutoland agricultural economy and the country’s status as the “granary of the Free State” (Murray 1981), leading to an increasing Basotho reliance on labor migration from the 1880s onward.

⁹ See Merry 1988 for a helpful review of legal pluralism; also see Ranger (1983) and Mamdani (1996) on “customary authorities.”



Figure 6: Map of the “conquered territories” lost by Basutoland. Map created by the author in ArcMAP 10.3 (ESRI).

In Southern Africa at large, an alliance between government and industry successfully forced many Africans into exploitative wage labor through the coincident imposition of colonial taxes and the annexing of large tracts of land once held by Africans. With the 1913 Natives Land Act, for example, 93% of South African territory was reserved for whites, including the most productive agricultural lands; blacks were forcibly relocated to impoverished ethnic reserves, and later legislation such as the 1926 Urban Areas Act made it impossible to reside in the city centers and difficult to live on the peripheries. Harold Wolpe (1972) articulated the

overarching structure and implications of this political economy: Africans were both pushed to a barren geographical periphery and pulled into an exploitative industrial center, trapping them in an endless, oscillating migration. Even those living in independent countries bordering South Africa were (and still are) caught within this system. Pass laws, work permits, borders, and other movement control mechanisms have been used to control labor supply, and create what Marx called “an army reserve of laborers” (Marx 1990).¹⁰

Whereas Basotho in South Africa had previously been treated more or less like other Africans on “native reserves,” this changed in 1963 when the Verwoerd government increased security at borders and instituted the Aliens Control Act, which required that all non-South Africans obtain a permit before entering the country. Recruitment centers were established in Basutoland’s camptowns, which more strictly controlled the flow of labor into South Africa and served as yet another obstacle to Basotho livelihoods. The same would be true for the Bantustans of Venda, Bophuthatswana, and Transkei when they were “granted independence” in the late 1970s. Within a century, Lesotho had gone “from granary to labor reserve” (Murray 1981).

...And from Labor Reserve to Water Reservoir

¹⁰ Similarly, Achille Mbembe (2008) has used the term “disjunctive inclusion” to describe the continuity from Apartheid-era segregation to contemporary segregation in Johannesburg—that by excluding the (largely black) poor from wealthy urban spaces, they are paradoxically compelled to flock there for employment.

Exploitative as the migrant labor system was, it was described to me by some people in Lesotho in a rosy light (see also Ferguson 2006, 2015). A drastic decline in employment opportunities in South African industry from the late 1980s onward and more recent constraints on the movement of Lesotho's citizens into South Africa have meant that domestic work (for women), illegal mining in abandoned shafts (for men), and other work in the "informal economy" is mostly what is left for Basotho.

Whereas in 1970, there were some 200,000 workers on the mines, this figure declined to 120,000 in 1981 and to 41,000 in 2011 (Mensah & Naidoo 2011:48). Mining remittances accounted for around 67% of Lesotho's Gross Domestic Product (GDP) in 1986, but declined to just 33% by 1996.¹¹ As a percentage of GDP, Lesotho continues to have one of the highest remittance rates in the world (29%), just under Tajikistan (Mohapatra et al. 2011), due to an increase in wages for those who do work in the mines. But the proportion of households that have at least one member working in South African mines declined from 50% in 1982 to just 12% in 2002, meaning that mining employment went from a standard arrangement to an elusive goal (Crush 2010). Even when the gold price increased once again in the early 2000s, domestic pressure on the South African government meant that few foreign nationals found mining employment (Crush 2010). As suggested by the migration and remittance figures cited above, the distribution of wealth in Lesotho has grown starker, particularly in rural areas. After independence, the Gini coefficient, used to describe

¹¹ US Embassy n.d. <http://www.lesothoemb-usa.gov.ls/about/independence.php>
Accessed on February 15, 2016.

national wealth inequality on a scale from 0 (completely equal) to 1 (completely unequal), rose from 0.23 in rural areas in 1967/69 to 0.55 in rural areas in 1993 (World Bank 1995).

There has been little else to make up for these declines in Lesotho's economy. A nascent textiles industry has failed to materialize in Lesotho, largely propped up by trade agreements that must be periodically renewed. Revenue sharing that was part of the South African Development Community (SADC), of which Lesotho is a part, once provided the bulk of foreign revenues, but the terms of sharing were renegotiated in 2004 at the prompting of the largest contributor, South Africa, diminishing these revenues substantially. Foreign aid continues to be one of the main sources of economic activity. A 2015 report of Official Development Assistance (ODA) in the years 2010-2013 found that Lesotho is one of the most aid-dependent countries in the world, with donor funding increasing from US\$276 million in 2010 to US\$343 million in 2013, meaning that aid per capita in 2013 reached 15.5% of GDP (as cited in Bereng 2015).

Taken together, the situation has prompted some in Lesotho to advocate for a South African annexure of Lesotho as a tenth province (see Smith 2010). Indeed, each year around Lesotho's commemoration of independence on October 4th, stories in the print and radio media can be found reporting on Lesotho citizens' discontent with Lesotho's independence. During the 2010 Independence Day festivities, the Principal Chief of Thaba Bosiu stated that, "celebrations today have lost their old spark; they are so low-key. Basotho are not even proud of this day anymore" (Ntaote

2010; see Caromba 2017). I met many people during my field research who advocated “incorporation,” and Lesotho’s politicians such as former Prime Minister Thomas Thabane campaign on such a position. A petition with 30,000 signatures was submitted to the South African High Commission in 2010 by the Lesotho People’s Charter Movement (LPCM) for incorporation, but the issue has stalled for the likely reasons that the move would undermine the authority of Lesotho’s government and the chieftaincy, and burden the South African government with nearly two million un- and underemployed citizens.

The decline of the mining labor economy has run parallel to the emergence of the water export economy. Providing some 20% of foreign revenues, the Lesotho Highlands Water Project is a rare bright spot for the country’s economy. Phase I of the LHWP was completed in 2004. It included the construction of two large dams at Katse and Mohale, as well as a smaller dam at ‘Muela, where 72MW of electricity is generated before flowing into South Africa. Katse Dam is a double-curvature wall 185m in height, with a reservoir capacity of 1.95 billion cubic meters. Mohale Dam is a rock-fill wall 145m in height, with a reservoir capacity of 958 million cubic meters, which connects by gravity-fed tunnel to the Katse reservoir. From the Katse reservoir, water passes via an intake and another gravity-fed tunnel to the ‘Muela reservoir and hydroelectric station. The ‘Muela Dam wall is 55m in height with a small reservoir of approximately 6 million m³ (Khaba & Griffiths 2017). An agreement to move forward with Phase II was signed in August of 2011 and construction is underway. Its centerpiece, the 165m-tall Polihali Dam, is slated to cost R12bn (\$1.8bn at the time of

signing). Sited in Lesotho's northeastern highlands, Polihali will nearly double Lesotho's water storage by adding another 2.2 billion cubic meters of capacity, passing by gravity-fed tunnel into the Katse reservoir. Phase II of the project is expected to deliver water from 2022 and gradually increase to an additional 475 million cubic meters per annum, from 780 million m³ to 1255 million m³ per annum (Lesotho Highlands Development Authority 2014).

By the end of 2016, 13.422 billion cubic meters of water had been transferred to South Africa, generating M7.571 billion (USD 574 million) in royalties (LHDA 2016).

A hydroelectricity component to the project is being considered as part of Phase II at Kobong. While it would generate 1,000MW of electricity for Lesotho to use and export, its cost is so high that construction is unlikely due to financing challenges. The primary function of the LHWP is as a storage project, however. As a high-ranking technical officer with the Lesotho Highlands Water Commission (LHWC) explained to me: A problem facing Lesotho's hydropower production is that fact that the country is not legally able to send water through the turbines (and therefore to South Africa) according to the schedule it desires. The 1986 Treaty states that South Africa will store water in Lesotho and fill its demand gaps as they arise. If the Vaal Reservoir is full or without present demand, South Africa can decline to add more water to it.

Strategic Disavowals: Spatio-Temporalities of the LHWP

This massive transfer of water appears to contradict statements in the LHWP feasibility study for Phase I such as this one: “The proposed transfer of water from the Senqu catchment will not result in any shortfalls in supply from the Senqu/Orange River downstream of the project” (LHDA 1986:iv). That is, despite the fact the Maliba-Matšo River downstream from the Katse Dam flows at 4% of its natural rate (Metsi Consultants 1999), there are said to be no shortfalls. This kind of disavowal of environmental impacts can be found in other aspects of the project. A legal scholar’s (McAuslan 1987) analysis of the LHWP’s feasibility study found that ecological and social consequences were quite obviously an afterthought. Only a few small and vague provisions were made in the Treaty for those impacts in contrast to the long, detailed financial and engineering sections. McAuslan points out that the LHDA was only responsible to protect the environment and livelihoods “to a reasonable extent.”

Interestingly, a World Bank project assessment report (World Bank 2010) evaluating the Treaty suggested that one of the reasons the Treaty was successful was because of its “Limited Objectives: The Treaty focuses exclusively on the Lesotho highlands water program...[and] does not include water resources management in the larger Senqu-Orange river basin” (World Bank 2010:36). In effect, the LHWP has been successful because it ignored the watershed. The report also points out that water professionals remain scarce in Lesotho, despite the importance of water to the economy (2010:35). Strangely, too, we know rather little about Lesotho’s water. Sene et al. (1998) explain that there is a paucity of Lesotho hydrological data. This is odd, given the importance of rain and water to its agricultural and export economies, and it

testifies to the extent that the LHWP is not an organic, national effort in service of everyday people. The scant peer-reviewed research into the hydrology of the Lesotho Highlands (e.g., Sene et al. 1998; Smith et al. 2000) has been sponsored by the LHDA in the mid-1990s, after the project was already agreed upon and underway. Oddly, then, water requires work to extract it from the soil and social relations with which it is entangled, but ignorance (Mathews 2011) of certain aspects is somehow key to LHWP success.

One reason for this is the narrow temporality of the project. For example, many people I spoke with in the Mokhotlong District who would be impacted by the Polihali Dam were concerned about a 50-year horizon on compensation for lost agricultural fields, trees, or other resources cited for compensation. This issue was a particular focus of activists who were trying to organize for greater compensation, and it regularly came up at meetings that I attended of the main activist group in Mokhotlong, as well as in their discussions with LHWP officials. These people questioned why it was they would be given compensation for 50 years for, say, an agricultural field, when that same field would be passed down through the generations to their children, grandchildren, and beyond. At one meeting organized by the LHDA in Mokhotlong in September 2014, which saw the top brass of the Water Project gathering to listen to community leaders and their concerns about the project, several people confronted them about this point. The answers were circuitous, but mentioned a precedent in water projects for a 50-year limit. When I asked a high-ranking LHWP employee how the 50-year number came about, he seemed reticent to

discuss it. Usually cool and cocksure, he fidgeted nervously and told me that it was the standard because that is the expected life of the dam.¹²

State-Making, Conservation Science, and the Histories of Ecologies

In short, these programs succeed because of their willful ignorance (Mathews 2011) of a select subset of water's landscape relations—made possible by their production of a narrow temporal and spatial frame. In order to understand the logics and effects of that frame, I draw together theory on natural resource production, state-making, conservation science, and the function of history in ecological process.

When conceived as a modernist entity, the state appears focused on the production of knowledge in the creation of a legible populace (Scott 1998; Foucault 1991), and bureaucrats therefore appear as agents of knowledge production akin to scientists (see Hoag 2011). But, for scientists and bureaucrats alike, the work of knowledge production is not confined to the generation of data but rather the exclusion of certain data that complicate knowledge claims and their tractability (Galison 1987; Best 2012; James 2015; Dery 1998; Mathews 2011; Lyons 2014), including through the use of narrow temporal framings (Fogelman 2016). This insight has emerged alongside an emerging emphasis on the everyday practices of state

¹² The LHDA also seeks narrowness with respect to other potentially unruly concepts, such as kinship. One LHDA official raised the issue of compensation to heirs (*mojalefa*) and sought to define rather narrowly, according to the terms of private property and the LHDA policy, what constituted a “family.” Understanding that the issue could be contentious and the importance of establishing the LHDA’s definition, he repeated multiple times the phrase, “*Leloko hase lelapa*” (“Custom is not family”).

functionaries (Anders 2010; Bear & Mathur 2014; Hoag 2011; Bierschenk & Olivier de Sardan 2014; Blundo & Olivier de Sardan 2006; Blundo & LeMeur 2009; Ferguson & Gupta 2002; Hull 2012a, 2012b; Hansen & Stepputat 2001; Heyman 1995, 2004). Whereas scholars had previously shown how state power was produced through the discourses of ordinary people (Das & Poole 2004; Gupta 1995; Navaro-Yashin 2002; Taussig 1997) or those produced by the state (Mitchell 1999; Scott 1998), recent work has shown that the state is fragmented and contested (Li 2007, 1999; see Chapter 3), riven with fear and paranoia and yet profoundly mundane (Hoag 2010; Rahder 2014, 2015). State agents such as water engineers are also not necessarily skillful and successful—they are sometimes even bumbling.¹³ At the least, not all state knowledge is fixed and hegemonic—maps, for example, might be better thought of as processual (Fogelman & Bassett 2016) than fixed “inscription devices” (Li 2014), even if they are nevertheless enrolled in power-laden contests over land access and ownership.

In matters of ecological conservation, efforts by state agents and other experts are similarly contested and fragmented. Powerful critiques have been leveled against the underlying patriarchal, imperialist, and racist tendencies of science, conservation, and scientific expertise (Haraway 1989, 1988, 1997; Peet & Watts 1996; Büscher 2013; *inter alia*). Exotic species invasions—of plants, in particular—have often at the center of these anxieties over land mismanagement (Van Sittert 2002; Beinart 2008),

¹³ See White (2010) for a resonant account about the putative heroes in the history of American capitalism, the transcontinental railroad entrepreneurs whose businesses were marked more by failure and incompetence than by determination and capability.

dovetailing at times with discourses about race and nation (Comaroff & Comaroff 2001; Hartigan 2015a; Subramaniam 2001; see also Hartigan 2015b; Casid 2004). Concerns about protecting land from misuse or stemming the profligate consumption of natural resources have led to heavy-handed conservation projects, which have displaced people for the sake of eco-tourism, nationalism, or the environment, and which raise questions regarding for whom such resources are being conserved (Carruthers 1995; Hughes 2010; Neumann 1991; Büscher 2013). At heart, these fears and concerns betray an implicit (and sometimes explicit) belief among colonists, conservationists, and development workers that Africans are simply incapable of managing their natural resources (Showers 2005; Fairhead & Leach 1996; McCann 2005). For example, development officials sometimes imagine that peasants have made economic miscalculations in neglecting to engage capitalist markets (Dove 1993; Ferguson 1985; see Chapter 5).

However, it has also been noted that the “experts” of the colonial period were not necessarily all-powerful or listened to (McCracken 1982), and some have cautioned against the tendency to suggest that so-called “indigenous” forms of landscape use are necessarily more appropriate than exogenous ones. Beinart (2000) notes the importance of recognizing the ways that Africans themselves have taxed their natural environments, warning against a simple binary of “exploitative colonizer” and “harmless African.” The “common land” championed by anti-privatization advocates, he says, does not unequivocally lead to a healthy ecosystem (also see Jacobs 2003; Tilley 2011). For this reason, my research focused on

interactions between state functionaries in conservation and the rural people who are targeted by conservation programs, seeking to understand how the different interests and experience of each shapes the practice of conservation (West 2006; Rahder 2014, 2015; Lyons 2014).

Taking water as a landscape feature seriously also means making observations about the landscape and finding a way through stereotypes of racist science and benign rural subjects. Landscapes are the site where the material and semiotic contradictions of the water economy play out, where the visions of ecological process articulate with reality, and where enactments of landscape emerge. If our analysis of invasive species, for example, insists only on the racist or xenophobic qualities of such ecological narratives and ignores the ways in which invasive species can disrupt local ecological processes, undermine diversity, and diminish livability, then anthropology is in trouble. Rather than simply exposing the underlying assumptions of scientific practice, scholars increasingly recognize the need for new forms of critique and engagement with science (Haraway 2008; Latour 2004, 2010; Beinart et al. 2009; Simberloff & Vitule 2014; Tsing 2015a), as well as a more nuanced understanding of the heterogeneity of scientific communities (Haenn 2016; Wolf-Meyer 2015) and a renewed commitment to accounting for everyday scientific practices (Helmreich 2009; Latour & Woolgar 1979; Sundberg 2009) so that critical perspectives are not cut off from the methods and data needed to fully appreciate the politics of human-environment relations. I take up this challenge by pairing this dissertation with another (Hoag 2016) I completed as a PhD student in Biological

Science at Aarhus University, where I was affiliated with the interdisciplinary research program, AURA: Aarhus University Research on the Anthropocene.

Cultural anthropologists rarely produce or use biophysical data, despite exhibiting an otherwise ecumenical spirit toward bodies of theory and types of data. Yet, historians and sociologists of science (*inter alia* Latour & Woolgar 1979; Shapin & Schaffer 1985; Knorr-Cetina 1999; Haraway 1997) have shown us that scientific knowledge is, at heart, a set of practices ordered through convention (or, genre) and creative improvisation. The Science Wars, of which these studies were inevitably a part, flamed up around questions of objectivity and reality, but scientists and humanists tend to agree on this point of empiricism: data are produced and marshaled to make an argument, and we must understand their production to weigh the argument (*inter alia* Clifford & Marcus 1986). No data are inherently good or bad – they are situated artifacts that can tell us some things and not others (Haraway 1988, 2016).

Ecologists' attention to the form, function, and social lives of non-human beings are valuable tools for anthropologists attempting to interpret the landscape histories of our informants and to understand the nature, origins, and implications of different human-non-human assemblages. However, ecological science since the rise of quantitative ecology in the mid-20th century has tended to ignore history as anthropologists understand it (Kingsland 1985; Tsing 2015a; Wennekes et al. 2012; Clark 2009; Mathews n.d.). Instead, ecological scientists have favored theorizing the mechanisms that drive ecological process and then using an understanding of those mechanisms to infer historical ecological process (see Chapter 4). Like future-making

(Wolf-Meyer & Callahan-Kapoor 2017), landscape historiography is a theoretical practice involving engagements between experts and everyday people, mediated by technologies of observation and shot through with anxiety. Anthropological accounts of history shed light on how power and contingency configure how the world looks today, and these are potentially a valuable contribution to ecologists. But they are deeply anthropocentric (Tsing 2015a), demanding some kind of accounting of non-human practices. Landscapes are not merely texts inscribed at will by self-sovereign humans, so the anthropology and ecology of landscape need each other.

Anthropology and ecology insights have been drawn together before, of course. There has been a longstanding interest in human-environment relationships within anthropology, including by those within the subfields of cultural ecology and political ecology. Cultural ecology's effort to study how ecological processes shape cultural production has been successful where it took care to account for the specific environmental conditions that might impinge on society, but where the environment was not imagined as overly deterministic. In some prominent and subfield-defining cases, however, it became overly scientific and deterministic—quick to quantify data on cultural practices that were better suited to qualitative description—and abandoned the critical, interpretive approaches that are vital to appreciating how concepts used by our informants to navigate their world can transform our own (e.g., Steward 1955; Harris 1998, 1971; see Johnson 1982). Political ecology was a remedy to a cultural ecology bereft of a concept of power (Peet & Watts 1996; Escobar 1999; Wolf 1972; Blaikie 1985), and this dissertation owes much to it. But the field has since its early

years tended to frame environments as resources over which people struggle rather than dynamic sites of more-than-human life. As a result, it has been generally uninterested in the insights and empirical practices of ecology (see Vayda & Waters 1999).

Ecological formations, like social formations, are of their time—that is, they are materially, semiotically, historically specific. Anthropologists need a means of accounting for ecological formations as being co-produced by non-humans, but without sacrificing our interpretive approach in the process (Tsing 2015a). Historical ecology represents an underdeveloped but productive sub-field interested in the articulation of human and non-human ecologies. As I practice it, historical ecology asserts that humans, living non-humans, and non-living things exist in assemblages that have spatial and temporal characteristics distinguishing them from other times and places. As such, none of these actors make sense except in their relation to other things. Historical ecologists are interested in comprehending “interactions through time between societies and environments and the consequences of these interactions for understanding the formation of contemporary and past cultures and landscapes” (Balée 2006:76; see also Crumley 1994).¹⁴ But while Balée (2006) believes that historical ecologists must subscribe to a singular theory of history, I make no such

¹⁴ As Carole Crumley (1994) points out in her edited volume *Historical Ecology*, the contradictions of American anthropology’s 4-field commitments are laid bare in the introductory courses. Whereas the first half of the course emphasizes the environmental determinants of human biology and society, the bulk of the second half bemoans the racist overtones of environmental determinism, especially in the global south. Human-environment relations reemerge at the very end of the course, however, as attention turns to humanity’s impending threat of environmental collapse.

claim here. History is always made and unmade through contingent discourse and practice (Benjamin 1968; Buck-Morss 1989). As such, I see no reason to envision historical ecology as fundamentally an applied field as some have suggested (Armstrong et al. 2017).

In order to understand the terrestrial politics of water, we need to develop new theoretical and methodological tools to account for biophysical processes, cultural production, as well as the historical and political factors that have given rise to specific landscape patterning and not others. In this dissertation, I make the case for an anthropology that can include observational practices from the sciences, to “build [dangerous] alliances with our disciplinary rivals” that can advance a “kinky empiricism” (Rutherford 2012b:475). If ecology seeks to establish the laws that structure ecological processes (Lawton 1999; McGill et al. 2006), anthropologists should work to discern the signs and practices that would make those putative laws matter. This means drawing in practices of noticing from ecology, while validating the qualitative observations made by anthropologists who seek to read the landscape (Tsing 2015a; Mathews n.d.; Grove & Rackham 2001), as well as developing novel and sometimes awkward methodologies for interdisciplinary scholarship (Swanson 2017; Choy et al. 2009). In erecting an infrastructure of water production through which erosion control operates as a form of governance, state functionaries and ordinary people make claims about landscapes that must be examined and evaluated by both critical, interpretive modes and positivist, scientific ones.

Organization and Argument of the Dissertation

Here is my argument, in brief. Colonial policies for erosion control, based on the demands of downstream white settlers, have been revived in recent years to protect the commodification of water. Following colonial precedent, these programs work mainly as a mode of governance rather than as an ecological measure. This dissertation shows how erosion control as governance works on the ground. Elites construct water commodification as a national priority, thus arguing that erosion control is necessary. Local erosion control programs follow colonial organizing principles, extending legacies of governance into the countryside. Governance patterns itself on colonial legacies of imagining Lesotho as a politically walled-off but economically dependent periphery. The goal of governance in colonial and contemporary times is to maintain a relationship between unsustainable multispecies livelihoods, on the one hand, and political quietude, on the other.

This nonsustainability is not a failure of local management but rather an architectural feature of peripheral status. The nonsustainability of grazing is built on the colonial situation of Lesotho and its continuing dependent and peripheral status. From the start, Lesotho's highlands were not a great place for herders, who went there only after being driven from better lands by white settler colonists and African elites. The population increase supported by colonial policies, as well as the status of Lesotho as a labor reserve, made this problem much worse. Present-day problems with the range for grazing draw directly on this history. Today's unsustainable livelihoods are maintained through a politics of distribution. Payments for water are

channeled toward concentration and corruption, only reaching rural livelihoods through development and environmental management programs, which themselves are continuations of colonial governance projects, as with *fato-fato* (see Chapter 2).

Overstocking of livestock was encouraged during the emergence of the wool market despite colonial and conservation statements to the contrary and has been exacerbated by the high stakes of the meat-smuggling trade for fat-tailed sheep from Lesotho to South Africa. The use of livestock for mine-wage-based savings also meant nonsustainable herds. Without any history of sustainable livestock management and range management in the area, and in the context of continuing pressures to expand commercial circuits, it is difficult to see how a transition to improved range condition could be attempted without changes in the regional political economy. Overstocking and climate change, together, have led to shrub encroachment on grasslands. Shrub encroachment reduces range for grazing, leading to more intensive effects on grazed areas. Because male herders, environmentalists, and government officials all agree that shrubs are a problem, shrubs become a figure of “degradation”—which is (wrongly) equated with erosion, thus drawing a false connection between water commodification, erosion and herders’ livelihoods. The nonsustainability of grazing in the Lesotho highlands is thus a continuing effect of colonial violence, labor reserves, and contemporary disconnection between elite rule and rural welfare.

Part I of the dissertation, “Erosion Control as Governance,” describes how the water economy resuscitates erosion control programs established in a colonial past

and reasserts its political power in the present. In Chapter 1, I show how the elevation of water production as a national priority instigates discussion about who is responsible for land degradation and how to improve it. Proponents of Lesotho's water economy project the notion that Lesotho is "water abundant" and depict water as a deep essence of the country, even as these notions contradict the experience of water by peasants, who suffer through extended droughts and spotty water access. The water commodities produced by the LHWP also contradict material water, which is entangled in soils and unruly. Thus, in the process of establishing water as an economic priority in need of protection through watershed management, elites generate a notion of water that is symbolically and materially unfamiliar to the rural people who are targeted in land use reforms. They succeed in producing water commodities despite their imposition of a foreign notion of water, but only because of their narrow temporal frame. The LHWP faces trouble beyond that frame stemming from land degradation, and perhaps even sooner.

Chapters 2 and 3 explore the soil conservation efforts put in place to arrest unruly water and erosion, but which serve to institute a political strategy that can maintain political control and quietude. Soil conservation efforts consist of two different approaches: physical conservation structures, such as gabions and silt traps, and social structures, such as grazing associations. In Chapter 2, I describe physical works promoted by conservation workers that are almost comically unsuited to prevent soil erosion. I explain why this is so by showing how such efforts carry forward colonial programs and embody Lesotho's peripheral status by shoring up a

precarious social contract in Lesotho's post-mining labor era through a politics of distribution (Ferguson 2015). The social engineering exemplified by the grazing associations that I describe in Chapter 3, whereby ordinary villagers are tasked with managing rangelands on behalf of chiefs, is seen by conservation workers to get at the root of the problem—rangeland management failures. But these associations are haunted by the many decades of previous land use reforms that complicate the institution of grazing associations. Such efforts have little impact on rangeland condition, as there is probably no management fix in an economic periphery like Lesotho, where grazing pressure is regularly high, though they do secure donor aid for elites who implement them (see Ferguson 1994).



Figure 7: Herder with his flock. Photo by the author.

Part II explores the nonsustainability of peripheral status, showing how debates about the relative importance of drivers of ecological change flounder without historical sensibilities. There is almost no monitoring of soil erosion due to the technical and financial requirements of doing so and the narrow temporal focus of water engineers, so the actual amount of soil erosion is largely unknown. Conservation workers use the presence of dwarf shrubs—said to be encroaching onto grassland pastures—as a way of diagnosing erosion through a generalized notion of “land degradation.” There is broad agreement between conservation workers and livestock owners that shrub encroachment is happening and that it is bad for livestock production, but little agreement on the causes. For conservation workers, the presence of shrubs is taken as a sign that rural people overgraze livestock and need land use reforms lest they undermine the future of their country and their country’s water project. For herders and livestock owners, it is because of increasingly unreliable rains that shrubs are gaining traction against grasses. In Chapter 4, I explore the empirical bases and implications of these perspectives, and consider their veracity using a variety of interpretive and ecological methods. Each story enacts landscapes differently, but neither claim makes sense except in reference to historical processes related to colonialism, the settlement of the highlands for wool production in the early 20th century, and the importance of wool and mutton production to rural livelihoods across the period of Lesotho’s transition from labor reserve to water reservoir. It is to those historical processes that I turn in Chapter 5, reprinted from my Aarhus University dissertation (Hoag 2016). I show how the production of sheep and goats

for wool and mohair (and, later, for mutton), have come about as a means of coping with life in an economic periphery. While conservation workers have sought the commodification of cattle as a way to promote rangeland improvement through control by the invisible hand of the market, it is precisely because of the long-standing commitment among rural Basotho to commodify sheep and goats has almost certainly had detrimental effects on land condition.

In summary, this dissertation shows how erosion control as a form of governance works on the ground by describing the symbolic and material infrastructures required for water production, and by showing how history and politics insinuate ecological processes in an economic periphery.

PART I: EROSION AS GOVERNANCE

CHAPTER 1

WATER, WATER EVERYWHERE

In March 2014, in the midst of a multi-year drought, I went on a tour of the ‘Muela Dam near Butha-Buthe in the northern foothills. The ‘Muela Dam is the smallest of three dams built as part of the Lesotho Highlands Water Project (LHWP) Phase I, though still a “large dam” by the classification of the World Commission on Dams (2001). The dam reservoir is facing serious sedimentation problems as a result of soil erosion in the upstream catchment (Kabi 2017), and I had come to learn more about it. Being sited in the relatively accessible lowlands, and containing power-generating machinery of interest to infrastructure tourists, it is one of the more frequently visited

LHWP sites. White South Africans in Land Rovers packed with camping gear pass through on their way to the highlands, and Basotho schoolchildren are ferried there by the busload to learn about the country's signature engineering project. The official tour includes a visit to a large room with informational posters, diagrams, and models that describe the structure and construction process of the LHWP; a visit to an overlook above the reservoir; a guided tour of the dam facilities; and a 15-minute informational video.

I had made a special appointment, so I sat alone in the exhibition room as the tour operator pressed "play" on the DVD-player and left the room. The video opened with reconstructed images of dinosaurs passing through a watery, Jurassic environment, shifting to others of King Moshoeshoe I of Lesotho, the founder of the Sotho nation. The water we drink today, the video explained, is the same that was drank by the dinosaurs and by Moshoeshoe himself. It then narrated a series of video and images of people doing quintessentially "Sotho" activities: women collecting shrubs for fuel and threshing wheat, men with blankets riding horses, herders tending a flock. The narrator stated: "As if time had stood still, oxen plough the fields." Then, it showed the impressive Maletsunyane Falls, another common tourist destination, and segued to an overflowing Katse Dam, as though equivalent expressions of something distinctly Sotho. Overflowing with images of crystal-clear water babbling over stones in mountain tributaries, or bursting over the Katse Dam wall when at full capacity, the video threaded water through a well-known national mythology. Water, it asserted, brings Basotho into communion with their ancestors: Sotho subjectivity,

Lesotho's national identity, and Lesotho's territory are anchored in a watery past, carried forward by this water project.



Figure 8: Katse Dam overflowing. Photo by the author.

After the video ended, I was taken upstairs to the main lobby of the office and into the main control room of the hydroelectric station, which sat inside a glass-walled room. The room was filled with computer monitors and a large panel, the focus of the room, complete with diagrams of the dam flow process, numbers to describe the amount of electricity being generated or the height of various reservoirs in the project. I was given a lesson in the role 'Muela plays in the LHWP. After water is carried by tunnel from the Katse Dam reservoir, it passes through hydroelectric

turbines at ‘Muela and flows into the ‘Muela Reservoir. The water then falls vertically into a bell-shaped intake before passing through a tunnel under the Hololo River. Then, it goes under the Ngoajane River and in this tunnel the water quantity is measured using two different instruments—an ultrasonic instrument and a magnetic one—that work together to determine how much water has passed. From there, the water flows into a tunnel to Clarens over the border in South Africa and to the Ash River outflow, where it will feed by river into the Vaal Reservoir south of Johannesburg (see Figure 1), a reservoir that services 12 million people (Creamer 2016).

I had heard that farmers in South Africa’s Free State Province, through which the Ash River passes, have been illegally extracting water from the river before it reaches the Vaal Reservoir, so I asked the tour operator about whether she thought that was true.¹⁵ She replied by saying that they don’t know – but anyways, “it’s not Lesotho’s problem what happens to the water after it crosses the border.” While the video pronounced the primordial and essential nature of water in Lesotho, the people who show the video clearly treated water export as a kind of commodity exchange. I suppose it was to be expected from these technocratic agents of the LHWP, but after having watched that video, I found her response striking.

¹⁵ I was told by a high-ranking official at the Lesotho Highlands Water Commission (LHWC), the bilateral body that oversees the LHWP, that farms siphoning water off of the river between Lesotho and the Vaal catchment is a very serious problem. He said Rand Water has discussed the possibility of building a pipeline to carry the water to the Vaal to overcome this problem. But this would cost billions, he said, and is unlikely in the near term.

As we walked back into the main lobby, I noticed a weaving on the wall that depicted water entering a hydroelectric turbine above the Sesotho phrase, “*Rea Fehla*” (“We generate electricity”). The verb *ho fehla* is a noteworthy choice to describe hydroelectricity generation, a choice that was almost certainly made by those advocating for the construction of LHWP or its earlier incarnations (e.g., the Oxbow Scheme)—no hydropower existed in Lesotho prior to the ‘Muela Dam and imported concepts must be assigned Sesotho terms. Those who do so must make decisions about which terms to use and such choices are inevitably political. Missionaries’ choice of the Sesotho word *Molimo* for “God,” for example, was a deliberate attempt to coopt extant Sesotho beliefs in the supernatural, as *molimo* (pl. *balimo*) refers to ancestors (Hoag n.d.; see Schapera 1971 for a Tswana case). The term *ho fehla* translates literally as “to churn,” in reference to the preparation of medicines by rainmakers (*lingaka*) that are stirred and frothed in a pot. Rainmaking is rarely practiced in Lesotho today, having been made illegal during colonial times (Hoag n.d.), but it retains its connotation as an ancient and quintessentially Sotho cultural practice.

As I describe below, however, everyday people in Lesotho do not recognize the water being produced there at ‘Muela. Water certainly has cultural significance to them, but in very different ways than was described in that video or elsewhere in LHWP promotional materials. The tour guide’s relationship to the water being exported resembles that of commodification elsewhere—it is abstracted from its meaningful social and natural connections (*inter alia*, Linton 2010; Strang 2004).

Strangely, however, water engineers in Lesotho *generate* a primordial, cultural water before abstracting it. Examining how water is discussed by LHWP proponents and everyday people—and who benefits from it—I argue in this chapter that scholarship on water and power too often presumes to understand from the outset what water is. The new type of water created by the LHWP—one that is both cultural, abstractable, and unfamiliar to everyday people—orients conservation workers toward catchment management in a way that cannot enroll everyday people, and which complicates efforts at soil conservation. But by figuring Water as a national priority, elites argue that erosion control is necessary, the effects of which I explore in subsequent chapters.

Water, Water Everywhere...?

Between 2003-2005, while working as a Peace Corps Volunteer in Lesotho, I got into several conversations with people on taxis and elsewhere who were interested in telling me about how their country “has a lot of water” (“*Lesotho le na le metsi a mangata*”). When I began my research on water in Lesotho, I was excited to track how water was discussed—how, say, some people might talk about it with reverence while others might do so with disdain. But my probing questions about water came to little. If I asked a random person whether Lesotho had a lot of water, they would typically respond in the affirmative, understanding that I was probably referencing the LHWP. But the conversations went nowhere after that. My early fieldnotes express deep frustration on this point. If I asked specifically about the LHWP and whether it

benefitted people or not, I could start a conversation, but it was not particularly interesting. Some in the mountain areas would cite the nearby roads built as part of the LHWP or the royalties paid by South Africa to Lesotho for water; others would explain how those royalties were “eaten” by politicians. It was a story of “pros and cons.” But in almost none of these conversations did the topic elicit strong emotion.

There were two exceptions to this general rule. First, was my conversations with community activists in the Mokhotlong District, where a third large dam was to be built, the Polihali Dam, who were openly contesting the terms of LHWP compensation for people who would be relocated or otherwise disadvantaged by the future impoundment at Polihali. They seemed to be able to speak the language I had been looking for. “This is our water,” a woman in Mokhotlong said, gesturing toward the river. “If the government is going to sell it, we who are affected by the project should get some of that money!” As it was explained to me by their ally at the Transformation Resource Centre (TRC), an advocacy organization that helps to train and publicize community activists who seek fair compensation from the LHWP, “these activists’ strategy was premised on development: If the dam produces water, then the people living nearby should get water.”

The second exception was a different kind of water, namely rain. If I asked people about rain, they could talk on and on. They could tell me about how the rains this summer compared to last summer; what that meant for the coming winter; what different kinds of rain there were; whether it was likely to rain that day; what kinds of decisions about planting agricultural crops they were making based on rain forecasts.

Many people told me about how the rains were worse today than they used to be. Whereas they once began in September or October and fell mostly as *pula ea molupe*—slow rains that fall over many hours and percolate into the soil—these days they began in November or December and fall as *pula ea sekahla*—torrential storms that flow quickly into streams as runoff, carrying topsoil with them. That is, rain was often a source of anxiety—it was by turns delayed and insufficient or abrupt and destructive. In the vast highland landscapes of Mokhotlong, where one can see miles and miles into the distance, it was not uncommon to see darkened clouds amassing on a faraway ridge, or to see the blurred grey movement of a rainstorm pass over a neighboring village and away. I was chatting with an elderly woman who lived in a village up the valley from where I was staying one day and pointed out with approval that we had a short thunderstorm the previous evening. Yes, she said, “but nothing fell here – we only saw the clouds over in the distance!” Whereas water is depicted as an abundant, national natural resource, rain is described as scarce and highly localized. We might think of these as two modalities of water: Water and Rain, each with particular spatial and temporal properties.



Scholarly literature in critical water studies has worked broadly in two directions. On the one hand, authors have explored the ways that water commodification has abstracted water from its dense socio-cultural associations, as privatization has arisen across the globe alongside increasing water scarcity and the devolution of public water services to private entities (Linton 2010; Strang 2004;

Orlove & Caton 2010; Rodriguez 2006; Tvedt & Oestigaard 2010; Illich 1985; also see Whatmore 2009). This literature has made an important contribution by showing that “water” is not a stable category, but one that is culturally specific. The ways that water is differently understood or defined shape how it is managed. For example, not everyone benefits from the LHWP, as I detail below, and the notion that Lesotho is “water-abundant” is an odd one for many in Lesotho who face regular droughts and poor water access. The “Water” generated by the LHWP is not a culturally meaningful category for most people in Lesotho. While it has been fashioned to facilitate commodification, Water presents challenges to elites in conservation oriented toward it, given that it does not resemble the material form of water found in Lesotho and given that it is unfamiliar to rural people targeted by conservation work. For those people, Rain is a much more meaningful category. So the task of getting people to care about the project and to reform their land use is fraught.

It is not, of course, that water (*metsi*) is not meaningful in Lesotho. Different manifestations of water occupy a prominent place in Basotho culture. As a medium of household activities, water is enrolled in a number of traditional cultural practices, such as when, upon the arrival of a newly married woman to her husband’s village, she is escorted to the water tap by a singing group of women and girls. Deep pools of water, called *maliba*, are known across Southern Africa as dangerous and powerful: in them, one often finds water snakes called *likhanyapa*, who can consume passers-by. For this reason, these pools are also enrolled in the rites of traditional doctors (*lingaka*), who see *maliba* as important media through which to communicate with

ancestors. In fact, the possibility that dam reservoirs would constitute large *maliba* in which *likhanyapa* could live was a real fear expressed to me by numerous people in the areas near Katse Dam and the future site of Polihali Dam. But these manifestations do not equate to Water, the national, natural resource.

The second strand in water studies literature relates to how water management by states has been a means for the constitution of society. Karl Wittfogel's (1957) famous thesis on "Oriental despotism" is a landmark. Wittfogel stated that the demands for large water diversion projects in East Asia required a concomitant social coordination that led to the consolidation of power into the hands of a small, elite class of water bureaucrats. This bureaucratic class, he stated, used their power to rule despotically over their subjects.¹⁶ Wittfogel's ideas have been hotly contested. Archaeologists have disputed whether strong state bureaucracies necessarily follow demands for irrigation, citing cases in Mesopotamia and Mesoamerica where the reverse may have been true (see Mitchell 1973). Anthropologists have suggested that hydraulic irrigation does not necessarily lead to a centralization of power, but can instead be managed through community ritual systems with no management hierarchy—that water management need not be simply a series of operational tasks, and can instead be a meaningful series of interactions between social groups with shared cultural practices and the natural world (Lansing 1991:6). Thus the

¹⁶ It should be noted that Wittfogel was specifically engaging with Marx's theory of the "Asiatic mode of production," to which Wittfogel believed water management was key. Marx's discussion of the topic was thin and the debates aroused by this topic do not concern me here.

responsibility of management can be distributed diffusely, a conceptual challenge to the centralizing and despotic tendencies of hydraulic societies (Lansing 1991; Mosse 2003; Rodriguez 2006). However, as Donald Worster (1985) points out, Wittfogel's ultimate contribution was his integration of the natural environment into Marxist analysis (1985:26) and his insistence that water is an important tool in social control and organization. For example, Lansing shows that Dutch colonists had dismantled many of the Balinese *subaks*, imposing Dutch hydraulic science as a way of legitimating the colonial presence and of establishing the infrastructure of violence and extraction that sustained it materially. Dutch colonists ignored the sophisticated, decentralized forms of irrigation that were established by the Balinese and asserted their own, using their own waterworks to enact Dutch power through the performance of expertise (Lansing 1991; for a related example, see Gilmartin 1994, 2003).

Because this literature has not been in sustained dialogue with literature on the commodification of water, it has tended to presume that the water over which people struggle is stable, taking “water” itself for granted. Not only does the commodification literature give the lie to that proposition, but literature on natural resource production more generally has shown that resources must be produced *as resources* prior to their exploitation (Tsing 2005). Much as the early colonists of Africa and the Americas “found” a land unused by the native populations and whose potential was untapped, so too has Lesotho's water been delivered into productive use by noble colonists and capitalists—this is an enduring trope in studies of natural resources extraction in Africa (Adams 1993; Geisler 2015). Anna Tsing (2005) has

shown in a Southeast Asian context that natural resources are oftentimes animated by their relation to the shifting boundaries of the nation's frontier. Others have shown how the production of a particular natural resource—oil—can serve to simultaneously reproduce the nation through the promise of modernity (Coronil 1997; Apter 2005; also see Ferguson 1999; Chalfin 2004), even as wealth becomes concentrated in “enclave economies” (Watts 2006; Ferguson 2006). Described as “temples of modernity” by figures such as India's independence leader Jawaharlal Nehru, dams represent a key example of this natural resource modernity (Kaika 2006).

When water abundance is declared in Lesotho, it generates a specific kind of water, and this kind of water has politics. As I show here, the problem has not been simply that the LHWP abstracts water from a social context, but that it creates an entirely new category of water—Water—that is primordial and abundant. It is a type of water that contradicts everyday lived realities. It is worth noting that relationships between water and environmental condition have been charged with moral character since pre-colonial times, albeit in rather different ways. Precolonial chiefs gathered subjects into their fold through their ability to bring rain (either through their own rainmaking rites or by their access to successful rainmakers). Drought represented a sign that ancestors had not been propitiated adequately through such rainmaking practices, or because of the immoral behavior of individual subjects. Missionaries saw “pagan” practices such as rainmaking to be responsible for desiccation and drought in Lesotho, even as they encouraged African people to join their church through the promise of praying for rain to the Christian god (Grove 1989). Colonial

and postcolonial scientists would later see the mismanagement of land as resulting in “desertification” (the inability of land to hold water, leading to drought), asserting their own forestry and soil conservation practices as commanding authority (see Hoag n.d.).

While this abstraction is common to all commodities as their use values are converted to exchange values (Marx 1990), it is especially alarming to scholars and activists focused on water given water’s position as a fundamental requirement for life and its dense cultural associations. Anthropologists (Orlove and Caton 2010) have described water as a “total social phenomenon” in which “all kinds of institutions are given expression at one and the same time” (Mauss 1990:3): religious, moral, economic, and so on. Water’s interconnection across diverse social and natural domains has made it a fruitful site for anthropological inquiry, allowing us to examine at once questions of environmental sustainability, social organization, and place (Hughes 2010; Rodriguez 2006; Ritvo 2009). Jamie Linton (2010) suggests that a combination of rationalizing hydrological science and capitalist forces of production has reduced water to what he terms “modern water”—a sort of anti-matter that can be measured, assessed, and traded. Modern water, for Linton, is the predominant paradigm for understanding and managing water. Karen Bakker (2003; see also Kaplan 2007), however, confronts the limits of constructivist accounts of water in her study of water privatization in Britain, calling on scholars to keep in mind that water’s materiality complicates its abstraction. She calls water an “uncooperative commodity” because its physical form has undermined efforts in Britain to privatize

it, as well as efforts to bring it under state-management. This important point suggests that we should move beyond the story of water's "fall from grace"—from transcendent, interconnected cultural and material object to abstract commodity—as in Strang (2004) and Linton (2010) to attend to the material and symbolic practices that underlie commodification.

Substantivist economic anthropologists have insights of value on this point. They have shown that economic exchange is not an event but a process, entailing cultural practices. For example, the classification of alienable wealth structures its sale, whether classes emerge as spheres of exchange (Bohannan 1955; Piot 1991); embodied value (Munn 1986); rules governing the exchange of special kinds of property such as cattle (Ferguson 1985; Comaroff & Comaroff 1990; Hutchinson 1996); or through negotiations between people (Guyer 2004; Appadurai 1986; Kopytoff 1986). Whereas a strict Marxist perspective envisions goods as capable of being fully disarticulated from the social world for those who behold them—what I call “clean break commodity fetishism”—these authors show that commodities come into being as commodities through their movement across categories and social relations. By “stretching out” the process of commodification, we can better understand the local practices and discontinuities that enable abstract, universal commodification and the operation of capitalism across diverse settings (Tsing 2015a).

Water commodities in Lesotho are unique—they are made by the nationalization of water and traded in exchange for “royalties” between nation-states.

Instead of a microsociology of exchange, I apply these insights from economic anthropology and water studies to a macrosociology of exchange to consider how landscape practices enable water export. The water described in the LHWP's promotional materials and ledger sheets resembles "modern water," abstracted from its cultural and ecological context through hydrologic science and capitalist logics, and part of a regional process of water privatization (Ruiters & McDonald 2004). Just as the concept of "flows" in globalization studies (e.g., Harvey 1990) has tended to obscure the categories and forms of invisible labor that enabled global trade (Tsing 2000), so too is it important to recognize the practices and categories that enable the apparent seamlessness of water commoditization. Learning something about how commodities are produced as such is not peripheral to understanding capitalist success but rather central to it – it is the stuff that makes up capitalism (Tsing 2009, 2015a).

Although innovations such as modern water appear uniform, they often become more complicated when we look at them ethnographically. Authors from postcolonial studies who challenge the idea that foreign innovations can necessarily take over the total field of knowledge and practices (Anderson & Adams 2008; Mitchell 2002) have shown that Science and Modernity take shape in relation to a local political and social context (Chakrabarty 2000; Comaroff & Comaroff 1999; Geschiere 1997), and (post-, neo-)colonial interventions rarely succeed at replacing prior social forms whole cloth, but instead must internalize the local idiom, with transformative potential for colonizers as well as subjects (Rutherford 2012a). But

commodification is made possible precisely because natural resource capitalists strategically disavow that complexity (Appel 2012). Rather than take water as given, I inquire into the practices and associations used to manipulate water as it courses downslope. Water is a feature, interconnected with others, within a landscape, and it is in this aspect that we need to understand water ethnographically: water becomes water in historically specific configurations with other landscape processes.

Rather than disentangling “modern water” from local context, elites seeking to produce Lesotho’s water find themselves deeply entangled in these contexts, unable to respond except through feeble and sometimes absurd measures. Far from being skilled engineers of extractive infrastructures who deploy authoritative, universal concepts as they see fit, state and LHWP officials are mired in the local and the particular. Put another way, those urban elites who enact Science and Modernity also wrestle with the contradictions of their work and the awkwardness or inadequacy of the categories they are paid to enforce (as in Latour 1993), which proliferate contradictions as they struggle to purify its representative forms. Watershed management in Lesotho, as elsewhere (Carse 2015), exposes modern water as a modernist fantasy, perhaps representing elite *discourses* well, but not elite practices. That they succeed in exporting water is a testament to their short-term horizon as much as it is their ability to marshal the funds and expertise needed to build a dam.

The LHWP and its boosters suggest that Water is a kind of “deep essence” of the country, rather than a contingent fact of Lesotho’s territory. Making Water real and a part of Sotho society is a seeming precondition for making the abstraction. Its

depiction as a deep essence enacts a particular spatial scale—the nation—that projects water abundance as spatially even, when in fact the dispersion of rain is patchy.

Water and Rain prevail today as different modalities of water. Both are entangled in soils, plants, animals, people, and power. National Water is a sign of promise, but local Rain is a sign of decline and climate change. Discord between these two modalities demonstrates why LHWP efforts to reform land use are of little significance to people in Lesotho.

In the next sections, I show how Water is being asserted as a *raison d'être* for Lesotho via discourses of sovereignty, how Water and water abundance are woven into the country's national iconography, and how these processes make water production a national imperative. It also makes soil conservation a national imperative, a point which I explore in Chapter 2. Then, I show how ordinary people envision Water and who wins and loses from the water economy.

Water, Sovereignty, and the Iconography of Water Abundance

In a 1988 article (Goodspeed 1988) in the *Toronto Star* describing an interview with the chief spokesman for the Lesotho Highlands Development Authority (LHDA), the administrative body overseeing the water project, the spokesman declared the scheme to be one of the biggest engineering projects in the world:

“It's going to change the face of Lesotho,” he says. “Once we are supplying South Africa with water, it won't be so easy for them to do things like blockade our borders.” Then, in an aside that seems to underline Lesotho's vulnerability, Sephoko looked out his office window, across the dusty, potholed streets of Maseru, towards the nearby South African border. “Years ago, when I was a herd-boy tending cattle and

sheep in the mountains, I never imagined anything like this,” he said. “I thought we in Lesotho would have to depend on South Africa for generations.”

As described in the Introduction, however, this optimism and the confidence that water could bolster Lesotho’s independence was misplaced, given South Africa’s demonstrated willingness to protect its water source even by military force, blockading the country’s borders in 1998 during political unrest. The project has long been a source of anxiety for observers of Lesotho, who have worried that Lesotho could be overrun by its larger neighbor as a result of the project. After all, it was just two years before this interview that General Metsing Lekhanya launched a coup after years of worsening relations between then Prime Minister Jonathan and the South African government. South Africa had been interested in moving forward with the water scheme, but Lesotho stalled when South Africa demanded that Lesotho sign a security pact like Mozambique’s infamous Nkomati Accord to prevent it from supporting the African National Congress (ANC), a move that would draw international ire and cut Lesotho off from international aid. In the year before the coup, South Africa had imposed a blockade on the Lesotho border to punish Lesotho for harboring ANC activists and invited Gen. Lekhanya to visit Cape Town for the purpose of discussing “political and economic matters” (Xinhua General Overseas News Service 1986).

The notion that the LHWP could improve Lesotho’s political and economic position as it harnessed the power of its water was misleading, but regularly advanced by supporters of the Project. Soon after the 1986 Treaty was signed, the legal scholar

Patrick McAuslan (1987) drew attention to this point in a lecture that analyzed the terms of the Treaty with emphasis on the environmental consequences. He described a brochure produced by the LHDA, which he quoted as stating the following:

Lesotho must control, store and redirect its water. Only in this way can Lesotho ensure that proper use is made of its water within the country and that a proper payment is received for the large quantities of water leaving Lesotho. Dams are required on the major rivers in the Highlands to check and store water. Extensive tunnel systems are required to redirect the water to areas where it can be utilized and to markets willing to recognize its value. Advantage will be taken of the water transfer system to generate electricity for use within Lesotho. In designing the water transfer system full recognition will be given to the water needs within Lesotho. The dams and tunnels of the water transfer system will give Lesotho effective control over its water resources. (Cited in McAuslan 1987:46-7)

McAuslan pointed out that, in fact, the Treaty explains in very clear terms that Lesotho actually *loses* control over its water by putting it under the administration of an international body.

Nevertheless, the notion continues to have traction for some in Lesotho. In April 2014, I was in the mountainous Mokhotlong District when then Prime Minister Tom Thabane held a *pitso* (an open-air speech and community outreach meeting), as he had been doing for each of the country's 10 administrative districts. With his typical good humor—no doubt happy to be speaking in a town with strong support for his party—he explained to the crowd how, when he met recently with South African Prime Minister Jacob Zuma, Thabane reminded him that, “South Africa needs Lesotho—people in Joburg can't even take a piss without our water!” (*Ma-South Afrika ba hloka Lesotho—ba sitoa ho sesa Joburg koana ntle le metsi a Lesotho!*)

After the signing of the 1986 Treaty, King Moshoeshoe II published a 1988 op-ed in the New York Times, imploring the international community to allow financing of the LHWP to go forward. Because of economic sanctions on South Africa, the World Bank was being pressured to rescind its support, and Moshoeshoe II urged the world to, “punish Pretoria, not Lesotho.” Lesotho is not blessed with natural resources like its neighbor, he explained—but it does have “abundant water” (Moshoeshoe II 1988).

This sentiment about the imperative of water production has been echoed by many others. Not only is Lesotho’s water abundant, these voices tell us, but the country is unable to actually “use” it. As in the LHWP brochure described by McAuslan (1987) above, the notion that Lesotho does not use its water is a common rationale for the Project. It is described as a national imperative that Lesotho “use” the water.¹⁷ The Government of Lesotho website suggests that, “Unfortunately [sic] river discharge statistics show that most of this water is lost to Lesotho in the form of run-off.” (Government of Lesotho n.d.a). Consider the LHWP Feasibility Study:

Water is one of the few resources which Lesotho has in relative abundance. Even allowing for possible irrigation projects and for general expansion and improvement in living standards, Lesotho’s total water resources far exceed its likely future requirements. The average total water available in Lesotho is of the order of 140 m³/s compared with Lesotho’s present consumption of approximately 1.5 m³/s. The LHWP would confer substantial value on the water which is surplus to Lesotho’s requirements by turning it into an exportable commodity, albeit to a single buyer. It is to

¹⁷ While the water from the Senqu/Orange River system flows into South Africa, it does so at a lower elevation than Johannesburg, necessitating expensive pumping. In Lesotho, the water flows by gravity to Muela and by gravity again to Johannesburg, making the LHWP attractive to South Africa.

be noted that South Africa receives the water in any event, since all water originating in Lesotho but not used in Lesotho, flows into South Africa. (LHWP 1981: Section 4-4)

This puts forward a notion of “use” as only referring to human and likely capitalist production. The healthy watersheds it ostensibly promotes upstream, complete with its emphasis on holism and an accounting for the diverse interactions and ecosystem services of elements of the watershed, fall to the wayside downstream. When the Katse Dam slowed the Maliba-Matšo River to just 4% of its original flow (i.e., mean annual runoff; Arthington et al. 2003), the water was “put to use.” Rivers do not simply flow at a regular rate year-round. Instead, they fluctuate between rainy periods and dry periods, with periodic floods both small and large. Only after intense lobbying from environmentalists were flow regulations put in place that would simulate the pulse regime of the Maliba-Matšo river ecology – and then only *ex post facto*, as no research on river flows was done prior to impoundment.

In the process, water abundance, imperative of use, and the absence of environmental impacts become a thinkable chain of associations. In 2015, after a memorandum of understanding was signed to explore the feasibility of water transfer from Lesotho to Botswana, that country’s Minister of Mineral, Energy and Water Resources, Onkodame Kitso Mokaila, was quoted as saying, “You can put a dam anywhere in the country and you will get water” (Majube 2015). Consider also this passage from a promotional booklet of the Maluti-Drakensberg Transfrontier Project, a failed effort to establish conservation zones in Lesotho’s alpine wetlands. The

booklet, which was placed in a hotel room I visited in Mokhotlong, justified the MDTP project by reference to Lesotho's water resources:

With a mean annual rainfall ranging from 1,800 mm to 2,000 mm and a network of wetlands at altitudes ranging from 1,500 m to over 3,400 m above sea level, it is considered the "water factory" of the subcontinent. The Maloti Drakensberg mountain range is one of the only five areas in southern Africa where annual rainfall exceeds evaporation rates. At present, it provides 20-30% of the water needed by the subcontinent and it is predicted that the figure will rise to about 50% by the year 2030. The highly industrialised province of Gauteng, South Africa, already receives about 50% of its water requirements from the region via the Lesotho Highlands Water Project and the Tugela-Vaal Transfer Scheme. This mountain range is the focus of the Maloti Drakensberg Transfrontier Conservation and Development Programme (MDTP), a co-ordinated conservation initiative by the two neighboring countries. (MDTP n.d.:5)

It is odd that this brochure chose to use these rainfall figures.¹⁸ Lesotho has an extremely diverse topography, leading to diverse rainfall patterns. For example, the northeast highlands get high rainfall when compared to the lowlands, which receives a bit less than the foothills. But in the mountain areas there is also a "rain shadow" that appears as the Senqu River wends its way south and west through Lesotho. This rain shadow, caused by being far enough inland to be shielded from the rain by the Drakensberg Range to its east, leads to these southern highlands being almost as dry as the lowlands. Because rains are so localized in the mountains, the rainfall estimates provide a rather imperfect picture of moisture availability for plants, given that most measurements are done by weirs.

¹⁸ That the MDTP brochure could be seen as tourism guide is interesting in itself, suggesting that tourism and conservation have converged.

Despite the patchiness of rainfall, the iconography of Water has been deployed across Lesotho as though abundance is spatially even. It is invoked by government publications, tourist brochures, and corporate advertisements—including the popular pictorial calendars that are handed out throughout the country by aid organizations, grain wholesalers, and life insurance companies. Predictably, LHWP promotional materials and speeches by its proponents are filled with the clichéd metaphors and symbols of water: “*Metsi ke bophelo*” (Water is life), or “*Khauta e tšoeu*” (white gold). Suggesting that Water can fuse Progress with Culture, images of reservoirs and rivers act as a backdrop for tar roads, high-tension power lines, San “bushmen” rock paintings, herds of cattle, and traditional thatched-roof housing. The past few decades since the Project began have witnessed the emergence of a new discourse about water in Lesotho: it is “abundant” (*metsi a mangata*); it brings development; it is a symbol of national identity, and a driver of “regional economic integration” (Hoag 2014). At the height of Phase I construction, such as during my time as a Peace Corps Volunteer from 2003-05, LHWP Hilux trucks were regular sights on the streets of the capitol, Maseru, a commonly understood sign of the Project’s wealth and significance. Early Phase I promotional materials figured the reservoirs as tourist destinations, featuring pictures of white people on jet-skis and motorboats. The tourism industry has been particularly fond of this image of a watery Lesotho. This passage from the Government of Lesotho’s website is typical:

Mountains, valleys, and rivers provide memorable scenery for tourists. This is where Lesotho gets its crystal clear water as well as green pastures for livestock...[Tourists] enjoy playing around in the clean water of

Lesotho's mountains. This is one of the biggest source of income to the country. (Government of Lesotho n.d.b).



Figure 9: Pictorial calendar from village in Mokhotlong. Photo by the author.

As with the patchiness of rainfall, however, the benefits of water are not distributed evenly across Lesotho, as I show in the next section.

Who Benefits from Water?

