

Spring 2019

Protected areas in Tanzania: The coevolution of conservation, communities, and conflict

Rachael Vannatta

Follow this and additional works at: <https://commons.lib.jmu.edu/honors201019>

 Part of the [Africana Studies Commons](#), [African Languages and Societies Commons](#), [Nature and Society Relations Commons](#), and the [Social and Cultural Anthropology Commons](#)

Recommended Citation

Vannatta, Rachael, "Protected areas in Tanzania: The coevolution of conservation, communities, and conflict" (2019). *Senior Honors Projects, 2010-current*. 725.

<https://commons.lib.jmu.edu/honors201019/725>

This Thesis is brought to you for free and open access by the Honors College at JMU Scholarly Commons. It has been accepted for inclusion in Senior Honors Projects, 2010-current by an authorized administrator of JMU Scholarly Commons. For more information, please contact dc_admin@jmu.edu.

Protected Areas in Tanzania: The Coevolution of Conservation, Communities, and Conflict

An Honors College Project Presented to
the Faculty of the Undergraduate
College of Arts & Letters
James Madison University

by Rachael Vannatta

Accepted by the faculty of the Department of Sociology & Anthropology, James Madison University, in partial fulfillment of the requirements for the Honors College.

FACULTY COMMITTEE:

HONORS COLLEGE APPROVAL:

Project Advisor: Joshua M. Linder, Ph.D.

Bradley R. Newcomer, Ph.D.,
Dean, Honors College

Reader: Jennifer E. Coffman, Ph.D.

Reader: Chris R. Colocousis, Ph.D.

This work is accepted for presentation, in part or in full, at the University of Kentucky Dimensions of Political Ecology Conference (DOPE), February 2019 and the James Madison University Sociology & Anthropology Symposium, April 2019.

Table of Contents

Introduction	3
Purpose, Objectives, and Methods.....	10
The Five Dominant Narratives of Political Ecology	11
The Coevolution of Parks and People	13
Protected Areas: From Past to Present.....	13
Protected Areas as “Paper Parks”	19
Africa as a (not so) ‘Blank Map’	21
The Value of Protected Areas in Tanzania	22
Study Focus	Error! Bookmark not defined.
Environmental Legislation in Tanzania	29
The Colonial Period	29
Post-Independence	31
Land and Conflict in Tanzania	35
An Introduction to Pastoralism & Maasai Communities	35
My Experiences Among Maasai Communities.....	36
Approaching Conservation Issues: The Biggest Critiques in Conservation.....	38
Human-Wildlife Interactions in East Africa.....	38
Protected Areas & Poverty	46
An Overarching Solution?	50
Community-Based Conservation Campaigns in Tanzania.....	51
Case Studies	56
Ngorongoro Conservation Area	58
Longido District Maasailand, Tanzania	62
Ngerengere River Eco-Camp – Arid, though with more woody vegetation	68
Discussion: Contextualized within Political Ecology	75
Conclusions	79
Bibliography	83

List of Figures

Figure 1: An Overview of East Africa (Source: UNEP-WCMC 2019).....	10
Figure 2: IUCN Protected Area Categories (Source: IUCN n.d.; UNEP-WCMC 2019).....	16
Figure 3: IUCN Categories of Protected Area, recognized internationally. (Source: UNEP-WCMC 2019).....	17
Figure 4: Protected area designations in Tanzania. (Source: UNEP-WCMC 2019).....	18
Figure 5: An Overview of National Parks, Conservation Areas, and Wildlife Management Areas (Source: UNEP-WCMC 2019).....	28
Figure 6: A summary of the protected areas highlighted in this paper's case studies (Source: IUCN, n.d.; UNEP-WCMC 2019).....	29
Figure 7: An aerial photograph of a Maasai boma. The outer circle is for homesteads, while the center is reserved for livestock. (Source: Google Earth).....	36
Figure 8: Case Study Overview: Ngorongoro Conservation Area, Longido District, Ngerengere River Eco-Camp. (Source: UNEP-WCMC 2019).....	57
Figure 9: Photograph of Ngorongoro Caldera (Photo Courtesy of: East African Field School 2018).....	58
Figure 10: Case Study 1: Ngorongoro Conservation Area (Source: UNEP-WCMC 2019).....	59
Figure 11: Population Graph of Ngorongoro Conservation Area from 1954 to 2007 (Source: Melita & Mendlinger 2013).....	60
Figure 12: Mount Longido overlooking livestock in Maasai boma.....	62
Figure 13: Case Study 2: Longido District (Source: UNEP-WCMC 2019).....	63
Figure 14: Mount Longido overlooking low-lying invasive plant species (Source: East African Field School 2018).....	66
Figure 15: Main community space at Ngerengere River Eco-Camp (Source: East African Field School 2018).....	68
Figure 16: Remigius Mushenga, aka Remmy (Source: NGERIV website).....	69
Figure 17: Case Study 3: Ngerengere River Eco-camp (Source: UNEP-WCMC 2019).....	70
Figure 18: A 2019 satellite image of Ngerengere River Eco-Camp showing the on-going deforestation and decreased landcover in the area. (Source: Google Earth).....	72

Acknowledgements

A special thank you to Dr. Joshua Linder, Dr. Jennifer Coffman, and Dr. Chris Colocousis for all your help and hard work in helping me develop and edit this project. Thank you for helping me say what I often struggled to put into words. This paper, and the research it represents, would not have been possible without you.

This research was supported by the James Madison University East Africa Field School, the JMU Honors College Study Small Grant, and the Phi Kappa Phi Study Abroad Scholarship.

The following work was presented, in part or in full, at the February 2019 Dimensions of Political Ecology Conference at the University of Kentucky and the April 2019 James Madison University Sociology & Anthropology Symposium.

Abstract

The consequences of human activities through territorial occupation, resource extraction, and waste deposition, all characteristics of the Anthropocene, have severely impacted biodiversity. In some countries, passing and enforcing environmental legislation to protect the environment has proven to be a major challenge. Various types of terrestrial protected areas have been established to safeguard, manage, and utilize the biodiversity of non-human species and anthropocentrically-defined natural resources, cover approximately 14.7% of the earth's surface, according to the World Bank (n.d) and IUCN (2008). With 38% of its land dedicated to protected areas, Tanzania exceeds the global average, but not without controversy. Critics of conservation practices in Tanzania claim that they fail to consider local livelihoods, which results in marginalization and further degradation of lands and livelihoods. This paper will assess three case studies that are directly involved with the conflict between local communities and conservation development by focusing on communities of Maasai pastoralists in Northern Tanzania as they attempt to renegotiate land access to support rapidly growing populations. Case studies include Ngorongoro Conservation Area, Longido District Maasailand, and Ngerengere River Eco Camp (NGERIV). Through these case studies, this paper examines how conservationists have worked with communities to develop multipronged solutions that promote social, cultural, and economic incentives for conservation, as well as analyzes the spatial and historical limits of protected areas.

Introduction

Homo sapiens have been altering the global landscape for tens of thousands of years, creating, maintaining, and changing ecosystems based on localized needs and desires (Reid, 2012; Neumann, 1998). As environmental systems are increasingly defined by human-environment interactions, the consequences of human habitation, resource extraction, and waste deposition have severely impacted biodiversity. Threats to the environment, including deforestation, overexploitation, pollution, climate change, infrastructure development, and soil degradation, are largely driven by worldwide population growth compounded by how people live (World Wildlife Fund, 2019; Ehrlich & Holdren, 1971). The IPAT equation (Impact = Population x Affluence x Technology) represents human impact as a function of population growth, affluence, and technology. This equation is a simplified means by which to index how these factors amplify one another and degrade shared environmental systems, responses, and resilience (Ehrlich & Holdren, 1971; Hardin, 1968). This research illustrates that, in the context of increasing populations, human domination of the environment has led to destructive decisions that continue to exploit and degrade environmental systems, with no apparent “technical solution” (Hardin, 1968, p. 1212).

Government controlled and subsidized conservation efforts began with the creation of the United States; National Parks in the early 20th century (Watson, Dudley, Segan, & Hockings, 2014). These parks developed exclusionary conservation frameworks that assumed that ‘wilderness’ is characterized by an absence of human-environmental interactions, invoking an ideal of pristine landscapes untouched by human interaction (Reid, 2012; Coffman, 2007). In the mid-20th century, exclusionary conservation frameworks quickly became a product of colonial rule, in order to protect vulnerable landscapes from the struggle to gain access to raw materials

by local, national, and international stakeholders (Watson, Dudley, Segan, & Hockings, 2014; Coulson, 2013). In order to achieve this goal, individuals living within newly established park borders were displaced under the guise of conservation. Increasing environmental pressures on protected areas throughout the colonial and post-colonial eras, including population growth, are redefining our approaches to exclusionary conservation (Reid, 2012; Bruner, Gullison, Rice, & da Fonseca, 2001).

Defined as a “clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values,”¹ they are considered to be crucial for conservation, providing the primary means of *in situ* biodiversity conservation and protecting landscapes that would be otherwise exploited by growing populations (IUCN, 2008; Chape, Harrison, Spalding, & Lysenko, 2005). Protected areas have become both a problem and solution to emerging conservation and development questions. On the one hand, protection is vital to survival of many species because, without it, (more) rapid environmental decline will occur (Bruner, Gullison, Rice, & da Fonseca, 2001). Recent scientific studies have suggested that 25-75 percent of critical or endangered biodiverse ecosystems worldwide must fall under some sort of conservation framework (including protected areas) to protect biodiversity (Baillie & Zhang, 2018). On the other hand, traditional exclusionary conservation approaches, first legally introduced by the United States, have displaced local livelihoods, often ignored local environmental knowledge, and reduced resource access for those living in or adjacent to areas

¹ For the purposes of the paper, protected areas will be referred to as entities defined by government establishment and jurisdiction, rather than spaces developed by local communities for better resource control.

that have become protected areas, thus putting subsistence rural livelihoods at risk (Reid, 2012; Homewood, Kristjanson, & Trench, 2009).

The guiding framework of political ecology addresses these and other environmental concerns by acknowledging that human-human and human-environment interactions are inherently political and power-laden (Doyle, McEachern, & MacGregor, 2016; Robbins, 2012). Discourse among people, within cultures, and between communities ascribes meaning to materials, including the environment, according to a spectrum of social, political, and economic values (Oberhauser, 2018). Paul Robbins (2012) discusses these concepts through five dominant narratives on political ecology: (1) degradation and marginalization, (2) conservation and control, (3) environmental conflict and exclusion, (4) environmental subjects and identities, and (5) political objects and actors in order to organize and contextualize the field within broad systems of change, discussed in more detail below.

In this paper I argue that in our current global context, protected areas and environmental legislation are necessary for effective biodiversity conservation, but they often favor scientific ways of understanding ecosystem health and long-term conservation goals over local environmental knowledge and local livelihoods (Bruner, Gullison, Rice, & da Fonseca, 2001). Protected areas need to become better equipped to adapt and integrate local frameworks in order to develop more sustainable conservation initiatives. As populations increase, decreases in available land and resources is unavoidable (Hardin, 1968; Ehrlich & Holdren, 1971). One cannot protect the environment by enclosing land and expecting growing populations to maintain livelihood activities on what is left without affecting the enclosed land. That raises the question: how do we compromise between effective conservation and the needs and desires of local communities?

Through a political ecological perspective, this paper examines the way in which the coevolution of protected areas and people in post-colonial Tanzania have informed current conservation values and actions and have created new environmental identities (Robbins, 2012). Focusing on Maasai pastoral communities, this paper explores how Tanzanian landscapes can become saturated with different meanings by addressing the following questions: How do different categories of protected areas affect conservation outcomes? How have global and local environmental histories and legislation affected conservation outcomes? And how can protected areas create new environmental identities?

Case studies at Ngorongoro Conservation Area, Longido District, and Ngerengere River Eco-Camp will delve further into the application of political ecological concepts. Case Study 1 on Ngorongoro Conservation Area and includes literature review of the impact conservation histories can have on Maasai communities. Case Study 2 examines Longido District as a site in which common conservation frameworks have both integrated and disregarded local communities and livelihoods. Case Study 3 assesses the relatively new site of Ngerengere River Eco-Camp as a contemporary, privatized, and community-based conservation model that now must contend with unintended consequences of emerging ethnic and environmental tensions. Robbins' (2012) five dominant narratives of political ecology help situate these three case studies to enable a better understanding of the broader social, economic, and ecological systems represented by the people and places involved.

Purpose, Objectives, and Methods

From May through July 2018, I attended the James Madison University East Africa Field School (EAFS) (*Figure 1*). Through the program I participated in field research on the impact of protected areas on local communities in the inland plateau region of Tanzania and studied sustainable development and land-use practices in post-colonial societies. My research incorporates a literature review with expert testimony, participant observation, and open ended semi-structured interviews with a variety of stakeholders.



Figure 1: An Overview of East Africa (Source: UNEP-WCMC 2019)

In addition to structured readings and assignment through the EAFS, I spent a minimum of two (Ngorongoro Conservation Area) and a maximum of seven (Longido District) days in each location. Due to these constraints, the information gathered for this paper is not representative of the experiences of entire communities. Instead, it is important to look at underlying themes and root causes to assess the impacts in the greater context of protected area conservation.

The Five Dominant Narratives of Political Ecology

There are many ways to interpret the impacts that conservation can have on communities and ecosystems. Political ecology, provides such a framework for analysis, as it is a relatively new field of research that seeks to assess human impact on the environment, the impact of the environment on humans, and the resulting inequalities that arise from development and unequal power distribution (Robbins, 2012; Doyle, McEachern, & MacGregor, 2016). Political ecology perspectives recognize that environmental issues are inherently political and address broad systems of change (Robbins, 2012). Robbins (2012) summaries political ecology approaches in five theses: (1) degradation and marginalization, (2) conservation and control, (3) environmental conflict and exclusion, (4) environmental subjects and identity, and (5) political objects and actors.

- (1) 'Degradation and marginalization' refers to the evolution of environments and landscapes as they intertwine with ideas and realities surrounding class differences. Often, marginalized communities are blamed for the degradation of the environment, even as they rely on ecosystem services for survival. This often occurs near the borders of protected areas. The bounded rationalities, or limited knowledge, of survival inform short-term locally rational decisions and local environmental knowledge that can degrade environments over the longer term and thus exacerbate the marginalization of those communities. The consequences of these interactions are not intentional, but are defined by limited knowledge, a lack of resources, and no perceived viable alternatives.
- (2) 'Conservation and Control' embodies the ideas surrounding land use, ownership, and control over resources. Power differences often negatively impact local livelihoods by

- supporting a system of top-down strategies, established for the benefit of the elite under the guise of conservation, that change socio-cultural status, alter economic output, and establish areas of political dominance. For example, control over wildlife by the Tanzanian government conveys a message of ultimate dominance over certain ecological systems, thus also controlling those communities that rely on them for survival.
- (3) The ‘environmental conflict and exclusion’ thesis addresses the social outcomes of exclusionary conservation, resource enclosure, and restricted access to ecosystem services. Communities are excluded from their certain areas via government enclosure of the landscape as local livelihoods are often disregarded. In Tanzania, the establishment of protected areas has resulted in the relocation of marginalized subsistence communities. The maintenance of protected areas (re)enforces conservation values that create conflicts between local communities, wildlife, and larger stakeholders in the environment.
- (4) The ‘environmental subjects and identities’ thesis highlights the influence of power and the environment on individual identities. It states that “people’s beliefs and attitudes do not lead to new environmental action, behaviors, or rules systems; instead, new environmental actions, behaviors, or rules systems lead to new kinds of people” (Robbins, 2012, p. 23). Thus, people can be defined by their landscapes, social movements, and political action and new social, political, economic, and environmental identities can emerge from social, political, economic, and environmental change. For example, changes in livelihood activities due to

environmental degradation can lead to different understandings of environmental systems.

- (5) ‘Political objects and actors’ recognizes that living and non-living entities interact to form different politically charged landscapes. Living, dynamic human networks interact with and change non-living systems through power imbalances. Resistance to these systems manifests ethnic, gender, and class divisions. In Tanzania, relevant actors include non-profit organizations, NGOs, governments, local communities, wildlife, and the ecosystems services upon which all of these stakeholders rely.

Robbins’ (2012) five dominant narratives on political ecology connect to many ideas regarding conservation and local livelihoods, including the establishment of protected areas. They aid in interpreting conservation frameworks, human development, and the underlying themes of class, ethnicity, and gender that emphasize power differences that affect conservation outcomes. This paper will focus primarily on how environmental identities are created through the control, exclusion, and degradation of the landscape, as well as how interactions between human and non-human actors can define local livelihoods.

The Coevolution of Parks and People

Protected Areas: From Past to Present

Protected areas often promote an idealized conceptualization of ‘wilderness’ an area of land untouched and uncultivated by humans (Lele, Wilshusen, Brockington, Seidler, & Bawa, 2010). Most protected areas are hardly untouched by humans, and according to Lele et. al. (2010:1), “...it is not clear whether complete exclusion of human activities is necessary for conservation effectiveness, and whether pristine-ness is a meaningful goal, given historical

modification of these landscape”. Ideas of ‘conservation by exclusion’ were modeled after the United States’ National Parks System, transferred via the elitist values of colonialism to developing countries where unchecked population growth, hunting, habitat loss, development, and overuse threatened biodiversity (Lele, Wilshusen, Brockington, Seidler, & Bawa, 2010; Bonner, 1993; World Wildlife Fund, 2019). Protected areas also put pressure on growing populations by removing people from particular lands and restricting access to resources in protected areas (Watson, Dudley, Segan, & Hockings, 2014). Resulting conflicts have called into question the efficacy of “efforts to address poverty and increase economic development” through tourism and community-based conservation (Watson, Dudley, Segan, & Hockings, 2014, p. 68). DeFries et. al. (2007) suggests that ideal land-use management can only be achieved when we identify solutions that fulfill both human and ecological needs: a “win-win” situation, and an unlikely scenario.

The rationale for protected areas can be explained according to four categories of people: anthropocentrists, conservationists, preservationists, and ecocentrists (Doyle, McEachern, & MacGregor, 2016). Operating on a linear scale, these terms encompass various perspectives on protecting the environment. Anthropocentrists are defined by a belief that humans are, and will continue to be, the most important species in known existence. On the other extreme, ecocentrists work to acknowledge the inherent value of all living species without elevating the perceived importance of humans (Doyle, McEachern, & MacGregor, 2016). Between the two extremes, conservation refers to curbing unsustainable resource use to maintain natural resources for future generations, whereas preservationists acknowledge the inherent value of nature, but still elevate the importance of human needs.

