Concientizando una Lucha,
The Struggle for Community Engaged Conservation in Nicaragua's Pacific Isthmus

By

CRISTINA MARIE MURILLO BARRICK
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Approved:

Ryan E. Galt, Chair

Eric J. Olson

Mark N. Lubell

Committee in Charge

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ABSTRACT

The establishment and management of protected areas in Latin America, and the world at large, has historically prioritized conservation objectives over the needs and desires of adjacent communities; these communities often include subsistence users, *campesinas*[1] and lower-class groups whose livelihoods and sources of income depend on access to natural resources.

This case study, I focus on the *lucha* (struggle) to meet both conservation and community goals through community-engaged conservation (CEC). I do so by examining the relationship between communities and two types of protected areas within the Nicaraguan Pacific Isthmus: Refugio de Vida Silvestre La Flor[2] (RVSLF) and Paso Pacífico[3] beaches and farms. These protected areas are maintained primarily to preserve vulnerable and endangered sea turtle species.

This research draws on eleven weeks of community engagement, participant observations, interviews and surveys conducted between June 2016 and August 2017. Findings indicate the harvest of sea turtle eggs on *arribada*[4] beaches has historically represented a source of sustenance and, more recently, a much-needed opportunity to generate income in communities that experience high rates of poverty and vulnerable employment. Beginning in the mid-2000s national and international efforts to protect sea turtles increased and the community harvest of sea turtle eggs was banned nationally and within RVSLF. These changes, which largely lacked CEC, resulted in increased conflict with communities, decreased trust in scientific claims and in natural resource managers. However, in this study I conclude that despite initial community exclusion following the formation of protected areas and challenges due to inaccessibility to natural resources located within them, examples of CEC are increasing between RVSLF and, more recently, Paso Pacífico. Furthermore, these findings indicate community members have a growing *concientización* (critical consciousness) of the importance and benefits of sustainably managing natural resources. I also found that

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[1] *campesinas/*farmworker.
Landless or peasant farmer (feminine).

[2] *Refugio de Vida Silvestre La Flor/*La Flor Wildlife Refuge.
RVSLF is a nationally registered Nicaraguan protected area, well known for its *arribadas* (mass arrivals) of Olive Ridley (*Lepidochelys olivacea*) sea turtles that breed in nearby waters. Females then come ashore to lay eggs on the refuge's sand beach.

[3] Paso Pacífico/Pass of the Pacific.
This name references the *Paso del Ismo*/ Pacific Isthmus, which is a key corridor rich in biodiversity, and important for environmental conservation and species migration.

[4] *Arribadas*/mass arrivals.
Arribadas occur on a handful of beaches worldwide and are synchronized, large-scale nestings of sea turtles. Within Nicaragua these occur on the RVSLF and Chacocente beaches and within Costa Rica, *arribadas* occur on Ostional beach (not to be confused with the town of Ostional, Nicaragua). All the beaches listed here are located in dry tropical ecosystems on the Pacific coast of Central America.

overwhelmingly community members perceive both types of protected areas as providing, or promising to provide, new economic, educational and recreational opportunities.

In this case study I compare the types of CEC as well as RVSLF and Paso Pacífico management structures. Findings indicate that decreasing CEC-- as seen in RVSLF in the early 2000s—results in decreasing community trust, while increasing CEC through horizontal and engaged approaches-- as done by Paso Pacífico and RVSLF in the recent decade—can build trust and incentivizes sustainable behaviors among communities. The recent establishment of the RVSLF *Comité de Co-manejo*[5] (CCM) represents a hopeful shift toward further CEC, yet whether this trend continues remains to be seen, as this may be threatened by a decrease in democratic participation within broader governance systems.

[5] *RVSLF Comité de Co-manejo* (CCM)/RVSLF Co-management Committee.
The CCM is run by MARENA (the Nicaraguan *Ministerio del Ambiente y de los Recursos Naturales*/Ministry of the Environment and Natural Resources) and also includes members of the nine coastal communities included in this study. The CCM is responsible for designing and upholding a management plan for RVSLF.

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It has been my honor and privilege to be able to research and write about community development and conservation in the Pacific Isthmus of Nicaragua. I have a great many organizations and individuals to thank for their collaboration and support in community organizing and research. Firstly, I would like to acknowledge Paso Pacífico, especially CEO Sarah Otterstrom and Country Director Liza González who I had the privilege of working with and knowing since 2009; both leaders were pivotal in guiding my community engagement efforts and supported my research and field work.

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Travel, fieldwork and research for this project spanned three trips to the Pacific Isthmus region and four years of dedicated graduate study, research and writing; the extent and completion of this thesis could not have been made possible without the generosity of several University of California, Davis affiliates and funders. Key financial contributions were made by the Community Development Graduate Group, the Henry A. Jastro Graduate Research Award, the Blum Center for Developing Economies' Poverty Alleviation Through Sustainable Solutions (PASS) Grant, the UC Davis Humanities Graduate Research Award and the Women's Research and Resource Center (WRRC) Summer Graduate Research Award. I also thank the Human Ecology Department faculty and staff, for providing me with support in work and study.

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[6] *Area Conservación Guanacaste* (ACG)/Guanacaste Conservation Area.
ACG is a part of the Costa Rican National Park System.

[7] *Programa de Educación Biológica* (PEB)/Biology Education Program.
This program is managed by the ACG.

Professor Steven Wheeler, for existential and emotional support and constructive feedback in academic research and writing.

Lastly, I would be remiss if I did not also thank the people beyond academia who supported me in this endeavor: my mentors, especially Fernando Agudelo-Silva, for encouraging me to believe in myself and never doubt my pursuits in higher education; my beloved family, Carlos, Carol and Catherine Murillo Barrick who were a source of endless encouragement and support; my grandfathers, who taught me to never doubt my place in the furthest corners of the wild, and my grandmothers, who modeled what it means to be a world traveler with a keen eye for injustice; my dearest friends, among them John Connant, Robin Bellows, Jennifer Metes and Andrew McCullough, and many others, for seeing me through the thick of it.

To all mentioned here I am profoundly grateful, not only for the opportunity to conduct what I hope is rigorous and empirically-based qualitative research, but also, for the opportunity to experience work that demanded personal growth, challenging the mind, working on the ground and leading with the heart.

¡Mil gracias![8]

[8] *¡Mil gracias!* /A thousand thanks!

DISCLAIMER

All views, opinions, critiques and/or failings contained within this thesis are solely my own and do not represent any organizations named in this study. This research began with, and is informed by, personal experiences and independent community engagement in the dry tropics of Nicaragua and Costa Rica going as far back as November 2009. In 2015, as a graduate student at UC Davis, I began collaborating with Paso Pacífico and Area Conservación Guanacaste (ACG) in applying for community engagement projects; this was followed by formal data collection and research supported by numerous University of California, Davis affiliate groups.

All research, analysis and conclusions contained in this thesis are based on field observations and data collected between June 2016 and August, 2017. Be advised that many social and political conditions within Nicaragua have changed significantly since August 2017[9]. This case study (as all case study methods) provides a snapshot bound both temporally and geographically. So, while I am confident these findings hold true within the specific boundaries of the case study, I hope readers will also situate findings and conclusions within larger and more current contexts, considering recent developments within the Pacific Isthmus Region.

[9] Human Rights Watch, the Organization of American States, the United Nations have all condemned a dramatic increase in human rights violations within Nicaragua; these have been tied to political dissent and instability which have been increasing dramatically since March of 2018 ("Human Rights Watch, Nicaragua" 2019).

VISUALS

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CHAPTER 1: INTRODUCTION

1.2 The Trouble with Protected Areas

Beginning in the twentieth century, protected areas have increasingly been established throughout the world to curtail anthropomorphic threats to biodiversity and ecosystem services (Laurance et al. 2012; Adams 2004; Adams & Hutton, n.d.). Furthermore, within the "developing world"- or what I will refer to as the Global South[10]- protected area formation has represented a primary strategy for environmental conservation (Abakerli 2001). However, the establishment and management of protected areas in the world at large, and in the Global South especially, have also been problematic. Since the 1940s, international conservation efforts have overwhelmingly prioritized the objectives of the international conservation movement over the needs of small-scale communities that reside near protected areas; these communities are often composed of *campesina*[11] subsistence users, racialized and lower-class groups. Meanwhile, many rural communities located adjacent to, and within, protected areas have traditionally centered their livelihoods on, or rely heavily upon sources of income tied directly to access to natural resources found inside the boundaries of protected areas (Taylor 2016: Isla 2015; Wakild 2013; Adams & Hutton, n.d.). This characterized communities as key stakeholders,

[10] Global South.
Within this thesis I intentionally refer to the lobal South and not the "developing world", deviating from classical economic rhetoric which defines these areas as "developing" or "third world". I do this because classical economic frameworks often invisibilize and/or overlook patterns of imperialism, colonialism and other forms of globalized and systemic inequality, furthermore they employ simplistic and linear development paradigms which presume nations aim to follow Western development models. In contrast, the term "Global South" has been employed by a number of scholars, notably within the academic field of political ecology, where the term is used to frame issues and resist "hegemonic forces that threaten the autonomy and development of these countries" (Hollington et al. 2006).

[11] *campesinas/*farmworker, landless or peasant farmer (feminine).

for they are directly and disproportionately impacted by changes in land-use practices. Recent research conducted within Central America has shown that protected area establishment has adversely and disproportionately disadvantaged indigenous groups, subsistence users, *campesinas* and lower-class groups through the regulation of traditional resources use and displacement from historically accessible landscapes (Isla 2015). Furthermore, recent studies employing GIS spatial analysis within Central America indicate that communities adjacent to protected areas experience higher rates of poverty than other rural communities (Ferraro & Hanauer 2015). Although it is unclear whether protected areas have a *causal* relationship to poverty, what *is* clear is that higher than above average rates of poverty and community proximity to protected areas intersect and this can threaten both community and conservation goals.

Many of the aforementioned inaccessibility problems faced by marginalized groups are linked to the implementation of fortress conservation models. This is a conservation model that is "based on the belief that biodiversity protection is best achieved by creating protected areas where ecosystems can function *isolated from human disturbance* [emphasis added]" (Doolittle 2007). This model of conservation intentionally excludes traditional users who are dependent on natural resources, but includes others- such as researchers, tourists and wealthy or upper-class groups- that are less dependent on protected landscapes for sustenance or as direct means of social reproduction. The fortress conservation model also assumes that some groups (marginalized groups) are either *incapable* or *unwilling* to engage in conservation; while others have a privileged authority in dictated how protected areas are formed and managed.

Within this thesis, I will deconstruct many of the assumptions that uphold the fortress conservation model and provide sound empirical evidence that communities within

the boundaries of the field site I study are not only *capable* of but also *willing* to engage in conservation, furthermore they have the capacity to do so while also centering on their own community needs and goals. I will also connect this case study to discourse within academic fields, I will first draw upon the field of political ecology. I use political ecology to examine how environmental problems are linked to and framed within various scales of history and place; secondly, I use the social ecological systems (SES) framework to study how various interconnected components (resource systems, resource units, resource users and governance systems) affect ecological outcomes (Ostrom 1990); thirdly, I examine how changes in community participation in conservation can impact the effectiveness of community-engaged conservation (CEC).

I am not alone in my endeavor to critique fortress conservation models and seek out more equitable and efficient models of conservation within the Global South, within recent years, leading biologists within the Central American region have begun to recognize that effective conservation requires the participation of local communities, localizing conservation efforts and employing more engaged, rather than exclusive, models (Janzen 1990; Schelhas & Pferffer 2008). Furthermore, researchers have increasingly integrated community participation in wildlife studies, biological monitoring and management planning with successful results for conservation (Argawal & Gibson 1999; Christie et al 2000; Larson et al. 2010).

Within this thesis I define community-engaged conservation (CEC) as an environmental conservation model that includes adjacent communities in protected area conservation efforts, draws upon their knowledge systems and integrates multiple community stakeholders' needs and desires into natural resource management. Increasingly, models of conservation like CEC are being integrated within global

conservation research, these new models emphasize place-based approaches, civic engagement and local resource management (Brockingon & Wilkie 2007). Studies have shown that engaging a variety of stakeholder groups can result in improved outcomes for both communities and conservation and natural resource management plans that integrate multiple sources of stakeholder feedback result in higher rates of compliance and decreased incidences of conflict when compared to less engaged management strategies (Krasny & Bonney 2005, Tidball 2012).

Some of the most impressive examples of CEC include *participatory action research* (PAR) which produces research *directed by* the community, *for* the communities. Integrating these methodologies within conservation often fundamentally alters more hierarchical power structures by empowering communities to set research questions and direct studies to align with their goals. Within Nicaragua's Caribbean Coast one such research project led to the creation of a comprehensive, high-quality environmental management plan developed by community stakeholders. The plan integrates feedback from historically marginalized groups early in the research process with the aim of increasing implementation as well as probabilities of compliance (Christine et al. 2000).

The employment of CEC is particularly relevant and promising within the Nicaraguan context because of several factors: 1) The remoteness of the field site and the sparseness of economic resources available to governmental and international conservation entities means that community collaboration in natural resource management is indispensable to effective implementation of conservation goals; 2) Nicaragua is consistently ranked exceptionally low in economic development status, and it is also host to numerous, diverse and fairly accessible endangered and threatened natural resources. Providing communities with sustainable sources of non-extractive income and

employment are thus imperative to ecosystem sustainability. 3) Nicaragua, and its rural communities that experience poverty, have a history of deep-set social inequity. Communities within this study field site are particularly experienced in organizing, fighting and engaging in collaborative management to overcome injustice.

These three factors within the Pacific Isthmus region can be tied to global trends—unsustainable development and exacerbated global inequality. I argue, these conditions and trends identify CEC as a necessary and promising model to address social and ecological ills.

In this thesis I focus on two research questions:

1) *How have communities been affected by protected area formation and management within the Pacific Isthmus of Nicaragua?*

2) *Within the two types of protected areas in the region, what management practices and types of community engagement are effective in meeting both conservation and community goals?*

In order to explore these research questions, focus on several communities and two types of protected areas established primarily to protected vulnerable and endangered sea turtle species: the first protected area is the Refugio de Vida Silvestre La Flor[12](RVSLF) and the second, Paso Pacífico[13] beaches and farms.

In this thesis I employ an *action research* methodology, which is to say, formal research was preceded by, and conducted alongside, community engagement that draws upon partnerships with community-based organizations. This research deviates from more

[12] *Refugio de Vida Silvestre La Flor/*La Flor Wildlife Refuge.
This is a nationally registered Nicaraguan protected area, most well-known for the arribadas/mass arrivals of sea turtle eggs which nest on its shores and breed in nearby marine waters.

[13] Paso Pacífico is translated to "Pass of the Pacific".
The name references the *Paso del Ismo*/Pacific Isthmus, which is a key corridor rich in biodiversity, and important for environmental conservation and species migration.

traditional conservation research approaches in that it centers on the experiences of communities living near protected areas, rather than state institutions or international conservation organizations. My approach adds a unique perspective to international conservation narratives; for, while this study field site has gained international attention over recent decades due to the regional presence of several sea turtle species, the approaches to conservation that have been employed have further marginalized, and even vilified community members.

1.2 *Las voces del Pueblo/* The Voices of the *Pueblo*

As I introduce this research, I am reminded of the words of Don[14] Carlos[15], a community leader. Don Carlos agreed to an interview with me at the local *comedor*[16]and on a breezy evening we met over a plate of *patacones con queso*[17]. I began our interview by asking about his experiences interacting with what is known today as the protected area RVSLF. I was a bit surprised when he began this narrative with what he called "the liberation of the Nicaraguan people" following the Nicaraguan revolution in the late 1970s. He explained to me that while folks had consumed sea turtle eggs gathered along the coast since time immemorial, what is today RVSLF, was commonly known by community

[14] *Don/*Mr. or Sir (masculine). *Doña/*Mrs. or Madam (feminine).
Both *Don* and *Doña* are titles commonly used in Latin America and Nicaragua. These are often used when referring to elders and/or respected members of the community. Within this thesis I have changed all names but kept all associated titles if and when individuals are commonly addressed in this manner by their fellow community members.

[15] All names in this thesis have been changed to protect the privacy of research participants.

[16] *comedor/*small scale eatery or diner.

[17] *patacones con queso/*fried plantains and cheese.

members simply as "La Flor". I would later learn, by talking to a variety of other community members, including several elders, that La Flor had also been used as a foraging landscape by *campesinas* in the mid-1900s and it had later become a privately-owned farm and the gathering place for the local ranching cooperative.

In the late 1990s and early 2000s, La Flor had become known outside of the region for its *arribadas* of *paslama* sea turtles. These *arribadas* are known occur in only five beaches world-wide, and three of these sites are in the Pacific Isthmus: La Flor and Chacocente beaches in Nicaragua and one in Ostional, Costa Rica. *Arribadas* are impressive, synchronized, large-scale nestings of sea turtles that occur over the course several consecutive days and nights.

Returning to Don Carlos, he explained that shortly after the Nicaraguan Revolution coastal communities had begun to organize during *arribadas* to harvest and distribute *paslama*[18] (*Lepidochelys olivacea*) sea turtle eggs. They did so legally and alongside what is today MARENA[19], the Nicaraguan Ministry of the Environment and Natural Resources. Don Carlos stated that an estimated 10% of the total harvest was distributed to families living in nine designated communities[20]. Family households were allotted 12 dozen eggs per *arribada*. In the 1980s, several community members stated, these were mostly consumed by families as a source of sustenance. However, Don Carlos continued, in the 1990s the communities become increasingly connected to the nearby city of San Juan del Sur and by the mid-2000s the *paslama* eggs had become "a treasure" and increasingly

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[18] *paslama*/Olive Ridley sea turtle (*Lepidochelys olivacea*).
In this thesis I intentionally use the species name *paslama* and other names commonly used by community members in order to accurately represent their perspectives.

[19] *Ministerio del Ambiente y de los Recursos Naturales*/Ministry of the Environment and Natural Resources.

[20] The distribution of 10% of the total *arribada* harvest is corroborated by several other community members and MARENA records (*Gestión* 2008).

valued for the price they fetched with *vendedoras*[21] who began to sell them in regional and municipal markets, *marisquerías*[22] and, if they were lucky, to the occasional wealthy buyer. The income eggs generated provided a rare and important financial opportunity for communities that had few opportunities for cash flow and rare opportunities for steady employment.

By the mid-2000s, national and international organizations outside of the region had become increasingly interested in studying, and later conserving all five species of sea turtles found in the Pacific Isthmus region and by roughly 2007, Don Carlos stated, management of RVSLF changed "practically overnight". This change occurred without consultation with communities, he stated, and the changes were dramatic: the harvest of *paslama* eggs and all other species of sea turtles was banned. Another unprecedented change was that community members were excluded from RVSLF, unless they were able to pay an entry fee. This cost was prohibitive to many, and insulting to others, who had accessed La Flor throughout their lives.