As noted above, the LHWP has contributed considerably to Lesotho's economy, bringing in 40-50 million Maloti (US\$4-5 million) per month in royalties. As construction got underway in 1988, 13.6% of Lesotho's GDP came from the LHWP. When combined with project-related customs revenues, the LHWP brought in 28% of total government revenue in Lesotho. Hundreds of miles of roads were constructed and the country now generates 72MW of hydroelectricity, nearly satisfying its

domestic needs. Revenues have declined with time. In 2011-2012, LHWP royalties accounted for 5.9% of the government's total revenue and 2.7% of gross domestic product (Allison 2013).¹⁹

But serious questions about who benefits from the Project have been raised (Hoover 2001; Thamae & Pottinger 2006).²⁰ Domestic employment and other activities dropped significantly as construction on earlier phases was completed. Only a handful of people are required to manage and operate the field operations branches at 'Muela, Katse, and Mohale, and a small executive staff remains permanently in Maseru (Rosenberg 2004:176-7). Because Lesotho was financially responsible for construction of the LHWP's hydroelectric component, the costs of electrifying residential areas were deemed too high for the government to invest in rural electrification, meaning that, while electricity costs have stayed low since the project began due to the government having produced the electricity domestically, few people in Lesotho have gained new access to electricity as a result of the LHWP (Hoover 2001; Letsebe 2012; Thamae & Pottinger 2006; Lundahl & Petersson 1991).

¹⁹ Royalties are calculated by reference to a Water Royalties Manual that accompanied the 1986 Treaty as an appendix. The formula for calculation takes account of the amount that would have been paid to construct a separate water transfer scheme sited in the Free State Province of South Africa, which would have involved a pump transfer up from the lower elevation areas.

²⁰ Additionally, corruption has dogged the first phase of the Project. In 2002, a case was successfully brought against a number of contractors from France, Canada, and Germany, finding them guilty of bribery, and leading to the imprisonment of the former CEO of the LHDA, Masupha Sole. Shockingly, Sole was released from prison just after the agreement between SA and Lesotho was reached to go forward with Phase II, he was hired as a high-ranking technical advisor to the LHWC, an extremely powerful position in the organizational hierarchy (Tlali 2012).

Katse Dam alone displaced over 2,000 people and indirectly affected another 20-25,000 people who lost access to commonly held resources like rangelands, fuel, and medicines when 925 ha of arable cropland and 3,000 ha of grazing land were inundated (Bond 2002; Thamae & Pottinger 2006; Hitchcock 2015).²¹ Lesotho does not have much arable land, given the steep slopes and thin soils found in the country—only about 300,000 ha (10-13% of its total land area; Lundahl et al. 2003:104; Bojō 1991; Mokuku 2004). The valleys inundated by LHWP reservoirs are steep, but croplands along the valley floor are some of the most fertile. The LHWP provides compensation for those who were displaced or otherwise affected, but many of those compensated or relocated have reported that their lives are worse off than before—either because the communities to which they moved did not welcome them, because compensation monies were spent on failed development initiatives such as flour mills that went into disrepair, or because people chose to be paid in grain, an unsustainable form of compensation (Hoover 2001; Thamae & Pottinger 2006; Hitchcock 2011, 2015; Braun 2010). Thus, the water project undermines local livelihoods in the project areas.²²

²¹ South Africa gets the water from Lesotho but fails to fix its water infrastructure (one estimate suggests that as much as 37% of Gauteng’s water is lost by leaky pipes), meaning that almost all of the water made available with the commissioning of the Polihali Dam will be accounted for immediately (Moodley 2015). A separate study in 2017 (Naidoo 2017) concluded that 37% of South Africa’s water supply is lost through leaks country-wide (also see Hoag & Pottinger 2011).

²² Dams often have terrible consequences for life in affected watersheds. More than 45,000 large dams—that is, a dam with a height of 15 meters or more from the foundation, or which has a reservoir volume of more than 3 million cubic meters (World Commission on Dams 2000)—have been built around the world. About 90%

As noted above, a considerable sum of money is paid to Lesotho by South Africa in the form of royalties. In the early years after the Treaty was signed, it was thought that revenues would be channeled through the Lesotho National Development Corporation (LNDC) or the Lesotho Agricultural Development Bank (LADB), parastatal bodies that pre-dated the LHWP. At the World Bank's behest, a special

of these were built in the second half of the 20th century, and about 80% of are found in just five countries: China (which has some 22,000), the United States, India, Japan, and Spain (World Commission on Dams 2000:8-9). Millions of people have been displaced by dam reservoirs and associated infrastructure, including roads and power lines. Dam projects are often presented as "development projects" by governments and other proponents, but there are few benefits for these displaced "development refugees" (Scudder 1993). Resettlement can disrupt communities and kinship networks, force people to find alternative livelihood strategies, and cause tensions in receiving communities (Colson 1971; World Commission on Dams 2000; specifically in Lesotho see Braun 2010; Hitchcock & Devitt 2010; Hoover 2001; Horta 1995; Mwangi 2007, 2008; Scudder 2006; Thabane 2000). Compensation schemes for resettlement are often inadequate and tend to presume that resettled people can move easily from one profession or livelihood strategy into another (Cernea 2003); those living downstream are neglected even more so (Horowitz 1991). It is not only humans that suffer, of course. Up- and downstream from dams, biodiverse riverine areas are either inundated or starved of water. Diminished flows make life impossible for many plants and animals; stagnant pools breed bacteria and water borne disease. Effects are even felt upstream from the reservoir if pressures on land increase as a result of human displacement and land is cleared for agriculture or grazing. Despite claims by dam boosters that hydro-power is "clean energy," dam reservoirs have in fact been shown to emit tremendous amounts of CO₂ into the atmosphere as a result of the decomposing organic material contained within them and other carbon inflows. What is more, one recent, comprehensive study (Ansar et al. 2014) showed that large dams experienced average cost overruns of 96% and average delays of 46%.

Despite what we know about the negative consequences of dams, they continue to be built. Rather than taking steps to cut demand, such as fixing leaky urban infrastructure, cutting subsidies to major industrial consumers, or otherwise controlling consumption of water (and energy), municipalities and water management bodies work with a myopic supply-side economics (Nevarez 1996; Reisner 1993). This is because large dam projects are lucrative for construction companies and carry prestige. Dams have been figured as "temples of modernity," as Jawaharlal Nehru put it (see Kaika 2006), although this enthusiasm has diminished somewhat as a result of four decades of intense international activism (Khagram 2004; Baviskar 2004).

development fund was announced in 1991 called the Lesotho Highlands Revenue Fund (LHRF) to ensure that the royalties would go toward “long-term development benefits” for communities through small-scale projects (Lundahl & Petersson 1991:364-5).

Sadly, the LHRF did not perform well. As early as 1991, the World Bank noticed misuse of the funds. Development activities in the form of “*fato-fato*” projects (e.g., soil conservation and afforestation works that employ local laborers in rural areas; see Chapter 2) were being used by Ministers of Parliament (MP) to strengthen the ruling BCP party’s support (Monyane 2005; Rosenberg 2004).²³ A different fund was created with the rollout of Phase IB, the Phase which included the construction of Mohale Dam and associated works. This fund, called the Community Development Support Project (CDSP), would be out of reach of the MPs. Its goal was, “to put in place the physical and managerial capacity for Lesotho to transform its principal natural resource of abundance - water – into export revenues that can be applied to poverty reduction and economic stability” (World Bank 2010: ix). But the World Bank’s assessment of the CDSP’s success was stark: “[W]hile LHWP-1B generated revenues that could have been used for poverty alleviation, CDSP’s fund failed to use those royalties for this purpose... socio-economic monitoring and evaluation was weak” (2010:ix-x).

²³ See Ferguson (1990) for an analogous situation involving the BNP and a Canadian development project.

Rumors abound in Lesotho as to what happens to the royalties procured from the sale of water and the machinations of those in power. Many ordinary people I spoke with in the highlands and lowlands believed that politicians were re-directing the royalty monies to themselves and their families—no doubt because of actual, proven malfeasance described by the World Bank. Additionally, I heard stories about how the United States and China were interested in Lesotho’s water because of its high quality, and were working to develop ways to export it to those countries. Once, I asked a skeptical question about how feasible that is: “The Americans and the Chinese are creative people,” I was told, “so they have lots of ideas and the money to pursue them” (“*Ma-Amerika le ma-Chaena ke batho ba creative, joale ba na le maikutlo a mangata, ‘me ba na le chelete joale ba ka tsamaea ka maikutlo a bona*”). Another man told me he believed there were massive underground reservoirs in Lesotho, but they were too deep to reach. In sum, water was seen as having been captured and redirected by elites.

Droughts and Water Scarcity

Not only does the purported prosperity that comes from Water ring hollow for ordinary people, regular droughts mean that water in Lesotho is scarce. In March 2004, I attended the official opening of Phase IB at the Mohale Dam. Prime Minister Pakalitha Mosisili, King Letsie III, and South African President Thabo Mbeki, among other dignitaries, were in attendance. Having completed the construction of Mohale Dam and the tunnel connecting its reservoir to the Katse Reservoir, the Project passed

a major milestone. The celebration drew hundreds from Maseru and the surrounding areas, who listened to speeches about the promise of Lesotho's water and the importance of the Lesotho-South Africa partnership. It culminated with King Letsie III offering a prize-winning horse to President Mbeki, a series of musical performances by South African and Lesotho-based groups, and a feast. It was jarring, then, that Prime Minister Mosisili had declared a state of emergency just one month earlier, appealing for food aid as humanitarian officials suggested that hundreds of thousands in Lesotho faced food shortages after a three-year drought. Again in July 2007, a state of emergency was declared when the country experienced its most severe drought in three decades.

The assertion of Water as a testament to Lesotho national culture and accompanied statements about water abundance are critical to the operation of water-based politics. It is certainly true that Lesotho receives a lot of total rain in aggregate. Consider the fact that only 3% of the Orange River system lies within Lesotho, but the highlands produce 17% of the total water budget (Senay et al. 2010). But the discourse of water abundance uses a national scale that renders Water foreign to everyday people, except in their strategic political claims about government corruption or the livelihood consequences of the LHWP. For them, water is scarce, not abundant. This contradiction manifests itself in odd juxtapositions: for example, newspapers that feature on one page laments about drought or poor water access, and on the next, a story about the LHWP and how much water the country has. Or, one finds statements like this one in a 2002 report on the state of the environment:

“Overall, total water resources in Lesotho are abundant in relation to the demand even when that is projected forward for 25 years or more...Nevertheless, there are water availability problems.” (Mokuku 2004:106).

It is a sad irony that water access is so poor, posing serious problems to residents (Workman 2013), their livestock, and for business (Iwanow et al. 2012). The Metolong Dam, separate from the LHWP, will alleviate the situation somewhat for those living in the urban lowlands. But poor water access is common to rural areas generally. Most people (51.9%) in rural areas get their water from a shared public tap, with 23.8% getting it from springs (Lesotho Bureau of Statistics 2013b:11). Employees from the Rural Water Supply (RWS) in Mokhotlong, the government agency responsible for building and maintaining water taps in rural areas, told me that they had a multi-year backlog of village complaints regarding taps that were needed, dried up, or broken.²⁴

²⁴ As Ruiters and McDonald (2004:32-34) point out, privatization is being driven by not simply the World Bank or multinational corporations, but also by local firms that, through chambers of commerce, have pressed local and national government offices to privatize services, and the decentralization of administration has pressured local governments to do so as well. A neoliberal disposition more generally has taken root in South African government, with many prominent figures in national and local government drawing on the lexicon of privatization. None other than Nelson Mandela has gone so far as to say that “privatisation is the fundamental policy of our government” (as quoted in Pilger 1998:606). See also Christie (2014).

It is not only in Lesotho that the benefits and burdens of the water project are shared unevenly among people. The same can be said for those on the receiving end of the LHWP in Gauteng Province, where water prices have been raised significantly by Rand Water, the parastatal responsible for purchasing the water from the Trans-Caledon Tunnel Authority (TCTA). The TCTA is the body that finances LHWP construction from the South Africa side (South Africa, unlike Lesotho, does not have access to cheap loans from the World Bank). Municipal water boards such as Rand

People living near the dams are affected differently from those who live elsewhere in Lesotho. One of the most striking effects has been the mere fact that, while people in the rural project areas of the LHWP look out over massive reservoirs, they often lack well-maintained water taps or any form of irrigation, and are prohibited from extracting water from the reservoir for consumption or irrigation. According to the Treaty, the water captured in the reservoirs already belongs to South Africa, so the Lesotho government prohibits extraction from local people. In some cases, people near dams have seen their taps dry up as underground shifts in hydrology owing to the reservoirs' incredible weight against mountainsides have by some underground mechanism eliminated those pumps (Thamae & Pottinger 2006). Additionally, most people do not have the money to purchase rainwater storage tanks, nor necessarily the tin-roofed houses needed for them.

The LHWP and its boosters fashion a type of water that is unfamiliar to everyday people in order to make it a national natural resource fit for commodification. But beyond being unrecognizable, it confers few of the benefits of prosperity that is promised by LHWP proponents. This complicates efforts to protect the LHWP from land degradation through land use management reforms, as I describe them in the rest of the dissertation.

Water, which provisions Gauteng Province, sell bonds to purchase water from the TCTA, and Rand Water raises its water prices in order to raise money for this. Because the water has such a high purity quality, it is rather expensive and farmers elect for cheaper water. Industrial consumers like mining companies use the water, despite its high costs. In short, the LHWP has meant higher water prices for everyday consumers (Bond 2002:151-160).

Conclusion

Two distinct modes of water prevail in Lesotho, entailing distinct political commitments, practices, and visions: Water and Rain. Water with a capital W demands to be stopped, measured, and counted. It orients people toward management of rangelands and livestock densities, as opposed to natural drivers of land condition. Everyday people, however, do not particularly care about Water, which mostly just manifests as more development projects, and instead focus their attentions on rain. Thus, as elites in the capital wrangle over which politicians can best exploit the country's water resources, rural people's everyday experience with water is much more immediate and material. It is organized around concerns regarding a particular modality of water: rain. Rain with a capital R demands to be respected. It orients people toward natural factors for driving land condition, as I describe in Chapter 4. Rain with a capital R is always scarce – until it's overly abundant, causing flooding and destruction. Where ordinary people do have a stake in Water, it is when they take up the LHWP's language to fight for better compensation when affected by inundation of their villages.

Elites in conservation are oriented toward Water. This can be seen, for example, in the fact that the elite people I spoke with (e.g., civil servants from the Ministry of Forestry and Land Reclamation), insist that chiefs fail to enforce the grazing system, demanding the introduction of grazing associations; that herders let their animals graze wherever they please, leading to a reduction in palatable grasses,

the solution to which is to get herders to graze “actively”; or that rural people see animals as a marker of status, leading them to produce unsustainably large herds that need to be regulated by the invisible hand of the market (Ferguson 1994), as I describe in Chapter 5.

Everyday people, by contrast, rarely mentioned management as a reason that rangelands were degraded. Instead, they insisted that the changing rains that come later and later and fall more often as violent thunderstorms are the real problem as to why the rangelands are in poor condition.²⁵ Ironically, then, elites in conservation and government pushing spatially even Water blame rural people for land degradation who do not recognize Water—and who blame land degradation on patchy Rain.

Though Water is not particularly meaningful for ordinary people, my research suggested that the work of establishing Water might be making inroads. For example, while walking through Mofolaneng one day, a Local Councilor asked me what I thought about runoff: “Schoolchildren say that when it rains, and moisture rises up and it rains again—but that degraded land (*e sa baballoeng*) [gesturing toward the land up an unvegetated hill] won’t hold water, so it just leaves Lesotho.” One can agree with this story, as I do, while still recognizing that it indicates how children are taught to understand water didactically, with reference to local land use. As the

²⁵ Most of the concerns over soil erosion in the lowlands have been about agricultural practices on the highly erodible sandstone soils, while those in the mountain basalt soils have concerned overgrazing, as Driver (1999) points out. (Showers [2005] suggests these were probably never implemented.) This is also why the reports of better pasture quality during the closure of Basutoland grazing lands could have been due simply to better-than-average rainfall during that period.

government-sponsored *State of the Environment 2002* report explains: “Investment into water resources development has made water a costly resource that can no more be treated as a free gift of God, and the cultural attitudes toward this resource need to be changed” (Mokuku 2004:106).

Water abundance is a class-based proposition. Consider an analogous situation I encountered at the same compensation meeting between Mokhotlong community leaders and high-level officials at the LHDA. One official who was outlining the compensation policy provisions for medicinal plants found in communal lands that would be inundated spoke with a distinctly lowlands Sesotho accent and diction. It was clear and crisp like in South Africa—as elite as his clothing. But he was clearly trying to project an association with rural people by acting dramatically *Sotho* as he spoke, using the Sesotho words for the months, numbers, and other terms that are most commonly substituted with English, even among uneducated people in rural areas. At one point, he listed off the names of some medicinal plants with an obvious pleasure, and delighted in the fact that not everyone seemed to know of a plant called “*seipone*.” With a shocked look on his face, he said, “Jeez, you don’t know this plant? I’m speaking with Basotho, right?” (“*Ache le sa tsebe moriana ona? Ke bua le Basotho na?*”) It was a joke about class that I knew very well, having said similar things myself in the course of my research. I used that joke to try to play with the divide between my white, wealthy subject position and the black, poor position of my informants, hoping to elicit a laugh and show my interlocutors that I care enough about them and their culture to have learned such “deep Sesotho.” But there was

something crass about this official's attempt and the audience knew it. Nobody laughed. It seemed clear that he was performing a rural identity for the sake of demonstrating the LHDA's commitment to preserving Sotho values and cultural identity, whereas many in the room I spoke with before and after saw the LHDA as representing a threat to this identity through land expropriation. It is in these awkward moments of encounter that notions of Lesotho national identity and sovereignty are forged and subverted (Rutherford 2003, 2012a), and therefore in a sense the local relationship between the meanings of water and the constitution of society.

In summary, water in Lesotho resembles the "modern water" described by Linton (2010) in that it is a form of disarticulated water that feeds capitalist industry. But, interestingly, its abundance and primordial connection to Lesotho must be asserted in order to produce it. That is, it is made faux-historical non-commodity en route to becoming an ahistorical commodity. That Water is not yet a meaningful category for ordinary people in Lesotho suggests challenges for rangeland management, as described in the coming pages, not least because ordinary people implicitly understand that the putatively "national" scale of Water is belied by a much patchier Rain.

INTERLUDE

“WATER IS A GIFT THAT DESTROYS”

The Ministry of Forestry and Land Reclamation (MFLR) office in the District capital of Mokhotlong is tucked into a grove of pine trees beneath the steep slopes that edge the plateau on which the town is built. At the eastern end of the main tar road, a metal sign with the Ministry insignia and an arrow marks the turn toward the office. The tar road gives way to an open area where taxis to rural areas wait, the ground covered in the bumpy, spheroidal-weathered basalt outcrops that peel back like the layers of an onion. One morning, early on in my fieldwork, I walked down the hill toward the office and began photographing the ruts, rock walls, and dilapidated barbed-wire

fences that line the path. As I did so, I found Masilo walking up toward town. Masilo, an MFLR employee and a friend, was on his way to a workshop put on by the Disaster Management Authority (DMA), a government agency created with royalties from the Lesotho Highlands Water Project (LHWP) to coordinate other government agencies on “disaster preparedness,” a recent addition to the lexicon of development and human security. Masilo invited me to come along to the Mokhotlong Hotel, where the workshop was being held, an introduction to the DMA’s Disaster Risk Reduction (DRR) Policy. Members of local government were in attendance, including local councilors and civil servants from several government ministries: the MFLR; the Ministry of Agriculture and Food Security (MAFS); the Ministry of Energy, Meteorology, and Water Affairs (MEMWA); the Lesotho Defence Force (LDF); and others. After a prayer, introductions by everyone present, and the usual offering of thanks to a litany of important people – from the District Administrator and Mokhotlong Principal Chief to the Prime Minister and the King – the DMA staff outlined the basic tenets of the Policy for around 30 minutes: public awareness will be elevated, communication between Ministries will be facilitated, capacity will be enhanced, and so on. Then, audience members had the chance to ask questions and comment upon the policy.

Mostly, they ignored the policy document and complained about what the government should do to fix roads, bridges, and other infrastructures under threat from natural disasters. There were complaints about the government’s failures to clear roads and culverts of sediment after storms and how flooding within the town of

Mokhotlong was damaging the foundations of homes. There were concerns about the dangers posed to schoolchildren when crossing flooded rivers and demands that the government build and repair more bridges to protect them. There were laments for the topsoil in people's agricultural fields carried away by storms and threatening livelihoods into the future and that grazing restrictions must be enforced in upland pastures. There was an extended discussion of the village of Khahleti, where a flooding river on December 27, 2013 led to the collapse of a large river bank on which a graveyard was sited. The storm was undeterred by the array of gabions²⁶ that had been put in place to reinforce the bank, and the graves of 21 people were carried downstream. Many of the remains were completely lost, having been covered by sediment or deposited far away. Others lay strewn across the river banks, unidentifiable. A few hundred meters downstream, a bridge on the main road linking Mokhotlong to the lowlands was completely overtaken, washing away the guardrails and causing concerns about the bridge's structural integrity.

²⁶ A gabion is a wire-mesh cage filled with rocks that is used to control soil erosion.



Figure 10: The gabions collapse at Khahleti and a cemetery washes away. Photo by the author.

As things went on, I began to realize that nearly every discussion about natural disasters was actually about surface water and the dangers it posed when left to its own devices. It occurred to me that these cases articulated a notion of water quite distinct from the water depicted in LHWP propaganda documents and in activist literature asserting the importance of equitable water access. Whereas those discourses depict transcendent, pure, life-giving water, flowing elegantly and beautifully from above, the water discussed at the DMA meeting was something different: it was violent, precarious, and deeply entangled with the soils and other media through which it passed. Instead of flowing, connective, and productive, water

in Lesotho emerged in my fieldwork as something disruptive, disjunctive, and dangerous.



Figure 11: Road covered in sediment. Photo by the author.

This destructive quality of water should not have surprised me. Everyday people in Lesotho are quite aware of it. Just a week prior to the DMA meeting, a woman taught me a Sesotho aphorism (*maele*) as we stood in a shop taking shelter from a particularly violent thunderstorm that quickly brought water flashing through the town drainage ditches before our eyes: *metsi ke mahlopa a senya*, “water is a gift that spoils (or destroys).” When I visited Khahleti with MFLR staff, one of them used this same expression as we looked at the destroyed riverbank cemetery. They stopped by Khahleti not to observe the damage but to check on the progress of a “*fato-fato*”

soil conservation crew (see Chapter 2) that had been hired to dig a “divergent furrow” ditch to redirect water from the slope above the cemetery toward the river.

But everyday understandings of water already incorporated notions of a relationship to soils. Consider the different forms of rain recognized by people in Lesotho, in the ways these terms were described to me: “*pula ea sekhahla* (or *sekhohola*)” and “*pula ea molupe*.” These are the most common ways to describe rain. *Pula ea molupe* refers to rain that comes down slowly over a long time, percolating into the soil very well. *Pula ea sekhahla* or *pula ea sekhohola* refers to a storm (a downpour) that brings so much rain in a very short period of time that it does not have a chance to enter the soil. Instead, it passes over as runoff. Thus, rain is understood in Lesotho – regarding whether it enters the soil or passes over the soil and carries soil along with it.

Sesotho language used to describe water is also suggestive of this dangerous water and its relationship to soils and exposed rock. The word “*ho thella*” is typically used to describe water moving quickly downslope: *Pula ea na e thella fatse* (“When it rains, the water just courses downhill”). “*Ho thella*” is a verb meaning “to slip” or “to glide,” “to be slippery, “to make a mistake unwillingly.” It can be used metaphorically as in English, as well, such as *leleme le theletse* (“it was a slip of the tongue”). *Letlapa lea thella* (literally, “areas of exposed rock are slippery”) means matters are dangerous. It is etymologically related to *leleme* (tongue) and *ho lelemela*, which also means to slide or glide and has connotations of sliding like water down a surface. *Ho lemela* is “to flow.” *Metsi a lelemela* means that water is flowing (i.e., in

a large quantity). If one says, “*Juice ea leqemela*” it means that juice quenches thirst or that the juice is delicious.

On several occasions, when in conversation about soil erosion, people used the word *ho thella* to describe water coursing down the hill as an effect of thin or absent soils. It can also be used to describe a steep and slippery hillslope, such as: *hlokomela, ea thella* (“be careful, it’s slippery” or “be careful, the sand slides down when you step on it”). On one occasion, I asked a group of people what they do to prevent soil erosion and they explained that they made soil conservation works called “*metero*” (another word for stone-lines), because *metsi a thella feela* (“water just slides down the slope”). The use of this language suggests to me that people are keenly aware of the erosive force of runoff and the importance of retaining water in the soil.

But elites are not blind to this fact, even if they deny it strategically. At a meeting late in my fieldwork with civil servants from the Ministry of Forestry, I encountered this disjunctive form of water again. Masilo had invited me to the National Rangeland Resources Management Policy Workshop at the Leribe Hotel, where a consultancy firm and the MFLR top brass were presenting a new Ministry policy on rangelands. I arrived late and sat in the hot conference room next to Masilo as one of the consultants described the rationale for these rangeland policy changes. “*Metsi a rona a lukeha*,” he explained: “Our water is disruptive,” and he went on to explain the ways in which water in Lesotho damaged crops, homes, and livelihoods.



Figure 12: Fato-fato crew digging a divergent furrow at Khahleti. Photo by the author.

I began to see this kind of water everywhere after that meeting. Lesotho's roads are tormented by it: during storms, incredible amounts of sediment wash over roads that must be cleared by front-loaders (see Figures 11 and 13). Gullies carve out roadsides and undermine bridges and culverts. It is a signature scrawled across Lesotho. Even on my way to the MFLR office on the very morning of the DMA meeting, I stopped to look at some gullies and diversion structures and was struck by the dramatic ways in which this landscape has been shaped both by soil erosion and soil conservation. Around every corner, a gully, a rut, a culvert, a gabion, a silt trap, signs of road repair, and other remains of soil erosion and conservation. Lesotho's water is materially unruly. I wondered: How can the water found coursing through

Lesotho's landscapes seem so out of step with the water of the LHWP? What material and ideological practices are required to produce that translation? What relationship do those practices have to soil conservation programs?



Figure 13: An excavator removes sediment blocking a culvert in Mokhotlong. Photo by the author.

Counterintuitively, it is out of soils and soil conservation structures – these testaments to unruly water – that flowing, connective water is made. As I detail in Chapter 2, the Lesotho Highlands Water Project (LHWP) was initially conceived as a way to prevent flooding downstream and retain sediment. Only later was it transformed into a water exporting scheme – one in which the risks of sedimentation were disregarded. The aim for water engineers is not simply to facilitate water's flow

from Lesotho but also to make it *not flow* – to slow, redirect, and store it. Seen from this angle, the LHWP is an effort to extract water from what soil scientists call the “soil solution”: the mixture of water, minerals, organic materials, and other dissolved substances that make up what in lay terms we call “soil.”

CHAPTER 2

THE SOIL SOLUTION: WATER PRODUCTION, SOIL EROSION, AND INFRASTRUCTURES OF DISTRIBUTION

Masilo and I stood on the hillslope and looked at the pile of stones in a row as it wound around the slope and out of sight. The stones themselves, most of them no larger than a tennis ball, sat motionless in the gusting winter wind. In places, they formed distinct piles, but elsewhere along the line they became diffuse and scattered. Masilo kicked a stone and it rolled a few feet downslope. Masilo worked for the Lesotho Ministry of Forestry and Land Reclamation (MFLR), in charge of overseeing *fato-fato* projects: country-wide, state-funded soil conservation and land “improvement”

programs that employ rural people to do manual labor planting trees, uprooting invasive shrubs, or building structures to prevent soil erosion such as gabions, check dams, or silt traps. Masilo and I stood over one such silt trap, called a “stoneline” in vernacular English or *motsele-tsele* in Sesotho. This one had been built several years before Masilo came to work for the Mokhotlong District’s MFLR office and he seemed puzzled and ashamed at its state of disrepair—particularly as he was showing me, a foreign researcher, the work that his office does to combat soil erosion. Masilo had received a call from a local woman who taught at the nearby school, asking that he get his office to finish constructing a water tank for the school, a project that had stalled long ago. On his way to a separate meeting in a neighboring village, Masilo told her that he could drop by to speak with her. As we walked up to see the tank, she complained also about the stonelines that were built a few years ago but which were now falling down.



Figure 14: Masilo, a conservation worker, with stonelines. Photo by the author.

Not only were these structures crumbling immediately after having been built, they were, like most others I saw around Lesotho, prepared for a modality of rain and sediment movement that simply didn't exist in Lesotho. These small stonelines would never slow down the channelized runoff that causes the bulk of the erosion in Lesotho—the strong and sudden rains there are simply too much for them. Some areas of stonelines, such as I saw near Mapholaneng in the mountains, were situated near the top of a barren hillslope, meaning that there was almost no sediment for them to collect, nor a significant amount of water to slow down. If anything, I worried that some of them might in fact be channelizing runoff and thereby encouraging gully erosion. This was certainly true for the divergent furrows—ditches, sometimes almost a meter deep and dug perpendicular to the slope to carry runoff to the nearest

stream—which ironically were the only structures that seemed prepared for significant amounts of runoff. In short, the kind of water and the kind of soil that these infrastructures enacted seemed out of step with the actual water and soil found there. While some of the strongest, best made ones might divert runoff for the better during large, summer rainstorms, or possibly a five-year flood event, many I saw would not. Almost none would affect the 10-year, much less the 50-year event, and might not even survive it intact. The gabions that reinforced the bank at Khahleti, and whose collapse caused the remains of 26 people to wash away downstream, was certainly evidence of this. So were the other gabions and check-dams that I saw with signs of erosion around their sides. Their temporality was a potential indication of a range of factors: their designers' conception of Lesotho's soil hydrology; a lack of commitment to protecting this massive dam project; a pedantic attempt to demonstrate the land mismanagement of rural people; the entanglement of soil conservation in a historically situated politics of distribution—or some combination of these.

In this chapter, I describe how erosion control as a governance tool works on the ground, explaining how soil conservation is a colonial legacy and connected to a precarious social contract. To do so, I chart the historical processes of colonialism and development aid and everyday interactions between conservation workers and rural people targeted by their conservation programs.

Fato-Fato

The soil conservation programs I describe in this chapter, whether carried out by the government or a foreign conservation NGO, are referred to as “*fato-fato*.” However, when I would use the term in conversation, certain people would crack a smile or even begin laughing. This was particularly true of wealthier people who didn’t actually work on such projects due to their association with poor people—and no doubt because the work nearly always involved lots of tough, manual labor for very little pay. When I first met Masilo, he wanted to show me a conservation project his office was working on, as though it was emblematic of their work as a whole. When I asked for some details about the project, he gave me a long-winded description about people from the community building gabions or planting trees – then, with a smile explained that, “*Batho ba bang ba re, ‘fato-fato’.*” (“Some people refer to it as ‘*fato-fato*’.”) I got a similar reaction when I presented a paper at a Sustainable Land Management conference in the capital, Maseru, organized by the MFLR. The audience was made up almost entirely of people I refer to as “elites”: college-educated civil servants and NGO workers—not necessarily wealthy, but nevertheless employed and mostly from the urban lowlands. Unsure of the official name of the program, I used the term *fato-fato* during my presentation and the entire room burst out laughing, forcing me to reassure the audience that I was not condemning *fato-fato*. I simply had heard no other term to describe it. Later on, I asked a few employees of the MFLR what I should call it. They, too, seemed unaware of the program’s official name, explaining in general terms that one might call them “*ntlafatso ea mobu*” or “*paballo ea mobu*”, which translate to “improvement” or

“protection of the soil.” (I was only able to determine the official name through a concerted Google-search effort, is the “Integrated Watershed Management Project.”)

The term *fato-fato* translates literally to “dig-dig.” But it specifically means “scratching about on the ground like a chicken, aimlessly or ineffectually,” as though somehow in reference to Colin Murray’s (1981) famous phrase about people in Lesotho not being “subsistence farmers” but rather migrant laborers who “scratch about on the land.”

What is so funny about soil conservation and why would conservation programs be described as aimless? Given that Lesotho has the highest overall erosion hazard of any country in Southern Africa (Chakela et al. 1989), it would seem that erosion is a rather serious problem. If soil conservation works are part of the infrastructure of water production in Lesotho, what could their role possibly be?

Their comic status gestures toward something important about the function of water and soil infrastructures produced by elites. Infrastructures can enable processes of production as well as distribution. Ashley Carse’s (2015) work in Panama shows how, as in Lesotho, engineers building the Panama Canal developed an “integrated watershed management approach” in which the forests upstream of the canal were seen as the sites in which water was produced for the canal. There, watershed forests were rendered as infrastructure, terrestrial reservoirs that could retain water and release it into the canal. Canal engineers and national land engineers manage their infrastructures—canals or catchments—according to sometimes conflicting goals, but in articulation with the other. An analogous situation prevails in Lesotho, where soil

conservation programs are put in place for water production. But, in contrast to the somewhat successful case of Panama described by Carse, many soil conservation infrastructures in Lesotho are of such dubious quality that they are mostly ineffectual—moreover, they are often decrepit and crumbling. Some of them are bad even by the engineers’ standards, as some MFLR officials explained to me (though, as Marcus Hall [2005], there is also considerable debate about the efficacy of soil conservation structures in general). What could possibly be their relationship to the “real” infrastructures of transfer: the high-tech dam walls and tunnels memorialized in the LHWP’s promotional materials? The structures’ inefficacy means that erosion continues unabated, drawing these dam walls into a crisis and imperiling their long-term viability.

I call Lesotho’s conservation structures “pseudosuprainfrastructures.” “Infrastructure” refers to the components of a system that are critical to the system’s function, but which are largely invisible. Suprainfrastructures are those that are made to appear visible – the Centre Pompidou in France represents a famous example. Typically, suprainfrastructures are deliberately visible because part of their function is *to be seen* and thereby understood as integral parts of a system’s functioning. Pseudosuprainfrastructures, by contrast, are those parts of a system that are made visible but which don’t have any concrete functional purpose or effect. Infrastructures are not pre-existing things in the world – they are specific components of an open-ended network of things, enacted when one aspect of a system is made visible (Larkin 2010). Thus, there is always more to the system than can be seen by describing one

element in an infrastructural assemblage. In this sense, infrastructures are fabulations – dream-machines for conceptually and materially managing networked phenomena. Often built by governments, they are fantasies of the state (Dalakoglou 2010; Pedersen 2011), performing state authority and crystallizing hegemony—the “tacit common sense” of infrastructure described by Julie Chu (2014).

Recent work on the topic of infrastructure in anthropology has drawn attention to the importance of disrepair and maintenance in understanding infrastructure’s politics and effects (Anand 2017; Barnes 2015; Chu 2014; Schwenkel 2015). This research demonstrates that infrastructures are not solid and unified edifices, but rather products of tinkering practices—that infrastructures are not strictly productions of the state, but rather sites of contestation whereby citizens assert their own narratives about the efficacy of the government. The stoneline that Masilo showed me, however, will almost certainly see no repair. Indeed, it was “broken” to begin with.



Figure 15: The Senqu River after a storm. Photo by the author.

As Patrick McCully (2001:107) has said, a river “can be considered a body of flowing sediments as much as one of flowing water.” Producing water thus requires its separation from sand, silt, and clay, particle by particle. These are the practices by which elites engage with and manipulate water in Lesotho: the engineering of haphazard social and ecological structures. An examination of them complicates depictions of water commoditization in which abstract, universal forms of water such as “modern water” in Linton’s language (Linton 2010; see also Strang 2004, Rodriguez 2006) are generated by sleek, techno-scientific models and exported across the globe. Attending to the materialities and material practices of the water

commoditization process, we find that Lesotho's modern water extracted from upland catchments and diverted to South Africa is produced not by the seamless practices of skilled engineers, but by the ignorant bumbling of engineers (see White 2011) mired in the muddle of a deeply local water and its attendant biopolitical entanglements. In the course of doing so, water engineers are ensnared in world histories of catchment management (Selznick 1949; Baviskar 2004, 2007; Carse 2015), as well as local political histories of foreign aid (Ferguson 1994) and environmental conservation (Showers 2005; Büscher 2013).

In the very materiality of these infrastructures, I suggest, we find particular world-making temporalities—particular orientations toward the future. Baviskar (2004) and Li (1999) show that the state only deals with things that it can deal with. Soil conservation structures show that, as Marcus Hall (2005) contends, ecological restoration is a cultural practice: the environmental states to which restoration projects seek to return are informed by cultural notions and imaginaries, and the labor arrangements that make them possible are embedded within a cultural and political framework. The concept of pseudosuprainfrastructures is a cheek-in-jowl reference to something important. They're not "pseudo" in the sense of being fake—they matter—but they matter differently than they seem, drawing out relations between state and society that are otherwise obscured. The fact that elites laughed when I used the term "*fato-fato*" is a support of this claim. Instead, I argue that this infrastructural system enables both the conceptual transformation of Lesotho's water from being violent and entangled in soil to the flowing commodity sold to South Africa, and the material

transformation of water production into a network of distribution that bind elites and peasants into an uneasy alliance.

In Chapter 1, I showed that “what water means” is unstable and contested in Lesotho. The focus on soils and erosion in this chapter shows how elite Water is asserted and stabilized through soil conservation structures, which political authorities use to demonstrate their ability to direct water toward welfare—that is, their ability to square water production with national distribution by performing expertise and a distributive politics through *fato-fato* (Ferguson 2015). The structures at once perform rural mismanagement, environmental crisis, and state efficacy, but which also bind elites and non-elites together in ways that enable water production and diminish anger over entrenched rural poverty and exploitation. Attending to the soil conservation measures that are built to slow water shows that dams are not simply “temples of modernity” in projects of state- and nation-building (Baviskar 1997; Colson 1971; Kaika 2006; Worster 1985). Dams’ “upstream effects”—the social and ecological engineering carried out to prevent the sedimentation of reservoirs and facilitate the flow of water to South Africa—are pedagogical in nature (Bhabha 1990), teaching rural people to become better citizens through improved natural resource stewardship (von Schnitzler 2016; Carse 2015; Mrázek 2002), while diffusing some of the “pressure” (Anand 2017) of Lesotho’s precarious political economy.

Sedimentation at ‘Muela Dam

Examining the history of erosion control in Lesotho makes clear that the current measures owe much to earlier efforts and the concerns of colonists, both British and Afrikaner. As early as the 1900s, agricultural journals, South African farmers, and British conservationists like A. W. Heywood (1908) and K. A. Carlson (1913) began drawing attention to gullies and flooding in the Lesotho lowlands and the Afrikaner farming stronghold across the border, the Orange Free State (see Driver 1999). Those authors, as well as Orange Free State farmers, asserted that upstream land use in Basutoland was rendering highland catchments incapable of storing water, instead lost as runoff. They proposed afforestation programs to remedy the situation, as well as the expansion of state controls that would prevent Basotho from burning pasture and limit stocking rates (Driver 1999). The British were startled by this emerging crisis and concerned that the issue could be used by the Union of South Africa to pressure the transfer of Basutoland to South African control.²⁷ Jacks and Whyte

²⁷ Thabane (2010) notes that four reports on the potential for a dam project in Lesotho prior to 1960 all suggested that the water would be transferred to the Caledon River for the purpose of supporting agriculture, residential consumers, and industry in Lesotho and the Free State. The Hawkins, Jeffares, and Green Report in 1950, which stated that dams should be built in the highlands, where the sandstone and basalt geology wouldn't cause too much siltation of the reservoirs. The Halcrow and Partners reports in 1950 and 1954, which suggested that dams and hydroelectric be built in the south of Lesotho on the Orange, and then water dumped into the Mohokare for irrigation in the Orange Free State. The Shand Report of 1956 was much more ambitious and was situated in the northeast highlands. Like the previous two, however, it suggested depositing water in the Mohokare. It stated that the mountains had up to 75 inches of annual rainfall, a low evaporation rate, and that the water was found suitable for industrial as well as residential use by chemical analysis. Thabane points out that the scheme was deemed viable on the basis of two areas of demand: Free State demand for water for industrial and household use on the one hand, and Lesotho's potential demand for its government to promote agricultural and industrial development.

(1939:274) draw attention to the issue of how Lesotho's sovereignty was at stake in the pressure to address its soil erosion problems. As a justification for the incorporation of Lesotho, Jacks and Whyte wrote that "Those who sympathize with the Basutos' present opposition to incorporation are recognizing that their position can only be maintained so long as it does not threaten or inflict damage on Union territory. To the South African security of his hold on the land is more important than the interests of the indigenous inhabitants; The London administrator is pledged to consider the latter first."

The colonial administration solicited a comprehensive review of the natural resources of the territory and the political institutions that manage them by Sir Alan Pim in 1930. Pim's task was to advise the administration how to go about increasing the long-term profitability of the colony. His report, titled, "Financial and Economic Position of Basutoland: Report of the Commission Appointed by the Secretary of State for Dominion Affairs," came to a dramatic conclusion: "The problem of erosion in its many aspects is in fact the most immediately pressing of the many great problems which now confront the Administration." (Pim 1935:5). Pim and others writing in those decades surrounding World War II (e.g., Jacks & Whyte 1947) envisioned a future Basutoland incapable of feeding its inhabitants and "washing away" down ever-expanding gullies. Gullies, as in South Africa at the time (Beinart 2008), seemed to perform the emptying of water from the landscape. Blaming the land tenure system and the proliferation of chiefs for these soil problems, his report made three key recommendations, which went into effect almost immediately: the

institution of soil conservation programs, the construction of bridle paths to link highlands wool merchants with lowland markets, and the reduction of the number of chiefs.

At a time when land was relatively abundant, with large tracts of open land in the foothills and highlands, the second and third sons of chiefs were known to settle uninhabited areas and establish a village over which they were chief, multiplying the number of chiefs and compromising efforts to disseminate and enforce centralized rules regarding land use. Pim famously stated that, “there are now as many chiefs in Basutoland as there are stars in the heavens” (Pim 1935:48). Pim’s recommendations resulted in a “gazetting” program, which marked the beginning of British indirect rule in Basutoland. According to the program, a significantly reduced number of chiefs were officially recognized in the government Gazette and given a monthly salary based on their blood relationship to the main chiefly families (as represented in the Council of Chiefs and British political considerations). The recommendations also gave rise to the institution of country-wide soil conservation projects that included the construction of buffer strips and contour banks around agricultural fields. The program would later be praised in 1944 by H.H. Bennett, head of the US Soil Conservation Service, when he visited South Africa amid growing fears about soil erosion in the region (Dodson 2005), but it was subsequently criticized as a failure immediately after independence (Nobe & Seckler 1972) and later by Kate Showers (2005), whose close study showed that the programs used untested soil conservation strategies that not only failed to diminish rates of erosion, but actually increased

them, expanding the gullies that were seen as emblematic of Basotho mismanagement.

It was an extraordinary situation: Indirect rule in Lesotho was shaped by colonial concerns about soil erosion, whereby draconian measures such as the dramatic reduction in the number of chiefs were taken to address the crisis. It also shows in dramatic detail how the state in Lesotho is a soil-inflected one since colonial times. It was at that moment that “the soil solution” found today became salient in Lesotho.

Soil conservation programs in Lesotho have continued unabated since Pim’s time, often fused in the post-independence period with development projects. But despite efforts to address it, concerns about erosion endure. It might seem surprising, then, that Lesotho and South Africa went forward with the Lesotho Highlands Water Project (LHWP) in spite of Lesotho’s reputation as a supremely erosive country. Soil erosion poses a threat to all dam projects, leading some to be decommissioned or even removed. Sediment deposited behind dam walls diminishes reservoir capacity and, once it reaches intakes for turbines or irrigation, can threaten a dam project in its entirety. While all dam reservoirs have a “dead storage” area below the intake that does not affect water transfer potential or hydroelectric production, sediment accumulates irregularly in reservoirs and can therefore diminish the “live storage” much sooner than is often acknowledged by dam proponents (McCully 2001).²⁸ As

²⁸ Whereas the Grand Coulee Dam watershed, for example, experiences negligible rates of sedimentation, the Tarbela Dam in Pakistan lost 18% of its live storage capacity in its first 25 years (World Commission on Dams 2000:66). “An estimated

noted in the Introduction, Lesotho's soil erosion problems are raising alarms for water engineers, particularly at 'Muela Dam. A recent report by the World Bank found that reservoirs are silting up "at an alarming rate," and that as a result "the LHWP might bury itself in a few decades" (Hitchcock et al. 2011:22,16).



Figure 16: Sediment gathering at the mouth of the 'Muela Reservoir. Photo by the author.

0.5–1% of the total freshwater storage capacity of existing dams is lost each year to sedimentation in both large and small reservoirs worldwide. This means that 25% of the world's existing freshwater storage capacity may be lost in the next 25 to 50 years in the absence of measures to control sedimentation. This loss would mostly be in developing countries and regions, which have higher sedimentation rates." (World Commission on Dams 2000:16).



Figure 17: The 'Muela Reservoir, with the mound of sediment visible. Photo by the author.

After having resisted the move for many years (see below), the Lesotho Highlands Development Authority (LHDA), the administrative body that carries out the LHWP, eventually decided to address the erosion issue in the early 2000s. It did so by issuing a tender for the implementation of Integrated Catchment Management (ICM),²⁹ a set of soil conservation programs that ostensibly takes a holistic approach to managing the catchment-scale dynamics that drive erosion and other kinds of land degradation. The program was established for a 5-year period between 2005-2010, to

²⁹ There is not space to discuss the origins of these programs, but it is worth noting that their emphasis on the catchment unit dates back at least to the 1930s with the Tennessee Valley Authority (Selznick 1949), and that they are currently in use elsewhere in the world, including Panama (Carse 2015) and India (Baviskar 2004).

be rolled out in each of the (then) three upland catchments of the LHWP: Katse Dam, Mohale Dam, and ‘Muela Dam. These programs continue today, albeit in diminished form, and plans are underway for another concerted effort, including in the catchment of the future Polihali Dam. That said, Khaba & Griffiths (2017) point out that reservoir sedimentation monitoring has been haphazard, suggesting to me that there is limited real interest in addressing this problem that might imperil the LHWP. In short, living with soil erosion in Lesotho is anything but funny – in fact, it seems quite serious. Having heard that potentially catastrophic sedimentation problems were identified at ‘Muela Dam, I decided to spend some time there.

Learning to See Like a Conservation Worker

I met with Tau, the person in charge of administering the LHDA’s soil conservation programs in the ‘Muela Dam catchment, at 9am at his office. The LHDA office building overlooks the ‘Muela Dam, which sits at a narrow passage of the Nqoe River, itself a small tributary fed by runoff from the mountain escarpment that looms over the area, just 10 kilometers to the east. The ‘Muela Dam Reservoir is the smallest and shallowest of the Lesotho Highlands Water Project, serving as a temporary hold for water arriving by tunnel from the larger reservoirs in the highlands. As water arrives, it immediately leaves through an intake, to be measured for volume en route to South Africa. I asked Tau if the sediment in the reservoir posed a threat. With a serious demeanor, he said: “Yes, there is a lot of silt in the dam.” Taking me over to the window, where one can see the dam and then top of the

reservoir, he pointed out the sediment, which was indeed quite clear to see. He said that there is a plan currently being floated with the Lesotho Highlands Water Commission (LHWC, the bi-national body that oversees the dam project) to dredge the area and then dump the sediment onto a small plateau just above the dam reservoir, which will be reinforced with gabions and then seeded with grass. (Three years later, in 2017, the LHWP still had not allocated the money [Kabi 2017].) But, he was quick to add, in order to address rangeland degradation, one must manage it at the source. This is why they are carrying out the ICM programs, he explained.

I had read about these programs before meeting with Tau—they included the promotion of conservation agriculture, the creation of grazing associations, and the construction of soil conservation works like gabions and silt traps. “Have they been successful?” I asked. He proceeded to list a series of abstract achievements: “Yes. There is improved vegetation, the palatable grass species are coming back, they have improved animals, the animals provide more milk,” and so on. “This has a knock-on effect, too,” he explained. “When you have good grass, you have better cattle, and then you have healthier cattle for ploughing your fields. Erosion has decreased in these areas.”

On further probing, it became clear that he had no data to substantiate the claims. And the grazing associations and conservation agriculture programs had not yet taken root. Instead, the conservation structures were his focus. With excitement, he gestured for me to come behind his desk and showed me a long series of pictures of conservation works on his computer. He and his teams of local workers had built

“stone-lines” like the ones I visited with Masilo (sometimes called silt traps) to reduce the velocity of water moving downslope and create small terraces that can slowly accrue enough soil to support vegetation. They built check dams—piles of stones in erosion gullies—to prevent gullies from widening further. They built gabions—stones enclosed in rectangular blocks of wire mesh—to reinforce eroded terraces. They built divergent furrows above agricultural fields. This work was ongoing, he said.

We hopped into his truck so that he could show me the conservation works. On the way, I asked him about the grazing associations. Distractedly, he told me about how he had designed a grazing management plan for the catchment but people weren't following it. He didn't know why. He returned our conversation quickly to the structures. They were his true source of pride: all over this catchment, he said, “I've built gabions; I've built silt-traps; I've built furrows. But we still have a lot of structures to build,” he added, as we drove up the catchment valley. With Tau's help, I began to see the particular soil-water landscape that he saw. It was almost post-apocalyptic, in need of urgent attention, filled with malevolent land users, and not-deep-enough soils over which water coursed freely. A given hillslope was not merely a hillslope, but one that did or did not yet feature a conservation structure. Just as a farmer might show me fertile soils where her crops would grow well, fertile soils for Tau were those that were sliding downslope and which called out for his structures.

Tau was the Acting Environmental Officer and Compensation Officer for the Lesotho Highlands Development Authority (LHDA), the administrative body that

oversees the construction and management of the LHWP. He was the person in charge of carrying out soil conservation efforts there, as he had done before at other LHWP dams. His position was being reorganized, however, as part of the reassessment of catchment management in ‘Muela. Since the World Bank’s Panel of Environmental Experts (PoEE) raised alarm in a 2011 report (Hitchcock et al. 2011) about the sedimentation problem at ‘Muela and elsewhere in LHWP catchments, the Lesotho Highlands Water Commission (LHWC) has decided to redouble its efforts on instituting Integrative Catchment Management (ICM) programs—the soil conservation works that Tau has been carrying out here for the past few years—and conduct a massive, one-million USD dredging effort of the ‘Muela Reservoir. Sediment was inching its way ever closer to the intake through which water passes and gets measured on its way to South Africa, with the potential to damage critical and expensive underground instruments. In addition, the sediment was so fertile that its high organic matter content could compromise the quality of the water being sold to South Africa. Before the 2011 PoEE report, the LHDA was skeptical about the potential for success in ICM, he explained, but afterward they wanted to fund it.

We parked down by the bridge at the Nqoe River a short way up the valley and headed up the hill toward the worksite. Tau got winded quickly on our way up the hill and told me between breaths that his aim there was to control silt; not prevent it. The goal should be to reduce the problem, “because to prevent it is very difficult.” As we approached the work area he had brought me to see, Tau explained that the key reason for building the structures is to reduce the velocity of water, which would

otherwise careen downslope, carrying soil along with it. We walked along a massive ditch – a diversion furrow about 2-3 feet wide and 1.5-2 feet deep. The extra dirt had been piled up on the lower side of the furrow, making it appear even more impressive. We walked along the furrow as it wound around the side of the mountain to a point where we found about five men pick-axing at the leading edge. When finished, it will spill into the small tributary stream before dropping quickly into the Nqoe River and into the reservoir. As impressive as the furrow was, however, the area it drained was in fact only a very small section of the catchment as a whole. Many more will be needed, he explained: the catchment is 2,869 hectares in area and his structures to date have covered just 45 hectares.



Figure 18: A divergent furrow in 'Muela Catchment. Photo by the author.

Some women stood in a line farther up the slope, moving rocks down from one person to the next. Tau introduced me to the foreman of the crew, Relebohile, and then called all the workers down from the hillside to sit and talk with me. It soon became clear that Tau saw this event as an opportunity to assert his expertise and a particular view of how water, soil, and plants relate.

After he gave me the floor, I asked the group whether they thought there were more livestock today than in the past (a contention of Tau's). A woman raised her hand: "No, there are less today because people sell more to the butcheries than they used to." Tau stood up to "clarify," explaining that people here do not raise livestock to sell for meat and asked everyone to agree with him. A handful nodded or affirmed languidly. Before returning to my questions, he asked the crowd to agree that the rangelands are not in good shape ("*Makhulo ha a matle, ha ke re?*") and that the reason was because people have more animals today than in the past. The crowd sat mostly motionless. Relebohile then added in English that only 2 out of 10 people in the area sell meat to the butchery and Tau explained in English that this is because they "do their cultural things" with livestock. I decided to solicit the group's opinion on the matter: Do they think the range is better or worse today than it was when they were growing up? Tau cut in again. He did a study in 2010 with a specialist who came and they did "something called 'transects in order to understand the carrying capacity of the range'" (*ntho e bitsoang 'transects' ho utloisisa na carrying capacity – liphoofolo tse lekaneng ka makhulo ana – ke eng?*). They found that there were more animals than the study area can provide, he said. A silence hung over the crowd.

I decided to try a different tack: “If the range is degraded,” I asked, “when did the degradation start?” (*Haeba makhulo a senyehile, na mathatha a qalile neng?*) A man raised his hand and said that “The problems began when the LHDA arrived” (*Bothata bo qalile ha morero oa metsi a lihlaba o fihlile*). Everyone laughed and Tau stood up frustrated yet again. He defended the LHDA amidst titters and said that they only took a small amount of land and that people were compensated for it.



Figure 19: A stoneline in 'Muela Catchment. Photo by the author.

The conversation continued like this: Tau prompting me to ask a question and then refuting every answer that was given or even preempting the answer entirely. Eventually, however, I came across one point of agreement. When I asked what

should be done to stop soil erosion and range degradation, the consensus—including the group of people and Tau alike—was that more physical structures are needed. In short, people affirmed the importance of the work and the notion that land was degraded, but didn't believe the causes of degradation being put forward by Tau.

Tau then invited me to walk with Relebohile, so that he could show me the extent of their work on this particular hillslope. I asked Relebohile as we walked: “So, is this *fato-fato*?” He laughed a belly laugh and proceeded to explain in a rambling response about the government programs and LHDA programs being slightly different but, yes, this is similarly to *fato-fato*. I asked the same of Tau as we headed back to the truck and he smiled, tentatively agreeing, but he was quick to draw a distinction. Whereas the Ministry of Forestry and Land Reclamation (MFLR), which runs the Government's *fato-fato* programs, pays people 48 Maloti per day of work (5 USD), the LHDA pays 78 Maloti per day. With a satisfied smile on his face, he did the math for me: they typically hire 40 people to do 20 days of work, totaling 1,560M/person, meaning that this project was set to bring 59,000M to this community. As a result of the LHDA's renewed commitment to tackling erosion in light of the sedimentation at 'Muela, he said that there is a 1.9-million Maloti budget coming his way for soil conservation. “I'm the big man around here,” he said, quickly adding, “But it's all about protecting the dam.”

On our way back to the office, Tau took a detour to show me a number of other structures he had built. We dwelled on them – he wanted to show me the quality of the craftsmanship, their size and number, the sediment trapped behind them, and

the signs of erosion farther upslope above them. At their edges, there were many signs that the problem was continuing despite their construction, with sediment depositing beneath them as though having overflowed, and small gullies forming along their sides. Rather than suggesting a failure of the structures, for Tau they showed the need for more structures. What was more, local people had been stealing the wire from the gabions for their own, personal use. As we drove back, he pointed out the many places he hoped to build them next.

Tau was teaching me to read the landscape as a water engineer. His responsibility was to restore the landscape, and yet it was clear that, for him, a degraded landscape was a good one—it was a landscape in need of his solutions. The landscape features that were visible from his perspective, however, were not simply material facts. Instead, they linked his perceptions of irresponsible rural people to a system of distribution that both enabled water production but which also performed and justified his own position as someone who knew what he was doing and did it well.

This landscape perspective was not merely Tau's. It also reflected that of the LHDA and also the Lesotho government in charge of *fato-fato* (the MFLR) more broadly. Consider another conversation I had with Rethabile, Tau's foreman. I had asked him whether people living in the 'Muela area were upset about the presence of the LHDA and the 'Muela Dam, which had led to some village resettlements, confiscation (with compensation) of agricultural and grazing land, and surely other disruptions during construction of this massive project. He said that some people

were upset, but they didn't have good reason to be, pointing out to me that "people don't realize that the reason they have these temporary jobs is *because* of the reservoir." Because of the reservoir, he went on to explain, the problem of soil erosion has become more significant and *fato-fato* programs are now needed to remedy it. "Problems are good because they bring opportunities." For example, he said, "the HIV/AIDS epidemic is a job-creator: when the money comes in for aid, someone is given a job to ensure that the money is being spent efficiently. So people can go on making problems and then benefitting from them."

On trips to the field with these civil servants at the MFLR, they often made fun of *fato-fato* workers for being lazy as we drove by, sometimes departing from the truck to chasten them in person. Of course, they admitted in private, the people are paid very poorly and the work is very difficult. They also described to me how communities would sometimes destroy *fato-fato* conservation works simply to try to get another *fato-fato* project. The LHDA and MFLR respond to these rumors and *fato-fato* structure failures by threatening to cease the *fato-fato* program.



Figure 20: Stonelines and buffer strips at Ha-Ra-Lithapo. Photo by the author.

While on a hike in ‘Muela with a local man, we passed the area called Ha-Ra-Lithapo, where an intricate and absurd-looking *fato-fato* project was sited: collapsing banks were edged with pitiful rock walls and adorned with small strips of mat grasses and medicinal plants. I asked Dennis, the man I was walking with, to explain what he thought about it. He told me that he thinks it will help, and that the LHDA demanded that the pasture above the site be closed to grazing. I asked him if the area above it is closed to grazing and, if so, were people respecting the closure. It was closed for three years, he explained, and “yes, they are respecting it because the LHDA said that if animals are found there, there will be no more *fato-fato* work.” (*Ee, baa hlompha hobane bo-metsi-a-lihlaba ba kopile hore re qosana liphoofole tsa rona hobane*

haeba re lisa liphoofole moo mosebetsi o tla ba lesiko – oa fato-fato.) That is, *fato-fato* programs are a tool to ensure the success of *fato-fato* programs.

Officials from the MFLR, too, threatened communities that their failure to protect conservation structures would not go unpunished. And they reveled in rumors of communities actually *causing degradation* or vandalizing existing conservation works in order to solicit a *fato-fato* project. What these MFLR and LHDA officials in charge of soil conservation projects did not mention, of course, was that they themselves required the degradation. Their everyday work consisted entirely of carrying out these programs—that is, to look for and find degradation. They saw it everywhere, a landscape in need of particular forms of protection and repair for which they were prepared.

Before turning to consider in greater depth the reasons for and effects of these conservation programs, we should return to the historical context sketched above to understand something more about why water is so caught up in soil conservation in Lesotho.

The LHWP's Water Problems: Histories of Soil Erosion in Lesotho

The LHWP, initially designed as a flood and sediment trapping project—a check against soil erosion—has been converted to a water production project built in spite of Lesotho's soil erosion problems. Thus, erosion has come into view as a problem because of the Lesotho Highlands Water Project. In this section, I narrate a longer history of soil erosion in Lesotho, a problem that has been repeatedly called upon to

embody social and environmental ills of earlier eras. If we track the idea of erosion from those times through to today, particularly as it has emerged in relation to the LHWP, we can understand how earlier approaches texture present ones. They show how erosion is not merely a by-product in need of proper containment for the sake of a higher-order good, but rather an instigator of action itself. That is the task of this section.