Terrestrial protected areas form the foundation of global biodiversity conservation, covering 14.7% of the Earth's land (IUCN, 2008; World Bank, n.d.). The World Conservation Union (IUCN) has seven internationally recognized designations for protected areas (*Figure 2*), ranging from strict nature reserves with little human intervention to protected areas with a utilitarian approach of “sustainable use of natural resources” (IUCN, n.d.). *Figures 3 and 4* show the distribution of protected areas in Tanzania based on IUCN and nationally recognized categories, respectively. The IUCN maintains the power to develop guidelines regarding the restrictions of each category. However, not all parks are enforced consistently, or at all, at the national and international level (Geldman, et al., 2013).

IUCN Protected Area Categories				
Category Name	Objective	Characteristics	No. of Sites in Tanzania	Examples in Tanzania
Ia: Strict Nature Reserve	<ul style="list-style-type: none"> - Protect landscape & biodiversity - Establish control areas for scientific study - Preserve social values dependent on nature 	<ul style="list-style-type: none"> - Controlled & limited human impact - High concentration of native, biodiverse species - Little/no intervention for conservation - Could have religious significance 	None recorded	
Ib: Wilderness Area	<ul style="list-style-type: none"> - Preserve “natural condition” of the environment - Some public access, while indigenous communities can continue subsistence living 	<ul style="list-style-type: none"> - Ideally undisturbed by human activity (no infrastructure) - Intact ecosystem (i.e. little fragmentation) - Potential to restore biodiversity 	8	
II: National Park	<ul style="list-style-type: none"> - Protect “large scale ecological processes” - Manage visitors - Account for needs of local communities & indigenous people - Grow local economies 	<ul style="list-style-type: none"> - Tourism (recreation, education, scientific study, spiritual and religious use) - Protect larger systems of flora and fauna (e.g. wildlife corridors) 	14	Serengeti National Park

III: Natural Monument or Feature	-Land set aside for a specific natural feature, typically with cultural value	-Generally small -Sometimes disturbed by humans -Not as focused on broader ecological processes; no strict conservation or scientific resource	1	Rock Art Sites in Kondo
IV: Habitat/Species Management Area	-Protection of a particular species or habitat/habitat fragments; often those that are endangered -Active management to maintain natural state of area	-Regular human intervention to maintain species or habitat -Public education of the thing being conserved (i.e flagship species) -Access to nature for urban residents	53	
V: Protected Landscape/Seascape	-To maintain a balanced and nondestructive interaction between humans and nature -Contribute to “broad-scale conservation” -“Models of sustainability”	-Long-term interaction of nature and people -Tourism & recreation -Provide ecosystem services -Can act as a buffer around other protected areas	n/a	Chumbe Island Coral Park
VI: Protected area with sustainable use of natural resources	-“Sustainable resource management” -Non-industrial use of ecosystem services -Scientific research and environmental monitoring -Collaboration with local communities	-Generally large -Consistent and widespread human intervention -Promote sustainable use of environmental resources -Recreation and tourism	19	Ngorongoro Conservation Area
Uncategorized	n/a	n/a	729	n/a

Figure 2: IUCN Protected Area Categories (Source: IUCN n.d.; UNEP-WCMC 2019)

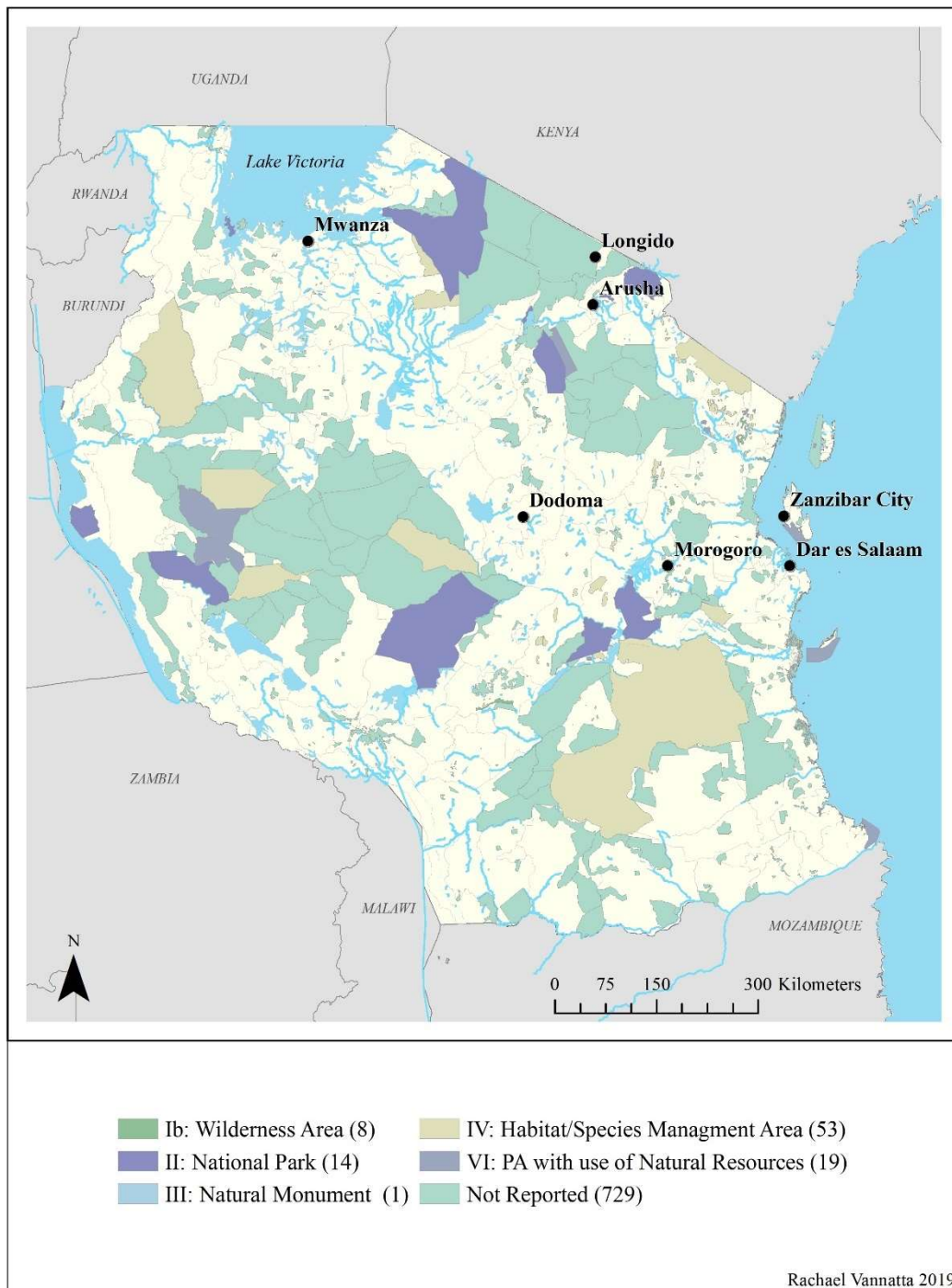


Figure 3: IUCN Categories of Protected Area, recognized internationally. (Source: UNEP-WCMC 2019)

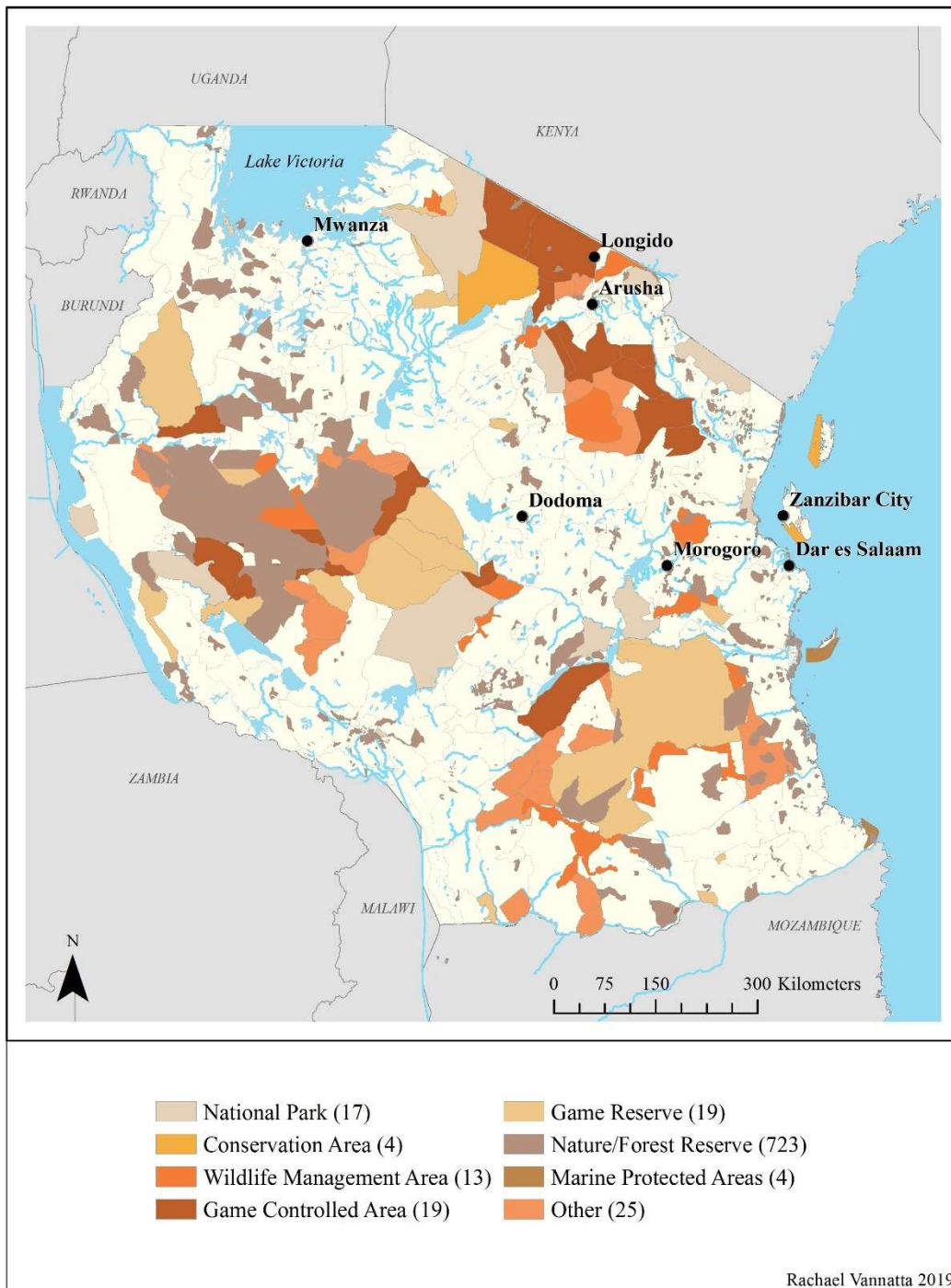


Figure 4: Protected area designations in Tanzania. (Source: UNEP-WCMC 2019)

Protected Areas as “Paper Parks”

The IUCN internationally recognizes, identifies, and categorizes protected areas, but measurements of their on-the-ground implementation concerns stakeholders about the effectiveness of such areas. Multiplying threats to ecosystems coupled with anthropocentric-centered goals are undermining the value that protected areas can have for conservation. In post-colonial countries protected areas often lack the political will, financial support, infrastructure, and management capabilities required to enforce environmental policies and implement strategies to promote species conservation (Geldman, et al., 2013). As “paper parks” suggests, these areas exist on maps and in legislation but do not effectively reduce biodiversity loss (Geldman, et al., 2013). The involvement of international stakeholders can bring attention to these concerns; however, they also maintain the capacity to reinforce damaging top-down power dynamics in post-colonial societies.

One process that reinforces the ineffectiveness of “paper parks” in biodiversity conservation is protected area downgrading, downsizing, and degazettement (PADDD), a common reaction to deal with the social and economic pressures placed on protected areas (Watson, Dudley, Segan, & Hockings, 2014). Defined by Watson et. al. (2014), ‘downgrading’ can increase human activity in the area by lifting restrictions on resource access, ‘downsizing’ legally reduces the size of a protected area, and ‘degazettement’ is a complete loss of the protected area. Examples of downsizing and downgrading in Tanzania include the Selous Game Reserve to allow for uranium mining and the creation of Ngorongoro Conservation Area, formerly a part of Serengeti National Park, to relieve population pressures by allowing a portion of what was a national park to be opened up for human settlement and livestock grazing (Watson, Dudley, Segan, & Hockings, 2014; Reid, 2012). The process of PADDD can

undermine conservation goals by setting precedents that allow protected areas to easily transition between the different IUCN categories, making them impermanent entities susceptible to private and government resource extraction (Watson, Dudley, Segan, & Hockings, 2014).

In a recent attempt to alleviate poverty and provide concessions to local communities impacted by protected areas in Tanzania, current President John Magufuli declared in 2019 that he is planning to redraw park boundaries in order to distribute needed land to communities (Ndalu, 2019). He claimed this was necessary because of increased population growth in the country. Parameters for land reallocation include non-developed farms, areas that no longer need to be reserves (defined by an absence of wild animals), and “privatized undeveloped estates” (Ndalu, 2019). Though reducing government control over the land may benefit pastoralists and other rural communities, its sets a dangerous precedent that can threaten the effective conservation of biodiversity through the inconsistent implementation of protected areas (Robbins, 2012). As a result, important conservation allotments could be downgraded, downsized, or degazetted via PADDD processes, further threatening wildlife populations (Watson, Dudley, Segan, & Hockings, 2014).

Despite the challenges surrounding the permanence of protected areas through the implementation of PADDD, the Aichi Biodiversity Target II has called for increased global protected area coverage (Jones, et al., 2018; Watson, Dudley, Segan, & Hockings, 2014). This legislation mandates that 17 percent of all the Earth’s terrestrial land be confined to effectively managed, ecologically diverse protected areas by 2020 – a 2.3 percent increase (Jones, et al., 2018; Watson, Dudley, Segan, & Hockings, 2014). This is a hefty goal considering a claim by Goldman et. al. (2013) that many protected areas today are ineffectively managed “paper parks” (Bruner, Gullison, Rice, & da Fonseca, 2001). There is no question that protected areas and

environmental legislation help maintain biodiversity; however, population growth, economic activities, changing environmental legislation, incompatibility with local communities, and misconceptions about the areas they affect most, are undermining these successes.

Africa as a (not so) “Blank Map”

Africa is a widely generalized continent, with many people outside of Africa referring to it as a homogenized savannah landscape untouched by humans, dotted with lions, elephants, hippopotami, and other charismatic megafauna. However, countries in Africa represent diverse ecosystems and cultures over its 30.37 million square kilometers (Neff, 2013). Commonly split into North Africa, East Africa, Central Africa, and West Africa, the countries within these areas are arbitrarily defined by boundaries created during the colonial era.

What is today known as East Africa has a long history of dynamic interaction and occupation, from the Bantu expansion to traders from the Middle East and South Asia to Europeans colonizers and post-colonial opportunists (Bryceson & Ingham, 2018). Beginning around the 15th century C.E., Portuguese explorers began to occupy Africa’s east coast to trade, before being ousted by competitive Oman traders (Bryceson & Ingham, 2018). International competition for trade and searches for new markets of raw materials were some of the main drivers of colonialism, especially in East Africa (Coulson, 2013). Such frameworks of extraction prompted oppressive colonizer-colonized power dynamics that remain present in post-colonial East Africa (Coulson, 2013). Known as ‘neocolonialism’, it refers to how current ideas about the economic, political, and social structure of post-colonial East Africa are rooted in the influence and affluence of international relationships and legislation (Coulson, 2013).

In Tanzania, political, power-laden relationships can manifest through the creation and maintenance of protected areas (Robbins, 2012). Many such places are reflective of western top-

down exclusionary conservation frameworks employed by the Tanzanian government and other powerful stakeholders that restrict resource extraction and human interaction within park boundaries. These embedded conservation frameworks have displaced people from their land, created conservation plans that fail to consider local livelihoods, and have reinforced gender, ethnic, and class divisions that can lead to cycles of marginalization (Reid, 2012; Brockington & Wilkie, 2015). Ideas about conservation in a post-colonial Tanzania impacts the value placed and the identities formed from relationships with the environment (Doyle, McEachern, & MacGregor, 2016). The value of protected areas in Tanzania should not be solely defined by biodiversity, but also by the ways in which they can empower local communities socially, politically, economically, and environmentally.

The Value of Protected Areas in Tanzania

With 38 percent of its land dedicated to protected areas, the most of any East African Country, Tanzania is an important area for species conservation (IUCN, 2008; Reid, 2012; World Bank, n.d.). Though the country maintains a large proportion of protected areas for its land area, many smaller parks are excluded from national and international conversations about funding, effectiveness, and implementation, in favor of national parks and conservation areas with high tourist potential.

The creation of protected areas in colonial era Tanzania embedded power-laden hierarchal relationships among local, national, and international communities, creating spaces where local livelihoods and homes could be displaced in favor of reaching biodiversity targets. The divide between such anthropocentric and ecocentric views in a post-colonial landscape has led to a disconnect between short-term locally rational decisions and long-term conservation goals. Robert H. Nelson (2003) coined the phrase “environmental colonialism,” to refer to the

sudden removal of “a mobile ecological equilibrium” between local communities and the environment to make way for protected areas, a concept that resonated with Robbins (2012) political ecology thesis of conservation and control. Such practices have had severe impacts on the East African landscape.

Assessing the effectiveness of protected areas in post-colonial Tanzania is challenging. Firstly, the concepts of ‘effectiveness’, ‘sustainability’, and ‘livelihoods’ are useful to help contextualize how conservation is understood and undertaken among local communities in Tanzania (Doyle, McEachern, & MacGregor, 2016; Bruner, Gullison, Rice, & da Fonseca, 2001; Oberhauser, 2018). While these terms can take on different meanings in different contexts, they remain useful evaluative categories when trying to assess conservation efforts.