At this point in the narrative, Don Carlos expressed a profound sense of injustice. He turned to me and stated, quite gravely, that the story of RVSLF was a beautiful one, and it would take a book of 1000 pages or more to tell it, but he seemed to caution me as he stated:

> But, the truth is you have to see *both faces* [emphasis by Don Carlos] of it, you must expose the *true* face. Do more than make it look pretty. I think that is very important. You cannot simplify it too much or glorify it because in conservation- you have to be <u>real</u>, you have to be objective [...]. And we [community leaders] must inform you

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[21] *vendedoras*/vendors (feminine).
Small scale or street vendors; many of these vendors are women. Sales often take place in public spaces such as streets, markets or bus stops. In this case, the vendors referred to are engaged in the sale of sea turtle eggs. Within Nicaragua *vendedoras* are a key part of the informal economy and provide an important source of income in communities where formal and permanent work are less available. Vendors often sell a variety of wares including food, tools, accessories and cell phone credit.

[22] *Marisquerías*/sea food restaurants or bars.
These venues often specialize in culinary sea food and other delicacies; they are generally of a moderate or high price range.

> and share the day-to-day, the understanding of what is happening, what is happening to our *pueblo*[23].
>
> *Pero la realidad es hay que verle las* dos caras *[énfasis por Don Carlos]. Es más, hay que exponerle la cara* de verdad, *más que poner la bonita. Eso yo creo que es muy importante. No hay que simplificarlo mucho. Ni glorificarlo. Porque la conservación- tenés que ser real, tenés que ser objetiva […] y nosotros [lideres comunitarios] lo que hacemos es informar, decir el sentir de cada día, el sentir de lo que nos pasa, que le pasa a nuestro pueblo*[24]

As I continued my research, I found Don Carlos' frustration was shared by others- community members who felt they had been deprived of a source of livelihood or vilified as the cause of declining *paslama* populations. Today, many community members are involved in conservation efforts centered on sea turtles; these are not just an economic "treasure" but one that many want their children and grandchildren to enjoy. Many community members work in the tourist service industry in nearby San Juan del Sur and are aware of how attractive the turtles can be to tourists. Within the communities, small businesses are decorated with placards that identify the species of sea turtles and promote local species protection, eco-tourism and the many small businesses that cater to it.

I found few instances of community members consuming eggs, *hueveando*[25]-- which is how locals refer to illicitly collecting sea turtle eggs-- or selling sea turtle eggs. However, many community members work or volunteer in biomonitoring and beach clean-up efforts in both types of protected areas, some are employed by Paso Pacifíco where they work on private beaches and farms monitoring wildlife, maintain hatcheries and care for

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[23] *pueblo/* town, community or "the people".

[24] *pueblo/* town or village or "the people.
This term can have several meanings, it can be literally translated to mean "community" or "town", but just as often-- and especially in Nicaragua-- it is used to mean "the people". The later definition of "*pueblo"* is commonly employed in nationally political campaigns and often used alongside revolutionary rhetoric. In the context of Don Carlos' interview, it is difficult for me to determine which definition he refers to. For this reason, I have not translated it, but provided the original term.

[25] *Hueveando/*collecting or getting eggs.
I found this to be the most commonly employed expression used by community members.

native plant plant nurseries. Many of the community members I interviewed insisted they are working "*concientizando*[26] *una lucha*"- to raise critical consciousness of a struggle. It became clear to me throughout my field work, that the importance of sustainably managing *paslamas* and other natural resources was important across stakeholder groups. Yet, a key *lucha*[27]-- or struggle-- remained, for while there is a strong focus at the national and international level to protect biodiversity, many communities are still being painted as villains within dominant conservation narratives, when it may, in fact, behoove protected area managers to develop their own critical consciousness of the struggles faced by communities in order to broaden opportunities for effective conservation that align, rather than conflict, with community goals.

1.3 Concientizando una Lucha/Raising Critical Consciousness of a Struggle

The title of this thesis, *Concientizando una Lucha*, translates to "raising critical consciousness of a struggle" is inspired by a phrase I heard echoed across the voices of the *pueblos*. Perhaps unsurprisingly, I also found that this concept of *concientización* also has deep-rooted ties to community organizing, education and social movements throughout the Global South, and within Nicaragua more specifically, this will be discussed in more detail in the *Research Approach* section, later in this thesis. In this thesis, this title is inspired by two key findings within the study: my first finding indicates that communities have developed a critical consciousness of the importance and need to sustainably manage sea turtle species and other natural resources; the second finding indicates communities

[26] *concientizando/*raising critical consciousness.

[27] *lucha/*struggle or fight.

and protected area managers still struggle to implement plans that meet both conservation and community goals. Thus, this case study provides examples of the dynamic factors that both impede and allow for effective CEC to take place.

1.4 Thesis Structure

I have scaffolded information within the ensuing chapters to present important information related to my thesis. In the ensuing chapter, *Literature Review*, I define and then trace the evolution of protected areas by referencing the widely employed international conservation models and connect these to economic development agendas developed by members of the Global North. I then present critiques of both fortress conservation models and green development exposing how both of these often reinforce patterns of inequality both nationally and internationally. Following these critiques, I introduce the divergent academic fields, models and frameworks I use to inform this study and overcome the most problematic elements of both international conservation and development. In the fourth chapter, *Field Site Background*, I provide important information about the Nicaraguan political and economic context, the management of protected areas as well as natural resources. I then introduce the communities within the field site, provide information on sea turtles and how they are used by communities.

In the fifth chapter, titled *Research*, I include information on study assumptions and approach, disclose my personal relationship to the research and inform readers on the process of research collaboration and design. I conclude this chapter with information on data collection and data analysis. I present several study findings and connect them to larger trends within the sixth chapter.

I have dedicated four full chapters to *Findings and Discussion*, for it is the most extensive portion of the thesis. I have divided the chapters thematically centering them first on research findings and followed with a discussion section that connects findings to broader academic literature referenced in the *Literature Review* chapter. The *Findings and Discussion* chapters begin with chapter six,*Change in Resource Use*, where I examine the national and global contexts that have affected communities interactions with sea turtles; in the seventh chapter, *Conflict and Trust* I center on changes in the SES of RVSLF, the most long-standing of the two types of protected areas. In this section I also explore how a decrease in CEC led to both increases in conflict and decreased trust in natural resource managers. In the eighth chapter, *Differences in Power and Management*, I focus on the differences between the two types of protected areas, I demonstrate how different levels of engagement in CEC led to different outcomes in relation to communities. In the ninth and last *Findings and Discussion* chapter, titled *Colaboration and Co-managment*, I present recent developments in protected area collaboration and co-management, both of which provide evidence of how increased CEC in both types of protected areas has led to increased trust with management entities, decreased conflict and the development of new opportunities for community members.

In the tenth and final chapter, *Conclusions*, I disclose research limitations and recommend further research on this subject. This thesis culminates with a call to action aimed at academics, practitioners and conservations.

CHAPTER 2: LITERATURE REVIEW

In this chapter, I introduce readers to the history of international protected area, key critiques of fortress conservation and green development models. I then introduce the academic fields, frameworks and models that I have used in this study. I end the chapter by explaining my aims in contributing to wider literature, discourse and praxis.

2.1 What are Protected Areas?

The International Union for Conservation of Nature (IUCN) was established in 1948; today, it is managed by the United Nations Environmental Programme's (UNEP) World Conservation Monitoring Center; together these organizations provide what is perhaps the most widely-utilized global definition of protected areas: "[…] a clearly defined geographic space, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (IUCN webpage, 2008 definition). This definition includes several categories of protection, listed below, ranging in human impact and habitation.

Figure 1: IUCN Protected Area Categories

Category Ia	Strict Nature Reserve
Category Ib	Wilderness Area
Category II	National Park
Category III	National Monument or Feature
Category IV	Habitat/Species Management Area

Category V	Protected Landscape/Seascape
Category VI	Protected Area with sustainable use of natural resources

The table above includes IUCN protected area. Categories I and II are highly exclusionary of human habitation and use, while the later categories (III through VI), which were introduced in more recent decades, illustrate a shift towards (re)integrating humans, traditional natural resource users and communities into protected areas (Source: "Protected Area Categories, IUCN," 2016).

In examining the role of the IUCN within the international conservation movement, it is important to highlight three important points: firstly, the IUCN was both established and predominantly composed of, major international players located in the Global North. For, while the United Nations (UN) is an international institution that includes members of the Global South, conservation and development agendas disproportionately privilege members from the Global North, notably the nations that established the UN as victors of World War II. Second, it bears expounding that the IUCN, is by no means the first or the only group to have defined, tracked or encouraged the implementation of what are known today as "protected areas". As I will explain at length in the next section of the *Literature Review*, many cultures throughout human history have defined and protected land for ecological, economic and spiritual reasons. Yet, the IUCN definition and categorization of protected areas does provide an unprecedented opportunity to measure and track protected areas on an international scale by employing categories that are consistently defined and systemically tracked throughout the globe. The organization provides a running count of the number of international protected areas, as well as individual information on their category, territorial area, management etc.. The, third important point is that the IUCN has played a central role in spearheading an international conservation model that is deeply informed by institutions (such as the UN) that have increasingly framed environmental protection concurrently with economic development.

The IUCN has worked alongside the World Bank and International Monetary Fund (IMF); in the 1990s these organizations, which I call "global players" gathered at the Rio de Janairo Earth Summit where they aligned international conservation efforts to center on Sustainable Development Goals. These combined Biodiversity Goals, focused on environmental conservation through the preservation of species, with Development Goals, focused on propelling "underdeveloped" nations to join global markets and become increasingly industrialized. Today, Sustainability Goals remain fulcrums in framing and addressing global environmental problems, they define and determine approaches to the establishment of protected areas that are centered on global economic development.

However, the IUCN approach to conservation often privileged national governments and institutions-- rather than adjacent communities-- to manage and regulate protected areas. Thus, from the onset international conservation efforts where measured by assessing how effectively biodiversity was being preserved, but often overlooked that historically populations have relied on their ecological landscapes for sustenance and traditional practices. Additionally, the kind of biological tracking introduced by international organizations such as the IUCN, increasingly led to the commodification of ecological goods and services-- by valuing landscapes for their ability to ecological goods and services. These ecosystem services have been increasingly assigned monetary value and have been traded on global markets. Some goods, like biological patent rights, are used by transnational cooperation's that patented and then profited from pharmaceutical products derived from plants. While other services, such as carbon sequestration credits, are bought to mitigate greenhouse gas emissions produced by large-scale polluters. Such reconceptualization of natural resources is often led by and benefits large-scale players in the Global North, for, those with ample monetary and institutional resources often devise new framings to commodify nature, and these same global players are

often able to buy and trade them on the global market. Meanwhile, this processes often does not involve small-scale communities and provides little or nothing to maintain the well-being of small scale and resource-dependent communities in the Global South.

Many environmental economists argue that ecological goods and services represent novel social conceptualizations of "nature" that add value to otherwise value-less resources; however, scholars such as myself, view the expansive commodification of the "nature" critically. When viewed from the perspective of communities and marginal groups, many of these resources have historically provided not only livelihoods but life ways- which is to say, access to resources has been necessary for maintaining communities' ways of life. Thus, many of the protected areas that are created were formerly communally shared and stewarded, rather than individually owned. This is particularly true of Latin American indigenous groups, subsistence users, *campesinas* and other groups directly reliant on natural resources. Thus, while integrating ecosystem goods and services and IUCN defined protected areas into global sytems may seem an effective model for conservation, these models often directly threaten the lifeways of many of the communities that reside within and near protected areas.

In more recent decades, the IUCN has had to confront these issues, as indigenous groups have taken their cases to international courts, claiming displacement through the establishment of protected areas: the IUCN has since expanded the categories of protected areas to include human habitation and resource use. Currently, the IUCN also references the importance of the preservation of local livelihoods ("IUCN" 2018) and has increasingly recognized the role of indigenous and local communities, which are "welcomed… to share in governance and management of protected areas" ("Protected Planet Report" 2016). However, as I will detail in the upcoming section, such efforts to include communities are both informed by legacies of historical exclusion and often criticized as palliatives.

2.2 What are some Key Critiques of Protected Areas?

Given the history of international conservation propelled by the IUCN and other transnational organizations, it may come as no surprise that many scholars have critiqued the models employed for their formation and management. In the following section I will present two key sets of critiques, followed by a more detailed explanation of the models themselves.

2.2.1 Green Development

One of the most adamant critiques of protected areas is that these are often brought about through what some scholars have call "green development", that is to say ,the pairing of economic development and sustainable development agendas (Isla 2015). In the 1990s much of Latin America fell into a Debt Crisis after defaulting on loans from the IMF and World Bank. Debt negotiation was overwhelmingly the responsibility of national governments and these where often required to engage in structural adjustment programs. These programs most often disproportionately benefited governments and transnational corporations in the Global North by requiring governments in the Global South to eliminate social welfare systems, which further opened up national markets for privatization (in some extreme cases, such as that of Bolivia, even rain water was privatized), drove down the cost of labor and the weakened environmental regulation; these conditions favored large multinational companies and the consumers that relied upon them (again, both of these overwhelmingly residing in the Global North). The Latin American Debt Crisis and the application of structural adjustment programs also had widespread implications on environmental management and communities. The IMF, UN and World Bank also developed and began to trade in ecosystem services, which is to say, they offered nations the option of paying back debt by setting aside land for environmental

mitigation, or engaging "debt-for-nature swaps"- exchanging protected areas for debt forgiveness (Isla 2015). Such actions both re-conceptualized "nature" as a tradable commodity and also aided in establishing protected areas as sites for tourism, research and a new kind of extraction- the patenting of living things (often by large scale pharmaceutical companies). Political ecologists point out this shift effectively created a context wherein nations in the Global North set conservation agendas in much of the Global South through translational debt renegotiation and trade agreements. Because large-scale institutions such as the Convention on Biological Diversity (CBD) and the IUCN are deeply influenced by and related to larger players like the WB and IMF, these have often aligned development and conservation objectives. The effect of this is that "nature" is increasingly sought after as a commodity to enclose and protect.

2.2.2 Environmental Crisis Narratives

Yet another issue that arose from players in the Global North spearheading conservation within the Global South is that these efforts often drew upon environmental crisis narratives- narratives that incite a sense of urgency and justify top-down intervention in natural resource management. One example of this is the "Save the Rainforest" campaign, which called upon global citizens to intervene in the protection of tropical ecosystems. These narratives can be problematic, for they often vilify traditional resource users while neglecting critical examinations of the role industrial development, globalization and market integration play in driving rainforest destruction (Isla 2015). In this case, the idea of imperiled "pristine" landscape was employed to frame traditional users as at best incapable, or at worst, intentionally villainous in managing natural resources. These narratives often justified national and international intervention. Such interventions often benefited wealthy tourists, elite researchers, well intentioned NGOs and large transnational cooperation's that stood to gain once traditional resource users were displaced or excluded from biologically rich landscapes.

Once traditional users are displaced, and landscapes are redefined as protected areas it commonly follows that a model of conservation is applied.

2.2.3 The US National Park Model

The US National Park system is generally cited as the international model for protected area formation and management (Abekerli 2001). While this model has been very successful in setting aside iconic landscapes for preservation, it has also been critiqued for neglecting historical land management practices and complex socio-economic dynamics that have shaped both pre-colonial land and people (West & Brechin 1991). The US National Park model was developed in the nineteenth century in a context of capitalist consolidation, rapid urbanization and frontier development; since then many parks have been established prioritizing the needs and desires of urban-industrial society (Stellars 1997). Thus, protected area formation is often centered on preserving a specific aesthetics, inspire a specific public and promote recreation and research.

US National Park narratives often allude to ideals of "wilderness" and the "pristine" and reproduce ideals of vast uninhabited landscapes ("US National Park Archives" 2018). However, wilderness or pristine myth paradigms are deeply problematic, for many, if not all, of these landscapes had been inhabited by humans for millennia prior to being deemed re-categorized as protected areas by largely Anglo-Europeans (Abakerli 2001; Denevan 1992). The on-going practice of presenting "lands throughout the Americas as vast and untouched landscapes obliterates histories of human habitation and intentional natural resource management. While it be hard to believe that the narrative framing of protected areas can incite insidious actions, recent scholars have elucidated that it is *precisely* this kind of framing that is tied to patterns of land-grabbing, displacement and cultural genocide (Dunbar-Ortiz 2015).

2.2.4 The Pristine Myth

It is perhaps for these reasons that in recent years a variety of scholars have increasingly critiqued such models of conservation. In her book *The Rise of American Conservation* (2016), Dorceta E. Taylor concludes that the establishments of US National Parks not only lacked understandings of former land use regimes, but it also overlooked the needs of indigenous peoples and subsistence users who resided within what are today the boundaries of protected areas. US National Park establishment coincided with the enactment of laws that prohibited hunting, gathering and restricted permanent residency. The primary groups affected by these actions, where of course, unenumerable indigenous groups, but also included low-income subsistence users and semi-nomadic trappers and hunters. Thus, park formation was often preceded by the systemic displacement of marginalized groups followed by the criminalization of traditional behaviors and prohibiting groups' access to their sources of sustenance, livelihood and culture (Taylor 2016).

Much like the US, throughout the Americas, protected areas have resulted in further marginalizing indigenous and other marginalized groups. Furthermore, a growing body of knowledge indicates that contrary to Anglo-European claims that such landscapes are "pristine", many pre-Columbian indigenous groups had established complex societies and had extensive environmental effects on landscapes well before 1492 (Mann 1992). Many of these groups intentionally managed, and continue to manage, landscapes of ecological importance and occupy landscapes that have only recently been defined as "protected" (Dunbar-Ortiz 2015; Denevan 1992). To quote one renowned Central American tropical ecologist, Dr. Daniel Janzen: "[…]it is an illusion to think of any of the earth's terrestrial surface as free of major human impact […] all forests have been perturbed by humans" (Janzen, 1990). Janzen goes on to say that the fact that ecosystems have been negatively impacted by humans by no means

diminishes the importance of protecting their biodiversity, quite to the contrary, these ecosystems can be restored and repaired to their biologically diverse past but this kind of conservation necessitates engagement with communities due to the urgency of implementation.

In fact, ecological evidence supports claims that Latin American tropical rainforests have long and complex histories of human habitation and many forests that are mistakenly believed to be "pristine" today are, in fact, the result of anthropomorphic intervention (Uhi et al 1990; Saldarriaga & West 1986; Janzen 1990: Brown & Lugo 1990).

In summary, a review of recent studies centered on critiquing fortress conservation models, alongside mythologies of uninhabited landscapes that inform the application of the US National Park model across the globe, reveal that traditional users have long inhabited, managed and perhaps even restored landscapes that are prioritized for ecological protection. This calls into question whether it is necessary for human habitation and conservation to be mutually exclusive.

2.3. How is Political Ecology Useful in an Examination of Protected Areas?

Political Ecology provides a critical lens to examine protected areas by encouraging scholars to contextualize environmental challenges, like soil degradation, deforestation and declining wildlife, within their essential socio-political contexts (Blaikie; Rocheleau 2007; Peluso 1993). Scholar Diane Rocheleau, who studies issues of land tenure, conservation and social inequality, aptly demonstrates the utility of political ecology, stating that the field is,

> *rooted in a combination of critical perspectives and the hard-won insight distilled from fieldwork. The theoretical base of Political Ecology was joined [….] to an unflinching commitment to empirical observation of biophysical and socio-economic phenomena in place.*

As I have detailed in former sections, development and conservation paradigms such as those employed by the UN, IMF, World Bank and IUCN, overwhelmingly overlook the underlying economic and political conditions that spur the need for conservation in much of the Global South. Within Latin America, rapid industrialization and integration into global markets post-World War II led to rapid extraction of natural resources. This race for industrialization and development often led to the unsustainable management of natural resources hastening the need for conservation. By employing a political ecology lens, I intentionally focus on scales of social and political systems (Robbins 2012; Blaikie) and connect current issues, such as the emergence of protected areas in Nicaragua, to larger global systems, as well as histories of people and place. Furthermore, I employ data collection and examine environmental challenges and also examine my own power and influence as a researcher (Rocheleau 2007). In doing so, I aim to contribute to a body of literature which critically examines conservation models, as well as the formation and management of protected areas.