Across Southern Africa, concerns about soil erosion gathered pace in the years following the US Dustbowl crisis, largely out of concerns over future declines in production on white-owned farms rather than degradation in “native areas” (Beinart 1989; Dodson 2005; Rocheleau et al. 1995).³⁰ In the Orange Free State, however, concerns orbited around flooding and sediment loads. The Orange River, which originates in Lesotho (where it is referred to as the Senqu River), passes through the Orange Free State on its 1,400-mile journey to the Atlantic Ocean. The Orange Free State – today, a South African Province called the Free State – is the site of some of South Africa’s best agricultural land. It was also where white, Afrikaners settled after the “Great Trek” from British-controlled Cape Province in the 19th century. These farmers, a powerful constituency in the Union of South Africa of the 20th Century, complained to the colonial authorities in the British Protectorate of Basutoland that overgrazing in the Maluti mountains was rendering that land incapable of holding water and leading to destructive floods downstream that carried so much silt they

³⁰ The Prime Minister of South Africa, Jan Christian Smuts said in 1936 that “erosion is the biggest problem confronting the country, bigger than any politics” (Jacks and Whyte 1939:21).

would jeopardize any attempt by South Africa to dam the Orange River for irrigation. After repeated calls by South Africa for British action to stem erosion and overgrazing, including by afforestation and drastic reductions in livestock numbers, the British colonial authorities began to fear that the Union would use this issue to pressure them to cede control of this and the High Commission Territories of Bechuanaland (now Botswana) and Swaziland. The British even prepared a draft White Paper for the eventual formal application from South Africa for transfer (Driver 1999).

The incorporation of Lesotho on these grounds was popular among the white electorate at the time of Prime Minister Jan Christian Smuts (1919-1924, 1939-1948). With increasing South African pressure to annex Basutoland, the British proposed a set of dams in the mountains of Lesotho to address the problem of mountain erosion and sedimentation. The dams would “capture any siltation and result in a clearer flow of water into the Union.” (Driver 1999:12). That is, rather than building a dam in spite of possible sedimentation, as today, authorities planned to build a dam in Lesotho because of this sediment. The South Africans had discussed the possibility of water transfer from somewhere on the Orange River for many years, but cited the siltation problems as ones that would shorten the lifespan of such a dam. By the mid-1950s, however, complaints by South Africans about highlands erosion and sedimentation began to decrease with diminished interest in transferring territories (Driver 1999:16). There was not a single mention of the problem of soil erosion in the highlands of Lesotho during five years of correspondence between the two countries

about the LHWP in the 1950s. Thus, as the project developed and annexation was no longer feared, the project morphed into a water transfer scheme for a Vaal region that was predicted to be very much in demand of water in the future. A project designed to prevent flooding and retain sediment was transformed into a water exporting scheme – one in which the risks of sedimentation were seen as negligible.

A feasibility report by Jeffares and Green (1951) suggested that there was too much silt in the lower reaches of the Orange/Senqu River and suggested that it be built in the basalt areas upstream instead. The lowlands feature sandstone, sedimentary soils that have a “duplex” formation and are susceptible to piping and, subsequently, gully erosion (Schmitz & Rooyani 1987). The highland soils, by contrast are formed on basalt rather than sandstone parent material. The cold temperatures in the mountains mean that these soils have a higher organic matter content generally than those in the lowlands (Schmitz & Rooyani 1987:126).

But while the lower inherent erodibility of the soils themselves was taken by Jeffares and Green and others (e.g., Jehanno et al. 1990) to mean that sedimentation in upstream catchments was insignificant to the dam project, a range of evidence suggests otherwise. Concerns about land degradation stemming from livestock production and agriculture are long-standing, as evidenced by Heywood’s (1908) and Carlson’s (1913) findings; Pim’s programs, too, were rolled out across the highlands (Nobe & Seckler 1979:56). The highland soils are extremely thin and undeveloped (except for the very limited peat histosols in the upland mires) and almost no diagnostic horizons can be identified anywhere in the highlands. Because of their

thinness and steepness, and because of their high amount of exposed, unvegetated soil, they are vulnerable to rain splash erosion, sheet erosion, and mass movements (Schmitz & Rooyani 1987:98).

In fact, at the same time as planning for the first Phase of the LHWP was under way, the most prominent soil scientist in the country found that “[Lesotho has] the highest erosion hazard of any single country in southern and central Africa” (Chakela et al, 1989:2). Chakela and Stocking (1988:183, 187) found that, on account of “the steep slopes; high total quantities of rain; poor lithosols; and only average vegetation covers...[t]he conventional view that the mountain areas of Lesotho are less prone to erosion is unsupported” (Chakela & Stocking 1988:187). Moreover, the ‘Muela Dam through which all of the LHWP’s water flows is sited in the sedimentary zone, where dam reservoirs “have a very short useful life” (Chakela 1981:144).³¹ That is, the lower inherent erodibility is offset by the highlands precipitation and topography.

The LHWP Phase I Feasibility Study Final Report (page 5, section 6.2.5) from the 1980s at the outset of the project makes the following statement in a section titled, “Sedimentation”:

³¹ The reason for this situation is partly because of the intensity of rains in Lesotho. Calles and Kulander’s (1994:128) findings from research at Roma explain that the bulk (91%) of Lesotho’s total daily precipitation occurs in single rainstorms of under 60 minutes. They conclude that standard measurements of erosivity indicate that Lesotho’s rains are relatively unerosive, but this contradicts their evidence. These models underestimate Lesotho's erosivity. They conclude this by finding that rainfall intensity exceeded infiltration capacity on 55% of the days of the year observed. Intense rains can be mitigated by vegetation cover, both in terms of the influence of rain splash as well as for runoff pathways.

A conservative catchment sediment yield of 400 tonnes/km² was assumed based on a limited number of existing field observations and also taking account of published sediment yields for adjacent catchments in South Africa. Based on this sediment yield and other conservative assumptions it was calculated that the transfer tunnel intake at Katse reservoir would remain free of sediment for at least 50 years and it would be many more years before there could be any significant loss of active storage. Analyses, on the same bases, for the other main reservoirs also indicated that sedimentation will have no effect on the reservoir active storage or tunnel intakes within the foreseeable lifetime of the project.

The LHDA has not made much data publicly available on the issue of sedimentation, and my efforts to acquire internal materials from the LHDA were unsuccessful. One study analyzing erosion hazard by Smith et al. (2000) contradicts the findings of Chakela et al. (1989) and finds no serious issue posed by sedimentation, was funded by the LHWC. Although I know of no evidence of deliberate misinformation, a long history of “corporate science” (Kirsch 2014; Li 2009) in the assessment of natural resource extraction impacts, who seek future contracts from enterprises like the LHWP raises doubts about the impartiality of their results.³² A separate attempt at modeling the risks of reservoir sedimentation was made by Jehanno et al. (1990). The authors modelled sediment deposition in the Katse Dam reservoir and found that the water intake – the primary threat in the Katse Reservoir – would not be impacted until at least 50 years after impoundment, but their model only accounted for a small subset of the fine fraction (0.1-2mm), and therefore omitted silt and clay particles altogether.

³² For more on the environmental impacts of the LHWP and LHDA responses to it, see Hoover (2001), Thamae and Pottinger (2006), Bond (2002), and Metsi Consultants (1999).

Beyond the fact that this 1990 study represents one of the few publicly available assessments of the problems posed by sedimentation, it is notable for several reasons. First, it demonstrates the extent to which producing water demands an attention to such fine-grained processes as the movement of sediment particles, the ways they aggregate together and slump within a reservoir. This represents the material work that water engineers must do in order to extract water from its material engagements with soils. Second, its conclusion that the issue doesn't pose a threat for at least 50 years hints at the striking near-term planning horizon that water engineers work with. Such a planning horizon, I would argue, is embedded within the very materiality of the conservation works, which are neither prepared to handle the large storms that cause most of the erosion nor are made in such a way that demonstrates serious commitment to ensure the longevity of this massive dam project.

In light of the LHWC study cited above that found no reason for concern, I was shocked to find in the LHWP Maseru archives Stanley Hirst's (1995) white paper on the potential problems posed by soil erosion to the Project. In a rare moment of (public) internal dissent, Hirst sought to rouse the LHDA into action on what he thought was a pressing issue:

Soil erosion in project catchments and the associated sedimentation of operation reservoirs has been a subject of longstanding discussion and some discord within the [organizations that manage the LHWP]. Since 1990 a number of proposals, from in-house and from outside consultants, have been made to mount a study of erosion and sedimentation in the LHWP Phase 1A catchment. For a variety of technical, budgetary and procedural reasons, none of these have found their way through the approval process.

The same, he goes on to say, has happened with the Mohale Dam catchment (Phase 1B). He paints a rather grim picture of LHWP environmental assessment, explaining that no data on sedimentation rates in the Lesotho highlands exists:

None of the engineering feasibility or design studies for Katse and ‘Muela dams (LHWP Phase 1A) specifically included collection and analysis of sediment samples. For the Mohale (Phase 1B) project an automatic sediment sampler has been installed in the Senqu River at Marakabei [downstream of the Mohale Dam], although only one year’s data will be available for engineering design and that for a likely drought-stricken year. (1995:6).

Work that was done was based on scanty data, but that analysis found that “The main threat to the project would be the crown of the developing delta reaching the water intake, which could happen after about 50 years, depending on sediment composition and the movement of the delta by reservoir currents, especially during flood periods during reservoir low water stages” (1995:6).³³

Others outside of the LHWP have also drawn attention to the issue of sedimentation and its potential to jeopardize the LHWP. Korinna Horta (1995)

³³ The effects of dams on sediment transfer can be significant. The organic matter contained in river flows are critical to river ecologies from upstream banks to ocean deltas, and dams that prevent this process from occurring threaten this important process. Sediment deposited behind dam walls diminishes reservoir capacity and, when it reaches intakes for turbines or irrigation, can threaten the project in its entirety. While all dam reservoirs have a “dead storage” area below the intake that does not affect water transfer potential or hydroelectric production, sediment accumulates irregularly in reservoirs and can therefore diminish the “live storage” much sooner than has been acknowledged by dam boosters. Sedimentation is a problem encountered by dam projects everywhere, however rates of sedimentation vary depending on the specificities of soils at a given site (McCully 2001). Whereas the Grand Coulee Dam watershed, for example, experiences negligible rates of sedimentation, the Tarbela Dam in Pakistan lost 18% of its live storage capacity in its first 25 years (World Commission on Dams 2000:66). On average, .5-1% of total storage is lost annually to sedimentation worldwide (Keller et al. 2000:6-7).

explained that, “A preliminary estimate of soil losses predicts that the tunnels and ‘Muela outlet will be completely blocked within 50 years... Yet, no erosion and sedimentation study was carried out for Phase IA. The World Bank now claims that the earlier erosion estimate was based on false assumption of local rock types and that there is no threat to the Project’s technical feasibility” (Horta 1995:230). In addition, a study by a local geographer, ‘Mamabitsa Makara (2013), concluded that, while sediment loads in the Senqu River catchment (area: 20,485km²) are lower than in its major tributaries within Lesotho, such as the Makhaleng and Caledon Rivers, the high erosivity factors in the Upper Senqu in Mokhotlong District lead more often to landslides. She states that “dramatic measures” (2013:40) must be taken to remedy the situation, and that the Polihali Dam is likely to silt up before its sister dams at Katse and Mohale. Whereas 46% of the mean annual runoff contributing to the Senqu/Orange River originates in Lesotho, it contains just 3% of the total land area of the basin (Mokuku 2002: 105). The mountains also have a high rainfall-runoff coefficient, with approximately 22% of rainfall lost to runoff on account of the steep slopes, higher overall rainfall, and deteriorated pastures (2002:105). Makara’s soil loss estimates were derived by using the Revised Universal Soil Loss Equation (RUSLE) and generally agree with observed estimates from sediment stations. They show a significant increase in overall sediment loads for Lesotho from 1986-2009 (2013:v). This is also remarkable given that the RUSLE is a fundamentally uniformitarian conception of soil loss, presuming even and steady soil losses across the landscape without accounting for the impact of the major rainfall events that

cause most of the soil erosion (Grove & Rackham 2001). In Lesotho, such storms are common, and my informants noted that recent years have seen more of them, particularly at the beginning of the rainy season when soils are most denuded of the vegetation that protects them.

In the end, actual rates of sedimentation in Lesotho's reservoirs are as yet unknown because no comprehensive study has been undertaken despite numerous pleas (Hirst 1995; Hitchcock et al. 2010; Makara 2013; Smith et al. 2000) and "no measured soil loss data from runoff plots exists in the Lesotho Highlands" (Smith et al. 2000:64). No doubt, this is partly because soil erosion is so difficult to measure. Gullies are the most evident index of erosion, though they only occur where soils are deep and where runoff force is sufficiently strong to dislodge soils, such as at the bottom of valleys. Moreover, gullies often form during dramatic flood events, and then remain stable for another decade or more until a storm of such magnitude occurs again. Areas of exposed bedrock can also be an indication that erosion has taken place, though this phenomenon, too, is highly localized, confined primarily to steeper slopes where soils are thin. In areas where soil is exposed, a significant amount of sediment movement can take place without leaving much of a trace. When rainsplash dislodges particles of exposed soil, they are later entrained downslope by concentrated runoff water. And yet it is nearly invisible. Measuring the increase in gully size or the rates of sheet erosion (the more or less uniform loss of soil across a surface) requires precise and regular measurements that are beyond the reach of the Lesotho government—even when river monitoring captures changes in the bedload

and the suspended load of sediments that ultimately make their way into the river, these describe only the effects of the most recent rains and must be measured over significant time periods in order to derive acceptable estimates of long-term changes and their causes. This uncertainty is fertile ground for degradationist anxieties (Stocking 1995; Leach & Mearns 1996; Maddox 2002).

Indeed, catchment management programs are often seen as peripheral to the authorities in charge of constructing dam projects, perhaps partly because, while they maintain reservoir capacity (and water quality) in the long term, they can in fact diminish water yield significantly. Afforestation, for instance, leads to the retention of infiltrated water which is lost to the reservoir by evapotranspiration (World Commission on Dams 2000:75, 139). The ‘Muela case is telling. An LHDA-sponsored Sediment Survey of ‘Muela Reservoir in 2003 – just 6 years after the completion of the ‘Muela Dam wall – found that 7% of the reservoir volume had been filled with sediment, and that this amount was not confined to the dead storage but rather cut into the active storage of the reservoir. Tellingly, the “Environmental Management Plan” that was created for the reservoir in 1994 set out only the most general observations and recommendations. In a program table that outlined the primary environmental challenges facing the ‘Muela Dam, the component “Dam” listed three “Issues,” one of which was “soil erosion.” The “Comment” for that issue was simple: “Sediment traps needed.” (Table 3.2, Summary of Environmental Issues).



Figure 21: A *fato-fato* crew. Photo by the author.

Scratching About and the Politics of Distribution

“Jonathan not happy with British aid.” That was the headline in *The World* newspaper on October 20, 1966, just a few weeks after Lesotho gained its independence from Britain. Prime Minister Leabua Jonathan, the conservative figure who was hand-picked by the British and (initially) friendly with the Apartheid regime of Henrik Verwoerd (Khaketla 1972), demanded a larger aid package than the one being offered by Britain in the weeks following Lesotho’s independence. It was “making a mockery of our independence,” he was quoted as saying, and threatened to reject it outright. The irony that Lesotho’s independence would be predicated upon an aid-dependence upon Britain was surely not lost on Jonathan, the first elected leader of Lesotho after 80 years of British rule – he was a canny politician who excelled at playing regional powers against each other and against his domestic political rivals. Indeed, Jonathan

emphasized that, without increased British aid, Lesotho would be at the mercy of its powerful neighbor South Africa, already by then understood to be a pariah state in the “international community” for its policies of apartheid and its willingness to intervene militarily in regional wars of independence.³⁴ In the end, his logic was sound: in 1986, he was toppled in a military coup that some believe was supported by South Africa, who wanted to force through the LHWP Treaty past a recalcitrant Jonathan—it was signed just 10 months later (Turton 2003).

Jonathan’s success in soliciting aid money came partly from his penchant for political showmanship, as indicated by his very public outrage over the aid package. In the run up to independence he performed himself as a man of the people and an agitator for the oppressed. On one occasion, he marched a troop of indigent people through the streets of Maseru down to the British High Commission in 1962, demanding that they be given menial jobs such as cleaning up the streets and combatting soil erosion (Khaketla 1972:28). It worked, and Jonathan may have initiated the very first public works program, later to be known as *fato-fato*.

³⁴ This, as Jonathan struck ignominious deals with the Apartheid government. In the run-up to Lesotho’s first election, he successfully solicited a campaign donation of R15,000 directly from the South African government after meeting personally for tea with the infamous Prime Minister Dr. Henrik Verwoerd, just a few years after having decried the “white supremacist policy of our neighbors” (quoted in Khaketla 1972:29). And, yet, he managed to become Britain’s preferred candidate by presenting himself as the more conservative candidate in Lesotho, aligning himself with the churches and accepting terms that the British set for this and that. Jonathan would go on to win the election over the other major contender of the time, Dr. Ntšu Mokhehle, only to suspend the Constitution in the next election five years later when it appeared that Mokhehle might have won. Jonathan would rule a one-party state for the next 16 years.

In the more than two decades afterward, before being deposed by a military dictator in 1986, Jonathan maintained his power in large part thanks to efforts like this one, eliciting donor aid from foreign entities and then distributing it to communities (mostly those who supported him) as payment for public works programs like road construction, soil conservation, and so on (see Aerni-Flessner 2014). The work, which mostly was carried out by women whose husbands were away at the mines, appealed to post-independence sensibilities of “self-help” (sometimes called *boikhohollo bofumeng* in Sesotho, or “freedom from poverty”) while at the same time performing government action and political efficacy to his constituents and patrons.

The programs also seamlessly wove together foreign anxiety over soil erosion (see Nobe & Seckler 1979; Driver 1999; Showers 2005; Beinart 1984; McCann 1999) with the aid economy and his domestic political demands. But they also carried forward prior colonial labor forms, such as the work parties used in road construction and soil conservation in the colonial era. Jonathan had very likely been refashioning the colonial work parties that were used to maintain roads and other kind of manual labor. The annual British colonial reports are full of mentions of these work parties. Heavy rains were continuously washing out sections of road in the territory, frustrating the British colonial officers responsible for ensuring that administration and capital had easy access to the hinterland. As one colonial report from 1901 explained, “The public roads are at present in a deplorable condition owing to a heavy fall of snow on the 11th inst. Difficulty has been experienced throughout the year in

keeping them in more than a barely passable state" (Basutoland 1901-2:38). The officers began to hire local people to do this, and the amounts were small given the labor costs. "Parties of labourers with practical overseers in charge have been employed repairing the roads, but on account of the almost incessant rainfall during the last five months the work has not progressed satisfactorily, and it has been impossible to do more than just keep the roads open for vehicle traffic." (Basutoland 1900-01:18). Or, in 1933: "In November and December exceptionally heavy rains seriously damaged many of the spruits and donga crossings, and it will be many months before repairs can be completed. Towards the end of the year gangs of famine relief workers helped to maintain the roads and were of considerable assistance in helping to keep them open to traffic." (Basutoland 1933:20). The program was essentially formalized after the Pim Report of 1935, discussed above. Pim's third recommendation—in addition to the soil conservation programs and the gazetting of chiefs—was to initiate the construction of a set of bridle paths that would connect white-owned trading posts in the highlands, where Basotho sold their wool and mohair, to the lowlands.

At the turn to independence in the mid-1960s when aid monies began to flow in, Prime Minister Jonathan channeled the aid toward work parties that he called "*letšolo-la-iketsetse*," which translates literally as "a purpose-driven group that works for itself." In English, it was often referred to as the Food Self-Sufficiency Programme (FSSP).³⁵ The program used aid money for self-help or food-for-work

³⁵ On food-for-work programs, see Aerni-Flessner (2014).

programs that were directed at specific villages. Villagers would work for a number of days on a nearby project – constructing a road or path, building a small reservoir dam for irrigation, or doing soil conservation work such as gully reclamation. Jonathan noted these programs repeatedly in his speeches through *Molia*, the state newspaper, as well as in his weekly radio addresses, and used the program as a way to demonstrate his effectiveness as leader to his domestic audience as well as an international donor audience. At that time, payment was made only in food, such as oil and maize meal. The narrative of “self-help” at a personal and national level was strong at that time of African independence movements in the way that “sustainability” is today, and giving handouts – especially of cash – was seen as improper. The opposition Basutoland Congress Party (BCP) derided these programs as mere “political games” (Mphanya 2014, personal communication) and asserted that people were being forced to work for them by chiefs, conjuring images of despotic chiefs who were accused of abusing their powers to call work parties on their agricultural fields during colonial times. BCP people even went so far as to describe the programs as a form of “slavery” (Mphanya 2009). In the past, when employment was available for men in South Africa, these work parties were almost exclusively women, though the work crews are more mixed today. The crews were mocked by the BCP as “*khofu tsa matsoele*,” or “tractors of the breasts.”



Figure 22: "Women comprise this work crew which is working on a cross-country road from east to west in Lesotho, ca. 1969" (photo by @marjmakh 2016).

A cause and consequence of the politicization was that BCP activists took to destroying them as political statements. For example, a tree-planting initiative of eucalyptus, poplar, and black wattle trees planted in small woodlots across the

country. While driving with a friend named Ntšoeu from Mokhotlong to Maseru on one occasion, he told me about these programs when I asked about some conspicuous stands of eucalyptus that are found at the base of the escarpment near Moteng Pass. He told me they were most definitely “Leabua plantations” because of what he could see from age and size of the trees, and on account of Jonathan’s interest in tree-planting. Ntšoeu went on to explain that, in the early days of his regime, Jonathan planted an incredible number of poplars and other trees along the main highway linking Maseru to Butha-Buthe (the A1). In this way, it would resemble a kind of tree-lined boulevard from Europe. Many of these trees are still standing today. But, he said, while the trees were supposed line the entire road, today they are only found in small patches as you move through the 127-km stretch. Some of the trees were felled to make the road wider over the years, but in many cases they are missing because of BCP activism. In those areas where there was strong BCP support, many of the trees were uprooted, so that the places that you do see those trees lining the road like a great boulevard are those BNP strongholds where people didn’t uproot the trees.³⁶

³⁶ Ntšoeu was a member of the ABC party, which draws much support from the BNP wing, and our drive took place on a Sunday, when political parties often hold their rallies. When we passed by people wearing the yellow colors of that party, Ntšoeu would open his window and yell out in solidarity. Incidentally, the three places this happened were all tree-lined.



Figure 23: "Leabua's trees" line the A1 highway near Leabua Jonathan's birthplace and BNP stronghold, Kolonyama. Photo by the author.

As Aerni-Flessner (2014) shows, small projects like these constitute some of the earliest forms of “developmentalism” in Lesotho, just as important in many ways as the larger projects that James Ferguson (1994) describes in that they reached into even the smallest villages. For example, the Thaba-Bosiu Rural Development Project (1973-77) used just such programs: “Food-Aid laborer has been a major factor in accomplishing many of the rock structures and other hand labor conservation measures. Food-Aid laborers were paid 60 cents per day plus food-aid supplies (5-hrs cash labor and 3-hrs food), and the force was changed every 15 days to maximize the total number given a chance to work.” (Nobe & Seckler 1979:86). In many such

projects, the goal of increased short-term employment opportunities was key (Nobe & Seckler 1979:101). In the Integrated Conservation Development Project Areas across Lesotho, Nobe and Seckler (1979:143) explain that:

Over the life of the project, the Conservation Division has supervised up to 2,400 food-aid workers each year who do small but important conservation project work in all districts. Complete reports of accomplishments have not yet been assembled but, generally speaking, much of the work is directed toward repair of damaged existing conservation structures and related measures. No estimates of the value of food-aid labor are available but as of February 1976, 60,000 Rand has been spent on this program.

The *fato-fato* program seeks to “build ownership to the land,” as one official put it to me.

In an ironic twist, the conservation programs were reborn with the Lesotho Highlands Water Project (LHWP) in more or less the same form as Jonathan’s food-aid programs. As a condition of providing credit for construction of the LHWP, the World Bank required the establishment of the Lesotho Highlands Revenue Fund (LHRF), to be financed by water royalties and used for development projects. After widespread misuse of the LHRF by unscrupulous politicians, the Fund was reconstructed as the Lesotho Fund for Community Development (LFCDD). Its organizing principle was that royalties should still be used for development projects, but that people in rural communities should be paid to do the work, paving the way for *fato-fato* (World Bank 1991). The communities were asked to submit proposals for labor-intensive projects, often taking the form of small irrigation dams and soil conservation works. Sympathizers of the BNP party, now in opposition, sarcastically

dubbed the programs “*fato-fato*” (Monyane 2005; Pule 1999). Despite these criticisms (and continued allegations of corruption associated with how *fato-fato* programs were allocated), the program was eventually taken up by the government as a permanent feature. Today, *fato-fato* is the primary means by which the government of Lesotho intervenes to rehabilitate or reclaim land.

Fato-fato—the Lesotho government’s principle tool for curbing erosion—refers to a government program administered by the Ministry of Forestry and Land Reclamation (MFLR) in rural areas. The MFLR pays (US\$4-5/day) a group of usually 20-40 people to carry out some kind of public works project related to soil conservation and pasture rehabilitation: tree planting, gully reclamation, shrub removal, and so on. In a country where many development and conservation programs fail to achieve their objectives or even come to completion, it is noteworthy that the stated national targets for annual construction of gully structures, stone lines, diversion furrows and grass sodding are often exceeded. The targeted 71 kilometers of stone lines in 2010/2011, for example, was surpassed by 650% - after having constructed 464km of lines (Lesotho Bureau of Statistics 2013a:4). The official name of *fato-fato* is the “Integrated Watershed Management Project,” providing 20 days of paid work for 100 people in each of Lesotho’s 80 constituencies—that is, a total of 96,000 people. One report (Tennyson 2012) showed that, prior to January 2012, 366 million Maloti were paid to nearly 388,000 workers since the beginning of the program.

Indeed, an entire Ministry was, in a sense, created for this purpose (also for the sake of expanding a civil-service-based patronage network – see Chapter 3). According to a Maseru-based environmental scientist critical of *fato-fato*, the Ministry of Forest and Land Reclamation was created after the 2007 elections as a kind of scheme to please people in the mountains. “It’s the biggest employer in the rural areas,” he explained, “but their activities are worthless. It’s a kind of money-laundering scheme.” They pay people to do something like build a berm or terrace for soil conservation, but the people they pay to do the work are so unskilled that the project ultimately produces some decrepit thing that will fall over in the following year. “Take the afforestation programs,” he went on. “Since I was a young man there has been this call to plant trees and, if you look at the records, the MFLR plant millions of trees every year. If they actually succeeded this country would be simply *full* of trees. But what happens is that they will go into an area and say to a community, ‘OK, we’re going to plant trees up in that area,’ but this is actually a grazing area. The people plant the trees but then the cattle head over and eat or destroy the trees. They might actually plant the millions of trees, but just a small few survive.”³⁷ In effect, the conservation work itself is arbitrary—what the government wants is to distribute funds to placate its citizens and secure their vote.

³⁷ Efforts to plant “millions of trees”—and low rates of survival—are not unique to Lesotho (e.g., see Mathews 2011).

The official, government-sponsored report on the state of the environment in Lesotho in fact determined that *fato-fato* is not simply bad at preventing erosion and reclaiming land, but that it is in fact harmful to the environment:

The Government of Lesotho adopted its sustainable human development policy in 1996, thus ushering in a new strategy of poverty alleviation. The policy also had significant environmental implications that were, arguably, not foreseen. For example, the heavy reliance on labour intensive methods under the “*fato-fato*” of the late 1990s laid more emphasis on giving people livelihoods through the food and money earned than on the actual infrastructure projects. The result of this has been catastrophic on the environment with a lot of road and dam projects ending up as catalysts of environmental degradation rather than, as was intended, development. (Mokuku 2004:14)

And, yet, the programs continue. For destitute rural people, the programs are certainly not useless. I have been to the registrations for *fato-fato* projects. People come out in droves, mostly by foot, and some from several kilometers away. The atmosphere can be like a fair, with people standing in long, winding registration lines, groups of people sitting down on the lawn eating or laughing or talking. In the queues, people jostled or laughed and talked. Everyone in each line was from a particular village, so every person there knew each other. On a couple occasions, people tried to cut in line or were accused of it anyway and they were sharply reprimanded by the entire line, with lots of cries of “*haebo*” and “*hela*” and others.



Figure 24: People wait to register for a *fato-fato* project in Mokhotlong District. Photo by the author.

Fato-fato shows how knowledge and administration of soils is not a universal scientific practice but rather a local, historical fact of a system of production and distribution. At the same time, it shows the need for the Lesotho government to produce jobs for rural people who can no longer access the South African labor market. While the narrative I've provided here suggests a tight linear succession across colonial and postcolonial periods, it has no doubt been a messier process. That said, the continuity is striking. On a hike along the ridgeline above the Benteke Valley one day, I walked with a woman who had gotten off the same bus as I and who was headed to a village called Ha Mathaba in the adjacent valley of Matsoku.

The ridgeline was rocky and vegetation was sparse, covered in either rock outcrops or thin, mineral soils. At a depression, where the soils were slightly deeper, I made out the parallel lines of a road running along the ridge and marked by a vague outline of stones. I asked her about the road and she said it leads to her village and that it was built during a *fato-fato* program of some sort. But it sounds like it was a food-for-work program actually. I asked her when these programs started and she said it was a long, long time ago. She said that she even remembers when her uncles who lived at St. Martins out toward Taung. I asked when that was and she said that it was, “maybe during the times of Dr. Jonathan, Dr. Leabua Jonathan – oh, no, actually it was before that, when Mr. Verwoed³⁸ was in power.” (*Ebe ka nako ea Dr. Jonathan, Dr. Leabua Jonathan – oh ah eh, e ne e le ka linako tsa pele, ha Nt. Verwoed o ne a busa.*) Her statement illustrates the continuity of these programs with colonial forms, even if only with regard to the public perception.³⁹

Soil Conservation, Distribution, and the State

Soil conservation, in effect, is a long-standing system of distribution, often derided by normative appeals to Weberian ideas in literature on the African state as a perversion

³⁸ Henrik Verwoed was a former Prime Minister of South Africa from 1958-1966, considered the architect of Apartheid.

³⁹ On another occasion, I was chatting with a friend about some relatively large pine trees that I saw growing on a hillslope above the road. I asked her who planted them and she said that they were planted by the people (*sechaba*) as part of a *fato-fato* project many years ago—she was not sure when but it was some time before the current incarnation of *fato-fato* began in the late 1990s. She went on to explain that if anyone grazes in that area, their animals will be impounded because they are a “development” (*ntlafatso*) area.

and corruption of the state (Médard 1982; Bayart 2009), but which could in fact be seen as a modestly successful effort to keep unemployed peasants from starving (Ferguson 2015). But this is not to say that it is comfortable. Indeed, the nervous laughs that I got from elites when I used the term “*fato-fato*” hinted at the discomfort of this “uneasy alliance” between elites and peasants.

As noted earlier, *fato-fato* was one of the first things that Masilo wanted to show me when I told him that I was learning about rangeland condition and management in Lesotho. When we arrived at one of these sites, he was excited to impress me with the scope of the operation – how many people there were working there, how much money it cost, the extent of the job. Then again, *fato-fato* is one of the primary tasks of his office, so he would show me lots of these projects over the course of my time in Mokhotlong.⁴⁰ MFLR officials are very aware of the absurdity of *fato-fato*. And, yet, they are also proud of this work and the amounts of money it involves – just like Tau from the LHDA. On one occasion, when I dropped by the MFLR office, Masilo explained to me that they were extremely busy because the

⁴⁰ The Forestry Department, the Range Management Department, and the Soil Conservation Department together make up the Ministry of Forestry and Land Reclamation. But sometimes their aims conflict in *fato-fato* projects, which, for example, will see forestry projects being erected on rangelands (and therefore encroaching upon rangelands). I recall a day when Mofokeng, Sechaba, Masilo, myself, and Stebo went out to visit a *fato-fato* site. The back of the truck was packed with hundreds of tree saplings for a forestry *fato-fato* project out at Libibing. As we dropped off these trees, I noticed some holes in the hillside. Masilo explained that these were part of the project, dug for pine planting. He had a wry smile on his face, and explained how the range management division is unhappy with this because it is rangeland and the trees will both crowd out the grasses and also out-compete them for water.

MFLR was just given a bunch of money for *fato-fato* (390,600 Maloti, or about \$39,000), which they must spend by the end of the following month. The money was initially given to the Ministry of Gender but they weren't spending it, he explained, so the Government decided to give it to a ministry "that knows how to spend money." When I asked what they planned to do with it he told me, "the usual": divergent furrows, stone-lines, gabions, shrub removal.

The overall aim of the *fato-fato* work, Masilo explained to me, is 1) to stop soil erosion, 2) improve the land, and 3) to alleviate poverty. As noted above, the MFLR tries to select sites with a range of issues to be addressed from the list of 5 things. The *fato-fato* projects are allocated according to a certain number per constituency per year. Regardless of the potential geographic differences in need, each constituency in Lesotho is given a set number of *fato-fato* projects. Masilo explained that they do five different things: stone-lines, silt traps, check-dams, gabions, divergent furrows, tree planting (both fruit and fuel), and brush control. The local councilors submit their recommendations for *fato-fato* project sites and the MFLR visits each site to investigate their appropriateness. ("Well," Masilo explains, "not *all* of them get investigated.") Out of the five that the councilors submitted from their areas, three were selected through this process. Masilo says that, when they visit the sites, they assess it based on a few different criteria. First, do the chief and the councilor seem to agree and be on the same page about this site, or does it seem like this is the first time the chief has heard about this? If they are not on the same page, then it indicates that there is probably not much public support for this. Second, is the

catchment a good size for a project? If the area is too large to be feasible or too small to be significant, then it is not a good candidate. Third, what activities can/should be carried out here, which effectively means “How many of the five activities can be applied here?” After this work has been done, he went on to explain, the MFLR staff put together a report, outlining how each of the sites “scored” with respect to their assessment, and why one site was chosen over another. Then, they present this report to the council.⁴¹

Masilo invited me to the meeting of the District Council on one occasion, where Masilo gave a presentation on the *fato-fato* allocations for the coming fiscal year. At Masilo’s turn to speak, he stood up and presented somewhat formally. He had been adding up figures and reviewing his documents for most of the previous presentation. He explained the good news first – that while there were two *fato-fato*

⁴¹ In a sign of just how politicized the program is, the final step for the MFLR is to train the four committee members of the *fato-fato* crew before embarking on the work. These four committee members are the foreman (the overseer/leader), the storeman (stores tools at their place), the secretary (each Wednesday, submits a report to the MFLR), and the *moemeli oa letona* (the eyes and ears of the Minister). I ask why there would be a *moemeli oa letona*. This last person reports directly back to the Minister’s office so that if there are any issues arising, the Minister is sure to be informed. He has a kind of look in his eye, and after delaying slightly, he continues to explain that it’s kind of a political thing. This Minister changed the system so that the District MFLR office chooses the sites in consultation with the chiefs and community councils. These four posts always existed, but the used to be elected. This meant that the people who were elected had an inordinate control over who was selected for the work in the first place (i.e., the work went to people who were members of that person’s party). Now, what has happened is that the selection process for workers has been made more transparent but the four person committee is selected simply by the Minister’s office. Those people are from that Minister’s party. This is beneficial to them because they get to work for the full 11 cycles (i.e., for the entire year, basically), while everyone else only gets to work in a one-month long cycle where they earn 974.80 Maloti.

projects per constituency last year, this year there would be three. He then passed out a document that showed them which spots would be selected and then went on to explain why those sites were chosen and how. He was reporting to them, and yet at the same time I could tell he was nervous.

After he finished, the acting Chair of the Council asked in a very frustrated manner why the particular sites were selected, suggesting that the sites must have been selected by people in Maseru who simply fly over the areas in a plane and pick them. Apparently, the councilor wanted his area to be selected for *fato-fato* but it was passed up. The issue with his site, Masilo explained, was that it was encroached by *lengana* (*Artemisia afra*), but *lengana* is not deemed suitable for removal because it is a native species and used for medicine. Some of the other councilors managed to calm the man down, and Masilo weathered the storm. Masilo tells me later that the guy should just sit tight because his area is actually slated to be done next year because it was given a score just below the others. Next year is an election year, Masilo explained, so it would probably be better for his sake to have the project going on while people are voting rather than in the current financial year.

Ultimately, it was clear that Masilo and the councilors were negotiating the distribution of *fato-fato* projects. This reveals perhaps the greatest irony of these *fato-fato* projects. For state and LHDA officials, the projects are both the symbol of state efforts to correct the past “wrongs” of rural people – that is, they are evidence of degradation and state efforts to make land productive despite rural people – as well as a tool to bring rural people into line. Range officials, LHDA officials, and everyday

people all told me about how *fato-fato* programs would be taken away from people if they were not responsible for them.

The laughter from elites about *fato-fato* made much more sense after this. *Fato-fato* was only a joke in elite crowds and only when it was me, a foreigner, using the term. I regularly heard elites use the term with other elites without eliciting any reaction. My outsider status exposed the uneasiness of the arrangement: Not unlike the white colonial populations in South Africa in the early part of the 20th century, who feared that soil erosion could lead to rural agricultural collapse and force Africans off their land and into white urban spaces, elites knew that the program might be ineffective at conserving soil, but that it was nevertheless a critical part of a social contract in the post-labor reserve. These elites understood the precariousness of Lesotho's rural society. Whenever I used the term with rural people, there were no titters and smiles. While they served as a form of rare employment for rural people and a sign that their local government was doing something for them, they bound elites to these rural people in ways that were embarrassing. Rural people aren't simply doing the work out of desperation, but rather because they are participating in a longstanding arrangement with their government.

Conclusion

Once justified on the grounds that it could retain sediment from the Lesotho highlands in the 1930s, the Lesotho Highlands Water Project would later morph into a water export project that largely ignored the problem soil erosion posed to the LHWP.

Concerns about soil erosion were tangled up in concerns about chiefly authority and the interests of capital accumulation. *Fato-fato* was initiated by British colonial officers, refashioned by the independence government of Leabua by the creative redirection of aid money, and refashioned again by subsequent governments partly through the use of money earned from the Lesotho Highlands Water Project (LHWP). We might return to the question I posed above: What could possibly be their relationship to the “real” infrastructures of transfer: the high-tech dam walls and tunnels memorialized in the LHWP’s promotional materials?

Those who seek to reform land use and land management practices in the Lesotho highlands are elites almost without exception—that is, they are rarely from the highlands but rather are from the lowlands. They see rural people as being too ignorant to manage their land.⁴² Given that MFLR officials are so strong in their opinions of rural incompetence and ignorance, it is ironic that few of the officers of the MFLR – ostensibly the technical advisors to the chief in proper range management – have any training at all in pasture science or range ecology. Instead, they are field bureaucrats who carry out a static and prefabricated set of activities defined by their supervisors and forebears. For decades now, the solutions proposed

⁴² For example, on one occasion, I asked a range management official about the conditions under which the DRRM supports the use of fire as a range management tool (e.g., for shrub removal), as I am aware that people in Lesotho are essentially forbidden from burning pasture. He explained that fire can be a productive tool for rangeland improvement but the DRRM doesn’t trust that people will do it correctly so they simply ban it outright. It is complex, he told me: One must burn in the morning before the wind picks up; one should burn going downhill (he can’t explain exactly why); and one must also burn in a zig-zag formation (drawing it on the ground for me), which helps to make it so that water won’t flow so fast downslope.

for development and conservation by the government, NGOs, and other conservation organizations has been two-fold: to establish user associations (e.g., grazing associations) and to produce physical soil conservation structures aimed at managing the flow of water downslope. These are pseudosuprainfrastructures: a type of infrastructure made deliberately visible, but which has no concrete functional purpose or effect. Instead, their purpose is obscure. As I sought to understand why *fato-fato* programs elicited laughter from elites, their purpose became clearer.

The LHDA is fundamentally interested in building the dams – not in long-term maintenance. There are tremendous political pressures to move dam projects forward, as they include huge amounts of money in contracts for design, construction and other enterprise. Moreover, the expected useful lifespan of a large dam is 50 years (American Rivers et al. 1999). This may seem like a short time frame, but the logic of the financial planning that produces this 50-year horizon gels with compensation policies and approaches for the LHDA. As I was told by a senior official from the LHDA, the compensation policy that will pay affected people for 50 years springs from this planning horizon. The temporality of the dam construction is made manifest in the materiality of the conservation structures, which are not produced to handle the major flooding events that will ultimately cause most of the sedimentation. Attending to the materiality and everyday practices of water commodification in Lesotho highlight an important temporal dimension.

The LHDA ignores long-term concerns for short-term successes, suggesting that commoditization can be as much about ignoring things than it is about action.

This temporality also configures the labor on the landscape, but it does so in tandem with the legacies of colonial anxieties about soil erosion, and the programs put in place by postcolonial politicians using development aid. In sum, the Lesotho government and the LHWP enact a particular kind of water and water-soil solution, one which clearly contradicts aspects of Lesotho's actually existing soil-water enmeshments. Put another way, the rates of soil-water flow described by its soil conservation infrastructure pronounce an environmental crisis borne of rural land use, as well as government efficacy in addressing the problem, but the temporality of its water production planning horizon is out of step with these solutions. This is partly because of lack of capacity, partly because the state and the LHWP are caught in local, historical conservation forms. But mainly because they act as a form of governance. While they appear ineffective at achieving their putative aims in soil conservation, these pseudosuprainfrastructures are in fact critical to the broader, water production infrastructure project of the LHWP. By providing impoverished peasants with a modest sum of money, the government prevents the structural contradictions of Lesotho's position as a water reserve from exploding.

At the end of a *fato-fato* registration that I attended near the end of my field research, the local councilor called all of the registrants together for an announcement. Everyone slowly crowded around in a circle, and he gave the floor to Lesiba, one of the MFLR officials. Lesiba began by warning the workers about truancy—if they report that they can't make it to work for the dates they've been assigned, their name will be dropped to the bottom of the list; if they miss a day of

work because they had to go to the doctor, for example, they need to get a letter from their chief or councilor and bring it to the MFLR office. Then he issued a threat, warning them that they need to keep their animals out of the area where the trees are planted. In general, they must protect the conservation works or else, he said, “the people who lift their feet,” a euphemism for the Lesotho Defence Force soldiers (*batho ba phahamisa maoto*) will pay a visit. He then gave the floor to Masilo, who emphasized this point but added that they would be fined 974R, the entire amount they are paid, if they were found to have damaged the area. One woman looked at her neighbor, raised her eyebrows and said “*Hey!*” (*He!*), as though to say, “Wow, that’s a lot of money!”

Driving back from the registration up the Mokhotlong River Valley, we passed by several *metsele-tsele* (stone-lines) that were built in previous years. In the first, one could barely make out the lines, as the rows of rocks were not very tall and perhaps some had fallen downslope. The area looked awful, with just a smattering of grasses and shrubs interspersing exposed rock. The only appreciable difference was that the hillside had lines across it. Masilo told me that this one was built in 2008. I asked him and the others in the car if it looked like it was helping and we all looked over at it – it was clear to all involved that it was doing absolutely nothing. Masilo turned to me and explained that “maybe they need to make it a *leboella* (rested pasture).” Somewhere between Malefiloane and Mokhotlong, we passed by another *metsele-tsele* and Masilo pointed them out, noting that “you can see a little difference

there” (*phaphang-yana e teng*). We looked over at it and gave a nod in a moment of silence, all trying to discern the “little difference” Masilo described.

INTERLUDE

MOTEBONG

I went out for a hike in the cattle post areas known as *motebong* above Mofolaneng on a bright April morning. I got lots of stares and quizzical looks when I departed the bus at the place called Hoekong, just before the road to Butha-Buthe reaches the plateau. The only people who visit *motebong* are herders and livestock owners, and they typically go by foot. There, herders stay for most of the year in small, dilapidated rondavels with a stone kraal. According to Lesotho's three-tier rotational grazing system, the "A" grazing zone corresponds to summer cattle post areas on the high-elevation plateau (>2900masl), open to grazing during the months of January-March;

the “B” grazing zone refer to winter cattle posts at a subalpine elevation (2290-2900masl), open to grazing from April-December, but with only sheep residing during the coldest winter months; the “C” grazing zone corresponds to the areas surrounding villages, where livestock are only permitted during winter, while birthing, for milking, or when subsisting on fodder. Hoekong sits at the far edge of B, before it transitions to A on the plateau. Being April, the herders had recently returned to these areas, where they will stay during the winter months.



Figure 25: A herder walks through an alpine wetland featuring thufur mounds at Hoekong. Photo by the author.

I had been to Hoekong numerous times before, and I knew some of the herders in this area. I hiked up the spur that bisects the Hoekong valley head northward. The Lesotho highlands are bereft of trees—and have been for 23,000 years or so (Scott 1982, 1984; also see May 2000)—meaning the views are majestic.

At the base of the valley head is a once-beautiful alpine wetland in a state of decay. Hooves puncture the plush, grass surface, leaving hoof-shaped holes. Thick clods of grass-covered soil hang from the wetland banks above the river, with piles of the dark peat accumulating above the water's edge. It is clear that this stream was once not a stream, but rather a gully cut into the peat. Despite the clear effects of trampling, the road is in large part to blame for this state of decay – the “*hoek*” of “Hoekong” (*lit.*, “place of the *hoek*”) is a hook: a sharp curve in the road as it switches back toward the plateau. Roads, which channelize water and thereby encourage erosion (Forman & Alexander 1998), have laid waste to many of these wetlands.

Lesotho's alpine mires are deposits of deep, black organic soils that contrast with the thin, mineral soils of the steep slopes around them. From afar, their outlines are particularly stark: their edges transition quickly from the small forbs and mat grasses that cover them to the vegetation types more typical of the hillslopes elsewhere: tussock grasses and dwarf shrubs. In the summer, annual forbs and grasses fill some of the spaces in between the shrubs. The mires are soft and they squish under your feet as you walk over them. Herders sometimes cut away a section of peat to create a drinking hole for themselves.

I walked up the spur toward the ridge. Cresting it, I sat for a moment to look out over the area. The rangelands can appear monotonous at a ridgeline view, but in fact there is tremendous variation. The palette of the landscape reveals aspects of its state and the conditions that structure it. A narrow band of open stream runs up the centerline of the valley, with shrubs and less woody species like *Stachys rugosa*. A

zone of organic, nutrient-rich soils, formed by deposition and livestock excreta emanates 2-3 meters out from the river. Steeply rising up from the river is a shrubby zone, whose species composition varies by aspect. Those facing south are dominated by *Helichrysum trilineatum* and favor the cold, moist, and slightly more acidic, mineral soils formed by that solar-temperature regime. Those facing north are dominated by *Chrysocoma ciliata* and favor relative warmth and the drier soils that have a lower organic matter content. The largest, oldest, and healthiest shrubs are limited to the lower reaches of the valley, growing smaller and less dense toward the upper reaches. There, they become interspersed with smaller forbs, smaller tussock grasses, and the characteristic *Merxmullera* tussocks spiking outward, whose high silica and lignin content makes it shine in the sun—good for grass-crafts like hats and trivets, but terrible forage. A steep grass-dominant zone at the upper limits that reaches around the valley and gives way at the top or at erosive noses to bare rock and gravel-pools where vegetation thins into the scraggly shrubs and herbs described above, with annual grasses like *Aristida spp.* interspersed. Brown bands of exposed basalt rock bending back from a spur express their continual exposure by runoff, trampling animals, and gravity.

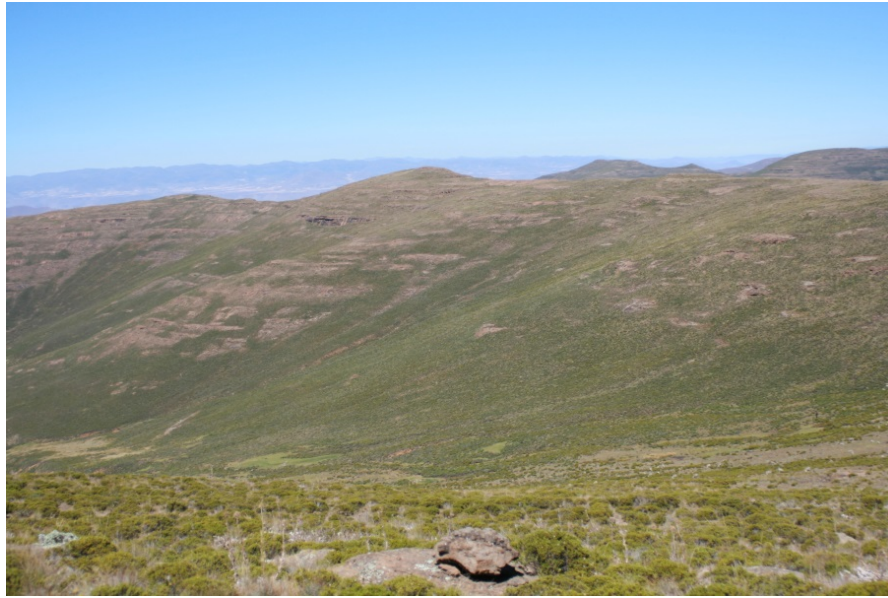


Figure 26: View of Mokhoabo-Motšo Valley from near the ridge. Small *H. trilineatum* shrubs dominate on this south facing slope, with darker green *Chrysocoma ciliata* dominant on opposite side. Photo by the author.

At finer scales, other colors come into view. On the ridge, where I sat, magenta mountain flowers splaying out from a bright, yellow disk; the uncanny yellow of *Macowaniiia corymbosa* set against its scraggling, brown branches; the pointed, white flowers of young or stunted *Helichrysums* standing at attention atop impossible mineral soils; and a mottled-brown lizard, darting underneath a rock ledge. Mineral sediments as well as organic plant matter are continually added to the soils on the slopes below, accumulating in a colluvial pan where the wetlands form. A distinct set of plant species grow bright green on the wetlands. Their lengthy root systems reach several feet into the soil profile. The absence of air in the pores between soil particles create conditions that prevent decomposition, meaning that organic matter accumulates and accumulates.



Figure 27: View of the Benteke Valley from just below the ridge, with tufts of *Festuca caprina* interspersed with small shrubs, as well as dense stands of shrubs in dark green areas below. Photo by the author.

Along the ridge, I spotted an area that was clearly burned within the last year or two, with a distinctly bright green zone filled with grasses and fewer of the dark green shrubs. It was well-vegetated with many different species colonizing the area, including both grasses and shrubs. It resembled an area that had been burned during my field research in September 2014. When I hiked through it in the month afterward, I found that almost none of the vegetation had visibly survived, with some rather large shrubs leaving behind only de-vegetated stems; a very sparse cover of grasses and forbs had begun to establish. When I visited the site again in February 2016, the place had already returned to a significant amount of vegetation. There were lots of shrubs (*Helichrysum trilineatum*, *C. ciliata*, and *Inulanthera thodei*) that had begun to regrow from root stock at the base of those same de-vegetated stems. Thus, while

pasture burning is a commonly used management tool across the globe to manage shrubs, it probably does little for these species.



Figure 28: *Helichrysum trilineatum* re-growing from basal meristem after a fire completely destroyed its above-ground parts. Photo by the author.

These shrubs grow into sunlight phototropically, meaning that despite their tough, woody stems, they do not necessarily grow upright. Instead, they can be found stretching across the floor as they age. At times, this decumbent form seems clearly related to trampling from livestock, such as when these shrubs lie prostrate but without nearby tall neighbors, as alongside cattle paths. Other species are fully decumbent, however, such as *Macowanii corymbosa*, *Euryops decumbens* and *Gnidia propinqua*. These species are slower-growing and feature hardier stems, often

growing on exposed areas near the ridge. People who work on *fato-fato* crews uprooting shrubs, as I describe in Chapter 3, know that shrubs all have tenacious root systems. Even in thin soils, the roots of young (~4-5 year old, 1m-high) individuals fix themselves doggedly into the ground. Under promising conditions, they can live for more than 10 years.



Figure 29: Rock outcrop on the ridge. Photo by the author.

Cattle posts are not situated arbitrarily throughout the landscape, of course. Typically they are within a short distance of a stream or spring, often perched on a spur or knoll. They are mostly found on the warmer, north-facing slopes, and sometimes two or three are grouped beside each other – the benefits being companionship and better security against thieves; the costs being increased grazing pressure in the immediate vicinity and the hassles of separating herds when animals mix.



Figure 30: A cattle post on a hillslope. Photo by the author.



Figure 31: Herder with hardhat at *motebong*. Photo by the author.

I saw a herder walking down toward the wetland and I decided to go speak with him. As I approached, he started singing loudly and did not respond to my calls. He clearly did not want to speak to me—it is impossible that he did not hear or see me, and declining a greeting is highly unusual in Lesotho. As I walked past his herd, I noticed several sheep were adorned with all manner of items: old plastic bags of various colors; flags that reach 1-2 ft. into the air; puffy bobs made of yarn on their foreheads; bits of garbage tied to dangling strings; and even a reflector vest from the mines or road work.



**Figure 32: Sheep adorned with unusual items, including plastic bags and yarn.
Photo by the author.**



**Figure 33: Sheep adorned with plastic bags and reflective clothing from mining
or construction. Photo by the author.**

After walking back up on the ridge to look out over the next valley head, I sat on another rock and ate some peanuts. In this particular valley head, I could see a herd of about 40 sheep, 30 goats, and 8 cattle – but I strained for some time to find the herder. I often found my sense of distance was compromised in the mountains. The massive field of view is extraordinarily disorienting. When I noticed him—a grey and black spot on the landscape—he may have been a kilometer away, but perhaps much closer. I called out to him in the way custom to the rangelands, with the long, drawn out pronunciation and ostentatiously masculine guttural register: “*Ntaaaaaateee, keaaaa tla hee, kea u lumeliiiiiiisa!*” (Hey, I’m coming over to you to greet you!). He hollered something back—most of it was indecipherable to me, but it included an affirmation.

The herder was a grown man, which was unusual given that many in these B rangeland areas are between 14-20 years old. Herders were not always so young, but the migrant labor economy meant that, while older men were away working in the mines, their children took their place. When arriving at working age, those young men would head to the mines and younger ones would take over at *motebong*. We walked toward each other across the wide valley bowl, and he corralled some of his sheep and goats together as he went, whistling and shouting, throwing an arm up the air. He picked up a rock and threw it sidearm at a sheep, nudging it away from the perimeter of the herd. He wore typical herding clothes: tattered pants, gumboots, a shirt, and blanket. As he threw stones, his blanket rose at the arm and got caught by the wind, which blew it back along with the rest of the blanket beneath his waist. His

balaclava was stretched and sagging beneath his chin to frame his entire face, yet he nevertheless had a habit of pulling it down from time to time as he spoke. His blanket was, like all herders' blankets, old and torn. His black boots had patches at the key points, at the toe crease and elsewhere along the sole. His socks were the standard set of stockings, bunched up at the top of the boots where they were tied with a string to fasten them just above his calf.

His name was Mothusi. I told him I was interested in talking with him about herding and rangeland condition and we sat down on a grassy patch, surrounded by small, *H. trilineatum* shrubs. It was not so windy on this side of the valley, but this is relative. He was from a very distant village near Thaba-Tseka District, and had only been herding at this cattle post for one season, working for a man from Tlokoeng. Like many herders, including younger ones, he is an itinerant laborer, who moves periodically from one cattle post to another. Many herders I met were from the most rural of villages, but hired by wealthier livestock owners from towns like Mokhotlong, Mapholaneng, or Tlokoeng. Mothusi was clearly extremely poor. He had no animals to speak of, having lost most of his small herd over the previous few years to drought, theft, and sale. He was 50 years old, meaning that he grew up at a time when mining employment was relatively abundant and nearly a rite of passage for young men across Lesotho. Yet, he never did work in the mines. I was surprised. Did he not want to work there, I asked? He wanted to, he explained to me, but after having done some "piece jobs" in South Africa while looking for work, he was robbed at knife-point and decided to come back to Lesotho where he worked as a

builder. His wife died a few years ago and they were never able to conceive children. With no construction work in Thaba-Tseka, no support from children, and a diminishing herd of sheep and goats, he decided to return to herding at the cattle post, as in his youth.



Figure 34: A young herder wears a hardhat while out on the range. Photo by the author.

Mothusi's twelve months of work at *motebong* would be compensated with livestock, as for other herders at the cattle post: either 12 small stock (sheep, goats, or a combination of the two) or one head of cattle. This is the same amount herders have been paid for at least fifty years, as was confirmed to me by men in their 60s and 70s who recalled being paid the going rate. Some herders I spoke with talked of their dreams to get a job in the mines, even despite the odds against landing one. Others sought a life as a farmer, building up a herd, selling an animal when cash was needed, trafficking sheep to butcheries over the border in Qwa-Qwa, selling the wool and

mohair from small stock, and eventually hiring a herder to keep their animals at the cattle post when their herd grew large enough to pay one (see Chapter 5). Sometimes wearing hard hats and mining clothes as they navigated life at shrub-encroached cattle posts, these herders inhabit post-industrial landscapes, where wool and mohair is produced for global textile markets; meat for the South African proletariat; and the poor serve the rich.

The “imperial debris” (Stoler 2013) of mining is palpable here, in this post-industry. What is the relationship between the landscape patterning of vegetation and erosion and that political economy? That is the question to which I turn in the following chapters.



Figure 35: Young herders at a tin-roof cattle post. Photo by the author.

CHAPTER 3

FERAL POLITICS IN THE BACKDRAFT OF EMPIRE: OR, HOW EFFORTS TO REFORM LAND MANAGEMENT IN LESOTHO HAVE RENDERED REFORMS IMPOSSIBLE

According to a widespread Euro-American myth of the late 20th and early 21st centuries, democracy, development projects, and the state are antidotes to African traditionalism, or, variably, antidotes to the lamented perversion of African traditions. So it goes in Lesotho, that garden where development projects grow, perfectly surrounded by South Africa, impoverished, and prostrate before those who develop the developing world. And, yet, as James Ferguson (1990) famously pointed out, this

work consistently – over many decades now – fails to transform rags into riches. The myth pretends to explain these failures: Lesotho’s political institutions are but hollow figures of the real thing. Under the phallogocentric word of law such a myth envisions, there is only misappropriation and misinterpretation. Their leaders cannibalize institutions for short-term, personal gain. Ostensibly universal forms hopelessly mired in local particularity. These are feral forms – rational-bureaucracies run wild.⁴³

But what if, in fact, it was the opposite? What if it were the colonial reforms, conservation programs, and development projects strewn across Lesotho’s landscapes that have run wild, cannibalizing existing institutions, instituting reforms here, new institutional forms there, before disappearing and returning again for another round of reforms? In this chapter, I suggest this is the case, examining efforts to improve the condition and management of Lesotho’s rangelands through “users associations” and community councils that are ensnared in—and ultimately undone by—the debris of earlier imperial designs (Stoler 2013).