‘Effectiveness’ is a dynamic concept that is dependent on long-term conservation goals and short-term locally rational decisions. From a preservationist viewpoint, ‘effectiveness’ is measured by ecological improvements in biodiverse habitats (Doyle, McEachern, & MacGregor, 2016). In contrast, effectiveness from an anthropocentric perspective considers the impact long-term conservation goals can have on local communities (Doyle, McEachern, & MacGregor, 2016). A confounding question posed by Reid (2012) in regards to the concerns is as follows: if humans are considered a permanent feature in an ecosystem, then why are local, and largely subsistence, communities oppressed under the guise of conservation value? Conservation initiatives tend to be developed for biodiversity conservation, tourism value, and the commodification of the environment rather than the maintenance of local environmental knowledge and livelihoods (Reid, 2012; Homewood, Kristjanson, & Trench, 2009). In this paper the meaning of ‘effectiveness’ depends on the context in which it is used. The effectiveness of community-based conservation programs in Tanzania is marked by local social, economic, and

political involvement to prompt environmental protection, whereas the effectiveness of a protected area is defined by predetermined long-term conservation goals, including species diversity and richness.

Clear definitions of ‘sustainability’ are difficult to pinpoint in a political ecological context. On one side, the goal of sustainability is to create spaces in which resource use can be maintained indefinitely throughout subsequent generations; however, a finite amount of ecological productivity coupled with growing populations makes large scale production and living unsustainable (Hardin, 1968). The concept of sustainable development is considered by many an oxymoron, in which ideas about what is sustainable are incompatible with what post-material and post-industrial societies see as ‘developed’ (Doyle, McEachern, & MacGregor, 2016). On the other side, ideas about sustainability give individuals incentives to reach tangible goals in providing basic needs (clean water, reliable food, shelter) to marginalized communities, while also advocating for environmental causes so that up-and-coming nations do not leave a “toxic legacy of industrialization” (Doyle, McEachern, & MacGregor, 2016). ‘Sustainability’ in this paper are focused on the ability of a community to reconcile community desires, while also considering the value of ecological diversity, as well as its resilience and resistance to environmental change.

Robbins’ ‘environmental subjects and identities’ thesis on political ecology claims that new behaviors, understandings, interactions, and livelihoods can lead to the emergence of new kinds of environmental identities (Robbins, 2012). A ‘livelihood’ can be defined by how an individual makes a living and how that individual derives meaning from that living (Oberhauser, 2018). The former is characterized by various economic activities, whereas the latter is dependent on the value an individual places on those activities and how they inform other

actions. Interactions with the environment driven by livelihoods can create identities that are bounded by specialized knowledge of ecological systems (Robbins, 2012). Pastoral communities in Tanzania understand systems that can promote and maintain livestock health, where, in contrast, large scale eco-tourism operations have been known to disregard local livelihoods for biodiversity conservation and tourism (Reid, 2012; Adams & Hulme, 2001; Watson, Dudley, Segan, & Hockings, 2014). As a result, stakeholders in similar landscapes can maintain and create different knowledge sets associated with their particular livelihood activities. For example, in Ngorongoro Conservation Area (case study 1), Maasai communities have been physically displaced from pastoral lands in order to maintain a ‘pristine’ landscape for tourist activities within the park (Reid, 2012).

The physical and conceptual divides between local communities and common conservation frameworks are one factor that can create ineffective protected areas, leading to increases in poverty and human-wildlife interactions adjacent to and within their borders (Watson, Dudley, Segan, & Hockings, 2014; Bruner, Gullison, Rice, & da Fonseca, 2001; Brockington & Wilkie, Protected Areas and Poverty, 2015; Adams & Hulme, 2001). Differences regarding the innate value of the environment have also (re)created destructive power dynamics among international, national, and local stakeholders (Doyle, McEachern, & MacGregor, 2016). Recent efforts to integrate local communities into common conservation frameworks are reflected in the creation of new categories of protected areas (USAID, 2013). By integrating new types of governance into common conservation frameworks, emerging protected areas attempt to acknowledge local social, political, economic, and environmental objectives (UNEP-WCMC, 2019; USAID, 2013; Watson, Dudley, Segan, & Hockings, 2014). The protected areas that will be the focus of the case studies in this paper are national parks,

conservation areas, and wildlife management areas (*Figures 5 & 6*). Each of these designations represents different ways of approaching common conservation issues, from exclusionary conservation and control to community integration, and how emerging frameworks and environmental identities may better address common conservation issues (Robbins, 2012).

National Parks

The National Park designation is the most well-known form of protected areas, especially in the United States. An IUCN category II feature, national parks are established with the intention of protecting “large scale ecological processes” representing a variety of ecosystem services, as well as plant and animal varieties (IUCN, n.d.). In addition, national parks allow for recreational and educational uses, including tourism (IUCN, n.d.). In present day Tanzania national parks have high tourist value and are known for expelling people that live within their borders (Neumann, 1998). Neumann (1998) suggests that this is done in an attempt to “naturalize” these areas, reflecting the traditional western paradigm of ‘wilderness’ in which human contact with the environment is strictly controlled.

Conservation Areas

A conservation area is an area of protected land created with the intention of more extractive resource use than a national park. Operating as a category VI protected area, or a “protected area with sustainable use of natural resources”, conservation areas seek to protect resources and ecosystem services for both human and non-human values (IUCN, n.d.). The IUCN claims that distinguishing features of this category include the sustainable use of resources and ecosystem services for non-industrial purposes, as well as the protection of these systems and the cultural values that depend upon them (IUCN, n.d.). Large habitats, such as the East

African savannah, rely on Category VI protected areas to reduce habitat fragmentation and to conserve ecological processes on landscapes in which humans already live (IUCN, n.d.).

Wildlife Management Areas

Wildlife management areas (WMA) are an IUCN category IV protected area. WMAs are focused on the protection of a particular habitat or species, often leading to a fragmented protection (IUCN, n.d.). Category IV protected areas have been recently disturbed by humans, thus requiring extensive and frequent human intervention in order to maintain the landscape (IUCN, n.d.). In the United States especially, WMAs often push educational initiatives, provide access to nature for urban residents, and allow selective resource extraction. In Tanzania, WMAs are utilized as a bridge between local communities and larger conservation goals (USAID, 2013).

Beginning in the 1980s, the creation of wildlife management areas in Tanzania was prompted by changes in government thinking about wildlife management, moving away from centralized models of conservation (USAID, 2013). Strengthened by the 1998 Wildlife Policy of Tanzania, which allowed private landowners to manage wildlife, WMAs were first legally implemented in 2003 (USAID, 2013). Tanzania Parliament then approved the 2009 Wildlife Conservation Act which “enshrined WMAs in the overarching sectoral legislative framework”, embedding community aid programs into national conservation frameworks (USAID, 2013, p. iii). The gazettement of WMAs in Tanzania was a response to poor land tenure security, rural population growth, and increased pressures on protected areas. Thus far, these areas claim to give the power of conservation to local communities while attempting to fulfill both human and ecological needs (USAID, 2013; DeFries, Hanson, Turner, Reid, & Liu, 2007).

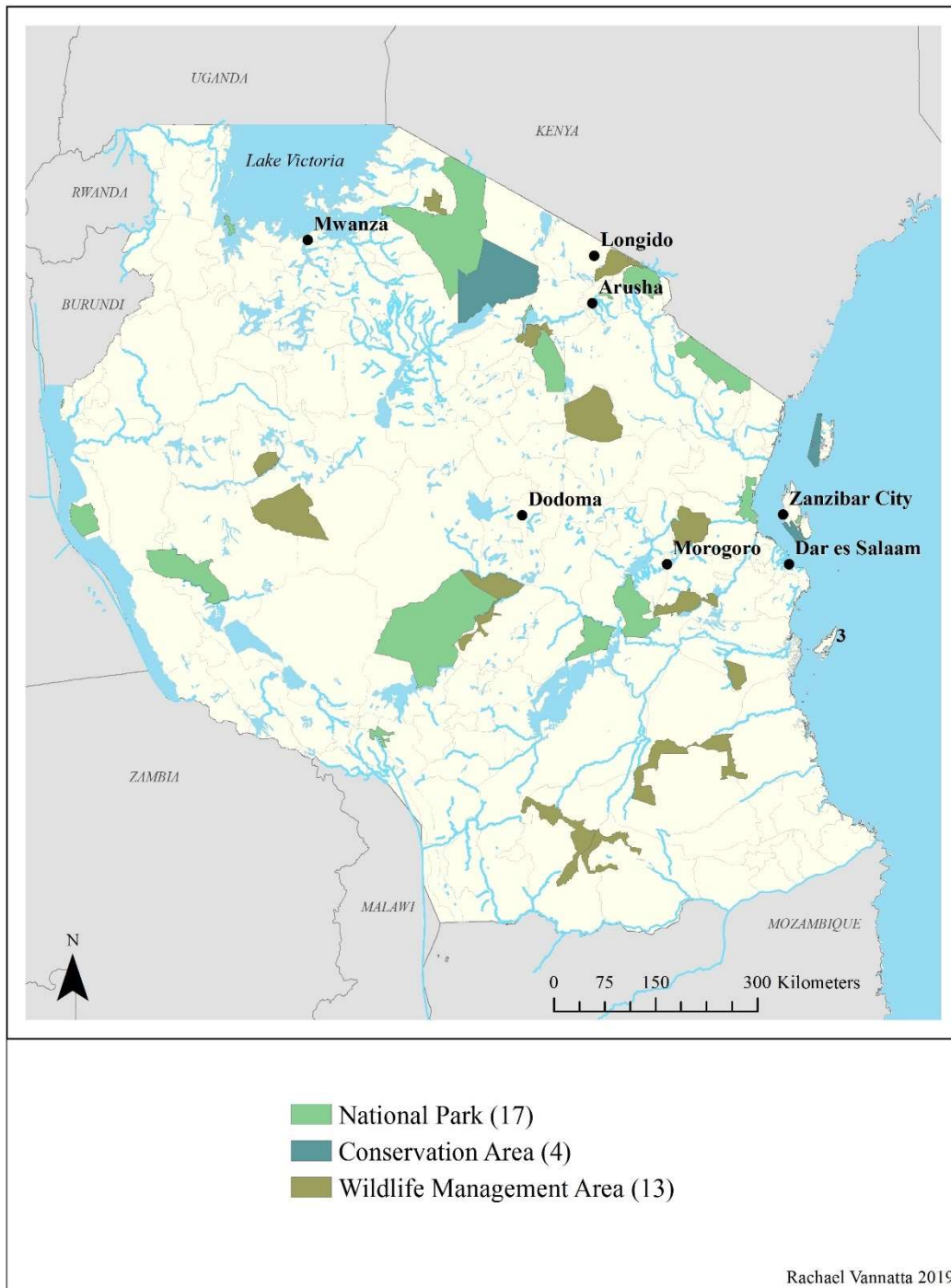


Figure 5: An Overview of National Parks, Conservation Areas, and Wildlife Management Areas (Source: UNEP-WCMC 2019)

Protected Areas of Study, Summary			
Protected Area	IUCN Category	Characteristics	Case Study Example
National Parks	II	-Protect “large scale ecological processes” -Recreational and educational uses, including tourism	Serengeti National Park (case study 1)
Conservation Areas	VI	-Selective resource extraction -protect ecosystems for human and non-human use	Ngorongoro Conservation Area (case study 1)
Wildlife Management Areas	IV	-focused on particular habitat/species -push community involvement	Enduimet WMA (case study 2) Wami Mbiki WMA (case study 3)

Figure 6: A summary of the protected areas highlighted in this paper's case studies (Source: IUCN, n.d.; UNEP-WCMC 2019)

Environmental Legislation in Tanzania

The Colonial Period

Throughout the German (1884-1919) and British (1920-1961) colonial eras, land was set aside for game reserves in areas with low human density (Mkumbukwa, 2009; Goldstein, 2005; Coulson, 2013). The establishment of hunting restrictions and game reserves in East Africa began in the German colonial era to control hunting and prevent exploitation by local communities (Mkumbukwa, 2009). As new conservation laws disregarding local traditional lifestyles were ratified by colonial governments, many East African hunters were reclassified as poachers, although their behavior had not changed their subsistence livelihoods suddenly became illegal. Local populations, including Maasai pastoralists, were also removed and placed in reserves, areas of less desirable and less productive land, to contain human impacts on a ‘pristine’ landscape and maintain economic revenue from hunting. The theses on political

ecology tells us that as landscapes are reimagined and controlled, new environmental subjects and identities emerge to adapt to environmental conflicts and exclusions enacted by national and interaction stakeholders (Robbins, 2012). These processes are evident throughout Tanzania environmental legislation.

In 1903, Britain's Society for the Preservation of the Fauna of the Empire (presently known as Flora and Fauna International) was established as the first international conservation organization (Flora and Fauna International, n.d.). In 1919, following the British occupation of former German East Africa at the end of World War I, a game department was created to address "wildlife matters" (Mkumbukwa, 2009, p. 592). Created to "[protect] human life and property from dangerous animals," the policy instead "aimed to control and protect elephants from attacks by Africans" (Mkumbukwa, 2009, p. 592).

Soon thereafter, the Game Preservation Ordinance of 1921, known as the "first comprehensive conservation legislation in Tanzania," was passed by the acting British government (Mkumbukwa, 2009, p. 592). In 1940, a second Game Ordinance was established in response to international legislation concerning environmental policies (Mkumbukwa, 2009). In this context, definitions of 'game' and 'wildlife', traced back to the 15th and 19th centuries, respectively, are intertwined, where all game is wildlife but not all wildlife is considered game (Coffman, 2007; Mkumbukwa, 2009). As local interactions with native flora and fauna were becoming increasingly restricted, Europeans were using the idea of 'game' over 'wildlife' as a justification "to hunt as a leisure occupation" (Coffman, 2007; Mkumbukwa, 2009, p. 592). Mkumbukwa (2009: 592) laments, "The local community were deliberately deprived of their own resources and the enjoyment of their own land". Such hierarchal control of the landscape is what has created power dynamics present in common conservation frameworks and discussion.

As noted above, the first national park in Tanzania, Serengeti National Park was gazetted in 1951, displacing many communities from their land (Mkumbukwa, 2009; Reid, 2012). Ngorongoro Conservation Area (case study 1) was established in 1959 as a multi-use area, allowing individuals displaced by the creation of Serengeti to co-exist with wildlife while turning the Serengeti into a closed ecosystem (Mkumbukwa, 2009; Reid, 2012). These environmental actions by the Tanzanian government, further discussed in case study 1, led to conservation frameworks and environmental identities in Tanzania indicative of the exclusionary conservation values first instilled by the United States parks movement (Robbins, 2012; Watson, Dudley, Segan, & Hockings, 2014).

Post-Independence

After British Tanganyika's independence in 1961, the political framework put in place by British colonial powers largely remained intact. As an independent nation, Tanganyika continued to establish protected areas to boost their tourism and increase economic revenue (Mkumbukwa, 2009). In 1961, Julius K. Nyerere, Tanganyika's Chief Minister, gave a speech that has since been called the Arusha Manifesto, in which he stated:

“The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures amid the wild places they inhabit are not only important as a source of wonder and inspiration but are an integral part of our natural resources and of our future livelihood and well-being. In accepting the trusteeship of our wildlife we solemnly declare that we will be able to enjoy this rich and precious heritage” (Wright, 1961).

As a result, Nyerere continued to implement top-down conservation values, in which the government had sole authority over protected areas and wildlife, to demonstrate the importance

of wildlife conservation to the “future livelihood and well-being” of the country (Goldstein, 2005; Wright, 1961).

Nyerere became the country’s first president in 1962 and, in 1963, Tanganyika and Zanzibar united to form the United Republic of Tanzania. Throughout his presidency, Nyerere pushed a heavily socialist agenda, including plans for villagization and *Ujamaa* socialism, Swahili for ‘familyhood’, in an attempt to loosen the grip of neocolonialism and promote his African socialist ideal (Coulson, 2013). As explained in the 1967 Arusha Declaration, Nyerere’s goal was ‘socialism and self-reliance,’ expressed in a series of proposed governmental programs that established self-reliant *Ujamaa* villages throughout the country to increase agricultural productivity and create uninhabited tracts of land for game areas and wildlife conservation (Coulson, 2013, p. 21; Leader-Williams, Kayera, & Overton, 1996). Nyerere’s attempts at creating a socialist Tanzania in order to break away from pervasive neocolonial values threatened his power and engrained local economic activities, including pastoralism (Coulson, 2013). The scale of these projects meant that ‘villagized’ agricultural advancement devolved into economic and environmental collapse through the overexploitation of concentrated resources because communities were living closer together (McCall, 1985). The ultimate failure of Nyerere’s villagization program weakened many of the *Ujamaa* villages that had been established throughout the period immediately following the Declaration (Coulson, 2013; Homewood, Kristjanson, & Trench, 2009). The subsequent dispersal of people due to decentralization of Tanzanian socialist policies resulted in more village control over development and conservation (Homewood, Kristjanson, & Trench, 2009). However, disconnect between local communities and the Tanzanian government, coupled with population growth, led to many issues regarding the use of land and the establishment of new protected areas.

Government control over environmental activities in Tanzania was still evolving until the late 20th century, when the Wildlife Conservation Act of 1974 was ratified, stating that all wildlife in Tanzania, on public or private land, is owned by the Tanzanian government (Mkumbukwa, 2009). This new policy laid the framework for the establishment of more protected areas, as well as restrictions on hunting, the extraction of resources, and consequences for violating these terms (The Wildlife Conservation Act, 1974). This new legislation disproportionately affected subsistence livelihoods in rural areas, restricting resource access and displacing people from the areas in which they lived. In 1983, the Tanzanian National Environmental Management Council (NEMC) was established to “oversee environmental management issues”, advise the government on environmental matters, and create related policy (Mkumbukwa, 2009; NEMC, 2015). The 2004 Environmental Management Act gave NEMC, “mandates to undertake enforcement, compliance, review and monitoring of environmental impacts assessments, research, facilitate public participation in environmental decision making, raise environmental awareness and collect and disseminate environmental information”; however it largely failed to address concerns regarding how conservation affected local communities (NEMC, 2015; Mkumbukwa, 2009). Mkumbukwa (2009:596) argues, “While NEMC assumed the role of environmental protection agency, it has no legal power and was thus constrained in performing the functions of a fully fledged environmental protection agency”.