In this research, I draw heavily from the field of political ecology in order to examine this case study, both temporally and geographically, within larger global systems. I then analyze and connect findings to global, regional and local community contexts. As we will see in the upcoming section, I have paired the lens of political ecology with a social ecological systems (SES) framework; these approaches are complimentary in that they require the researcher to explicitly examine national economic and political settings when framing environmental challenges.

2.4. What is the SES Framework, and Why Use It?

The Social Ecological Systems (SES) framework was first introduced in the 1990s by renowned economic scientist and Nobel Laureate (2009), Dr. Elinor Ostrom whose in-depth

studies demonstrate that not only are community members *able*, but they are often very much *willing*, to sustainably govern and manage shared natural resources (Ostrom 1990). Although this insight may seem intuitive, it contradicts many of the long-held beliefs that have informed the international conservation models and resulted in systemically overlooked the effects protected areas have on marginal communities.

The SES framework requires a close examination of how resource users influence ecosystem outcomes. This contextual approach has had important and wide-scale implications within the realm of conservation, and especially within the Global South, for, the SES framework exposes that not all sustainability issues are appropriately solved by employing fortress conservation approaches (at the international or national level), but rather, it behooves scholars and practitioners to consider how ecological outcomes are influenced by interactions between resource systems, resources units, resource users and government systems.

SES studies conducted in the Global South, include a case study of the implications for conservation and management in the Galapagos Islands; this research concludes that achieving a sustainability paradigm relies on key measures, such as modifying traditional practices through co-management, adopting more comprehensive planning practices, strengthening participative approaches and institutional networks, and promoting transdisciplinary research that spans the social and biophysical sciences in search of appropriate solutions (Gonzales et al. 2008).

Figure 2: The Social Ecological Systems (SES) Framework

<table>
<tr><th colspan="3">SES Framework</th></tr>
<tr><td rowspan="4">Economic and political settings</td><td>Resource System</td><td rowspan="4">Ecological Outcomes</td></tr>
<tr><td>Resource Units</td></tr>
<tr><td>Resource Users</td></tr>
<tr><td>Governances System</td></tr>
</table>

This figure, derived from Ostrom's (1990) SES framework, illustrates how larger economic and political settings influence all four components: resource systems, resource units, resource users and resource managers. Interactions between these four components influence ecological outcomes and influence the sustainability of the SES.

Within this case study, I use the SES framework to examine conservation and management in the Pacific Isthmus of Nicaragua; I first begin by examining the national economic and political settings to contextualize environmental problems in the *Field Site Background* chapter. In the *Findings & Discussion* chapters I then define the four SES components (resource systems, resource unit, resource users and governance system) to examine how these inform the overall ecological outcomes.

2.5. What are the Different Levels of Community Participations within CEC?

Not all types of CEC are created equal; while some modes of engagement empower communities, others often serve as mere palliatives. For this reason, I distinguish between levels of community engagement within this thesis. Perhaps one of the most commonly referenced models for citizen participation (or in this case, community participation) is Sherry Arnstein's *Ladder of Citizen Participation* (1969). Originally developed for use in urban planning within the United States, it remains equally relevant in the Global South and useful in the study of CEC.

The ladder divides participation into three broad categories: non-participation, tokenism and citizen control. These categories are then subdivided into eight enumerated rungs of participation; with each ascent up the rungs of the ladder there is an increase in participation. The first rung, "manipulation" represents minimal engagement through information sharing, while the eighth rung, "citizen control" represents community autonomy.

Figure 3: The Different Levels of Community Participation within CEC

	Type of participation	**Rung of participation**	**Description**
8	**Community control**	Community Control	Communities handle planning and policies with no intermediaries
7		Delegation	Communities represent a clear majority and are delegated power to make decisions; communities have power to ensure accountability from those in power
6		Partnership	Power is redistributed, planning and decision-making responsibilities are shared jointly by communities and those in power
5	**Tokenism**	Placation	Deletes in power select specific community members to advise or plan; but decision making remains with those in power.
4		Consultation	Meetings and community enquiries are held, but communities have no guarantee their participation will shape decisions
3		Informing	One-way flow of information from those in power to community members, with no channels for feedback
2	**Nonparticipation**	Therapy	Those in power aim to "cure" or educate communities, communities do not interfere with decision making by those in power
1		Manipulation	Assumes that the proposed plan (made by those in power) is best and community participation is conducted only to ensure public support

The figure above, describes different types of community engagement represented by rungs of community participation. The language of Arnstein's 1969 publication has been adapted here to fit the research field site located in the Pacific Isthmus of Nicaragua.

Within this study, I adapt and utilize Arnstein's ladder to define and analyze different levels of CEC; I have tailored the original language to fit the research site by changing the term "citizen" to "communities". In the *Findings & Discussion* chapters, I expose how descending the ladder, or decreasing CEC within protected areas is tied to conflict, communities' distrust of protected area managers and scientific claims.

CHAPTER 3: FIELD SITE BACKGROUND

In this chapter I provide important background information relevant to communities and conservation in the Nicaraguan Pacific Isthmus. In order to explore the political and economic circumstances that shape conservation in the Global South, I begin by providing information about nationally protected areas and economic development status in the first section, titled *Nicaragua*. In the second section, *Protected Areas* provide details on RVSLF and Paso Pacífico.

3.1 Nicaragua

Within Nicaragua, an estimated one fourth of national territory is forested, with higher tree density on the Caribbean slope (Christie et al. 2000; "UN Data" 2018; "WB Data" 2018). In 2017, Nicaragua had 95 official internationally recognized protected areas within its borders; these cover an estimated 37% of total terrestrial area (48,104 km^2) and 3% of the total marine area (6,660 km^2) ("Protected Area Profile for Nicaragua, UNEP" 2018).

The United Nations Environmental Protection Agency lists majority (65%) of Nicaraguan protected areas are listed as governed by a federal or national ministry or agency, roughly one fourth (24%) are listed as governed collaboratively, while the remaining protected areas are not reported (9%) or listed as governed by a sub-national ministry or agency (1%) ("Protected Area Profile for Nicaragua, UNEP" 2018).

Figure 4: UNEP Governance Categories of Nicaraguan Protected Areas

Protected Area Governance	**Total Percent of Protected Areas**
Federal or national ministry or agency	65%

Governed collaboratively	24%
Not reported	9%
Governed by sub-national ministry or agency	1%

Over half of Nicaragua's protected areas (60%) are categorized as nature reserves, and, of these, near half are habitat/species monitoring areas (49%) ("UNEP- WCMC Protected Area Profile for Nicaragua, World Database of Protected Areas" 2018). The most extensive and numerous protected areas are concentrated East of Lake Nicaragua; these regions are characterized by lower population density and lower development status when compared to the rest of the country ("The World Factbook — Central Intelligence Agency," n.d.). Most protected areas in Nicaragua are rainforest ecosystems, relatively few represent dry tropical rainforest ecosystems, as most of these have been converted to agricultural use and are located on the more populated Pacific slope.

3.1.1 Economy and Development Status

As stated formerly, many Nicaraguans commonly experience challenging struggles related to poverty, as well as low employment rates and high rates of vulnerable employment. Nicaragua is categorized by international organizations as is one of the world's most impoverished and least developed nations ("Human Development Report, Nicaragua" 2016, "World Bank, Poverty Headcount" 2016). The United Nations ranks Nicaragua 124t^{h} of 188 nations in the Human Development Index (HDI). This same report estimates 60% of the population is employed and 47% of those employed are vulnerably employed ("Human Development Reports, Nicaragua" 2016). Additionally, one third of the of the Nicaraguan population is estimated to live below the national poverty line ("World Bank Data: Nicaragua," 2018).

Widespread poverty and economic insecurity often create conditions that make it particularly challenging to sustainably manage natural resources. Nicaragua in particular has experienced rapid integration into globalized economic systems, which accelerated in the 1980s resulting in intensified extraction of natural resources; this is particularly true of marine resources such as fisheries and shrimp (Christie et al 2000).

Nicaraguan national data indicates the tourism industry is increasingly becoming a source of direct and indirect employment; the number of international tourist visitors reached over 1 million arrivals per year in 2005 ("*Cifra's Municipales, Nicaragua*" 2017). Similarly, the *United Nations' Travel and Tourism Economic Impact Report* (2017) indicates that travel and tourism have increasingly contributed to national GDP. The United Nations estimates the Nicaraguan labor force to be employed predominantly in service work (61%), while roughly one fourth of the population works in agriculture (24%), less than one-fifth of the population is employed in industry (14.5%) ("Human Development Reports, Nicaragua" 2016). Because a growing number of Nicaraguans are employed in tourism, and because the tourism industry necessitates a high degree of service work, successful strides in conservation and the development of eco-tourism have the potential to maintain and draw tourism and providing direct and indirect opportunities for income.

3.1.2 Natural Resource Governance: MARENA

Nicaragua's people and governance structures have undergone revolutionary change within the last half century; after enduring decades of repressive dictatorship at the hands of the Somoza family, in 1979 Nicaraguan *Frente Sandinista Liberación Nacional* (FSLN) party overthrew the dictator President Anastasio Somoza Delbaye. The decade that followed was marked by national land reform and wide-spread grassroots political organizing led by

workers, teachers, students, *campesinas*[28]and international allies. Today Nicaragua's government is officially a constitutional democracy with executive, legislative, judicial and electoral branches. Most Nicaraguan institutions and ministries have been established over the last 30-40 years. As we will see within the community narratives, governance structures have changed signidicantly in the last two decades, post-revolution governance involved a high degree of community participation, whereas now most governance decisions are managed from the capital of Managua.

The Nicaraguan *Ministerio del Ambiente y de los Recursos Naturales*[29] (MARENA) is responsible for governance of natural resources and protected areas. MARENA's vision, mission and organization is "designed in order to transfer and share responsibilities with civil society and continually improve its technical, administrative and financial management"[30] ("*MARENA, Misión y Vision*" 2017). MARENA is in charge of the National System of Protected Areas (*Sistema Nacional de Áreas Protegidas*[31] or SINAP), which administers national parks and regulates nationally registered protected areas. MARENA also manages the Nicaraguan

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[28] *campesinas/*farmworker, landless or peasant farmer (feminine).
This is a commonly used term for agricultural workers and does not necessarily have a derogatory connotation, the way it may in English. Movements oriented around land and food sovereignty often use the term *campesino* in self-identification. In this case I have intentionally chosen the feminine noun in recognition of the fact that a vast majority of peasant farmers in the Global South are female, and they have, for the most part, been historically overlooked.

[29]*Ministerio del Ambiente y de los Recursos Naturales* (MARENA)/Ministry of the Environment and Natural Resources.

[30]Translation by author: original text from MARENA's government website:

> *"[MARENA] [e]stá a cargo de cooridinar y dirigir la política ambiental del estado y promover el aprovechamiento sostenible de los recursos naturales de la Nación. Sus principales atribuciones están dirigidas al control, normación y regulación de gestión ambiental y los recursos naturales. Su misión, visión y organización están definidas de cara a transferir y compartir responsabilidades con la sociedad civil y mejorar de forma continua su gestión técnica, administrativa y financiera" ("MARENA, Misión y Visión").*

[31]*Sistema Nacional de Áreas Protegidas (SINAP)/*National System of Protected Areas.

Tourism Institute (*Instituto Nicaraguense de Turismo*[32] or INTUR), which is charged with sustainable tourism and development ("*Misión y Vision, INTUR*" 2018).

MARENA is responsible for conservation, protection and sustainable use of natural resources and the environment. The ministry proposes, develops, implements and supervises national legislative policy on environmental quality and sustainable resource use. MARENA *both* creates and enforces national environmental law- which is to say, it is not externally regulated by other ministries or government entities. This means there is no enforcement agency, beyond MARENA itself, to enforce or regulate environmental management and decision making; thus, by its very institutional nature, MARENA is expected to be self-regulating.

MARENA's structure is highly centralized. Appointed delegates implement laws and norms in a top-down fashion; implementation of environmental law begins at a national level and is later implemented on a departmental and municipal level[33]. Permits are generally required for a variety of activities- these include commercial fishing, but also extend to minor management of natural resources, such as tree cutting, bio-monitoring on beaches and farms and transporting biological samples. All required permits must be issued and approved by MARENA delegates or representatives, and most of these work in the national or municipal capital cities.

As I will explain in detail in the upcoming *Los Pueblos/ Communities* section, all communities in this case study are located in the national department of Rivas; the nearest MARENA delegate for this department is located in the city of Rivas, this provides a prohibitive barrier for most community members. My research indicates a vast majority of

[32] *Instituto Nicaraguense de Turismo* (INTUR)/National Institute of Tourism.

[33] Nicaragua is divided nationally into nine departments; departments are divided into municipalities.

community members do not have access to personal vehicles, although some have access to motorcycles. Most community members travel to cities by accessing buses and/or soliciting rides in cars or trucks. Because of this, travel to the city of Rivas generally takes several hours each way and is limited by bus schedules. Travel to and from the capital city of Managua (usually lasting 3-4 hours each way) can easily take two days roundtrip. Furthermore, my research indicates that scheduling appointments at government offices is rare, delegate presence is inconsistent, conditional and/or unreliable, wait times in government offices commonly last several hours, a day or more.

MARENA officials rarely venture afield to rural and/or remote communities, perhaps due to budgetary constraints, lack of access to vehicles or fuel. Thus, the bureaucratic structure of MARENA is highly inaccessible to most community members in this case study; in fact, it seems almost exclusively accessible to organizations, entities and individuals who have close ties to government officials or have the resources and/or connections to access national and departmental offices.

Despite these challenges, MARENA does interact with communities by providing trainings, *charlas*[34] and certifications related to agriculture, fisheries and tourism. Within the communities studied, these are all fairly common and popularly attended. These activities often occur at a departmental, municipal and (more rarely) at a community level. MARENA representatives also host open meetings which are open to the public; although my research indicates that these meetings are rarely or sparsely attended by members of the coastal communities they are open to the general public.

[34] *charlas*/talks or workshops.
The frequency of these events is variable, my research found they occurred sometimes weekly and sometimes monthly. Occasionally during yearly beach clean-ups or other events they occurred in greater frequency.

3.2 Field Site

3.2.1 Los Pueblos/The Communities

All communities included in this study are located in the department of Rivas and the municipalities of San Juan del Sur and Cárdenas. The department of Rivas, like much of Nicaragua, is marked by the common experience of poverty; however, poverty in the municipalities of San Juan del Sur and Cárdenas is somewhat less extreme than other departments within Nicaragua ("Cifras Municipales, Nicaragua" 2008).

The most recent census data available on a departmental and municipal level is derived from the *2005 Nicaraguan Census*, which lists the population of the municipality of San Juan del Sur at roughly 15,500 individuals, with about half living in urban areas. Cárdenas is notably more rural, with a population of roughly 6,700 individuals with about one seventh[35] living in rural settings.

***Figure 5: Los Pueblos*, Communities Included in Research**

	***Pueblo*/Community**	**Total Population (2005)**
1.	Ostional	788
2.	Tortuga	575
3.	Escamequita[36]	1118
4.	El Pochote	395
5.	San Jeronimo	397
6.	San Antonio	204
7.	Pueblo Nuevo	292

[35] This demographic and economic data is admittedly dated and somewhat unreliable. Nicaraguan demographic and economic data after 2005 is largely unavailable through Nicaraguan government databases. While international organizations such as the United States CIA, the IMF, the UN and World Bank provide national data by year, this often lacks detail and/or granularity within departments and municipalities.

[36] The boundaries and number of communities represented by "Escamequita" in this report is unclear. It is listed above as one community, however, in the 2005 census it is listed as being composed of three smaller *barrios*, or neighborhoods: El Carrizal, Las Brisas and Las Parcelas. In my field work community members commonly referred to the community by different names, including "Escamequita", "Escameca" and "Escamequita Grande". For the sake of simplicity, I have kept it as "Escamequita" here, but it is likely some variation of its official *barrios* constitute several of the nine communities formerly involved in organized *paslama* harvests on the site.

Above is a list of seven communities included in the study field site. Total populations are taken from the 2008 San Juan Del Sur census report published by INIDE, the Nicaraguan Institute of Development Information[37] *(Cifras Municipales, 2008).*

Within the department of Rivas, community livelihoods are focused heavily on agriculture, fisheries and tourism. The 2005 census lists 682 organized groups in Rivas engaged in agricultural exploits, these organized groups included small-scale family coalitions and cooperatives, which are listed as producing both annual and perennial crops, engaging in cattle ranching, as well as artisanal fishing ("*Cifras Municipales, Nicaragua*" 2017).

Within Nicaragua, and especially since 1979, cooperatives have represented a main organizational structure for small-scale economic activity. However, there is evidence the number and strength of cooperatives is declining for a variety of reasons, including increased globalization and competition with larger-scale commercial industries (Utting et al 2014). Despite this, cooperatives remain an important source of organization, support and financing for many small-scale producers and entrepreneurs. This research includes interviews and participant observations with members of several active cooperatives dedicated to artisanal fishing and diving, aquaculture, oyster production, as well as agriculture and cattle ranching.

Findings from the survey conducted for this case study confirm a large number of community members included in this study participate in fishing and diving, and to a lesser extent, in agriculture. This survey also indicates the distribution of work is very gendered, with most paid work outside of the home taken up by men, while women engage in a great deal of unpaid labor within the domestic sphere, yet, increasingly women are involved in paid work in hospitality and small-scale business ownership. Younger individuals (18-30 years old) of both genders have higher tendencies to work outside the home and/or outside their communities. Many are engaged in official (but often temporary) employment and tourist-related service

[37] INDIE, *Instituto Nacional de Informacion de Desarrollo.*

work in or near San Juan del Sur. My field work indicates that young men have higher tendencies to work in construction and adventure/tourism guiding, while both genders generally engage in service work in restaurants, hospitality and (increasingly) guiding. Growing employment opportunities related to tourism may explain increasing interest in tourism and the tourism-related activities both within and around communities.

Surveys[38] conducted in this research also indicate that within communities' older generations tend to have completed basic levels of education. My surveys indicate individuals who are 50 years old or more commonly list "*primaria*/primary school" as their highest educational level completed, while those between the ages of 30-50 years old usually listed some "*secundaria*/secondary school". Increasingly, individuals between the ages of 18-30, and fewer individuals between the ages of 30- 50 years old, are listed as having completed some "*universitaria*/university" and "*otro*/other" education, the latter is most commonly listed as "*estudio técnico o vocacional*/technical or vocational training". While primary and secondary education is available within coastal communities, almost all university, technical/vocational and graduate studies must be pursued outside of the communities- commonly in San Juan del Sur and the departmental capital of Rivas or further afield.