Scholars in the study of development have shown how development initiatives fail by neglecting to take account of the political and economic structures that gave rise to the “underdevelopment” in the first place (Blaikie & Brookfield 1987; Blaikie 1985); because they seek to import foreign values and concepts (Li 2007); because they are based on false premises and used to advance the political projects of others (Escobar 1994; Ferguson 1994; Isaacman & Isaacman 2013); or because their success

⁴³ See Tsing (n.d.), “Feral Biologies.”

or failure depends as much on the representation and interpretation of development activities as it does on the achievement of certain goals (Mosse 2005). Here, I suggest that, like the proliferating bureaucratic forms and categories described by Ramah McKay (2013), actions to improve rangelands in the present are undermined by similar actions in the past. The concept of “ferality” conjures well the fall from rational-bureaucratic grace that development-conservation projects imagine in Lesotho. But like the colonists in Colombia described by Michael Taussig (1991) in *Shamanism, Colonialism and the Wild Man*, imperial projects themselves have a feral quality about them as they multiply and recede, leaving conflict, contingency, and confusion in their wake. That is, the image conjured by development-conservation projects that feral rational-bureaucratic forms are perverting an otherwise coherent institution is but a reflection of themselves. Indeed, this is a conceit of bureaucracy: the notion that bureaucracy is first objective and systematic prior to becoming compromised by its agents (Hoag 2011).

As a result of concerns about the contribution of livestock to rangeland degradation and soil erosion in Lesotho, grazing management schemes have been proposed repeatedly over the past decades (Bainbridge et al. 1991; Quinlan 1995; Ferguson 1994; Nüsser 2002) alongside the physical conservation works described in Chapter 2. For example, grazing associations have been propagated throughout Lesotho since the 1980s, community cooperatives invested with limited and ambiguous authority by chiefs and the state government to manage grazing land. These programs do not necessarily cause or halt land degradation, but they do manage

to gather and consume money allocated to environmental management, ensuring that international environmental commitments keep elites in place. As I show in the pages below, everyday people are skeptical of their potential, but nevertheless stand at the ready, watchful for those projects that might channel resources their way, occasionally hopeful that projects might have their desired effect.

Using the extended case method pioneered by Max Gluckman (1940) and others affiliated with the Manchester School, I depart from what he called a “social situation,” analyzing what the spatiality, signs, and practices of the situation say about broader social processes. After presenting an opening case, I work backward to consider the ideas and events prior to it that gave it shape. Gluckman’s insistence on refusing the conceptual divisions used to understand social groups (African and European, in his case) is relevant to this scene here, where a similar binary conception of social life dogs our understanding of the state and society. Scholarship on the anthropology of the state has shown that states are co-productions by state functionaries and so-called everyday people (Mathews 2011; Jasanoff 2004; Lipsky 1981) and that, in contrast to the commonplace notion that states are centers of rational-bureaucratic power (Weber 1946), they are fragmented, contested, and paranoid (Li 1999; Nugent 1994; Gupta 2012; Hoag 2010), relying on performance to convey their authority (Mitchell 1999). Describing the everyday practices of state functionaries—civil servants, police officers, etc.—allows us to see the ways that the state is continually made and unmade in relation to specific contexts. Through historical and ethnographic attention to state-making in Lesotho, I show how the

legacies of earlier forms of state-making impinge upon later ones. An important consequence is deep confusion surrounding the goals, reach, and power of the state, but also a continual production of diffuse and faded state power in relation to the aid industry.

This chapter shows that imperial practice can be thought of as what G. Evelyn Hutchinson (1957) called, in a very different context, an n-dimensional hypervolume. Hutchinson's concept was developed to describe niche partitioning in ecological space—that is, the exploitation by organisms of food sources or other strategies relevant over the course of its life cycle that do not overlap with those of other organisms. These institutions and practices represent what Ann Laura Stoler (2013) calls “imperial debris,” the remains and traces of empire that determine how spaces are understood, how politics can be done, and how subjects are formed. The spasmodic construction of imperial niche space to enable new forms of extraction leaves behind remains with which subjects and the powerful alike must contend.

The material presented here also suggests the importance of caution in using the category “expert” and the imagination of state power in nature conservation. There has been some debate in the discussion of environmental conservation surrounding the ways in which powerful or hegemonic ideas about humans' role in driving environmental degradation are exerted by states and conservation workers onto peasant communities (e.g., Peluso 1992; Jarosz 1996; Forsyth & Walker 2008), or whether these claims might have value (e.g., Beinart et al. 2009). For example, Helen Tilley's (2011) important book contests the commonplace notion that colonial

scientists in Africa disregarded local, African insights and used Western science to advance the colonial agenda. She describes colonial epidemiologists, ecologists, anthropologists, and other scientists associated with the African Research Survey who were quite sensitive to the contextual particularities they faced (cf. *inter alia* Showers 2005; Leach & Mearns 1996). The case of civil servants and other conservation workers in Lesotho is more sympathetic with the earlier critique, but it suggests an important distinction between basic research contexts and applied contexts. The conservation workers I describe here are not “experts” but rather front-line civil servants tasked with executing general orders in a context where they have almost no local knowledge. This is not to say that their knowledge isn’t somehow “vernacular” or situated. Their beliefs are universalizing but not universal—formed by their understanding of rangelands from the roadside and practical in their ability to map a simplified and implicitly anti-rural template upon a complex ecological field, as we saw in the previous chapter.

The Impoundment

I managed to get a lift up to the uprooting site in the morning – a government truck heading to the lowlands from Mokhotlong. It was a good thing, too, because I slept late and would have arrived well after the start of the work day at Motšerimeli. Plus, walking all the way out there is a pain. The site is several kilometers from where most of the workers live and where I had been staying, unlike most of these *fato-fato* projects, which are typically in or just outside a village. Between the distance and the

dust, it is amazing that any of these people agree to do this work for such little pay. R978.40 (US\$100) for twenty 8-hour days of hard, manual labor. It works out to about fifty US cents per hour.

I had come to work on the *fato-fato* crew that was uprooting shrubs. The Motšerimeli Valley was densely covered in shrubs. All but the uppermost parts of the ridge are dominated by them, the most abundant being the Asteraceae species *Chrysocoma ciliata*, *Helichrysum trilineatum*, and *Pentzia cooperi*. My anthropological training taught me to follow the interests of my informants, so when officials at the Ministry of Forestry and Land Reclamation (MFLR) invited me enthusiastically to see this project, I began learning about the history of the place and the shrub-removal project that was ongoing there.

The most remarkable thing about the project, not lost on anyone, was not that lots of shrubs had been uprooted, but rather that livestock had more or less successfully been kept out of the area. Somehow, the local Grazing Association, chiefs, councilors, and the MFLR had convinced people either that it was in their interest to stop grazing there or that the threat of heavy impoundment fees was real. Those threats are typically hollow, and people know it. The rangelands are expansive and mostly far from the roadside. Impounding livestock requires a real commitment: two witnesses out there to actually see the animals and report it to the chief and some rangers who are willing to do the impoundment. This is a rare combination.

Warming up in the morning sun, I sat with the other workers and chatted ahead of the work day. The *foromane* (“foreman,” but in this case a woman),

‘Malineo, and others discussed a story about a *fato-fato* foreman in the neighboring Khubelu Valley who had his house burned down after he impounded someone’s livestock that had been grazing in the closed area of the *fato-fato* project he was managing. I was shocked. She laughed nervously and explained to me with a look of trepidation: “these people don’t play around” (*batho bona ha ba bapale*). I asked her if any animals had been grazing in Motšerimeli before and she said they had, but mostly in the areas up the valley that had not yet been uprooted. In effect, the *fato-fato* foreman and herders were negotiating a relationship at the boundaries of their respective designated spaces.

Eventually, some began standing up and preparing to work. We divided into two groups and started working. Each group lined up along a different area of shrubs, ours slightly further down the valley from the other. With a pick, I formed part of the front line, slashing and digging out the shrubs before the rear guard hauled them away and placed them in a pile behind us. We chatted as we worked, men and women, young and old. I was impressed by just how hard everyone was working.

As we worked, cattle appeared from behind the spur further down the valley, slowly lumbering in our direction and periodically stopping to graze as they walked.

I took a break from work to rest my arms for a moment and looked around at the others. Down the hill, the *foromane* was speaking with another woman, looking down the valley at the cattle. The animals were unmistakably in the closed area, the one that was uprooted last year and which had been opened to grazing for just one month in September. Nobody could have been mistaken that the area was closed

again, as the closure has been closely followed by livestock owners who had surely, in turn, informed their herders. The *foromane* had apparently indicated to someone on the crew that they should impound the animals because a man from the crew up the hill from us began packing up his things and preparing to leave. He seemed confident and almost excited—possibly explained by the fact that those who impound livestock are entitled to a portion of any fines that are received.⁴⁴ But when he enrolled another man to accompany him, this second guy was visibly reluctant. His face seemed to say: “We don’t even know whose animals these are and I don’t really have the energy right now to get into a confrontation.” But he went anyway, pressured by his friend and the rest of the group, every member of which was staring at him. We counted 18 head of cattle.

Later that day, the mother of the family I stayed with, ‘Mamamello, informed me that the animals belonged to a man named Liau. I was stunned. Liau is the Assistant Chair of the Grazing Association, the organization that ostensibly had been responsible for deciding when to open and close the area. This obviously would not play well with the community at large, which was sure to think that Liau sees himself above reproach on account of his position. At the least, people might not take the closure too seriously. The fine could be as much as R900, given that this *fato-fato* area is considered an “*ntlafatso*,” or “development” area. This is a huge sum of money for Liau.

⁴⁴ That impoundments happen somewhat infrequently despite this fact is testament to the social and political sensitivity of enforcing range regulations.

In the following week, I attended the monthly meeting of the Mofolaneng Grazing Association's executive committee, interested to see how they would handle the issue of Liau's animals having been caught grazing in the *fato-fato* area. I sat and waited while the committee members rolled in. At *moreneng*, the part of the village where the chief lives and where such meetings are held, people milled about as usual. Young men leaned against the stone kraal as they waited to buy or sell animals; men and women sat and stood near the small, two-room building where *lekhotla* (the village court) would be held, and which was under construction at the time. Several horses wandered about around the area, grazing on the closely cropped mat grasses growing around homes. It was sunny, windy, and cold.

Lekhotla was previously held in a small, nearby rondavel. But half of its roof had blown off and the walls were crumbling, so the court began charging people small bits of money to access the court and, over the course of a year, raised enough money for the new building.

It was odd that Liau's animals were impounded, not only because he served on the grazing association's executive committee, but also because he is what one might call a "development agent"—one of those people who is known by development workers and government officials as being ready and able to be a part of an initiative. Every village in Lesotho has one or two of these people. So I would have expected him to be on the right side of development initiatives like this *fato-fato* project.

Liau showed up on horseback, wearing the floppy sun hat he so often wore. Ntloko, the Chair of the Association showed up shortly thereafter as did Tefo, the local extension officer for the Ministry of Forestry and Land Reclamation (MFLR). Extension officers are locals who receive some training and are employed by the civil service to liaise with other locals on behalf of specific government departments. Instead of wearing the herder's blanket that Tefo sometimes wore on these trips to "the field," he was dressed in somewhat nice, business casual clothing: a canary, long-sleeve button-up shirt with grey slacks and black shined, leather shoes. The councilor was out of town for a professional training and could not make it. We waited for the chief.

As we waited, my friend Motlokoa sauntered over from his home up the hill. Motlokoa had expressed to me his dislike of the Grazing Association many times before – "What do they do?" he would ask me. Anyone can graze anywhere, he explained, and the rules about who grazes where and when are set by the Principal Chief. So, what's the point? Perhaps because he knew I was interested in such things, but also because he was a confrontational person, he decided to ask Ntloko, the Chair of the Association, right there in front of me. "What's the benefit of the Association (*Molemo oa mokhatlo oo ke eng*)? Isn't it true that I can graze anywhere I want there [gesturing toward the mountainsides around us], and nobody can refuse me?" (*Ha ke re 'na nka fulisa hohle moo, ha ho na motho a ka hana?*) He posed the question in his characteristically jovial but confident and domineering manner as he rolled a cigarette, periodically looking up at Ntloko. Ntloko seemed intimidated and defensive

and he could not manage to justify the existence of the Association with anything more than a chuckle and some mumbling about how he and the other members are trying to improve the rangeland.

The chief finally showed up in his typical, mixed-casual attire: a tan, long-sleeve button-up shirt with black slacks, a pair of purple slippers, and a conical felt hat. In fact, Morena (Chief) Rethabile was working in an “acting” capacity. When his uncle died recently, his other uncle, Lebohang, was set by the customary succession to become chief. Lebohang, however, declined to become chief on account of the fact that he had a good job at a diamond mine in Lesotho and becoming chief would require him to quit that job to live in Mofolaneng full time with a much lower income. Next in line would be Lebohang’s younger brother, Motlokoa—but concerns surrounded him, being famously rambunctious and uncouth. Motlokoa would probably have taken the position, too, having been forced out of his lucrative job as a machine operator at a South African mine in the previous year, when both his legs were broken in an accident.

We headed over to Lebohang’s five-room house, the family room of which became unusable as living quarters after the corrugated tin roof was partially blown off during a storm and never repaired. Now, it serves as a storage room for some unused pieces of furniture, bags of cement, and agricultural implements. But while the new court is being built, some meetings are held here. The floor is half-covered by squares of carpet, many of which have been water-damaged and pulled up from their glue mooring. They slide around on the ground as people walk past.

The GA members and the chief lamented the fact that, while this was an executive committee meeting, only three of the seven committee members were present. The two councilors of the area were there, although one of them would leave about halfway through. While we waited, I asked about the history of the Association. They told me that it was started in 2000 when a project came in and suggested the idea, though they could not remember what the name of the project was—something about improving the rangelands, one of them said.⁴⁵ The Association had substantial membership (more than 200) at the outset, they explained, but membership declined through the years. Then, at the beginning of last year, a Germany-financed project called GOPA, interested in protecting Lesotho’s alpine wetlands for the sake of the Lesotho Highlands Water Project (LHWP), came to Mofolaneng and held a *pitso* (public, open-air meeting). The *pitso* got everybody interested in it again. GOPA and the Association told everyone that they were going to be really serious about impounding livestock found grazing without Association-issued permits. Government officials and the police were present and they managed to get people scared enough about the seriousness of the risk of impoundment as well as excited for the possibility that something might come of this project, whether that was rangeland improvement or opportunities afforded by the project, such as work or food. After that meeting, their membership spiked up to 285, but it fell again to 87 this year. I asked why they thought membership had declined. They explained that there were some

⁴⁵ It is probably the Maluti-Drakensberg Transfrontier Project (MDTP), an infamously unsuccessful nature conservation project that sought, in part, to preserve Lesotho’s biodiversity through rangeland reform (Büscher 2014).

impoundments and people saw that the GOPA project was serious, but then many people saw that some who didn't have permits were not impounded. They became sour and disregarded the Association once again, declining to join again this year.



Figure 36: A man speaks at a Grazing Association meeting. Photo by the author.

After a prayer, the meeting started with Ntloko explaining that the main order of business was to tell people that Motšerimeli will be opened to grazing again for one month, but only to cattle, which do not eat so close to the ground, and that people must procure permits to do so. The only problem, he noted, was that they are all out of permits – they asked Tefo to get them some. The chief then interjected with a pointed question: “What exactly is your work up there?” (*Mosebetsi oa lona ke*

ofeng?), essentially upbraiding them for not being able to prevent people from grazing in the *fato-fato* area. He said that “[the foremen of that *fato-fato* crew] are always complaining about the animals that stay at the cattle posts at Hoekong [which have been encroaching on the area].” (*Bo-‘m’e ba ntse ba lla ka liphoofole tse lulang hoekong.*) Ntloko replied that they are trying but “*mokhatlo o qhaqholotse*” – the association has fallen apart.

The conversation then turned to Liau’s impounded animals—although, of course, they had been talking about Liau all along. Tefo was particularly hard on Liau, who defended himself by saying that there were other animals in the area that were not impounded (almost certainly not true). Trying to get on the offensive, he asked why only his were impounded. He also said that they were not impounded by an order from the chief so it was not legitimate. Tefo said that they were impounded by people working for the government in a “development” (*ntlafatso*) area, so it was therefore legal for them to have done so. Liau was being respectful but also struggling to defend himself against a pretty aggressive Tefo, who seemed a bit over-eager, perhaps wanting to prove something to me or others in the room. The chief suggested that they call in the two foremen, who were standing outside at the court. They are asked to give their side of the story. Interestingly, ‘Malineo lied, saying that she was not there because it started raining and they knocked off early. She said that she received a call from her workers, who told her that they would impound the animals. She consented to their decision.

The foremen were excused and Liau was scolded by Tefo and the chief – but not fined. I asked Tefo later why he wasn't fined and he told me that it was clear the chief didn't want to do so, suggesting that he probably felt bad, knowing that Liau couldn't pay the fine. He would therefore have to send Liau to jail, which the chief knew was not right.

Analysis of a Social Situation

Political institutions for managing land in Lesotho are a palimpsest of past reforms. The foregoing passage described a landscape “reclamation” project that was descendant from British colonial road construction projects (see Chapter 2), organized by the state government's rangeland technical advisory department, and executed by the ostensible representatives of the Principal Chief, the Mofolaneng Grazing Association. That Association was initiated by a donor financed conservation effort, undertaken as a cross-border endeavor with South Africa, called the Maluti-Drakensberg Transfrontier Project, but withered in the years since. The association was later resuscitated by GOPA, a German-financed project to preserve Lesotho's wetlands for the sake of the Lesotho Highlands Water Project. The landscape reclamation project area was designated an *ntlafatso* development area, meaning that impoundment fines could exceed the typical rates for animals impounded in chief-controlled *leboella* areas that are periodically closed to livestock. But the prohibition against grazing in that area was broken by a high-ranking member of the Association tasked with maintaining grazing restrictions in those *ntlafatso* and *leboella* areas.

In this and the following sections, I explore the origins and implications of this encounter, and what they say about the grazing management in postcolonial states like Lesotho. I begin by describing the difference between *puso*, the domain and responsibility of chiefs, and *ntlafatso*, the domain and responsibility of councilors, and provide a historical account of the changing position of chiefs in Lesotho and Africa at large. For Lesotho, I narrate this story in relation to colonial and postcolonial efforts at nature conservation and at development, describing the rise of and logic behind various parallel institutions tasked with managing rangelands. After describing how they converged upon the scene in Mofolaneng just described, I present another scene that captures rangeland management and the ambiguities stemming from this historical process, from the perspective of civil servants.

Puso and Ntlafatso

The application of the term “development” or “*ntlafatso*” by Tefo was significant and relates to two of the major political institutions at hand: the chieftaincy and local government. As was explained to me by a councilor named Thokoa, councilors are in charge of *ntlafatso*, whereas the duty of chiefs was *puso*. *Ntlafatso* is sometimes translated as “development,” although it literally means “making nice” or “improving.” *Puso*, on the other hand, derives from the verb *ho busa*, “to govern” or “to manage.” Thokoa explained: “If there is a project to build a road, for example, then it is the councilors who will manage the process of getting workers. Chiefs, on the other hand, are the ones who will sort out disputes between people.” In short,

councilors make improvements and chiefs keep the peace. In development (*ntlafatso*) areas, conservation workers like Tefo and Masilo relished the fact that their separate classification allowed them to impose larger fines for impounded livestock—they believed the current fines to be too low to deter grazing in closed areas.

For example, at an event celebrating the success of the shrub removal program discussed in Chapter 4, the Local Councilor was being interviewed by a Lesotho Television reporter and she described her position in the following terms: “I am the builder of Mofolaneng, specifically in the place known as Tšepong” (*Ke moahi oa Mofolaneng, sebaka se bitsoang Tšepong*). Her use of the term “builder” reinforces the *ntlafatso-puso* dichotomy that distinguishes councilors from chiefs. Chiefs are born into the office and manage the fruits of nature, while councilors make “development” and “improvements” by improving the land for production.

Politics in Lesotho does not allow the clean distinction between moral arbitration (*puso*) and development projects (*ntlafatso*) that Thokoa and others described to me. The distribution of resources involved in development projects is always a matter of moral arbitration. The relative sway that chiefs or councilors have over their people varies from place to place, and the two figures compete in many places for relevance. Neither chiefs nor councilors are particularly well-liked by everyday people, though the government that took over in 1993 after Lesotho’s long period of one-party, military rule has shown a clear preference for councilors. Councilors have been given increasing authority and responsibility in matters of local government according to the process of “decentralization” that has been pushed by

foreign donors and therefore the Lesotho government in the past decade or more. Chiefs are paid a small monthly stipend, but it is considerably less than councilors receive. Chiefs are often depicted by government officials as unknowledgeable and uneducated, though councilors are given regular trainings on new legislation or government programs—and the trainings take place in hotels in the provincial capital, where participants are well-fed and given reimbursement for travel. This is not to say that chiefs are “good” and councilors are “bad.” Many ordinary people in Lesotho are critical of chiefs for being lazy, absent, and easily bought. The grazing associations that I describe later in this chapter are a good example of the ambiguity between statutory and chiefly domains.

These two institutions—the chieftaincy and local government—have been at the center of debates over the nature of legitimate state power and national identity for many decades. Chiefs are an hereditary line of authority attached hierarchically by law to the King of Lesotho (*Motlotlehi*), a system that was formalized in early colonial times, and whose powers were established through the British policy of indirect rule. Councilors, by contrast, are elected officials who form part of “local government,” established between 1993 and 2005 to do the work of local government that chiefs were alleged to have failed at. Lesotho is sometimes described as having a legal dualist system of government (Poulter 1972), but the notion of “legal dualism” implies that there are two separate legal codes and therefore political authorizes running in parallel. Quinlan and Wallis (2003) are right to assert that there is nothing “dual” about the system, in the sense that chiefs are legally and practically entangled

with the state in many ways. The arrangement has gone through waves of centralization and decentralization. Though the country is currently undergoing a round of decentralization, centralization was the predominant paradigm during one-party rule 1970-1986. Under colonialism, rule was highly decentralized, with chiefs effectively administering the bureaucracy and also government on behalf of higher chiefs—particularly in terms of the land allocation system (Leduka 2007:92).

These designations concerning authority and improvement represent contests over space and power. Livestock owners and largely sympathetic chiefs (who are also livestock owners) have repeatedly prevented the state government from raising fines or instituting grazing fees (Turner 2004), so the state government—largely staffed by urban Basotho who are less sympathetic to the chieftaincy—has sought to work around them by instituting categorical distinctions such as *ntlafatso* and *puso*. Mahmood Mamdani's (1996) examination of the legacy of colonial power in Africa illuminates the fundamental historical processes that have shaped Lesotho. He identifies “decentralized despotism” as the signature consequence of late colonialism. Chiefs and other “customary authorities” were imposed and entrenched in rural areas by colonial administrations and given despotic powers. Figured as the ahistorical arbiters of African socio-political life, chiefs eventually become both artifacts of colonial rule and facts of an imagined precolonial life. The image of the autocratic, hierarchical authority of pre-colonial chiefdoms is a colonial product (Ranger 1983): on the one hand, it was formalized by colonial administrations; on the other, colonial administration (and later democratization) was presented as the remedy for African

tendencies toward autocracy. Mamdani explains that urban areas, by contrast, were created distinctly as zones of civil society that excluded. In rural areas, Africans could be “themselves”; in urban areas, they could be liberated by Enlightenment ideals. In both locations, the terms of life and power were rigged against them, however, and this fragmentation of the “native population” fragmented resistance to colonial rule; movements of resistance against colonial rule held “the seeds of their own destruction” (1996:24) when they mobilized on ethnic grounds. Councilors in rural areas are no less “rural” than the local chief, so the “dualism” operates upon a different set of axes.

Chiefs, the State, and Rangelands in Lesotho

The story of the decline of chiefly power in Lesotho is not a story of “modernization” or the withering of tradition in the face of globalization. It is instead one of the endless fragmentation and manipulation of Basotho social orders by colonists, development experts, capital, and local politicians. As Coquery-Vidrovitch (1976:247) asks: “How far back do we have to go to find the stability alleged to be ‘characteristic’ of the [African] pre-colonial period?” As anywhere, social and political formations are constituted by layered, sometimes conflicting historical legacies. In Lesotho and other postcolonial nations in Africa, however, a long history of temporary development institutions has created an especially palimpsest-like situation.

The British handed control of Basutoland over to the Cape Colony in 1863. The Cape Colony spent an incredible sum of money and troops in 1880 to disarm Basotho who had been purchasing guns with wages from working on the mines. But Cape Colony soldiers were summarily rebuffed and decided to hand the territory back to the British. Kimble points out that the war was triggered as much by the earlier effort to double the rate of the hut tax from 10s to 1£ in the 1870s, as it was by the disarmament (1999:50). In the interwar period, a dip in the supply of Basotho labor in the diamond mines led the British to enlist the chiefs in expanding the net of taxes onto people in rural areas and compelling them to work on the mines to pay it. But the hut tax led to the general monetization of the economy and not simply the push toward labor migration, as Kimble notes (1999:28).

King Moshoeshoe I's innovation was to expand and up-scale his network of political patronage by redefining institutions that had existed on much smaller scales previously, including many of those that feature prominently in this dissertation: *motse* (the village), *pitso* (open-air, public meetings), *maboella* (areas protected from grazing), *khotla* (the village court), and *matsema* (tribute labor by commoners in chiefly agricultural fields) (see Kimble 1999:8-22). Together, this enabled his tributary mode of production, by which subjects ostensibly received protection and prosperity in return for their offerings of labor, livestock, and agricultural harvest, to establish itself and flourish (Kimble 1999:16). Population statistics are a sign of the success of his innovations to expand his state, whereby Moshoeshoe's following of about 3,000 in the 1820s rose to 80,000 by 1847 and to 125,000 by 1869 (Kimble

1999:16). This system came under strain in the colonial period, however, when Basotho were pulled into the mining labor economy and Basutoland's agricultural economy was undercut by South Africa's capitalization of settler agriculture through loan banks and the expansion of other credit institutions (Kimble 1999:54).

Many of the rules and concepts that concern pasture management today pre-date colonial rule, but were formalized and codified under the British. The Laws of Lerotholi are the primary example. Initially established under the rule of Moshoeshoe's grandson, Lerotholi, the codified Laws both enshrined chiefly authority and undercut it. In 1903, the Basutoland National Council, a body including 95 chiefs and councilors with the Resident Commissioner as President that was established by the colonial administration that year, undertook a review of the Laws of Lerotholi and decided to change certain elements, including a limiting of the authority of the traditional courts (*makhotla*) (Kimble 1999:106-7). The colonial administration was content with the discrepancies in the authority of the courts and oversaw the selective application of these laws in ways that enshrined ultimate colonial authority and undermined or confused the authority of chiefs and their courts (Kimble 1999:107). The Laws also came to reflect colonial anxieties about land degradation as they were amended, with numerous provisions to protect areas from soil erosion. These anxieties likely had some basis in fact given the sharp rise in human and livestock populations during that time, even though we know colonists have also displayed irrational fears (Maddox 2002; *inter alia*).

In the 1880s, the Governor's Agent, Griffith, imposed four administrative districts upon the lowlands, with boundaries that mapped on to those of Moshoeshoe's relatives' wards (Kimble 1999: 26-7). Those chiefs' were given the responsibility to collect a hut tax on behalf of the Agent and consult him on matters of land allocation. But the administration later undermined their power by usurping their right to issue licenses and grazing land to white traders, thereby nullifying Moshoeshoe's Law of Trade in 1880. During this time, the administration increased its abilities to levy taxes and fines and to generally control the flow of goods in and out of the territory, while relying on the chiefs for tax collection. Though the districts included mountain areas, administrative activities did not extend into the highlands, where little control existed. Magistrates courts were introduced at this time, as well, but they were not entirely threatening to chiefs. It was the chiefs' power of tribute extraction—especially through *matsema* work parties where commoners were conscripted to work on chiefs' agricultural fields—that kept them powerful through the colonial period, as the colonial administration was loathe to challenge that power and risk conflict. As Moshoeshoe's son, Masopha, described it in 1872, *matsema* was the “bridle that chiefs kept in their people's mouths” (Kimble 1999:31). The importance of *matsema* meant that, even though Pim criticized the practice in his consequential 1935 report on the political and environmental conditions of Basutoland, the administration would not attempt to question chiefs' power to appropriate labor surplus in that way. Thus, colonial rule formalized and intensified specific aspects of chiefly power, which would have lasting impacts. In restricting

certain aspects of chiefly rule but leaving tribute extraction as their primary means of accumulating wealth and power, they created a contradiction in the relationship between chiefs and commoners that would become increasingly untenable.

A British High Commissioner was appointed and the policy of “indirect rule” was applied, leaving Basotho customary authorities considerable authority to administer customary law and to regulate the distribution of land; Regulation 12 of Proclamation 2B was issued by the High Commissioner in May of 1884, creating a system of legal dualism that has endured through today (Poulter 1979:2). In 1907, the Basutoland Progressive Association (BPA) was established primarily by educated elites who spoke out against the proliferation of chiefs, and their abuse of power in matters relating to the allocation of land, the issuing of fines, the calling of village work parties called *matsema*, and more. These complaints continued, despite a counter movement led by Josiel Lefela called the Lekhotla la Bafo (LLB; literally “Court of the Commoners,” but sometimes translated as the “Commoners League”). Whereas the BPA pushed for slow reform toward Western-style democracy within the structures of colonial administration, the LLB was radically anti-colonial, anti-mission, and pro-tradition (see Edgar 1987). According to Lefela, the BPA elites had been poisoned by missionary education and out of touch with the common man and the social order that accompanied pre-colonial political organization. The BPA managed nevertheless to keep the reform of the chieftaincy in the public debate through the disastrous droughts of the early 1930s, when criticism of common land tenure peaked. The British High Commission’s 1935 Report by Sir Alan Pim

formalized the concerns of the BPA into concrete recommendations, including a reduction in the number of chiefs from 2,500 to around 1,200, as described in Chapter 2. Further, most of these remaining chiefs were stripped of their authority to issue fines, to solicit *matsema* tribute labor, and to hold courts for serious criminal matters. Court fees were critical to chiefs' income at that point, however, and the National Treasury compensated for this by issuing a small salary to the 1,200 chiefs who were formally gazetted by the government.

Acceding to these reforms, then Paramount Chief Griffith Lerotholi ensured the continued, though diminished, existence of the chieftaincy beyond his death in 1939, but tumultuous years lay ahead. Two of his sons made claims to the vacated throne, with Griffith Seeiso winning out over Bereng Seeiso. When Griffith Seeiso died the following year, however, Seeiso's senior wife 'Mantsebo became Regent until her infant son (in fact a step-son from the second house, 'Mantsebo having no sons herself) could ascend to the throne. 'Mantsebo's authority was challenged by Bereng, and partisans of the two rival factions were alleged to have drawn on *liretlo* (translated as "medicine murder"), extracting the blood or organs of innocent individuals while still alive and using their body parts in medicines to strengthen the murderer or the organizer of the murder. Bereng and his alleged co-conspirator, a Principal Chief from Berea District Gabashane Masupha, were hanged for their role in one such murder. *Liretlo* was controversial, particularly among elites, who used the issue to question whether chiefs should be a part of the future government. The High Court prosecuted 81 cases of *liretlo* between 1938 and 1949, almost all of which

involved a chief or a headman (Gill 1993:188), and anti-colonial groups such as LLB argued forcefully that the British were using these cases as a way to undermine Basotho government (Edgar 1987:35). This confounded the British High Commissioner in South Africa, Sir Evelyn Baring, who saw the chieftaincy as a critical component to British colonial administration, and wanted to reform and *strengthen* the chieftaincy rather than undermine it (Murray & Sanders 2005:2, 292).

‘Mantsebo’s son, Constantinus Bereng Seeiso would eventually come to power as Paramount Chief in 1960 (later crowned as King Moshoeshe II at independence in 1966) as political winds continued to change, and the chieftaincy with them. In the early 1950s, political parties began to emerge to make a case for independence from Britain. Factions struggled to assert themselves and their vision of a future Basutoland. By the time that elections were held in 1965 in advance of independence, the British promoted a conservative party that lay somewhere in the middle, whose leader appeared most amenable to future cooperation with the British government (Khaketla 1972). The Basutoland National Party (BNP) narrowly won the elections over a more adversarial Basutoland Congress Party (BCP) and, upon being rejected at the polls in 1970 by voters who favored the BCP, declared a state of emergency, sending the King and many BCP supporters into exile, and set about to craft a new constitution (see Khaketla 1972). But the civil service, too, became a site of contestation. The civil service became a resource over which political parties struggled. Bardill and Cobbe (1985:134) estimate that between 600-800 civil servants thought to be BCP sympathizers were sacked in the aftermath of the 1970 coup.

Jonathan, would later ally himself with anti-Apartheid activists opportunistically in the late 1970s, when it became apparent that the Apartheid government was likely to fall; this, as BCP activists in exile formed the militant Lesotho Liberation Army (LLA) using Apartheid government support to launch sporadic and largely ineffectual attacks on the BNP government. As described above, Jonathan's two decades of rule would come to an end on January 26, 1986 as the result of a coup by one of his generals, Major General Metsing Lekhanya.

Military rule under General Lekhanya, succeeded by General Phisoana Ramaema in 1991, at long last returned to civilian rule in 1993, when the BCP and Ntsu Mokhehle came to power.⁴⁶ Mokhehle abandoned his former party in 1997 to form the Lesotho Congress for Democracy (LCD). Pakalitha Mosisili took over from Mokhehle in 1998 and has ruled ever since, although stunning events transpired on February 28, 2012, when Mosisili announced the formation of a new Democratic Congress (DC) party and brought 45 LCD MPs with him. King Letsie III dissolved parliament and the opposition All Basotho Congress (ABC) party formed a coalition with the LCD and BNP, ascending to power. This coalition crumbled in 2014-2015, as alliances between the DC and the Lesotho Defence Force (LDF) and between the

⁴⁶ According to the 1993 Constitution, executive authority is vested in the King but exercised through the parliamentary government. The Prime Minister is elected by Ministers of Parliament (MP), of which there are 93. In one legislative chamber of Parliament, the National Assembly, 80 MPs are elected by the general population in elections that take place every five years or less; in the other chamber, the Senate, the 22 Principal Chiefs and 11 Senators appointed by the King hold seats. Of the 22 Principal Chiefs, 19 are descendants of Moshoeshe and his brothers, and the other three represent the Taung, Tlokoa, and Khoakhoa constituencies.

ABC and the Lesotho Mounted Police Service (LMPS) manifested in acts of political violence, including an attempted coup, and left senior members of the ABC and BNP fleeing for safety to South Africa. Despite SADC efforts to resolve the crisis, the situation remains unstable. During the crisis, the monarchy largely remained silent, by all accounts acceding to the decisions of the ruling government. Given the price the monarchy has paid in the past for becoming too involved with politics, such as when King Letsie III's father was sent into exile during the Lekhanya dictatorship, the monarchy may have been interested in staying on the sidelines to preserve the monarchy.

Users Associations and the Developmentalization of the State

The “developmentalization” of the state complicated state power and multi-party democracy through the reformulation of state structures and resources according to the priorities of (mostly foreign) development and aid programs. Development programs big and small shaped Lesotho's state and society since even before independence in 1966 (Aerni-Flessner 2014; Ferguson 1994; Leduka 2007; Matlosa 1999). Nearly every domain of life and government in Lesotho has been touched by *projects*, giving rise to what James Ferguson (2006) has called “non-governmental rule,” and what, in the context of epidemiology, has been described as “projectification” (Lynteris 2014; see also Geissler et al. 2014)—the operation of health and humanitarian initiatives through temporary projects rather than through permanent institutions. Projects come and projects go: Egg circles, piggeries, grazing

associations, handicraft cooperatives, pony-trekking associations, wool and mohair growers associations, and more. Almost none of them are effective at achieving their stated goals, yet they do succeed in establishing new forms of political association, albeit sometimes ephemeral. Lesotho's social and material landscape is littered with the ruins of projects past. Range management and associated soil conservation programs constitute perhaps the best examples of this process. As a result, reforming rangeland management has become nearly impossible.

Rangeland management embodies the layered nature of the state. In the 1980s, donor money helped to produce grazing associations across the country – “community” or “user”-led institutions that would include chiefly representation (and later local councilor representation, as well), but which would serve to place rangeland management in the hands of the people. Meanwhile, civil servants at the Ministry of Agriculture continued to serve as “technical advisors” to chiefs, even as the Ministry fragmented into networks of elite patronage with each election into Departments of Livestock, the Department of Rangeland Resources Management, the Department of Soil Conservation, the Department of Environment, and various permutations of those, all of which had something to contribute to rangeland management. All the while, development and conservation organizations continued to institute programs at local, district, or national levels that would improve rangelands, whether by educating herders on rangeland management techniques, by proposing new institutions or coalitions of existing institutions, or by attempting to promote forms of livestock production that were seen as more amenable to market logics,

thereby putting the condition of common rangelands under proper control of the invisible hand.⁴⁷ These management techniques are far from universal, however, as the field comprises heterogeneous views. Moreover, as I explain in Chapter 5, market logics can encourage destruction (also see Blaikie 1985, *inter alia*).

The responsibility for managing common rangelands was transferred from chiefs to councilors with the introduction of Community Councils in 2005 (although Chiefs still maintain a seat on the councils), except for the high altitude pastures (“A” and “B” rangelands) that continue to be managed by Principal Chiefs and the Grazing Associations (*mekhatlo ea phuliso*) that work at their behest. However, even in the case of the “C” rangelands, Area Chiefs, Ward Chiefs, and their Headmen still continue to serve as important mediators in range disputes and as protectors of closed pastures (*maboella*). This surely has to do with the fact that Councils do not have the wherewithal to manage the sprawling rangelands under their charge, which can number in the thousands of hectares. Yet, despite being the *de facto* rangeland

⁴⁷ These programs and interventions were found in many countries in Southern Africa, as William Beinart (1989) has pointed out. It was during the 1930s that agriculture and forestry departments came to take prominent roles in the management of land and the development of conservation-development projects that would reduce land degradation and improve the lives of people. This was a time of centralization, in which local elites and colonial governments could intervene in rural production for large-scale societal transformation under the banner of conservation and development rather than simply nationalism or by fiat. They advocated a very familiar grouping of programs, including the improvement of stock breeds to promote the keeping of fewer animals, destocking, paddocking and the elimination of transhumance through the introduction of fenced camps (Beinart 1989:70-75). Interestingly, these development schemes were borne of a liberal consciousness, among people who came to be concerned with the plight and state of the African family in light of the migration economy and the institution of reserves. Without these programs, rural peasants would have no opportunities to make a living “back home,” they argued.

managers, few Ward Chiefs, Area Chiefs, and Headmen are well versed in range ecological processes, range management, and range law (Quinlan 1995).

One recent report by a UNDP project has proposed to “harmonize” the work of councils and chiefs with the grazing associations created by USAID in the 1980s, those created or resuscitated by the Maluti-Drakensberg Transfrontier conservation Project in the late 1990s, and those created under the Lesotho Highlands Water Project in the 2000s into a new set of user associations as part of a sustainable land management project. The report states that, “Poor governance is the root cause of degradation of the range resource complex. These are common pool resources, which means that their sustainable management is more of a governance challenge than a technical one” (UNDP 2012:12). Thus, the solution to the failures of rational-bureaucratic institutions are rational-bureaucratic institutions that include all stakeholders, that are democratic, community based, participatory, and other such language beyond the pale of politics and history. Ironically, as this dissertation shows, it is precisely governance that gives rise to concerns about the range in the first place. While it is encouraging that they see this as a political and not simply a technical problem, what they fail to recognize (at least publicly) is that the technical and political are connected.

The idea of “users associations” is not strictly an exogenous one, but rather emerges out of an engagement between foreign NGOs and their beliefs in community-based natural resource management, antagonism between groups of Basotho, and forms of communalism that predated colonial interventions.

Ntsukunyane Mphanya's (2009) *A Brief History of the BCP* explains that *matsema* and cooperatives were at the heart of struggle over power by the BCP, Lekhotla la Bafo, the British, and chiefs. LLB accused chiefs of abusing *matsema*; the British saw *matsema* as being at the heart of land degradation problems, namely because they wanted to stop the cultivation of wheat at the behest of the South Africa government and also at the request of Pim; the chiefs were allegedly abusing the *matsema* system to profit for themselves; the BCP later saw it as critical to reconstitute communal work through cooperatives. As Mphanya, a former official within the BCP government, puts it communal work is a fundamentally Sotho institution.⁴⁸

Yet again, as with the formalization of *fato-fato* described in Chapter 2, grazing associations have gained traction as a result of the LHWP. As Stephen Turner (2004:172) puts it, grazing associations were instituted in fits and starts until the LHWP came along:

A more focused rationale for the introduction of [Range Management Areas (RMA)] and GAs emerged with the construction of the first two dams of the Lesotho Highlands Water Project (LHWP) over the last ten years. There is comparatively little soil cover on the high mountain catchments of the Katse and Mohale reservoirs, and both have large dead storage capacity below their off-takes. However, project authorities were concerned to enhance range management in these catchments in order to reduce the reservoir sedimentation risk. They have, therefore, stimulated the formation of more RMAs and GAs in these areas.

The situation seems at some level a logical outcome of many years of intervention into the affairs of rural livestock owners: that contemporary development

⁴⁸ In conversation (2014, personal communication), Mphanya told me that *fato-fato* represented a false version of communal work.

and conservation projects are not only designed to fail in the ways that Ferguson described but also incapable of success even where capital desires it—as is the case today, where concerns about the long-term viability of Lesotho’s water export economy are threatened by soil erosion. Further still, these projects are quite possibly the cause of the problems they seek to address. That is, to the extent that land use management impacts land condition in Lesotho, the perpetual reform and instigation of political forms for land management imperils people’s ability to organize commonly held lands, which are indeed in poor condition. One needs only attend a meeting of a district or village council, to spend a day with a civil servant at the Department of Range Resources Management, or speak with a herder, all of which I did many times during my field research in Lesotho, to see the intersection and collision of a multitude of institutions. These institutions, from various moments in Lesotho’s imperial, colonial, neocolonial pasts, are in various states of growth and decay. They source of conflict and a field of confusion through which anyone who owns livestock – most families in rural Lesotho – must navigate.

In sum, there has been a proliferation of range authorities over the past few decades, and it could be argued that this proliferation weakens rather than strengthens range management capacity by undermining what authority does in fact exist.

Between the Range Management Division (RMD), Chiefs, Councilors, Grazing Associations (GA), Village Development Committees (VDC), Managed Resource Associations (MRA), and Catchment Management Associations (CMA), Lesotho has had plenty of individuals and collectives weighing in on range issues.

Traditional land tenure has often been seen as one of the chief obstacles to national development, from the Pim Report to the Morse Commission in 1960, and the United Nations in 1965, the British Ministry of Overseas Development in 1967, and even in the country's First Five Year National Development Plan (1970/71–1974/5) and the World Bank in 1975 (see Leduka 2007: 94). But this was not exclusively a foreign intervention. As already noted, there was deep opposition to chiefs, who were seen as having abused their power through *matsema* and other means. As soon as 1967, one year after independence, efforts were underway to reform customary rule, when the Land (Procedure) and the Deeds Registry Acts (Leduka 2007:95). These introduced elected advisory boards that were presumably to replace the chiefs' previous use of *matona* or "councilors" that he simply appointed rather than commoners elected through a ballot. Chiefs were obviously opposed to any effort to erode their authority. The Chieftainess M. G. Masupha actually compared their having to consult an elected council in land allocation to be akin to slavery.

Today, those who seek to reform land use and land management practices in the Lesotho highlands are elites from the lowlands almost without exception, and often financed by foreign organizations. In addition to their critique of chiefs' ability to manage rangeland, they see rural people as being too ignorant to manage them. For example, on one occasion, I asked a range management official about the conditions under which the MFLR supports the use of fire as a range management tool (e.g., for shrub removal), as I was aware that people in Lesotho are essentially forbidden from

burning pasture. He explained that fire can be a productive tool for rangeland improvement but the MFLR does not trust that people will do it correctly so they simply ban it outright. It is complex, he told me: “One must burn in the morning before the wind picks up; one should burn going downhill [he can’t explain exactly why]; and one must also burn in a zig-zag formation [drawing it on the ground for me], which helps to make it so that water won’t flow so fast downslope.”

Conservation workers are invested, however, in promoting other forms of management, especially grazing associations. A grazing association is a particular political form in Lesotho, developed in the early 1980s to “improve range condition and livestock productivity on Lesotho's rangelands by mobilizing collective management of communal grazing areas” (Artz 1993: 54). As has been pointed out in the past, such programs end up targeting mostly people with small herds (Quinlan 1995), given that they often seek to gather together merely any livestock owners who is willing to go to a meeting rather than the people who actually own the bulk of livestock.⁴⁹ They were established across the country and continue to exist in name but few have any currently registered members or an up-to-date license from the government.

Grazing associations are therefore like other cooperative and community-based management institutions in Lesotho: they erupt out of some development or conservation project and lots of people join up, no doubt interested in the possibility

⁴⁹ This is probably somewhat less true today than during Quinlan’s research. Many livestock owners in the highlands told me that there are many more *barui* (people wealthy in livestock) today than in the past.

of, in this case, improving rangeland condition, but also simply curious about what opportunities might come of the project. Public, *lipitso* meetings are held when the MFLR or a foreign NGO wants to promote their next project. They are interesting because people come and go throughout the meeting, most of them never fully and clearly in attendance. Instead, they listen to the conversation and comment on it with each other from the fringe. A perimeter of young and old men will develop, leaning up against the stone kraals of the chief's compound, no doubt curious about what might come of that meeting. As the project wends its way toward completion and dissolution – or simply collapses immediately from that moment of formation – the user association also slowly erodes away. But never completely. It might stop paying its annual registration to the government, and its members might stop paying their annual dues and attending monthly meetings, but a core group of members always remains, enshrined in their log books – the black, hardcover “exercise” books with the red binding tape that are ubiquitous in Lesotho, stored and carried in small, plastic bags, and a requisite for the executive committee members of cooperative associations like this. The group lies more or less dormant until yet another project comes along and they are called upon as the necessary partners for that particular activity. During my time as a Peace Corps Volunteer and during my field research, it was not uncommon for people to mention to me that they are part of a cooperative of one sort or another. If it came up while at someone's house, they would often fetch that small, plastic bag from a chest or from another room and pull from it a black notebook.

Contestation among Conservation Workers

In this section, I present the example of GOPA, referenced above, as an example of how layers of political authorities interact and conflict. Early in my research, I went to speak with employees at the GOPA office in Mokhotlong, and they gave me a long description of their work. It included all the familiar development activities. They try to “activate stakeholders.” They gather together as many ministries and departments as possible, hold meetings and workshops with them, and then watch as those relationships sour or languor. They try to engage the chiefs, the principal chiefs, the councilors, the police, and the military. They answer directly to Water Affairs, but they are also engaged with Soil and Water Conservation, Range, Livestock, and the Environment Department. He said that in terms of administration, they also incorporate the District Administration office and the District Council Secretariat. They also incorporate the Principal Chief’s (PC) office, the community council of the area, focus groups, and grazing associations and “independent farmers” (i.e., those who declined to participate in a GA). They have established a Project Coordination Committee that is ensuring that appropriate stakeholders are taking part.

GOPA is a global consulting firm based in Germany that won a contract to carry out this project, valued at more than 1 million Euros and funded by the German international development fund, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). GOPA is partnered with a South African company called Wetlands, as well as a Lesotho-based company called GWC that works on

groundwater issues. The project operations are primarily staffed by Basotho. GOPA hired a wetlands expert and a range management expert on a temporary consultancy in order to advise them in their efforts. They are also currently trying to map out how different “stakeholders” relate to each other, such as how herders relate to farmers, and how farmers relate to chiefs or grazing associations.

Like the Mofolaneng Grazing Association, another called Bohale-Ba-Nkoe was resuscitated by the GOPA wetlands project. Bohale-Ba-Nkoe was established in 2005 when one of two conservation initiatives (members I spoke with were not clear which)—the Maluti-Drakensberg Transfrontier Project (MDTP) or the Millennium Challenge Account (MCA)—came to suggest they do so. Their books listed more than 200 members since that initial time, though almost none of them renewed their membership in the years afterward. In 2011, GOPA came to see that grazing associations could play an important role in their efforts, so they encouraged Bohale-Ba-Nkoe to register officially with the Government of Lesotho “law office.” The Association has met a couple times since then, but there is not much for them to do. They do not have any permits because the MFLR office has run out of them for quite some time, so one of their key responsibilities is hampered.

One of the “stakeholders”—to use the industry parlance—for GOPA’s initiative was the MFLR, and they spoke regularly with my informant Masilo at the Mokhotlong office. But a rift opened between Masilo and GOPA. According to Masilo, one of the GOPA employees was cheating the grazing associations out of money. During the planning meeting for the GOPA project at Sani Top, staff from all

of the stakeholder organizations discussed the budget. In it, money was allocated to change the structure of the grazing plan described in the grazing association constitutions. (Masilo could not describe what exactly the change was.) Masilo explained that this GOPA employee was mandating that the associations pay for the legal fee associated with doing so. The fee cost between 200-800 Maloti, depending on how long the associations had gone without paying their constitution fees. Masilo believed that this GOPA employee was trying to skim money off the top, and suggested he had seen similar things happen before.

Masilo explained to me how, when he went to Maseru last, he went to the RMD headquarters and requested to have a meeting with the head of GOPA, so as to report this. He was refused, and instead the GOPA team went to speak with Masilo's boss's boss, Lerotholi. Masilo was angry because he wanted to give his side of the story. Apparently Lerotholi sympathized with GOPA for reasons that were unclear to Masilo, and later Masilo received an "order" to go to a meeting with GOPA and the Bohale-Ba-Nkoe Grazing Association in the rural Khubelu Valley of Mokhotlong District. When he arrived there, the extension officer Tefo and another employee from a different MFLR office in nearby Mapholaneng who disliked Masilo were there unexpectedly. They defended the GOPA position and sought to force Masilo to agree publicly. According to Masilo, the Mapholaneng employee long resented the fact that she had to work in a position underneath Masilo's authority, as he had been given the position that she applied for. She had been working temporarily in Masilo's position in the Mokhotlong office and he had to force her return to Mapholaneng, a more rural

location. She and Tefo teamed up against him at that meeting, he said, and so when questions were posed to him he refused to answer. They still had not come to him to hear his side of events months after the fact, however. GOPA and the MFLR office in Mokhotlong were no longer on speaking terms.

Moremoholo: The Uncertainty of the State

Back at the Range Management office in Mokhotlong, Masilo and others were heading to Ha Senkoase in the Moremoholo Valley to resolve a dispute between the chief and a livestock owner who refused to pay a fine after having his animals impounded. They invited me to come. The village of Senkoase is an hour up a winding road from Mokhotlong town. The Moremoholo Valley meanders dramatically with the river. Like most all roads in the mountains below 2,400masl or so, it runs along the secondary plateau, where villages are situated. It dips deep into each draw and then swoops back out to the spur. From the center of the valley, it can appear you are looking out onto a valley floor when in fact it is a series of interlocking spurs – the river winding several hundred meters below.

On our way into Senkoase, Masilo and others spotted three rams that were being grazed in the forest reserve just outside the village, a reserve that was begun as part of the Lesotho Woodlots Project from 1973-1988, in which plots of *Pinus* spp. (*P. radiata*, *P. halepensis*) were planted across the country. We drove to moreneng and Masilo told the chief that they should be impounded. We drove back with two

men who walked up the slope to apprehend the rams. The two rangers came down the hill and drove the rams to Moreneng while we drove behind them in the truck.

At Moreneng, we hung around for an hour or so, waiting for the owners of the three rams as well as two others whom Masilo had requested to attend this meeting by message earlier in the week. The chief's place was interesting, with four large prickly cacti growing out front at the edge of the rock-wall and a nice peach tree providing shade in the middle of it all. Four or so men sat underneath it, possibly waiting for the meeting. A few women sat on chairs against the wall.

Eventually, we all headed inside to the court room, to the side of the compound. It was a small, mud-walled room with a motley collection of furniture including a stump, a miniature children's chair, and an old, iron bed frame against the wall running nearly the entire length of the small room. At the far end of the room sat a very unsteady and large, almost monumental table encircled on three sides by rickety chairs. Masilo was asked to sit behind the table, instantly transforming him into some kind of comic judge. He smiled at me, understanding how odd he looked. The chief, a diminutive and unimposing man, sat to his right, facing toward Masilo. The door was left ajar to allow for light. Two small and dirty windows flanked an old calendar, stuck on December 2011. Three little chicks periodically came cheep-cheeping into the room, looking for food as people shooed them toward the door. The meeting began, as usual, with a prayer.

First, the owner of some livestock that were impounded in the previous month, Zolo, showed up at the meeting after considerable delay. He sat, indignant, in

the center of the room on a chair with no backrest, staring out the door. He owed R300 for his livestock (6 cattle) having been caught grazing in the forest reserve. The Chair of the Forestry Committee and the Councilor both condemned him for also having come and taken back his animals from the chief's kraal by force. Apparently they were both related to him, and they expressed their frustration with him for putting them in the position of having to reprimand him. At one point, the Treasurer of the Committee suggested that people who have refused to pay the fine should have to pay one rand for every day that they don't pay. Zolo got visibly distressed at this point. Early on in the conversation, he explained that he would pay the fine, but he said that he couldn't pay until February. Later, he said that he would go sell a sheep in town and pay by the end of the week. Then, after a long while of humiliation, he said something about how he would borrow the money and try to pay the fine tomorrow. He left.

Mashoabathe, the owner of the three rams, arrived shortly thereafter. He was reprimanded and told to pay a R150 fine. He grumbled, but Masilo pressed him into feeling compelled to pay the fine there and then. He left to go find the money. After his departure, a conversation about the fees they charge for this offence ensued that should have taken place before these men were hauled in. A few days prior, I went with Masilo to a nearby Magistrates Court, where the Assistant Magistrate told him that the R50 fees he had suggested should be charged for animals impounded in *ntlafatso* areas like the forest reserve was illegal. Instead, people should pay the low rates set out in the 1986 Grazing Regulations. Masilo impressed upon the forest

committee in Senkoase the importance of switching to the lower rates set out in the 1986 Regulations: 4R for cows, .50 for small stock unless they don't have permits in which case R1.50. Masilo explained that they should do this to bring themselves in line with the court, which doesn't recognize the *molaoana* ("little law," or by-law) set by the forestry committee. Masilo worried—though he didn't say this to the group—that anyone who got fined would simply head to the court and then end up only paying the reduced fees. The chief worried out loud to the group that, if they lowered the fees as per Masilo's suggestion, then everyone who had paid the higher fees in the past would come back and want their money back. Several people wriggled in their seats, and it came out that the money procured for fines had already been spent one way or another. What was more, Zolo and the previous guy were in the process of paying R50 as they spoke. If they changed the rates then it will be a serious problem. Amazingly, Masilo actually offered to pay all those people back their 50R with his own money – Masilo felt bad that he helped to institute this 50R fee structure throughout the Mokhotlong District and now had asked them to undo it.

Just as they were talking about this, the Chair saw Mashoabathe through the window coming back around the corner and told everyone to stop talking. The room went silent when Mashoabathe came back in and sat down on his original chair. He placed a 20R and a 10R note on the table and a handful of change. It came out to 144.50R in total. He promised to get the remaining R 5.50 by tomorrow. Masilo requested that the Treasurer write down how much he'd paid and that he still owed some. He told the man that he would come with a receipt on Friday. Then Masilo said

something odd: Mashoabathe would also need to pay an additional R0.50 per sheep (i.e., R1.50) as set out by the 1986 Regulations. It was a tiny amount of money but Mashoabathe looked furious. Masilo gave him his phone numbers on a piece of paper so that Mashoabathe could call him when he had the money, and he crumpled the paper up in his hand. Caught between the higher, illegal fee he believed was important to rangeland management, and the legal, but negligible fee that he felt led to people grazing in closed areas, he decided on the fly to seek both.

After a short while, Mashoabathe challenged Masilo's extra fee, stating that it did not make sense to have to pay two fees. And besides, he pointed out, that's not how other people have been charged in the past. Masilo looked the man in the eyes with a sly smile on his face and says, "OK, if that's how you guys do it around here, then I don't want to do it differently."

Finally, the meeting let out, everyone less sure of things than before.

Conclusion

I spent many months with Masilo and watched him as he shifted from a new employee in Mokhotlong to a much more authoritative figure. And, yet, though he became more senior and knowledgeable, it seemed more to me that he became simply more knowledgeable about where the deep ambiguities were within rangeland management and therefore more prepared to narrow the scope of his work.⁵⁰

⁵⁰ His efforts are not always so benign, however. On one occasion, I visited a village with Masilo up the Mokhotlong Valley. The chief (a woman) there had asked Masilo to help her convince people in the village to cease grazing in the *leboella* areas.

While government-development-conservation workers have for a century lamented the failure of political institutions as the cause of rangeland degradation and repeatedly promoted new institutions as a corrective, it is precisely this long history of reforms that have created the conditions they seek to correct – and which render contemporary reforms all but impossible, even where capital desires it such as in efforts to protect Lesotho’s water resources for export to South Africa. Those interventions instigate a *proliferation and erosion of forms*—geomorphological forms, vegetation forms, documentary forms, and social forms—that evince Lesotho’s marginalization as an imperial hypervolume, an n-dimensional space (Hutchinson 1957) of imperial debris (Stoler 2013). Thus, “the gradually evolving, and gradually decaying” (Turner 2004:177) institutions for rangeland management in Lesotho have been overlaid with grazing associations that proliferate and erode, only to be catalyzed when aid funding pours in for reasons of the day.

Masilo wore his new herders blanket and also carried his cane. He began talking very slowly and shot his eyes to the side with a slight smile. After introducing himself, he took an interesting approach to the topic. He pointed out that they have done *fato-fato* projects here to prevent soil erosion but that there has been no improvement (“*Re entse metsesele, re entse lifato-fato empa ha ho na eng? Ha ho na phetoho.*”). He then made a case for respecting the *leboella*, for planting trees and grass between the crops. “If your grazing lands get degraded, how will you live?” (“*Lekhulo la rona lea fela re tla phela ka eng?*”) He said, “It’s clear that men are not going to work in the mines anymore, so they will need to find other ways to make money” (“*Ke bona hore bo-ntate ba sa ea mining matsatsi ana, joale le batla chelete ka litsela tse ling*”). He then returned to the importance of respecting *maboella*, and made a threat. If people continue to graze in the closed areas, he would ask the soldiers to come—that he has heard of many strong people out there who turn into “*thupulu*” when the soldiers come. (*Thupulu* refers to the soft leather used to make girls’ traditional leather dresses in Lesotho.)

INTERLUDE

FREEDOM

As I stood with three young men at the cattle post area known as Sekhutsong, I asked them whether they enjoyed living out there. It was the late winter and the sun had only recently risen over the ridgeline. The winds had already started gusting. The day would be a day like many others for the herders: they would eat a breakfast of cornmeal (*papa*) and head out with their herd of sheep, goats, and cattle to the pasture near the seep at the head of the valley. They would sit and chat, play *moraba-raba*, take a nap. After midday, when the animals seemed content and the herders became hungry, they would drive the animals back to the kraal, and settle down for a

cornmeal supper. In the morning, they would wake to do it over again. And there are no weekends at *motebong*.