In their 1994 World Conservation Union Meeting, the IUCN called for a community-based conservation policy in Tanzania to mediate outstanding conflict between local communities, the government, and land use regulations (Leader-Williams, Kayera, & Overton, 1996). These proposed policies would not limit conservation adjacent to protected areas but rather engage communities throughout a variety of landscapes to increase the productivity of

ecosystem services and decrease the vulnerability of both wildlife and people. These statements were made under the belief that “people cannot be expected to support the conservation and establishment of PAs [protected areas] unless they understand why PAs have been established and how PAs are relevant to their lives” (Leader-Williams, Kayera, & Overton, 1996, p. 53).

The ideas proposed in this meeting were integrated into the 1998 Wildlife Policy of Tanzania, claimed to be the “first comprehensive wildlife conservation policy since independence,” (Mkumbukwa, 2009, p. 597). Focused on promoting local participation in wildlife management, this landmark legislation recognized that former attempts at conservation failed to properly develop initiatives centered on community involvement, though the Tanzanian government maintained ownership of wildlife via the Wildlife Conservation Act of 1974 (Nelson, Nshala, & Rodgers, 2007). In 2009, a new version of the Wildlife Conservation Act outlined the presently recognized national categories of protected areas in Tanzania. It also proposed legal measures to mediate conflict with wildlife, poaching, and the international trade of wildlife as well as made suggestions for the future research and education of this areas.

Despite a long history of wildlife management in Tanzania, current conservation legislation is struggling to address local needs and desires as populations grow and land use practices change. The continued implementation of exclusionary conservation frameworks in Tanzania is creating a disconnect between long-term conservation goals and changing political and economic realities. National environmental legislation has provided the legal frameworks through which new environmental identities can emerge; now conservationists need to ask how the establishment of more comprehensive frameworks and initiatives can reconcile the long-term conservation goals of international stakeholders with short-term locally rational decisions of local communities (Robbins, 2012; Coffman, 2007).

Land and Conflict in Tanzania

An Introduction to Pastoralism & Maasai Communities

Rural Maasai pastoralists, the primary populations involved in my case studies are semi-nomadic Maa speaking groups that originated in Sudan and migrated down the Rift Valley before dispersing into East Africa (Spear, 1993). Maasai's antecedent agro-pastoralist communities produced a mixture of crops and livestock products, eventually specializing in pastoralism (Spear, 1993). Today, Maasai are considered pastoralists, characterized by animal husbandry focusing on cattle, sheep, and goats in the semi-arid rangelands in East Africa.

The colonization of East Africa by the Germans (1884-1919) and British in (1920-1961) led to widespread displacement of Maasai to reserves, for the establishment of game reserves, agriculture, and other economic activities (Homewood, Kristjanson, & Trench, 2009; Coulson, 2013). Soon after independence in 1961, Nyerere's villagization projects resulted in the concentration of already marginalized, dispersed Maasai communities by moving them to *Ujamaa* villages not reflective of their geographically dispersed pastoral livelihoods (Homewood, Kristjanson, & Trench, 2009). In more recent decades, population growth and livelihood diversification in many Maasai communities have decreased land availability for traditional grazing patterns and increased human impact on the landscape (Reid, 2012).

Humans and their livestock (cattle, goats, sheep, etc.) account for approximately 8 percent of the Earth's total biomass (Baillie & Zhang, 2018; Daley, 2018; Rosane, 2018). Recent estimations claim humans alone make-up 36 percent of the world's total mammalian biomass, with domesticated livestock taking up an additional 60 percent, dramatically altering the ecosystems with which they interact (Baillie & Zhang, 2018; Daley, 2018; Rosane, 2018).

Among Maasai communities in Tanzania, where livestock is used as the basis of subsistence, it is ideal to own a minimum number of livestock per person in order to maintain a pastoral livelihood (Homewood, Kristjanson, & Trench, 2009). However, the ownership of livestock is often disproportionately distributed among community members. Poverty caused by low livestock ownership within Maasai communities can increase the overexploitation of the environment for resources that can supplement minimally productive pastoral livelihoods, especially among growing populations, leading to widespread environmental degradation (Homewood, Kristjanson, & Trench, 2009).

My Experiences Among Maasai Communities

I stayed with a family of Maasai pastoralists in Longido District, Tanzania in the summer of 2018. In that area, the majority of self-identifying Maasai live well below the poverty line in Tanzania (Homewood, Kristjanson, & Trench, 2009). In Longido, I spent three nights in a Maasai homestay and participated in daily rituals, such as milking animals and food preparation.

Maasai livelihoods are reflected in the way in which they spatially organize their lives. Primarily living in mud-dung huts surrounded by acacia thorn fences, these structures, called bomas, are intended to protect residents and contain livestock, their main source of wealth (*Figure 7*). Landscape management is largely based on localized environmental knowledge and is defined by open access multi-use systems, in which common land provides resources and ecosystem services (Igoe, 2004).



Figure 7: An aerial photograph of a Maasai boma. The outer circle is for homesteads, while the center is reserved for livestock. (Source: Google Earth)

Ideally a boma operates as a collective family-oriented community with divisions of labor based on age and gender, revolving around the care of livestock and influenced by the availability of the family's resources. The social construction of Maasai living transcends the space of a single boma, as individuals are connected across bomas by marriage or birth. Women are often responsible for retrieving water and gathering firewood, whereas men are responsible for livestock grazing and health. In the boma where I stayed, my young host sister grazed the family's goats because there was no son to take on that responsibility. Similarly, a lack of sons in my host boma led to an outsourcing of labor to young warriors – referred to as such because they have undergone the cultural ceremony of circumcision – who were hired to graze cattle.

Grazing cycles instituted by Maasai in productive ecosystems can sometimes prevent the overgrowth of dominant and strongly competitive plant species and allow for the growth of rarer less competitive plant species, known as an “enriching response” (Reid, 2012, p. 129). Conversely, “humped responses,” or the long-term removal of species, in unproductive ecosystems can result in the overall removal of important plant species (Reid, 2012, p. 129). Long-term interactions between Maasai and environmental systems have resulted in their coevolution on the landscape, in that a lack of these interactions (too few people) and an abundance of these interactions (too many people) both have substantial impacts on environmental processes.

Maasai communities often maintain common open access multi-use grazing areas, the degradation of which resonates with the example Hardin (1968) explains in “Tragedy of the Commons”, where users acting in their own self-interest degrade the commons for all other users (Igoe, 2004). Exclusionary conservation practices, and the resulting short-term locally rational livelihoods decisions, amplify the degradation of shared environmental spaces by concentrating

populations and land-use through the displacement of local communities and livelihoods. However, if local communities can become better integrated into the conservation frameworks with which they interact, then new environmental identities could promote coexistence between parks and people (Robbins, 2012).

Approaching Conservation Issues: The Biggest Critiques in Conservation

Power differences established between local communities and conservationists reflect persisting colonizer-colonized relationships that are maintained by governments in post-colonial countries (Doyle, McEachern, & MacGregor, 2016). In Tanzania, marginalized locals are persecuted for violating state law, as the government increases restrictions on the access to the environment with no apparent consequences (Mkumbukwa, 2009). When the welfare of local communities is neglected and population densities increase, their interactions with the environment become destructive as resources dwindle and larger stakeholders blame communities for not abiding by conservation laws (Robbins, 2012). Two major trends in post-colonial conservation practices as identified by political ecologists include increasing rates of negative human-wildlife interactions and poverty within and adjacent to protected areas. Attempts at mediating these issues through community-based conservation initiatives have been met with mixed success (Igoe, 2004). The next few sections review recent efforts at more effective conservation in light of these critiques, while considering issues of local involvement and emerging environmental identities (Robbins, 2012).

Human-Wildlife Interactions in East Africa

What Are Human-Wildlife Interactions?

As human populations continue to grow, they encroach on the habitats of a variety of wildlife, fragmenting ecosystems and blocking important wildlife corridors (Kissui, 2008; Newmark, Leonard, Sariko, & Gamassa, 1993). However, wildlife populations are not confined to the 14.7 percent of the world that is protected (or 38 percent of Tanzania); they often venture outside of a protected area's arbitrarily defined boundaries into villages and homesteads, where park managers have no jurisdiction. (Barua, Bhagwat, & Jadhav, 2013; Kissui, 2008; DeFries, Hanson, Turner, Reid, & Liu, 2007; IUCN, 2008; World Bank, n.d.). According to the World Wildlife Fund (WWF), human-wildlife interactions are one of the primary threats to the continued survival on any wildlife species (World Wildlife Fund, 2019). In rural Tanzania, the extent to which local people interact with wildlife is often determined by an individual's livelihood activities (Barua, Bhagwat, & Jadhav, 2013).

Barua et. al. (2013) defines negative human-wildlife interaction, as “when the needs and behavior of wildlife impact negatively on the goals of humans or when the goals of humans negatively impact the needs of wildlife” (p. 310). In some cases, placing the needs of wildlife over the needs of humans further perpetuates this conflict (Madden, 2004; Doyle, McEachern, & MacGregor, 2016). Negative human-wildlife interactions are not only defined by conflict with wildlife but can also include damage caused by livestock and other domesticated animals (Newmark, Manyanza, Gamassa, & Sariko, 1994). Barua et. al. (2013) and Dickman (2010) identify the less publicized effects of such conflict on humans, including long-term medical issues, financial loss, and family disruption. More obvious impacts include injury, loss of life (both human and livestock), as well as crop damage. Negative human-wildlife interactions can

significantly reduce community support for conservation, resulting in environmental identities that perpetuate negative views of wildlife (Barua, Bhagwat, & Jadhav, 2013; Robbins, 2012).

Not all interactions with wildlife lead to conflict. Positive human-wildlife interactions can lead to a greater appreciation and connection with environmental systems, which can lead to conservation initiatives and prompt an understanding of the inherent ecological value of a landscape (Madden, 2004; Nyhus, 2016). This paper, however, focuses on how negative human-wildlife interactions can create environmental identities that impact local conservation values (Robbins, 2012).

Causes of Human-Wildlife Interactions

Negative interactions between humans and wildlife can often be a manifestation of underlying power disparities between rural areas and the urban elites who protect wildlife (Dickman, 2010). Madden (2004: 249) describes this as an intensifying conflict “...*between humans about wildlife.*”. In Tanzania, wildlife is state property, resulting in differences between government interactions with wildlife and local interactions with wildlife. These sorts of internal cultural conflict, as well as preexisting cultural norms, can define how communities respond to various levels of risk and vulnerability. According to Kissui (2008) retaliatory killings continue to threaten many wildlife populations. For example, ritual lion hunts in some regions, called *Ala-mayo* by Maasai, put lions at greater risk for population decline (Kissui, 2008). Kissui (2008:423) also states that “successful conservation outcomes are compromised by mismatches between social and ecological scales”, meaning that communities need to address the underlying cultural drivers that result in retaliatory killings. This is difficult, however, in communities that lack social and economic resources and support, where livestock is the primary source of livelihood.

One of the biggest problems in resolving negative human-wildlife interactions is the mismatch between assumptions by researchers and behaviors by local communities in response to conflict with wildlife. Differences in the perception of risk and vulnerability determine conservation outcomes. For example, two individuals can have the same risk of conflict with wildlife but have different levels of vulnerability depending on social status and access to resources. Among Maasai pastoralists in Tanzania, interactions with wildlife are seen as an involuntary risk that can be intensified by reliance on only one livelihood strategy and a loss of control over livelihood expectations (Dickman, 2010). Even after negative human-wildlife interactions decrease, certain species may continue to be hunted due to residual fear and deep-rooted cultural beliefs (Dickman, 2010; Newmark, Manyaza, Gamassa, & Sariko, 1994). In addition, lions are the primary symbols of negative human-wildlife interactions throughout East Africa and are the primary target for its solutions, though other species, such as hyenas, kill more cattle (Kissui, 2008). As a result, finding effective solutions to negative human-wildlife interactions among Maasai pastoralists require understanding and modifying complex cultural beliefs and practices regarding wildlife.

Efforts to reduce negative human-wildlife interactions among Maasai communities

According to Barua et. al. (2013), the key to solving negative human-wildlife interactions is to reconcile the constantly evolving needs of human and wildlife, rejecting one-size-fits-all solutions. However, it is impossible to eliminate negative human-wildlife interactions completely because that would require eliminating all human-wildlife interactions and removing humans from a landscape in which they are deeply entrenched. Community-based conservation initiatives, spearheaded by USAID, African Wildlife Foundation (AWF), the World Wildlife Fund (WWF), as well as other non-governmental organizations and non-profits are trying to

mediate the presence of negative human-wildlife interactions by opening an “interdisciplinary dialog” about resource use, wildlife, and the role of local communities in the environment (Barua, Bhagwat, & Jadhav, 2013, p. 314).

There are few existing longitudinal studies on human-wildlife interactions (Dickman, 2010). According to Dickman (2010), those that do exist lack the necessary conflict resolution approaches needed to appropriately measure, assess, and mitigate the impact of these interactions on local communities. Kissui (2008), who focuses on wildlife conservation rather than cultural restructuring, suggests solutions that include improvements to local animal husbandry, such as chain link fences to contain livestock, and the use of spatiotemporal data to track wildlife movements. The implementation of permanent chain-link fences at the cost of semi-nomadic pastoral tendencies may provide long-term housing security but do little to address immediate livelihood impacts of their implementation, including restricted movement and decreased control over wide swaths of grazing lands, in addition to disrupting wildlife corridors. “Opening” up the land in this way can give other stakeholders land-use opportunities that can further restrict Maasai movement and introduce privatized land to a traditionally open access multi-use systems of living. In addition, the instillation of permanent chain link fences in regions that have little access or knowledge of proper waste management, and where bomas are usually biodegradable, can result in long term environmental pollution. The use of spatiotemporal data to identify possible land-use patterns for grazing is another, more plausible, option; however, it could also contribute further power imbalances and reinforce neocolonial ideals.

Newmark et. al. (1994) does not offer a specific technical solution, but rather states that wildlife management needs to occur on an individual basis through which conservationists can understand the relationship between local communities and the landscapes in which they live.

The article also suggests that potential solutions must allow wildlife to utilize lands adjacent to protected areas while avoiding economic loss for local communities (Newmark, Manyanza, Gamassa, & Sariko, 1994). In areas of high human density, Newmark et. al. (1994) suggests that communities should reduce agricultural practices that attract wildlife, as well as discourage habitation on lands immediately adjacent to protected areas (Newmark, Manyanza, Gamassa, & Sariko, 1994). However, the elimination of agriculture near protected areas would diminish the livelihoods of those living there. In addition, communities living adjacent to protected areas may not have the social or economic mobility to move elsewhere. Like Kissui (2008), Newmark et. al. (1994) states that improved animal husbandry could be one solution to help reduce human-wildlife conflict; however, the employment of technical solutions to solve negative human-wildlife interactions would first require comprehensive programs to change preexisting cultural beliefs (Dickman, 2010; Barua, Bhagwat, & Jadhav, 2013). The concept of compensation for conflict also needs to be explored, though strong frameworks of enforcement first need to be introduced (Newmark, Manyanza, Gamassa, & Sariko, 1994).

Human-Wildlife Interactions Among Maasai Communities

In addition to his article on human-wildlife interactions, I had the privilege of attending a lecture of Dr. Bernard Kissui's through the James Madison University East Africa Field School. He discussed the benefits and drawbacks of predator proof bomas in Maasai dominated landscapes. Bomas are particularly susceptible to nocturnal hunters, primarily hyenas but also lions, though lions are more susceptible to retaliatory killings by Maasai than other wildlife due to the embedded cultural histories of *Ala-mayo*, or ritual lion hunts (Kissui, 2008).

In these regions, livestock mortality due to predation on livestock is high enough to provoke responses from Maasai. The number of animals hunted by Maasai is directly correlated

with the numbers of livestock killed (Kissui, 2008). Lions are the most frequently hunted, whereas hyenas tend to be poisoned (Kissui, 2008). The construction of predator proof bomas, as discussed earlier, seeks to reduce livestock death due to wildlife by reinforcing acacia thorn enclosures with metal chain link fences (Packer & Kissui, 2007).

Though introducing predator proof bomas to Maasai communities has helped reduce overall livestock death, livestock deaths due to negative wildlife interactions outside the boma are far more common. (Packer & Kissui, 2007). Packer & Kissui (2007) found that in Maasai dominated landscapes, lions had the ability to differentiate between an armed warrior and a child and were more likely to attack herds guided by children because they do not have the same ability to protect cattle as armed warriors. The study recommended reducing herd size and sending children to school, but there is no evidence of the implementation or success of such programs.

A more successful program promoting the cultural change of ritual hunting activities among Maasai is the Lion Guardians. Established in 2007, this conservation organization, based in Kenya, recruits Maasai warriors and gives them the skills necessary to mitigate human-wildlife interactions in their communities. As a result, they become protectors of lions, instead of killers. The conservation model developed by Lion Guardians focuses on transitional cultural change to integrate communities actively into conservation initiatives, something that remains absent from exclusively top-down approaches to conservation. However, this conservation model has only been successful among Maasai in Kenya. According to Dr. Kissui in his lecture, conservation tactics created by the Lion Guardians have been employed in Ngorongoro Conservation Area in northern Tanzania and were largely unsuccessful, perhaps due to the scale

of the project, the attitudes of local Maasai communities, or the economic ability of Maasai to adopt these practices.

Like Kissui, Lion Guardians has also attempted to tackle the implementation of predator proof bomas to reduce human-wildlife interactions. A Lion Guardians blog post from May 2008 narrates the construction of a predator proof boma in a community where Lion Guardian conservation programs have already been introduced (Guardians, 2008). The construction of the boma involved the installation of the chain link fence into a preexisting traditional boma (Guardians, 2008). However, without the additional reinforcement of anti-poaching values instilled by the Lion Guardians, negative human-wildlife interactions will likely persist.

Evolving processes require dynamic solutions. Thus far many outcomes have neither effectively mediated negative human-wildlife interactions or addressed the underlying socio-cultural factors that influence community decision making. The creation of a 'Global Toolbox' that compiles resources, information, and mediation tactics that can be configured to match local needs may guide us to the answer (Madden, 2004). Programs such as predator proof bomas and Lion Guardians are closer than most, recognizing that cultural values are the main drivers of change; however, the complexities of conservation and cultural change continue to contribute to this ongoing struggle. Programs such as Lion Guardians neglect to acknowledge other forms of negative human-wildlife interactions, including hyenas, elephants, and other wildlife. Short-term locally rational decisions among Maasai communities drives retaliatory killings of wildlife. In addition, conservationists are bounded by systems that protect wildlife, but do little to consider their impact on local livelihoods, including increased negative human-environmental actions and marginalization.