3.2.2 Sea Turtles

Within this study, sea turtles represent the most important and widely referenced natural resources in relation to both types of protected areas. Additionally, both RVSLF and Paso Pacífico are explicitly dedicated to protecting sea turtles in addition to other species. There are five species of sea turtles found within Nicaragua. The Wold Wildlife Fund (WWF) defines the five species of sea turtles found in Nicaragua as follows:

[38] Survey Questions- in both English and Spanish- can be found in the Appendix.

Figure 6: Status of Sea Turtle Species Found in Nicaragua

Common Name in (Nicaraguan) Spanish	**Common Name in English**	**Scientific Name**	**Species Status (WWF)**
Carey/Torita	Hawksbill	*Eretmochelys imbricata*	Critically endangered
Cabezona/Caguama/Coyume	Loggerhead	*Caretta caretta*	Vulnerable species
Baula/Tora	Leatherback	*Dermochelys coriacea*	Vulnerable species
Paslama	Olive Ridley	*Lepidochelys olivcea*	Vulnerable species
Verde/Negra	Green	*Chelonia mydas*	Critically endangered

While WWF and other international organizations have worked for decades to protect endangered species, national Nicaraguan legislation for the protection of sea turtles was only adopted as recently as 2008. This research indicates MARENA collaborated in sea turtle egg harvest and extraction from the 1980s to 2006 prior to banning collections entirely in 2007. Today, both vulnerable and critically endangered species, meet criteria for protection determined by SINAC, but the level of compliance with this legislation is questionable.

3.2.3 Resource Use

Sea turtle eggs (of several species, but mostly *paslama*) have been consumed by indigenous peoples, *campesinas* and other residents of coastal communities within Nicaragua since time in memorial. Today, sea turtle eggs are still considered a culinary delicacy in much of Nicaragua; eggs are usually eaten shortly after collection and are accompanied by chili and lime. Eggs are also consumed for celebratory purposes and are often accompanied by liquor. They are also commonly sold at bars; many Nicaraguans consider sea turtle eggs to be an aphrodisiac, and eggs are not uncommonly sought out by men who wish to bolster their sexual prowess. Recent studies indicate that outside of coastal communities, egg sale and consumption

primarily occur at bars, *marisquerías*[39], and/or in municipal, departmental or national markets, known as *mercados*[40].

This research indicates that among coastal communities, eggs are eaten seasonally by some, but most do not have a taste for them. However, many consider them "a treasure" and an attractive as a source of supplementary income. It is important to note that eggs were collected and distributed to coastal communities legally and with the assistance of MARENA prior to 2007. Data collected in this study indicates that, especially during the last years of legal distribution (the early 2000s), *vendedoras* began to buy and sell eggs outside of communities and at *mercados*, thus providing an important source of income directly to communities. Since the ban, community members allege that some community members do still collect eggs illegally, but the majority of study participants, across stakeholder groups indicated that eggs were predominantly collected and sold by people "*de afuera*/from outside" indicating communities overwhelmingly have lost access to monetary benefits associated with the sale of eggs.

Sea turtle eggs have fetched varied prices throughout the years, and there is little official data on their price. However, both national and case study accounts indicate they are commonly priced and traded by the dozen. The table below, uses data from a Nicaraguan study on the sale and consumption of sea turtles and their eggs (Abarca, Urtega, 2008). The table demonstrates that the sale of *paslama* eggs-- sold by the dozen or in nests of ten dozen-- can represent a significant economic contribution to the average per capita gross national income

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[39] *Marisquerías*/ seafood restaurants.

[40] *Mercados*/markets. *Mercados.*
These are usually open-air markets located in central cities; the study cited markets in Rivas, Managua and León as the most popular markets for purchasing and consuming sea turtle eggs. Within this research Managua is the most commonly referenced location for sea turtle egg sales. This is likely explained by the fact that sea turtle eggs fetch a higher price in the capital, which is further than Rivas. Likewise, it is likely sea turtle eggs are not worth transporting and/or selling in the Northern city of León, because this market is likely saturated with eggs from the more proximal *arribada* beach of Chacosente.

(GNI). This makes the sale of eggs an attractive prospect for those living in poverty and with high rates of unemployment. This same report estimates that the department of Rivas has very few venues which sell sea turtle eggs, especially compared to other departments, this indicates that *vendedoras* may be essential to transporting eggs to buyers and along the commodity chain. This fact may also indicate that the sale of eggs is not only incentivized and/or beneficial to community members, but may result in monetary gain for numerous buyers and sellers along the commodity chain, which may make it difficult regulate and enforce bans on egg sales.

Figure 7: Estimated Cost of Paslama Eggs, 1900s and 2007

Year	**Cost *paslama* eggs in Nicaraguan Córdoba's**	**Cost of *paslama* eggs, in US dollars**	**Gross National Income per capita, in current US$**
1995	Dozen: C$1 to C$3 Nest: C$10 to C$30	Dozen: $0.03 to $0.09 Nest: $0.30 to $0.90	$610
2007	Dozen: C$35 to C$180 Nest: C$350 to C$1,800	Dozen: $1.06 to $5.43 Nest: $10.60 to $54.30	$1,290

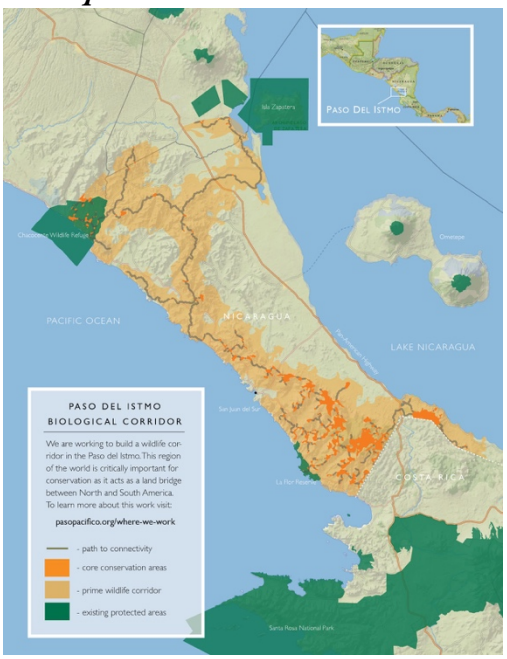
The above table uses data from conservation studies reports that estimated the costs of paslama *eggs (Abarca, Urtega 2008). I have converted prices from Nicaraguan Córdobas to US dollars and included yearly price adjustments within both currency calculations. Both yearly currency estimates included are for the month of June (in the year indicated). Estimated average GNI is derived from World Bank data* ("World Bank, GNI", *2018).*

While several of the sea turtle sprecies' eggs can be consumed the *paslama's* (which usually lay nests containing between 80 and 120 eggs) are the most widely consumed and sold due to its mass arrivals in La Flor and Chacocente. Other sea turtles, such as the *verde/negra* (*Chelonia mydas)* are valued for their meat, but this practice is somewhat limited to indigenous and subsistence communities located in remote areas of the Atlantic Coast. Other species, such as the *carey (Eretmochelys imbricate),* are valued for their decorative and expensive shells, which can be found in numerous items in *mercados* and are also likely are traded internationally on the black market. While all of sea turtles species may be threatened by to various practiced within Nicaragua, my research indicates that within the communities studied consumption and sale of *paslama* eggs represent the only consistent use of sea turtle species.

3.3. Protected Areas

Two types of protected areas are examined in this research: RVSLF, which is managed by MARENA, and Paso Pacíficoprivate beaches and farms, managed by private land owners in who collaborate with environmental NGO Paso Pacífico. The following section provides basic descriptions of both RVSLF and Paso Pacífico protected areas, describing their goals and management structures which are essential in analyzing how well they meet conservation and community goals.

Figure 8: Map of Protected Areas in the Pacific Isthmus of Nicaragua



This figure (courtesy of Paso Pacìfico), titled "The Pacific Isthmus Biological Corridor", shows paths of connectivity drawn in brown lines, core conservation areas in bright orange, prime wildlife corridors in light brown and existing protected areas in green. La Flor Wildlife Refuge, or RVSLF, is located in the Southern Pacific Coast of Nicaragua. This protected area, along with Chacocente Wildlife Refuge, located further north, are know as sites for *arriabadas* of *paslama* sea turtles ("Paso Pacífico, Maps", 2018).

3.3.1 Refugio de Vida Silvestre La Flor (RVSLF)

Description and Goals

Officially known as the *Refugio de Vida Silvestre La Flor* (referred to as RVSLF, or "the refuge") is a nationally designated wildlife refuge registered with SINAC. Located roughly 16 kilometers south of the major tourist attraction city of San Juan del Sur, the refuge can be accessed along a rugged dirt road along the coast which passes through many of the coastal communities- these include Escamequita, the entrance to Tortuga, Ostional and El Pochote. This route, between San Juan del Sur and the refuge can take half an hour each way in a personal vehicle. In the absence of this, the refuge can be accessed by bus, this lasts between 30-60 minutes and is limited to five regularly scheduled buses that commute between San Jan del Sur and El Pochote on weekdays and in a more limited capacity on weekends. Both car and bus routes are limited and/or further delayed in the rainy season, when roads are rough, and rivers may be impassable due to seasonal flooding.

A report produced by the Nicaraguan Autonomous University states that RVSLF is bound by the San Juan del Sur road to the East and privately-owned farms to the North and South (Acevedo-Cruz et al). The total area of RVSLF is listed as 24,797 hectares (247.97 km) of these, 4,206 hectares (2.06 km) are terrestrial, and 20,590 hectares (205.9 km) are marine. The coastal refuge it is bordered on the West by the Pacific coastline, which spans roughly a kilometer and a half. RVSLF includes a marine protected area delineated by the mouth of the Escameca Grande River and Punta Clavo and extending Southwest five nautical miles (9.26 km) seaward.

This same report, which contains numerous interviews with MARENA officials, both at the national level and managers responsible for RVSLF management, details that RVSLF has four main objectives[41]:

> *1) Conserve habitat and species of flora and fauna of national and international interest.*
>
> *2) Improve understanding, through scientific investigation and monitoring, of the biological species found in the area as a principal activity of sustainable use of resources.*
>
> *3) Establish limited areas for education purposes in order that the public may appreciate the characteristics of the protected habitat and wildlife management activities.*
>
> *4) Manage habitat for the protection of one or more resident or migratory species of interest at the national, regional or international level.*

RVSLF was primarily established as a protected area to protect five aforementioned species of sea turtles, all of these have been recorded nesting on its beaches. And the *paslama* can be spotted throughout the year feeding and mating in coastal waters. All of sea turtle species are currently protected within the refuge, and the extraction of nests and eggs are currently prohibited.

As mentioned formerly, RVSLF is one of five spots world-wide, and one of the two spots within Nicaragua, where *paslama (Lepidochelys olivacea) arribadas*[42]occur. This phenomenon generally occurs twice a year (once in the dry season and once in the wet season) and can span 3-7 consecutive days. During arribadas several thousand *paslamas* will lay their eggs on the beach. As a recent example, Nicaraguan newspaper *La Prensa* states that in 2015 RVSLF officials reported roughly 80,000 *paslamas* nesting on the shores, and over one million hatchlings emerging from the beach (Calero & Mabel 2016).

Arribadas are fairly unpredictable in both in their timing and the numbers of nesting sea turtles. The *paslamas* vast Pacific migrations are difficult to track and have only been monitored

[41] Translation by author.

over the last few decades with radio telemetry technology. *Paslamas* reach sexually maturity at 10 to 15 years of age and can live to be up to 100 years old. This makes measuring the effectiveness of conservation difficult due to the lag time between natural resource management implementation and measurable results (Acevedo-Cruz, C. I.; Bracamonte -Otosome, G.C.; Torres-Rivera, A.L.).

Management Structure of RVSLF

The *2014 List of Protected Areas* classifies RVSLF as collaboratively managed by MARENA, the military and the private landowner. During the time of this study the RVSLF director is listed as Faustino Obando and MARENA Rivas delegate as Ronald Miranda (Acevedo-Cruz et al.). This research indicates that since 2014, there have been sustained efforts increase collaborative management through the formation of the *Comité de Co-manejo*[43] (CCM). The CCM is run by MARENA, it includes representatives from MARENA, as well as representatives from the nine coastal communities. The formation of the CCM is facilitated by an international consulting firm which is in turn supported by funds acquired by Paso Pacífico. The CCM was created to develop and implement a new management plan for RVSLF and integrate the needs of MARENA as well as those of communities. This took place over the course of several meetings, several of which took place in the capital city of Managua. In August of 2017 the CCM, formulated a new official management plan; during the time this research was conducted I was unable to attain details on the specifics of the plan or its implementation; I was however, able to interview several individuals who were involved in the CCM.

[43] *Comité de Co-manejo* (CCM)/Co-Management Committee.

Employees

My field notes indicate both MARENA *guardaparques*, or rangers, and military soldiers live on-site full-time in a *casona*[44] near the RVSLF main entrance and parking lot. The *casona* serves as the main entrance to the refuge and has a path that accesses the beach, it also serves as the main office, as well as a living quarters and kitchen for RVSLF employees. During this study MARENA was represented by the RVSLF Director, Faustino Obando[45], who reports to MARENA delegates in the city of Rivas and in the capital city of Managua.

MARENA employs several full-time civilians as *RVSLF guardaparques*[46] who patrol beaches, engage in biomonitoring centered on sea turtles and manage an on-site turtle hatchery. My field observations indicate that rangers work in shifts on designated sections of the beach. Rangers wear uniforms consisting of a blue button-down collared shirt and field boots, usually with long pants of their choosing. *RVSLF guardaparques* typically carry clipboards to document sea turtle biomonitoring (basic counts of nesting and hatchling turtles, species, time of day etc.).

Nicaraguan military soldiers also work at RVSLF, my field notes indicate they patrol the refuge in green camouflage uniforms (consisting of long-sleeved shirt and long pants) and military boots. Soldiers are armed with AK-47s, which the typically carry strapped over the

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[44] *casona*/a large traditional house.
This *casona* is build in the traditionally fashion with a wrap-around porch and an outdoor wood stove kitchen. *Casonas* are generally located in the central part of a ranch or farm; in the case of RVSL it is the historical house that belonged to former owners. The *casona* has now been converted into a living area, and ranges and soldiers often nap in hammocks on the porch between shifts. It also serves as a rustic office, basic tourist center and hatchery for nests confiscated from *hueveros*.

[45] Interviews indicate he took on the position of director in 2014.

[46] *RVSLF guardaparques*/RVSLF park rangers.
These are again, referred to by their most commonly used name, unlike park rangers in the United States and other countries, my research indicates RVSLF park rangers have little formal training or formal interpretive skills. Their responsibilities revolve mostly around biomonitoring, but they interact minimally in an official capacity with refuge visitors.

shoulder or back[47]. At night they often also carry high beam flashlights, which they use to patrol the beach in search of *hueveros*[48]. Much like the *RVSLF guardaparques*, they work in shifts of roughly 6 hours on designated tracts of the beach.

Soldiers are charged with protecting sea turtles, their nests, as well as preventing the illegal extraction of eggs. They also are charged with enforcing refuge norms and protecting tourists from robbery or theft. My field research indicates soldiers may confiscate illegally acquired eggs and detain *hueveros*; there is not an official detention center on-site, but there are reports of a room in the *casona* where *hueveros* may be kept for the night.

My surveys indicate both *RVSLF guardaparques* and soldiers were, at the time of this study, composed entirely of male employees, a majority of them were 18- 30 years old while some of the captains were 30-50 years old. My data indicates that both *RVSLF guardaparques* and soldiers are, in their vast majority, not residents of the communities or even nearby municipalities (except in the case of 2-5 temporary *RVSLF guardaparques*). RVSLF employees live on sight and interact minimally with local communities. My data indicates that most soldiers and rangers work in shifts for several weeks at a time and when they have days off, leave the municipality (and often department) by bus to visit their families and hometowns.

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[47] AK-47s are the most common make of firearm carried by military officials and soldiers. My field notes indicate most soldiers in the region (there are several dozen posted at several border checkpoint between the road from San Juan del Sur that extends to Costa Rica) carry these guns. Soldiers in the refuge reported they were instructed not to fire unless fired upon.

[48] *hueveros*/egg collectors.
This is the term most commonly used by community members when describing individuals who enter the refuge to collect eggs. This research intentionally deviates from naming these individuals "poachers" for two reasons: 1) community members did sometimes refer to "poaching" but did not call these individuals "poachers", and 2) the term "poacher" effectively criminalizes behavior while generally overlooking or invalidating traditional histories of *paslama* egg extraction.

Community Interactions and Access to RVSLF

This research indicates, currently members of the nine communities to RVSLF are allowed free access to RVSLF, during the *arribada* and at other times. Nicaraguan citizens who are not from the local communities, and foreigners, must pay an entry fee to enter the refuge, the cost is C$100 and C$200 respectively (roughly US $3.17 and $6.34, 2018 exchange rate).

MARENA and INTUR regularly host *charlas* and outreach activities with communities that are frequently attended by community and cooperative members. Some workshops can be utilized to acquire or work toward official INTUR guide certifications. My research indicates since 2014 there have been increasing collaborations with local communities, through the development of the CCM. Additionally, there are efforts being made by part of MARENA to promote RVSLF tours and to require the employment of community guides when entering the refuge.

My research indicates that in past years the refuge has temporarily employed community members during the *arribada* season for biomonitoring efforts, but this is increasingly uncommon. At the time this research was conducted, a majority of those employed within RVSLF where reported to be non-locals, although in the past several *RVSLF guardaparques* and a cook where reportedly hired from local communities.

However, it is not uncommon for community members to volunteer at the refuge. Local secondary school students commonly reported job shadowing or helping out as part of school projects. During the last five years, the refuge has been collaborating with Paso Pacifíco to host *Guardaparques Junior*[49] Programs which bring school children to the refuge throughout the year. Collaborations have also included Coastal Clean-up events and help with biomonitoring.

[49] *Guardaparques Junior*/Junior Rangers.

3.3.2 Paso Pacifíco Beaches and Farms

Description and Goals

Paso Pacífico is a US-based environmental NGO founded in 2005. The organization's mission is "to restore and conserve the natural ecosystem of Central America's Pacific Slope by collaborating with landowners, local communities and involved organizations to promote ecosystem conservation" ("Paso Pacífico, Our Mission", 2018). Efforts within the region concentrate on reforestation, community engagement and the preservation of flagship species, which include all five sea turtle species, the yellow-napped Amazonian parrot (*Amazona auropalliata*), Spider Monkeys (*Ateliadae ateles*), as well as a variety of native bees, bats and endangered tree species. On its website, Paso Pacífico lists its objectives on its webpage as:

> Rebuild and Protect Wildlife Habitat: We empower local people to restore habitats and protect threatened wildlife. Together with communities, we plant trees, protect forests, and manage reefs.
>
> Transform Human Lives with Face-to-Face Outreach: Research shows that personal interactions inspire behavior change. With your support, we give people tools and training to improve their livelihoods. We also work with children to build empathy towards nature.
>
> Accomplish Lasting and Broad Change: We make long-term improvements across the Pacific Slope by finding and addressing the root causes of environmental problems and working across social and ecological systems to solve them.

Paso Pacífico collaborates with private landowners on several beaches surrounding RVSLF, these sites include the beaches of Brasilón, Guacalito, Escameca Grande, El Coco and Ostional. The organization also partners with private farm owners, helping them register their lands as nationally protected areas. In 2016, they report having set aside 3,500 acres as officially registered protected reserves within Nicaragua. In addition, the organization has recently

acquired a 120- acre parcel it has named the Finca Mono Bayo (FMB)[50], which is also a protected area. Finca Mono Bayo is a site dedicated to continued reforestation and education efforts ("Paso Pacífico, Land Purchases" 2017).