As we stood, the brown earth stretched out around us, up and downhill. On account of their being too “lazy” (*botsoa*), as they put it, to fetch water down the hill, they ate the rest of last night’s cornmeal for breakfast instead of making a fresh pot. All three responded emphatically to my question: Yes, they like working at *motebong*. Why? “Because we do what we want, we are independent. There isn’t anyone who can tell us what to do out here.” (*Hobane rea iketsetsa, rea ipusa. Ha ho na batho ba re busang mona.*) I asked them, “Who tells you what to do when you’re in the village?” (*Ke bo-mang ba u busang motseng moo?*) “All the adults – guys like Motlokoa.” (*Batho ba baholo feela – bo-ntate Motlokoa.*) Motlokoa was the chief’s uncle and I suppose a bit imposing. But they were referring to all adults—they simply knew that Motlokoa was my friend.

Their response struck me—rather than being merely a difficult environment, where they were paid poorly, risking lightning strikes and violent livestock thieves, and eating only cornmeal, it was a space of freedom. of independence and of responsibility on one’s own terms.



**Figure 37: “Anarchy” symbol drawn on an exposed rock outcrop in *motebong*.
Photo by the author.**

It would be 45 minutes before we left to take the animals to pasture. As we stood chatting, one of the guys leaned against the doorway opening to the rondavel. Unlike most cattle post rondavels, theirs had a corrugated metal roof instead of a thatched one. Large rocks lined the roof, holding it in place to withstand the strong winds that could easily blow it away. As he leaned, some of the rocks began to give way and several large ones came crashing down, knocking over the three-legged cooking pot containing the cornmeal and rolling downhill. The largest of them rolled 500 meters or more down the slope. Everyone burst out laughing. The sentiment was not unlike one I had known as a young man, living with friends and away from my

parents for the first time, free to be absurd and reckless. As they said earlier, they don't have to answer to anybody out here – they can do whatever they want. And they were right. I looked around and there was nobody for miles.



Figure 38: A herder returns to *motebong* with a sack of maize meal. Photo by the author.



Herders are some of the most charismatic characters in Lesotho society and are often depicted as essential or iconic figures of Sesotho culture. As with the figure of Water that I discussed in Chapter 1, herders (*balisana* in Sesotho, sometimes referred to in English as “herdboys” even though herders can be grown men) are nearly certain to appear on any given tourist brochure for the country and promotional

materials for the LHWP. A recent, feature-length film about life in Lesotho, *The Forgotten Kingdom* (Mudge 2014), featured a herder character that operated as both a jester and a sage, guiding the protagonist through remote parts of the country and helping him to overcome his personal struggle.⁵¹ The herder attire—a grey, herders’ blanket, balaclava, molamu, or herding stick, and gumboots—is in many ways emblazoned across Lesotho’s cultural landscape. “Famo” musicians, almost exclusively lowlands-born Basotho men who produce a musical style that is distinctively Sesotho in its tropes and the geography of its listenership, regularly use the attire to assert their cultural roots (Coplan 1994). Herders do work that is critical to Basotho livelihoods, whether at a national or a household scale. They manage and care for the animals that are used to plough agricultural fields, which provide milk for household consumption and for the production of wool and mohair.

Many Basotho men describe themselves as having been a herder when they were a boy, and they often do so with pride. But there are two types of herders: those who take care of their family’s livestock when they return home from school and on the weekends; and those who work at the cattle posts. In rural areas, the second type of herder often “graduates” from the cattle post when he heads to a job in South Africa, or when he acquires enough stock to pay another herder to stay at *motebong* with his herd. The first type is much more common—and much more likely to talk about herding with pride as an adult.

⁵¹ I saw this film screened in Morija, Lesotho, with a large audience of mostly Basotho schoolchildren from the lowlands and the herder’s lines received the most charged reaction of all.

And, yet, despite this embrace of the cultural symbols associated with herding and the centrality of herding to Basotho livelihoods, herders are largely seen and treated as outcasts in everyday life. It had struck me on numerous occasions that herders from the cattle posts were quite awkward socially. Even with other Basotho, they are not quite as good with small talk, and seem to prefer to wear their balaclava over their face even when it is inappropriate. Many are illiterate, having been prevented from attending school because of their herding duties, and they are portrayed by adults—particularly women—as being rude, disrespectful, and sometimes even dangerous. Oftentimes, when I asked people about rangeland fires, they would explain to me that it was a bad idea because it could encourage soil erosion. So I would follow with the question: “Well, then why do people do it?” With remarkable regularity, they would respond by saying that herders are “*setoutu*.” *Setoutu* is a Sesotho word that could be roughly translated as stupidity, but often a young, irresponsible form of stupidity: the stupidity, perhaps, of young men around the globe. On some occasions, they would use the English word “cheeky,” which could also serve as a good translation of *setoutu*.

One of my informants at the Ministry of Forestry and Land Reclamation, a young, rising star in the civil service whom I call Masilo, had made a name for himself in Mokhotlong for having staged a series of workshops geared toward educating herders on range management rules and safety. His seniors took note in part because so few in his position regard herders as worth engaging. Instead, they focus on livestock owners and specifically that narrow set that would join a grazing

association. That is despite the fact that herders are the ones actually out in the field, making decisions about where to take their animals and when.

In short, it is not difficult to imagine the importance of freedom to herders in a context where they are denigrated in town, despite being heralded and relied upon. The situation is analogous to the differences between “structural time” and “ecological time” described by E. E. Evans-Pritchard (1940) in his study of Nuer society, whereby the relationship between intergenerational human social relations and seasonal human-environment relations constitute an axis around which power and ecological processes spin. In the coming chapters, which form Part II of this dissertation, I examine how that articulation between structural time and ecological time has been historically produced in relation to Lesotho’s status as an economic periphery to the South African core.

PART II: ARCHITECTURES OF THE PERIPHERY

CHAPTER 4
FORMS OF HISTORY: WATER, DWARF SHRUBS, AND THE
FIGURATION OF RANGELAND CHANGE IN POSTINDUSTRIAL
LESOTHO

Shrub, n. /ʃrəb/ : A woody plant smaller than a tree; *spec.* in Botany a perennial plant having several woody stems growing from the same root. (Oxford English Dictionary, 2016)



Figure 39: *Chrysocoma ciliata*. Photo by the author.

A dwarf shrub grows on a hillside. At four years old, it could live for another decade or more if conditions are right. Its life requires work on its part—and a bit of luck. While just a seed, it was shaken off its parent plant as a sheep passed by grazing along the roadside. From there, it rode a gust of wind upslope. It was fortunate to wriggle into the soil and germinate thanks to some optimal moisture and temperature conditions. It gets some light and, though it has many tall neighbors to compete with. Three years on since it sprouted, nothing is certain. It has sought to exploit some space just upslope from it by sending out its main stem in that direction while maintaining a branch just above its base. It looks alright, but not great. It has not managed to produce as many leaves as it might like, and some are yellow with signs of strain. As it grows, it depresses the growth of some plants around it, namely the

grasses being grazed by those sheep. Shrubs like this one are unpalatable. One among millions of other plants growing in this valley, its life and death will likely go unnoticed by livestock or humans who use this area. But as part of the ebb and flow of a plant community, whose composition changes with the contingent effects of climate, and interactions between plants, humans, and non-human animals, it plays a role in determining whether sheep get on here, and whether their human owners get on, too. A product of and player in history at multiple scales, it and other shrubs around it strike at the heart of human, multispecies livelihoods in the Lesotho highlands.

Some of these contingent ecological factors are within the conventional purview of anthropology—livestock production, for example. But climate, plant sociality, and plant biology—these are not. In describing the politics—the specifically configured possibilities for life and death—of peasant life within an exploitative regional and local political economy, what kinds of history are we telling that cannot attend to ecology and more-than-human sociality (Tsing 2015a; Tsing 2013)? How might those stories change if the purview of anthropology shifted to include the practices of living non-humans?

Ecological processes in bucolic mountain pastures are laced through with colonialism, mining labor economies, and state power. In this chapter, I explain how anthropologists can see these ecological phenomena. This constitutes a response to the many calls for more interdisciplinarity to understand and remedy environmental change in the Anthropocene (Boivin et al. 2016; Sivapalan et al. 2014; Castree 2014;

Orr et al. 2015; Caro et al. 2012; Brasseur & van der Pluijm 2013; Chin et al. 2013)—or disciplinary re-evaluation (Chakrabarty 2009). It is an attempt to draw ecological insights into anthropology without sacrificing the political and intellectual commitments of our discipline—to critique, multivocality, and subaltern perspectives. This chapter is also an experimental attempt to explore the possibilities and pitfalls of an interdisciplinary science that takes positivist ecology and critical anthropology seriously.

I described in Chapter 1 how the construction of the Lesotho Highlands Water Project (LHWP) has seen the government and other elite project boosters promoting “Water” as a national figure of wealth and prosperity, inserting images of water into its national iconography. Opposite Water, a counterfigure has emerged, the subject of this chapter: the Dwarf Shrub. Seen as signs of desertification, dwarf shrubs have spread across mountain rangelands, giving substance to fears that land degradation could imperil the water economy. Some fear that overstocked, poorly managed rangelands in LHWP catchments could be leading to soil erosion and the sedimentation of dam reservoirs, prompting efforts to reform the ways that livestock are grazed in Lesotho’s vast highland pastures.

Livestock also happen to be vital to rural livelihoods, especially since the collapse of the mining labor economy in the 1990s. Whereas most of Lesotho’s working-age men once spent a part of their adult lives working in South African gold and diamond mines, this opportunity dissolved during South Africa’s transition to democracy, when domestic, South African labor was given preference over foreign

labor, and when mining jobs were cut through mechanization and due to stagnant gold prices (Crush 2010). Today, one of the few ways that rural people can generate income is through sheep and goat production, selling their wool, mohair, and meat.

There are real reasons to be concerned about soil erosion's impact on the LHWP, and the role of livestock in promoting erosion, as I outline in Chapter 2. Nevertheless, there is little concrete evidence to evaluate the situation. Soil erosion is extremely difficult to see, measure and monitor, and no long-term studies have been conducted to resolve the questions of whether significant erosion is occurring and whether livestock are to blame. Despite the country's reputation as profoundly erosive (Chakela 1981; Showers 2005), sedimentation monitoring has been a minor priority since the project began (Hirst 1995; Khaba & Griffiths 2017; see Chapter 2). Instead, a class of plants—the dwarf shrub—has come to be used as an indicator species of soil erosion. This is despite the fact that there is no clear evidence that shrubs are linked to soil erosion, and some suggest that they actually prevent it.⁵² With shrubs embodying land degradation and desertification, a crude equation has been formulated: more shrubs = less water.

Of course, shrubs aren't just signs—they're living things. They act, they practice, they *do*. They stretch out and scraggle into sun-space; they poison their neighbors with allelochemicals; they soak up the soil moisture. Shrubs are historical

⁵² For example, the LHWP Feasibility Study (LHDA 1981), Section 2-3 says as much: “The shrubs are also deeply rooted and contribute to the control of soil erosion even on steep and heavily grazed slopes.” It is noteworthy that accounts which take such a position typically decry the loss of shrubs to fuelwood collection.

actors—agents of change. Accounting for non-human practices and situating them within historical processes requires an understanding of plant form (Tsing 2013; Hustak & Myers 2012; Mathews n.d.), which I examine in the following section.

Shrub encroachment was explained differently by two groups of informants—conservation workers on the one hand, who saw livestock grazing as the main driver, and peasant livestock owners on the other, who saw drought as the primary culprit—and I briefly present the findings of an ecological study that I did to determine which of those groups was right. After critically analyzing my study results, I then excavate my informants' accounts, turning them inside out to see the politics and histories that generated them, and how these same histories and politics configured the spread of shrubs. I also show why qualitative observations about landscapes are critical to understanding ecological processes commonly thought to be accessible only to quantitative ecology (Tsing 2015a; Mathews n.d.; Grove & Rackham 2001). In short, I show why the contributions of anthropology are critical to understanding ecological processes in Anthropocene landscapes, and how we can use anthropological insights to operationalize ecological concepts for critical, humanistic inquiry. I argue that anthropologists' inability or reticence to conceive of multispecies history has led to a peculiar consequence: an inability to conceive of peasant actions as potentially contributing to environmental change.



Figure 40: *Helichrysum trilineatum* stretches toward the sun. Photo by the author.

Form

The term “dwarf shrub,” sometimes called a subshrub or chamaephyte, refers to a plant with a woody stem, no taller than 2m in height at maturity. Dwarf shrubs have tough, evergreen leaves and generally keep their basal meristems—their buds—close to the soil, an adaptation that allows them to survive harsh winters. Like other woody plants in savannas, shrubland, and grassland where fire occurs with some regularity, dwarf shrubs often feature horizontal woody subterranean branches (caudices) that enable them to regrow even after losing all of their photosynthetic tissues. My natural history observations of shrub occurrence showed me that they thrive in nutrient-poor soils and some of them grow rather quickly. For example, I spotted one of the most

common shrubs—*Chrysocoma ciliata*—growing on a berm for a new road at almost 2-ft. tall, just two years after construction had begun. In Lesotho, dwarf shrubs are exclusively from two families – Asteraceae and Ericaceae. Though we know little about how these plants are pollinated, small flies are probably key, if other alpine systems are an indication. In Lesotho, seed dispersal is probably mostly abiotic (i.e., wind and water) for shrubs as well as grasses and sedges at high altitudes in the Drakensberg (Steve Johnson 2015, personal communication; Hilliard & Burt 1987:30), and some also probably by graminivorous birds such as siskins and canaries (Clinton Carbutt 2014, personal communication). The Asteraceae family is known for producing large numbers of seeds. Indeed, in the early summer in Mokhotlong, *C. ciliata* seeds are flying around rangelands in abundance.⁵³

⁵³ While dwarf shrubs occur in most parts of the globe, from arid rangelands in Africa to tundra in the Arctic, they are particularly well represented in Southern Africa, where they are found in dramatic diversity. The Cape Floral Kingdom, which has its center in the Mediterranean climate areas of the Western Cape Province in South Africa, is a global plant diversity hotspot, dominated by dwarf shrubs collectively known as *fynbos* such as the famous protea, which refers to a genus (*Protea*) with more than 2,000 species. Within an area of 90,000km², some 9,000 species of flowering plants are found, two thirds of which occur nowhere else (Pooley 2003). Beyond that region, however, several other fynbos-like communities are found in Southern Africa, including renosterveld, karroid shrubland, and Afro-montane shrubland, all of which feature a significant proportion of shrubs, dwarf shrubs and nutrient poor soils, analogous to the heathlands found in other parts of Europe. Lesotho's dwarf shrubs inhabit what plant biogeographers call the Drakensberg Alpine Centre (Carbutt & Edwards 2003; Carbutt 2012), a site of endemism and also speciation for plants that now occur as far north as East Africa. The DAC is located in mountains that form the boundary between Lesotho and South Africa. Lesotho's montane shrublands are much less species diverse than in the Cape, but nevertheless feature 2,200 plant species, 400 of which are endemic (Pooley 2003).



Figure 41: Shrubs growing along the roadside. Photo by the author.

We might be tempted to think of these qualities as simply “how the plants live.” But they are practices, with discernible effects in the world (Ortner 1984; Pérez-Harguindeguy et al. 2013; Grime 2002). If a shrub’s branches deprive another plant in the understory of light, or moderates daily temperature fluctuations in a way that facilitates the growth of another, this is a historical act or practice. These acts—outside of human control—have political stakes, too. Whether these shrubs spread or are limited in their distribution is a question that determines whether livestock live or die, and whether people in Lesotho can eke out a living.

Shrubs or other organisms might not “tell stories,” as Anna Tsing (2015a:168) explains, but they do “contribute to the overlapping tracks and traces that we grasp as history. History, then, is the record of many trajectories of world making, human and not human.” Returning non-humans to history (cf. Wolf 1982) means recognizing their effects or traces. But theirs is a shrubby kind of action or “agency,” particular to their life-form, and not a second-rate version of our human heroes’ self-sovereign type. Thus, a first step in multispecies historiography is paying attention to the other-than-human behaviors and effects, and taking cues from our human informants on which ones are important. Understanding their abilities and characteristics is critical to describing their role as historical figures—their effects in the world.

Ecologists have tools for doing so, having paid painstaking attention to the ways that non-humans act within social fields through relations of predation, mutualism, competition, etc. but their theoretical sensibilities tend toward the abstract and ahistorical, removing from view the historical trajectories within which ecological “laws” are caught (Kingsland 1985). For example, see the niche-neutral theory debate described by Hubbell (2008; see Clark 2009; Wennekes et al. 2012). Hubbell’s (2008) neutral theory assumes that individuals and species have a per capita ecological equivalence in a trophically defined community. He distinguishes between two strains in ecology a deterministic strain characterized by niche-assembly theory, in which rules of assembly based on ecological niches or functional properties guide the formation of communities. The other is a dispersal-assembly perspective and asserts that communities are non-equilibrium and open-ended assemblages whose

assembly is guided by random chance, random dispersal, and "history" (by which he means randomness). In his distinction, history as understood by anthropologists seems to be missing from both: the choice is between determinism from ecological laws or random chance. "Species come and go, their presence or absence is dictated by random dispersal and stochastic local extinction" (Hubbell 2008:9). Thus, in niche theory the community is assembled not through historical processes but through deterministic laws that operate on current conditions. In neutral theory, history merely means random chance dispersal events and mutations.

One emerging area where ecologists do practice the kind of history that anthropologists recognize is in so-called priority effects in community assembly (Vanette & Fukami 2014; Fukami 2015). Priority effects are defined as "[the impact of one] species on one another depend[ing] on the order in which they arrive at a site" (Fukami 2015: 4). They can be inhibitory or facilitative, although the inhibitory ones have been most commonly studied. Also, pairwise species interactions are most studied over higher order interactions because of complexity. Crucially, researchers interested in priority effects stress the importance of a more familiar (to anthropologists) version of historical contingency, which here refers to "the effect of the order and timing of past events on community assembly" (Fukami 2015: 4). That having been said, priority effects remain a very small part of ecological research today. Historical ecology and natural history (Cevalco 2004) represent additional exceptions to the non-historical approach within ecology, though both are marginal within the field.

Thus, while ecologists have much to say about the formation of patterns in non-human communities and the forces driving them, their Anthropologists know to be skeptical of Capital S science “visions from nowhere and everywhere,” as Donna Haraway (1988) has put it, having demonstrated how knowledge is always situated—always culturally, historically, politically specific. African landscape change—and humans’ role in driving it—has been misunderstood by scientists repeatedly, sometimes because of racist or anti-poor biases, and sometimes with serious political implications for land access or management. But recognizing that science is situated cannot be the end of the story. Anthropology has taught us to be skeptical of accounts of peasant-induced land degradation, even though we know that livestock are hugely impactful. We need to mobilize our insights about the situatedness of science as well as the ecological science insights about non-human processes and marshal them to do ecological storytelling on our own terms. That is, the tools of anthropology can be used to operationalize ecological insights, to make them usable in critical humanistic work.

Scholars have shown that exotic plant invasions and fears about their damage can serve as a conduit for racist and xenophobic ideas (Comaroff & Comaroff 2001; Hartigan 2015a; Subramaniam 2001; see also Hartigan 2015b; Van Sittert 2002). On the other hand, plant invasions have materiality and consequence beyond this. Capitalism and colonialism has facilitated plant invasions through trade networks bridging nodes in an imperial world system (Crosby 2004). Species transferred between the nodes emanate outward, transforming both the imperial and dominated

societies in the process (Casid 2009; Grove & Falola 1996; Atchison & Head 2013; Head & Atchison 2015). In the ruins of capitalist processes, landscapes are colonized by weedy species (Tsing 2015a). But the shrubs that are currently spreading across Lesotho's highland landscapes are not alien species from far off colonizing new territory: they have been present in Lesotho for at least a century and probably more. Nor is Lesotho the site of postindustry, but rather a site of "disjunctive inclusion" (Mbembe 2008), formerly critical to a distant site of industry that no longer needs Basotho labor: a peculiar, rural postindustrial space.

Anthropologists need to account for both the semiotics and materiality of plant invasions. Until we can make and authorize observations about plant form and process as anthropologists, such as through natural history observations, we will struggle to draw together these material and semiotic strands. Equally as important as understanding the role of plant form in landscape-making practices is the role of figuration. In the next section, I show how shrubs are being developed as figures of rangeland degradation in Lesotho, before turning to examine the narratives of my informants regarding the causes of shrub spread.



Figure 42: Herder in a shrub-encroached pasture. Photo by the author.

Figuration of the Dwarf Shrub

Figuration refers to the structural features of imagination as they emerge in relation to empirical materials. All story-telling draws upon these structural features (Haraway 2016; Tsing 2009; Stewart 1996; Berlant 2011). Consider the figurations made by government conservation bureaucrats. Dwarf shrubs have come under suspicion as indicators of overgrazing, mismanagement, rangeland degradation, and desertification. This has been true for quite some time, an association that dates back to the late 19th century in Southern Africa (Beinart 2008:122).⁵⁴ In Lesotho, one

⁵⁴ Presaging this situation, the early South African conservationist John Shaw believed that sheep impacts on soil and vegetation would lead to the loss of the

species is held up as the emblem of them all—*Chrysocoma ciliata*—but others have been pulled in by its currents.

Rural people and elites do agree on the fact that these shrubs are a problem, and one that has increased in recent years. Shrubs are not plants that livestock like to eat. During times of duress, as when snow cover covers grasses for several days in a row, sheep and goats will feed on them. One can find goats and sometime sheep browsing the shrubs, but, as herders explained to me, “*lia qota-qota feela*”, they just nibble a little bit to calm their stomachs when they’re sick. If they eat too much, they get truly sick. *Chrysocoma ciliata* has been shown to be fatal to lambs, as it can induce a neurological disease called Falling Disease (Van der Vyver et al. 1985). So the fact that there are more shrubs today means that there are fewer grasses, a serious problem for local people who depend on livestock for their livelihoods. “Shrubs are the enemy of the rangelands,” my friend and government conservation employee, Masilo, explained to me. Crowding out the grasses that would otherwise provide these areas with dense vegetation cover, he told me that these shrubs are said to encourage erosion. As we spoke, a pickup truck twice came to fetch bales of *sehala-hala* for sale as fuel in Mapholaneng.

landscape’s water-retention capacity, necessitating “colossal dams” to prevent “poverty and death to an incalculable extent amongst our flocks in South Africa” (Shaw 1874:208; see Beinart 2008:123).



Figure 43: Dense cover in a shrub-encroached pasture. Photo by the author.

Indicator species like these are an entry into understanding how the landscape histories of conservation workers, peasant livestock owners, and ecological scientists come into being. Indicator species are those species that designate an ecological condition, such as healthy or unhealthy. They are “sentinel devices” (Keck & Lakoff 2016), which call forth the future in the present. Presence of a population of “apex predators” such as a lion or wolf indicates a healthy ecology (Sergio et al. 2008), a particular species of tree can indicate a moment in a process of ecological succession (Clements 1936), a profusion of algae can indicate high nutrient loads in the upstream catchment. Indicator species conjure a history in their very being—or, in the language of semiotics, in their indexical relation—a description of change and, in many cases, an implied driver of change.

Indicator species are not to be done away with. But we must be clear about whether their connections are correct and about what they render visible or invisible. Indicators are also used in other contexts, such as the law and humanitarian institutions. Sally Engle Merry (2011:239) notes that indicators act as ostensibly straightforward thinking tools, bringing forward the critical elements of a complex scene into view. And, yet, they “conceal their political and theoretical origins... rely[ing] on practices of measurement and counting that are themselves opaque.” Indicators, she explains, can end up displacing judgement and enable facile, uninformed deductions that are ostensibly authoritative. Such is the case here, I suggest, where shrubs are used as easy referents for a preformed landscape historiography. Not all shrub species in Lesotho are foreign, for example, even though their populations and ranges may have expanded with human settlement (Carbutt & Edwards 2001). The use and validity of indicator species signals a contest over ecological understanding and engages with questions of positive human influence as well as the nature of disturbance (Lakoff 2016).

As an eminently visible and ubiquitous figure on the range—in contrast to the localized and less visible markers of soil erosion—the shrub has come to embody “degradation” in a general sense, suggesting overgrazing, pasture burning, mismanagement, and the decline of water retention.⁵⁵ Through complex connections

⁵⁵ Consider the following passage from a country report for the Convention on Biological Diversity (1995:6):

Recently, the rangelands of Lesotho have been degraded to levels of non-recovery through overgrazing due in part to overstocking. Overgrazing of the

made between livestock, shrubs, and a water scarce future, the shrub comes to embody water scarcity and peasant land mismanagement. Though these connections antedate the LHWP (see Beinart 2008), they are pulled into its currents in contemporary Lesotho.

A story told to me by a local councilor in the (lowlands) ‘Muela Valley, where the LHWP dam reservoir is known to be silting up (see Chapter 2), was evocative of these linkages between water production, rangeland management, and shrub form. I met the councilor, Nt. Ntsikeng, while waiting for a friend of mine to get dressed before a hike we were about to take. Ntsikeng asked who I was and what I was doing. After I told him, he described to me his recent trip to Mokhotlong with two NGOs,

rangelands has led to decrease in diversity of species and invasion of non-palatable species. With the degradation of the rangelands, there is an accompanying invasion of the Karoo species like *Chrysocoma*. Although the extent of *Chrysocoma* invasion has not been quantified, these shrubs are now being observed in areas where they were not previously known to occur. Although *Chrysocoma* provides ground cover against rain induced soil erosion, it is an indicator of deterioration of the rangelands, loss of useful biological components and a sign of increasing desert-like conditions. In essence, Lesotho is progressively becoming a desert.

C. ciliata has been identified with livestock overgrazing since at least the 1870s, when farmers and conservationists in South Africa reported its invasion into heavily grazed sheep pastures (see Beinart 2008). It was despised for its fecundity and for the difficulty surrounding its eradication. Many note that pastures recover from *C. ciliata* infestation soon after they have been rested, with the desirable forage grass, *Themeda triandra* outcompeting the shrubs for resources (Jacot-Guillarmod 1971:45). Most of them cite the colonial experiments at Thaba-Tšoeu and Thaba-Putsoa, which indicated that a return to *T. triandra* can be achieved by simple enclosure and rotational grazing, something that was said to be achieved in just twelve years at Thaba-Putsoa, an area that was previously “covered with *Chrysocoma*” (Basutoland 1948:44). A twelve-year enclosure of Lesotho’s rangelands would be nearly impossible, however. It was amazing that it happened even just for 2 years at Motšerimeli, and even still it was opened for one month and beset by observed and rumored accounts of grazing by animals at nearby cattle posts.

called GROW and Serumula. The NGOs took a group of councilors to the mountains for training—not a “workshop” (*thupelo*), which he described as more of a “demonstration” (*pontšo*). The group of councilors was led by two white people who Ntsikeng was told were experts (*batsebi*) in range management. The councilors were taken to a place called Motšerimeli, where the government had been paying rural people to uproot shrubs to allow for grasses to grow instead (i.e., a *fato-fato* program, as described in Chapter 2). I was surprised to hear they had been taken to Motšerimeli: I had been conducting fieldwork there for the past five months by that time. He spoke with admiration about the large rows of uprooted shrubs (*metsele-tsele oa sehala-hala*) they saw there, and how shrub removal had improved the condition of the pasture.

He and the other councilors learned during this demonstration that the presence of grass was preferable to shrubs not simply because grasses are fodder for livestock, but also because the grass *sieves* the water (*joang bo sefa metsi*) and, when shrubs dominate, the water simply runs down slope (*metsi a matha feela*). It was a kind of roots philosophy of water. They were then taken to a different *fato-fato* site where soil had completely washed away, leaving only the bedrock (*matlapa*) exposed. “Stonelines” (*metsele-tsele*) were being built there, long rows of stones running perpendicular to the slope of the hill. They were told that the stonelines would allow soil to accumulate so that plants could recolonize the area. Using a Sotho proverb, Ntsikeng explained that the experts’ stated rationale for the demonstration was a cautionary tale: “*Ho haha serobe phiri ese jele*” (literally, to build a chicken

coop when after the chickens have already been eaten by a hyena). That is, they wanted to caution against attempting to correct problems after it is already too late (despite the fact that most conservation work in Lesotho does just that). This didactic demonstration of conservation works effectively sought to generate a particular story about soil hydrology, plant root systems, and land use management.

Livestock owners and herders also envisaged a kind of desertification—an increasing water scarcity—through the shrub. For them, however, the shrub was not an indication that overgrazing was bringing about desert-like conditions, but rather an indication that diminished rains were favoring shrubs over grasses. For example, while I sat with a man talking with a man outside his home about medicinal plants, he pointed to a cactus plant called *torofeile* that was growing just above the rock wall near to where we stood, which helps improve blood flow when its fruit is eaten. He explained that it is a good plant to have because it does not require water. It's like *sehala-hala* in this sense, he told me – “it thrives when there is no water.”

There are mixed opinions on these shrubs' relation to soil erosion. Whereas Amy Jacot-Guillarmod (1971:45) believed that *Chrysocoma ciliata*, *Aster filifolia*, *Senecio spp.* and other species seen by conservation workers as signs of overstocking provide soils with stability to withstand erosion, others disagree. A Basutoland Colonial Report from 1948 states:

The northern, northwestern, and north-eastern slopes of the mountains were originally covered with sweet (Themeda) grass, while the colder slopes grew 'sour' grasses of which *Festuca caprina* was the dominant species. Stock naturally congregated in the sweet grass, with the result that this has been slowly eaten or trodden out and its place has been taken by useless scrub, *Chrysocoma tenuifolia* [*C. ciliata*, aka bitter karoo bush]

predominating. The grazing value of these slopes has consequently steadily deteriorated. *Chrysocoma* also offers little resistance to soil erosion. In this way a very large percentage of the mountain slopes has been damaged and it is considered to be a matter of the most urgent and vital importance that these slopes should remain their former grass covering. (1948:16).

I noticed very few sites where gullying had exposed the root systems of these shrubs, which suggests that they do provide some security.

What Causes Shrub Encroachment?

Conservation workers and peasant livestock owners in the Lesotho highlands both engaged the shrub as an indicator species of degradation and decline. In theorizing landscape change, however, they focused on different aspects of the plant's body and drew different conclusions about the causes of shrub encroachment. I turn to these differences now.

Government and Conservation Depictions of Shrub Spread

“Have you noticed any changes in the mountain rangelands over the years or do they look more or less the same?” It was a question I asked many people during field research. The man I was speaking with was a former civil servant who worked for many years on rangeland issues, named Bokang. We were sitting in a breezy outdoor café in the capital, Maseru. He said: “Yes, definitely. They are badly degraded today – much worse than when I first began working. When you go to the mountains, you see *sehala-hala* everywhere – this ‘bitter Karoo bush.’ And you know what the Karoo desert is like. The shrubs are a sign of desertification.” That response was one that I

would hear regularly from conservation workers in government and foreign NGOs. He carried on telling me about the history of grazing associations in Lesotho. To him, management had been the critical problem burdening Lesotho for decades: that livestock exceeded the carrying capacity of pastures and that local chiefs were unable to control grazing adequately.



Figure 44: MFLR conservation workers from the roadside. Photo by the author.

The symptom and the partial cause of this problem was the shrub, *Chrysocoma ciliata* (known in Lesotho by its common name, *sehala-hala*, and in English as bitter Karoo bush). Specifically, he and other conservation workers referred to two related features of the plant: its palatability and its competition for

light resources. They explained that, because the plants tasted badly to livestock—even goats avoided them—they were given a competitive advantage for light resources when the grasses around them were eaten. The toughness and sour taste of shrubs' leaves and their height relative to grasses around them, called forward an ecological story about their spread that made their increasing dominance and the effects of livestock almost self-evident. It was a landscape history that he told, through reference to shrub practices. And he felt the problem was solvable through better management, the focus of his Department.

Herders and Livestock Owners: The Rain Problem

By contrast, herders and livestock owners told landscape histories through reference to shrubs' evergreen leaves and woody stem. A walk I took with a man named Ntsupa through the shrub-encroached Motšerimeli Valley was evocative of this. Ntsupa and I stood on the ridgeline looking out over the Valley, a cattle-post area where people keep livestock during the winter months. I had asked him to hike with me through the area to tell me about the landscape's history—whether it had changed, how it was managed, and so on. Relatively warmer than the high-altitude summer cattle posts but outside of the villages where sheep and goats are not generally allowed, this area gets 3 months of rest between January 1 and April 1. The winter cattle post areas thus take the brunt of grazing pressure and are a critical link in the rotational grazing system that has been in place for about 70 years. Where we stood, at an elevation of 3,000masl (10,000fasl), there were fewer shrubs than in the lower reaches, where

dense stands of shrubs create a mat of vegetation. But the shrubs – nearly all *malitšoekere* (*Helichrysum trilineatum*) – thinned out as they reached the ridge, where we stood. There, it was mostly *letširi* (*Festuca caprina*), a tufted, perennial grass that livestock like, provided it is burned every few years. Born in 1948, he had been visiting this very area since he was a small child – first as a herder at his father’s nearby cattle post and later as a headman and a livestock owner who kept his livestock at that same post. Ntsupa explained to me that the entire area used to be primarily grassland just 20 or so years ago. Shrubs had always been present, he said, but they were confined to small patches along the river or in the small valley coves (*liphulaneng*).



Figure 45: Ntsupa looks out over the Mokhoabo-Motšo Valley. Photo by the author.

We came upon a herder that Ntsupa knew. He seemed as old as Ntsupa, perhaps older, with a herder's blanket and a wide-brimmed, woven grass hat. He and Ntsupa were clearly old friends, both leaning on their walking sticks as they made some joking small talk. The man asked us what we were doing, and I explained that I was interested in learning about changes in the landscape. We stood knee-high in shrubs – mostly *sehala-hala* (*Chrysocoma ciliata*) on this, North-facing slope. He agreed with Ntsupa about the recent encroachment. What is the reason for their spread, I asked? “*Pula e lesiko*,” they said almost in unison—there have not been rains. The rains used to come much earlier, they explained – in October, at the beginning of spring, rather than in December or January, well into summer. When these rains do finally arrive, these days they fall as destructive thunderstorms (*pula ea sekhahla*) rather than steady rains that fall over many hours and percolate into the soil (*pula ea molupe*). Nor has there been as much snow during winter, Ntsupa added. In the past, snow would fall and melt during the daytime, giving moisture to the grass over the course of the winter. They explained that, with drought, the shrubs have an advantage: their hardy roots hold water when the grasses have nothing. Being evergreen, too, they can photosynthesize and use that stored moisture to grow throughout the year. He hit a shrub with his stick as though to emphasize the stiffness of its stem. Plus, the man added, all their leaves can die off and their roots can still regenerate, giving them additional resistance to drought. (*Sehala-hala se ka shoa empa methapong se se shoe.*)

I am inclined to believe the herders who have spent a lifetime observing those rangelands. But these two positions are not wholly disparate, and the concerns about livestock grazing are justifiable. Even though herders and livestock owners did not imagine livestock as the cause of shrub encroachment, many of them did believe that livestock numbers were too high today and that this was leading to a decline in the amount of available forage.

Ecological Science

Research in ecological science provides support for both perspectives on the cause of shrub encroachment. As described by conservation workers, the above-ground competitive advantage of shrubs relative to grasses in grazed pastures is a documented phenomenon (Angassa 2014; Barbosa da Silva et al. 2016; Fernández-Giménez & Allen-Díaz 2001; Rutherford & Powrie 2013). Ecologists, though, have also documented shrubs' ability to access comparatively more of the available soil moisture than grasses—particularly in the lower subsoil—through their extensive root systems (Breshears & Barnes 1999; Schlesinger et al. 1990; Walker & Noy-Meir 1982), and the positive effects of climate change on shrub populations (Sturm et al. 2001; Büntgen et al. 2015).

Trying to understand the relative importance of different possible determinants of shrub density, I explored these two different perspectives using methods from ecological science. I set up a study in the area where I walked with Ntsupa, delimiting a study area of $\sim 12\text{km}^2$ in ArcMap and generating a set of random

points. At each of them, I measured shrub density—the percentage of shrub cover in a 5m² area—as well as soil and topographic properties that seemed relevant based on my natural history observations and my reading of the literature, including soil depth, soil moisture, and soil nutrient loads; slope; aspect; elevation; and hill position. I then mapped the location of heavily grazed areas, like the cattle posts where animals sleep and water points like springs and rivers where they are watered. Combining that information with topography, which affects how livestock move through the landscape, I created a map of grazing intensity so that I could describe the grazing intensity of each of my sample points (see Figure 46). I then used statistical regression to determine which variables explained whether a sampled point had lots of shrubs or just a few. The analysis showed that the factors which best explained shrub density were grazing intensity, soil moisture, and soil nutrients (Hoag & Svenning n.d.a). Where livestock grazing and soil nutrients are high and soil moisture is low, you will find more shrubs. So, in a sense, both conservation workers and peasant livestock owners appear to be correct: livestock grazing is important, and so are soil resources.

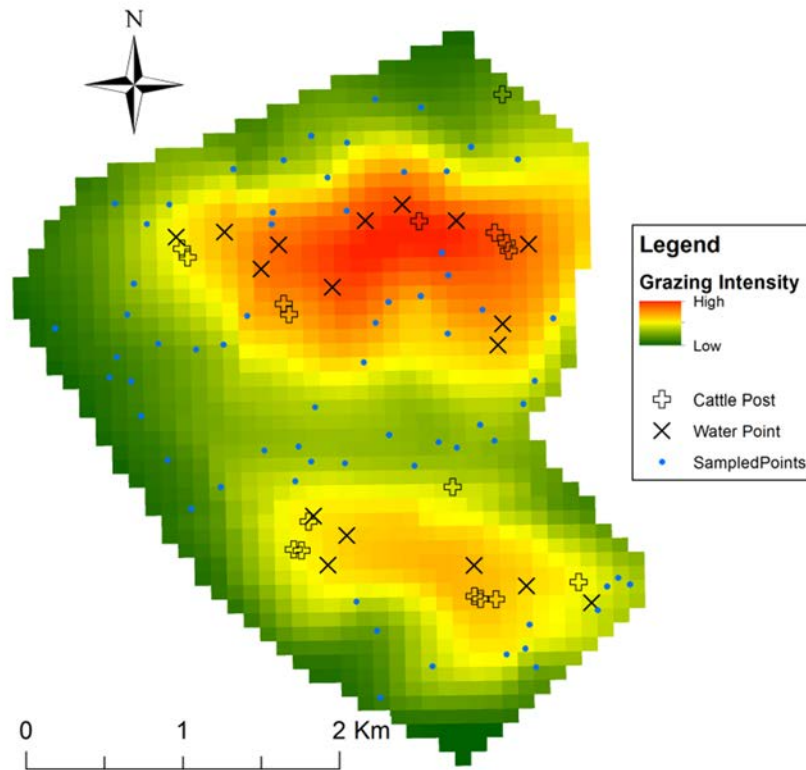


Figure 46: Map of modeled grazing intensity, with cattle posts and water points from Hoag and Svenning (n.d.a).

Table 1: Model results for our ordinary least squares regression, exploring which variables explain the variation in our sampling data.

Variable	Standardized Coefficient Estimates
Grazing Intensity	0.359159**
Soil Moisture (VWC)	-0.50149**
Soil Nutrients (EC)	0.4082846**

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared = 0.264; p = 0.0002532; DF = 3 and 62

Figure 47: Model results from Hoag and Svenning (n.d.a).

So what are we to make of this? First, it is worth noting that the temptation to see natural sciences as the final word is mistaken. One finds this tendency even in

social scientists critical of “Capital S” science. Despite the quantitative character of the results and these scientific figures I describe above (see Figures 46 and 47), ecological science results are often murky and requiring interpretation. This is partly because ecologies are so complex. It is not uncommon for results in ecological science to explain just 30-40% of the variation in data, meaning that good ecology can leave 60-70% of the data unexplained—and this assumes that the study measured the right variables, at the spatial and temporal scales appropriate to the research question.

Second, our ecology results do not show historical process. They explore the variation among variables at a given moment in time. So while they might help explain the factors that determine how species interact with each other, they do not tell us why the species are there in the first place, nor which historical events may have given some an advantage over others. For example, the structure of a forest might be determined more by a major drought 20 years ago—or by human efforts to prevent fire—than by the competition for soil moisture between different plants in the forest. Indeed, since the rise of quantitative ecology in the mid-20th century, history has largely been excluded from view in ecological science in favor of this kind of theorizing I described above (Kingsland 1985). Where history does appear, it tends to be treated either as purely random factors that aren’t easily understood (as in neutral theory); a deterministic set of events like a glaciation or a volcanic eruption; or as a kind of system memory as in “priority effects” (Fukami 2015), where the timing and order of species arrivals determines how ecosystem dynamics play out. With the

exception of these last two, which occupy a small corner of ecology, these notions of history are very different from the one employed by anthropologists, where contingency and political struggle are key to explaining why the world today looks as it does.

I do not mean that ecologists do not believe in history—that things happened in the past. History plays a prominent role in other branches of biological sciences, such as evolutionary biology. Biogeographers, too, explore how major events in the past such as the breakup of Pangea (Mao et al. 2012), (de)glaciation (Sandel et al. 2011), or human-driven extinctions (Faurby & Svenning 2015) have shaped the geography of (see Svenning et al. 2015). However, in ecology—the interpretation of biotic patterning through reference to interactions—the dominant mode of theorizing is as described above: variables are delimited and the relative statistical importance of each is used to infer past ecological process. This contrasts sharply with anthropological sensibilities, where contingency and political struggle are key to explaining why the world today looks as it does.

Anthropology allows us to do that necessary historical work, to recognize the emergent, relational quality of objects in the field, and to envision non-humans as biographical. It teaches us how to interrogate the narratives of our informants—whether they are scientists or so-called everyday people—to learn how they are shaped by historical and political circumstance. Second, in doing so, it allows us to get inside those narratives and treat them as vantage points for seeing different material processes (Tsing 2015b). That is, we can also draw on science studies

insights to account for the situatedness of knowledge. For example, in order to do the study as an ecologist, I needed figure out what to count and at what spatial scale to do the counting. Because of a commitment within anthropology and the anthropology of science to recognize a multiplicity of ontologies (*inter alia* Mol 2002; Henare & Holbraad 2007), we are able to make observations about a natural world that is full of emergent objects rather than pre-formed things. This means that we can also be attentive to the unique biographies of non-humans in a way that is suppressed within ecology,⁵⁶ drawing insights through natural history observation—structured and unstructured exploration of landscape patterns. Beyond simply comparing different perspectives, anthropologists can describe how different landscapes are enacted through distinct landscape readings—how things emerge as seeable or countable from specific positions, though encounters with specific plants and places, and how differences between the ethico-political positions of knowledge-makers call into question any effort to render those knowledges symmetrical (Lyons 2014; Rahder 2015).

Situated Knowledges, Situated Ecologies I: Conservation Landscapes

Situating conservation workers' perspectives is revealing of the historical processes shaping the perception and production of landscapes. I was taken to many shrub-

⁵⁶ However, there has been a recent resurgence in natural history within ecology, which offers opportunities for this kind of work, including a new *Natural History Notes* section in the journal *Frontiers in Ecology and the Environment* and the Natural History Network (<http://naturalhistorynetwork.org/journal/articles/why-natural-history-matters/>).

encroached pastures by range management officials and NGO workers—who were almost always from the lowlands—and they gave me almost exactly the same answers regarding the causes of landscape change and the solutions to fix it. The language was eerily similar and it was basically just as Bokang described it above. They saw in these shrub-encroached pastures a “tragedy of the commons” (Hardin 1968) scenario, a well-worn but durable tale about the failure of common property regimes and peasant irresponsibility.

For example, my friend and government conservation worker, Masilo, was an eminently good person who wanted to do his job well. But he knew nothing about the history of the District where he worked, having only lived in the mountains at the time of my research for about 2 years. Nor did he have formal training in rangeland ecology—his ecological narrative was inherited through rote learning on the job. In the massive Mokhotlong District over which his office presided, he typically visited just a few villages per week and little of his work was devoted to learning from villagers about the history of their specific rangelands. Instead, he mostly helped resolve conflicts over grazing land or promoted grazing associations. When I went along with them on trips—even when they visited a rangeland, we did not stray far from the truck (see Figure 44).

Reading colonial descriptions of shrub encroachment from Lesotho as well as South Africa, I have often been struck by just how much they echo the language of these conservation workers. Their narratives are characterized by: This roadside view of rangelands, an interest in “management,” an emphasis on the personal

responsibilities of herders and an ecological language that endures from the colonial period (e.g., see the *Basutoland Colonial Reports*; Beinart 2008).

No early missionary accounts of the highlands that I am aware of describe shrub-dominated landscapes. Many accounts describe very good pasture. James Murray Grant's diary (Mitchell & Challis 2008) from his military and exploratory trip through the highlands in 1873 reports only good pasture and notes "bushy" vegetation only upon reaching the western escarpment of the Malutis, as the mountains give way abruptly to the foothills. Concern about shrub encroachment in the highlands emerged in the historical record in the 1920s, when the British colonial administration sent a man named Russell Thornton to conduct a survey of then Basutoland. His 1931 report, *Agricultural and Pastoral Conditions in Basutoland*, claimed that overgrazing was leading to an increase in shrubs, which he claimed to cover 13% of the highlands. The concerns over soil erosion at the time led to the imposition of bans on pasture burning as proponents of the ban suggested that newly burnt pastures were denuded of vegetation and therefore susceptible to soil erosion.

Colonial accounts of African landscape change are problematic on account of the fact that colonists have at times sought to portray colonized subjects as unfit to manage their resources and therefore in need of colonial stewardship (e.g., see Leach & Mearns 1996). This same concern is justified when Bokang, the conservation worker I described above, suggested that land condition could be improved if only these rural people adopted the Grazing Associations that his office suggests (also see Chapter 3). But in the case of Thornton's report, there is some merit.

Livestock grazing expanded dramatically in the highlands during the late 19th and early 20th centuries. This was for three reasons, which I describe in more detail later in the Chapter (also see Chapter 5):

- 1) Because of land pressures in Lesotho's Western lowlands where most Basotho lived at the time, as white, Afrikaner farmers began colonizing that area and the British colonial administration sanctioned massive transfers of lowland territory to them;
- 2) Because of the British promotion of highlands wool production for colonial monetary gain, constructing woolsheds for shearing sheep and roads for transporting wool out of the mountains; and,
- 3) Because commoner Basotho turned to highlands wool production to circumvent the authority of an aristocratic class of chiefs who governed the use of lower lying pastures.

Sir Alan Pim made three recommendations in the famous Pim Report in 1935, which sounded the alarm over then Basutoland's soil erosion problem (see Chapter 2): 1) initiate soil conservation programs across the country; 2) issue a gazette to consolidate the number of chiefs in the country, thereby instituting indirect rule; and 3) create a set of bridle paths that would enable Basotho and especially white traders to bring wool from the highlands, where it was produced, to market. The Basotho aristocracy was initially more interested in controlling highlands pastures for cattle grazing than they were in raising sheep and goats, though this likely changed as the bridle paths opened up new markets for wool. Thus, settlement of the highlands was a

political process, and one that saw the emergence of a new regime of human landscape relations that included capitalist production among other non-capitalist practices.

When sheep arrived in the highlands at that time, they found a territory whose pasturage was not accustomed to intensive grazing. And ecological science research (Milchunas et al. 1988; Leader-Williams 1988; see also Scheffer 2009; Holling 1973) is clear that the effects of a sharp increase in grazing by domestic livestock in historically ungrazed pastures are much more significant than in those with a long history of intensive grazing, as I describe in Chapter 5. This is because the grasses and forbs found in ungrazed pastures are not evolutionarily pre-adapted to endure the impacts of livestock. In essence, such systems do not have a high tolerance threshold for grazing and are more susceptible to regime shifts from one ecological state to another (Cingolani et al. 2005; Westoby et al. 1989; Melville 1997), such as from grassland to shrubland. Sheep are known to be a particularly destructive animal (Weisiger 2009; Melville 1997; Skinner 1976; Anderson 2006), including many people in Lesotho. Once, a councilor told my informant from the Department of Rangeland Resources Management (DRRM), Masilo, that the policy in the area under his jurisdiction is that, if large stock are impounded, they pay 20 Maloti per animal, and if small stock are impounded, they pay 50 Maloti/animal. This contradicts the fees set out in regulations published in the Government Gazette, which charge M1.50 and M0.50, respectively. When Masilo asked him to explain, the councilor stated that

they charge more for the small stock because they destroy the range more than the large stock (*li senya makhulo ho feta tse telele*).



Figure 48: Two men bring their sheep to a shearing shed. Photo by the author.

Just as human perspectives are always situated, like the conservation workers who see rangelands from the roadside, so, too, is shrub proliferation. It is never uniform and all-pervasive. It is spatially specific, spreading along specific pathways. As my natural history observations of shrub occurrence attest, shrubs thrive along the heavily disturbed roadsides and bridle paths. Important ecologists and botanists in South Africa have suggested, like Ntupa, that invasive weeds inhabited small valley coves in the Lesotho highlands before being led out into the rangeland at large along roads and livestock paths. The botanists Hilliard and Burt (1987:14) suggest that the use of the highlands for stock-grazing initiated the introduction of a variety of alien

weeds, which are often found in abundance at Cave Sandstone overhangs where animals were sheltered in the early days of highlands grazing in the late 19th and early 20th centuries. As with the livestock paths that were cut from these movements, formal roads and bridle paths accelerated this process. The colonial administration's creation of roads into the highlands during that time, enabling the transportation of wool to markets, would have also constituted a regularly disturbed pathway for shrub invasion. Hilliard and Burt (1987; Carbutt 2012) suggest that overgrazing and the 1974 improvement of one of the major roads linking Kwa-Zulu Natal to Mokhotlong camptown, which opened it to 4x4 vehicles, was critical, as affirmed by long-term monitoring done by other ecologists (Kalwij et al. 2015). Sani Pass on the Eastern edge of the escarpment had probably been used by people bringing animals from the highlands to Natal throughout the 1800s but between 1914-1920 James Lamont, a trader in Mokhotlong, became the first to establish 1920 a formal trading post at the base of the pass. By the 1930s, about 40,000 animals a year were using the pass, sometimes 2,000 in a single day (Hilliard & Burt 1987:14).

Consider shrub biology, as I described it earlier on: their fast growth, their production of large numbers of wind-dispersed seeds that thrive in heavily disturbed areas, such as along livestock paths and roads used to transport wool and mohair to global markets. The verges and ditches created to channel water away during storms were an ideal pathway for these shrubs.

Thus, an ecological story about livestock-induced shrub encroachment told in the same language since the colonial era, such as by conservation workers, probably

has some merit. But it is not merely a story of how livestock grazing gives shrubs a competitive advantage over grasses—it is one of colonial extraction and political dynamics within Basotho society. Without that part, we are missing key facts in the story.

Situated Knowledges, Situated Ecologies II: Livestock Owner Landscapes

Situating peasant livestock owners' narratives is similarly revealing. They regularly told me that shrubs only became a problem in the previous 20 or so years, when rains diminished and became erratic. It is the same period during which mining labor declined dramatically, along with the entrepreneurial dreams that those earlier economic arrangements entailed. While working in the mines, families would build up herds of sheep that could pay out annually after men returned home due to retirement or injury. Herders and livestock owners' lives were deeply caught up in this political economic shift away from labor migration. They often described their livestock histories to me with reference to work in South Africa—either through stories of how their herds were begun when they were workers in the mines; how they sought (in the case of younger herders) to one day leave the cattle post to find one of those rare jobs in South Africa; by wanting to teach me Fanakalo, the pidgin language spoken in the mines; or even simply by wearing hardhats and other mining paraphernalia.

For herders and livestock owners, whose daily experience is in thinking about rains and their impact on forage, shrubs are a sign not of the threat of soil erosion, as

for conservation workers, but of a loss of forage displaced by shrubs. As with the political shift away from mining, the environmental shift they describe—the droughts and the delays in the onset of the rains—is out of their control. Theirs is a structural explanation of climate change and political economic change.⁵⁷

With respect to what we know about the timeline of shrub spread, after that 1931 report, there was no data or monitoring until a study was undertaken in 1986 to describe land cover across the country. That study found shrub cover to occupy 11% of the Mokhotlong District. More recently, a *State of the Environment* report by the Government of Lesotho in 2004 suggested that 16% of the country was encroached by shrubs (Mokuku 2004), though the authors did not explain how they arrived at the figure. The Government of Lesotho's most recent comprehensive vegetation survey, the 1988 National Rangeland Inventory, classified three types of shrubland (*Chrysocoma/Artemesia* low shrublands, *Leucosidea* tree/shrublands, and *Rhus* tree/shrublands) and found them to cover 601,652 ha, or almost 20% of the country (cited in Chakela 1999:78), though the *Rhus* type (110,771 ha) occurs primarily in the lowland and foothill zones (see also May 2000). On the other hand, Bawden and Carrol's (1968) nation-wide *Land Resources of Lesotho* study, which used sampling data to ground truth and reorganize maps drawn by phytogeographers, described no mountain areas as being dominated by shrubs. The Lesotho government's first State

⁵⁷ This contrasts with Nayika Mathur's (2015) research, where bureaucrats drew on the concept of climate change to pursue political ends and deflect responsibility for local problems. In Lesotho civil servants and conservationists draw on human mismanagement as a central trope to justify their work and beliefs.

of the Environment report (Chakela 1999) reported a 12% cover of shrubs and a “rapid” deterioration of rangelands. The second State of the Environment report (Mokuku 2004) reported that 16% (359,680ha) of Lesotho’s rangelands have been invaded by the shrub. In interviews I conducted in 2014 and 2016, some livestock owners and government conservation officials reported marked increases in shrub cover and bare ground in Mokhotlong over the previous 10-20 years.

My own investigation (Hoag et al. n.d.), which modeled land cover using satellite imagery, found that 23% of rangelands were shrub-dominated in Mokhotlong district alone. The findings showed little change over the 15-year period 1998-2013. The figure of 23% is significant, especially if one considers that people who have looked closely at this issue (Driver 1999) saw Thornton’s 1931 figure of 13% cover as inflated and alarmist, but also if one compares the results of the 1986 study, which found shrubland to cover 11% of the Mokhotlong District. In short, this represents a significant increase, affirming my informants’ statements.

While the increase in livestock during the early 20th century is clear, livestock statistics in Lesotho are not extremely precise. Currently, the production of livestock statistics is undertaken by at least six different offices of government. Ward Chiefs and Councilors in the highlands maintain a “master registry” of the livestock that live in their area, though this does not include livestock that are owned by people outside their area but which graze within it, nor is it a complete accounting, as many livestock owners neglect to register their animals. Principal Chiefs whose areas contain high-altitude “A” rangelands keep a fragmented registry of animals kept at cattle posts

there. The Department of Trade and Industry maintains figures on stock that are imported or exported from the country. Their efforts are primarily focused on small stock given the importance of the wool and mohair industry as well as the fact that large stock are not sold on the market in any significant numbers. The Livestock Division of the Department of Home Affairs maintains a database of livestock that are tattooed as part of their new marking program, which has been slow to roll out (due to lack of resources, the Division can currently register only 1,000 animals per month). Subsequent to the first round of markings, the DHA is going to charge a fee, which suggests that the participation will drop considerably. The Lesotho Mounted Police Service also keeps track of livestock that are reported stolen and which they help to retrieve. Finally, the Bureau of Statistics produces figures through an annual, countrywide survey, although their survey does not account for the fact that animals owned in one district may be grazed in another district for part or all of the year. Moreover, livestock are not kept uniformly across districts, meaning that district-wide figures can be difficult to use when investigating a specific landscape.

They do not show a significant increase in livestock during the period between 1985 and 2000, but I was told almost universally by people living in Mokhotlong that there are many more livestock owners with large herds than there were a generation ago. This, I was told, is because the decline of labor migration has left sheep and goats production as one of the few economic opportunities. My informants explained that because of theft (see Kynoch & Ulicki 2000) livestock are being increasingly concentrated in a select set of cattle post areas, so again livestock impacts are not

uniform across the highlands. Moreover, livestock statistics rarely show turnover, which is particularly important today with an emergent sheep and goat exporting trade (see Chapter 5).

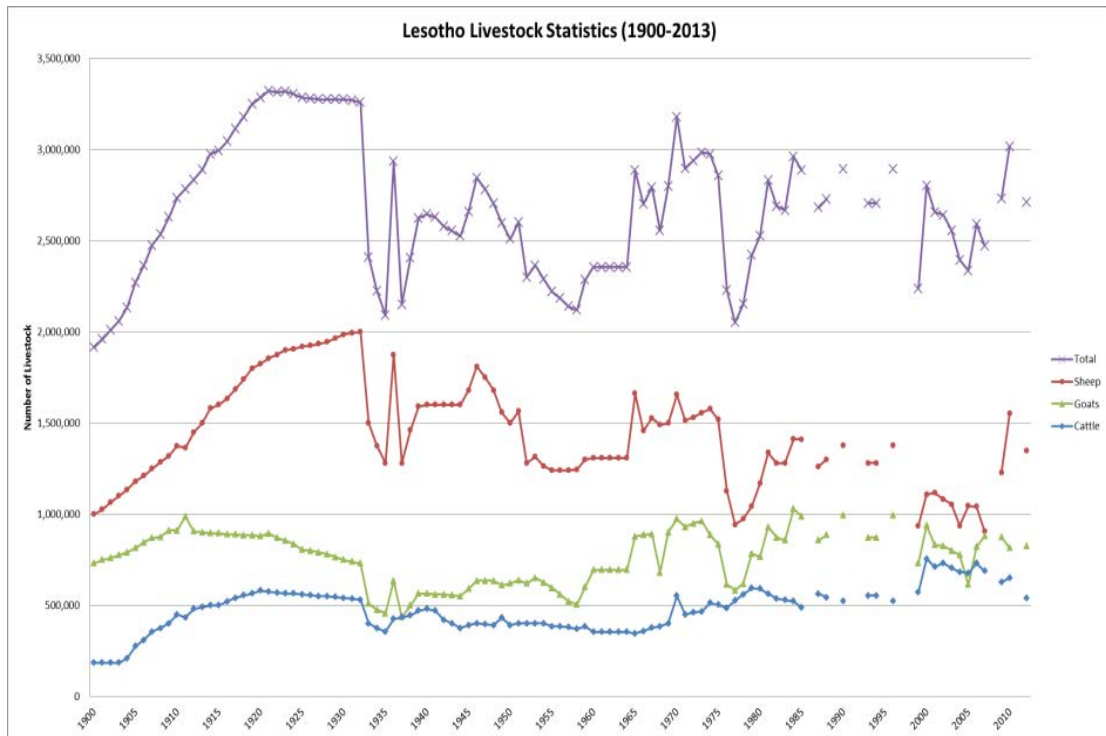


Figure 49: Livestock statistics by animal type, 1900-2013: total (purple), sheep (red), goats (green), cattle (blue). Source: Basutoland Colonial Reports, Swallow & Brokken 1987, Lesotho Bureau of Statistics.