Protected Areas & Poverty

Over the past few decades increases in overall human population and dramatic changes in local densities have decreased available land and resources. Higher birth rates, as well as immigration driven by farmland and resource availability adjacent to protected areas, have contributed to these concerns. High human densities tend to occur in regions with high biodiversity value prompting a wave of wildlife conservation initiatives in these areas (Salerno, Borgerhoff Mulder, & Kefauver, 2013). As Robbins (2012) describes in his 'degradation and marginalization' thesis on political ecology, marginalized peoples are often blamed for environmental degradation. Conflict that emerges from the environmental control by national and international stakeholders affects livelihood activities and the creation of new environmental identities, while feedback loops of oppression that can be accelerated by environmental degradation, amplify the effects of population pressures on the environment (Robbins, 2012).

The establishment of a protected area is often framed around ideas of sustainable development and modernity, a façade that hides the resulting land-use restrictions and livelihood vulnerability (Brockington & Wilkie, Protected Areas and Poverty , 2015). Many individuals living adjacent to protected areas believe that these areas serve little social or economic benefit (Newmark, Leonard, Sariko, & Gamassa, 1993). Brockington & Wilkie (2015) argue that there are three prerequisites to the claim that protected areas cause marginalization. The first connects protected areas to a history of violence, eviction, and injustice via colonialist values (Brockington & Wilkie, Protected Areas and Poverty , 2015). Secondly, the establishment of a park can evoke conceptual considerations such as, what to preserve, where to preserve, how to preserve, and/or how to receive economic benefits that can disproportionality affect certain groups of people. Lastly, as also addressed by Robbins (2012), questions about conservation are

inherently political, raising inquiries about compensation for local economic losses, relocation of communities, distinctions between residents vs. nonresidents and indigenous vs. nonindigenous, as well as issues class, ethnicity, and gender.

Brockington et. al. (2006) believe that the assumed relationship between conservation and poverty is due to a “dearth of good information” on the topic (p. 250). However, it is difficult to make such generalizations because cases also vary based on a variety of social, political, and economic factors. First of all, measures of poverty and marginalization are complex and difficult to measure because they represent diverging beliefs on whether conservation causes poverty or has the capacity to solve it by supporting a diverse number of livelihoods (Adams, et al., 2004; Kangalawe & Noe, 2012). Some 15-20 percent of household incomes in countries such as Tanzania rely on products extracted from the landscape for survival (Vedeld, Jumane, Wapalila, & Songorwa, 2012). Livelihoods that are displaced physically and economically by protected areas can cause further environmental damage and create new classes of environmental refugees (Vedeld, Jumane, Wapalila, & Songorwa, 2012; Brockington, Igoe, & Schmidt-Soltau, 2006; Adams & Hutton, 2007; Brockington & Igoe, 2006).

Perceptions on Conservation vs. Poverty

According to Adams et. al. (2004) there are four primary perspectives that address the assumed relationship between protected areas and poverty. The first perspective claims that poverty and conservation should be considered separate –they do not hold an influence on each other (Adams, et al., 2004). This position asserts that the key to conservation success is scientific solutions and improvements in biodiversity. This position is prevalent in many countries, such as Tanzania, struggling with neocolonialism, to preserve pristine wilderness for tourism and attract foreign revenue. Areas such as Serengeti National Park and Ngorongoro Conservation Area,

though vital to the conservation of the East African savannah, have been known to prioritize parks over people (Reid, 2012). These sorts of protected areas can completely ignore the needs of local communities by buying into the oppressive and dominant power regimes that caused these issues in the first place.

The second position claims that poverty can restrict conservation because “biodiversity conservation will fail if it does not successfully address poverty elimination” (Adams, et al., 2004, p. 1147). Thus, poverty alleviation would only occur to meet conservation goals. Organizations such as African Wildlife Foundation (AWF) and Lion Guardians attempt to reduce poverty in order to reach their conservation goals and fulfill their mission statement. However, this position can also create problems in that local communities are only seen in terms of their conservation potential, rather than cultural, economic, or political value.

The third position claims that, at the very least, conservation should not increase poverty and perhaps provide sustainable economic benefits to surrounding communities (Adams, et al., 2004). Though conservation can continue despite sustained or increased poverty, its long-term goals should include alleviating economic pressure on the local communities it could affect. Enduimet WMA in Longido District Tanzania (case study 2) illustrates these values as the creation of this protected area was driven and defined by community participation.

Lastly, Adams et. al. (2004) claims that poverty alleviation can solely depend on conservation initiatives, as many marginalized peoples rely on ecosystem services for survival. However, common conservation frameworks easily disregard local cultural and environmental knowledge. Instead, alternative frameworks are needed to alleviate poverty and reach conservation goals. For example, the Ngerengere River Eco Camp (case study 3) believes in sustainable tourism, environmental sustainability, as well as education and the development of

alternate livelihoods. Overall, the four positions outlined by Adams et. al.'s offer no solution to the assumed relationship between protected areas and poverty, but rather lays the framework that allows conservationists to begin addressing conservation concerns among a variety of environmental identities (Robbins, 2012).

Addressing Conservation Concerns

More effective and integrative conservation frameworks than those currently in place may be possible. Addressing the intersections of protected areas and people, scientists, park rangers, conservationists, and community members are key, as Vedeld et. al. (2012) recommend increasing local conservation benefits by developing resource agreements in buffer zones, creating more comprehensive compensation plans, and improving community relationships with park managers and scientists. In order for conservation plans to work stakeholders need to reduce the direct costs of a protected area by developing and implementing solutions with local communities. For example, in Uganda the African Wildlife Foundation is piloting a program that encourages farmers to plant chili peppers around agricultural fields. Not only do the peppers deter elephants and reduce negative human-wildlife interactions, but they also provide another source of income (African Wildlife Foundation , n.d.).

Protected areas can cost local communities essential economic income when tourism and park revenue are funneled to the government instead of households or development programs. Adams and Hutton (2007:161) claim, "Parks tend to reproduce existing economic inequalities within local communities and wider societies". Some conservationists suggest that community-based conservation initiatives can help alleviate poverty and shift negative views of protected areas. Community-based conservation initiatives could not only increase resource availability and park effectiveness but could also reduce the need for illegal extraction inside restricted areas,

including grazing, hunting, and charcoal making (Adams & Hutton, 2007). Just as Robbins' (2012:23) 'Environmental subjects and identities' thesis claims that new environmental actions can lead to "new kinds of people", the creation of environmental identities that value both conservation and local livelihoods can lead to more effective and economically beneficial locally sustained conservation programs.

Another viable solution to the divide between protected areas and people is selective resource extraction within park boundaries. Coupled with community-based conservation initiatives that highlight the value of sustainability, this could become an effective way of integrating community development into conservation outcomes. Though biodiversity conservation is primarily achieved through the establishment of protected areas, when preserving the livelihoods of local communities, parks may not always be the answer.

An Overarching Solution?

Comprehensive community conservation planning is a widely accepted solution among conservationists to effectively preserve biodiversity (Adams & Hulme, 2001). It is also widely accepted that locals need to be included in such conversations in order to address issues surrounding differences in ethnicity, gender, and class (Adams & Hulme, 2001). Protected areas threaten local livelihoods by restricting access to vital resources. Local communities create extensive knowledge sets of the landscapes in which they live, ones that can be highly valuable when conservation developing action plans. However, this knowledge is frequently ignored in favor of scientific methods and results. Community-based conservation programs are a way in which conservationists can extract and respect this localized knowledge, provide economic incentives for conservation, as well as involve local communities in conservation planning.

Community-Based Conservation Campaigns in Tanzania

Approaches to inherently western frameworks of conservation in Tanzania are defined by increasing biodiversity through protected areas. Scientists, conservationists, and park managers are neglecting to include local communities in the conversation claiming that this framework is “incompatible with indigenous conservation models” (Igoe, 2004, p. 10). As a result, conservationists often overlook immediate needs of local communities, as well as their livelihood needs and specialized environmental knowledge. Conservation cannot be effective if community stakeholders are not involved; however, the degree to which local stakeholders should be included is a topic of debate. Despite this, the process of unlearning our entrenched views of conservation is vital to the success of community involvement, the effectiveness of community-based conservation, and poverty alleviation adjacent to protected areas.

What is community conservation?

Some members of local communities hold some of the most intimate knowledge of the landscapes in which they live. Community-based conservation is often the result of the failure of exclusionary conservation (Berkes, 2004). The IUCN Species Survival Commission developed a comprehensive definition for ‘community-based conservation’ at the 1994 World Conservation Union meeting that acknowledges the importance of such experience:

“Community-based conservation seeks to involve people and communities in taking joint responsibility for the sustainable management of wildlife and other natural resources among or close to which they live, and to share in the direct and indirect benefits of its management. The aim of community-based conservation is, on one hand, to promote the development of rural communities living among or close to wildlife and, on the other hand, to promote the legal and sustainable use of that wildlife and other natural resources outside unsettled protected areas. The

underlying objective of community based-conservation is to demonstrate the positive role that wildlife and its habitats can have in land-use planning and in socio-economic development and local, regional, and national levels.” (Leader-Williams, Kayera, & Overton, 1996).

This definition, recognizing the value of community input and rural development, was developed by NGOs and non-profit organizations such as the World Conservation Union (IUCN), African Wildlife Foundation (AWF), World Wildlife Fund (WWF), and The United States Agency for International Development (USAID), and other agencies that have spearheaded community-based conservation around the world (Igoe, 2004). Igoe (2004:103) asks how previous systems of oppression caused by international involvement and focused on the exclusion of local communities, “become the foundation of new approaches premised on their active participation”. He notes that international NGOs at the forefront of community-based conservation can reinforce neocolonial values and intensify marginalization in the areas in which they work. Despite Igoe’s critiques that some individuals are capitalizing on community-based conservation initiatives, the employment of such programs has been widely accepted by conservation scientists to reconcile the goals of conservation and sustainable development.

Adams and Hulme (2001) recognize the value in community-based conservation programs, but also acknowledge that they can be, and become, ineffective. Defining it simply as “the notion that conservation cannot and should not be perused against the interest and wishes of local people” (Adams & Hulme, 2001, p. 193), community-based conservation requires a participatory narrative that involves all willing community and state-level stakeholders. Adams and Hulme (2001) claim that community-based conservation can be the answer to a variety of conservation questions, including reconciling relationships between policy makers and local stakeholders, but it is not the solution to large-scale conservation issues, including, but not

limited to, a lack of charismatic megafauna, lack of tourism, localized dependence on specific ecosystem services, and high resentment and mistrust for conservation.

The employment of community-based conservation initiatives has evolved into spectrum of ideas of how, when, and if to address prevalent conservation issues (Adams & Hulme, 2001). This scale encompasses, on one side, that community-based conservation is established solely to support protected areas (a preservationist perspective) and, on the other side, that wildlife, the environment, and ecosystem services can be utilized to achieve sustainable rural development and poverty alleviation in “places unconnected with protected areas” (an anthropocentric perspective) (Adams & Hulme, 2001, p. 194; Doyle, McEachern, & MacGregor, 2016). In the middle of the spectrum lies the belief that “collaborative management” between state governments, policy makers, NGOs, and local stakeholders is key to successful conservation programs (Adams & Hulme, 2001, p. 194).

The effectiveness of community-based conservation initiatives depends on the scale of execution, as well as local cultural beliefs, economic demands, and environmental needs. Berkes (2004) claims that an individual’s perspective of community-based conservation frameworks is entirely dependent on the differences between anthropocentric and eco-centric worldviews and should be examined while also considering recent paradigm shifts in ecological sciences. Such shifts recognize that we live in a world dominated by humans and that conservationists cannot adequately address these issues through traditional scientific study (Berkes, 2004). The idea of ‘community’ is socially complex and exists is suspended in various scales of operation (Berkes, 2004). For example, dynamic cultural perceptions of gender roles, ethnicity, and class create identities that affect conservation roles and actions. As a result, community-based conservation initiatives can reinforce gender roles, as well, as manifest ethnic and class bias among

stakeholders and communities. It is vital to recognize that conservation is not only a biological science, but also a social science.

Under this assumption, addressing environmental exploitation requires a distribution of authority among international and local institutions and scales because “centralized management is a poor fit for complex systems” (Berkes, 2004, p. 625). This has proven difficult because there is often a mismatch between long-term conservation goals and short term locally rational decisions (Berkes, 2004). Emerging fields of interdisciplinary study, such as political ecology, are developing systems approaches that largely promote solutions beginning at communities, supplemented by government resources and international institutions.

Community-based conservation frameworks can only be effective if national and international policy makers are held accountable for their legislation. Adam and Hulme (2001) claim that policy making institutions need to establish “fair regimes for compensating citizens who suffer hardship for the greater good...” (p. 198). How local communities understand what this “greater good” is can affect cooperation and the ability to demand compensation. Asking community stakeholders to make decisions regarding how they use, extract, and interact with their environment integrates their needs and interests into a greater conservation framework and allows them to contribute to livelihood changes in their communities. Thus, the overarching question is not whether to include local stakeholders in conservation efforts (Adams & Hulme, 2001; Berkes, 2004), but rather how to execute such projects to address the intersectionality of a highly politicized field of study.

Community Conservation & Land Use in Tanzania

Conservation in Tanzania is largely the result of government control of land and wildlife. The government also has extensive influence over land rights and operations, making it very

difficult to receive title deeds for ownership. For example, when government controlled land is allocated, the government maintains the ability to withdraw those land rights at any time. There are two primary types of land occupancy in Tanzania: deemed rights and granted rights (Wanitzek & Sippel, 1998). Deemed rights of occupancy encompass a diversity of systems of landholding, including customary land rights which are reflective of ethnic traditions (single family homes, collective land use, etc.) (Wanitzek & Sippel, 1998). Granted rights of occupancy are determined by statutory law and can be granted by the president (Wanitzek & Sippel, 1998). In Tanzania land it land has historically been believed to be more productively utilized by foreign stakeholders, including conservation organizations, recognized by the national government than local communities (Igoe, 2004, p. 107). As a result, local communities on land not officially recognized or granted by the government puts them at risk of eviction. Pastoral communities in Tanzania whose livelihoods depend on access to large areas of land for grazing cannot maintain low impact livelihoods when multi-use open access systems are gone. This Tanzanian system of land management continues to disproportionately affect low-income Maasai communities who rely on deemed rights of occupancy by making them vulnerable to government decisions regarding land-use and conservation.

Protected areas are not only used for biodiversity conservation, but also to serve government interests to generate revenue through tourism and, as a result, disregard local livelihood activities (Wanitzek & Sippel, 1998). In some cases, community-based conservation initiatives have operated under the assumption that local communities want to undergo economic transformation in order to benefit from the profits of tourism and other internationally profitable markets (Igoe, 2004, p. 29). Though the revenue from tourism is unlikely to offer sufficient compensation for land losses due to the establishment of a protected area (Igoe, 2004). The

following three cases studies discuss how protected areas, common conservation frameworks, and government involvement in conservation have altered how people interact with the environment and how environmental identities are created through the control of and exclusions from environmental systems (Robbins, 2012).

Case Studies

The remainder of this paper will discuss three of the locations I visited during the Field School as case studies of differing and emerging conservation frameworks in Tanzania: Ngorongoro Conservation Area, Longido District, and Ngerengere River Eco-Camp (*Figure 8*). Each of these case study sites includes a recognized Maasai population. Ngorongoro Conservation Area includes a literature review of the impact conservation histories can have on Maasai communities. The Longido District example combines research on Maasai communities in Northern Tanzania with participant observation and interviews to examines how conservation has been used to solve issues of poverty. The Ngerengere River Eco-Camp case study includes research through participant observation, interviews, village visits, and email correspondence and focuses on emerging forms of community-based conservation initiatives in central Tanzania. Furthermore, situating these case studies within Robbins' (2012) five dominant narratives of political ecology enables understanding of social, economic, political, and ecological systems that impact each locale.