Management Structure of Paso Pacífico

Paso Pacífico is run in Nicaragua by a national director and the organization employs a variety of Nicaraguan nationals as consultants, biologists, community engagement coordinators and administrators. Paso Pacífico also employs members of communities as managers/coordinators, educators and *PP guardaparques*[51] to patrol and protect turtles on private beaches, as well as maintain turtle hatcheries and plant nurseries, participate in community engagement and education, run ecotourism projects and micro-entrepreneurial training.

Paso Pacífico's *2016 Annual Report* states it is funded primarily by foundation grants (61%), US government grants (18.1%) and individual donations (16%) ("Paso Pacífico, 2016 Annual Report" 2017). It has partnered with large-scale organizations such as USAID, the US Forest Service and IUCN Netherlands.

Employees

At most beaches *PP guardaparques* patrol in uniform; my field notes indicate this uniform consists of a long-sleeved collared blue shirt with "*guardaparque*" written across the back and the Paso Pacífico emblem on the front, they also wear pants and a boot-like or athletic shoe of choice. *PP guardaparques* carry headlights and clipboards; they collect biomonitoring

[50] Finca Mono Bayo (FMB)/Spider Monkey Farm.
This is the name of the most recent Paso Pacífico acquired protected area. Located in the department of Cárdenas it is, as its name indicates, a farm named after three of its charismatic residents, endangered Spider Monkey.

[51] *Paso Pacífico guardaparques*/Paso Pacífico park rangers.

data on nesting sea turtles and maintain the hatcheries. *PP guardaparques* generally patrol beaches at night in pairs or larger groups. However, they have no official enforcement capacity and do not carry weapons.

One of Paso Pacífico's first projects consisted of offering monetary incentives to buy back turtle eggs collected on these private beaches, with the collaboration of private land owners. The incentives consisted of a monetary compensation which could be collected by the individual, a portion of every individual incentive incentive also contributed to a community fund. If and when *hueveros* where encountered on private beaches collecting eggs, they were offered an incentive by *PP guardaparques*. If accepted, the eggs were placed in a hatchery either on that beach or one nearby, when turtles were born, they are released into the ocean.

My research found that between 6 to 9 *PP guardaparques* have been employed full-time between 2016 and 2017. They report to a Beach and Turtle Program Coordinator, who may or may not be at the beach during work hours. Coordinators report to the Paso Pacífico director, and all members of staff participate regularly in meetings (usually monthly), where their feedback is solicited in implementing decisions and seeking funding opportunities.

Community Interactions and Access

Access to private beaches is (at least in theory) open to the public due to national laws which prohibit blocking access to coastlines or historical-use trails. Private farms are administered at the discretion of their owners and not open to public access unless they include a historical-use trail. FMB, for example is generally closed to the public but open to *guardaparques Junior* and community members for specific activities such as tree planting, managers interviewed in this study reported having issues with unauthorized entry to the farm, these related to both illegal hunting or wildlife poaching and illegal tree cutting. However, Paso Pacífico does provide opportunities to invite the public onto the FMB, during such events

the organization provides transportation, snacks and other resources to community participants.

My field notes indicate that all *PP guardaparques* were either from local communities or resided in local communities during their employment. Paso Pacífico staff in other roles generally interacted with members of the communities on a regular basis, depending on their role and frequency of visits to the region. Many ate at the local *comedor*[52] in Ostional and stayed at the regional office in Ostional or in community *hospedajes*[53] when conducting site visits. In Cárdenas, the site of FMB, staff were life-long members of the communities who continued to live and work in the area and had an intimate knowledge of both people and place.

In addition to their role in conservation, Paso Pacífico provides a number of programs, sponsors events, and donates resources to community members. These include: the *guardaparques junior* program, a free environmental education program for school children, which in 2016 had 144 graduates; Coastal Clean Up Days, a popular and large-scale community volunteer event that removed trash from coast lines; and, the Christmas Bird Count, a yearly bird biomonitoring event attended by Paso Pacífico employees, *PP guardaparques*, volunteers and community members.

Additionally, Paso Pacífico provides workshops focused on sustainable fisheries, aquaculture and small business entrepreneurship training. It specifically targets working with women and collaborates with broader InTur ecotourism programs; in the last few years Paso Pacífico has developed a Women's Oyster Cooperative, equipped an all-female ranger team and trained women entrepreneurs in business, marketing and hospitality.

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[52] *comedor*/small-scale eatery or dinner.

[53] *hospedajes*/small-scale bed and breakfast or hostel.

Paso Pacífico has also aided communities by partnering with outside organizations such as *Proyecto Noble*[54], a privately sponsored project which donates school supplies, provides safe drinking water and medical supplies for seven health clinics in the areas ("Paso Pacífico Annual Report", 2016). Still other projects include school-based reading programs, English Language Learning courses and donations including a multipurpose/computer room classroom in the community of Tortuga.

[54] *Projecto Noble*/The Nobel Project.
This is a project named after a family by the same name; these donors make donations to communities affiliated with Paso Pacífico, donations include school and health supplies, food donations, books and other resources.

CHAPTER 4: RESEARCH

In the following chapter I will detail *how* this thesis aims to answer research questions I begin by exploring research assumptions and approaches that inform the study, then describe my relationship to the research process; after this I focus on explaining why the case study method, together with participant observations, interviews and surveys are best suited to explore the questions at hand. I also detail how these methods were employed in the field. I end by describing how data was collected and analyzed.

4.1 Assumptions & Approach

It is important to note that historically academic researchers have often reproduced inequalities by framing their research subjects in a manner that both masks and reinforces the biases of the researcher. Current academic knowledge is overwhelmingly informed by Western scientific knowledge, which is materially and discursively linked to the colonial practice of information gathering that was funded, used and deployed to best exploit people and resources, especially in the Global South. This pattern of knowledge production is partially responsible for the marginalization, impoverishment and obliteration of diverse livelihoods and forms of knowledge that do not align with the agenda of capitalist extraction (Bryant 1998). Academic researchers have also traditionally determined what knowledge they find valid and set research agendas to extract it without including communities in the research process or in knowledge dissemination (Smith 2012; Lykes & Crosby 2014).

In my thesis, *Concientizando una Lucha* I employ a research approach that recognizes historical patterns of inequality as part and parcel of the struggle for effective community

engagement in Nicaragua's Pacific Isthmus. I intentionally depart from more traditional examinations of protected areas in an effort to challenge deep-rooted inequalities that are often perpetuated by conventional research methods, which all too often maintain power through monopolies of knowledge and knowledge production (Gaventa and Conwall yr). Conversely, this research is informed by the epistemological assumption that community members most proximal to protected areas are the most knowledgeable subjects on how these areas affect their communities (Creswell & Poth 2018). Given this assumption, I minimize the distance between researcher and researched, intentionally departing from former examinations of natural resource conservation which privilege state, international and organizational perspectives.

This approach pulls from a growing number of scholars, who have, since the 1960s begun to pay special attention to issues of environmental disparity and inequities that are exacerbated by globalization. I do this in the hopes of producing more socially conscious academic research (Peet 1998), drawing from scholars such as Denzin and Lincoln (2011) that employ a social justice framework that seeks to bring about change and address social justice issues by committing to equity, non-violence, peace and universal human rights.

I also draw upon feminist epistemologies and participatory ethnographic methods which seek to expose invisibilized perspectives through active participant observation (Buch & Staler 2014; Lykes & Crosby 2014; Hesse-Biber 2014). As an active participant observer I not only conduct research but also work, collaborate and live among the subjects I study. I have done this while remaining self-reflective and attentive to the manner in which I affect and am affected by my subject (Cressewell & Poth 2018). To this end, I have intentionally engaged in research while providing resources and training to communities and collaborating with important gatekeeper organizations, in this case represented by Paso Pacífico. These methodologies characterize my

research as *action research*- a research methodology that produces knowledge *alongside* research subjects rather than just *about* them (Adelman 1993).

One of the earliest champions of inclusion and engagement of local knowledge systems was scholar-activist Paulo Freire (1970), who worked with peasant populations in the Global South. In fact, he introduced the concept of *concientización* — or critical consciousness — while working among marginalized populations in Brazil. Freire's work was centered on literacy training for rural, poor and historically marginalized groups beginning in Brazil, he went on to collaborate and share his ideas and practices throughout Latin America. His work is tied to literacy campaigns centered on creating questioning, critical and engaged people. Freire's development of critical consciousness focuses on developing a systematic and in-depth understandings of the world to expose political and social contradictions and encourages taking action against systems of oppression. His renowned book, *Education for Class Conciousness* (1973), was taken up by a variety groups throughout the Global South; within Nicaragua, these groups included revolutionaries and teachers involved in national literacy campaigns in the 1980s, as well as cooperative organizations which were key entities in mobilizing, organizing and educating community members post-revolution. Today, the concept of *concientización* is commonly and often referenced within national Nicaraguan rhetoric alongside narratives of liberation, empowerment and solidarity (Kirkendall 2010).

Thus, works such as Freire's have been pivotal in critically exposing how the process of community engagement can transform inequities in power and social relations. Within this thesis, the title word "*concientización*" not only refers to one of the most notable findings within the research, but also pays tribute to Freire's work. As we will see in the findings chapter,

Nicaraguan community members, leaders and co-operative groups in particular, commonly use the term when describing the struggle for CEC today.

4.2 Personal Relationship to Research

As the Principal Investigator (PI) in this research my own experiences irrevocably inform the depth and scope of the findings within this research. In this research chapter I intentionally provide information to contextualize the act of knowledge production and expose my position in relation to the subject I study.

I have intentionally written this thesis in the first person to remind readers of my active role in presenting information. In so doing, I hope to avoid the fictitious assumption that any communication of knowledge can be purely "objective" or composed entirely of immutable facts (Haraway 1988). As for my relationship with the subject at hand, Central America is one of the places I call home; I had lived in Costa Rica for over ten years and am a dual national US-Costa Rican citizen with familial ties to both nations, a strong aversion to nationalism and a strong commitment to ideals of democracy, grass-roots organizing and meaningful and culturally appropriate community engagement. I lived in Nicaragua for over 10 months prior to beginning to conduct this research there and I am also bilingual[55] and bicultural, which has allowed me a deep level of engagement in the topic I study.

Prior to initiating this research, in 2008 and 2009,I worked Nicaragua for 6 months doing human rights and political reporting for the US Embassy located in Managua. I began working in conservation and protected areas as a Paso Pacífico youth guide program language instructor

[55] I am bilingual in English and Spanish and have fluent verbal proficiency and professional competence in both.

in 2009; in 2011, I partnered with the Costa Rican National Parks' *Programa de Educación Biológica* (PEB) in supporting biological literacy programs engaged with primary school children. I then went on to teach environmental education in the US National Parks over 4 years, during which time I took on a role as Diversity, Equity and Inclusion Coordinator for a national environmental organization. It was in this role that I began to work training, recruiting and retaining historically underrepresented populations within environmental organizations. At this stage I also began to gain interest in critically exploring histories of protected area formation and management.

In 2015, as a graduate student pursuing a Master of Science in Community Development, I reconnected with both Paso Pacifíco and Costa Rican National Park leaders as I applied for funds to engage in transnational collaboration centered around CEC. After acquiring funds from the Blum PASS Grant and other UC Davis funders, the two organizations and I collaboratively designed and implemented a series of workshops centered on biological literacy, building leadership skills and guide training. My official research for this thesis was conducted after and alongside extensive organizing, through training workshops, field outings and community living.

Because of my involvement conducting three sets of workshops in the communities, I believe most of the community members and research participants viewed me as a community organizer and conservation-oriented teacher. People often made note of the fact that I am a woman, were surprised that I travel alone, and were curious about the fact that I am in my early thirties, childless and unmarried; community members and Nicaraguans more generally made note that I present as white or *chela*[56] and were often surprised by the fact that I have family ties

[56] *chela/chelita/* white or light skinned person (Nicaraguan vernacular).

to the region and I am a Costa Rican as well as US citizen. I often shared that my great-grandfather was from Nicaragua, and that throughout my frequent stints living and working in-country (between 2007-2011) I traveled to remote corners of the nation on public buses and hitch-hiking, often to visit Peace Corps volunteers, and later to engage with food-sovereignty coalitions. It was through these travels that I developed a deep admiration for the resilience, hard work and generosity of the Nicaraguan people, and I was not shy about making note of this, or remaining critically aware of the role the US government historically played in its interactions with the Nicaraguan government and people.

When I returned to Ostional in 2016, I was mostly lived in Paso Pacífico housing, which consisted of the organization's house and office building located in the community of Ostional. I was also housed at their national headquarters in Managua, and at times welcomed into staff's family homes. I had a very collaborative and congenial relationship with Paso Pacífico staff, and after many long days of work, leisurely walks at dawn and the occasional 4-wheel drive adventure in search of rare birds, I came to view many of the staff, as not only as colleagues, but also as dear friends. Since many of the staff members resided in the communities, I engaged fairly thoroughly in *pueblo* life- which is to say, I was updated on community *chisme*[57] (whether I wanted it or not) everyday as I ate my meals at the *comedor*, I also assisted the organization by translating meetings for women's groups, visiting schools and organizing educational activities, helping out with other biomonitoring and coastal clean-up projects and sometimes just hanging out and holding cute babies while we waited for someone to show up.

[57] *chisme*/gossip.
Chisme is one means of social control and regulating behavior in close-knit communities. There are some examples of this illustrated in the *Findings & Discussion* chapters.

Every time I left my site in Ostional staff, friends and I threw a small *despedida*[58], I invited community members, their kids and family. I knew I would miss life in the quiet, warm and wind-swept corner of the world; and every time, I was invited to come back by community members. It is due to these varied and rich relationships that I believe I was *en confianza*[59] --to be trusted or entrusted with information or responsibility -- with many of the research participants and interviewees. I also believe this allowed me a depth of engagement that allowed me to explore the subject at hand with richness and nuance.

4.3 Research Design & Collaboration

This research employs a *case study method*, which is defined by its focus on a bounded system (Stake 2006). Additionally, I believe this research is also an *instrumental case study*—a case study situated in a specific area that can be used to study the larger issue (Assumussen & Cresswell 1995). The larger issue being the historical marginalization of communities in the Global South from protected area formation and management. There are many sites within the Global South that experience environmental threats, widespread poverty and inequality, it is my hope that this work may contribute to broader discourses on conservation and development.

In this research I predominantly employ two kinds of qualitative methods: participant observations and interviews. I have drawn upon the recommendations of foundational

[58] *despedida*/goodbye or goodbye party.

[59] *en confianza*/to be trusted or entrusted with information or responsibility.
To be "*en confianza"* is a term often used in Central America; it often indicates a more informal relationship, like one among friends, family or well-known people. It is often said people are *en confianza* when they are willing to drop formalities and disclose trusted information without fear of offending.

methodology scholars, Cresswell & Poth (2018) in selecting qualitative research methods to approach my research questions. Below I have outlined three detailed reasons that align with their recommendations in selecting qualitative research methods with the subject of my case study:

1. Community effects of protected areas are complex and embedded within a larger socio-political context, thus a deep understanding of local context is necessary.
2. Protected areas formation and management studies have often employed quantitative approaches that structurally privilege examining the role and effects of major governmental, national and international players; but in order to understand the nuance a more in-depth qualitative study is necessary.
3. Qualitative methods are especially adept at exploring problems in their local contexts and are also appropriate for empowering individuals in knowledge sharing.

I designed research methods by studying academic literature and partnering with Paso Pacífico and ACG staff. I consulted and asked for feedback from staff throughout the research process, which I believe prevented uncomfortable or unethical engagement around sensitive topics. This also prepared me on how to approach, remain respectful of and gather useful data from research participants. Both organizations has experience conducting and supporting academic research and have strong ties to local communities. Additionally, since Paso Pacífico staff generally had good rapport in coastal communities this allowed me to meet community members from a wide variety of stakeholder groups.

Paso Pacifíco leaders were consulted on, reviewed and approved of the research project, protocol and the accompanying community engagement projects. This partnership also aided me in my application for IRB approval, to which I submitted documents to ensure I followed ethical protocols and did not harm to participants. Since this project occurred in Nicaragua, I was also required to translate all documents including informed consent scripts, surveys and interview templates to ensure they were culturally appropriate and complied with national local laws,

norms and customs[60]. After submitting all required documents this research was officially classified as "exempt" by the IRB.

4.4 Methods

All official field work for this research was conducted between June 2016 and August 2017[61]; field work totaled eleven weeks. Key information on the three research methods—participant observation, interviews and surveys are detailed below.

4.4.1 Participant Observation

Participant observation is the most widely used method in this research and was used throughout the entirety of the study. I engaged in data collection as a *complete participant*- fully engaged with those observed (Angrosino 2007) and as a *participant as observer*-- participating in activities in a salient manner to gain insider views and gather subjective data (Bogdewic 1999). Both kinds of participation were recorded through note taking on-site and journaling in notebooks and/or word processing software. Field notes primarily documented three sources of information:

Personal interactions with stakeholders who were not interviewed

> Field notes detail interactions with stakeholders identified as unable or unlikely to grant a formal interview. These included military personnel charged with protecting RVSLF, MARENA employees, *hueveros*, and individuals with specialized information on a particular subject. Because these exchanges were sensitive they were not recorded and included only in field notes.

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[61] As mentioned formerly in the introductory thesis *Disclaimer,* it is very important to bear in mind that all research and analysis is based on data collected prior to August, 2017. Since that date conditions within Nicaragua have changed significantly; Human Rights Watch, the Organization of American States, the United Nations have all condemned a dramatic increase in human rights violations tied to political dissent and instability which have been increasing dramatically since March of 2018 ("Human Rights Watch, Nicaragua" 2019). This thesis should be read bearing in mind the case study method provides a "snapshot" of a particular time and place, and while findings may hold true within these boundaries, there is not guarantee these have continued under more recent conditions.

Important interactions between and with stakeholders

Partnership with Paso Pacífico granted access to innumerable introductions to people engaged directly and indirectly in protected areas. Long, bumpy car rides and strolls through protected areas alongside local people almost always exposed new information. While not all available parties were formally interviewed, these interactions were very insightful. Field notes include ample notes on interactions between different stakeholder groups in different settings to contextualize information; community members would also often point out examples of individuals or interactions that they thought were relevant to my research; these are included in my field notes.

Critical self-reflection

I made a constant effort to track my reflections and reactions during the research process. Because I lived and worked in on site, I had many interactions with community members and many chances to visit different protected areas. I made note of my observations in journal entries. Field notes are used in the findings section to illustrate key themes that emerged in workshop settings and in the field. Many of the notes were used to amplify or give examples of key themes in the research.

The table below details the ten distinct participant observation conducted at RVSLF. Two of these participant observations occurred during an *arribada*, which is easily the busiest and most active time at the refuge, due to an influx in thousands of nesting *paslama* sea turtles, which usually draw additional tourists and *hueveros* in addition to the usual staff which consists of MARENA rangers and soldiers.