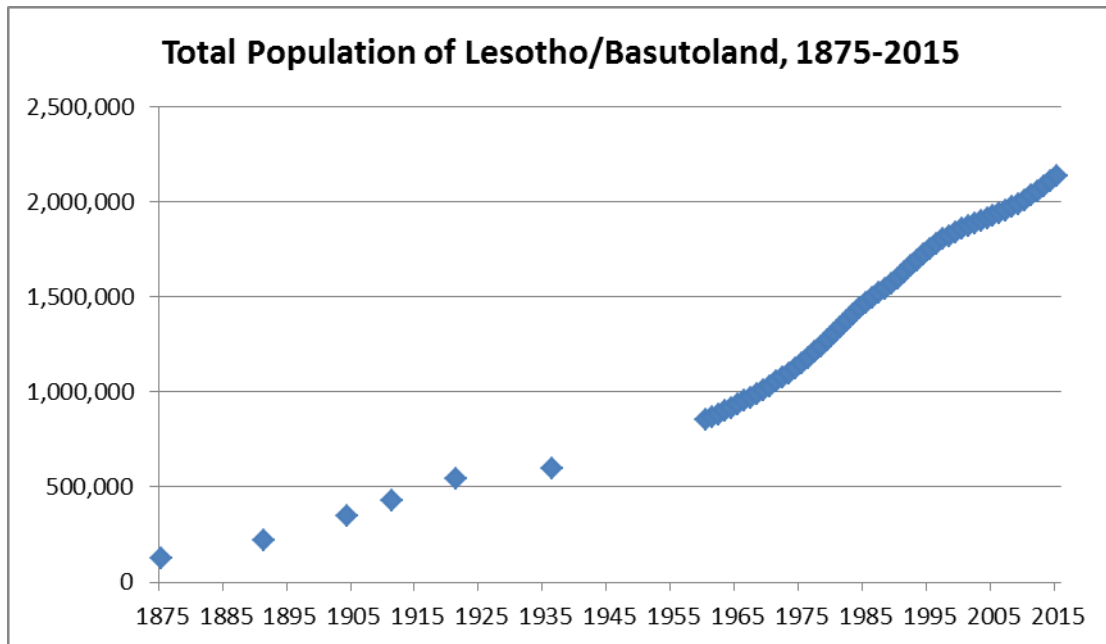


Figure 50: Total human population of Lesotho/Basutoland, 1875-2015. Source: Kimble (1999); World Bank (2016).

Rainfall data do show a decline in early spring rainfall during the previous decade, and the opinion in Lesotho is unanimous among rural people that climate change is occurring and making rains erratic. So there is real credence to this ecological story about how droughts are promoting shrub encroachment. But, again, as with the issue of livestock grazing during the colonial period, increasingly erratic rains may very well have promoted drought-tolerant shrubs, but they did so specifically in the context of labor migration, as the precariousness of life in the Lesotho highlands was heightened. Without that part, we miss a key point of the story.

Monthly Variance in Decadal Rainfall (mm) from Mean											
	1901-1910	1911-1920	1921-1930	1931-1940	1941-1950	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010
J	21.63	-10.61	-11.03	-4.44	-14.61	-6.13	-2.81	14.56	-20.13	17.54	16.03
F	31.39	8.50	-13.41	6.05	-1.20	9.73	-28.33	14.76	-1.39	-16.46	-9.65
M	9.12	14.05	30.64	-11.36	17.61	-10.42	-4.00	6.63	-16.86	-1.81	-33.61
A	2.50	2.30	-6.12	-1.27	7.62	11.37	11.66	-5.09	1.59	-16.05	-8.53
M	1.92	1.34	0.11	4.11	4.36	5.83	2.55	-2.49	-7.87	-6.53	-3.34
J	1.99	2.72	1.43	1.02	-1.31	0.24	1.05	-4.20	0.82	-2.20	-1.58
J	-1.15	0.96	-0.28	2.13	-0.25	0.54	0.80	-0.79	-0.24	-1.91	0.19
A	-2.13	1.87	-1.67	-2.84	-2.26	-0.44	0.75	1.16	4.24	-3.62	4.94
S	14.28	2.28	2.68	-9.34	-2.44	-2.96	-7.61	10.58	-1.66	-4.65	-1.17
O	2.67	-7.52	-4.62	-9.62	7.10	7.84	-3.85	-3.16	12.46	12.91	-14.21
N	-9.93	-0.94	-3.75	18.47	-9.30	-2.28	-6.38	3.04	3.71	2.69	4.69
D	-0.30	-18.89	1.35	4.94	-7.50	16.98	-13.89	-3.02	-7.85	18.29	9.88
	72.01	-3.92	-4.67	-2.14	-2.17	30.31	-50.07	31.99	-33.19	-1.79	-36.36

Figure 51: Monthly variance in decadal rainfall (mm) from the mean. Source: Lesotho Meteorological Society.

The Spatiality of Shrubs

While the presence of shrubs indicates degradation for some, a lack of shrubs can indicate degradation for others. As I hiked along the ridgeline near Motšerimeli one day, a woman came walking by, much to my surprise – few women pass through the cattle post areas. Having been dropped at the road, she was on her way along the ridgeline to a village called Ha Mathaba in the neighboring Matsoku Valley. I asked her “Are there more today than there used to be?” “No!” she said. “There are so few today!” She went on to explain that not only were there fewer of them now but the ones that do exist are small.

Women and girls are tasked with collecting shrubs for fuel in village areas and, indeed, there are few good stands of shrubs near highland villages that I know of. During lunch break on the *fato-fato* team, women did not sit down and rest the entire time. Soon after they were done eating, they stood up, walked up slope with a shovel and began uprooting the larger shrubs for fuel, making a personal bale that they would take with them back to their home that night. Perspectives on shrubs are situated, as this interruption to the narratives of shrub proliferation show. Nearby villages, shrubs have in fact declined through harvesting, belying the universal spatiality implied by conservation worker and herder or livestock owner discourses.



Figure 52: Bale of shrubs for use as fuel. Photo by the author.

Conservation perspectives are situated like this, too. As noted above, conservation often happens from the roadside. Consider what a government

conservation employee related to me at a conference on sustainable land management in Maseru. He told me he would be presenting the results of a GIS study later that day, describing their Department's erosion gully monitoring program. I asked him how long they had been collecting data, and he said just for one year. The effort began after the head of his department was driving along the main road linking Maseru to the towns north of it and reflected on the size of the gullies of he saw, prompting him to wonder if they were expanding or not. Not only did this Department head's perception of and action on a conservation monitoring study emerge from a roadside view, but it was also skewed by the materiality of roadsides—the fact that gullies are often instigated by road construction, which has the effect of channelizing water more acutely than it does over permeable surfaces like soil. In effect, his roadside position prompted roadside-influenced conservation strategy. In the next, final section before the conclusion, I consider one specific valley as an exemplary case of the phenomena described above.

Motšerimeli: A Natural History of Mountain Settlement and Roadside Conservation

Coming from Mokhotlong, Motšerimeli opens up just as you cross a road bridge, where the Mokhoabo-Motšo River slips into the Seate River and carries on through a rocky valley floor before it dips and swerves downslope to a series of villages 7mi away in the lower-lying and relatively wide Mofolaneng and Khubelu Valleys. The area called Motšerimeli is a 20km² headwaters of the Khubelu River, a major fork of

the Upper Senqu River, which flows for 1,400km from these headwaters in the Lesotho highlands to the Atlantic Ocean just to the south of South Africa's border with Namibia.

The small village of Masoleng (“Place of the Soldiers”) sits alone at the point where the Mokhoabo-Motšo River intersects with the Mofolaneng River. It is an odd placement for a village, being relatively isolated and high in elevation (~2400masl). I was told that the village was formed two men who had fought for the British in World War II, as had many Africans in the then British and French colonies. They decided to make a life for themselves there, raising livestock.



Figure 53: *Chrysocoma ciliata* shrubs colonize a fallow agricultural field in Masoleng. Photo by the author.

Just past a few agricultural fields of Masoleng, the land gives way to pasture. The slopes rise steeply upward, covered in dwarf shrubs: *Chrysocoma ciliata* and *Pentzia cooperii* on the N-facing slopes, *Helichrysum trilineatum* and *Inulanthera thodei* on the S-facing slopes. The gaps are filled either with bare soil, rock, or a limited array of grasses and forbs.

Near the bottom of the Valley, along the river, there was once a sheep and goat shearing shed. During colonial times, the first shed in the area was built on the plateau a few miles north of Motšerimeli. Livestock owners could bring their animals there and carry the wool and mohair by horse or donkey to the South African town of Phuthaditjhaba, just over the border from Lesotho in the “Native Reserve” of Qwa-Qwa. I was told that, in the 1970s, the shed was handed over to the Lesotho National Wool and Mohair Growers Association and moved to Motšerimeli, presumably to compete with the white traders at the Fraser’s trading post in nearby Tlokoeng, where farmers could also sell their wool. In the 1990s, the shed was moved again just one kilometer down the Valley, to a lower and less exposed location. Today, these same paths to Qwa-Qwa are used by Basotho men who traffic sheep to butcheries (see Chapter 5).

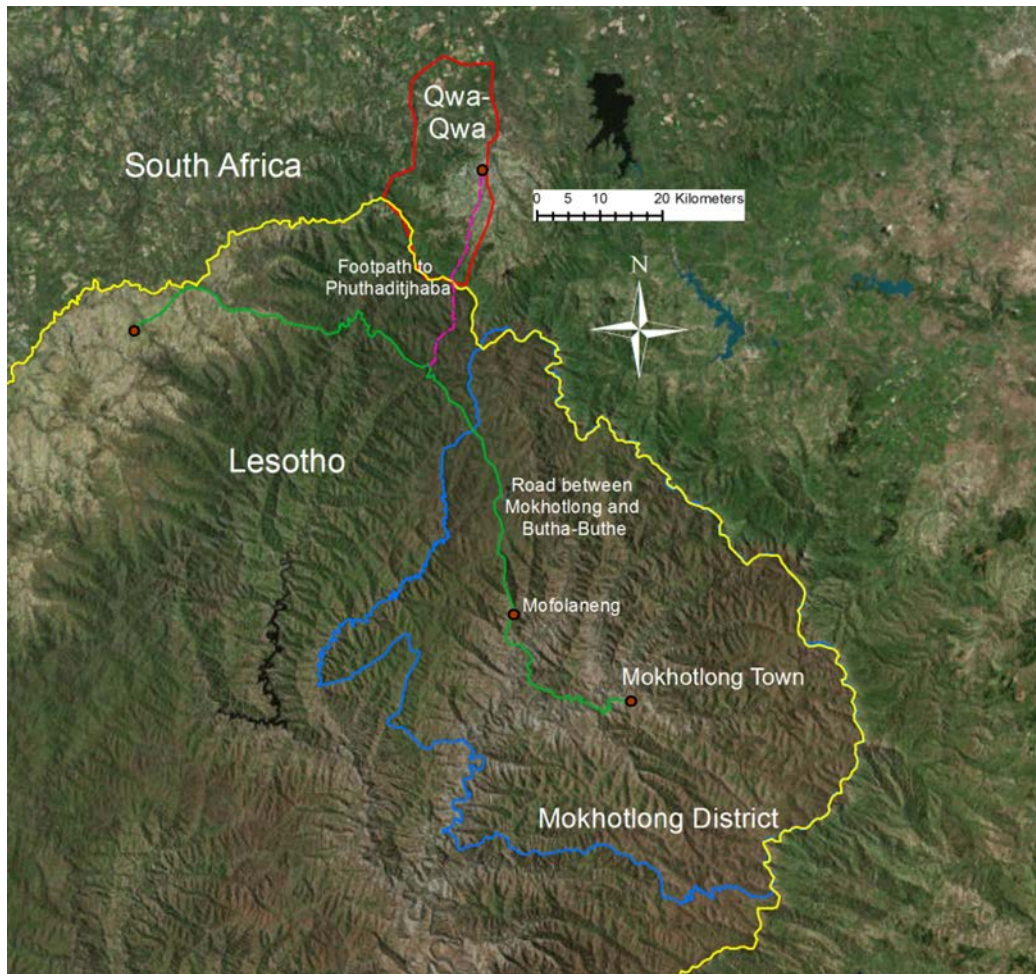


Figure 54: Map of Mokhotlong (blue), with road to lowlands (green), footpath to Phuthaditjhaba (pink), the capital of the former Bantustan, Qwa-Qwa (red). Map created by author with ArcMAP 10.3 (ESRI).

Motšerimeli is firmly embedded within the long history of wool production in Lesotho. In the early 19th Century, there was almost no human settlement in the area apart from small groups of San hunter-gatherers who probably occupied the area during summers when herds of wild game were also present (Mitchell 1995, 1996; Plug & Mitchell 2008; Vinnicombe 2009; Wright 1971; Boshoff & Kerley 2013; Morake 2010; Dowson 1998). By the mid-19th century, white “Voortrekkers” were increasingly settling in areas that are today known as the Free State and entered into

conflict with refugees who began to coalesce into a political group under Moshoeshoe. Whether because of land and population pressures brought about by white incursion, or because of an interest on the part of Basotho aristocrats in protecting their large herds from potential cattle raids by whites and other African groups, the first wave of semi-permanent or permanent settling of the highlands for residence and pasture came in the 1870s, a process over which the colonial government at the time exercised little control (Kimble 1999:31-2), a point that concerned colonial administrators, particularly with respect to issues of unregulated population growth and land degradation (Singh 2000). During this initial period, however, the settlers were mostly herders in the employ of an aristocratic class that sought to render itself less vulnerable to the effects of wars with white settlers and other African groups.

The Tlokoa aristocracy under Sekonyela was one such group. The Tlokoa were expelled to the south by Moshoeshoe in 1853, but later joined forces with Moshoeshoe's successor Letsie I in fighting the British disarmament policy in 1880-1 and was rewarded with a territory in the highlands. This area would later become the District of Mokhotlong, was relatively unoccupied up until then (Ashton 1953:4). The period 1875-1920 simultaneously saw highlands settlement linked to the struggles of the three main lineages to assert control over highlands pastures. Eventually the Koena aristocracy descendant of Moshoeshoe won out over the Phuti in the south and the Tlokoa in the north, thanks partly to the British authorities who affirmed their legal rights. Moshoeshoe's successors would pay a political price for this assistance,

however, when the colonial administration effectively bound the Paramount Chief “irrevocably to itself” (Kimble 1999:99). But the Tlokoa were later given land in the Mokhotlong District after the Batlokoa aided Moshoeshoe during the Gun War of 1880-81 (see Eldredge 1993, 2007). Indeed, many of the surnames in the Tlokoeng area where I spent most of my time were Tlokoa- or Xhosa-derived, and some of them even spoke Xhosa in the home, or at least their parents and grandparents did. Many told me that their grandparents or great grandparents migrated to Mokhotlong from Natal in search of better pasture.

Speaking with a man one day in Mokhotlong, he told me that his original home is at Makhapung, up the Mokhotlong River Valley. I asked him if he knew how they came to be in Makhapung. He says that they were originally living in Matatiele but his great grandparents came to Lesotho in the late 1880s for pasture for their livestock. I asked him if there was a chief in his village, because I’ve wondered how villages get chiefs if people settle in what used to be a cattle post area. He said that they lived there for decades with no chief but then in the 1920s the Bakoena sent up a chief to be a chief in the village. His descendants had been chiefs ever since. The Bakoena basically colonized the mountains to assert their control over the nation.



When I first met officials from the MFLR in Mokhotlong, they were eager to show me Motšerimeli. There, the Department was carrying out a *fato-fato* project to uproot shrubs in hopes of transforming the area from a shrubland to a grassland (also described in Chapter 3).

When we arrived at Motšerimeli, I was shocked. We passed the final village before the cattle post areas began and there began the rehabilitation: acres and acres of dwarf shrubs were uprooted and put in lined piles on the hillsides. At first, I asked if people had ploughed the hillslope because I thought the lines might be terraces from a distance. It was impressive. According to Masilo, *Chrysocoma* is a symptom of a degraded range – when “the range is sick” (*ha lekhulo lea kula*). *Chrysocoma ciliata* likes bare ground, he says, so when the range is overgrazed or when animals are not rotated properly to give rest to pastures, then *C. ciliata* flourishes. He explained to me that the Mofolaneng Grazing Association (*mokhatlo oa phuliso*) governs this B (winter) rangeland area but they have been doing a poor job. People don’t want to go to A (summer) rangelands because it would require them to go to the Principal Chief to ask for a permit, he explained. So everyone grazes their animals here – some of them year-round – and now it’s terribly degraded. I asked what would happen if the association continued to manage it poorly—would there be any consequences? He carried on explaining that the Principal Chief, on whose behalf they are managing this land (see Chapter 3), could take it back. Masilo could recommend this as the officer in charge of such things in Mokhotlong. But, he says, then the Ministry (MFLR) would be back to square one in the work of trying to get the range managed by a grazing association—the ultimate solution to the rangeland problems.

The position of this *fato-fato* project in the B rangelands struck me as odd given its distance from the villagers. Workers spent as many as 2 hours walking to the

site every morning and evening. But it was a showcase, an indicator of the ability for the government to promote Basotho livelihoods, for the effectiveness of the *fato-fato* program, and the hope that Lesotho's rangelands could be productive once again. The selection of the site was not without purpose. The site was chosen as a form of "roadside development": the main road—the only road—linking Mokhotlong to Lesotho's lowlands through the town of Butha-Buthe and on to the capital Maseru, runs directly through Motšerimeli. This means that anyone who visits Mokhotlong town, the district capital, drives through Motšerimeli. The name of the area is well known on account of that fact. On the way from the lowlands to Mokhotlong, after hours of driving on the high plateau (above 2,900masl), Motšerimeli marks the beginning of your descent into the somewhat lower-lying areas (2,100-2,400masl) where villages are found.

And, indeed, it had served that purpose. It was not only my friends at the MFLR who were excited about the large scope of the uprooting project and the growth of good forage grasses in the uprooted areas. On several occasions, when driving by the area on buses and taxis, I overheard people commenting on how nice it looked now that shrubs had been removed. On multiple occasions, while riding a bus or taxi through the area, I overheard taxi drivers from the lowlands as well as female and male passengers from the highlands discussing the program and remarking on how wonderful it was – even during the winter, when the area wasn't necessarily verdant with grass. Herders would tell me about it when I would ask them where the best grazing was, though that part of the valley where the *fato-fato* project was sited

was closed to livestock. The MFLR actually held several ceremonies there to celebrate and showcase the achievement, including one occasion when the independence celebrations were held there, and dignitaries joined the village-dwelling *fato-fato* workers in digging holes and planting trees. On another occasion, while on a hike on a ridge in the Valley, I heard an airplane in the distance. It was highly unusual to hear a plane out in this direction and it sounded much larger than the only other planes that fly through here occasionally, from the Flying Doctors/MAF organization. I then saw it emerge over a ridge – a military cargo/passenger plane. The plane dipped down into the valley, and after it flew up and out of the Valley, it turned around and flew once again down the valley. It was almost certainly carrying the King, the Prime Minister, or the Commander of the LDF, coming to view the *fato-fato* project.

In short, it succeeded as a “demonstration” site (as it was described to me by the MFLR employees), though absolutely nobody thought a community would independently take up this extremely labor-intensive project without the government’s *fato-fato* funding.



Figure 55: Television interview regarding the *fato-fato* site at Motšerimeli. Photo by the author.

Conclusion: Roadside Histories

In Lesotho, where erosion control is governance, the Dwarf Shrub has become a figure of degradation due to the difficulty of measuring rates of erosion. Because male herders, environmentalists, and government officials all agree that shrubs are a problem, they have been wrongly equated with erosion, thus drawing a false connection between water commodification/erosion and herders' livelihoods. The Dwarf Shrub serves as a conceptual tool for theorizing a material transformation from livable to unlivable worlds: either a threat to Water and its economic promise, as for

conservationists; or an emblem of the difficulty of Lesotho's post-labor migration economy, as for herders and livestock owners. Conservation workers emphasize that livestock grazing gives shrubs a competitive advantage for light resources, based on the simplified ecological models they are taught on the job, which place blame for rangeland degradation on peasants for their allegedly irresponsible management practices. Herders and livestock owners tell a different story: one primarily of climate contingencies beyond their control. The droughts that are more common with recent climate changes, they emphasized, also work to expand shrub populations, explaining that these woody species store water longer in their thick stems and roots.

Each narrative entailed a landscape history, complete with a description of change, an identification of the ecological causal mechanism, and a characterization of present livability. In the first, a decline in land management and an increase in livestock numbers had given unpalatable shrubs a competitive advantage over grasses, leading to an increase in shrub densities, and diminishing rangelands' livestock carrying capacity.

Both narratives are probably correct in certain ways. Shrubs' extensive root systems do appear to help them compete with other plants for soil resources; livestock grazing appears to aid them in out-competing grasses for sunlight. But these discrete plant community dynamics only make sense in light of the historical processes that shaped it. These are histories from the roadside. Each has an empirical foundation, and each sheds non-equivalent light on the historical production of shrub-dominated landscapes. Drought is the main cause from the *longue durée* habitation of the

highlands, unsuitable for its current uses. But grazing does lead to the governance problems that officials note. The two perspectives operate at distinct temporal and spatial scales, but neither does well to capture the historical processes that set the terms for how a given environmental variable might impact shrub population growth.

When sheep production in the pristine highlands increased dramatically in the first half of the 20th century, shrubs gained traction. And in the period of rural decline for the labor migration economy when livestock took on added importance to rural livelihoods and rain became more erratic, shrubs gained traction. They moved along disturbance pathways, along the roadsides of capitalist production as British colonial administrators sought to increase colonial profits, and as commoner Basotho sought economic opportunity and to break free from political economic forces that marginalized them. Increases in shrub cover today are most likely patchy—a shifting mosaic of grasses and shrubs brought about by density effects, shrub harvesting, and fire.

It was during periods of war-time land pressure from rapid human population growth, settler colonialists, and through the efforts at expanding wool production by British colonial administrators and Basotho alike that people expanded into the highlands for temporary and permanent settlement. The first roads at Sani Pass and the British bridle path program of the 1930s, created the pathway for invasive shrub colonization of the area and the expansion of extant shrub populations. The dramatic increase in grazing pressure during the early- to mid-20th century would have had a tremendous effect on these grasslands so unaccustomed to intensive grazing by

domestic livestock, a process that can trigger transformations in the vegetation community (Leader-Williams 1988; Melville 1997). As early as 1971, the long-time botanist of Lesotho, Amy Jacot-Guillarmod would write that: “Surveying the country as a whole, it is true to say today that every acre of land in Lesotho is subject to human use in some form or other” (1971:29). Shrub cover is most likely greater today than in was in the pre-settlement period, but the dramatic increases described today are most likely local in nature, a shifting mosaic of shrubs, grasses, and exposed soil. It is in this sense that Lesotho’s rangelands represent “shadow ecologies” (Swanson 2015; Dauvergne 1997) of a regional political economy that situates Lesotho on the periphery and South Africa at the core.

A significant body of scholarship in African contexts has testified to the importance of attending to both the history and historiography of landscapes in Africa (Fairhead & Leach 1996; Leach & Mearns 1996; Showers 2005; *inter alia*). As was evinced by the accounts and practices of civil servants, landscape histories cohere along the roadside. The shrub species most central to questions of land degradation, such as *sehala-hala*, clearly do thrive in disturbed roadside verges, making roads a likely invasion pathway into the mountains. The roadside is also where government-sponsored shrub extirpation is showcased, in well-publicized efforts to demonstrate government efficacy through *fato-fato* programs uprooting them. Finally, the range is understood and represented most commonly from the road, as everyday taxi passengers and government administrators pass by. It is by this roadside position that *fato-fato* conservation programs like the shrub removal effort described above

becomes thinkable: roadside programs for roadside species. In short, roads are the situated positions from which shrubs come to matter as material and semiotic beings.

As the study of the human, anthropology in the Anthropocene demands new methods and new forms of history telling. In characterizing multispecies worlds, we can use ecology—not necessarily to do full-blown ecological studies—but to learn how to see and describe non-humans as agents of historical change. Science does not necessarily have silver-bullet answers to our questions about ecological process, but that does not mean that tearing down that vital institution is our only possible response. Instead, we must learn how to see and use situated scientific knowledges. Environmental scientists, too, will increasingly need anthropologists to envision the political and symbolic processes that lie behind landscape production. We can help them build history and power into their models of ecological process, and make critical, interpretive approaches matter in conversations about interdisciplinarity.

Ecologists can learn from anthropologists, whose qualitative observations can integrate history and plant form, and help situate the accounts of conservation workers, local people, and the quantitative observations that seek to discern the relative importance of the variables that can determine how plants become patterned in nature. Lesotho's mountain rangelands are not bucolic nature spaces disconnected from this regional political economy—they are postcolonial, postindustrial landscapes and the ecological interactions between plants and humans or plants and plants are fundamentally shaped by that colonial and industrial past. Excavating my informants' narratives and paying close attention to shrub practices, I have tried to render sensible

the ecological “laws” that structure plant intimacies and the world histories that make those laws matter.

INTERLUDE

ROTATIONAL GRAZING

“*Motebong ha ho liso.*” “At the cattle posts, one does not herd.” I first came across the phrase—a Sesotho *maele* or proverb—in the ethnographic literature, Hugh Ashton’s *The Basutos* (1959:137). It refers to the notion that herding is unnecessary at the cattle posts, where animals simply leave the kraal, graze where they please and return in the afternoon after they are full. It is supposed to capture an essence of life at *motebong*, the remote cattle posts where herders stay with their herds for months on end. My next encounter with the proverb came in a conversation with a Mosotho man

named Seabo who worked for the GOPA Sponges Project. It was early in my field research and I met Seabo at his office in Mokhotlong to learn about how he described wetland degradation—its symptoms, causes and solutions. Seabo and his organization sought a way to prevent herders from grazing their animals on the wetlands, and he was encountering mostly dead ends. He related to me what he felt was one of the central challenges to his effort: the fact that herders do not actually “herd” their animals but instead allow them to graze as they please. Laughing, he said in English, “There is this phrase in Sesotho, “*Motebong ha ho lisoe.*”

For Seabo, the saying captured a perception of herders shared by many in conservation—that herders are lazy and mostly just sit around all day playing the *sekhankula* (a makeshift guitar) or napping. The challenge of herder laziness needed to be overcome, Seabo thought—particularly because he had been persuaded in this by the consultant GOPA hired to evaluate rangeland condition and suggest management options. GOPA wanted to encourage herders “to work by the signs of the plants,” he said. Farmers tend to prioritize livestock over the range, he explained, and the Sponges Project sought to reverse that trend. While many believe the rangelands to be overgrazed, he told me, in fact they are also over-rested. There are a lot of animals, but they are allowed to preferentially eat whichever grasses they most prefer. He carried on explaining the importance of rotational grazing—how herders need to be much more active in the ways that they herd their animals. They need to herd them in groups and get them to graze intensively on one small area before moving to another.

I remarked that this approach sounded similar to one I had read about, promoted by the controversial rangeland ecologist, Allan Savory. His face lit up: “Exactly! This one!”

The Savory Rotational Grazing Method was proposed by Allan Savory in 1980 (Savory & Parsons 1980; Savory 1988). Born in Zimbabwe, Savory developed his method while working as a colonial conservation officer in Northern Rhodesia. His method features multi-paddock rotations, where livestock move regularly from one paddock to another, grazing and browsing the vegetation fully before being moved. This forces livestock to eat the unpalatable as well as the palatable vegetation, ensuring that “decreasers”—those palatable, typically perennial grasses that livestock prefer—do not come to be dominated by “increasers”—the less palatable annual grasses that increase with heavy grazing. His rationale was to mimic what he saw as the natural grazing and browsing regime of African savannas, whereby large herds of ungulates consumed most of the vegetation available to them, trampling and depositing nutrients through defecation and urination as they went.

The method was met by excitement in parts of the lay and applied community and widespread skepticism in the scientific rangeland ecology community. In 2011, Savory gave a TED talk that was viewed over one million times. In it, he describes how his method can reverse the trend of desertification in many parts of the world, showing images of brown, barren land alongside others of verdant and lush stands of

trees and grasses.⁵⁸ In an article titled “The Savory Method Can Not Green Deserts or Reverse Climate Change: A response to the Allan Savory TED video” (Briske et al. 2013; see also McWilliams 2013), written by some of the most well-respected range ecologists, the authors explain that none of Savory’s results have been replicated in independent studies.⁵⁹ Despite critiques that his methods are unsubstantiated, he has a significant following in Southern Africa. Savory gave a keynote at the annual meetings of the major wool and mohair growers association in South Africa in 2013. In the audience was none other than the King of Lesotho, Letsie III, an avid sheep farmer. Savory’s ideas form the basis for an entire rangeland management consultancy in Namibia, which was hired by the GOPA project.

The system has been critiqued not simply because of its ecological standing, but also because of its impracticality. The program was designed to be used in extremely intensive settings with a costly network of paddock fences—not extensive, open rangelands like in Lesotho, governed by common tenure. Moreover, farmers in Lesotho are risk averse, given the absence of credit and high levels of poverty, suggesting that getting such a program established is unlikely. A range management expert from the same Namibian consultancy recommended to Masilo and the MFLR that they should divide the B rangelands into three sub-sections to allow for a system

⁵⁸ In a dig at his most vociferous critics from the USA Jornada Range Experimental Station in New Mexico, where leading rangeland ecology research is conducted, his TED talk presentation slide shown to represent brown, barren land features the Jornada Range sign at the entrance to the Station.

⁵⁹ Additionally, the system problematically (Belsky et al. 1999) suggests that ecosystems benefit from very intense livestock grazing.

of rotational grazing, rotating every two months. This would be a way to mimic the paddocks, he thought.

Rotational grazing has, in fact, been built into Sotho grazing management since the earliest days of the Sotho people, when Moshoeshoe established *maboella* (reserved grazing areas) and seasonal grazing:

It is the duty of every petty village chief to see that a part of the adjacent territory should be reserved for winter pastures. As the cattle do not browse indifferently upon whatever they find first, but choose the most delicate grasses, it is absolutely necessary that, during the winter, they should be driven to those spots where nutritious herbiage is still to be found. (Casalis 1965[1861]:159-160).

This rotational or resting system was formalized with the Laws of Lerotholi in 1903 with the support of the British colonial administration.

Interestingly, similar points were raised by observers of land degradation in 19th and 20th Century South Africa, when soil erosion and its effects on land productivity and water resources came to be a concern (Beinart 1989). Forestry and watershed scientists at that time advocated not only a reduction in stocking numbers but also an end to the practice of kraaling, in which animals were brought back to a single kraal in the evening and which was said to lead to the initiation of gullies, the selective grazing of grasses, and a destruction of the area around the kraal. Instead, these scientists advocated for the use of paddocks, which would promote the

consumption of palatable and unpalatable grasses and allow for the regimented distribution of grazing impacts.⁶⁰

Today, this A-B-C system organizes not only grazing but also the ways that livestock owners and conservation workers think about the spatiality of grazing. Masilo explained to me the way the system works, as recorded in my fieldnotes: “I ask Masilo what the problems are that they face in the different rangelands. He says that from December – January or February, there shouldn’t be any stock in B – by 1 December they should all be in A. But some will be in B all year! So the primary difficulty they have in B is that people keep their livestock there altogether too long, so it gets very degraded. He says that a lot of erosion starts from B, because when you get the trampling and the exposed rock surfaces, then the water rushes down the hillslope quickly into C.”

Seabo recognized the well-known fact that fences are impossible in Lesotho—not only because of the cost, but also because they are seen as hostile to common property arrangements (see Ferguson 1994). Grazing land is held in common in Lesotho and no person can theoretically be barred from accessing it, although there are conventions that practically place limits on use. In addition to the sub-division of the B areas, what Seabo hoped to do was to encourage herders to walk behind the animals, corralling them into a confined area all day. This seemed unlikely to me. But he had been spending time, he told me, trying to understand how herders move their

⁶⁰ In another article titled, “Savory's Unsubstantiated Claims Should Not Be Confused With Multipaddock Grazing” (Briske et al. 2014), some of these scholars also critique his failure to describe his system in precise detail.

animals around as a way of knowing how to encourage them to move according to his modified Savory plan.

Conservation workers like Seabo and Masilo were both interested in connecting with herders. Their conceptions of rangeland space and time presume homogeneity, however, whereas herder worlds are spatially and temporally heterogeneous. Notions of overgrazing or undergrazing are often linked in conservation imagination to the concept of “carrying capacity”—the notion that a specific area of land can support a specific number of livestock. This concept is often misapplied in African contexts, where interannual rainfall variability is so high that assigning a set capacity for a pasture is nearly impossible. Livestock owners know this, so they see little point in devising an “ideal herd size” and instead work to produce a large herd, even though it may suffer significant losses during years of poor rainfall. It can be difficult to discern the effect of livestock grazing on these “disequilibrium” pastures (Homewood & Rogers 1984; Behnke et al. 1993; Vetter 2005; cf. Dyksterhuis 1949). This does not mean that livestock do not impact the range, but rather that their effects can be difficult to disentangle from climate effects and that the number of animals that an area of land can support varies dramatically from year to year. Additionally, under high stocking levels, efforts to limit grazing in one area will add stress to another. For example, Nüsser (2003; also see Quinlan & Morris 1994) noted that efforts to protect upper subalpine belt areas in Lesotho predictably led to greater stress on lower subalpine areas.

Herder decisions about where to move their animals are motivated by several factors. First, the A-B-C system dictates at which grazing area animals should be during a given moment of the year. Second, they are directed by the owner of the herd they manage. If the livestock owners suggest they should stay in the B rangelands throughout the summer months, then they must do so, but will most likely attempt to keep their animals out of view during those months, avoiding the ridgelines where the animals might be seen by chiefs or MFLR staff. They are also motivated to move the animals in a way that ensures the animals are well-fed, as livestock owners demand this. Within the immediate vicinity of their cattle post, they typically choose between 4-5 different routes, each of which will allow the herders to easily water the animals at least once in the morning and in the afternoon, where the forage is good, where the winds are not too strong, and where they can be observed easily. Sometimes, they also try to visit areas near to another herder, where they can sit and talk while keeping the herds separate. In all cases, these factors are variable across time, as seeps dry up, as forage regrows, as herders are replaced by others, and as weather changes. This heterogeneity of time and space is lost on conservation plans that see rangelands as “bins” of annual forage. That is, conservation workers tend to think of rangelands as containing a set amount of forage that is either adequate or inadequate to feed the livestock grazing there instead of seeing dynamic and spatially heterogeneous rangeland space. Because of the tendency toward disequilibrium in Lesotho’s pastures, with their high coefficients of variability in interannual rainfall (Vetter

2005), conservation workers would do well to pay close attention to herder and livestock owner practices and the livelihood strategies that guide them.

CHAPTER 5

THE OVI-CAPRINE MYSTIQUE: LIVESTOCK, LIVELIHOODS, AND LANDSCAPES IN POSTINDUSTRIAL LESOTHO

Introduction

An older man, perhaps in his 60s, appeared in the doorway of the *lekhotla*, cutting a silhouette in the bright, morning sunlight that poured into the room. He leaned his herding stick (*molamu*), which doubled as a walking cane, up against the wall outside as is custom and entered as he doffed his knit hat. The man greeted the court with the customary slight bow, two-handed wave, and quiet greeting, “*Lumelang*” (“Hello everyone”) to the handful of people in the room, before sitting next to me. Opening

up a black, plastic bag he was holding on his wrist, he carefully pulled out three small booklets and a folded piece of paper, which he proceeded to unfold and hand to the chief (*morena*), seated next to the secretary (*mongoli*). They were seated at the front of the room behind an old, rickety table, painted in the tourmaline green so often used in Lesotho on doors, window frames, and furniture. It was early in my fieldwork, and I had come to sort through the criticism and praise I had heard about chiefs in their management of grazing land. One of the primary sites where everyday people interact with these figures are at the village court, called *lekhotla* in Sesotho—a place where people come to settle disputes, to obtain the chief’s stamp and signatures for official documents, or to register their livestock. I arrived first thing in the morning to see it for myself. But then I got distracted by sheep and goats.

When the man returned to his seat, I asked him why he had come to the *lekhotla*. He explained that he was selling two sheep. The small booklets that he carried were livestock registration books distributed by the Ministry of Home Affairs that keep an account of his livestock—by type, sex, and markings—with a stamp and signature from his chief. The paper he handed to the chief was a letter, written by him, that requested the transfer of title to the buyer, a young man from the village named Tumisang.

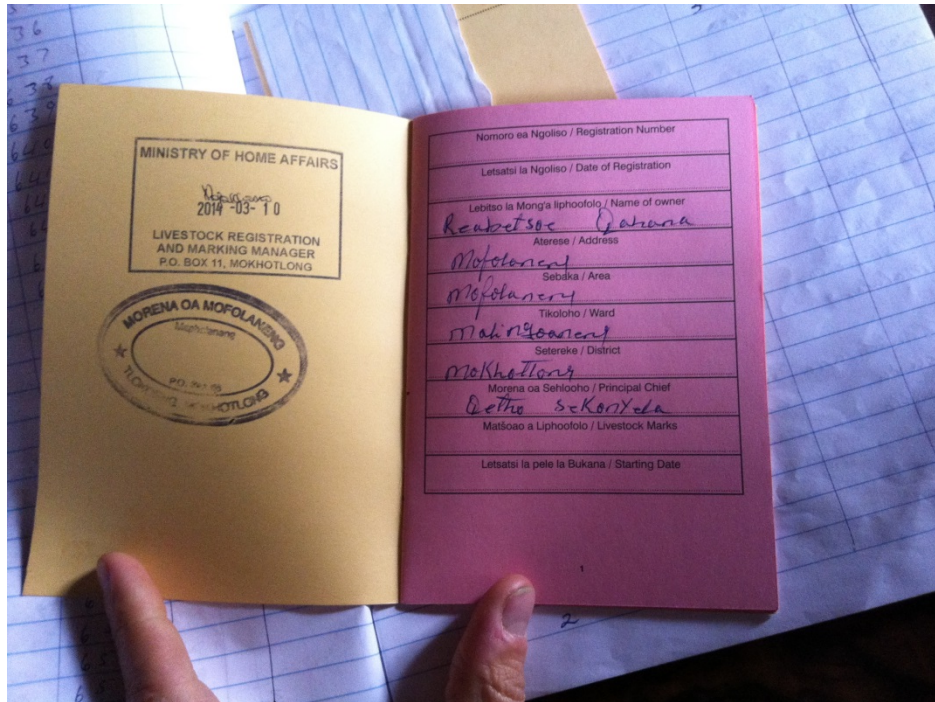


Figure 56: One man's livestock registration book. Photo by the author.

As I sat there, the room slowly filled with people, nearly all of whom did just as this man: entering, handing a letter to the chief, and waiting. For each case, the chief read the letter and wrote up a *bewys*, an Afrikaans word for the title, or proof of ownership. The *bewys* listed the name of the seller and buyer and was carbon-copied in a government-issued receipt book. The secretary signed the *bewys*, updated the buyer's and seller's livestock registration books, and had them place their fingerprints on the carbon copy. There were so many people that the chief and the secretary would typically do their work in batches, taking 7-10 receipts and then calling the parties up two-by-two to have them affix their fingerprints all at once. The sellers included young men and old men—but also women, which was surprising, given that women are conventionally known to lack access to livestock property according to the

ethnographic record (see Ashton 1967; Ferguson 1985). The buyers, however, were exclusively men, and mostly young men. I was intrigued. First, given what we know about Basotho reticence to sell livestock, even during drought as famously described by James Ferguson (1985), why were all these livestock being bought and sold? Second, how could these young men, almost none of whom have access to formal employment, be purchasing livestock?

I asked which type of animals people were selling and invariably it was sheep and goats—mostly sheep. At the end of the day, I asked the secretary how many animals were sold. “47,” he said. I asked him about how many animals were sold each month, and he did some quick math – they go through about 100-200 receipts each month on average and each sale includes about 1-5 animals. He thought about it and told me that he estimates about 200-300 animals are sold every month—mostly sheep and goats—with perhaps 400-500 being sold during the months of December and January, when school fees must be paid and when the maize harvest is not yet in, as well as April and May, when the animals are fat and particularly saleable. The numbers were shocking for a small, mountain village like this one—called Mofolaneng.

In this paper, I investigate what is behind all of these livestock sales and what they say about livelihoods, landscapes, and structural change in Lesotho. While conservation workers, development experts, and anthropologists have long scrutinized cattle in Africa for their social function and resistance to commodification, I argue that sheep and goats are similarly significant—but because

of the ease with which they are commodified. Anthropologists have used them to analyze social relations and social change. Conservation and development experts have used them to argue that cattle's conferral of social status can lead to unsustainably large herds and land degradation. I show that these experts—including anthropologists—have been distracted by the charisma of non-capitalist, cattle-mediated social relations in Africa, blinding them to the livelihood and landscape implications of readily commodified sheep and goats. In Lesotho, “small stock,” as they are called, have been produced in huge numbers for the better part of a century *specifically for the production of wool and mohair commodities sold in global textile markets*. Much of the land degradation caused by livestock in Lesotho is a product of commodified small stock—not uncommodified cattle. But while small stock have long been important to Basotho livelihoods but their use is being rethought by entrepreneurial rural Basotho, who are developing mutton breeds for sale in South African butcheries. This shift is partly a product of a structural change in Lesotho, with the collapse of Lesotho's labor migration economy in the 1990s. Just as the resistance of cattle to commodification described by Ferguson as the “bovine mystique” opened a window into life in the labor reserve, I suggest here that important facts about life in the *aftermath* of the labor reserve can be learned from the bovine mystique's obverse: the ultra-commodification of sheep and goats that I call the “ovi-caprine mystique.”

The Ovi-Caprine Mystique in Postindustrial Lesotho

James Ferguson's (1985) classic article, "The Bovine Mystique: Power, Property and Livestock in Rural Lesotho,"⁶¹ transformed how anthropologists view livestock in Africa. Debunking the perception among conservation and development experts that cattle were an "obsession" of Basotho seeking social status, he showed instead that cattle ownership needed to be understood with reference to kinship and political economy. Through bridewealth payments known as *lobola* and other livestock leasing arrangements (e.g., *mafisa*), cattle extended social ties through time and space—they were not an ordinary commodity. Moreover, these cattle-keeping practices were not holdovers from pre-modern times, but instead reflected the gendered and generational politics of the labor migration economy. Examining when and why Basotho preferred to sell or keep their animals, Ferguson showed how the terms of ownership were contested across gender and generational lines: young men working at the mines saw little benefit from paying *lobola* when compared with older people for whom periodic bridewealth payments were a source of wealth into old age. Miners also sought to purchase cattle as a means of preventing their wives from accessing cash for household goods such as food or clothing. As cash, women were socially able to make claims on wealth—but not as livestock.

Thus, when a development project sought to establish a beef production industry in the rural areas where many of Lesotho's livestock are located, as Ferguson detailed later (1994), the effort failed because it misunderstood cattle's position

⁶¹ A revised version was later published as a chapter in his book, *The Anti-Politics Machine: 'Development,' Depoliticization, and Bureaucratic Power in Lesotho* (1994).

within society. Cattle resisted commodification through beef production not because of an “irrational” obsession with social status as conservation and development experts said,⁶² but because of kinship relations and local power dynamics, which themselves were configured by the structural conditions of the regional political economy. As described elsewhere in Southern Africa (Comaroff and Comaroff 1990), as well as in the Sudan (Hutchinson 1996), cash was seen as transitory, whereas cattle worked as a “dam” against the flow of cash.⁶³

In a footnote to Ferguson’s article (1985: 671), he suggests that all grazing domestic animals are probably governed by similar rules of exchange as cattle, even though more research on that point was badly needed. As a result, he uses the term “livestock” to refer to all grazing stock types. But including sheep and goats—often referred to collectively as “small stock”—in this category of “livestock” obscures important differences. First, sheep and goats can be sold much more easily than cattle. I was consistently told by herders and livestock owners that they prefer small stock over cattle. Herders who work for one year herding someone else’s livestock are typically paid either 12 small stock or one cow. I would often ask herders whether they prefer to be paid in sheep and goats or in cattle. Without exception, I was told

⁶² As Dyson-Hudson and Dyson-Hudson (1976) and Sandford (1983) point out, the identification of pastoralist “irrationality” might say more about the Western and elite observers than it does about any objective phenomenon (see also Dove and Carpenter 2008:11-12).

⁶³ See Casalis (1965[1861]:153) for the role of cattle in Lesotho. For effects on rangeland condition and management challenges, see Quinlan (1995) and Nüsser (2002). See also Shipton (1989) and Piot (1991) on the anthropological theorization of “barriers to exchange.”

sheep and goats. When pressed as to why, they would respond like a man named Likhang did: “*Linku? Ke chelete*” – “Sheep? They’re money,” he said, swiping one open palm perpendicularly over the other in the regional sign for money. Not only do they produce money on the wool, but they multiply rapidly. Moreover, he explained, he can sell off one animal if he needs money without sacrificing a significant part of his herd.⁶⁴ Cattle, on the other hand, are relatively non-fungible. If you have an emergency (*kotsi*), I was often told, you can sell a sheep or goat—but you can’t sell part of a cow.⁶⁵ Thus, in contrast to cattle with their “barriers to sale” (Ferguson 1985), sheep and goats seemed always ready for sale – not sold carelessly but saleable whenever one needed the cash for food, medicines for their animals, school uniforms for their children, or other household items. This held generally, whether I was speaking with owners of large herds as well as with young herders, whose personal herds were typically small. As one man put it with an apt regional metaphor, “*Nku ke maene ea rona!*” (“Sheep are our mines!”)

Anthropologists in Africa have long been interested in the complex social relations that inhere in cattle (Herskovits 1926; Evans-Pritchard 1940), seen as a

⁶⁴ Herders and livestock owners often said, “*ha bothatanyana bo teng, ua e rekisa*”, “if you run into a little problem, you just sell one [and get some cash]. Another man explained, “*Nku e koala mathata ka eona u khona ho ja.*” – “Sheep take care of all your problems and enable you to eat.”

⁶⁵ As to why he preferred sheep over goats, he said that “*lipuli li shoa ka ntho tse ngata—ka serame, ka lisiki—‘me theko ea boea e ntle*” (“Goats die for all sorts of reasons—because of the cold, because of sickness—and the price of wool is high.”). Additionally, as described below, the market for sheep in butcheries just over the border in South Africa is stronger than for goats. This is because it is occupied by Basotho. In areas of Lesotho that are closer to the eastern border with South Africa, across which many Zulu live, goats are the preferred type of meat.

Maussian “total social fact” (Mauss 1954) and a site for exploring how African societies respond to urbanization and cash economies (Comaroff & Comaroff 1990; Hutchinson 1996; Sansom 1974; Murray 1981). Hence, the focus on the social structures that resist cattle commodification. But *small stock* have gotten comparatively little attention from anthropologists interested in power, commodification, and social change in contemporary societies. Where small stock are discussed, they tend to figure straightforwardly as elements in a livelihood strategy or system of production (Dahl & Hjort 1976; Orlove 1977; Swift 1979), rather than a rich, cultural field of dreams and micro-practices, structured by relations of production. But whether livestock are fully commodified as in the case of small stock, or only partially as with cattle, *commodification is a social process*. Markets are always inflected by gender, kinship, and power: historically and culturally specific, shot through with dreams and nightmares as much as logics and strategies (Taussig 1980; Miller 1995; Kaplan 2007; *inter alia*). Recalcitrant commodities like cattle may put social phenomena into sharp relief, but facile ones are equally a site of struggle and symbolism.

The “ovi-caprine mystique” is therefore an obverse of the bovine mystique—not the mystique of *partial* commodification but of *full* commodification. The commodity is, after all, as Marx said, “a very queer thing, abounding in metaphysical subtleties and theological niceties” (Marx 1990:163). The ultra-commodification of small stock may have in fact *enabled* the bovine mystique during the labor reserve

era, injecting much-needed cash into rural households where the social ties that prevented cattle sale continued to matter a great deal.

This fluid fungibility of sheep and goats sheds light on key aspects of livelihoods and landscape in Lesotho. While development and conservation experts have sought at least since the 1980s to commoditize cattle as a way of improving land condition, sheep and goats have been earnestly commoditized for global textile markets for over a century and almost certainly triggered serious landscape degradation processes when the highlands were initially settled for small stock pasture.

Small stock came to be a pillar of household livelihoods—an entrepreneurial dream. The tens of thousands of Basotho miners working in South Africa at any given moment since the late 19th century invested heavily in sheep and goats, with the aim of retiring one day and living on payouts from wool and mohair sale. The anthropologist Hugh Ashton describes Basotho in the 1940s and 1950s being more interested in improved sheep and goat varieties than improved cattle. This, he ascribes to the heightened social role played by cattle, in contrast to sheep and goats, from which “A considerable cash income is derived from the export of wool and mohair” (Ashton 1967:140). By the time Ashton was writing in the 1950s and 1960s, the poor quality fleeces of early sheep and goats had been “almost completely submerged through the introduction of merino sheep and angora goats” (1967:134). In one of the rare successes of foreign and domestic development work, Wool and Mohair Growers Associations were created that organized production, improved animal breeds for

wool and mohair quality, and leveraged their numbers to cut out middlemen and fetch the best sale prices for farmers' clip.

Basotho were not always interested in wool and mohair-producing varieties, however. In 1830s, when Thomas Arbousset traveled through northern Basutoland, he and Moshoeshoe visited the King's sheep that were being held in the highlands. Interestingly, indigenous fat-tailed breeds were given preference over European wool breeds. He wrote:

Moshoeshoe has entrusted the chief of Khongoana with a flock of sheep which thrive very much in this region, in spite of the extreme cold which must occur in winter. Here, the pastures are rich and of high quality. In harsh weather, grass and foliage are brought to the animals in their marobeng, which are a type of covered sheep fold. The natives provide this care only for the indigenous breed of sheep and never for those of the colonial breed, which would nevertheless need it as much as the others. These sheep of the Bechuana and of the Nguni are reddish and black, and are confined to these two colors. As a result, they are less beautiful, and they are also smaller than the fat white sheep of the Namaqua and of the Boers, which are of a very similar type. (Arbousset 1991[1840]:78)

Beginning in the 1990s, however, this dream was no longer tenable. As South Africa transitioned to democracy, opportunities for foreigners in the mines dwindled. The mines mechanized and jobs were slashed. Lesotho's labor migration economy collapsed. During the height of the labor migration era, between 1976-1986, nearly half of all working-age citizens of Lesotho were absent as migrants (Coplan 1994). Basotho men working in South African mines dropped from nearly 100,000 in 1990 to 46,000 in 2010 (Crush 2010).

In postindustrial Lesotho, small stock have come to occupy the vanguard of a new entrepreneurial dream—one that was first revealed to me during my visit to the

lekhotla. Though farmers continue to raise stock for wool and mohair sale, they have begun introducing mutton varieties into their herds, so that the animals can also be sold illicitly across the border in South African butchereries. This breeding practice partially undermines wool and mohair production, however. In a sense, livestock owners have out-commodified the development industry. In this way, small stock are both objects of longstanding interest and of recent innovation in the face of adversity.

None of this is visible if we do not attend to the particularities of different livestock categories. “Livestock” are thus good to think with, as Claude Lévi-Strauss (1971) put it, but their species and historical specificity matter. Before getting to that new economy, we need to know a bit more about its historical origins, micro-sociological texture, and ecological implications. In the pages below, I provide an historical overview of livestock production in the highlands and its consequences for land condition. Then, I describe how households appreciate the value of different livestock types during the labor migration era and today. Finally, through the story of one livestock owner and through the variety of sheep known colloquially as *lekalapense* (pl. *makalapense*), I show how this new economy of meat production is becoming formalized.



Figure 57: A shepherd and livestock owner leans on his *molamu* (shepherd's stick) with his flock in the background. Photo by the author.

Sheep, Goats, and the Settling of the Lesotho Highlands

Sheep and goats—but especially sheep—have been central figures in the settlement and colonization of Southern Africa. William Beinart (2008) describes the dramatic increase of these animals in South Africa during the 18th and 19th centuries, a timeline that mimics Lesotho's, though sheep arrive several decades later there. Numbering about 1.5 million in the Cape in 1806 (mostly the fat-tailed, mutton breeds), wool-producing merino sheep shot to 5 million in 1855 and 10 million by 1875 as the textile industry in Britain drove significant demand (Beinart 2008:9). Remaining stable for the next 30 years across South Africa and Lesotho, they shot up again between the turn of the century and the dramatic droughts of the early 1930s, when all livestock types declined markedly. Numbers recovered over the next decade, and

highland cattle posts rose “exponentially” between the 1930s and 1980s (Nüsser 2002), though total herd size has not returned to 1930 levels again. Significant anxiety emerged at that time surrounding the ecological effects of merino sheep in both countries, including that they were leading to shifts in vegetation, soil erosion and compaction, and even that they were encouraging desiccation—that is, a decrease in rainfall and in the capacity of soils to retain moisture.

Until the 1870s, all livestock types in then Basutoland were primarily kept in the lowland areas near to villages, with very few kept at cattle posts in the colder, expansive highlands. However, land pressures increased with 1) significant population growth from the 1870s onward; 2) significant losses of lowland Basutoland territory to the Union of South Africa; and 3) the South African Land Act of 1913, which drove South African Basotho into Basutoland. These pressures drove the establishment of cattle posts and later village settlements in the highlands. As I describe below, the process was initially structured by class with Basotho aristocrats (i.e., chiefs) establishing summer cattle posts for their large herds of livestock. Eventually, commoners began to do so as well.

It was in the first decade of the 20th century that Basotho and British recognized that the highlands were some of the best sheep-producing areas in the entire region, and the British began promoting wool and mohair production through the issuing of licenses to white traders for the establishment of trading posts where wool and mohair could be legally exchanged, and later through the establishment of bridle paths to facilitate its transport to markets in South Africa. Kimble (1999:135-7)

reports that, between 1893 and 1908, Basutoland wool exports grew by 380% in weight and 480% in value. Mohair exports also ballooned by nearly 3,000% in weight and value, though it started from much lower levels. In 1923, a wool export duty was introduced, indicating the importance of that growing industry, and dipping and other anti-scab programs came into existence. Increasingly, wool production and livestock exports were coming from mountain areas (1999:116-7). The increasing importance over the cattle post areas compelled the aristocracy to assert its control over those lands around that time. Writing in the 1920s, the General Manager of Frasers, a white trading post with stores across Lesotho, reported that, “the rich wool natives do not all live in the mountains, in fact very few of them do so. Many rich wool men are domiciled on the flats ... and are keeping their flocks and herds in the mountains. ... When shearing is completed the money is brought to the owners who are living below and finds its way to the different camp stores.” (as quoted in Kimble 1999:220).

Though chiefs were driving this process, other non-aristocratic livestock owners were seeking to exploit the possibilities of highlands grazing and circumvent chiefly control. Struggles between those two groups were evident from the early 20th century onward, for example, by the conflicts over people in the employ of the colonial administration who declined to work in *matsema*—work parties in service of chiefs’ agricultural fields—and were fined by chiefs for doing so. Cattle remained at that time tightly tied to what has been called the “tributary mode of production”—whereby subjects are promised security and prosperity in return for tribute payments of cattle and labor to the chief. Additionally, through the institution of *mafisa*, the

chiefly class developed large herds of livestock by leasing them out to subjects who could reap some of the products. Small stock, however, were not under such tight control. Because they could remain for much of the year in the higher, colder reaches of the mountains, they did not conflict with chief-controlled cattle pastures. As a result, numbers of small stock in Lesotho shot up from around 1.5 million in 1900 to around 3 million in 1930 (Swallow & Brokken 1986).



Figure 58: A sheep owner shows the wool of his merino sheep. Photo by the author.

Soon, colonial administrators would be sounding the alarm about overgrazing and other land degradation stemming from agriculture in the highlands. An Agricultural Officer named Verney warned in a report written to pressure the Paramount Chief (i.e., the King) into action that “unless ‘indiscriminate ploughing’ was arrested, ‘the future of Basutoland is in a very serious position. ... [It] will in the course of time become a second Palestine.’” (Kimble 1999:217). Another described

pastures “invaded by inedible weeds,” presumably referring to burrweed, which spoiled the wool and mohair clip and the dwarf shrub *Chrysocoma ciliata*, which was known to crowd out grasses. In 1947, the British closed off approximately 1400sq mi of mountain rangeland cattle post areas in Mokhotlong and Qacha’s Nek Districts, where the *C. ciliata* invasion was said to be most severe (Driver 1999), though it is unlikely this actually had much effect (Showers 2006). By 1967, Ashton would report that “the growth of the population has so restricted grazing that most Lowlanders have to keep their stock at Highland cattle-posts, and even in the Highlands many people have to keep their animals at cattle-posts rather than at the village” (Ashton 1967:136).

Thus, when sheep arrived in Basutoland, they found a territory whose pasturage was not accustomed to intensive grazing. Literature in rangeland ecology (Milchunas et al. 1988; Leader-Williams 1988) is clear that the effects of a sharp increase in grazing by domestic livestock in historically ungrazed pastures are much more significant than in those with a long history of intensive grazing. This is because the grasses and forbs found in ungrazed pastures are not evolutionarily pre-adapted to endure the impacts of livestock, such as trampling and defoliation. In essence, such systems do not have a high tolerance threshold for grazing and are, as a result, more susceptible to regime shifts from one vegetation type (or “ecological state”) to another (Cingolani et al. 2005; Westoby et al. 1989; Scheffer 2009; Melville 1998). The relative importance of livestock to vegetation changes is variable across ecosystems, but a recent study (Hoag & Svenning n.d.a) found that livestock grazing

intensity can drive increases in shrub densities, even if only within soil geographies where soil moisture and nutrients are conducive to their growth. Another study analyzing satellite imagery (Hoag et al. n.d.) showed only patchy changes in shrub cover in Mokhotlong between 1998 and 2013, though comparison with a separate dataset from the mid-1980s appears to show that grasses were substantially more dominant at that time (MDTP 2007). In 1986, shrub cover was found to represent 10.63% of the total cover in Mokhotlong District, whereas shrub cover in 1998 was found to be 22.54%. This suggests the possibility that Lesotho's alpine and subalpine rangelands underwent a shift to an alternate stable state— regime shift or “critical transition” (Scheffer 2009) during at least those two periods.

Moreover, we know that sheep, in comparison with cattle or even goats, can have dramatic impacts on the pastures where they graze (Beinart 2008; Skinner 1976; Melville 1998). On numerous occasions, herders and livestock owners in Lesotho told me that sheep negatively affect pasture. A herder named Lumisang explained to me that “Sheep spoil the range the most because of how they eat [so close to ground],” making a pinching motion with one hand into the palm of the other. When I suggested that perhaps the cattle also have a big impact on account of being so heavy and trampling vegetation, they both stopped me before I could even finish: “No, no. Cattle don't trample, they eat just fine.” They conceded that cattle consume more forage than small stock, and that cattle trampling is a problem in the wetlands areas, where they can puncture holes in the peat and encourage erosion. But they were otherwise insistent that sheep were the type of livestock affecting these rangelands most. In

effect, where there was concern among rural Basotho during my field research regarding grazing-induced land degradation, it was primarily with small stock—not with cattle.