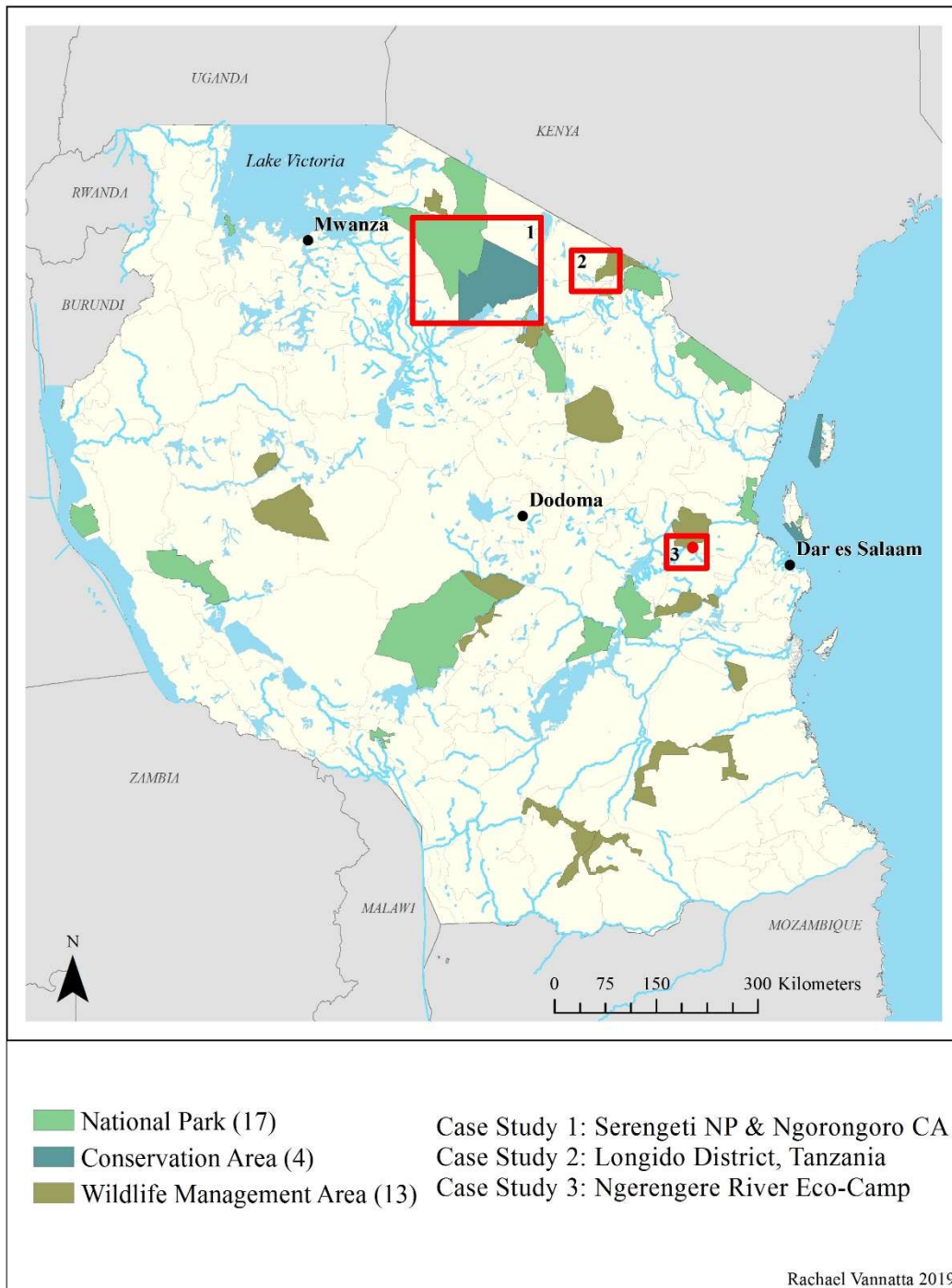


Figure 8: Case Study Overview: Ngorongoro Conservation Area, Longido District, Ngerengere River Eco-Camp. (Source: UNEP-WCMC 2019)

Ngorongoro Conservation Area

Originally gazetted as a part of Serengeti National Park in 1951, Ngorongoro Conservation Area is a classic example of the impact of local histories on conservation (*Figure 10*). The primary goal behind its establishment was to create a space for the “coexistence of humans and wildlife” (Reid, 2012, p. 178). However, Serengeti’s establishment as the first and largest National Park in Tanzania led to the forced relocation of Maasai communities living within its borders to the eastern end of the park. This “coexistence” denied locals access to resources, established prohibitive conservation policies, and provided little to no compensation for economic loss for Maasai pastoralists (Kideghesho, 2008). Soon after its establishment, British stakeholders and the Society for Preservation of Fauna for the Empire decided that the Serengeti ecosystem should only support wildlife to promote the growth of pristine ecosystems, characteristic of exclusionary conservation practices (Reid, 2012, p. 179).



Figure 9: Photograph of Ngorongoro Caldera
(Photo taken by author)

Established as its own conservation area in 1959, Ngorongoro Conservation Area (*figure 9*) was intended to be utilized as a multi-use area for individuals displaced by Serengeti

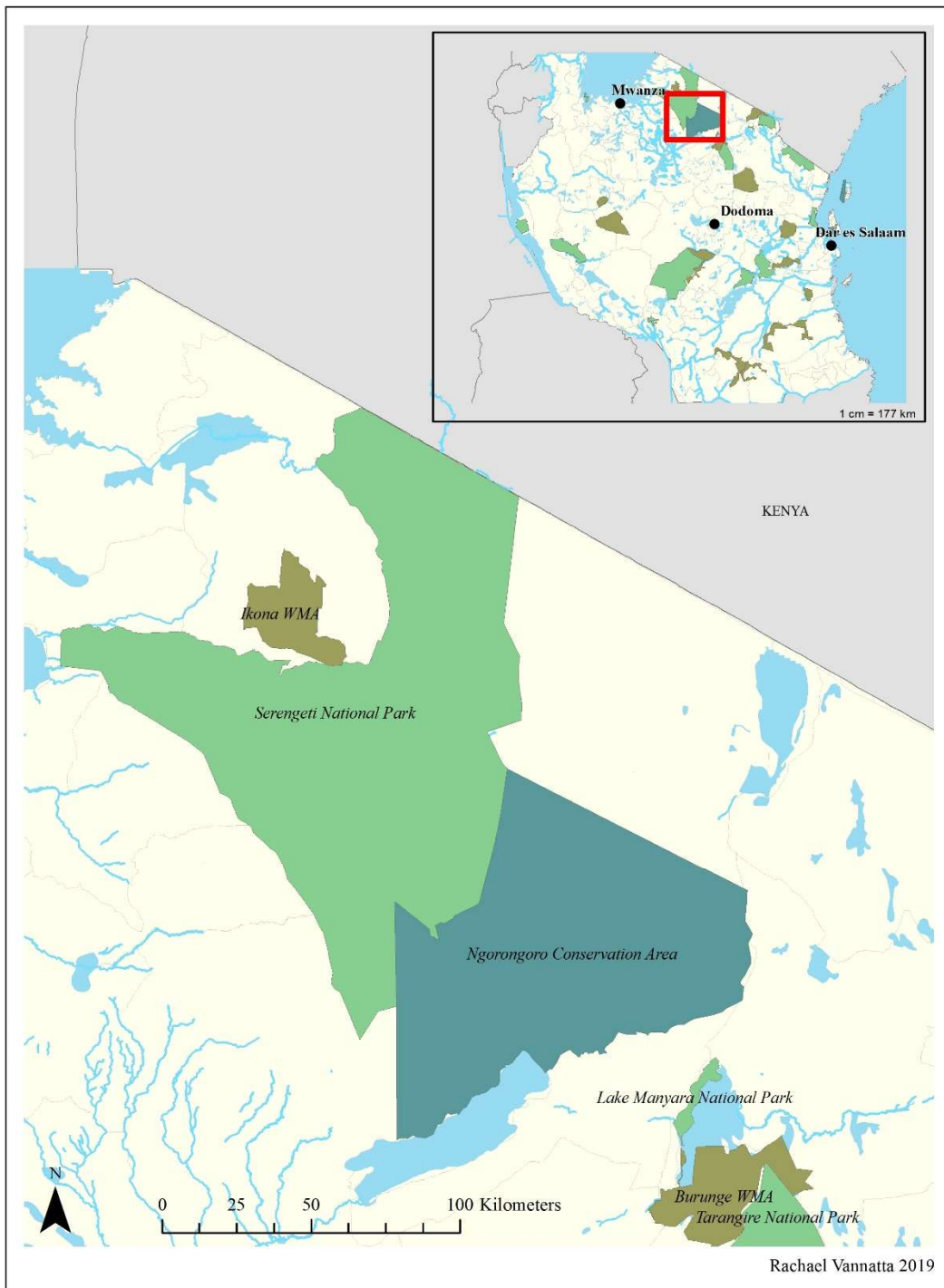


Figure 10: Case Study 1: Ngorongoro Conservation Area (Source: UNEP-WCMC 2019)

National Park, “segregating the landscape” between people and wildlife (Reid, 2012, pp. 178, 179, 231). Ngorongoro was established with a human population of approximately 8,000 (*figure 11*), numbers that have since been grown to approximately 70,000 as of 2012, leading to strained resources, decreasing land, and higher human densities (Melita & Mendlinger, 2013). Maasai communities within the borders of Ngorongoro Conservation Area have no land rights, making it difficult to claim ownership, and cultivating fear of further displacement (Reid, 2012, p. 232). In 1974, the Ngorongoro Conservation Areas Authority prohibited grazing, resource extraction, and residence with the Ngorongoro Caldera, the largest intact caldera in the world, further displacing the livelihood activities of Maasai communities living in the park and creating areas of dense human habitation as issues of population growth were neglected (Reid, 2012, p. 231).

Today Ngorongoro Conservation Area is a UNESCO World Heritage Site (Reid, 2012). Tourist activities and infrastructure in the area have disrupted natural wildlife patterns, increased soil compaction, and place more restrictive land-use policies on local communities. McCabe et. al. (2010) claims that the land-use restrictions within Ngorongoro Conservation Area uniquely affect its residents to the extent that livelihood diversification is necessary for survival. For example, traditional Maasai pastoralism requires large amounts of land to produce a livelihood,

The Impact of Tourism Revenue on the Local Communities' Livelihood:
A Case Study of Ngorongoro Conservation Area, Tanzania

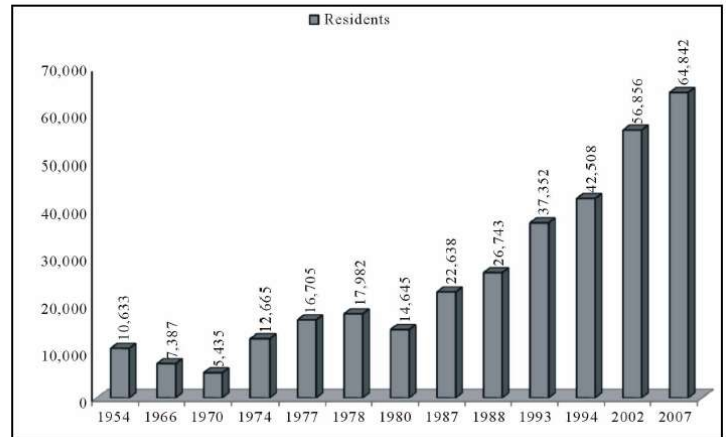


Figure 11: Population Graph of Ngorongoro Conservation Area from 1954 to 2007 (Source: Melita & Mendlinger 2013)

but land use restrictions and population growth in Ngorongoro Conservation Area are forcing Maasai to transition to more diverse means of production.

Only 12% of individuals employed by the NCAA are local residents, and even fewer are Maasai, as a result Maasai communities are disproportionately affected by conservation because they do not receive conservation benefits (Reid, 2012, p. 226). Some communities generate economic revenue through tourism activities, including “traditional” boma tours, security, and petty crafts (Melita & Mendlinger, 2013; Reid, 2012, p. 226). In spite of the economic revenue generated from these activities, they are not always a reliable source of income (Melita & Mendlinger, 2013; Reid, 2012). Families living within Ngorongoro Conservation Area, Maasai and non-Maasai, still must “...live with the costs of wildlife and conservation policy, see huge profits garnered by government and the tourism industry from wildlife, but see basically no increase in their household budgets to lift them out of poverty” (Reid, 2012, p. 226).

Though subsistence agricultural cultivation is not always considered high priority, especially when compared to pastoral livelihoods (Melita & Mendlinger, 2013), the adoption of such is an important aspect of economic security in Ngorongoro Conservation Area (Reid, 2012; McCabe, Leslie, & Deluca, 2010). Using less land than pastoralism, agriculture is a locally rational alternative means of economic income. The expansion to cultivation within Ngorongoro is defined by a number of paradoxes: Maasai were moved from land for the creation of a protected area; however, this merely displaced, instead of eliminated their impact on the landscape. Conflict over land and increasing populations have led some pastoralists to cultivate crops, a more environmental exhaustive extractive industry. However, in August 2009, agriculture was banned in Ngorongoro Conservation Area, though agricultural practices continued to be tolerated because Maasai livelihoods were dependent on it and enforcement was

not a primary concern (UNESCO World Heritage Center, 2019). The ‘degradation and marginalization’ thesis of political ecology explains that this legislation was created to prevent degradation of the environment from local communities (Robbins, 2012). But the potential for banning agriculture created the potential for the further marginalization of local Maasai communities because “...the question of agriculture cannot be dissociated from the question of the livelihood...” (Robbins, 2012; UNESCO World Heritage Center, 2019). According to Reid (2012:233), problematic agricultural cultivation in Ngorongoro “could be phased out...after the livestock economy improves”, but first adaptive and comprehensive plans that provide sustainable economic security in Ngorongoro Conservation Area need to be developed to avoid further degradation of the environment and marginalization of Maasai communities (Robbins, 2012).

Longido District Maasailand, Tanzania

Situated east of Ngorongoro Conservation Area and Serengeti National Park, Longido District is another example of an area in which human-wildlife interactions and marginalization are prevalent in Northern Tanzania (*figures 12 & 13*). A cool and arid region with a large Maasai population occupying approximately 9,229 sq. kilometers, many individuals in this area own livestock, characteristic of Maasai livelihoods, and live below the poverty line because livestock holdings are not evenly distributed among residents (Homewood, Kristjanson, & Trench, 2009). Small-scale agricultural production in this area is the result of in-migration and livelihood diversification; however, it is constrained by wildlife damage and a non-productive climate (Homewood, Kristjanson, & Trench, 2009).



Figure 12: Mount Longido overlooking livestock in Maasai boma

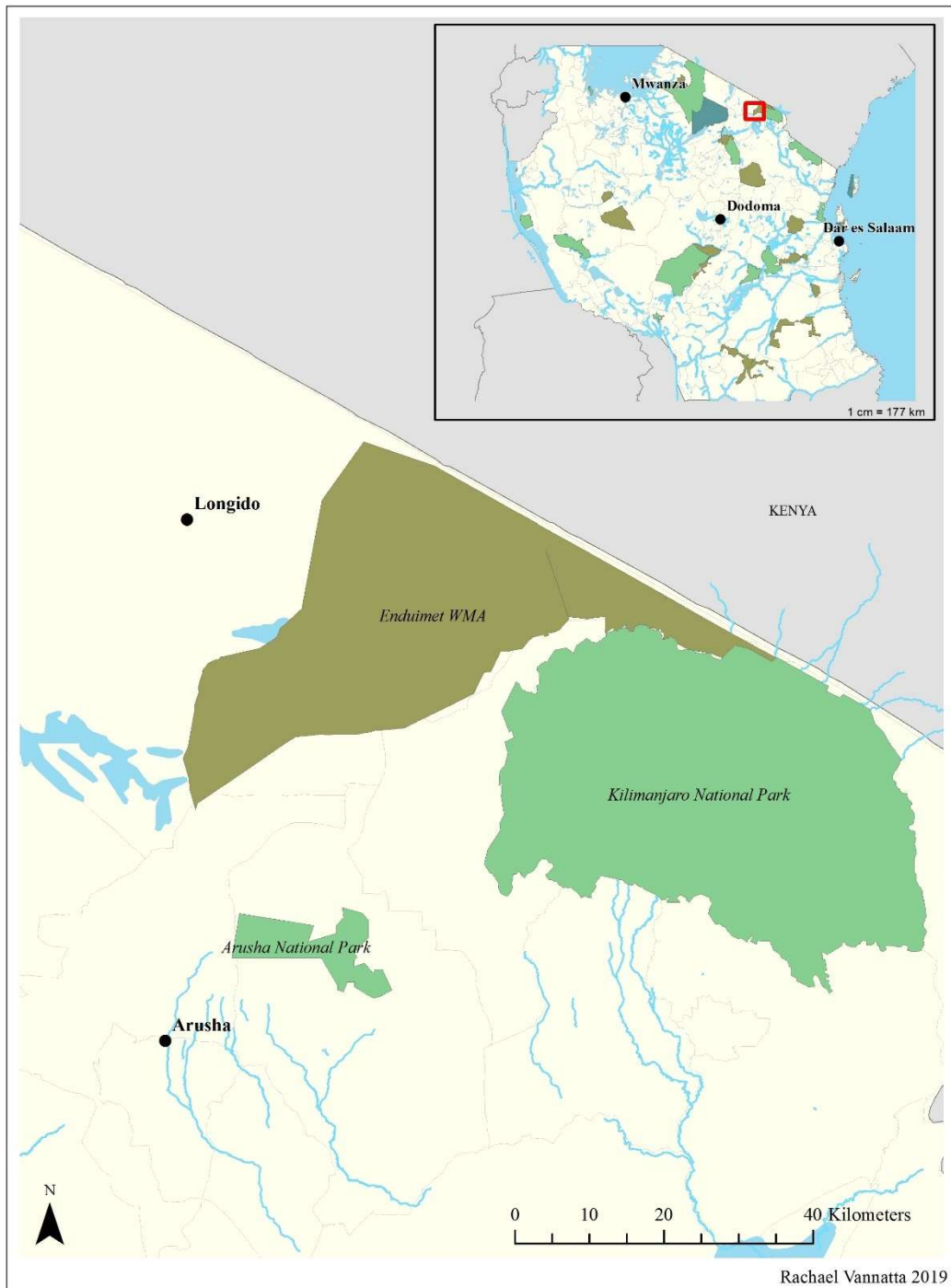


Figure 13: Case Study 2: Longido District (Source: UNEP-WCMC 2019)

Unlike Ngorongoro Conservation Area, that has high tourist potential, Longido District has low tourist potential and little prospect for community-based conservation due to low concentrations of charismatic megafauna (Homewood, Kristjanson, & Trench, 2009).

Longido District is comprised of some remnant *Ujamaa* villages, established from Maasai displacement throughout Nyerere's implementation of his villagization program, where individuals were moved from rural areas to government assigned villages (Homewood, Kristjanson, & Trench, 2009). After the collapse of Nyerere's villagization plan, Maasai communities living in the Longido area began allocating land to outsiders, creating a township named capital of the district in 2007. Services are concentrated in Longido-town, located at the base of Mount Longido, close to the Kenyan border (Homewood, Kristjanson, & Trench, 2009). Presently, increasing population is pressuring the township to expand, which would encroach on designated Maasai grazing areas. Privatization of land also threatens Maasai livelihoods by degrading established open access multi-use systems and restricting land use throughout the District.

Emerging social and economic tensions in the region have led some to believe the solution is the creation of a Wildlife Management Area (WMA), intended to include local communities in conservation initiatives, generate conservation revenue, and provide compensation to Maasai communities involved in local conservation and tourist industries. What sets this case study apart from the Ngorongoro Conservation Area example is that poverty and human-wildlife interactions are not being caused by conservation, but rather conservation is being utilized to try and solve issues of poverty and conflict in and around Longido. Homewood et. al. (2009), prominent researchers in the region analyzed the impact of the WMA's creation, known as Enduimet, on certain villages in Longido District. Prior to its establishment in 2007,

collective village incomes from conservation were acquired via agreements with independent safari companies. Households benefitted directly from conservation tourism through this exchange, as well as the sale of petty goods. Though wealth in Maasai culture is primarily associated with livestock acquisition and maintenance, villages were diversifying to secure more reliable sources of income, therefore the establishment of Enduimet WMA was well-received by surrounding communities as an alternate livelihood activity (Homewood, Kristjanson, & Trench, 2009). Revenue from tourism, parks fees, campsites, and safaris, in Enduimet have helped to create “economically valuable” resources that seek to benefit local communities (Homewood, Kristjanson, & Trench, 2009, p. 22).