Figure 9: Participant Observations at RVSLF

Month and Year	**Duration of observation**	**Conditions**	**Interactions**
June 2016	2 hours	day	MARENA *guardaparques*, soldiers, Paso Pacífico staff
July 2016	2 hours	night	MARENA *guardaparques*, soldiers, Paso Pacífico staff
August 2016	2 hours	day	MARENA *guardaparques*, soldiers, Paso Pacífico staff
August 2016*	3 hours	night	MARENA *guardaparques*, soldiers, Paso Pacífico staff, ACG staff, cooperative members, community members

December 2016	2 hours	*Arribada*, night	MARENA *guardaparques*, soldiers, Paso Pacífico staff
December 2016	2 hours	*Arribada*, day	MARENA *guardaparques*, soldiers, Paso Pacífico staff
January 2017*	2 hours	day	MARENA *guardaparques*, soldiers, Paso Pacífico staff, cooperative members, community members, foreign tourists
August 2017	2 hours	day	MARENA *guardaparques*, soldiers, Paso Pacífico staff
August 2017	2 hours	night	MARENA *guardaparques*, soldiers

*Indicate workshops

Five participant observations were conducted on Paso Pacífico protected areas; Paso Pacífico protected areas include Brazilón Beach and *Finca Mono Bayo* (FMB); two other sites, which are not officially protected areas include the Ostional and El Coco sea turtle egg hatcheries.

Three multi-day observations were conducted at workshops[62], which took place primarily in the community of Ostional, but also included site visits to a variety of sites detailed below.

[62] Eco-Tourism Guide Training Workshops occurred August of 2016 and January of 2017 and were focused on environmental education, leadership formation and eco-tourism guide training. Workshops were created collaboratively with Paso Pacífico and attended by over 50 community members, Paso Pacífico staff, as well as other national and international collaborators affiliated in with biological conservation, education, community development and women's empowerment.

The Women's Eco-Tourism Workshop, conducted in August 2017, aimed to target women leadership and empowerment. The first two workshops were funded by the Blum PASS Grant for Developing Economies and the UC Davis Humanities Graduate Award; the third workshop was funded by the WRRC Summer Research Grant and all of the workshops used funding from the Henry A. Jastro Award and the UC Davis Community Development Grant.

Figure 10: Participant Observations: Ecotourism Guide Training Workshops

Workshop Title	**Month, Year & Number of Days**	**Organization Involved**	**Total Participants**
Eco-Tourism Guide Workshop	August 2016 4	Paso Pacífico, ACG/PEB,RVSLF, *Proyecto ELLAS*	50
Eco-Tourism Guide Workshop 2	January 2017 2	Paso Pacífico, RVSLF, Flora y Fauna International	45
Women's Eco-tourism Guide Workshop	August 2017 1	Paso Pacífico	23

4.4.2 Interviews

In total, 18 individuals were interviewed; of the 18 interviews, one is unofficial. I have honored the request of this one individual who asked to remain off the record and not identify their organizational affiliation or quote them. Interviews usually lasted between 30 minutes and an hour. These were mostly conducted in public or unenclosed areas (on porches or at open-air *comedores*), and accompanied by coffee, a snack or meal, that I usually provided. All 17 of the official interviews were recorded via iPhone and later transcribed verbatim. The unofficial interview was not recorded or transcribed but documented through rigorous note taking. Interviewees were selected using several criteria:

1) Representation of diverse community stakeholder groups (listed in Figure 11, below).

2) A high level of familiarity with protected areas, prioritizing individuals who had interacted or worked with protected areas in recent years and/or over long periods of time.

3) A high level of familiarity with key resources, including sea turtles and their eggs, and to a lesser degree, migrating birds and other wildlife and resources.

4) Representation of local demographic composition of the community, with emphasis on diversity in age groups, gender representation, educational level and diverse resource users (cooperatives, managers, project organizers etc.).

Figure 11: Number of Interviews, by Stakeholder Group

Type	**Stakeholder Group**	**Interviews**
a	Community Leader *Especially those with experience working in natural resource management	2
b	Cooperative member/leader *These include members/leaders of aquaculture, agriculture and/or fishing cooperatives.	3
c	Protected area coordinator/manager	4
d	Employed by/affiliated with RVSLF	2
e	Employed by/affiliated with Paso Pacífico	9
f	Employed by/affiliated with other protected area related organization/project (not RVSLF or Paso Pacífico).	4

Some individuals interviewed belong to more than one stakeholder group, thus, numbers add up to more than the total 17 official interviews.

Questions in the interviews target information from key relevant theories. First, questions of history and accessibility draw from the field of political ecology and aim to contextualize current environmental issues within their larger context (Robbins 2012; Rochaleau 1995). The second set of questions draw on Ostrom's SES framework, and aim to identify variables that affect the functionality of SESs (Ostrom 1990), as well as the factors that may enable or limit conditions for sustainable management (Agrawal 1999). Lastly, questions on the degree of participation and engagement in resource management aim to assess the degree of community governance and environmental conflict.

4.4.3 Surveys

Individuals were asked to complete surveys at the beginning of interviews; 24 surveys were completed- 18 by interviewee participants and 6 by additional community members who attended the Women's Eco-tourism Workshop. Surveys inquire into the age, gender, organizational affiliation, organizational role, and duration of affiliation of the survey participant. They also include information about highest level of education completed, original and current location of residence. Interviewees were then asked to estimate the demographics of their affiliate organizations; these contained number of individuals associated with organization (including households) as well as the breakdown of age, gender, educational levels, original and current location of residence. Surveys aim to inventory the general demographics and information on the education level, residence and leadership and gender compositions of various stakeholders. Many of these findings were used to paint a more accurate picture of communities and stakeholder groups and are included in the *Los Pueblos/Communities* section of the *Background* chapter; I also draw upon these to complement my findings and discussion.

4.5 Data Analysis

Data was analyzed in the following manner:

1. Field notes were read to comb for and group themes, some of the most relevant field notes have been transcribed and included in the finding's sections.

2. Official interviews are transcribed verbatim and the unofficial interview is transcribed using notes, all were analyzed using Dedoose software. This was done by coding in several stages to identify, analyze and report qualitative themes (Corbin and Strauss 2014). First, I drew *a priori* themes from SES literature (Ostrom 1990) by including codes for: 'protected area', 'resource(s)', 'desired social resource use' and 'resource manager'.

I then searched for and assigned *posteriori* themes; these represent recurring themes across interviews, surveys and participant observations, they included: 'change in resource use',

*'concientización/*critical consciousness', '*confianza/*trust', 'collaboration', 'conflict', 'protected area: opportunity', 'protected area: limitation'. I also added codes to distinguish and compare between protected area types and management entities, these included 'RVSLF', 'MARENA' and 'Paso Pacífico' as well as codes for management type, derived from the ladder of community participation, mentioned in the *Literature Review* chapter, I distinguished between 'community control', 'tokenism' and 'non-participation'. I was able to co-code these to examine co-coding, and thus compare the effectiveness in management practices.

The third type of data analysis consisted of:

3. Surveys served as supplementary explanatory material, these were aggregated in an excel sheet and used to contextualize interview participant experiences, as well as to group interviews by organizational and community affiliation to provide a more nuanced analysis of larger trends.

Participant observations, interviews and surveys were used to triangulate findings on how communities are affected by protection area and management, as well as to codify community goals.

CHAPTER 5: FINDINGS & DISCUSSION, CHANGE IN RESOURCE USE

5.1 Findings: Change in Resource Use

This chapter begins by exploring the first research question: *how have communities been affected by protected area formation and management?* I highlight what Don Carlos, in the *Introduction*, called "the other face" of conservation, which is to say, community perspectives of what are today known as RVSLF and Paso Pacífico protected areas. Here I will begin with an introduction to the coastal community region, before examining the two types of protected areas more specifically.

I will begin by introducing Doña Amalia[63], one of the eldest lifelong members in the coastal communities. Throughout my time in the field I was encouraged by several people to speak to her to gain a broader understanding of this history of the region. On a warm, breezy afternoon 2017, we finally sat on her porch, where she began by telling me of how Ostional had gotten its name from the abundant oysters found on the rocks interspersed on the sandy shores of its beach. In the 1930s the town had consisted of a fishing village with "ten little houses". People made their living off of subsistence fishing and agriculture, she told me, as she rocked in her chair, and in those days the region had no electricity or running water. Travel to and from the area was limited mostly to coastal *pangas*[64] or to a rugged dirt road to San Juan del Sur, which was often impassable by "the poor beasts [horses and oxen]".

Doña Amalia's narrative coincided with that of Don Carlos, she explained that what is now known as RVSLF was then a family-owned cattle ranch which was also the headquarters of the local cattle cooperative (my field notes indicate this is still true today). At an undefined

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[64] *pangas*/small motorized boats.

point, she stated, the land was sold to a family from outside the region, which meant some local *campesinas* who had lived there had to leave the property, but the owners had continued to allow communities to access the beachside property to seasonally forage for tamarind fruits and *paslama* sea turtle eggs. Both of these resources were mostly consumed in the communities, but occasionally taken by *panga* to sell in San Juan del Sur or to Costa Rican coastal towns, providing an important source of income. Doña Amalia explained that the property was then sold again to another owner, this time the coastal property was bought while the larger farm remained dedicated to cattle ranching.

My interview with Doña Amalia painted a detailed picture of the coastal region; two of takeaways I noted were: first, that those early years were marked by livelihoods which were highly reliant on natural resources through agriculture and fishing. And further, much of this was subsistence-based, and this was related to the limited people's access to and from the coastal region. The second takeaway is that resources such as tamarind fruits, sea turtle eggs and other marine resources did not have formal management systems in place, although there seemed to be a general ethos of resource sharing that characterized these as common pool resources.

A third takeaway became more apparent through my field work- namely through my interactions with the local all-women oyster cooperative. This group is currently engaged in an aquaculture project which aims to restore or reintroduce endemic oyster populations to the region to harvest through aquaculture. This relates to Doña Amalia's narrative, in that hers is replete with references to marine resources which were much abundant then whereas they are much scarcer today. She held her weathered hands almost a foot apart stating, "the oysters use to be this big!".

While I initially found it easy to cautiously dismiss this narrative as a tall tale, I soon began to notice this theme echoed throughout my field work: the species of tasty little crabs that lived in the mangrove had disappeared, one community member told me; a variety of brackish water mollusks good in soup no longer could be found, another stated; even the popularly caught octopus were becoming harder to find, the cooperative members stated, and they were having to dive further out and deeper in the waters to find them, which required the use of oxygen tanks whereas they use to dive without them.

The women of the oyster cooperative explained to me, as we searched the shores for young specimens to breed in deeper marine waters, that sometime in the last decade an El Salvadorian company had arrived at Ostional beach and harvested nearly all the oysters. Over the course of a few weeks the oyster population was nearly totally depleted and since then the population had remained too small to harvest consistently or sell commercially. It was then that I realized there was nothing too surprising about Doña Amalia's claim that the oysters use to be "this big", for it had coincided with Ostional's integration into globalized markets from former regimes of subsistence agriculture.

I also interviewed another elder member of the community, Don Alvaro, explained that by the 1970s the Pacific Isthmus region became increasingly connected to the outside world, as FSLN resistance to the Somoza regime began to gather in the region, ideals of revolution, socialism, and democracy began to gain traction among community members. Beginning in the 1970s and well into the 1980s, religious leaders, students and workers began to organize to create better economic conditions, health and education. This led to community organizing and a newfound sense of engagement. During my field work community members often pointed out key places and important events that led to the Nicaraguan liberation. These events were an

important precedent to community organizing within La Flor. Here, Don Carlos, who lived through it, explains:

> Some of us-- form '79 onwards--the people of Nicaragua were a liberated people, liberated from oppression, from the dictatorship. And for that reason, well, we started to organize ourselves, we started to organize this country. Many organizations became interested, and we had a good deal of sponsorship, we could say, with organizations, with NGOs that were interested in the development of this country.
>
> *Nosotros-- los del '79 para ese lado-- el pueblo de Nicaragua fue un pueblo liberado, liberado de la opresión, de la dictadura. Y por eso, pues, comenzamos las organizaciones, comenzamos a organizarnos, para organizar este país. En donde salieron muchas organizaciones interesadas, y tuvimos mucho empadronamiento, podríamos decir, con organismos, con ONGs que se interesaban en el desarrollo de este país.*

Don Carlos's insight is important for two reasons- one: he expresses how, after the 1979, communities learned to take an active role in organizing and, as we will see shortly, this applies to natural resource management in RVSLF; and, two; he highlights that connectivity to and from coastal communities increased through connections with NGOs and national organizing. Interviews and participant observations with other community members indicate that through the 1980s and 1990's, the La Flor remained privately owned, but *arribadas* began to be managed collaboratively by the coastal communities (Ostional, Tortuga, Escamequita, San Antonio, El Pochote, Pueblo Nuevo, San Jeronimo). Don Alvaro explains:

> The communities- in this case, they were the nine named ones- the nine communities, at the time. Each community was given 10% of the total production of the turtle *arribada* [...] They would give 10 dozen eggs to each family.
>
> *A las comunidades, que en este caso, pues eran esas nombradas, las nueve comunidades en su momento. Y a cada comunidad se le daba un 10% sobre la producción dada de las arrivadas de tortuga [...] Le daban 10 docenas a cada familia*

He continues, explaining to me how this process was organized:

> There was a commission. It was formed of community leaders, where they [also] allowed for the inclusion of four or five fellow leaders, they would go and bring the egg and they would count it.

> *Había una comisión. Se formaba una comisión de líderes, donde permitían la incursión de cuatro o cinco compañeros líderes, que iban y traían el huevo, y ya contaban.*

Several interviews echoed this account. Luis, a middle-aged small business owner, explained that volunteers would go to La Flor, gather the nests of the first arriving *paslamas*, load them into trucks and then distribute them among the communities. In the early 1990s, he explained, these were mostly consumed within the coastal communities. Here he explains:

> We would come [to and from La Flor], bring them [the eggs] to the community, and to each family-- we gave them their ten dozen. See? Ten dozen each family. They would grab them, and from then on they owned them, they saw to it what they did with their ten dozen.
>
> *Veníamos nosotros [de La Flor], las traíamos [los huevos] a la comunidad y cada familia-- le dábamos sus 10 docenas ¿ya? Diez docenas por familia. Este agarraba, y desde que se empoderaba, el veía que hacía con esas diez docenas.*

During the 1990s Don Carlos and Luis estimate that at that time there were some 170 families in his community[65] Both of them also stated that most of these families consumed the eggs on site at that time, but not all community members were avid consumers of *paslama* sea turtle eggs; Doña Amalia and others explained to me, cringing a little at the memory of sucking on the soft shell of a raw egg. Yet, even in the 1990s eggs were not seen purely as a source of sustenance. Don Carlos, explains how in the early 2000s this began to change:

> We saw that they [*paslama* eggs] were leaving and they weren't protected by anyone, except MARENA—they'd come, just did a study and left them there. They didn't have a price economicaly, the egg, nothing had acquired an economic price. When they turned into treasures was from 2004 on out.
>
> *Veíamos que se salía [el huevo de paslama] y no estaba protegido por nadie más que solamente MARENA—llegaba, hacia nada mas un estudio y dejaba eso ahí. No tenía un costo económico el huevo, nada había adquirido precio económico, donde se volvieron tesoros fue del 2004 para acá.*

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[65] "Families" in this case, is vaguely interpreted to be a nuclear family.
Don Carlos spoke of having three families in his household in the 1990s. The household received 30 dozen eggs. My research found that households within communities are often composed of several generations of nuclear families that can range in size from as little as 4 people (usually younger generations) to a dozen or more (usually older generations). My field research indicates, older generations of families, such as Doña Amalia's were often composed of 14 or more siblings, with high childhood mortality rates.

Don Carlos and Don Alvaro's interviews corroborated this story, as did those of several younger interviewees.

By 1994 MARENA had officially formed as a national ministry and sometime thereafter it began biological monitoring efforts at the La Flor beach. In the early 2000s community organizing and MARENA biomonitoring efforts began to take place simultaneously. Here, Don Alvaro explains:

> It was around 2000 more or less- we would go to protect them the *paslamas* and aside from protecting we would benefit the communities. I consider we were better organized then [than now]. The first turtles are los anyways. It's better to give that set to the communities so they can benefit from them.
>
> *Como en el 2000 estábamos más o menos. Íbamos a protegerla paslama y aparte que íbamos a proteger había un aprovechamiento a las comunidades. Y yo considero, estaban mejor organizados [que ahora]. De todos modos, las primeras tortugas, se pierden. Ese juego mejor se lo dan a las comunidades para aprovecharlo.*

I asked Don Alvaro to expand further on what he meant, to which he elaborated—

> I really think we were better off then because we were more well organized. Because three communities would go to RVSLF and cooperate. Today it was Ostional, Tortuga, San Antonio's turn. Tomorrow is was another three communities… and that was how it went. Taking ten, twelve [people] from each community and we helped the little turtles, the eggs, the ocean. We would go and others would go. So, I think we were better organized then.
>
> *Bueno, la verdad es que yo pienso que estábamos mejor organizados en el 2000. Porque iban de tres comunidades y cooperando a RVLSF. Hoy le tocaba al Ostional, Tortuga y San Antonio. Mañana me tocaba a otras tres comunidades. Y así íbamos y llevamos diez, doce [persona] de cada comunidad y ayudábamos a las tortuguitas, los huevos, al mar. Un grupo de personas. Llegamos nosotros y llegaba otros. Entonces yo considero que estábamos mejor organizados.*

As the early 2000s progressed two important changes took place. The first, brought up by Don Alvaro above, is that RVSLF began to be managed by communities and MARENA. I also presume MARENA began to gain legitimacy as the ministry developed over its first decade.

MARENA also began providing opportunities to community members through temporary employment that coincided with *arribadas* and mass sea turtle hatchlings. For,

during these periods-when thousands of turtles need to be counted over the course of a few days—biomonitoring needed to happen around the clock for several days at a time, which exhausted MARENA staff capacity. Esteban, a twenty-something community member from Tortuga, the most proximal of the coastal communities to RVSLF, walked the refuge with me on a sunny afternoon, he explained that when he was a child MARENA would hire 20 or so community members. He remembered because he would sometimes tag along with his parents, and this is when he became enamored with sea turtles. Today those opportunities are not available, so he is pursuing a guide certification through workshops and trainings.

The second important change which took place in the early 2000s was mentioned formerly by Don Carlos, who spoke of how *paslama* eggs were increasingly acquiring a price. Here he explains further:

> [...] when it turned into a treasure is from 2004 onwards [...] they were for consumption and they turned into economic cash flow. Why? Because people started buying the eggs and they would bring them and take them up there--up to Managua--to sell. And the family was paid a pretty small price and they would go sell it at a pretty high price. It turned into a business.
>
> *[...] donde se volvieron tesoros, del 2004 para acá [...] para consumo, y se volvió un flujo económico. ¿Por qué?, porque se crearon personas que compraban el huevo y lo traían, lo llevaban hacia arriba-- a Managua-- a vender. Y a la familia le pagaban un costo bastante pequeño, y ellos iban a vender a un costo bastante alto. Se volvió un comercio.*

As indicated by Don Carlos, the mid-2000s introduced changes on many levels; at this point my field notes indicate communities were more connected to the outside world through commercial opportunities selling *paslama* eggs, and, at the same time an increasing the number of stakeholders became interested in natural resource management within RVSLF. These stakeholders included the scientific community, international and national NGOs and national governance officials.