As a result of the historical process described above, sheep and goat production has become central to rural livelihoods. In 2014/15, revenues from wool production were M195 million (19.5million USD), while mohair generated an additional M57 million (5.7million USD) (Informative News 2016), a huge amount of money for this very poor country. Livestock registration statistics for the Mofolaneng area in Mokhotlong⁶⁶ certainly reflect an emphasis on small stock. Sheep and goats together accounted for between 80-90% of the total herd every year between 2001, when records were first kept for the area, and 2014. Sheep alone accounted for between 60-70% of the total herd, with goats accounting for another 20-25%.

Tregurtha (n.d.) states that the average herd size in the mountains is 50, but that 50% of owners own less than 40 head of small stock, meaning that most of the production

⁶⁶ Mokhotlong produces the most wool of any of the 10 districts in Lesotho, with over 19% of the total clip (roughly 680,000kg of a total 3,600,00kg) from 18% of the total herd, the most of any district (BKB Fibretrack, 2014/15). The District produced over 86,000kg of mohair or 21% of the total clip and the most goats. The amount of wool and the quality of wool has consistently increased over the past decade, though the figures I was able to obtain reflect the effectiveness of the Lesotho National Wool and Mohair Growers Association (LNWMGA), a government-sponsored network of 27,130 farmers in 98 local cooperatives across Lesotho and registered in 2001 (LNDC 2015). Each cooperative has its own woolshed where sheep and goats are shorn, and all sell their clip to BKB, a major wool and mohair processing company in Port Elizabeth that sells fiber by auction to global textile manufacturers. After selling the wool to the woolshed, farmers wait as much as one year before receiving their check. The bulk of Lesotho's clip is sold through BKB.

is by smallholders.⁶⁷ This is in keeping with historical trends over the past century after commoners began settling in the highlands (see Figures 49 and 59), which show Basotho livestock production as squarely focused on small stock.

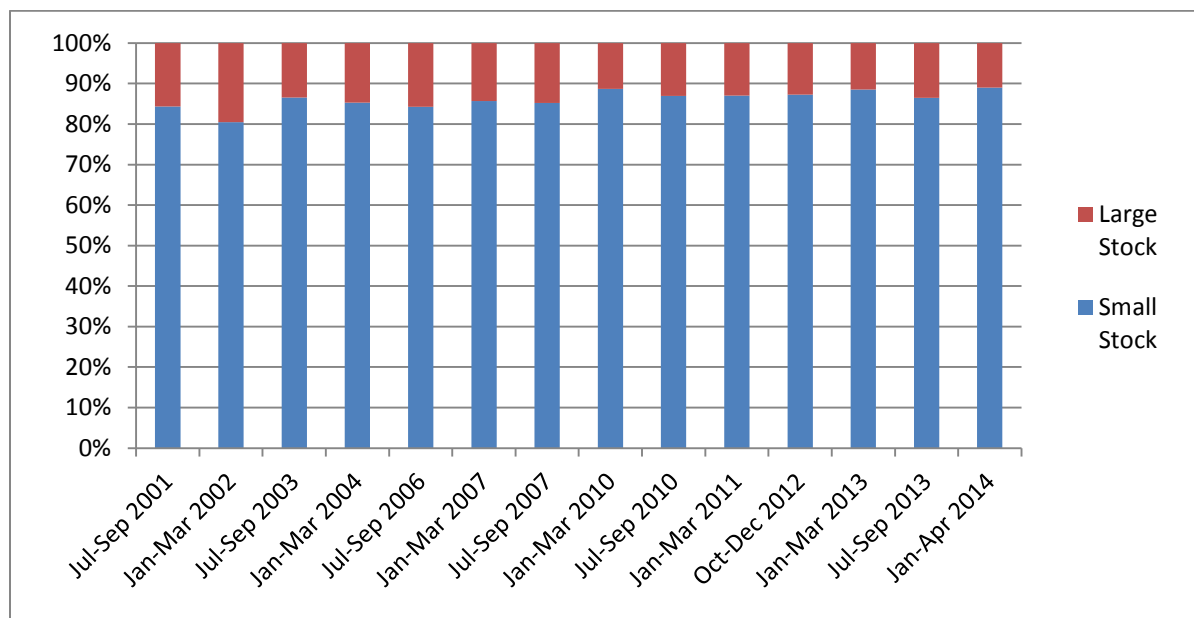


Figure 59: Livestock statistics for Mofolaneng village, Mokhotlong, as a percent of the total village herd.

In sum, small stock have long been central to livelihoods in Lesotho, and have likely been prime instigators of rangeland degradation. But in recent years, their production has shifted to include meat production. In the next section, I describe these

⁶⁷ Lesotho has an additional 34 privately licensed sheds, many of which also sell to BKB. Prior to 2001, most people sold their clip to the trading posts in Lesotho, the formerly white-owned stores situated across the country who were licensed to purchase clip or other sellers or carry the wool by pack animal to South Africa for sale. In addition, today there are companies that drive through the country with a hand scale and pay out money immediately, as well as shops in the major towns that will purchase the wool and pay out immediately, though for a lower rate.

livelihood strategies and the relationship between the fungibility of small stock and entrepreneurial dreams of the post-migration economy.

The Fungibility of Small Stock

Ferguson describes how he presented men with a hypothetical situation: If someone offered them one ox or the cash equivalent, which would they choose? The men always chose cash, which can be converted into cattle, whereas the reverse was not true. If they owned a cow, they would never sell it even under dire circumstances because of its potential future value. When I presented men with the same scenario for sheep and goats during research in 2014 and 2016, men largely opted for sheep over cash. I asked one man who I picked up on the high plateau while driving to Mokhotlong. He had been working on the road construction project that was then underway and was not particularly interested in livestock. He told me that he didn't really want his children to be *barui* (wealthy in livestock) because he'd rather they went to school than become herders. He himself only had a few sheep and a few cows. But, when I asked him whether hypothetically he'd choose a sheep or 750R in cash (the price he quoted me for a sheep), he opted for the sheep because "small stock are a business – you make money off of them." I then asked him the same question about whether he would choose a cow or 4,000R (the going rate). He reported that he would take the money rather than the cow, but not because he could use the money to buy a cow as told to Ferguson, but because he wanted an animal that he could sell easily. "A cow is difficult to sell – and it takes a long time to grow." During that time,

he said, it might die. Sheep and goats, on the other hand, “sell easily” (*li rekisoa ha bobebe*). Not all men responded to my question about cattle in this way, but a substantial number did.

So the fungibility of sheep and goats, close at hand for household expenses, makes them desirable. When I asked which animals women preferred, they told me, like men, that the cattle are important for ploughing, but that the small stock are important because of their fungibility and their rapid multiplication. When I asked men about whether *they* or their wives made decisions about when to sell sheep, most told me it was them—not their wives. But some explained that they would sell when they understood that their wives needed things around the house. Women I spoke with mostly suggested that they chose to sell sheep and goats *in concert* with their husbands, although some explained that they were more firmly in control. “No! *I tell him* [when we need to sell]!” one woman explained. To be sure, sheep, goats, and larger stock are primarily the domain of men in rural Lesotho. Many livestock, particularly the small stock, are kept at distant cattle posts over which women have no direct control. But none of the people I spoke with described a situation for sheep and goats quite like that outlined by Ferguson for cattle—that is, as a special domain of property and a dam against the flow of cash. And, because small stock are so saleable, women are certainly able to make more claims upon them. In my visits to the *lekhotala*, I occasionally saw women selling small stock. I was told by men and women, in fact, that men away at the mines often instruct the chief of their village to allow their wife to sell sheep as she sees fit.

Perhaps more striking to me than the fact that people liked the flexibility of small stock was how confident they were that there would be a market for them. More than able to sell them—owners were *insistent* to me that they could sell them.⁶⁸ The availability of a market for wool, mohair, and mutton stands in sharp contrast to the market for beef. As I indicated earlier, conservation and development workers described by Ferguson sought to resolve Lesotho’s land degradation problems through the development of a beef production industry. They believed that rangeland degradation—seen as pervasive and potentially catastrophic—could only be resolved by extricating cattle from the chains of cultural tradition and social status, and placing them under the control of the “invisible hand” of the market.⁶⁹ This notion endures today. A World Bank report from 2010, for example, advocated, “Livestock development projects involving pricing policies, trek route construction, new slaughter facilities, [and the] purchasing of livestock in the field [for] reduced numbers of livestock on the range and reduced grazing pressure” (2010:44). Lesotho should enter into, “International trade agreements such as the Lome IV Convention (‘Beef Protocol Agreement’) which allows for sales of beef to the European Union at above world market levels” (2010:44). In my conversations with government and

⁶⁸ Some livestock owners acknowledged to me that it could take time to sell small stock. I certainly saw men bring animals to the kraal at the chief’s place for sale who returned home having not sold any. And I also met men at the kraal from neighboring valleys where they reported that sales were more difficult and prices not as good. Nevertheless, in general, almost nobody mentioned the difficulty of selling sheep as a problem to be overcome.

⁶⁹ This perspective dates back at least to the 1920s and 1930s, when the same logic was applied by white South African and British conservationists (Beinart 2008:353-4).

conservation officials in Lesotho, too, the issue of Basotho valuing cattle for their conferral of social status came up on numerous occasions when I asked them if and why they thought rangelands were degraded. They explained that livestock owners care more about the size of their herd than they do about the quality of the animals. For everyday people, too, the restrictions on the sale of cattle described by Ferguson endure. Rural people with whom I spoke reported a similar reticence to sell cattle, citing the importance of cattle for bride-wealth payments (*lobola*), slaughter at funerals and weddings, or ploughing. So the bovine mystique described by Ferguson endures today, both as a development myth about the problem of tradition and in the actual cultural practices.

Sheep and goats have been lost in this discussion of livelihoods and landscape change both before and after the collapse of the labor migration economy. Partly because of Apartheid-era laws prohibiting miners' families from immigrating to South Africa, and partly because of Basotho desires to remain in their own country, mining labor was—and still is, for those lucky enough to have it—an entrepreneurial activity, a means of acquiring money to invest in a future, including bridewealth payments, education for children, a sturdy home, and to build a herd of animals that could generate income during retirement. Sheep and goats were critical to this arrangement. The herd would pay out over time: cattle producing milk and plough, and sheep and goats producing wool and mohair for cash. In the postindustrial period, after the collapse of mining labor opportunities, this entrepreneurial dream dissolved. But in its place, a new dream also based in small stock is emerging. In parallel with

the wool and mohair industry, a mutton industry has surfaced, with young men exporting sheep and goats illicitly to Qwa-Qwa, the former Bantustan just over Lesotho's northern border.

It is difficult to ascertain the precise numbers of livestock that are raised in Mokhotlong District and sold in Qwa-Qwa, but it is not insignificant. By no means are these animals strictly the *old* ones as Ferguson described as being saleable—instead, they are animals that can fetch a good price at butcheries. As the secretary at Mofolaneng explained to me, it's not only men from Mofolaneng who are trekking these animals to Qwa-Qwa, but also from Mapholaneng, Mokhotlong, Tlokoeng—all over the northeast highlands. He and I agreed that there must be over a thousand animals sold there every month. He told me that, for a long time in the past—50 years or more—people from Mokhotlong had been taking wool there for sale, he said, but not the animals themselves. In fact, in the 1950s, there was a woolshed at Letšeng on the high plateau, along the road from Mokhotlong to the lowlands, sited specifically so that animals could be shorn near their cattle posts and their wool immediately taken to Qwa-Qwa by horse or donkey—on the same paths used today. Thus, the current arrangement shows deep continuities with the past, being part of a long history of intensive sheep production in the highlands, but also emergent trends in the aftermath of mining. When I later asked the secretary when he saw sales in sheep and goats increase, he said it began in the late-1980s. I ask why then and he says it's because of “*liphethoho*” or “changes.” He said that at that time people at the mines were losing their jobs and they began to think about how else they could feed their

families. So they started to sell animals in Qwa-Qwa and in the lowlands of Lesotho. “*Ba ne ba ipotsa, 'Ke tla etsa joang?’*” (“They asked themselves, ‘What am I going to do?’”). The mining economy was one fraught with risk and violence—from thieves in South Africa’s cities to the dangers of working underground—and so too is this one, as I describe in the next section.

Journeys to Qwa-Qwa

Thapelo and his friend Khutliso were heading to a horse race that Thapelo’s uncle would be participating in, and they invited me along. On our way there, Thapelo told me that he planned to head to Qwa-Qwa the following morning, taking 12 sheep with him. Qwa-Qwa is the name of the former Apartheid Bantustan that was designed for South African Basotho and which borders Lesotho to the north. Bantustans were creations of the Apartheid regime—impoverished “homelands” in which Africans were forced to live while not employed with a work permit in South Africa’s white cities and towns. The reserve no longer exists as such, having been dissolved as a legal entity with the end of Apartheid, but it remains a poor and densely populated area with a large town, Phuthaditjhaba. With a population of 55,000 people, Phuthaditjhaba is, like other former Bantustan capitals, a conspicuous town in the middle of an otherwise rural landscape. Most of the land surrounding it, however, belongs not to smallholders but rather to large agricultural companies or wealthy families. Few of those enterprises raise meat for the town’s butcheries, meaning a market opportunity exists for people like Thapelo. He can sell his small stock there

for around twice the going rate in Lesotho. (Sheep are mostly desired in Qwa-Qwa, but further to the East, where amaZulu people predominate, goat meat is preferred.)

Like the ones purchasing livestock at the *lekhotla* I described at the beginning, many young men in the area make a living in this way: buying animals with whatever money they have or can borrow and selling them in Qwa-Qwa. But it is no easy task. The trip there is arduous and dangerous. After paying a truck to drop him and his animals off on the high plateau along the road between Mokhotlong and Butha-Buthe, Thapelo will set out at a quick pace north. From noon, when he will begin the hike, he will drive the animals through the day and through the night, arriving before dawn at the edge of the escarpment that marks the border with South Africa. From there, he will descend about 4,000ft into Phuthaditjhaba, whose nighttime lights illuminate the trail. There is a border gate along the footpath / 4x4-road at the base of the mountains, which Thapelo will need to avoid—like most other herders, neither Thapelo nor his animals have the proper documents to enter South Africa. Over the course of the next few days, he will stay with friends and bring his animals to one of the main kraals in the town, where buyers from local butcheries come. After a few days, when most or all of his sheep have been sold, he will return home by the same path, cash in hand.

Thapelo explained this all with an air of satisfaction—a kind of masculine pride—and I couldn't help but ask Khutliso if he drove animals to Qwa-Qwa, too. I half suspected not. Whereas Thapelo was stocky and confident, Khutliso had a small frame and disarmingly kind eyes. He used to, he told me, flashing a nervous smile and bowing his head down. But he doesn't anymore. He explained on my prodding

that, after having made the trip a few times, he had a bad experience. Three years ago, he and his childhood friend Relebohile were held up at gunpoint and robbed of their entire flock—30 or so animals. Two armed men stopped them at daybreak, just as they reached the escarpment. Worried that he and Relebohile would head to the police after having seen their faces, the two men took Khutliso and Relebohile to a cove, beat them up, and tied them together. After several hours, during which time Khutliso assumed they were trying to make a plan, the men decided to shoot them. With Khutliso watching, the men put the gun to Relebohile’s head and pulled the trigger—the gun jammed. They stabbed Khutliso in the stomach, immobilizing him, and then stabbed his friend repeatedly. Khutliso pulled up his shirt and showed me a 1-inch scar on the side of his abdomen. While the men prepared a fire that Khutliso believed would be used to burn the bodies, Khutliso managed to free himself of the rope around his hands and feet. He ran away, hobbling with his stomach wound as fast as he could back to the road, through the day and into the night. There, he managed to catch a lift with a passing car back to the clinic at Mapholaneng. He will never take animals to Qwa-Qwa again, he told me.

Shocked by the sadness and violence of the story, I asked Thapelo if he wasn’t scared about his impending trip. He said, “*feela he chelete ea loma, ea loma*” – “it’s just that the money bites, it bites.”

Lekalapense: Weighing Wool and Mutton in the Water Reservoir

An emphasis on the importance of wool production in Lesotho over the second half of the 20th century and the organization of the Lesotho National Wool and Mohair Growers Association (LNWMGA) has led to biases toward wool-producing breeds of sheep. Consider the use of the term, “*lekalapense*” in Sesotho. The term is a Sesotho-fied version of the Afrikaans word, “*kaalpens*,” which means bare (*kaal*) stomach (*pens*) or “no wool on the stomach.” The term refers to the Dohne Merino sheep, a type of Merino with a wide, short tail produced for its meat instead of its wool. However, it is used in a derogatory way to refer to any sheep with poor wool quality by wool farmers and employees at the woolsheds, where sheep and goats are shorn. At the woolsheds and amongst members of the LNWMGA, I was told that they might just expel a *lekalapense* because it will diminish the quality of the clip as a whole. A *lekalapense*, I was told by several livestock owners, is “a bad breed among a good breed. In fact, the word has been recontextualized to apply to people – people who are not part of the group.” When used to describe a person, it is extremely derogatory, and one man even told me that “someone would kill you if you called them *lekalapense*.”

One evening, as I walked along a road after finishing interviews with livestock owners about their stock preferences, I bumped into a friend of mine—a young and energetic man named Lesuhla. He flagged me down as I walked along the road past his village, eager to show me his new ram. He had told me about it once before, so I was interested to see what he was so excited about. He told me that it was a “German” type, meaning that its wool is not very high-quality but it’s very fat. A

young herder who saw us looking at the animal walked over to get a look. He was clearly impressed. After I took a photo of it, he pulled out a cell phone and took one, too. The reason Lesuhla was excited about the ram is because it was the embodiment of a grand plan that he was developing, which he then described to me in impressive detail. He has 34 sheep right now, he explained, five of which he will take to Qwa-Qwa in the next few days. He planned to mate his ram with the sheep that remained, all of which were wool sheep that produce “medium-fine” grade wool.⁷⁰ The offspring would be sheep that produce significant wool but which would also get fat and fetch a good price at the butcheries in Qwa-Qwa. Standing up and gesturing to the agricultural fields outside his home, he said he planned to plant a grain he called “*habora*,” similar to wheat, as forage for his sheep. Then he swept his hand over to some more agricultural fields in the distance up the hillside from us—there, he planned to plant two specific varieties of maize that he would ultimately have ground up for the animals. Then, he would bring back a select group of animals from the cattle post and fatten them up before taking them to Qwa-Qwa. In addition, he planned to breed his ram with other people’s stock, the privilege for which they would pay him. He joked that he already has a list of people who are eager to breed with his “*lekalapense*.” His plan was to repeat that cycle multiple times and then each time reinvest the money to multiply his herd, satisfying his household needs as he

⁷⁰ “Fine” is the highest grade, but most farmers in Lesotho prefer medium-fine sheep because fine wool is more likely to grow poorly during drought years when sufficient forage is unavailable.

goes. In the longer term, he hoped to build a brick house and, later, to open up a clothing store in nearby Mapholaneng.



Figure 60: A man with a "lekalapense." Photo by the author.

Lesuhla talked about these plans with excitement. They were so close at hand that it was clear he thought about them regularly. This is only the tip of the iceberg, he explained. He wants to increase his production by quite a lot. I asked him if he wasn't scared of the thieves that I had heard about. He nodded his head deeply. One time, his entire herd was stolen by three men armed with guns. He and a friend were making the trip with a herd of 90 sheep when they were stopped. But he seemed pleased that I had asked. He had already agreed with four other men and women to form a kind of cooperative. They would pay annual dues to be members, and these dues would go toward paying the men who herd the animals to Qwa-Qwa, as well as

toward purchasing medicines and forage for their animals. Members would be obliged to direct part of their profits toward purchasing more animals, and each time animals were taken to Qwa-Qwa the herd would be comprised of a number of each of their animals. This way, if the animals were lost to theft, the effects on each individual would be minimized.

Lesuhla and his collaborators were refining an approach to the contingent economy of mutton and wool. The *lekalapense* is just the latest development in a longstanding relationship between Basotho and small stock. Selling these animals to Qwa-Qwa, he and others like him make life possible in postindustrial Lesotho. By developing a line of sheep that produce wool but which are also desirable to butcheries, they both interrupt and extend the government's efforts to capitalize on Lesotho's highland pastures through wool and mohair production. This is not an unambiguously positive development, however. In hedging against the risk and violence of this illicit trade, his venture shows that new livestock entrepreneurship could be as dangerous as life on the mines.

Conclusion

James Ferguson's (1985) investigation into the livestock practices of rural Basotho powerfully showed how "traditional" livestock culture was not a precolonial holdover that conflicted with "modern" cash economies. Instead, rural livestock practices were directly shaped by kinship and the structural constraints of a regional political

economy. Development and conservation workers' efforts to promote beef production for the purpose of improving land condition through market regulation, as he documented in *The Anti-Politics Machine* (1994), failed because they misunderstood these fundamental aspects of cattle-based social relations. However, in his analysis, as well as that of contemporary conservation and development workers, cattle were made to stand in for all livestock types as "livestock." This obscures important differences between the practices surrounding different kinds of livestock, but also the profound landscape impacts of sheep and goats on Lesotho's rangelands. Indeed, not only have small stock grossly outnumbered cattle for decades, partly prompting the settlement of the highlands itself, but their numbers have been high *precisely because they were linked into global textile markets*. Their introduction in the late 19th century into pastures that had not experienced significant grazing pressures almost certainly led to heavy losses of biodiversity and triggered localized shifts from grassland to shrubland. Thus, though conservationists proposed that the *complete* commodification of cattle could help reduce land degradation by the guidance of the market's invisible hand, it was the *complete commodification of small stock* that caused land degradation in the first place.

But while sheep and goats are long-standing objects of interest for Basotho, the structural transformation underway in Lesotho during the late 20th century, from a labor reserve for South African industry to a postindustrial enclave, has sent young Basotho men in search of new economic opportunities. In place of one entrepreneurial dream, in which herds of small stock are slowly built up as a strategy

for retiring from the mines, a new dream has taken its place—the illicit sale of sheep and goats to South African butcheries. Basotho in the highlands want to have surplus sheep, whether or not available rangeland forage allows it, which they can sell at any time to get cash for food or school uniforms—that is, to cope with a life of depredation and expropriation and to make a future for their children. But the smuggling of sheep and goats to South Africa is dangerous, illustrating the violence and risk that continues to characterize Basotho relationships with South Africa. It is a story of continuity and change. Both dreams arise in response to the slow violence of decades of political economic marginalization against which sheep and goats have been a lifeline. Whereas Lesotho used to be a reproductive community for the mines in South Africa, producing young men for the market, today Basotho produce wool for the global textiles industry and fat for the South African proletariat.

CONCLUSION

Water production necessitates forms of social and ecological engineering. As “water silos” or “water factories” (Mokuku & Taylor 2015), Lesotho’s mountain rangelands have been converted into “natural infrastructure” (Carse 2015) for South African industry. Elites work to promote the notion that water abundance is an inherent feature of the nation-state of Lesotho, and that water is therefore part of a Sotho cultural lexicon. But even though it enables the commodification of water, that notion of water is unfamiliar to ordinary people in Lesotho, given that its homogeneous spatial and temporal framing contradicts everyday, material reality. Instead, water is more commonly understood in Lesotho as patchy, erratic, and destructive. Oddly, the

soil conservation efforts that resolve the contradiction between flowing, national water and unruly, patchy water—and which thereby constitute part of an infrastructure of water production—are often poorly constructed, failing to stop sediment, and falling apart from the start. This is because they serve a parallel goal, namely to redistribute a small portion of national wealth to an impoverished, voting public in rural areas. While stopping erosion might be impossible, given the scale of the problem and the nature of rains in Lesotho, the materiality of conservation structures perform the contradictions inherent in Lesotho's structural transformation from labor reserve to water reservoir. Even as they seem to suggest government failure, they rhetorically convert violent water into flowing water and ameliorate rural suffering through labor-based welfare programs. At once infrastructures of water production and of economic distribution (Ferguson 2015), soil conservation works maintain a relationship between unsustainable multispecies livelihoods and political quietude.

While those conservation structures are presented as evidence that government agencies are fighting soil erosion, the extent of soil erosion—and the effectiveness of conservation works in preventing it—goes unmeasured. In place of measurement, indicators of land degradation such as the presence of dwarf shrubs are used by conservation workers to assess soil erosion. Even though shrubs do not always co-occur with or promote erosion (and may even prevent it), shrubs have come to represent land degradation and desertification in the flesh through a crude equation: more shrubs equals less water. Though Lesotho's highlands were never

dominated by trees, woody shrubs have always been present with restricted ranges (May 2000; Scott 1982; Carbutt & Edwards 2003; Hilliard & Burt 1987). Some occurred in lower, riparian areas while others were alpine species confined to exposed ridges. A specific subset of shrub species has expanded since the settlement of the highlands for wool and mohair production in the early 20th century. Not only is the distribution of many of these shrub species broader today, but the individuals are smaller and younger due to fuel collection, fire, and human disturbance. Bare soil has increased relative to shrub and herb cover with the expansion of settlement in the highlands, but primarily in the areas lower in the valley (<2400masl) where villages are located and where pastures are grazed the heaviest (the "C" areas). It is true that land degradation has been disputed in many cases in Africa, particularly as it relates to peasant land use and pastoralist economies (Leach & Mearns 1996; Dodd 1994; Fratkin 1997; Fairhead & Leach 1996; Homewood & Rogers 1984; Hoag & Svenning n.d.b), including in Lesotho (Showers 2005), meaning that caution is warranted in accepting received wisdom on the decline of land condition. But degradation (a transition from a more productive and grassy state to a less productive, shrubby, eroded state) stemming from livestock production and other forms of land use in Lesotho is real.

What are the causes of this change? The introduction of large numbers of livestock in the mid-20th century was a shock to the system. Ungulate herbivores were present in the highlands in prehistory as seen through the limited archaeological study and some early historical records, but probably in much smaller numbers than the

livestock today. And they probably migrated into the highlands in the summer. Livestock initially grazed the highlands during the summer only, and remnants of that system of vertical transhumance pattern endure in the A-B-C system (see Chapter 3). Since the mid-20th century, however, the B and C areas have come to be occupied year-round. The spike in livestock densities in the early 20th century triggered a transition to a shrubbier state. If the transition were reversible, it is prevented today by a combination of grazing, fire cessation, and periodic drought, all of which disfavor herbs and favor shrubs. This means that degradation took place mostly in the period when Basotho began using mining income to invest in herds that could be used as a retirement strategy and when human population expanded. At that same time, interventions into land management (i.e., indirect rule, development and conservation programs, postcolonial efforts at centralization and then decentralization) gained steam, undermining the commons but also rendering modernist, state-based management plans unworkable as institutions for land management proliferated. A more recent increase in shrub cover appears to stem from an intensification of this system with the decline of the labor migration economy, when sheep and goat production went from a retirement strategy to a primary livelihoods strategy.

Thus, land degradation is a political and not merely an ecological process. Stocking levels and land use should be understood not as an indigenous tradition that is misidentified as harmful, but rather a result of the modernist ideologies and logics internalized by wage labor. As I showed in Chapter 5, sustainability is not necessarily a local goal. Basotho living in the highlands are not a benign indigenous population

“in tune with” their natural environment, even though certainly they know more about how to manage their land responsibly than elites from the lowlands or foreign consultants with little understanding of the highlands’ history or ecology. They form part of a peasantry, forced within only the past century to occupy a harsh territory, “scratching about” on the land (Murray 1981), and by necessity building up larger herds of livestock than can be supported by the land. This situation represents a hangover from a particular historical trajectory: namely, King Moshoeshoe I’s colonization of Lesotho, which he undertook by placing his sons in the highlands as chiefs; the British colonial government’s formalization of that system through indirect rule; the marginalization of Lesotho as a labor reserve by the British and Apartheid South Africa; the rise of the development-conservation industry; and the desires of people in Lesotho to earn enough money on the mines so that they could live in Lesotho solely by raising livestock. There was a time when the contradictions of local land use were blunted by the availability of land, but not today. The nonsustainability of grazing in the Lesotho highlands is thus a continuing effect of colonial violence, of a labor reserve system that has concentrated people as well as livestock, and of contemporary disconnections between elite rule and rural welfare.

In summary, as Lesotho shifted from being a labor reserve to a water reservoir for South African industry, the politics of land use and degradation have remained more or less in place. Efforts to produce water commodities have relied on colonial-inspired soil conservation measures that constituted a mode of governance as much as an ecological measure *per se*. In much the same way that Lesotho was figured as a

politically walled-off but economically dependent territory during the colonial era, this was the case in the immediate postcolonial period, as it is today. Erosion control is presented as a technical matter when in fact it is a political one, as nonsustainable multispecies livelihoods are not primarily a failure of local management but rather an architectural feature of a regional political economy: land degradation stems from Lesotho's historical experience as a "periphery" to the South African "core." Today's nonsustainable livelihoods are maintained through the innovative livestock production strategies of rural Basotho, and through a tenuous politics of distribution established by elites, whereby payments for water are channeled toward concentration and corruption, trickling down to rural livelihoods through development and environmental management programs.

Though seen as occupying the margins of world events, Lesotho—the world's first "water exporter"—sheds light on the future of water, a future in which humanistic and scientific perspectives will be critical to understanding how to build sustainable socio-ecological worlds. It stands as an example of why we need theoretical and methodological tools that can help us to envision both the symbolic and material infrastructures required for natural resource production, as well as the limits they place on life in an economic periphery.

Bibliography

- Adams, W. M. 1993. *Wasting the Rain: Rivers, People, and Planning in Africa*. Minneapolis, MN: University of Minnesota Press.
- Aerni-Flessner, John. 2014. "Development, Politics, and the Centralization of State Power in Lesotho, 1960–75." *The Journal of African History* 55(03): 401–21.
- Allison, Simon. 2013. "Quenching South Africa's Thirst." *Good Governance Africa*. July 1. (<http://gga.org/stories/editions/aif-13-out-of-water/quenching-south-africa2019s-thirst>). Accessed September 15, 2015.
- American Rivers, Friends of the Earth, and Trout Unlimited. 1999. *Dam Removal Success Stories: Restoring Rivers Through Selective Removal of Dams that Don't Make Sense*. Washington, DC: American Rivers.
- Anand, Nikhil. 2017. *Hydraulic City: Water and the Infrastructures of Citizenship in Mumbai*. Durham, NC: Duke University Press.
- Anders, Gerhard. 2010. *In the Shadow of Good Governance: An Ethnography of Civil Service Reform in Africa*. Brill: Leiden.
- Anderson, Virginia DeJohn. 2006. *Creatures of Empire: How Domestic Animals Transformed Early America*. Oxford: Oxford University Press.
- Anderson, Warwick, and Vincanne Adams. 2008. "Pramoedya's Chickens: Postcolonial Studies of Technoscience." In *The Handbook of Science and Technology Studies*, edited by Edward J Hackett, Olga Amsterdamska, Michael Lynch, and Judy Wajcman, 3rd ed., 181–204. Cambridge, MA: The MIT Press.
- Angassa, A. 2014. "Effects of Grazing Intensity and Bush Encroachment on Herbaceous Species and Rangeland Condition in Southern Ethiopia." *Land Degradation & Development* 25 (5): 438–51.
- Ansar, Atif, Bent Flyvbjerg, Alexander Budzier, and Daniel Lunn. 2014. "Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development." SSRN Scholarly Paper ID 2406852. Rochester, NY: Social Science Research Network. <https://papers.ssrn.com/abstract=2406852>.
- Appadurai, Arjun, ed. 1986. *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.
- Appel, Hannah. 2012. "Offshore Work: Oil, Modularity, and the How of Capitalism in Equatorial Guinea." *American Ethnologist* 39 (4): 692–709.

- Apter, Andrew H. 2005. *The Pan-African Nation: Oil and the Spectacle of Culture in Nigeria*. Chicago, IL: University of Chicago Press.
- Arbousset, Thomas. 1991[1840]. *Missionary Excursions*. Translated by David Ambrose and Alfred Brutsch. Morija, Lesotho: Morija Museum & Archives.
- Armstrong, Chelsey Geralda, Anna C. Shoemaker, Iain McKechnie, Anneli Ekblom, Péter Szabó, Paul J. Lane, Alex C. McAlvay, et al. 2017. "Anthropological Contributions to Historical Ecology: 50 Questions, Infinite Prospects." *PLoS One* 12 (2): e0171883.
- Arthington, Angela H., Johan L. Rall, Mark J. Kennard, and Bradley J. Pusey. 2003. "Environmental Flow Requirements of Fish in Lesotho Rivers Using the DRIFT Methodology." *River Research and Applications* 19 (5–6): 641–66.
- Artz, N.E. 1993. "Local Participation, Equity, and Popular Support in Lesotho's Range Management Area Programme." *African Journal of Range & Forage Science* 10 (1): 54–62.
- Ashpole, Marie. 2004. "Ninham Shand - He Walked Tall!" *Civil Engineering: Magazine of the South African Institution of Civil Engineering*. 12 (6): 5-7.
- Ashton, Hugh. 1967. *The Basuto: A Social Study of Traditional and Modern Lesotho*. 2nd ed. Oxford: Oxford University Press.
- Atchison, Jennifer, and Lesley Head. 2013. "Eradicating Bodies in Invasive Plant Management." *Environment and Planning D: Society and Space* 31 (6): 951–68.
- Bainbridge, William, Bore Motsamai, and Christopher Weaver, eds. 1991. "Report of the Drakensberg/Maluti Conservation Programme." Pietermaritzburg: Natal Parks Board.
- Bakker, Karen. 2003. *An Uncooperative Commodity: Privatizing Water in England and Wales*. Oxford: Oxford University Press.
- Balée, William. 2006. "The Research Program of Historical Ecology." *Annual Review of Anthropology* 35 (1): 75–98.
- Barbosa da Silva, Fernando Henrique, Julia Arieira, Pia Parolin, Cátia Nunes da Cunha, and Wolfgang Johannes Junk. 2016. "Shrub Encroachment Influences Herbaceous Communities in Flooded Grasslands of a Neotropical Savanna Wetland." *Applied Vegetation Science* 19 (3): 391–400.

- Bardill, John, and James Cobbe. 1985. *Lesotho: Dilemmas of Dependence in Southern Africa*. Boulder, CO: Westview Press.
- Barnes, Jessica. 2015. *Cultivating the Nile: The Everyday Politics of Water in Egypt*. Durham, NC: Duke University Press.
- Basutoland. 1900-01. "Annual Report for 1900-01." Basutoland Colonial Report. Maseru, Lesotho.
- Basutoland. 1901-02. "Annual Report for 1901-02." Basutoland Colonial Report. Maseru, Lesotho.
- Basutoland. 1933. "Annual Report on the Social and Economic Progress of the People of Basutoland, 1933." Basutoland Colonial Report. Maseru, Lesotho.
- Basutoland. 1948. "Annual Report of the Department of Agriculture for the Year Ending 30 September 1948." Basutoland Colonial Report. Maseru, Lesotho.
- Baviskar, Amita. 1997. *In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley*. Oxford: Oxford University Press.
- Baviskar, Amita. 2004. "Between Micro-Politics and Administrative Imperatives: Decentralisation and the Watershed Mission in Madhya Pradesh, India." *The European Journal of Development Research* 16 (1): 26–40.
- Bawden, Michael George, and Douglas Michael Carroll. 1968. *The Land Resources of Lesotho*. Land Resources Division, Directorate of Overseas Surveys.
- Bayart, Jean-François. 2009. *The State in Africa: The Politics of the Belly*. Translated by Mary Harper. 2nd ed. Malden, MA: Polity.
- Bear, Laura, and Nayanika Mathur. 2015. "Introduction: Remaking the Public Good: A New Anthropology of Bureaucracy." *Cambridge Anthropology* 33 (1): 18–34.
- Behnke, Roy H., Ian Scoones, and Carol Kerven, eds. 1993. *Range Ecology at Disequilibrium: New Models of Natural Variability and Pastoral Adaptation in African Savannas*. London: Overseas Development Institute.
- Beinart, William, Karen Brown, and Daniel Gilfoyle. 2009. "Experts and Expertise in Colonial Africa Reconsidered: Science and the Interpenetration of Knowledge." *African Affairs* 108 (432): 413–33.
- Beinart, William. 1984. "Soil Erosion, Conservationism and Ideas about Development: A Southern African Exploration, 1900-1960." *Journal of Southern African Studies* 11 (1): 52–83.

- Beinart, William. 1989. "Introduction: The Politics of Colonial Conservation." *Journal of Southern African Studies* 15 (2): 143–62.
- Beinart, William. 2000. "African History and Environmental History." *African Affairs* 99 (305): 269–302.
- Beinart, William. 2008. *The Rise of Conservation in South Africa: Settlers, Livestock, and the Environment 1770-1950*. Oxford: Oxford University Press.
- Belsky, A. J., A. Matzke, and S. Uselman. 1999. "Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States." *Journal of Soil and Water Conservation* 54 (1): 419–31.
- Benjamin, Walter. 1968. "Theses on the Philosophy of History." In *Illuminations: Essays and Reflections*, 253–64. New York, NY: Schocken Books.
- Bereng, Mpaki. 2015. "Lesotho Highly Dependent on Donor Funding: Report." *Public Eye Online*, September 19. <http://www.publiceyenews.com/site/2015/09/18/lesotho-highly-dependent-on-donor-funding-report/>. Accessed October 22, 2015.
- Beresford, David, and Mike Pitso. 1986. "Leaders Held as Lesotho 'Blockade' Takes Effect / Opposition Politicians Accused of Conspiracy with South Africa." *The Guardian*, January 15.
- Berlant, Lauren. 2011. *Cruel Optimism*. Durham, NC: Duke University Press.
- Best, Jacqueline. 2012. "Bureaucratic Ambiguity." *Economy and Society* 41 (1): 84–106.
- Bhabha, Homi. 1990. "DissemiNation: Time, Narrative, and the Margins of the Modern Nation." In *Nation and Narration*, edited by Bhabha, Homi, 291–322. London: Routledge.
- Bierschenk, Thomas, and Jean-Pierre Olivier de Sardan. 2014. *States at Work: Dynamics of African Bureaucracies*. Leiden: Brill.
- BKB. 2016. "Wool." (<http://www.bkb.co.za/wool/>). Accessed July 25, 2016.
- Blaikie, Piers, and Harold Brookfield, eds. 1987. *Land Degradation and Society*. London: Methuen.
- Blaikie, Piers. 1985. *The Political Economy of Soil Erosion in Developing Countries*. London: Longman.

- Blundo, Giorgio, and Jean-Pierre Olivier de Sardan, eds. 2006. *Everyday Corruption and the State: Citizens and Public Officials in Africa*. London: Zed Books.
- Blundo, Giorgio, and Pierre-Yves Le Meur. 2009. *The Governance of Daily Life in Africa: Ethnographic Explorations of Public and Collective Services*. Vol. 19. Leiden: Brill.
- Bohannan, Paul. 1955. "Some Principles of Exchange and Investment among the Tiv." *American Anthropologist* 57 (1): 60–70.
- Boivin, Nicole L., Melinda A. Zeder, Dorian Q. Fuller, Alison Crowther, Greger Larson, Jon M. Erlandson, Tim Denham, and Michael D. Petraglia. 2016. "Ecological Consequences of Human Niche Construction: Examining Long-Term Anthropogenic Shaping of Global Species Distributions." *Proceedings of the National Academy of Sciences* 113 (23): 6388–96.
- Bojö, Jan. 1991. "The Economics of Land Degradation: Theory and Applications to Lesotho." PhD Dissertation, Stockholm, Sweden: Stockholm School of Economics.
- Bond, Patrick. 2002. *Unsustainable South Africa: Environment, Development and Social Protest*. London: Merlin.
- Boshoff, William, and Graham I. H. Kerley. n.d. *Historical Incidence of Larger Mammals in the Free State Province (South Africa) and Lesotho*. Port Elizabeth, South Africa: Centre for African Conservation Ecology, Nelson Mandela Metropolitan University.
- Bowker, Geoffrey C., and Susan Leigh Star. 1999. *Sorting Things Out: Classification and Its Consequences*. Boston, MA: The MIT Press.
- Brasseur, Guy P., and Ben van der Pluijm. 2013. "Earth's Future: Navigating the Science of the Anthropocene." *Earth's Future* 1 (1): 1–2.
- Braun, Yvonne A. 2010. "Gender, Large-Scale Development, and Food Insecurity in Lesotho: An Analysis of the Impact of the Lesotho Highlands Water Project." *Gender & Development* 18 (3): 453–64.
- Breshears, David D., and Fairley J. Barnes. 1999. "Interrelationships between Plant Functional Types and Soil Moisture Heterogeneity for Semiarid Landscapes within the Grassland/forest Continuum: A Unified Conceptual Model." *Landscape Ecology* 14(5): 465–78.
- Briske, David D., Brandon T. Bestelmeyer, Joel R. Brown, Samuel D. Fuhlendorf, and H. Wayne Polley. 2013. "The Savory Method Can Not Green Deserts or

- Reverse Climate Change: A Response to the Allan Savory TED Video.” *Rangelands* 35 (5): 72–74.
- Briske, David D., Brandon T. Bestelmeyer, and Joel R. Brown. 2014. “Savory’s Unsubstantiated Claims Should Not Be Confused With Multipaddock Grazing.” *Rangelands* 36 (1): 39–42.
- Buck-Morss, Susan. 1989. “Mythic History: Fetish.” In *The Dialectics of Seeing: Walter Benjamin and the Arcades Project*, 78–109. Cambridge, MA: The MIT Press.
- Büntgen, Ulf, Lena Hellmann, Willy Tegel, Signe Normand, Isla Myers-Smith, Alexander V. Kirilyanov, Daniel Nievergelt, and Fritz H. Schweingruber. 2015. “Temperature-Induced Recruitment Pulses of Arctic Dwarf Shrub Communities.” *Journal of Ecology* 103 (2): 489–501.
- Büscher, Bram. 2013. *Transforming the Frontier: Peace Parks and the Politics of Neoliberal Conservation in Southern Africa*. Durham, NC: Duke University Press.
- Calles, Bengt, and Lena Kulander. 1994. “Rainfall Erosivity at Roma, Lesotho.” *Geografiska Annaler. Series A, Physical Geography* 76 (1/2): 121–29.
- Carbutt, C. 2012. “The Emerging Invasive Alien Plants of the Drakensberg Alpine Centre, Southern Africa.” *Bothalia* 42 (2): 71–85.
- Carbutt, Clinton, and T. J. Edwards. 2003. “The Flora of the Drakensberg Alpine Centre.” *Edinburgh Journal of Botany* 60 (03): 581–607.
- Carey, Mark. 2010. *In the Shadow of Melting Glaciers: Climate Change and Andean Society*. Oxford: Oxford University Press.
- Carlson, K. A. 1913. “Forestry in Relation to Irrigation in South Africa.” *Agricultural Journal of the Union of South Africa* 5: 219–234.
- Caro, Tim, Jack Darwin, Tavis Forrester, Cynthia Ledoux-Bloom, and Caitlin Wells. 2012. “Conservation in the Anthropocene.” *Conservation Biology* 26 (1): 185–188.
- Caromba, Laurence. 2017. “Redrawing the Map of Southern Africa? A Critical Analysis of the Arguments for the Unification of South Africa and Lesotho.” *Politikon* 44 (1): 93–109.
- Carruthers, Jane. 1995. *The Kruger National Park: A Social and Political History*. Pietermaritzburg: University of Natal Press.

- Carse, Ashley. 2015. *Beyond the Big Ditch: Politics, Ecology, and Infrastructure at the Panama Canal*. Cambridge, MA: The MIT Press.
- Casalis, Eugene. 1965 [1861]. *The Basuto, or Twenty-Three Years in South Africa*. Cape Town: C. Struik.
- Casid, Jill H. 2004. *Sowing Empire: Landscape and Colonization*. Minneapolis, MN: University of Minnesota Press.
- Castree, Noel. 2014. "The Anthropocene and the Environmental Humanities: Extending the Conversation." <http://ro.uow.edu.au/sspapers/1389/>.
- Cernea, Michael M. 2003. "For a New Economics of Resettlement: A Sociological Critique of the Compensation Principle." *International Social Science Journal* 55 (175): 37–45.
- Cevasco, Roberta. 2004. "Multiple Use of Tree-Land in the Northern Apennines during the Post-Medieval Period." In *Ligurian Landscapes: Studies in Archaeology, Geography and History*, edited by Ross Balzaretti, Mark Pearce, and Charles Watkins, 10:155–78. Accordia Specialist Studies on Italy. London: Accordia Research Institute, University of London.
- Chakela, Q., J. Molapo, and T.G. Putsoane. 1989. *Erosion Hazard Mapping of the SADCC Region: Part III: Lesotho*. Maseru: Southern African Development Co-ordination Conference.
- Chakela, Qalabane K, ed. 1999. *State of the Environment in Lesotho - 1997*. Maseru: National Environment Secretariat, Ministry of Environment, Gender, and Youth Affairs, Govt. of Lesotho.
- Chakela, Qalabane K. 1981. *Soil Erosion and Reservoir Sedimentation in Lesotho*. Uppsala: Scandinavian Institute of African Studies.
- Chakela, Qalabane, and Michael Stocking. 1988. "An Improved Methodology for Erosion Hazard Mapping Part II: Application to Lesotho." *Geografiska Annaler. Series A, Physical Geography* 70(3):181–189.
- Chakrabarty, Dipesh. 2000. *Provincializing Europe: Postcolonial Thought and Historical Difference*. Princeton, NJ: Princeton University Press.
- Chakrabarty, Dipesh. 2009. "The Climate of History: Four Theses." *Critical Inquiry* 35 (2): 197–222.
- Chalfin, Brenda. 2004. *Shea Butter Republic: State Power, Global Markets, and the Making of an Indigenous Commodity*. New York, NY: Routledge.

- Chin, Anne, Rong Fu, Jon Harbor, Mark P. Taylor, and Veerle Vanacker. 2013. "Anthropocene: Human Interactions with Earth Systems." *Anthropocene* 1 (September): 1–2.
- Choy, Timothy K, Lieba Faier, Michael J Hathaway, Miyako Inoue, Shiho Satsuka, and Anna Tsing. 2009. "A New Form of Collaboration in Cultural Anthropology: Matsutake Worlds." *American Ethnologist* 36 (2): 380–403.
- Christie, Sean. 2014. "'White Gold' Leaves a Dark Stain in Lesotho." *The M&G Online*, September 5. (<http://mg.co.za/article/2014-09-04-white-gold-leaves-a-dark-stain-in-lesotho/>.) Accessed September 8, 2014.
- Chu, Julie Y. 2014. "When Infrastructures Attack: The Workings of Disrepair in China." *American Ethnologist* 41 (2): 351–67.
- Cingolani, Ana M., Imanuel Noy-Meir, and Sandra Díaz. 2005. "Grazing Effects on Rangeland Diversity: A Synthesis of Contemporary Models." *Ecological Applications* 15 (2): 757–73.
- Clark, James S. 2009. "Beyond Neutral Science." *Trends in Ecology & Evolution* 24 (1): 8–15.
- Clements, Frederic E. 1936. "Nature and Structure of the Climax." *Journal of Ecology* 24 (1): 252–84.
- Clifford, James, and George E Marcus. 1986. *Writing Culture: The Poetics and Politics of Ethnography*. Berkeley, CA: University of California Press.
- Colson, Elizabeth. 1971. *The Social Consequences of Resettlement: The Impact of the Kariba Resettlement upon the Gwembe Tonga*. Manchester: Manchester University Press.
- Comaroff, Jean, and John L Comaroff. 1999. "Occult Economies and the Violence of Abstraction: Notes from the South African Postcolony." *American Ethnologist* 26 (2): 279–303.
- Comaroff, Jean, and John L. Comaroff. 2001. "Naturing the Nation: Aliens, Apocalypse, and the Postcolonial State." *Social Identities* 7 (2): 233–65.
- Comaroff, John L., and Jean Comaroff. 1990. "Goodly Beasts, Beastly Goods: Cattle and Commodities in a South African Context." *American Ethnologist* 17 (2): 195–216.
- Convention on Biological Diversity. 1995. "Biological Diversity in Lesotho: First Country Report to the COP." Maseru: Lesotho.

- Coplan, David B. 2000. "Unconquered Territory: Narrating the Caledon Valley." *Journal of African Cultural Studies* 13 (2): 185–206.
- Coplan, David B. 2001. "A River Runs through It: The Meaning of the Lesotho-Free State Border." *African Affairs* 100 (398): 81–116.
- Coplan, David B. 2010. "First Meets Third: Analyzing Inequality along the US-Mexico and South Africa-Lesotho Borders." *Journal of Borderlands Studies* 25 (2): 53–64.
- Coplan, David. 1994. *In the Time of Cannibals: The Word Music of South Africa's Basotho Migrants*. Chicago, IL: University of Chicago Press.
- Coplan, David B., and Tim Quinlan. 1997. "A Chief by the People: Nation versus State in Lesotho." *Africa: Journal of the International African Institute* 67 (1): 27–60.
- Coquery-Vidrovitch, Catherine. 1976. "The Political Economy of the African Peasantry and Modes of Production." In *The Political Economy of Contemporary Africa*, edited by P. Gutkind and Immanuel Wallerstein, 90–111. London: Sage.
- Coronil, Fernando. 1997. *The Magical State: Nature, Money, and Modernity in Venezuela*. Chicago, IL: University of Chicago Press.
- Creamer, Terence. 2016. "Bid Deadlines Loom for Two Key Water-Transfer Components of Lesotho Highlands Project." *Engineering News*, December 16. <http://www.engineeringnews.co.za/article/key-components-of-lesotho-highlands-water-project-to-be-awarded-by-mid-2017-2016-12-16>. (Accessed May 30, 2017).
- Crosby, Alfred W. 2004. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. 2nd ed. Cambridge: Cambridge University Press.
- Crumley, Carole L., ed. 1994. *Historical Ecology: Cultural Knowledge and Changing Landscapes*. Santa Fe, N.M. : Seattle: School for Advanced Research Press.
- Crush, Jonathan, ed. 2010. *Migration, Remittances and "Development" in Lesotho*. Migration Policy Series 52. Pretoria: Institute for Democracy in South Africa (IDASA).
- Crush, Jonathan. 2002. *The Border within: The Future of the Lesotho-South African International Boundary*. Vol. 26. IDASA.

- Dahl, Gudrun, Anders Hjort, and others. 1976. *Having Herds: Pastoral Herd Growth and Household Economy*. Department of Social Anthropology, University of Stockholm.
- Dalakoglou, Dimitris. 2010. "The Road: An Ethnography of the Albanian–Greek Cross-Border Motorway." *American Ethnologist* 37 (1): 132–149.
- Das, Veena, and Deborah Poole, eds. 2004. *Anthropology in the Margins of the State*. Santa Fe, NM: School for Advanced Research.
- Dauvergne, Peter. 1997. *Shadows in the Forest: Japan and the Politics of Timber in Southeast Asia*. Cambridge, MA: The MIT Press.
- Dery, David. 1998. "'Papereality' and Learning in Bureaucratic Organizations." *Administration & Society* 29 (6): 677–89.
- Dodd, Jerrold L. 1994. "Desertification and Degradation in Sub-Saharan Africa." *BioScience* 44 (1): 28–34.
- Dodson, Belinda. 2005. "A Soil Conservation Safari: Hugh Bennett's 1944 Visit to South Africa." *Environment and History* 11 (1): 35–53.
- Dove, M., and C. Carpenter. 2008. *Environmental Anthropology: A Historical Reader*. Blackwell Anthologies in Social & Cultural Anthropology 10. Malden, MA: Blackwell.
- Dove, Michael R. 1993. "A Revisionist View of Tropical Deforestation and Development." *Environmental Conservation* 20 (1): 17–24.
- Dowson, Thomas A. 1998. "Rain in Bushman Belief, Politics and History: The Rock-Art of Rain-Making in the South-Eastern Mountains, Southern Africa." In *The Archaeology of Rock-Art*, edited by Christopher Chippindale and Paul S.C. Taçon, 73–88. Cambridge: Cambridge University Press.
- Driver, Thackwray. 1999. "Anti-Erosion Policies in the Mountain Areas of Lesotho: the South African Connection." *Environment and History* 5(1):1–25.
- Dubow, Saul. 1992. "Afrikaner Nationalism, Apartheid and the Conceptualization of 'Race.'" *The Journal of African History* 33 (2): 209.
- Dyksterhuis, E. J. 1949. "Condition and Management of Range Land Based on Quantitative Ecology." *Journal of Range Management* 2 (3): 104–15.
- Dyson-Hudson, R., and N. Dyson-Hudson. 1980. "Nomadic Pastoralism." *Annual Review of Anthropology* 9 (January): 15–61.

- Edgar, Robert. 1987. *Prophets with Honour: A Documentary History of Lekhotla La Bafo*. Johannesburg: Ravan Press.
- Eldredge, Elizabeth A. 1993. *A South African Kingdom: The Pursuit of Security in Nineteenth-Century Lesotho*. Cambridge: Cambridge University Press.
- Eldredge, Elizabeth. 2007. *Power in Colonial Africa: Conflict and Discourse in Lesotho, 1870-1960*. Madison, WI: University of Wisconsin Press.
- Ellenberger, D. Fred. 1912. *History of the Basotho, Ancient and Modern*. London: Caxton.
- Erasmus, Zmitri. 2008. "Race." In: *New South African Keywords*. N. Shepherd and S. Robins, eds. Pp. 169-181. Athens, OH: Ohio University Press.
- Escobar, Arturo. 1994. *Encountering Development: The Making and Unmaking of the Third World*. Princeton, NJ: Princeton University Press.
- Escobar, Arturo. 1999. "After Nature: Steps to an Antiessentialist Political Ecology." *Current Anthropology* 40 (1): 1–30.
- European Union. 2016. "Joint Press Release by the European Union Delegation, the Water Commission and the Department of Water Affairs on EU support to address land erosion through Integrated Catchment Management in Lesotho." April 5, 2016. Maseru, Lesotho: European Union Delegation.
- Evans-Pritchard, E. E. 1940. *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford: Oxford University Press.
- Fairhead, James, and Melissa Leach. 1996. *Misreading the African Landscape Society and Ecology in a Forest-Savanna Mosaic*. Cambridge: Cambridge University Press.
- Faurby, S., and J.-C. Svenning. 2015. "Historic and Prehistoric Human-Driven Extinctions Have Reshaped Global Mammal Diversity Patterns." *Diversity and Distributions* 21 (10): 115–66.
- Ferguson, James, and Akhil Gupta. 2002. "Spatializing States: Toward an Ethnography of Neoliberal Governmentality." *American Ethnologist* 29 (4): 981–1002.
- Ferguson, James. 1985. "The Bovine Mystique: Power, Property and Livestock in Rural Lesotho." *Man* 20 (4): 647–74.

- Ferguson, James. 1994. *The Anti-Politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis, MN: University of Minnesota Press.
- Ferguson, James. 1999. *Expectations of Modernity: Myths and Meanings of Urban Life on the Zambian Copperbelt*. Berkeley, CA: University of California Press.
- Ferguson, James. 2006. *Global Shadows: Africa in the Neoliberal World Order*. Durham, NC: Duke University Press.
- Ferguson, James. 2015. *Give a Man a Fish: Reflections on the New Politics of Distribution*. Durham, NC: Duke University Press.
- Fernández-Giménez, Maria, and Barbara Allen-Díaz. 2001. "Vegetation Change along Gradients from Water Sources in Three Grazed Mongolian Ecosystems." *Plant Ecology* 157 (1): 101–18.
- Fogelman, Charles. 2016. "Measuring Gender, Development, and Land: Data-Driven Analysis and Land Reform in Lesotho." *World Development Perspectives* 1 (March): 36–42.
- Fogelman, Charles, and Thomas J. Bassett. 2016. "Mapping for Investability: Remaking Land and Maps in Lesotho." *Geoforum*, July.
- Forman, Richard T. T., and Lauren E. Alexander. 1998. "Roads and Their Major Ecological Effects." *Annual Review of Ecology and Systematics* 29 (January): 207–231.
- Forsyth, Tim, and Andrew Walker. 2008. *Forest Guardians, Forest Destroyers: The Politics of Environmental Knowledge in Northern Thailand*. Seattle, WA: University of Washington Press.
- Foucault, Michel. 1991. "Governmentality." In *The Foucault Effect: Studies in Governmentality*, edited by Graham Burchell, Colin Gordon, and Peter Miller, 87–104. Chicago, IL: University of Chicago Press.
- Fratkin, Elliot. 1997. "Pastoralism: Governance and Development Issues." *Annual Review of Anthropology* 26: 235–61.
- Fukami, Tadashi. 2015. "Historical Contingency in Community Assembly: Integrating Niches, Species Pools, and Priority Effects." *Annual Review of Ecology, Evolution, and Systematics* 46 (1): 1–23.

- Furlong, Kathryn. 2006. "Hidden Theories, Troubled Waters: International Relations, the 'Territorial Trap', and the Southern African Development Community's Transboundary Waters." *Political Geography* 25 (4): 438–58.
- Galison, Peter. 1987. *How Experiments End*. Chicago, IL: University of Chicago Press.
- Gay, John. 1984. "Basotho Attitudes to Erosion and Conservation." In *Lesotho: Environment and Management, Lesotho Miscellaneous Documents No. 1*. Pp. 61–68. Roma, Lesotho: National University of Lesotho.
- Geisler, Charles. 2015. "New Terra Nullius Narratives and the Gentrification of Africa's 'Empty Lands.'" *Journal of World-Systems Research* 18 (1): 15–29.
- Geissler, Paul Wenzel, Richard Rottenburg, and Julia Zenker. 2014. *Rethinking Biomedicine and Governance in Africa: Contributions from Anthropology*. Amsterdam: Transcript Verlag.
- Geschiere, Peter. 1997. *The Modernity of Witchcraft: Politics and the Occult in Postcolonial Africa*. Charlottesville, VA: University of Virginia Press.
- Gill, Stephen. 1993. *A Short History of Lesotho from the Late Stone Age until the 1993 Elections*. Morija: Morija Museum & Archives.
- Gilmartin, David. 1994. "Scientific Empire and Imperial Science: Colonialism and Irrigation Technology in the Indus Basin." *The Journal of Asian Studies* 53 (4): 1127–49.
- Gilmartin, David. 2003. "Water and Waste: Nature, Productivity and Colonialism in the Indus Basin." *Economic and Political Weekly* 38 (48): 5057–65.
- Gluckman, Max. 1940. "Analysis of a Social Situation in Modern Zululand." *Bantu Studies* 14 (1): 1–30.
- Goodspeed, Peter. 1988. "Tiny Lesotho Aims to Escape Pretoria's Grip." *Toronto Star*, sec. H.
- GOPA. N.d. Protection of the Orange-Senqu Water Sources – SPONGE – Project. Project website (<http://www.gopa.de/projects/protection-orange-senqu-water-sources-sponge-project>). Accessed October 25, 2014.
- Government of Lesotho. n.d.a "About Lesotho." (<http://www.gov.ls/about/default.php>). Accessed March 7, 2013.
- Government of Lesotho. n.d.b "Tourism." (<http://www.gov.ls/about/tourism.php>). Accessed March 7, 2013.