The gazettement of Enduimet WMA adjacent to Longido communities was justified through the creation of local land rights, giving communities the responsibility to maintain land viability, generate economic revenue, and social and economic incentives to conserve the landscape. Contrary to the original goals of the WMA, the failure of the program to adapt such conservation frameworks to pastoralist lifestyles has resulted in centralization of authority (Homewood, Kristjanson, & Trench, 2009). Instead of being funneled directly to villages, fees from local tourist and conservation activities were sent to a main office in Dar es Salaam, Tanzania and returned to communities at the discretion of more powerful stakeholders, centralizing power and discouraging local communities from participating in conservation (Homewood, Kristjanson, & Trench, 2009).

The summer of 2018, I spent a week in Longido-town, with three days in a nearby Maasai homestay, where I participated in daily rituals and forged connections with my host family, who lived in a boma about an hour’s walk from the main road. Participating in routine behaviors helped me better understand livelihoods and connectiveness in the community,

including how Maasai interact with the environment. Participating in regular, subsistence-oriented human-environment interactions, such as grazing livestock and gathering water, helped me appreciate the potential for improving conservation approaches in the region.

The homestead in which I stayed was part of a larger, familial, network of bomas at the base of Mount Longido. My Maasai mama and her husband owned twenty sheep and goats, along with eight cattle, grazed interchangeably by their youngest daughter, the husband, or hired herders. A common grazing area was maintained for the nearby cluster of bomas; however, the widespread presence of invasive plant species made reliable subsistence grazing difficult (*figure 14*).

Individuals in familial bomas closer to the main road tended to graze their livestock on the more abundant, nutritious grasses of Mount Longido, a forest reserve where extraction is illegal. My homestay mother

described that in the dry season they sometimes

grazed in Simanjaro District near Tarangire National Park, which maintains higher concentrations of nutrient rich plant material, despite the legal and economic risks of traveling to graze in protected areas. My Maasai mama has limited knowledge of Longido Forest Reserve and Tarangire National Park, she does not understand or personally interact with those protected areas. Nor did she mention Enduimet WMA, though that may have been because resource extraction within its borders is not prohibited, therefore the park did not generate the social and economic push-back of more exclusionary conservation frameworks, such as Ngorongoro Conservation Area. Interactions with wildlife, such as giraffes, elephants, ostriches, gazelles, hyenas, and lions are common for members of this community. As noted above, lions in this



Figure 14: Mount Longido overlooking low-lying invasive plant species (Photo courtesy of Austen Linder)

community are hunted for sport and retaliation for livestock deaths, often a source of pride for Maasai warriors, but not further information was reported on changes in hunting behaviors during droughts or other economic hardships.

Livelihood diversification in my homestay community, though limited, is important for families with small herds, especially considering the economic risk of losing even one productive animal. Some individuals have become involved in the petty trade of goods and services in Longido town, either to residents or to tourists, though these enterprises are minimally productive (Homewood, Kristjanson, & Trench, 2009). The boma in which I stayed, however, had established a relatively profitable phone charging station. Situated on their tin roofed guest house were solar panels, from which energy was harnessed to charge mobile phones. Simple, durable cell phones are useful herding tools, as people communicate about wildlife whereabouts and. Furthermore, cell phones are used for mobile banking. Being able to receive and transfer funds rapidly and electronically has been one of the landmark features of cellular technology in rural Tanzania. Despite the small amount of livestock owned by my host family activities such as cell phone charging offer diverse means of income, should something negatively impact their livestock.

Trench et. al. (Homewood, Kristjanson, & Trench, 2009) claim that for positive economic and ecological developments to occur in Longido District, larger stakeholders need to recognize livestock as a viable source of wealth and income. Conservation efforts, such as Enduimet WMA, "...need to build on the continued coexistence of livestock and wildlife in these areas and recognize that wildlife management practices which do not adopt themselves to pastoralist land-use systems will not be acceptable or feasible in such settings" (Homewood, Kristjanson, & Trench, 2009, p. 254). In order to achieve this, more initiatives acknowledging

the economic value of pastoralism need to be created to secure frameworks for community development and conservation, because conservation cannot occur successfully if it doesn't acknowledge and integrate local livelihoods and wellbeing.

In addition to disregarding pastoralist lifestyles, conservation initiatives among communities such as Longido that have little prior knowledge of or interaction with conservation can hinder long-term conservation goals. Contextualized within previous ethnographic studies, it is important to recognize the implications that local knowledge of the landscape (or lack thereof) and cultural values have on community outreach, conservation, wildlife interactions, economic earnings, and how outside stakeholders interact with these complex systems. Without this input the conservation of the landscape while maintaining the livelihoods of local communities is nearly impossible.

Ngerengere River Eco-Camp

Ngerengere River Eco-Camp (*figure 15*) seeks to mediate issues of poverty and human-wildlife interaction, while also attempting to avoid the power dynamics associated with the creation and maintenance of a protected area. This case study addresses new and emerging issues of community, conservation, and conflict, tensions that have been present in Tanzania for centuries, but occurring within a relatively short timeframe. This timeframe, approximately thirteen years, demonstrates the short-term impacts of unregulated land-use on environmental systems. Presently there



Figure 15: Main community space at Ngerengere River Eco-Camp (Photo courtesy of Dane Hulseley)

is no existing peer-reviewed literature about the Ngerengere River Eco-Camp, as it is a relatively

new endeavor. Still, its thirteen years of existence already highlight how locally rational decisions can have unintended consequences. I also maintain a limited knowledge of and access to information from this region, so the claims present in this case study represent personal experiences, villages visits, and email correspondence with the camp owner.

Nestled along the bank of the Ngerengere River in Central Tanzania, the Ngerengere River Eco-Camp, also known as NGERIV, was established by Remigius Mushenga (also known as Remmy, *figure 16*) in 2006 and was officially recognized as a non-governmental organization



Figure 16: Remigius Mushenga, aka Remmy (Source: NGERIV website)

by the Tanzanian government in 2009. Despite the difficulty of acquiring land rights, the camp owns 100 acres of land on one side of the Ngerengere River, purchased from the local government. The land surrounding NGERIV, has only been populated over approximately the past thirteen years by agriculturalists and Maasai pastoralists. Individuals and families not

traditionally from the area are establishing power hierarchies according to how long they have lived there.

East of NGERIV is Wami Mbiki Wildlife Management Area (*figure 17*), established in 2007 as a community driven conservation area, one year after NGERIV was created (NGERIV, n.d.; UNEP-WCMC, 2019). Prior to the WMA's establishment, the area was open, state land with no legally recognized land rights. Lack of environmental legislation and protected area enforcement enabled poachers to hunt in the area, a well-known wildlife corridor. The gazettelement of this WMA, adjacent to NGERIV and village land, according to Remmy will



Figure 17: Case Study 3: Ngerengere River Eco-camp (Source: UNEP-WCMC 2019)

strengthen the local economy. The structure of the WMA management strategies will allegedly allow local stakeholders to develop tourism, infrastructure, and control over entrance fees. The income generated from these activities will be used for local infrastructure and health projects. Such endeavors can be risky because, as seen by the establishment of Enduimet WMA in Longido District the integration of common conservation frameworks for community-based conservation can result in conservation failure by enforcing power dynamics. Perhaps the coevolution of Wami Mbiki WMA, local communities, and NGERIV will allow conservation and sustainable development to be better integrated into local social, economic, political, and environmental frameworks. Unlike in Longido district, where pastoralism is the primary source of income among Maasai, Wami Mbiki WMA could present more flexibility in such conservation initiatives.

The establishment of the growing Ngerengere community in land adjacent to a WMA has led to the destruction of wildlife corridors, created conflict with displaced wildlife populations, and restricted land availability. Clashes between agriculturalists and pastoralists, including crop damage from cattle, is a source of tension among these groups, especially with the recent influx of Maasai to the Ngerengere area. Due to the ambiguity of land-use and land ownership in this region, these disputes are difficult to assess and solve. According to Remmy villages lands are divided between pastoral and agricultural livelihoods but borders are not demarcated by clear physical markers, instead boundary recognition between livelihood occupations is determined by local enforcement and natural landmarks, both of which can be disputed.

Inconsistent enforcement and knowledge of land-use boundaries have created conflict between agriculturalists and pastoralists. Agriculturalists fear crop damage caused by cattle and pastoralists fear injury from farmer retaliation. The Wambulu homestead, a short walk from

NGERIV, is trying to mitigate these concerns through economic diversification through crop production, maize processing and some livestock keeping. Taking control of diverse livelihood skills and activities provides a more economically secure form of living that decreases the impact of the social and environmental risks of human-livestock interactions on their homestead.

Another resident of the community owns no livestock. ‘Nymba ya Vioo’, or house of glass, is surrounded by gardens and maize fields. He moved from Dar es Salaam to the Ngerengere area in order to support his family, who continues to live in the city. He told us a story about his mango tree, how it was destroyed by livestock, and the drawbacks of local compensation, determined by negotiations between the farmer, the owner of the cow, and a local agricultural officer. A mango tree does not yield fruit for the first five years of cultivation. If, once the mango tree begins producing fruit, livestock owned by a pastoralist destroys it, then there is a loss that current compensation programs don’t adequately cover. The immediate financial loss of an anticipated harvest and the multi-year delay of getting another mango tree to the age that bears fruit can create economic hardship. Taking control of the means of production, as done by the Wambulu homestead, can be one solution to mitigating economic losses caused by conflicts between animals and people as in the case of the mango tree; however, this is not always economically or socially possible.

In addition to economic tensions between agriculturalists and pastoralists, widespread environmental degradation has been decreasing the productivity of the land. Movement to the area has resulted in decreased landcover (*Figure 18*),

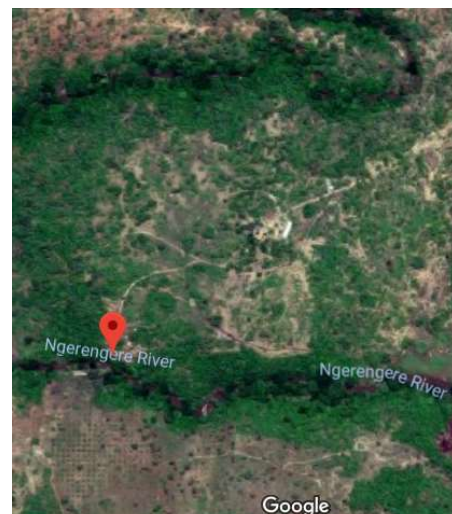


Figure 18: A 2019 satellite image of Ngerengere River Eco-Camp showing the on-going deforestation and decreased landcover in the area. (Source: Google Earth)

pollution, and soil compaction as area has been created for pasture, agriculture, and charcoal production. Through his NGO, Remmy is trying to mediate persisting conflicts, partially caused by these environmental problems, by implementing programs that promote sustainability and environmental awareness among residents. Creating additional sources of income, including beekeeping, sustainable charcoal making, and instituting adult education programs, can significantly reduce the economic risk of traditional local livelihoods.

Efforts thus far from Remmy and NGERIV seem to be developing quickly. In an email correspondence with him, I received updates on community initiatives to address issues of environmental degradation and economic tensions. In February 2019 a village general assembly was held to explicitly address tensions between pastoralists and farmers in order to develop long-term solutions. Through this, a 21-person committee of highly respected individuals was formed, with Remmy elected as the head.

Since the initial February 2019 general assembly meeting, a set of rules and guidelines have been determined by the elected committee to outline responsibilities and define power within the community, before any action is taken. They are as follows:

- » Members of the committee maintain the authority to move freely throughout the land being monitored in order to define land-use boundaries
- » Members of the committee maintain the right to question or interview any individual in the community to gather information on the land being monitored
- » Members of the committee maintain the authority to suggest and demarcate areas where boundaries between farmers and pastoralists should be drawn
- » Members of the committee maintain the right to debate decisions and vote during committee meetings

- » Any decision proposed by members of the committee must pass by a majority vote in the committee

The outlined rules and guidelines were the precursor to ongoing observations conducted by Remmy and other committee members on the use and occupation of village land.

- » Cows often graze close to farms due to the nearby water availability from the Ngerengere River, which increases the likelihood that farmers and pastoralists interact and clash.
- » There is a large swath of land near the village boundary, adjacent to the WMA, that is unused due to its distance from a reliable water source because cattle must water mid-day, while grazing.
- » The installation of a permanent water source in the area may encourage pastoralists to utilize areas not tied up in other livelihoods.

These suggestions and observations are an important step forward in developing reliable and effective solutions to the ethnic conflict and human-livestock interactions in the Ngerengere area. Communal cooperation and collaboration are vital to successful outcomes. However, in there is little discussion of conservation initiatives intended to restore land, despite its continued use. For example, the construction of a man-made body of water intended for community use adjacent to the WMA could result in desertification and resource decline due to the overuse of this common area. Stagnant water separate from the Ngerengere River could also become a breeding ground for malaria carrying mosquitoes, resulting in widespread public health issues.

Remmy's approach to mediating ethnic and environmental conflict in the Ngerengere area reflects the conservationist perspective described by Doyle and MacGregor (2016), in that

resource use should be regulated in order to maintain those resources for future generations. His desire for environmental inclusion, rather than exclusion, is exhibited through his attempts at creating local environmental identities that understand the impacts that humans can have on the environment and the impacts that the environment can have on humans (Robbins, 2012). He does this through promoting collective community decision-making and improvements in economic well-being. Knowledge of the complex interactions between a variety of human-and non-human actors in the Ngerengere area, the influence of Remmy's conservationist perspective, and the integration of community input are all ways in which conservation frameworks can be adapted to local livelihoods. Though the outcomes of these actions are still not apparent, operating outside of the common conservation frameworks described in the first two case studies may create more effective conservation initiatives.

Discussion: Case Studies Contextualized within Political Ecology

The case studies reviewed in this paper represent a wide range of conservation frameworks, tying into many of Paul Robbins' five theses on political ecology and forming complex socio-environmental interactions amplified by population growth (Robbins, 2012; Ehrlich & Holdren, 1971). Environmental conflict, exclusion, and control throughout each of the three case studies has created different environmental identities among a wide variety of local, national, and international stakeholders (Robbins, 2012). These political, power-laden frameworks often resonate with the colonizer-colonized relationships that emerged in East Africa in the early 20th century (Robbins, 2012; Doyle, McEachern, & MacGregor, 2016; Coulson, 2013).

Exclusions and restrictions in the Ngorongoro Ecosystems are largely the result of decreased land availability within the Ngorongoro Conservation Area (case study 1), due to

population growth, conservation, and tourism activities (Robbins, 2012; Reid, 2012). Power-laden relationships between park officials, tourists, conservationists, and local communities in this region forces the emergence of new types of political and environmental identities linked to “basic issues of livelihood and environmental activity” that alter the role of human and non-human actors on the landscape (Doyle, McEachern, & MacGregor, 2016; Reid, 2012; Robbins, 2012, p. 22). The control of the land for the purposes of conservation has reduced local environmental access and displaced Maasai communities and livelihoods, leading to locally rational decisions, such as agriculture, that require less land but more extensive land-use and often disregard environmental legislation (Robbins, 2012; Reid, 2012). Subsequent disputes over land rights and extractive activities in this region have (re)produced environmental conflicts and negative interactions between different classes of human and non-human actors, further undermining the economic security of communities living within Ngorongoro Conservation Area (Robbins, 2012; Doyle, McEachern, & MacGregor, 2016; Reid, 2012). For example, the exclusion of local communities from the Ngorongoro caldera has created a divide between economic extraction and environmental extraction, where the former is accepted, and the latter is not. In this sense, national and international stakeholders generating profits from the Conservation Area (economic extraction) via tourism have created and commodified a landscape that discredits local Maasai livelihoods (environmental extraction for livelihood use). Though neither of these practices are inherently bad, the scales at which they are operating in Ngorongoro are creating new communal identities that transcend traditional subsistence pastoralist practices and damage the environment (Doyle, McEachern, & MacGregor, 2016; Robbins, 2012).

In Longido District (case study 2), poverty is not being exacerbated by exclusionary conservation practices, such as in Ngorongoro, but rather protected areas and conservation frameworks are being used to address issues of poverty. The gazettement of Enduimet WMA in Longido was used as a means of addressing marginalization, poverty, and environmental degradation among growing Maasai communities in Longido, without the intention of causing them (Homewood, Kristjanson, & Trench, 2009). However, the use of common conservation frameworks in community-based conservation initiatives have reinforced centralized power characteristic of top-down conservation via revenue distribution and varied community involvement, creating new local identities in the process (Homewood, Kristjanson, & Trench, 2009). Control of the WMA was intended to be distributed to local communities in Longido District but attempts at developing “new” methods for community conservation ultimately failed because they continued to operate within existing conservation frameworks, ignoring the value of low-impact pastoralist systems and local environmental knowledge (Homewood, Kristjanson, & Trench, 2009).

Maasai livelihoods are tethered to the landscape in complex systems that foster the dependence of humans on non-human actors (Robbins, 2012). Maasai are largely reliant on the landscapes in which they live for grazing areas, firewood, building materials, and other ecosystem services. The importance of livestock in Maasai culture drives locally rational social, economic, and political decision making, including where to graze, number of children, economic diversification, retaliatory killings, and accepting or rejecting new forms of conservation. Pressure from the creation of Enduimet WMA led some communities in Longido District to identify as actors in conservation, at the prospect of economic gain and diversification, ranging from selling jewelry or partnering with Safari companies (Homewood, Kristjanson, &

Trench, 2009; Robbins, 2012). Evolving interactions of human and non-human actors through population growth, environmental degradation, and tourist and conservation potential in Longido have altered environmental identities and (re)defined community roles (Robbins, 2012). The complex systems in which Longido's Maasai communities operate are often reflective of the landscapes with which they live and interact, where short-term locally rational decisions overshadow and undermine long-term conservation goals and dominate social, economic, and political activities. As a result, such landscapes need to be preserved both for their inherent ecological value and livelihood uses, because these systems are inevitably intertwined.

Rapid degradation of Tanzanian landscapes characteristic of the impact of population growth on the landscape and the degradation of common lands manifest at Ngerengere River Eco-Camp where these relationships have led to negative human-livestock interactions and land-rights disputes (Ehrlich & Holdren, 1971; Hardin, 1968). Though residents of this community are not actively marginalized by a larger national or international stakeholder, despite the adjacent WMA, migration to the areas was most likely the result of marginalization elsewhere. Despite this distinction, ethnic groups in the Ngerengere community are marginalizing each other through conflict created by livelihoods activities (e.g. pastoralism vs. agriculture), environmental degradation (e.g. soil compaction, decreased forest cover), and a loss of ecosystem services (e.g. water scarcity).