As early as the 1980s scientists claimed that unregulated sea turtle nests extraction within Nicaragua was a "grave problem" on unprotected beaches (Montenegro 1982; Morales

1983). In 2006, scientists Torres and Urteaga cite that on beaches with no protection "pressure from collectors" was considerable, while beaches with some protection still suffered from unsustainable extraction. These claims informed national campaigns to eliminate sea turtle egg consumption and escalate sea turtle protection.

One example of this can be seen in the "*Yo No Como Huevos de Tortuga*"[66] Campaign which was organized by the Tortugas Nicas[67], a Nicaraguan non-profit NGO dedicated to the conservation of sea turtles. Funders for this project include a variety of international organizations including- National Geographic Foundation, the William H. Donner Foundation Inc.[68], the U.S. Fish and Wildlife Service and MARENA. The campaign partnered with a variety of Nicaraguan-based organizations, which include: AMICTLAN[69], ALAS[70], Fundación LIDER[71], FUNDENIC-SOS[72], MARENA, QUELANTARO[73], UNAN-Managua[74], UNAN-León, the project also included several international partnerships- Danida[75], Flora y Fauna

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[66] *Yo no como huevos*/I Don't Eat Turtle Eggs.

[67] *Tortugas Nicas*/Nica Turtles. Nica is an informal or abbreviated reference to Nicaraguan.

[68] The William H. Donner Foundation Inc. is a family foundation with stated interests in diverse areas including: animal welfare, development, environment, human rights, science and women's issues.

[69] *Asociación de Municipios Integrados por la Cuenca y Territorios de la Laguna Apoyo de Nicaragua* (AMITCTLAN), or Association of Municipalities Integrated to the Watershed and Territories of the Apoyo Lagoon, is a Nicaraguan-based conservation NGO.

[70] *Alianza para las Áreas Silvestres* (ALAS), or Alliance for Wildland Areas, is a Nicaraguan conservation non-profit.

[71] *Luchadores Integrados al Desarrollo de la Región* (LIDER), or Fighters Integrated in the Development of the Region, is a Nicaraguan non-profit dedicated to local community development.

[72] *Fundación Nicaragüense para el Desarrollo Sostenible* (FUNDENIC-SOS) or the Nicaraguan Foundation for Sustainable Development of the Region, is a Nicaraguan-based environmental non-profit.

[73] *Reserva QUELANTARO/*Quelantaro Nature Reserve, is a Nicaraguan-based turtle biomonitoring organization partnered with Flora y Fauna International.

[74] *Universidad Nacional Autónoma de Nicaragua* (UNAN) Managua and León are campuses of the Nicaraguan Autonomous National University.

[75] *Danida* is the name of Denmark's Development Cooperation and a branch of the Danish Foreign Ministry

International, GIZ[76], Hermanamiento Wisconsin[77] and Paso Pacífico. ("Yo No Como Huevos de Tortuga, Campaña" 2018)

Another important change which took place at this time is that in January of 2008 MARENA passed resolution N. 003-2008 adding all five species of sea turtles to the list of nationally protected species, resulting in the immediate prohibition of the exploitation and sale of all species of sea turtles and their eggs ("Vedas Nacionales de Especies Silvestres en Nicaragua, 2008" 2018).

5.2. Discussion: Connections to Political Ecology

Within this section, titled *Change in Resource Use* I present findings from interviews and field notes that indicate that sea turtle eggs harvested in RVSLF have historically been viewed as a common-pool resource, a source of sustenance, and later, income for communities. Since the early 2000s sea turtle eggs have become increasingly commercialized in the Pacific Isthmus region; in the mid-2000s Nicaraguan laws officially changed to protected endangered species. In 2007, RVSLF's management plan changed abruptly and without CEC to ban the harvest of sea turtle eggs.

Qualitative data analysis of interviews revealed 180 distinct examples of 'change in resource use' cited across all interviewed stakeholder groups, making this the most heavily referenced theme in this case study. While this might seem unsurprising, it is a very important

[76] *Deutsche Gesellschaft fur Internationale Zusammenarbeit* (GIZ) GmbH, is a German service provider for the field international cooperation and sustainable development.

[77] *Hermanamiento Wisconsin* is a Richland Center-Santa Teresa Sister City Project. Richland Center is located in Wisconsin.

finding which reveals how rapidly and recently communities have become connected to globalized systems.

This section begins with an interview with Doña Amalia, whose rendition of the area reveals that in the 1930s communities were highly dependent on agriculture, enjoyed more abundant natural resources than are available today and there was little commercialized extraction or exchange of these resources outside of the region. What is most important about these insights is highlighting that the demising abundance of natural resources can more likely be attributed to increased connectivity to globalized systems, rather than community mismanagement. This finding coincides with many findings by political ecologists which connect the environmental degradation and integration into capitalists' systems, and furthermore, conclude that marginalized communities are more often than not, the biggest losers on the global scale (Blakie 1985; Isla 2015; Rocheleau 2007; Robbins 2012).

Further on in this section, Don Carlos and Don Alvaro expose the important role of the Nicaraguan Revolution and ensuing organizing in mobilizing communities to harvest sea turtle eggs in an organized fashion, effectively leading for community members to utilize them as common pool resources and actively engage in management. This reveals that post-revolution, communities engaged in what I would call high levels of CEC, and while the ecological outcomes of this form of participation may not have proven effective for the conservation of sea turtles in the long run, it did set the stage for future relations with protected area managers. I will explore this theme in more detail in the upcoming section, *Differences in Power and Management.*

Later in this section, Luis and Esteban introduce us to a younger generation and an era when eggs began to acquire commercial value and be sought after by *vendedoras* outside of the region. This finding demonstrates that as the general SES of the region also changed post-

revolution- government entities, resource users and larger economic and political systems, led to changes in the broader ecological outcomes. In this case, the SES went from being highly localized and managed on the community level, to a system that later faced economic pressures both internally, as communities became more interested in gaining income derived from sea turtle eggs, and externally, as *vendedoras* entered the region and more individuals from outside communities became connected through the sale of eggs in departmental and national *marcados*. I have illustrated these changes using the SES framework in Figure 12 below.

Figure 12: Changes in Field Site SES (1920s-2017)

Components of SES	**Pre-revolution** ***1920s-1979***	**Post-revolution** ***1980s- 2007***	**Recent Decade** ***2007-2017***
Resource System	Coastal beaches and farms are communally and privately-owned		Protected Areas are established: RVSLF, Paso Pacífico privately-owned farms and beaches
Resource Units	*Arribada* nesting *paslamas* & individually nesting sea turtles, all five species		
Governance System	Informal governance system	Community management alongside MARENA	2007 onwards, RVSLF managed by MARENA and military 2005 onwards, Paso Pacífico management through agreements with private land owners 2014 onwards, CCM is introduced, efforts in co-management begin
Resource Users	-Communities -Private land owners *-Hueveros*	-Communities -Private land owners -MARENA *-Hueveros*	-Communities -Private land owners -MARENA *-Hueveros* -Tourists & eco-tourism industry

			-Conservation organizations (Paso Pacífico etc.)
Resource Use	-Direct consumption of eggs in communities -Limited egg sales outside of communities (access by sea on *panga*)	-Organized harvest & direct consumption of eggs in communities -Some egg sales outside of communities (access by road aided by *vendedoras*)	-Limited direct consumption of eggs in communities -Unknown quantity sold outside of communities (increased with road access, market demand and increased communication)

An SES examination of the narrative of protected areas reveals that although the boundaries of the RVSLF protected area (or the SES system) has remained constant across the years, there have been major changes in other components, namely in the number and kinds of resource users. Use of the SES framework reveals that the early 2000s introduced the broader national and international community as key players in the region; many of these NGOs had significantly power and access to resources to implementing more top-down management plans such as that employed by *Asociación Cocibolca*, which effectively represents the fortress conservation model. This led to communities being excluded from protected area formation management in a similarly fashion to that seen in the early days of the US national parks model (Taylor 2016; Robbins 2012).

The change in management of RVSLF in 2007 illustrates brooder changes in governance of the SES- not only did MARENA dramatically changed resource use and management, but national, rather than community decision-making informed these changes. Furthermore, international conservation organizations and NGOs, alongside academics were cited as authorities and mobilizers of conservation efforts and experts on knowledge regarding the SES. This determined resource use within RVSLF, resulting in prioritizing the protecting sea turtles over community needs. This finding coincides with assumptions that often inform

and justify fortress conservation models, for the implementation of the management plan without CEC presumes that 1) community members are primarily responsible for declining sea turtle populations and, 2) that the urgency of conserving declining sea turtle species justifies taking dramatic steps to exclude historical resource users and disengaged from former collaborative efforts in CEC. Here, again, both the employment of a crisis narratives and the assumption that community members are incapable or unwilling to manage resources sustainably, represent problematic assumptions which have informed exclusionary models of conservation in the past. The next section will examine this theme, highlighting community experiences of conflict and lack of trust in protected area management after then ban on *paslama* harvest.

CHAPTER 6: FINDINGS & DISCUSSION, CONFLICT & TRUST

6.1 Findings: Conflict and Trust

The mid-2000s marked a pivotal and dramatic change in community interactions with the RVSLF. Below, Luis explains how the RVSLF management plan changed dramatically and abruptly in 2007:

> La Flor has had several different management plans. A plan was created in 2007. It was a management plan like that of all protected areas — not only on a national level, but on an international level. Many times management plans are made in an office with an air conditioner. It isn't understood how folks live, their needs, the impact it will have on the community. So, the first [2007] management plan was not carried out to the letter, despite the campaigns that took place.
>
> *La Flor ha venido teniendo diferentes manejos. Se creó el plan de manejo en 2007. Se hizo un plan de manejo de cómo todas las áreas protegidos--no sólo a nivel nacional, sino internacional. Muchas veces se hacen planes de manejo en una oficina con aire acondicionado, no conoce como vive la gente, sus necesidades, el impacto que va a tener ese plan de manejo en la comunidad. Entonces se creó el primer plan de manejo [2007] no se ha llevado al pie de la letra. A pesar de las campañas que ha habido.*

Luis' observation of the creation the new management plan in "an office with an air conditioner" was noted explicitly by two other interviewees; while it may seem insignificant, I note that this observation highlights two important facts: firstly, management decisions were being made behind closed doors and secondly, decisions were coming from individuals of a vastly different class and social position than that of community members[78]. Neither of these facts bode well for effective community engagement.

[78] My field notes indicate that within Ostional there are no houses with air conditioning. Both power and water are shut off for several hours on most days. Thus, mention of the air-conditioned office highlights an awareness of a significant differential in status and a detachment from the communities.

Both my field notes and information published by SINAC indicate the plan Luis mentions here was created by *Fundación Cocibolca*[79], a Nicaraguan-based NGO which is no longer active. Interestingly, while I found no evidence within my own research to indicate this organization practiced any sort of effective CEC in the 2007 RVSLF management plan or implementation. This is despite the fact that Nicaraguan government documents indicate the plan had some of the highest levels of "community co-management" in the country. One report characterizes the RVSLF management plan as one derived by "consensus" management ("IUCN, Gestion" 2008). Despite this contradiction, I am confident that *Fundación Cocibolca* did not, according to community members, engage in any high-level CEC across stakeholder groups.

In fact, I found abundant examples of community members expressing how upset they were at being cut out of the decision-making process in 2007. I began to note that, due to the recent gains in community autonomy- particularly of lower-class, *campesina* and cooperative groups in post-revolution era, lack of community engagement in the 2007 RVSLF management plan was perhaps more upsetting than being deprived of the resource itself. Luis Diego went on to say:

> Then there was a period when the [RVSLF] station was managed NGOs- it was the Cocibólca Foundation at the time. And that's when it all changed a bit because the very community members could not even visit the refuge. Not in *arribada* season or any other time. It was a good management plan for protection maybe, not conservation, but yes, protection.
>
> *Luego se hizo una estación manejada por organizaciones no gubernamentales, fue Fundación Cosibólca, en su tiempo. Y ahí cambió un poco porque los mismos comunitarios no podíamos ni siquiera visitar el refugio. Ni en época que había arriba, ni en época cuando no había arriba. Era un buen manejo en programas de protección, quizás no conservación, pero sí protección.*

[79]*Fundacion Cocibolca*/The Cocibolca Foundation was a non-profit dedicated to environmental protection which changed the natural resource management plan of RVSLF in 2007.

One community leader explained to me that this sudden change in management provoked protest and a profound sense of injustice within communities, here they explain:

> Given these circumstances and under these conditions, it was declared "No more eggs" [...] without explanation the communities were cut off from the harvest and the government announced the end of the harvest and forbid the delivery of eggs to the families who were not allowed to enjoy it. So, that provoked a chaos, a struggle [...] So, then the communities started to protest.
>
> *En dadas circunstancias y en estas condiciones se declaro "no mas huevos [...], sin explicación las comunidades se les cancelo ese aprovechamiento y el gobierno declaro el fin del aprovechamiento y prohibió la distribución de huevos a las familias quienes no podían disfrutar de ellas. Entonces provoco un caos, una lucha [...] Entonces las comunidades empezaron a protestar.*

The 2007 RVSLF management plan completely prohibited, almost overnight, the extraction of sea turtle eggs, which became entirely illegal. Former community collaborations in egg harvests which provided temporary employment in biomonitoring and sea turtle protection ceased. A wide number of individuals expressed frustration at the implementation of RVSLF exclusionary management, even Doña Amalia expressed,

> It just isn't well viewed that they don't share just two dozen turtle eggs with us.
>
> *Es mal visto que no nos compartan dos docenas de huevitos.*

Another, much younger interviewee, Esteban, coincided a bit with this sentiment, but beyond feeling excluded from access to the resource as a source of direct consumption, he explains the draw to selling eggs to *vendedora*s:

> Here in Nicaragua, the employment rate is very low and so, unfortunately, economically the turtle has very strong draw as a resource. The black market always exists, and it buys big quantities. That is why poaching exists. A lot of people say, "No, just one nest, to consume them, just for me, that's all", but really they want 10, 20, 50 [nests]. It's for bussiness.
>
> *Aquí en Nicaragua la tasa de empleo y es muy baja, la economía entonces lastimosamente, es un recurso muy fuerte, el de tortugas. Siempre existe el mercado negro que compra cantidad. Por eso existe el saqueo. Muchos dicen "no, sólo un nido para consumir para dejarmelos nomás", de hecho no es un nido lo que quieren 10, 20 ,50 [nidos]. Es para el negocio.*

As explained in the *Field Site Background* section, sales derived from *paslama* nests can represent a significant economic boon for community members, and this made the change in RVSLF management in 2007 even more challenging. Don Carlos added to this, stating that:

> When you come here and do things right, you get the blessing of the people. When you come here and do things poorly, you have get the contempt of the people.
>
> *Cuando venís y hacés las cosas bien, tenés bendición del pueblo. Cuando hacés las cosas mal, pues tenés el desprecio del pueblo.*

Andrea, a community member in her thirties, who has lived her whole life in the area and now works in conservation efforts, spoke to me of how this change effectively banned community members from entering the refuge for "families just didn't have that kind of money". Numerous other interviews coincided in that the fee was effectively a community ban for "just a few *córdobas*", Andrea stated, represented a prohibitive barrier.

Meanwhile, wealthier national and foreigner tourists were able to pay the entry fees and enter the refuge. This evidences that MARENA and *Fundación Cocibolca* prioritized conservation and appealing to monied tourists over prioritizing community interaction. Many conservation efforts led by the aforementioned international and national NGOs, cited scientific papers that stated there was an unsustainable decrease of sea turtle population species, as the reason for the change in management. Many interviewees coincided in this assessment, however, perhaps because of the manner in which this occurred, community members stated their belief that the international community and NGOs pinned community members as responsible for the decline in sea turtle populations. And indeed, a preliminary revision of newspaper articles I conducted on Nicaraguan national newspaper, *La Prensa*, confirm that the extraction of nests by local communities is often the only cause cited as threatening turtle populations ("La Prensa" 2018).

Furthermore, internationally funded campaigns such as the aforementioned *Yo No Como Huevos de Tortuga*[80] centered on egg consumption in *mercados*. This campaign was funded in 2007 by the United Nations, Flora and Fauna International, Conservation Fund, NOAA, National Fish and Wildlife Foundation and MARENA, and it states that "one of the most important [sources of anthropomorphic impacts related to sea turtle extraction] is the over extraction of sea turtle eggs" (page 6). This coincides with Don Carlos' assessment that local community members, are often cast as "the face of the villains" in the conservation narrative:

> Today that image is still being sold- they say: "those predators, because of the eggs, because of the *pueblos* [the turtle populations are declining]." It's not true.
> *Hoy se sigue vendiendo la misma imagen- que dicen "de que los depredadores, porque los huevos, porque los pueblos [declinan las poblaciones de tortugas]". no es cierto.*

Another interviewee experienced in these matters went on to explain that while he does recognize that *paslama* eggs are being taken from the refuge, he does not attribute this to community members, but believes it has more to do with managers and soldiers not enforcing the management plan.

> [...] I mean, this vicious circle is created, that is what we [community members] are interested in ending, in getting organized and starting to organize the wildlife refuge to see if we can work and we can clear up the name of the whole community, to the international community that believes that we are nothing more than damaging.
>
> *[…] o sea, se forma este círculo vicioso que es el que nosotros [miembros comunitarios] estamos interesados en terminar de acomodar y comenzar a acomodar un refugio de vida silvestre para ver si podemos trabajar y podemos esclarecer a la comunidad entera, a la comunidad internacional que se lleva esto de que nosotros somos nada más que dañinos.*

Throughout my field work numerous community members across various stakeholder groups coincided in that the vast majority of those who now entered the refuge to poach were not from

[80] *Yo No Como Huevos de Tortuga*/I don't eat turtle eggs.
This was a Nicaraguan campaign aimed at reducing the illegal consumption and sale of sea turtle eggs.

communities but came from Managua or other areas outside the region. This finding was also echoed in formal interviews.

However, many community members also stated that they believed the change in management of RVSLF in 2007 was also a move to "steal the sea turtle egg market". Here an interviewee, Don Tomás, a non-Paso Pacífico affiliate who works in conservation, provides an example of one such interaction that illustrates community- RVSLF relations:

> That has been a traditional part of life here for a long time [harvesting/eating sea turtle eggs], and there was just probably no question that the rule "now you can't harvest turtle eggs, period" is viewed by some as harsh.
>
> Yeah, I saw soldiers take a woman off a bus after finding a duffle bag full of turtle eggs [in 2016] and she was screaming at them. So, there's real anger and real tension about the turtle egg harvest, and there's suspicion. People on the bus said, "Well, you know those bastards just turn around and sell 'um themselves".

Interactions such as the one referenced above are not uncommon. This quote illustrates two common themes in post-2007 management narratives: local community resentment of being deprived what was once a shared resource, and a belief that current management entities were and are likely keeping "the treasure" for themselves.

6.2 Discussion: Connections to Changes in SES

It perhaps comes as no great surprise that the change in management of RVSLF in 2007 marked a dramatic shift in the relationship between communities, MARENA and NGOs such as *Associocion Cocibolca*. Change in management was implemented alongside the employment of environmental crisis narratives that effectively vilified community members as the primary source of declining sea turtle populations and justified the implementation of the until then unprecedented deployment of a fortress conservation model. This case study aligns with findings referenced earlier in the *Literature Review* chapter in that this action increased conflict,

eroded trust and disproportionately and adversely affected marginalized groups (Abakerli 2001; Peluso 1993; Tiball & Kransy 2012).