- Grab, Stefan W., and Christine L. Deschamps. 2004. "Geomorphological and Geocological Controls and Processes Following Gully Development in Alpine Mires, Lesotho." *Arctic, Antarctic, and Alpine Research* 36 (1): 49–58.
- Grime, J. Philip. 2002. *Plant Strategies, Vegetation Processes, and Ecosystem Properties*. 2nd ed. London: John Wiley & Sons.
- Grove, A. T., and Oliver Rackham. 2001. *The Nature of Mediterranean Europe: An Ecological History*. New Haven, CT: Yale University Press.
- Grove, Richard, and Toyin Falola. 1996. "Chiefs, Boundaries, and Sacred Woodlands: Early Nationalism and the Defeat of Colonial Conservationism in the Gold Coast and Nigeria, 1870-1916." *African Economic History* 24 (January): 1–23.
- Grove, Richard. 1989. "Scottish Missionaries, Evangelical Discourses and the Origins of Conservation Thinking in Southern Africa 1820-1900." *Journal of Southern African Studies* 15 (2): 163–187.
- Gupta, Akhil. 1995. "Blurred Boundaries: The Discourse of Corruption, the Culture of Politics, and the Imagined State." *American Ethnologist* 22 (2): 375–402.
- Gupta, Akhil. 2012. *Red Tape: Bureaucracy, Structural Violence, and Poverty in India*. Durham, NC: Duke University Press.
- Guyer, Jane I. 2004. *Marginal Gains: Monetary Transactions in Atlantic Africa*. Chicago, IL: University of Chicago Press.
- Haenn, Nora. 2016. "The Middle-Class Conservationist: Social Dramas, Blurred Identity Boundaries, and Their Environmental Consequences in Mexican Conservation." *Current Anthropology* 57 (2): 197–218.
- Hall, Kevin, Jan Boelhouwers, and Kevin Driscoll. 1999. "Animals as Erosion Agents in the Alpine Zone: Some Data and Observations from Canada, Lesotho, and Tibet." *Arctic, Antarctic, and Alpine Research* 31 (4): 436–446.
- Hall, Marcus. 2005. *Earth Repair: A Transatlantic History of Environmental Restoration*. Charlottesville, VA: University of Virginia Press.
- Hansen, Thomas Blum, and Finn Stepputat, eds. 2001. *States of Imagination: Ethnographic Explorations of the Postcolonial State*. Durham, NC: Duke University Press.
- Haraway, Donna J. 2016. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham, NC: Duke University Press.

- Haraway, Donna Jeanne. 1997. *Modest–Witness@Second–Millennium.FemaleMan–Meets–OncoMouse: Feminism and Technoscience*. New York, NY: Routledge.
- Haraway, Donna Jeanne. 2008. *When Species Meet*. Minneapolis, MN: University of Minnesota Press.
- Haraway, Donna. 1988. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” *Feminist Studies* 14 (3): 575–99.
- Haraway, Donna. 1989. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. New York, NY: Routledge.
- Hardin, Garret. 1968. “The Tragedy of the Commons.” *Science* 162: 1243–48.
- Harris, Marvin. 1971. *Culture, Man, and Nature*. New York, NY: Thomas Y. Crowell Company.
- Harris, Marvin. 1998. *Theories of Culture in Postmodern Times*. Walnut Creek, CA: Altamira Press.
- Hartigan, John. 2015a. *Aesop’s Anthropology: A Multispecies Approach*. Minneapolis, MN: University of Minnesota Press. h
- Hartigan, John. 2015b. “Plant Publics: Multispecies Relating in Spanish Botanical Gardens.” *Anthropological Quarterly* 88 (2): 481–507.
- Harvey, David. 1990. *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*. Malden, MA: Blackwell.
- Hastrup, Kirsten, and Cecilie Rubow, eds. 2014. *Living with Environmental Change: Waterworlds*. New York, NY: Routledge.
- Head, Lesley, and Jennifer Atchison. 2015. “Entangled Invasive Lives: Indigenous Invasive Plant Management in Northern Australia.” *Geografiska Annaler: Series B, Human Geography* 97 (2): 169–182.
- Hecht, Gabrielle. 2012. *Being Nuclear: Africans and the Global Uranium Trade*. Cambridge, MA: MIT Press.
- Helmreich, Stefan. 2009. *Alien Ocean: Anthropological Voyages in Microbial Seas*. Berkeley, CA: University of California Press.
- Henare, Amiria J. M, Martin Holbraad, and Sari Wastell. 2007. *Thinking through Things: Theorising Artefacts Ethnographically*. London: Routledge.

- Herskovits, M. J. 1926. "The Cattle Complex in East Africa." *American Anthropologist* 28 (1): 230–72.
- Heyman, Josiah McC. 1995. "Putting Power in the Anthropology of Bureaucracy: The Immigration and Naturalization Service at the Mexico-United States Border." *Current Anthropology* 36 (2): 261–87.
- Heyman, Josiah McC. 2004. "The Anthropology of Power-Wielding Bureaucracies." *Human Organization* 63 (4): 487–500.
- Heywood, A.W. 1908. Report on forestry in Basutoland. Unpublished, in file SAB FOR/158/A217/1.
- Hilliard, Olive Mary, and Brian Laurence Burt. 1987. "The Botany of the Southern Natal Drakensberg." *Annals of Kirstenbosch Botanic Gardens* 15.
- Hirst, Stanley. 1995. "Soil Erosion and Sediment Yield Studies in Catchments of the Lesotho Highlands Water Project." Position Paper. Maseru: Lesotho Highlands Development Authority.
- Hitchcock, Robert K. 2011. "The Lesotho Highlands Water Project: Water, Culture, and Environmental Change." In *Water, Cultural Diversity, and Global Environmental Change*, 319–338. New York, NY: Springer.
- Hitchcock, Robert K. 2015. "The Lesotho Highlands Water Project: Dams, Development, and the World Bank I." *Sociology and Anthropology* 3 (10): 526–538.
- Hitchcock, Robert, Amusaa Inambao, Jonathan Ledger, and Michael Mentis. 2011. "Panel of Environmental Experts: Report No. 58." Maseru: Lesotho Highlands Water Project.
- Hitchcock, Robert, and Paul Devitt. 2010. "Who Drives Resettlement? The Case of Lesotho's Mohale Dam." *African Study Monographs* 31 (2): 57–106.
- Hoag, Colin, and Lori Pottinger. "Lesotho Water Project Needs Scrutiny." October 4. *Business Day*.
- Hoag, Colin, and Jens-Christian Svenning. N.d.a. "Livestock Grazing Intensity and Soil Resources Determine Shrub Densities in Lesotho's High-Altitude Rangelands." In preparation.
- Hoag, Colin, and Jens-Christian Svenning. N.d.b. "African Environmental Change from the Pleistocene to the Anthropocene." Under review.

- Hoag, Colin, Peder K. Bøcher, and Jens-Christian Svenning. N.d. "Analysis of Land Cover Change (1998-2013) in the Lesotho Highlands Using Landsat Imagery." In preparation.
- Hoag, Colin B. 2016. "Stability and Change in African Environments: An Historical Ecology of Rangelands in Lesotho." Ph.D. Dissertation, Aarhus, Denmark: Aarhus University.
- Hoag, Colin B. n.d. "Rainmaking in Southern Africa." Unpublished MS:
- Hoag, Colin. 2010. "The Magic of the Populace: An Ethnography of Illegibility in the South African Immigration Bureaucracy." *PoLAR: Political and Legal Anthropology Review* 33 (1): 6–25.
- Hoag, Colin. 2011. "Assembling Partial Perspectives: Thoughts on the Anthropology of Bureaucracy." *PoLAR: Political and Legal Anthropology Review* 34 (1): 81–94.
- Hoag, Colin. 2014. "Water in Lesotho: Contradiction, Disjuncture, Death." *Engagement*. December 1.
<https://aesengagement.wordpress.com/2014/12/01/water-in-lesotho-contradiction-disjuncture-death/>.
- Holling, C. S. 1973. "Resilience and Stability of Ecological Systems." *Annual Review of Ecology and Systematics* 4: 1–23.
- Homewood, K. M., and W.-A. Rodgers. 1984. "Pastoralism and Conservation." *Human Ecology* 12 (4): 431–441.
- Hoover, Ryan. 2001. *Pipe Dreams: The World Bank's Failed Efforts to Restore Lives and Livelihoods of Dam-Affected People in Lesotho*. Berkeley, CA: International Rivers Network.
- Horowitz, Michael M. 1991. "Victims Upstream and Down." *Journal of Refugee Studies* 4 (2): 164–81.
- Horta, Korinna. 1995. "The Mountain Kingdom's White Oil: The Lesotho Highlands Water Project." *The Ecologist* 25 (6): 227–231.
- Hosken, Graeme, Shaun Smillie, and Neo Goba. 2016. "Water the New Gold." *Times LIVE*, January 25. (<http://www.timeslive.co.za/thetimes/2016/01/25/Water-the-new-gold>.) Accessed May 30, 2017.

- Hubbell, Stephen P. 2008. *Unified Neutral Theory of Biodiversity and Biogeography. Monographs in Population Biology, Volume 32.* Princeton, NJ: Princeton University Press.
- Hughes, David McDermott. 2010. *Whiteness in Zimbabwe: Race, Landscape, and the Problem of Belonging.* New York, NY: Palgrave Macmillan.
- Hull, Matthew S. 2012a. "Documents and Bureaucracy." *Annual Review of Anthropology* 41 (1): 251–67.
- Hull, Matthew S. 2012b. *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan.* Berkeley, CA: University of California Press.
- Hustak, Carla, and Natasha Myers. 2012. "Involutionary Momentum: Affective Ecologies and the Sciences of Plant/Insect Encounters." *Differences* 23 (3): 74–118.
- Hutchinson, George E. 1957. "Concluding Remarks." In *Cold Spring Harbor Symposia on Quantitative Biology*, 22: 415–427. Cold Spring Harbor Laboratory Press.
- Hutchinson, Sharon. 1996. *Nuer Dilemmas: Coping with Money, War, and the State.* Berkeley, CA: University of California Press.
- Illich, Ivan. 1985. *H2O and the Waters of Forgetfulness: Reflections on the Historicity of "Stuff."* Dallas, TX: The Dallas Institute of Humanities and Culture.
- Informative News.* 2016. "Wool and Mohair Farmers Face Poverty," January 19. Maseru, Lesotho. (http://www.informativenews.co.ls/index.php?option=com_content&view=article&id=409:wool-and-mohair-farmers-face-poverty-as-the-country-experiences-first-hand-effects-of-climate-change&catid=10:news&Itemid=107). Accessed on May 25, 2016.
- Institute of Natural Resources. 2015. "Prioritising Ecological Infrastructure to Maintain Livelihoods and the Polihali Dam in Lesotho." *Institute of Natural Resources NPC*. February 25. (<http://inr.org.za/prioritising-ecological-infrastructure-to-maintain-livelihoods-and-the-polihali-dam-in-lesotho/>.) Accessed on March 21, 2017.
- Isaacman, Allen F., and Barbara S. Isaacman. 2013. *Dams, Displacement and the Delusion of Development: Cahora Bassa and Its Legacies in Mozambique, 1965 - 2007.* Athens, OH: Ohio University Press.

- Iwanow, Tomasz, Reginald Selelo, and Morabo Morojele. 2012. "Technical Report: Investor Roadmap Lesotho." AECOM International Development; USAID/Southern Afirca.
- Jacks, Graham Vernon, and Robert Orr Whyte. 1939. *The Rape of the Earth: A World Survey of Soil Erosion*. London: Faber & Faber.
- Jacobs, Nancy. 2003. *Environment, Power and Injustice: A South African History*. Cambridge: Cambridge University Press.
- Jacot-Guillarmod, A. 1962. "The Bogs and Sponges of the Basutoland Mountains." *South African Journal of Science* 56 (6): 179–82.
- Jacot-Guillarmod, Amy. 1971. *Flora of Lesotho*. Lehre: Cramer.
- James, Erica Caple. 2012. "Witchcraft, Bureaucraft, and the Social Life of (Us)aid in Haiti." *Cultural Anthropology* 27 (1): 50–75.
- Jarosz, Lucy. 1996. "Defining Deforestation in Madagascar." In *Liberation Ecologies: Environment, Development, Social Movements*, edited by Richard Peet and Michael Watts, 148–64. New York, NY: Routledge.
- Jasanoff, Sheila, ed. 2004. *States of Knowledge: The Co-Production of Science and Social Order*. London: Routledge.
- Jeffares & Green. 1951. "A water resources survey of Basutoland." Report. Johannesburg.
- Jehanno, P., C. Lavorel, P. Meilland, J. P. Huraut, SOGREAH Consulting Engineers, and France GRENOBLE. 1987. "Calculation of Sediment Deposition in the Katse Reservoir, Lesotho." *Hydrology in Mountainous Regions II*, 51–58.
- Johnson, Allen. 1982. "Reductionism in Cultural Ecology: The Amazon Case." *Current Anthropology* 23 (4): 413–428.
- Kabi, Pascalinah. 2017. "Water Project under Threat from Sludge | Lesotho Times." April 7. (<http://lestimes.com/water-project-under-threat-from-sludge/>.) Accessed March 7.
- Kaika, Maria. 2006. "Dams as Symbols of Modernization: The Urbanization of Nature Between Geographical Imagination and Materiality." *Annals of the Association of American Geographers* 96 (2): 276–301.
- Kalwij, Jesse M., Mark P. Robertson, and Berndt J. van Rensburg. 2015. "Annual Monitoring Reveals Rapid Upward Movement of Exotic Plants in a Montane Ecosystem." *Biological Invasions* 17: 3517–29.

- Kaplan, Martha. 2007. "Fijian Water in Fiji and New York: Local Politics and a Global Commodity." *Cultural Anthropology* 22 (4): 685–706.
- Keck, Frederic, and Andrew Lakoff. 2016. "Figures of Warning." *Limn*, June 15. (<http://limn.it/figures-of-warning/>.) Accessed October 20, 2016.
- Keller, Andrew A., R. Sakthivadivel, and David William Seckler. 2000. *Water Scarcity and the Role of Storage in Development*. Colombo, Sri Lanka: International Water Management Institute.
- Khaba, Liphapang, and James Andrew Griffiths. 2017. "Calculation of Reservoir Capacity Loss Due to Sediment Deposition in the Muela Reservoir, Northern Lesotho." *International Soil and Water Conservation Research*.
- Khagram, Sanjeev. 2004. *Dams and Development: Transnational Struggles for Water and Power*. Ithaca, NY: Cornell University Press.
- Khaketla, B. Makalo. 1972. *Lesotho, 1970: An African Coup under the Microscope*. Berkeley, CA: University of California Press.
- Kiage, Lawrence M. 2013. "Perspectives on the Assumed Causes of Land Degradation in the Rangelands of Sub-Saharan Africa." *Progress in Physical Geography* 37 (5): 664–84.
- Kimble, Judith M. 1999. *Migrant Labour and Colonial Rule in Basutoland, 1890-1930*. 1. Grahamstown, South Africa: Institute of Social and Economic Research, Rhodes University.
- Kingdom of Lesotho. 1986a. *Lesotho Highlands Water Project: Feasibility Study*. Main Report, Ministry of Water, Energy and Mining. Maseru, Lesotho: Government of Lesotho.
- Kings, Siphon, Sarah Wild, Rapula Moatshe, and Phillip De Wet. 2015. "South Africa's Great Thirst Has Begun." *The M&G Online*, January 23. (<http://mg.co.za/article/2015-01-22-south-africas-great-thirst-has-begun/>.) Accessed January 25, 2016.
- Kings, Siphon. 2015. "Water Restrictions Begin in Gauteng." *The M&G Online*, October 28. (<http://mg.co.za/article/2015-10-28-rand-water-begins-water-restrictions/>.) Accessed October 29, 2016.
- Kingsland, Sharon E. 1995. *Modeling Nature: Episodes in the History of Population Ecology*. Chicago, IL: University of Chicago Press.

- Kirsch, Stuart. 2014. *Mining Capitalism: The Relationship between Corporations and Their Critics*. Berkeley, CA: University of California Press.
- Knorr-Cetina, Karin. 1999. *Epistemic Cultures: How the Sciences Make Knowledge*. Cambridge, MA: Harvard University Press.
- Kopytoff, Igor. 1986. "The Cultural Biography of Things: Commoditization as Process." In *The Social Life of Things: Commodities in Cultural Perspective*, edited by Arjun Appadurai, 64–91. Cambridge: Cambridge University Press.
- Kynoch, Gary, and Theresa Ulicki. 2000. "'It Is Like the Time of Lifaqane': The Impact of Stock Theft and Violence in Southern Lesotho." *Journal of Contemporary African Studies* 18 (2): 179–206.
- Lakoff, Andrew. 2016. "The Indicator Species: Tracking Ecosystem Collapse in Arid California." *Public Culture* 28 (2 79): 237–59.
- Lansing, Stephen J. 1991. *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali*. Princeton, NJ: Princeton University Press.
- Larkin, Brian. 2013. "The Politics and Poetics of Infrastructure." *Annual Review of Anthropology* 42 (1): 327–43.
- Latour, Bruno, and Steve Woolgar. 1979. *Laboratory Life: The Social Construction of Scientific Facts*. Beverly Hills, CA: Sage Publications.
- Latour, Bruno. 1993. *We Have Never Been Modern*. Cambridge, MA: Harvard University Press.
- Latour, Bruno. 2004. "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern." *Critical Inquiry* 30: 225–48.
- Latour, Bruno. 2010. "An Attempt at a 'Compositionist Manifesto.'" *New Literary History* 41 (3): 471–90.
- Lawton, John H. 1999. "Are There General Laws in Ecology?" *Oikos* 84 (2): 177–92.
- Leach, Melissa, and Robin Mearns, eds. 1996. *The Lie of the Land: Challenging Received Wisdom on the African Environment*. Portsmouth, N.H.: Heinemann.
- Leader-Williams, N. 1988. *Reindeer on South Georgia*. Cambridge: Cambridge University Press.
- Leduka, Resetselemang C. 2007. "Recycled Fable or Immutable Truth? Reflections on the 1973 Land-Tenure Reform Project in Lesotho and Lessons for the Future." *Africa Today* 53 (3): 91–111.

- Lesotho Bureau of Statistics. 2013a. "2012 Biodiversity, Land Use and Cover 2010/11." Statistical Report No. 16 of 2013. Maseru: Lesotho Bureau of Statistics.
- Lesotho Bureau of Statistics. 2013b. "2012 Solid Waste, Water and Sanitation." Statistical Report No. 19. Maseru: Lesotho Bureau of Statistics.
- Lesotho Highlands Development Authority. 1981. *Feasibility Study*. Maseru, Lesotho: Government of Lesotho.
- Lesotho Highlands Development Authority. 1986. *Treaty of the Lesotho Highlands Water Project*. Maseru, Lesotho: Government of Lesotho.
- Lesotho Highlands Development Authority. 2014. Press Release - Unveiling ceremony at Tlokoeng launches Phase II of the Lesotho Highlands Water Project. Lesotho Highlands Development Authority. Maseru: Lesotho Highlands Development Authority.
- Lesotho Highlands Development Authority. 2016. "Water Sales 2016." Maseru, Lesotho: Lesotho Highlands Development Authority. (<http://www.lhda.org.ls/Phase1/Reports/PDF/12/Water%20Sales%202016.pdf>.) Accessed on March 17, 2017.
- Lesotho National Development Corporation. 2016. "Lesotho Announces Partnership." (http://www.lndc.org.ls/news/LNDC_enters_partnership.php). Accessed on April 15, 2016.
- Letsebe, Phoebe Harward. 2012. "A Study of the Impact of Lesotho Highlands Water Project on Residents of Khohlo-Ntso: Is It Too Late For Equitable Benefit Sharing?" MA Thesis, Johannesburg: University of the Witwatersrand.
- Levi-Strauss, Claude. 1971. *Totemism*. Rodney Needham, trans. Boston, MA: Beacon Press.
- Lewis, F., M. Browne, L. Quayle, S. Oosthuizen, and K. Peerbay. 2015. "Mapping Climate Change Vulnerability and Potential Economic Impacts in Lesotho: A Case Study of the Katse Dam Catchment." Pietermaritzburg: Institute of Natural Resources NPC.
- Li, Fabiana. 2009. "Documenting Accountability: Environmental Impact Assessment in a Peruvian Mining Project." *PoLAR: Political and Legal Anthropology Review* 32 (2): 218–36.
- Li, Tania Murray. 1999. "Compromising Power: Development, Culture, and Rule in Indonesia." *Cultural Anthropology* 14 (3): 295–322.

- Li, Tania Murray. 2007. *The Will to Improve: Governmentality, Development, and the Practice of Politics*. Durham, NC: Duke University Press.
- Li, Tania Murray. 2014. "What Is Land? Assembling a Resource for Global Investment." *Transactions of the Institute of British Geographers* 39 (4): 589–602.
- Linton, Jamie. 2010. *What Is Water? The History of a Modern Abstraction*. Vancouver, BC: University of British Columbia Press.
- Lipsky, Michael. 1980. *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York, NY: Russell Sage Foundation.
- Lundahl, Mats, and Lennart Petersson. 1991. *The Dependent Economy: Lesotho and the Southern African Customs Union*. Boulder, CO: Westview Press.
- Lundahl, Mats, Colin McCarthy, and Lennart Petersson. 2003. *In the Shadow of South Africa: Lesotho's Economic Future*. Burlington, VT: Ashgate.
- Lynteris, Christos. 2014. "Introduction: The Time of Epidemics." *The Cambridge Journal of Anthropology* 32 (1): 24–31.
- Lyons, Kristina Marie. 2014. "Soil Science, Development, and the 'Elusive Nature' of Colombia's Amazonian Plains: Soil Science, Development, and the Colombian Amazon." *The Journal of Latin American and Caribbean Anthropology* 19 (2): 212–36.
- Mackenzie, Fiona. 1998. *Land, Ecology, and Resistance in Kenya, 1880-1952*. Portsmouth, NH: Heinemann.
- Maddox, Gregory. 2002. "'Degradation Narratives' and 'Population Time Bombs': Myths and Realities about African Environments." In *South Africa's Environmental History: Cases and Comparisons*, edited by Stephen Dovers, Ruth Edgecombe, and Bill Guest, 250–58. Cape Town and Athens, OH: David Philip and Ohio University Press.
- Majube, Boitshepo. 2015. "Thirsty Botswana Looks to Lesotho for Water | Business Weekly & Review." *Business Weekly*, December 4. (<http://www.businessweekly.co.bw/thirsty-botswana-looks-to-lesotho-for-water/>.) Accessed May 30, 2017.
- Makara, Mambitsa. 2013. "Assessment of Spatial and Temporal Soil Loss in and out Lesotho Using RUSLE Model and GIS." MSc, Harare: University of Zimbabwe.

- Maloti Drakensberg Transfrontier Project. N.d. "Conservation & Development Strategy (2008-2028) for the Maloti Drakensberg Transfrontier Conservation Area." Maloti Drakensberg Transfrontier Project. Maseru, Lesotho.
- Mamdani, Mahmood. 1996. *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism*. Princeton, NJ: Princeton University Press.
- Mao, Kangshan, Richard I. Milne, Libing Zhang, Yanling Peng, Jianquan Liu, Philip Thomas, Robert R. Mill, and Susanne S. Renner. 2012. "Distribution of Living Cupressaceae Reflects the Breakup of Pangea." *Proceedings of the National Academy of Sciences* 109 (20): 7793–98.
- Marjmakh (marjmakh). 2016. "Women comprise this work crew which is working on a cross-country road from east to west in Lesotho, ca. 1969." 22 August 2016, 8:34 a.m. pic.twitter.com/dQht4qYVMp. Tweet.
- Marneweck, Gary, and P. Grundling. 1999. *Wetlands of the Upper Catchment Areas of Bokong, Malibamatso and Matsoku Rivers in the Leribe, Mokhotlong and Butha-Buthe Districts of Lesotho*. Report for Lesotho Highlands Development Authority. Maseru, Lesotho: LHDA.
- Marx, Karl. 1990. *Capital: Volume I*. Translated by Ben Fowkes. New York, NY: Penguin Classics.
- Mathews, Andrew S. 2011. *Instituting Nature: Authority, Expertise, and Power in Mexican Forests*. Cambridge, MA: The MIT Press.
- Mathews, Andrew S. n.d. "Landscapes and Throughscapes in Italian Chestnut Worlds: Thinking Dramatically About the Anthropocene." Unpublished MS.
- Mathur, Nayanika. 2015. "'It's a Conspiracy Theory and Climate Change': Of Beastly Encounters and Cervine Disappearances in Himalayan India." *HAU: Journal of Ethnographic Theory* 5 (1): 87.
- Matlosa, Khabele. 1999. "Aid, Development and Democracy in Lesotho, 1966-1996." In *A Workshop Organised by the Centre for Southern African Studies on "Aid, Development and Democracy in Southern Africa"*, University of the Western Cape, Cape Town, South Africa, 21–22.
- Mauss, Marcel. 1954. *The Gift: The Form and Reason for Exchange in Archaic Societies*. New York, NY: W.W. Norton.
- May, E.D. 2000. *The Indigenous Forests of Lesotho: Their Former Occurrence*. Morija: Morija Printing Work.

- Mbembe, Achille. 2008. "The Aesthetics of Superfluity." In *Johannesburg: The Elusive Metropolis*, 37–67. Durham, NC: Duke University Press.
- McAuslan, Patrick. 1987. "Lesotho Highlands Water Project and Water Law." *Lesotho Law Journal* 3 (2): 41–65.
- McCann, James. 1999. *Green Land, Brown Land, Black Land: An Environmental History of Africa, 1800-1990*. London: James Currey Publishers.
- McCann, James. 2005. *Maize and Grace*. Cambridge, MA: Harvard University Press.
- McCracken, John. 1982. "Experts and Expertise in Colonial Malawi." *African Affairs* 81 (322): 101–16.
- McCully, Patrick. 2001. *Silenced Rivers: The Ecology and Politics of Large Dams*. London: Zed Books.
- McGill, Brian J., Brian J. Enquist, Evan Weiher, and Mark Westoby. 2006. "Rebuilding Community Ecology from Functional Traits." *Trends in Ecology & Evolution* 21 (4): 178–85.
- McKay, Ramah. 2012. "Documentary Disorders: Managing Medical Multiplicity in Maputo, Mozambique." *American Ethnologist* 39 (3): 545–61.
- McWilliams, James E. 2013. "All Sizzle and No Steak." *Slate*, April 22. (http://www.slate.com/articles/life/food/2013/04/allan_savory_s_ted_talk_is_wrong_and_the_benefits_of_holistic_grazing_have.html.) Accessed on May 18, 2016.
- MDTP 2007. Spatial Assessment of Biodiversity Priorities in the Lesotho Highlands: Executive Summary. Department of Environment. Maseru, Lesotho.
- Médard, Jean-Pierre. 1982. "The Underdeveloped State in Tropical Africa: Political Clientelism or Neo-Patrimonialism." In *Private Patronage and Public Power: Political Clientelism in the Modern State*, edited by C. Clapham, 162–92. London: Frances Pinter.
- Melville, Elinor G. K. 1997. *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Cambridge: Cambridge University Press.
- Mensah, Samuel N.-A., and Vannie Naidoo. 2011. "Migration Shocks: Integrating Lesotho's Retrenched Migrant Miners." *International Migration Review* 45 (4): 1017–1042.
- Merry, Sally Engle. 1988. "Legal Pluralism." *Law & Society Review* 22 (5): 869–96.

- Merry, Sally Engle. 2011. "Measuring the World: Indicators, Human Rights, and Global Governance." *Current Anthropology* 52 (S3): S83–95.
- Metsi Consultants. 1999. "The Establishment and Monitoring of Instream Flow Requirements for River Courses Downstream of LHWP Dams." Lesotho Highlands Development Authority Contract 648. Maseru: Lesotho Highlands Development Authority.
- Milchunas, D. G., O. E. Sala, and W. K. Lauenroth. 1988. "A Generalized Model of the Effects of Grazing by Large Herbivores on Grassland Community Structure." *The American Naturalist* 132 (1): 87–106.
- Miller, Daniel. 1995. "Consumption and Commodities." *Annual Review of Anthropology* 24 (January): 141–61.
- Mitchell, Peter J. 1995. "Revisiting the Robberg: New Results and a Revision of Old Ideas at Sehonghong Rock Shelter, Lesotho." *The South African Archaeological Bulletin* 50 (161): 28.
- Mitchell, Peter J. 1996. "The Late Quaternary Landscape at Sehonghong in the Lesotho Highlands, Southern Africa." *Antiquity* 70 (269): 623–638.
- Mitchell, Peter, and Sam Challis. 2008. "A 'first' glimpse into the Maloti Mountains: The Diary of James Murray Grant's Expedition of 1873-74." *Southern African Humanities* 20 (2): 399–461.
- Mitchell, Timothy. 1999. "Society, Economy, and the State Effect." In *State/Culture: State-Formation after the Cultural Turn*, edited by George Steinmetz, 76–97. Ithaca, NY: Cornell University Press.
- Mitchell, Timothy. 2002. *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley, CA: University of California Press.
- Mitchell, William P. 1973. "The Hydraulic Hypothesis: A Reappraisal." *Current Anthropology* 14 (5): 532–34.
- Mohapatra, Sanket, Dilip Ratha, and Ani Silwal. 2011. "Migration and Development Brief 17." New York, NY: The World Bank.
- Mokotjomela, Thabiso, Ute Schwaibold, and Neville Pillay. 2009. "Does the Ice Rat *Otomys sloggetti robertsi* Contribute to Habitat Change in Lesotho?" *Acta Oecologica* 35 (3): 437–443.

- Mokuku, Chaba. 2004. *Lesotho: Second State of the Environment Report, 2002*. Maseru: National Environment Secretariat, Ministry of Tourism, Environment & Culture, Government of Lesotho.
- Mokuku, Tšepo, and Jim Taylor. 2015. "Tlokoeng Valley Community's Conceptions of Wetlands: Prospects for More Sustainable Water Resources Management." *Journal of Education for Sustainable Development* 9 (2): 196–212.
- Mol, Annemarie. 2002. *The Body Multiple: Ontology in Medical Practice*. Durham, NC: Duke University Press.
- Monyane, Chelete. 2005. "Lesotho's Transition to Democratic Rule: An Era of 'Fragile' Democracy." MA Thesis. Pietermaritzburg: University of Kwa-Zulu Natal.
- Moodie, T. Dunbar. 1975. *The Rise of Afrikanerdom: Power, Apartheid, and the Afrikaner Civil Religion*. Berkeley, CA: University of California Press.
- Moodley, Sashnee. 2015. "Amid Progress on next Lesotho Highlands Phase, SA Urged Not to Neglect Water-Loss Fight." *Polity.Org.Za*, October 16. (<http://www.polity.org.za/article/amid-progress-on-next-lesotho-highlands-phase-sa-urged-not-to-neglect-water-loss-fight-2015-10-16>.) Accessed October 20, 2016.
- Morake, Puleng. 2010. "Documenting Historical Faunal Change in Lesotho and the Adjoining Eastern Free State of Southern Africa." MA Thesis. Johannesburg: University of the Witwatersrand.
- Moshoeshe II, King. 1988. "Punish Pretoria, But Not Lesotho." *The New York Times*, July 5, sec. A.
- Mosse, David. 2003. *The Rule of Water. Statecraft, Ecology and Collective Action in South India*. Oxford: Oxford University Press.
- Mosse, David. 2005. *Cultivating Development: An Ethnography of Aid Policy and Practice*. New York, NY: Pluto Press.
- Mott MacDonald. 2013. *Strategic Performance Assessment of the Lesotho Wetlands Restoration and Conservation Project - Millennium Challenge Account Lesotho*. Contract No. WS-F-045-12 Millennium Challenge Corporation. Euroconsult Mott MacDonald in association with Green's Integrated Services. Final Report – Executive Summary.
- Mphanya, Ntsukunyane. 2009. *A Brief History of the BCP*. Morija, Lesotho: Morija Sesuto Book Depot.

- Mrázek, Rudolf. 2002. *Engineers of Happy Land: Technology and Nationalism in a Colony*. Princeton Studies in Culture/power/history. Princeton, N.J: Princeton University Press.
- Mudge, Andrew. 2014. *The Forgotten Kingdom*. Binary Film Works. Film.
- Munn, Nancy. 1986. *The Fame of Gawa: A Symbolic Study of Value Transformation in a Massim (Papua New Guinea) Society*. Cambridge: Cambridge University Press.
- Murray, Colin, and Peter Sanders. 2005. *Medicine Murder in Colonial Lesotho: The Anatomy of a Moral Crisis*. Edinburgh: Edinburgh University Press.
- Murray, Colin. 1981. *Families Divided: The Impact of Migrant Labour in Lesotho*. Cambridge: Cambridge University Press.
- Mwangi, Oscar. 2007. "Hydropolitics, Ecocide and Human Security in Lesotho: A Case Study of the Lesotho Highlands Water Project." *Journal of Southern African Studies* 33 (1): 3–17.
- Mwangi, Oscar. 2008. "Environmental Change and Human Security in Lesotho: The Role of the Lesotho Highlands Water Project in Environmental Degradation." *African Security Review* 17 (3): 58–70.
- Naidoo, Riante. 2017. "Here's How Much Water SA Loses through Water Leaks | Infrastructure News." (<http://www.infrastructurene.ws/2017/03/06/heres-how-much-water-sa-loses-through-water-leaks/>.) Accessed March 7, 2017.
- Nastar, Maryam. 2014. "The Quest to Become a World City: Implications for Access to Water." *Cities* 41: 1–9.
- Navaro-Yashin, Yael. 2002. *Faces of the State: Secularism and Public Life in Turkey*. Princeton, NJ: Princeton University Press.
- Neumann, Roderick P. 1992. "Political Ecology of Wildlife Conservation in the Mt. Meru Area of Northeast Tanzania." *Land Degradation & Development* 3 (2): 85–98.
- Nevarez, Leonard. 1996. "Just Wait until There's a Drought: Mediating Environmental Crises for Urban Growth." *Antipode* 28 (3): 246–72.
- Nobe, K.C., and David William Seckler. 1979. "An Economic and Policy Analysis of Soil-Water Problem and Conservation Programs in the Kingdom of Lesotho." LASA Research Report 3. Maseru: Ministry of Agriculture, Kingdom of Lesotho.

- Ntaote, Billy. 2010. "Mixed Reaction to Independence Day." *Lesotho Times*, October 4. (<http://www.publiceyenews.com/2010/10/04/mixed-reaction-to-independence-day/>.) Accessed October 8, 2010.
- Nugent, David. 1994. "Building the State, Making the Nation: The Bases and Limits of State Centralization in 'Modern' Peru." *American Anthropologist* 96 (2): 333-369.
- Nüsser, Marcus, and Stefan W. Grab. 2002. "Land Degradation and Soil Erosion in the Eastern Highlands of Lesotho, Southern Africa." *Die Erde* 133: 291–311.
- Nüsser, Marcus. 2002. "Pastoral Utilization and Land Cover Change: A Case Study from the Sanqebethu Valley, Eastern Lesotho." *Erdkunde* 56 (2): 207–221.
- Orlove, B. S. 1977. *Alpacas, Sheep, and Men: The Wool Export Economy and Regional Society of Southern Peru*. New York, NY: Academic Press.
- Orlove, Ben, and Steven C. Caton. 2010. "Water Sustainability: Anthropological Approaches and Prospects." *Annual Review of Anthropology* 39 (October): 401–15.
- Orr, Yancey, J. Stephen Lansing, and Michael R. Dove. 2015. "Environmental Anthropology: Systemic Perspectives." *Annual Review of Anthropology* 44: 153-168.
- Ortner, Sherry B. 1984. "Theory in Anthropology since the Sixties." *Comparative Studies in Society and History* 26 (1): 126–66.
- Pedersen, Morten Axel. 2011. *Not Quite Shamans: Spirit Worlds and Political Lives in Northern Mongolia*. Ithaca, NY: Cornell University Press.
- Peet, Richard, and Michael Watts, eds. 1996. *Liberation Ecologies: Environment, Development, Social Movements*. London: Routledge.
- Peluso, Nancy Lee. 1992. *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley, CA: University of California Press.
- Pérez-Harguindeguy, N., S. Díaz, E. Garnier, S. Lavorel, H. Poorter, P. Jaureguiberry, M. S. Bret-Harte, et al. 2013. "New Handbook for Standardised Measurement of Plant Functional Traits Worldwide." *Australian Journal of Botany* 61 (3): 167–234.
- Pilger, John. 1998. *Hidden Agendas*. London: Vintage Books.

- Pim, A.W. 1935. *Financial and Economic Position of Basutoland: Report of the Commission Appointed by the Secretary of State for Dominion Affairs*. London: HMSO. Cmd. 4907.
- Piot, Charles D. 1991. "Of Persons and Things: Some Reflections on African Spheres of Exchange." *Man*, New Series, 26 (3): 405–24.
- Plug, Ina, and Peter Mitchell. 2008. "Fishing in the Lesotho Highlands: 26,000 Years of Fish Exploitation, with Special Reference to Sehonghong Shelter." *Journal of African Archaeology* 6 (1): 33–55.
- Pooley, Elsa. 2003. *Mountain Flowers: A Field Guide to the Flora of the Drakensberg and Lesotho*. Durban: The Flora Publications Trust.
- Poulter, Sebastian. 1979. *Legal Dualism in Lesotho*. Morija: Morija Sesuto Book Depot.
- Preez, P.J. du, and L.R. Brown. 2011. "Impact of Domestic Animals on Ecosystem Integrity of Lesotho High Altitude Peatlands." In *Ecological Biodiversity*, edited by Oscar Grillo and Gianfranco Venora, 249–70. Rijeka, Croatia: InTech.
- Pule, N. 1999. "Power Struggles in the BCP." *Lesotho Social Science Review* 5 (1).
- Quinlan, T., and C.D. Morris. 1994. "Implications of Changes to the Transhumance System for Conservation of the Mountain Catchments in Eastern Lesotho." *African Journal of Range & Forage Science* 11 (3): 76–81.
- Quinlan, Tim, and Malcolm Wallis. 2003. "Local Governance in Lesotho: The Central Role of Chiefs." In *Grassroots Governance? Chiefs in Africa and the Afro-Caribbean*, edited by Donald Iain Ray and P. S. Reddy, 145–72. Calgary, Alberta: University of Calgary Press.
- Quinlan, Tim. 1995. "Grassland Degradation and Livestock Rearing in Lesotho." *Journal of Southern African Studies* 21 (2): 491–507.
- Rahder, Micha. 2014. "Satellites and Senses of Place: Remote Monitoring of Guatemala's Maya Biosphere Reserve." PhD Dissertation, Santa Cruz, CA: University of California, Santa Cruz.
- Rahder, Micha. 2015. "But Is It a Basin? Science, Controversy, and Conspiracy in the Fight for Mirador, Guatemala." *Science as Culture* 24 (3): 299–324.

- Ranger, Terrence. 1983. "The Invention of Tradition in Colonial Africa." In *The Invention of Tradition*, edited by Eric Hobsbawm and Terrence Ranger. Cambridge: Cambridge University Press.
- Reisner, Marc. 1993. *Cadillac Desert: The American West and Its Disappearing Water*. New York, NY: Penguin Books.
- Ritvo, Harriet. 2009. *The Dawn of Green: Manchester, Thirlmere, and Modern Environmentalism*. Chicago, IL: University of Chicago Press.
- Rocheleau, Dianne, Philip E. Steinberg, and Patricia A. Benjamin. 1995. "Environment, Development, Crisis and Crusade: Ukambani, Kenya, 1890-1990." *World Development* 23 (6): 1037–51.
- Rodriguez, Sylvia. 2006. *Acequia: Water Sharing, Sanctity, and Place*. Santa Fe, NM: School for Advanced Research.
- Rosenberg, Scott. 2004. *Historical Dictionary of Lesotho*. New edition. African Historical Dictionaries, no. 90. Lanham, MD: Scarecrow Press.
- Ruiters, Greg, and David A. McDonald, eds. 2004. *The Age of Commodity: Water Privatization in Southern Africa*. London: Routledge.
- Rutherford, Danilyn. 2003. *Raiding the Land of the Foreigners: The Limits of the Nation on an Indonesian Frontier*. Princeton, NJ: Princeton University Press.
- Rutherford, Danilyn. 2012a. *Laughing at Leviathan: Sovereignty and Audience in West Papua*. Chicago, IL: University of Chicago Press.
- Rutherford, Danilyn. 2012b. "Kinky Empiricism." *Cultural Anthropology* 27 (3): 465–479.
- Rutherford, M.C., and L.W. Powrie. 2013. "Impacts of Heavy Grazing on Plant Species Richness: A Comparison across Rangeland Biomes of South Africa." *South African Journal of Botany* 87: 146–56.
- Sandel, B., L. Arge, B. Dalsgaard, R. G. Davies, K. J. Gaston, W. J. Sutherland, and J.-C. Svenning. 2011. "The Influence of Late Quaternary Climate-Change Velocity on Species Endemism." *Science* 334 (6056): 660–64.
- Sanders, Peter. 2010. *"Throwing Down White Man": Cape Rule and Misrule in Colonial Lesotho, 1871-1884*. Morija, Lesotho: Morija Museum and Archives.
- Sandford S. 1983. *Management of Pastoral Development in the Third World*. London: Overseas Development Institute.

- Sansom, B. 1974. "Traditional Economic Systems." In *The Bantu-Speaking Peoples of Southern Africa*, edited by W.D. Hammond-Tooke, 2d ed, pp. 135–76. London: Routledge.
- Sauer, Carl Ortwin. 1925. *The Morphology of Landscape*. Berkeley, CA: University of California Press.
- Savory, Allan, and Stanley D. Parsons. 1980. "The Savory Grazing Method." *Rangelands* 2 (6): 234–37.
- Savory, Allan. 1988. *Holistic Resource Management*. Covelo, CA: Island Press.
- Schapera, Isaac. 1971. *Rainmaking Rites of Tswana Tribes*. Leiden: Afrika-Studiecentrum.
- Scheffer, Marten. 2009. *Critical Transitions in Nature and Society*: Princeton, N.J: Princeton University Press.
- Schlesinger, William H. et al. 1990. "Biological Feedbacks in Global Desertification." *Science* 247 (4946): 1043–48.
- Schmitz, Gerard, and Firouz Rooyani. 1987. *Lesotho Geology, Geomorphology, Soils*. Roma, Lesotho: National University of Lesotho.
- Schnitzler, Antina von. 2016. *Democracy's Infrastructure: Techno-Politics and Protest after Apartheid*. Princeton, NJ: Princeton University Press.
- Schwenkel, Christina. 2015. "Spectacular Infrastructure and Its Breakdown in Socialist Vietnam." *American Ethnologist* 42 (3): 520–34.
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Scott, Louis. 1982. "A Late Quaternary Pollen Record from the Transvaal Bushveld, South Africa." *Quaternary Research* 17 (3): 339–70.
- Scott, Louis. 1984. "Palynological Evidence for Quaternary Paleoenvironments in Southern Africa." In *Southern African Prehistory and Paleoenvironments*, edited by Richard G. Klein. Rotterdam: A.A. Balkemn.
- Scudder, Thayer. 1993. "Development-Induced Relocation and Refugee Studies: 37 Years of Change and Continuity Among Zambia's Gwembe Tonga." *Journal of Refugee Studies* 6 (2): 123–52.
- Scudder, Thayer. 2006. *The Future of Large Dams: Dealing with Social, Environmental, Institutional and Political Costs*. London: Earthscan.

- Selznick, Philip. 1949. *TVA and the Grass Roots: A Study of the Sociology of Formal Organizations*. Berkeley, CA: University of California Press.
- Senay, G. B., B. Pengra, S. Bohms, A. Singh, and J. P. Verdin. 2010. "Africa-Wide Water Balance Estimation Using Remote Sensing and Global Weather Datasets." *American Geophysical Union, Fall Meeting*, December. <http://adsabs.harvard.edu/abs/2010AGUFM.H31H1099S>.
- Sene, K. J., D. A. Jones, J. R. Meigh, and F. K. Farquharson. 1998. "Rainfall and Flow Variations in the Lesotho Highlands." *International Journal of Climatology* 18 (3): 329–345.
- Sergio, Fabrizio, Tim Caro, Danielle Brown, Barbara Clucas, Jennifer Hunter, James Ketchum, Katherine McHugh, and Fernando Hiraldo. 2008. "Top Predators as Conservation Tools: Ecological Rationale, Assumptions, and Efficacy." *Annual Review of Ecology, Evolution, and Systematics* 39: 1–19.
- Shapin, Steven, and Simon Schaffer. 1985. *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life*. Princeton, NJ: Princeton University Press.
- Shaw, John. 1874. "On the Changes Going on in the Vegetation of South Africa through the Introduction of the Merino Sheep." *Journal of the Linnean Society of London, Botany* 14 (75): 202–8.
- Shipton, Parker. 1989. *Bitter Money: Cultural Economy and Some African Meanings of Forbidden Commodities*. Washington D.C.: American Anthropological Association.
- Showers, K. B. 2006. "From Forestry to Soil Conservation: British Tree Management in Lesotho's Grassland Ecosystem." *Conservation and Society* 4 (1): 1–35.
- Showers, Kate Barger. 2005. *Imperial Gullies: Soil Erosion and Conservation in Lesotho*. Columbus, OH: Ohio University Press.
- Simberloff, Daniel, and Jean R. S. Vitule. 2014. "A Call for an End to Calls for the End of Invasion Biology." *Oikos* 123 (4): 408–13.
- Singh, M. 2000. "Basutoland: A Historical Journey into the Environment." *Environment and History* 6 (1): 31–70.
- Sivapalan, M., M. Konar, V. Srinivasan, A. Chhatre, A. Wutich, C. A. Scott, J. L. Wescoat, and I. Rodríguez-Iturbe. 2014. "Socio-Hydrology: Use-Inspired Water Sustainability Science for the Anthropocene." *Earth's Future* 2 (4): 225–230.

- Skinner, T. E. 1976. "A Comparison between the Effects of Continuous Grazing by Angora Goats and Merino Sheep on Veld in the Central Lower Karoo." *Proceedings of the Annual Congresses of the Grassland Society of Southern Africa* 11 (1): 131–34.
- Smith, A. D. 2010. "Bankrupt Lesotho Pleads to be Swallowed Up by South Africa: Popular Pressure for Unity Comes as Pretoria Closes Border to Workers." *The Guardian Weekly*, June 11. Pp. 12.
- Smith, H. J., A. J. van Zyl, A. S. Claassens, J. L. Schoeman, and M. C. Laker. 2000. "Soil Loss Modelling in the Lesotho Highlands Water Project Catchment Areas." *South African Geographical Journal* 82 (2): 64–69.
- Steinberg, Johnny. 2005. "The Lesotho/Free State Border." *Institute for Security Studies* 113: 1–13.
- Steward, Julian. 1955. *Theory of Culture Change: The Methodology of Multilinear Evolution*. Urbana, IL: University of Illinois Press.
- Stewart, Kathleen. 1996. *A Space on the Side of the Road: Cultural Poetics in an "Other" America*. Princeton, NJ: Princeton University Press.
- Stocking, Michael. 1995. "Soil Erosion in Developing Countries: Where Geomorphology Fears to Tread!" *Catena* 25 (1): 253–267.
- Stoler, Ann Laura, ed. 2013. *Imperial Debris: On Ruins and Ruination*. Durham, NC: Duke University Press.
- Strang, Veronica. 2004. *The Meaning of Water*. Oxford: Berg.
- Sturm, Matthew, Charles Racine, and Kenneth Tape. 2001. "Climate Change: Increasing Shrub Abundance in the Arctic." *Nature* 411 (6837): 546–547.
- Subramaniam, Banu. 2001. "The Aliens Have Landed! Reflections on the Rhetoric of Biological Invasions." *Meridians* 2 (1): 26–40.
- Sundberg, Mikaela. 2009. "The Everyday World of Simulation Modeling." *Science, Technology & Human Values* 34 (2): 162–81.
- Svenning, Jens-Christian, Wolf L. Eiserhardt, Signe Normand, Alejandro Ordonez, and Brody Sandel. 2015. "The Influence of Paleoclimate on Present-Day Patterns in Biodiversity and Ecosystems." *Annual Review of Ecology, Evolution, and Systematics* 46 (1): 551–72.

- Swallow, Brent M., and Ray P. Brokken. 1987. "Cattle Marketing Policy in Lesotho." Network Paper No. 14. ALPAN - African Livestock Policy Analysis Network. Addis Ababa, Ethiopia: International Livestock Centre for Africa.
- Swanson, Heather Anne. 2015. "Shadow Ecologies of Conservation: Co-Production of Salmon Landscapes in Hokkaido, Japan, and Southern Chile." *Geoforum* 61 (May): 101–10.
- Swanson, Heather Anne. 2017. "Methods for Multispecies Anthropology: Analysis of Salmon Otoliths and Scales." *Social Analysis*.
- Swift, Jeremy. 1979. "The Development of Livestock Trading in a Nomad Pastoral Economy: The Somali Case." *Pastoral Production and Society* 1: 447-465.
- Taussig, M. 1980. *The Devil and Commodity Fetishism in South America*. Chapel Hill, NC: University of North Carolina Press.
- Taussig, Michael T. 1991. *Shamanism, Colonialism, and the Wild Man: A Study in Terror and Healing*. Chicago, IL: University of Chicago Press.
- Taussig, Michael. 1997. *The Magic of the State*. New York, NY: Routledge.
- Tempelhoff, Johann W. N. 2003. *The Substance of Ubiquity: Rand Water, 1903-2003*. Vanderbijlpark: Kleio Publishers.
- Tennyson, L. 2012. "Review and Assessment of Integrated Watershed Management Project." 33. Maseru, Lesotho: Ministry of Forestry and Land Reclamation, Government of Lesotho.
- Thabane, Motlatsi. 2000. "Shifts from Old to New Social and Ecological Environments in the Lesotho Highlands Water Scheme: Relocating Residents of the Mohale Dam Area." *Journal of Southern African Studies* 26 (4): 633–54.
- Thabane, Motlatsi. 2006. "Developing Lesotho's Water Resources: The Lesotho Highlands Water Scheme." In *A History of Water: Volume 2: The Political Economy of Water*, edited by Richard Coopey and Terje Tvedt, 368–89. London: I.B. Tauris.
- Thamae, Mabusetsa Lenka, and Lori Pottinger. 2006. *On the Wrong Side of Development: Lessons Learned from the Lesotho Highlands Water Project*. Maseru: Transformation Resource Centre.
- Thornton, Robert J. 1988. "The Rhetoric of Ethnographic Holism." *Cultural Anthropology* 3 (3): 285–303.

- Thornton, Russell. 1931. "Report on Pastoral and Agricultural Conditions in Basutoland." Unpublished, in file Lesotho National Archives 212.
- Tilley, Helen. 2011. *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950*. Chicago, IL: University of Chicago Press.
- Tlali, Caswell. 2012. "Masupha Sole Back as Water Adviser." *The M&G Online*, November 2. (<https://mg.co.za/article/2012-11-02-00-masupha-sole-back-as-water-adviser/>.) Accessed March 6, 2017.
- Tregurtha N. Nd. "Enhancing the structure and performance of value chains: A case study of the Lesotho wool and mohair sector." (<http://www.value-chains.org/dyn/bds/docs/452/Tregurtha.pdf>.) Accessed on July 16, 2016.
- Trimble, Stanley W, and Pierre Crosson. 2000. "U.S. Soil Erosion Rates--Myth and Reality." *Science* 289 (5477): 248–50.
- Tsing, Anna L. 2000. "The Global Situation." *Cultural Anthropology* 15 (3): 327–60.
- Tsing, Anna L. 2005. *Friction: An Ethnography of Global Connection*. Princeton, NJ: Princeton University Press.
- Tsing, Anna L. 2009. "Supply Chains and the Human Condition." *Rethinking Marxism* 21 (2): 148–76.
- Tsing, Anna L. 2015a. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton, NJ: Princeton University Press.
- Tsing, Anna L. 2015b. "The Buck, the Bull, and the Dream of the Stag: Some Unexpected Weeds of the Anthropocene." Keynote lecture, Biennial Conference of the Finnish Anthropological Society, 2015: "Landscapes, Sociality and Materiality," Helsinki, Finland.
- Tsing, Anna L. n.d. "Feral Biologies." Unpublished MS.
- Tsing, Anna. 2013. "More-than-Human Sociality: A Call for Critical Description." In *Anthropology and Nature*, edited by Kirsten Hastrup, 27–42. New York, NY: Routledge.
- Turner, Stephen D. 2004. "A Land without Fences: Range Management in Lesotho." In *Rights, Resources and Rural Development Community-Based Natural Resource Management in Southern Africa*, edited by Christo Fabricius and Eddie Kock, 174–81. Sterling, VA: Earthscan.

- Turton, Anthony. 2003. "An Overview of the Hydropolitical Dynamics of the Orange River Basin." In *International Waters in Southern Africa*, edited by Mikiyasu Nakayama, 136–63. Tokyo: United Nations University Press.
- Tvedt, Terje, and Terje Oestigaard. 2010. "A History of the Ideas of Water: Deconstructing Nature and Constructing Society." In *A History of Water: Ideas of Water from Ancient Societies to the Modern World*, edited by Terje Tvedt and Terje Oestigaard, 1:1–38. II. London: I.B.Tauris.
- United Nations Development Programme. 2012. "Capacity Building and Knowledge Management for Sustainable Land Management in Lesotho." PIMS 3044. Maseru: UNDP.
- Van der Vyver, F., T. Kellerman, S. Bastianello, J. Dewet, J. Joubert, and A. Faul. 1985. "Valsiekte (Falling Disease) - A Nervous Disorder in Lambs Suspected of Being Caused by the Plant *Chrysocoma-Tenuifolia*." *Journal of the South African Veterinary Association-Tydskrif Van Die Suid-Afrikaanse Veterinere Vereniging* 56 (2): 65–68.
- Van Sittert, Lance. 2002. "'Our Irrepressible Fellow Colonist': The Biological Invasion of Prickly Pear (*Opuntia Ficus-Indica*) in the Eastern Cape, C. 1890 – C. 1910." In *South Africa's Environmental History: Cases and Comparisons*, edited by Stephen Dovers, Ruth Edgecombe, and Bill Guest, 139–59. Cape Town and Athens, OH: David Philip and Ohio University Press.
- Van Zinderen Bakker, E. M., and M. J. A. Werger. 1974. "Environment, Vegetation and Phytogeography of the High-Altitude Bogs of Lesotho." *Plant Ecology* 29 (1): 37–49.
- Vannette, Rachel L., and Tadashi Fukami. 2014. "Historical Contingency in Species Interactions: Towards Niche-Based Predictions." *Ecology Letters* 17 (1): 115–124.
- Vayda, Andrew, and Bradley Walters. 1999. "Against Political Ecology." *Human Ecology* 27 (1): 167–79.
- Vetter, Susi. 2005. "Rangelands at Equilibrium and Non-Equilibrium: Recent Developments in the Debate." *Journal of Arid Environments* 62 (2): 321–41.
- Vinnicombe, Patricia. 2009. *People of the Eland: Rock Paintings of the Drakensberg Bushmen as a Reflection of Their Life and Thought*. Second edition. Johannesburg: Wits University Press.
- Walker B.H., Noy-Meir I. 1982. "Aspects of the Stability and Resilience of Savanna Ecosystems." In: *Ecology of Tropical Savannas*. Ecological Studies (Analysis

- and Synthesis), vol. 42, edited by Huntley B. J. and B. H. Walker, 556–590. Berlin: Springer.
- Wallerstein, Immanuel. 2004. *World-Systems Analysis: An Introduction*. Durham, NC: Duke University Press.
- Watts, Michael. 2006. “Empire of Oil: Capitalist Dispossession and the Scramble for Africa.” *Monthly Review* 58 (4): 1–17.
- Weber, Max. 1946. “Bureaucracy.” In *From Max Weber: Essays in Sociology*, edited by H.H. Gerth and C. Wright Mills, 196–244. Oxford: Oxford University Press.
- Weisiger, Marsha L. 2011. *Dreaming of Sheep in Navajo Country*. Seattle, WA: University of Washington Press.
- Wennekes, Paul L., James Rosindell, and Rampal S. Etienne. 2012. “The Neutral—Niche Debate: A Philosophical Perspective.” *Acta Biotheoretica* 60 (3): 257–71.
- West, Paige. 2006. *Conservation Is Our Government Now: The Politics of Ecology in Papua New Guinea*. Durham, NC: Duke University Press.
- Westoby, Mark, Brian Walker, and Imanuel Noy-Meir. 1989. “Opportunistic Management for Rangelands Not at Equilibrium.” *Journal of Range Management* 42 (4): 266–74.
- Whatmore, Sarah J. 2009. “Mapping Knowledge Controversies: Science, Democracy and the Redistribution of Expertise.” *Progress in Human Geography* 33 (5): 587–98.
- White, Richard. 2011. *Railroaded: The Transcontinentals and the Making of Modern America*. New York, NY: W.W. Norton.
- Wittfogel, Karl A. 1957. *Oriental Despotism: A Comparative Study of Total Power*. New Haven, CT: Yale University Press.
- Wolf, Eric R. 1982. *Europe and the People without History*. Berkeley, CA: University of California Press.
- Wolf, Eric. 1972. “Ownership and Political Ecology.” *Anthropological Quarterly* 45 (3): 201–5.
- Wolf-Meyer, Matthew. 2015. “Our Master’s Voice, the Practice of Melancholy, and Minor Sciences.” *Cultural Anthropology* 30 (4): 670–91.

- Wolf-Meyer, Matthew, and Celina Callahan-Kapoor. 2017. "Chronic Subjunctivity, or, How Physicians Use Diabetes and Insomnia to Manage Futures in the United States." *Medical Anthropology* 36 (2): 83–95.
- Wolpe, Harold. 1972. "Capitalism and Cheap Labour-Power in South Africa: From Segregation to Apartheid." *Economy and Society* 1 (4): 425–56.
- Workman, Cassandra. 2013. "A Critical Ethnography of Globalization in Lesotho, Africa: Syndemic Water Insecurity and the Micro-Politics of Participation." Ph.D. Dissertation, Tampa, FL: University of South Florida.
- World Bank. 1991. "Lesotho Highlands Water Project, Phase 1A: Staff Appraisal Report, 1991." Report no. 8853. Washington, D.C.: The World Bank.
- World Bank. 1995. *Lesotho Poverty Assessment*. Report no. 13171-LSO. Washington, D.C.: The World Bank.
- World Bank. 2010. "Project Performance Assessment Report (Document #54359). Lesotho Highlands Water Project, Phase 1B, Community Development Support Project." Washington, DC: The World Bank.
- World Bank. 2016. *Lesotho*. Data Bank (<http://data.worldbank.org/country/Lesotho>). Washington, D.C.: The World Bank.
- World Commission on Dams. 2000. *Dams and Development, a New Framework for Decision-Making: The Report of the World Commission on Dams*. London and Sterling, VA: Earthscan.
- Worster, Donald. 1985. *Rivers of Empire: Water, Aridity, and the Growth of the American West*. Oxford: Oxford University Press.
- Wright, John B. 1971. *Bushman Raiders of the Drakensberg 1840-1870: A Study of Their Conflict with Stock Keeping Peoples in Natal*. Pietermaritzburg: University of Natal Press.
- Xinhua General Overseas News Service. 1986. "Lesotho's Leader Visits South Africa." Xinhua General Overseas News Service, March 26. Gaborone, Botswana.