Environmental conflict in this community often arises from a lack of understanding the interactions between pastoralism, agriculture, and the environment, or the dynamic processes that connect and define them. Hostility between livelihoods groups fuels ethnic tensions over land rights and economic responsibility that are amplified by growing populations. The exclusion of individuals from certain tracts of land because of their ethnicity, livelihood, or claim to the land –

all issues related to class – has created a sort of co-marginalization among community members in which their economic and environmental actions intensify preexisting cycles of poverty (Robbins, 2012). Conservationist identities in this area, spearheaded by NGERIV, are not driven by the protection of biodiversity, but rather attempt to preserve human livelihoods and interactions (Doyle, McEachern, & MacGregor, 2016). The goal of Ngerengere River Eco-Camp, as a non-governmental organization, is not to consolidate and control the areas for conservation, but rather empower residents by allowing them to understand the complexity and consequences of their livelihoods on the landscape (Robbins, 2012).

The creation and maintenance of environmental identities through the conservation and control of the landscape manifests in these case studies in vastly different ways, acknowledging the inherent complexity in addressing overarching conservation issues and goals (Robbins, 2012). Each of these three case studies shows that a one-size-fits-all protected area framework is not equipped to address the complex socio-environmental issues that arise as a result of population growth and constant environmental change. Instead, there is no single “technical solution” to these inherently political and power-laden interactions, making it difficult to develop conservation initiatives that are able to provide social, economic, political, and environmental frameworks that adequately address the impacts of growing populations, increasing gaps in affluence, and technological advances (Hardin, 1968, p. 1243; Doyle, McEachern, & MacGregor, 2016; Robbins, 2012; Ehrlich & Holdren, 1971).

Conclusions

The social, economic, and political history of Tanzania has a profound impact on how local communities interact and identify with their environment. Colonial intervention initiated the creation of protected areas in German and British East Africa, restricting land use among

local communities under the guise of conservation, reinforcing damaging colonizer-colonized relationships (Coulson, 2013). Forced relocation of people to less productive land for the creation of game reserves resulted in poverty and marginalization of many local communities, including Maasai pastoralists (Mkumbukwa, 2009; Reid, 2012; Robbins, 2012). The implementation of Nyerere's *Ujamaa* socialist policies throughout the 1960s continued to displace people as they congregated in government assigned villages throughout the Tanzanian landscape (Coulson, 2013; Homewood, Kristjanson, & Trench, 2009).

Tanganyika's independence (1961) and unification with Zanzibar (1963) centralized environmental legislation within the new Tanzanian government, though a general lack of community integration into these initiatives has continued to undermine the intentions of such environmental policies (Mkumbukwa, 2009). As existing environmental legislation in many post-colonial countries often lacks the resources for enforcement, global conservation organizations such as the IUCN have created international categories for protected areas to provide management frameworks and objectives (IUCN, 2008; IUCN, n.d.). The maintenance and creation of such areas, modeled after colonial era top-down exclusionary conservation frameworks, (re)produces relatively high levels of poverty and negative human-wildlife interactions adjacent to and within protected area borders, undermining local livelihood activities (Brockington & Wilkie, 2015; Robbins, 2012; Newmark, Manyaza, Gamassa, & Sariko, 1994).

Despite poor implementation, protected areas are vital to the preservation of a landscape from unsustainable human extraction. Exponential population growth in rural areas of Tanzania has continued to degrade landscapes, displace people, initiate land conflicts, decrease resource availability, and perpetuate cycles of marginalization. The expansion of people into previously uninhabited land, such as in Ngerengere River Eco-Camp, amplifies the consequences of locally

rational decisions on the environment, short term actions based on a limited knowledge of the environment and needs for survival. International non-profits and NGOs are attempting to reconcile issues of parks and people through the implementation of community-based conservation initiatives, to varying degrees of success.

The case studies reviewed in this paper exhibit important conservation viewpoints and concepts throughout different landscapes, including poverty, human-wildlife interactions, and community-based conservation. The coevolution of protected areas and people contributes to the effectiveness and scale of specific conservation initiatives, highlighting their ability, or inability, to properly address urgent conservation needs. Ethnic and class divisions among growing rural Tanzanian communities are beginning to shift the focus of conservation programs in order to better assess how community actions are embedded with environmental systems. Case studies at Ngorongoro Conservation Area, Longido District, and Ngerengere River Eco-camp offer a framework through which we can look at a variety of complex ethnic, class, gender, and environmental issues. Analyzing them through the lens of political ecology allows for the assessment of the success of specific programs, as well as how to implement subsequent environmental action.

Protected areas have conservation value in Tanzania, but the maintenance of exclusionary conservation frameworks throughout the country disregard local environmental identities and undermine the protection of biodiversity (Robbins, 2012). Current conservation frameworks are ill-equipped to address both dynamic and human environmental systems, especially with the demands of growing populations (Ehrlich & Holdren, 1971; Hardin, 1968). Reducing population growth is not readily discussed in the context of conservation, but instituting public health initiatives, such as family planning, can make communities healthier and ecosystems more

productive, providing more secure resource access for subsistence communities, such as Maasai pastoralists, to rely on.

In order to do this there needs to be a paradigm shift that recognize the value of local social, economic, political, and environmental objectives and integrates local communities into the active conservation of land, including recognizing the impact that population growth has on these landscapes (Watson, Dudley, Segan, & Hockings, 2014). There needs to be a common conservation framework independent of traditional western values, because post-colonial conservation will not be effective in people do not know what it is and cannot benefit from it (Doyle, McEachern, & MacGregor, 2016; USAID, 2013). People and wildlife are irrevocably intertwined through livelihood interactions and ecosystem services, so it is vital to understand community attitudes towards conservation and how protected areas affect these relationships before comprehensive plans for conservation, sustainable rural development, public health can be created (Reid, 2012).

Bibliography

- Adams, W. M., & Hutton, J. (2007). People, Parks, and Poverty: Political Ecology and Biodiversity Conservation. *Conservation and Society*, 5, 147-183.
- Adams, W. M., Aveling, R., Brockington, D., Dickson, B., Elliot, J., Hutton, J., . . . Wolmer, W. (2004). Biodiversity Conservation and the Eradication of Poverty. *Science*, 306, 1146-1149.
- Adams, W., & Hulme, D. (2001). If community conservation is the answer in Africa, what is the question? *Oryx*, 193-200.
- African Wildlife Foundation . (n.d.). *Uganda*. Retrieved from African Wildlife Foundation : <https://www.awf.org/country/uganda>
- Baillie, J., & Zhang, Y.-P. (2018, September 14). Space for Nature. *Science*, 361(6407), 1051.
- Barua, M., Bhagwat, S. A., & Jadhav, S. (2013). The hidden dimensions of human-wildlife conflict: Health impacts, opportunity and transaction costs. *Biological Conservation*, 309-316.
- Berkes, F. (2004). Rethinking Community Conservation. *Conservation Biology*, 18(3), 621-630.
- Bonner, R. (1993). *At the Hand of Man: Peril and Hope for Africa's Wildlife*. New York: Alfred A. Knopf, Inc.
- Brockington, D., & Igoe, J. (2006). Eviction for Conservation: A Global Overview. *Conservation and Society*, 4(3), 424-470.
- Brockington, D., & Wilkie, D. (2015). Protected Areas and Poverty . *Philosophical Transactions B*, 1-6.
- Brockington, D., Igoe, J., & Schmidt-Soltan, K. (2006). Conservation, Human Rights, and Poverty reduction. *Conservation Biology*, 20(1), 250-252.
- Bruner, A. G., Gullison, R. E., Rice, R. E., & da Fonseca, G. A. (2001). Effectiveness of Parks in Protecting Tropical Biodiversity. *Science*, 291, 125-128.
- Bryceson, D. F., & Ingham, K. (2018, September 7). *Tanzania*. Retrieved from Encyclopedia Britannica: <https://www.britannica.com/place/Tanzania/History>
- Chape, S., Harrison, J., Spalding, M., & Lysenko, I. (2005). Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets. *Philosophical Transactions of the Royal Society* , 443-455.
- Coffman, J. E. (2007). Wildlife . In P. Robbins, *Encyclopedia of Environment and Society* . SAGE Publications.
- Coulson, A. (2013). *Tanzania: A Political Economy* (2nd ed.). Oxford, United Kingdom: Oxford University Press.
- Daley, J. (2018, May 25). *Humans Make Up Just 1/10,000 of Earth's Biomass*. Retrieved from SMARTNEWS: <https://www.smithsonianmag.com/smart-news/humans-make-110000th-earths-biomass-180969141/>

- DeFries, R., Hanson, A., Turner, B., Reid, R., & Liu, J. (2007). Land Use Change Around Protected Areas: Management to balance human needs and ecological function. *Ecological Applications*, 2031-1038.
- Dickman, A. (2010). Complexities of conflict: the importance of considering social factors for effectively resolving human-wildlife conflict. *Animal Conservation*, 459-466.
- Doyle, T., McEachern, D., & MacGregor, S. (2016). *Environment and Politics*. London: Routledge, Taylor & Francis Group.
- Ehrlich, P. R., & Holdren, J. P. (1971). Impact of Population Growth. *Science*, 1212-1217.
- Flora and Fauna International. (n.d.). *About Us: Learn more about our values, our people, and our achievements*. Retrieved from Flora and Fauna International: <https://www.fauna-flora.org/about>
- Geldman, J., Barnes, M., Coad, L., Craigie, I. D., Hockings, M., & Burgess, N. D. (2013). Effectiveness of terrestrial protected areas in reducing habitat loss and population declines. *Biological Conservation*, 230-238.
- Goldstein, G. (2005). The Legal System and Wildlife Conservation: History and the Law's Effect on Indigenous People and Community Conservation in Tanzania. *The Georgetown International Environmental Law Review*, 481-515.
- Guardians, L. (2008). *Building Better Bomas*. Retrieved from Lion Guardians: <http://lionguardians.org/building-better-bomas/>
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 1243-1248.
- Homewood, K., Kristjanson, P., & Trench, P. C. (2009). *Staying Maasai?: Livelihoods, Conservation and Development in East African Rangelands*. London: Springer.
- Igoe, J. (2004). *Conservation and Globalization: A Study of National Parks and Indigenous Communities from East Africa to South Dakota*. Denver: Wadsworth/Thomson Learning.
- IUCN. (2008). *Protected Areas*. Retrieved from International Union for Conservation of Nature: <https://www.iucn.org/theme/protected-areas/about>
- IUCN. (n.d.). *Protected Area Categories*. Retrieved from International Union for Conservation of Nature: <https://www.iucn.org/theme/protected-areas/about/protected-area-categories>
- IUCN: World Commission on Environmental Law. (2019). *How We Engage*. Retrieved from IUCN: <https://www.iucn.org/commissions/world-commission-environmental-law>
- Jones, K. R., Venter, O., Fuller, R. A., Allan, J. R., Maxwell, S. R., Negret, P. J., & Watson, J. E. (2018). One-third of global protected land is under intense human pressure. *Science*, 788-791.
- Kangalawe, R. Y., & Noe, C. (2012). Biodiversity conservation and poverty alleviation in Namtumbo District, Tanzania. *Agriculture, Ecosystems, and Environment*, 90-100.

- Kideghesho, J. R. (2008). Co-existence between the traditional societies and wildlife in western Serengeti, Tanzania: its relevancy in contemporary wildlife conservation efforts. *Biodiversity Conservation*, 1861-1881.
- Kissui, B. (2008). Livestock predation by lions, leopards, spotted hyenas, and their vulnerability to retaliatory killing in the Maasai steppe, Tanzania. *Animal Conservation*, 422-432.
- Leader-Williams, N., Kayera, J., & Overton, G. (1996). *Community-based Conservation in Tanzania*. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Lele, S., Wilshusen, P., Brockington, D., Seidler, R., & Bawa, K. (2010). Beyond Exclusion: alternative approaches to biodiversity conservation in the developing tropics. *Science Direct*, 1-7.
- Madden, F. (2004). Creating Coexistence between Human and Wildlife: Global Perspectives on Local Efforts to Address Human-Wildlife Conflict. *Human Dimensions of Wildlife*, 247-257. doi:10.1080/10871200490505675
- McCabe, J. T., Leslie, P. W., & Deluca, L. (2010, June). Adopting Cultivation to Remain Pastoralists: The Diversification of Maasai Livelihoods in Northern Tanzania. *Hum Ecol Interdiscip J.*, 321-334.
- McCall, M. (1985). Environmental and agricultural impact of Tanzania's villagization programme. In I. G. Geography, *Population and Development Projects in Africa* (pp. 123-139). Cambridge : University of Cambridge Press.
- Melita, A. W., & Mendlinger, S. (2013). The Impact of Tourism Revenue on the Local Communities' Livelihood: A Case Study of Ngorongoro Conservation Area, Tanzania. *Journal of Service Science and Management* , 117-126.
- Mkumbukwa, A. R. (2009). The evolution of wildlife conservation policies in Tanzania during the colonial and post-colonial independence periods. *Development in Southern Africa*, 589-600.
- Ndal, D. (2019, 19 Saturday). *Tanzania plans to redraw park and reserve borders*. Retrieved from The East African : <https://www.theeastafrican.co.ke/news/ea/Tanzania-plans-to-redraw-park-and-reserve-borders/4552908-4942306-q55ofrz/index.html>
- Neff, J. W. (2013). Africa: A Geographic Preface. In A. A. Gordon, & D. L. Gordon, *Understanding Contemporary Africa* (5 ed., pp. 9-18). Lynne Rienner Publishers.
- Nelson, F., Nshala, R., & Rodgers, W. (2007). The Evolution and Reform of Tanzanian Wildlife Management. *Conservation and Society*, 5(2), 232-261.
- Nelson, R. H. (2003). Environmental Colonialism: "Saving" Africa from Africans . *The Independent Review* , 65-86.
- NEMC. (2015). *Background*. Retrieved from The United Republic of Tanzania National Environment Management Council: <http://www.nemc.or.tz/pages/background>
- Neumann, R. P. (1998). *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa* . Berkley and Los Angeles, California : University of California Press.
- Newmark, W. D. (2008). Isolation of African protected areas. *The Ecological Society of America*, 321-328.

- Newmark, W. D., Leonard, N. L., Sariko, H. I., & Gamassa, D.-G. M. (1993). Conservation Attitudes of Local People Living Adjacent to Five Protected Areas in Tanzania . *Biological Conservation* , 177-183.
- Newmark, W. D., Manyaza, D. N., Gamassa, D.-G. M., & Sariko, H. I. (1994). The Conflict between Wildlife and Local People Living Adjacent to Protected Areas in Tanzania: Human Density as a Predictor. *Conservation Biology*, 8(1), 249-255. Retrieved from <https://www.jstor.org/stable/2386738>
- NGERIV. (n.d.). *Ngerengere River Eco Camp*. Retrieved from ngerengereriver: <https://ngerengereriver.webs.com/>
- Nyhus, P. J. (2016). Human-Wildlife Conflict and Coexistence. *Annual Review of Environment and Resources*, 41.
- Oberhauser, A. (2018). Gendered Work and Economic Livelihoods. In A. Oberhauser, J. Fluri, R. Whitson, & S. Mollett, *Feminist Spaces: Gender and Geography in a Global Context* (pp. 108-130). New York, NY: Routledge.
- Packer, C., & Kissui, B. M. (2007). Managing Human-Lion Conflicts. *Transactions of the 72nd North American Wildlife and Natural Resources Conference* , (pp. E4-E18). Portland .
- Reid, R. S. (2012). *Savannas of Our Birth: People Wildlife and Change in East Africa*. University of California Press.
- Robbins, P. (2012). *Political Ecology: A critical introduction* (2 ed.). Malden, MA: Wiley-Blackwell.
- Rosane, O. (2018, May 23). *Humans and Big Ag Livestock Now Account for 96 Percent of Mammal Biomass*. Retrieved from EcoWatch: <https://www.ecowatch.com/biomass-humans-animals-2571413930.html>
- Salerno, J. D., Borgerhoff Mulder, M., & Kefauver, S. C. (2013). Human Migration, Protected Areas, and Conservation Outreach in Tanzania . *Conservation Biology* , 841-850.
- Spear, T. (1993). Introduction. In T. Spear, & R. Waller, *Being Maasai* (pp. 1-18). London.
- The Wildlife Conservation Act*. (1974). Retrieved from Oakland Institute : https://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/pdfpreview/wildlife_conservation_act_1974_tanzania.pdf
- UNEP-WCMC. (2019, April). *Protected Areas Profile for United Republic of Tanzania from the World Database of Protected Area*. Retrieved from Protected Planet : <https://www.protectedplanet.net/country/TZ>
- UNESCO World Heritage Center. (2019). *State of Conservation: Ngorongoro Conservation Area*. Retrieved from WHC UNESCO: <https://whc.unesco.org/en/soc/479>
- USAID. (2013). *Tanzania Wildlife Management Areas Evaluation: Final Evaluation Report* . USAID.
- Vedeld, P., Jumane, A., Wapalila, G., & Songorwa, A. (2012). Protected areas, poverty, and conflicts: A livelihood case study of Mikumi National Park, Tanzania. *Forest Policy and Economics*, 21, 20-31.

- Wanitzek, U., & Sippel, H. (1998). Land rights in conservation areas in Tanzania. *GeoJournal*, 46(2), 113-128.
- Watson, J. E., Dudley, N., Segan, D. B., & Hockings, M. (2014). The performance and potential of protected areas. *Nature*, 67-73.
- World Bank. (n.d.). *Terrestrial protected areas (% of total land area)*. Retrieved from The World Bank: <https://data.worldbank.org/indicator/ER.LND.PTLD.ZS>
- World Wildlife Fund. (2019). *Human-Wildlife Conflict*. Retrieved from World Wildlife Fund: https://wwf.panda.org/our_work/wildlife/problems/human_animal_conflict/
- World Wildlife Fund. (2019). *Tackling Threats that Impact the Earth*. Retrieved from WWF: <https://www.worldwildlife.org/threats>
- Wright, I. M. (1961, October 2). *Arusha Wildlife Conference*. Retrieved from ICWA: <http://www.icwa.org/wp-content/uploads/2015/11/IMW-6.pdf>