This finding illustrates that the lack of CEC or a shift from more active engagement to dramatic shifts that decrease or nullify engagement does in fact have the effect of decreasing community investment in conservation efforts. In short, if conservation within protected areas is implemented without an acute awareness of it effect on perpetuating or deconstructing patterns of social injustice it runs the risk of being met with backlash and antagonism. To this point, within this case study, the community voices included in this section illustrates that communities were particularly upset at the change in management because they had grown accustomed to collaborating with RVSLF; however, I suspect that another reason this change was so difficult to weather related to the fact that employment of top-down decision making lacking CEC went counter to the ethos of the Nicaraguan revolution. Much of the rhetoric and organizing that followed the revolution increased community participation, education and governance within the *pueblos*, while this change in management represented a shift away from many of the rights and responsibilities that had been acquired within post-revolution. Furthermore, the changes in 2007s denied community members free entry to the refuge, which they had enjoyed since time in memorial.

CHAPTER 7: FINDINGS & DISCUSSION, DIFFERENCES IN POWER AND MANAGEMENT

7.1 Findings: Differences in Power and Management

Now that I have set the stage by introducing a slightly broader narrative of change within the Pacific Isthmus region, I will venture into exposing differences in power and management within the two types of protected areas- RVSLF and Paso Pacífico beaches and farms. However, in order to present this information cohesively, it must first be said that the two types of protected areas vary significantly in their SES. I illustrate this in Figure 13 below.

Figure 13: Comparative SES of Protected Areas (2017)

Components of SES	**RVSLF**	**Paso Pacífico**
Resource System	Singular protected area Beaches and marine waters Terrestrial area: Marine area	Several privately-owned beaches and farms Terrestrial area: Marine area
Resource Units	-*Arribada* nesting *paslamas* -Individually nesting sea turtles, all five species	-Individually nesting sea turtles, all five species
Governance System	-MARENA -Enforcement and compliance by Nicaraguan military soldiers	-MARENA -No official enforcement and compliance -Monitoring by PP *guardaparques* (incentives and ties to informal networks)
Users	-International and domestic tourists -MARENA *guardapargues* -Private land owner -Community members -Conservation-oriented groups and collaborators (Paso Pacífico etc.) -InTur staff and guides/trainees -*Hueveros* (non-community members and community members)	-International and domestic collaborators - PP *guardapargues* and staff -Private land owners -Community members -Conservation-oriented groups and collaborators (Paso Pacífico etc.) -*Hueveros* (community members)

Perhaps the most important difference illustrated in Figure 13 is that the SES conditions within the two types of protected areas differ in resource units- while RVSLF is the site of *arribadas*; Paso Pacifico protected areas are not.

Furthermore, beyond SES assessments two important factors should also be highlighted: MARENA is both a larger organization and has been present in the area since the 1980s, while Paso Pacífico is-- by comparison-- a small, but growing organization that begun work in the area in 2005. MARENA is officially responsible for environmental management and allied with the Nicaraguan government and military in enforcing protected area rules. Meanwhile, Paso Pacífico and its employees do not officially bare responsibility for enforcement. Furthermore, Paso Pacífico began its work in communities in 2005 by providing monetary incentives and stable jobs to community members to dissuade them from poaching sea turtle eggs. Privately owned beaches and farms were also formerly not under community collaborative control (at least in a formal sense) which also makes them less contentions sites for changing management plans to increase conservations efforts. Thus, generally speaking, it should be expected that Paso Pacífico protected areas less likely to be associated with conflict.

Having stated the important distinctions between RVSLF and Paso Pacífico protected areas a comparison in the type of CEC, management styles and community relations these employ does provide amble evidence to support the claim that increased CEC can yield increased trust, decreased conflict and provide multiple opportunities for communities and conservation alike. I will continue this chapter by first examining the differences in power and management within RVSLF, before continuing on to examine Paso Pacífico beaches and farms.

7.1.1 RVSLF

I asked interview participants to '*define the relationship between communities and protected areas as one of conflict, collaboration, neither or both*'; their responses varied. One interviewee with

decades of experience working in the area and employment across different protected area types, asserted that the relationship between RVSLF and communities was one wrought with conflict, stating:

> There has never been a good relationship, because the relationship that has always existed is one of control and the exclusion of the participation of locals. So, going from there, when you start that way, with that way of thinking, the relationship is no good.
>
> *Nunca ha habido una buena relación, porque la relación que siempre han tenido es una relación de control y expulsión de la participación de los locales. Entonces desde ahí, cuando comienzas con ese principio, con esa forma de pensar, la relación no es buena.*

Numerous of my interviews, as well as many examples I encountered in my field work, indicate a dramatic increase in conflict coincided with the change of management in RVSLF in 2007. There are also official accounts of a soldier within the RVSLF being killed in 2007; despite an ensuing homicide investigation, there are no clear conclusions as to the cause or responsible party for the death. However, most community members I spoke with agreed this fatal conflict was likely connected to a conflict with *hueveros*, and it is likely the crime was spurred by resentment of being denied access to the *paslama* harvest.

In my field work I was told many anecdotes of people affiliated with RVSLF management who sold eggs, got rich and got out. Don Carlos gave an example of "someone who use to clean houses and now has their own little corner store". Implying they had acquired capital for this investment through selling eggs on the black market. Frequently, these anecdotes revolved around non-community members-- MARENA employees, soldiers or RVSLF affiliates. Anther community members was suspicious of anyone who went to collect sea turtle eggs after the ban and seemed to imply one had to be in cahoots with higher authorities and implied that personnel corroborated with *hueveros*:

> A guy comes and says: "look Jane Doe, here's the situation," and now we've got Pedro, Juan and that other guy with the pants, and you take that group, and they go directly to poach. I tell you, if we look at this from a clear point of view, those that go to poach-

> and they don't go to poach alone- because they go authorized and protected by the team MARENA of workers, protected by the military, even the very police and all that…
>
> *Éste viene y llama: "Mirá fulana, ya está la cuestión". Entonces, ya vino este, ya vino-- Pedro, Juan y el chico de los palotes, y agarró este grupo, y se fue directamente a saquear. Pero este si lo miramos desde el punto de vista claro, este va a saquear, y no va a saquear solo, porque ya va autorizado y protegido por un equipo de trabajadores del MARENA, por un equipo de protectores que llamamos ejército, incluso, y hasta la misma policía y todo eso...*

In my research I found no substantial first-hand evidence of military or refuge management personnel collaborating with egg extraction, buying or selling eggs. However, many community members disclosed to me abundant first and second-hand accounts similar to those mentioned above.

Community members recounted several first-hand accounts of entering the refuge to collect eggs to be met with lacks or inconsistent enforcement by part of RVSLF managers. One interviewee stated he had gone to the refuge shortly after the ban in 2007 "while I was young and handsome". This community member is today, very involved in conservation but at the time he had no interest in it and stated he had just wanted to make some money to go out dancing in San Juan del Sur.

He recounted that he and his brother had entered RVSLF at night using one of the social trails, but after hours waiting in swampy conditions at the edge of the RVSLF beach and being bitten tirelessly by mosquitos he declared "I am tired of this shit! Let's just go [leave RVSLF]". He and his brother left the refuge using the main entrance road, where they ran across a soldier who asked if they had eggs, to which they responded, "no way". To their surprise, he recounted, the soldier had responded with, "Well, go ahead and grab some". The two young men then collected and carried out a few dozen eggs. But these were very heavy and the two soon grew tired of lugging them out of the refuge. They decided to sell them at the little store/bar about a quarter mile from the main entrance of RVSLF; the interviewee paused to explained this spot was commonly frequented by the RVSLF property manager as well as

off-duty soldiers (and soldiers were present on site that day), but they had no trouble openly selling the eggs. The two then used the money to drink beer before heading home, with no negative consequences.

Not all reports were so benign; another community member, Andrea, recounted an example of children entering the refuge to take some eggs. She reported the soldiers had "roughed them up", and- she suspected- had taken the eggs for themselves. While Andrea thought the children wrong to collect eggs in the refuge, she emphasized that their parents should be held responsible and informed. She had found the soldier's behavior so upsetting it incited her to return to the refuge to reprimand the soldiers for their inappropriate treatment of the children.

Both of these narratives illustrate that a change in the management of RVSLF in 2007 decreased trust of management entities by part of local community members. Furthermore, management by both MARENA and soldiers was perceived inefficient, lax or partial in enforcing laws and protected area norms. Community members agreed that generally speaking there was less conflict today than before, but my observations also indicated that despite a likely decrease in issues related to community poaching, community members perceptions of RVSLF have not improved significantly. In my field visit to RVSLF during an *arribada* evening I noted:

> We are at RVSLF, I am with Andrea, Tatiana and Pablo. There are perhaps sixty people, who seem to be tourists, walking on the beach. Many walk between the water's edge and the sandy beach, most have red lights and are taking pictures of the turtles as they exit the water. I can see perhaps 100 shadowy *paslamas* making their way up the shore.
>
> "They shouldn't be doing that, it spooks the turtles. The MARENA *guardaparques* should tell them." Andrea says.
>
> There are two MARENA *guardaparques* and one soldier toting AK-47s within 50 meters of us.

> We see someone on the Southern side of the beach take off running in the dark toward the ocean, the white waves make them visible. A soldier near us shines a powerful light beam on them.
>
> "Must be a local", he says, "they swim better than fish! Know this beach very well"
>
> I assume this person is a *huevero*. We talk to the soldier for about 10 minutes, he tells us he we should be careful. He believes there are probably about 500 people hidden in the brush by the beach, most of them aren't locals, he says. They are "in everything", they might have weapons to jump tourists. While he talks, he keeps his light beam on the person in the water, who is wading in chest high waves about 60 meters away.
>
> Suddenly another person takes off on the high tide mark of the beach, running very fast. The soldier turns the high beam on them.
>
> "You're lighting the way for him, you know", Andrea says.
>
> "No, I think my partner caught him, he's over there", he responds.
>
> Andrea does not seem convinced.
>
> We walk back to the trail that accesses the beach. Some young men are selling beer in a cooler near the trail. Andrea whispers to me that the sale of alcohol is prohibited within the refuge.
>
> "They aren't supposed to do that," Tatiana says.
>
> She tells a MARENA *guardaparque* near us, who shrugs his shoulders.
>
> "I think they [selling the beer] are friends with one of the higher ups [MARENA managers]" Pablo says as we leave.

This interaction demonstrates that despite generally civil relations between community members accessing the refuge for sanctioned purposes, MARENA *guardaparques*, military and refuge managers are not trusted by community members or they are perceived to be making good on their claims to protect sea turtles.

In the above example, tourists use red lights while on the beach; this is a best practice employed to avoid scaring nesting *paslamas*. However, MARENA *guardaparques* fail to interfere when tourists obstructed the paths of nesting sea turtles, and soldiers employ high beamed flashlights to spot *hueveros*, which counters the effect of prohibiting white lights. Furthermore,

comments by community members indicate that they suspect soldiers are collaborating with *hueveros* or each other to poach eggs, and they perceive MARENA *guardaparques* and management of ignoring refuge rules, or not enforcing them appropriately. Meanwhile, the interactions with the soldier indicate he perceives *hueveros* as criminal or "having their hand in all sorts of things", while interactions with the MARENA *guardaparque* indicate they are unable or unwilling to enforce RVSLF norms.

I later talked to Doña Rosalia, a participant who had years of experience interacting with the refuge. She explained to me that MARENA *guardaparques*, had the title that translates to "rangers" however, they generally do not have training in interpretive skills, and, in her opinion, do not know how to interact with tourists.

> No, they aren't rangers. I mean, there are is no personnel in the refuge that is qualified to tend to visitors [...] Yes hey take part in protection and count the turtles. But if you look, the educational level that they have is very basic, so in my point of view, that's limiting.
>
> *No hay guarda parques. Digamos, no hay personal dentro del refugio con calificación para atención a visitantes [...] Sí, ellos sólo hacen la parte de protección y conteo. Si se fija uno, el nivel educativo que ellos tienen es muy básico, entonces desde ahí está limitado.*

The above quote illustrates, once again, that community members and even other people with extensive conservation experience, do not view current day RVSLF staff as competent in meeting the conservation needs of the refuge. This does little to build trust in management or scientific claims more broadly, here Doña Rosalia continues:

> And the infrastructure doesn't exist- not what is necessary, not for scientific research. The people that do scientific research, its other people, but not the people that are running the protected area. And when they generate research that could help give input for decision making, they really don't use them.
>
> *Y la infraestructura no existe- ni la mínima necesaria, ni tampoco para la investigación científica. Quienes hacen investigación científica son otros, pero no la gente que está administrando el área protegida. Y cuando se generan estudios que le puedan servir de insumo para toma de decisiones, realmente no los utilizan.*

7.1.2 Paso Pacífico

The emergence of Paso Pacífico protected areas is significantly different from that of RVSLF. Since its foundation in 2005, Paso Pacífico has intentionally and necessarily included community stakeholders in the management of its numerous and relatively small protected areas which consist of privately-owned beaches and farms. In the recent decade this inclusion has expanded as more individuals have been hired in conservation efforts, environmental education has increased and community-based collaboration beyond protected areas has expanded. Initial change in management of newly acquired protected areas has been met with some conflict, yet this has generally decreased over time due to strong community ties, increased trust.

> Here the situation is different, because Paso Pacífico gets involved with the community. It has created directly created employment for community members. It has done trainings and brought benefits.
>
> *Aquí la situación es diferente, porque Paso Pacífico esta involucrado con la comunidad. Ha creado empleo directamente para miembros de las comunidades. Ha creado capacitaciones y traído beneficios.*

In the quote above Christian, an employee of Paso Pacífico explains how Paso Pacífico protected beaches have employed rangers- several of whom are former *hueveros*, like himself. Full-time employment with Paso Pacífico provided him with a livelihood and opportunity within conservation management. Other *PP guadaparques* patrol beaches overnight to monitor nesting turtles and protect their eggs, which are sometimes moved Paso Pacífico hatcheries. Turtles nesting on these private beaches included the *paslama*, but also the other more rare species.

One distinction between RVSLF and Paso Pacífico *guardaparques* is that while RVSLF ranger are, by my accounts, entirely male, Paso Pacífico's are nearly 50% female. *PP guardaparques* and work in pairs, they wear uniforms that consist of blue long-sleeved shirts and

they are unarmed and unauthorized to use any form of force in implementing conservation effort on private beaches and farms.

Another important distinction between RVSLF *guardaparques* and Paso Pacífico's is that all of the former live in communities while they are employed. In the initial 2005 incentive plan, community members were offered a monetary incentive in exchange for donating nests to Paso Pacífico. Each of these incentives also contributed to a community fund, which was used at the community's discretion and decided upon by community leaders. Thus, engaging in the incentive plan provided both individual and communities with financial opportunity. The eggs were either maintained on the beaches where they were laid or moved to Paso Pacífico hatcheries where they were observed and then released once turtles hatched. Hatcheries today exist in several locations, including Ostional, Tortuga and Playa el Coco. Hatcheries are composed of simple structures, usually a small (my field notes indicate a roughly 10 by 10 meter) link fence enclosure with a shaded tarp overhead. Since several are located adjacent to local communities, they can easily be visited by community members and tourists alike, although the gates remain locked to control access. Many of the hatcheries are maintained by *PP guardaparque* women, who maintain installations, count and release sea turtles and use the sites of visits with environmental education programs like the junior rangers and guide trainings.

PP guardaparques, both those working at hatcheries and those working in more remote beaches like Brazilón, receive a monthly salary; their responsibilities also include attending meetings and trainings (by my accounts these occur roughly monthly). While many PP *guardaparques* have stayed with the organization, some have taken on leadership roles in environmental education and management outside of the organization. Several have gone from

part-time to full-time employment positions within the organization. Some employees have even been sponsored to travel within Nicaragua, while others have been granted visas through Paso Pacífico to enable their visitation to other Central American countries, the United States and Japan in order to attend at conferences, develop skills and network with other international organizations.

Interviews with Paso Pacífico employees reveal a change in local attitudes over the last ten years, initially efforts to preserve turtle eggs were not well-received by *hueveros.* One ranger reported that initially *hueveros* were annoyed or aggravated by efforts to preserve eggs, but this was generally limited to verbal interactions and there are no cases of physical violence. However, as PP rangers continued to patrol the beaches at night they would often inform and educate locals about the importance of preserving sea turtles and locals began to support effort. Christian told of how recently a local *huevero* had said:

> "I need the money. So, I am going to take half of this nest today, but you can have the other half, to save it".
>
> *"Necesito dinero. Entonces me llevo la mitad del nido, pero le doy la otra mitad. Para que la conserve."*

In my participant observations I found that such efforts to both conserve and acquire income were well-received by community members, who often empathized with others need for a quick source of income. In this instance, the ranger knew that the community member had a sick family member, so he thanked the *huevero* and accepted the half nest for conservation. Furthermore, the fact that the *huevero* offered half the nest for conservation clearly demonstrates a change in attitude for conservation; I believe this is further motivated by the legacy of the incentive program which has both contributed to community funds and provided community members with employment. I believe that both of these factors contribute to

increased community buy-in to further conservation efforts, for these provide multiple benefits to communities.

Paso Pacífico has not actively engaged in the incentive program for several years (I was unable to determine an exact date) yet today community members are willing to conserve sea turtles by placing the nests in hatcheries, I extrapolate that since guarding the nests and protecting sea turtles now provides employment to 12 community members as PP rangers other community members are likely incentivized to support their efforts by collaborating ("Paso Pacífico, Annual Report" 2018). But whatever the case may be, my findings indicate that general attitudes around egg collection are shifting.

When individuals do take nests from Paso Pacífico protected areas, community members residents often hear of who was seen *hueveando*. Many communities near Paso Pacífico protected beaches have populations between 500- 1,500 people and most individuals are known by first and last names. This, coupled with a very active information sharing through *chisme*, means few illicit actions go unnoticed. I will provide two examples of this below. While I lived in Ostional I ate daily at a local *comedor*, which was on the main street of town. Residents often stopped by the open porch and shared *chisme* with the local proprietress, Doña Leda. *Chisme* included daily updates on developing romantic interests and the state of familial relations, the state of community members' developments related to health, employment and/or general whereabouts. On several occasions, I was informed, unprompted that by the Doña Leda

> I hear Pablito, one of the junior rangers, was seen near the refuge, *hueviando* [getting eggs] last night.
>
> *Me dicen que Pablito, uno de los guardaparques junior, andaba cerca del refugio anoche hueviando.*

On another occasion she excitedly greeted me for my morning coffee with,

> Oh Cristina, Juanito told me last night that, Felipe took a nest of hawksbill eggs from one of the Paso Pacífico beaches last night! Wasn't he in your eco-tourism workshop?
>
> *Ay Cristina, Juanito me dijo anoche que Felipe se llevo un nido de carey de una de las playas de Paso Pacífico anoche! ¿El no estaba en tu taller de eco-turismo?*

Whenever Dona Leda told me these near-scandalous bits of *chisme* she looked at me mischievously, as if studying what I did next. She also made these announcements in the presence of others- her family members, other Paso Pacífico staff or clients. As an affiliate of Paso Pacífico I believe I was expected to react to this information by publicly reprimanding these individuals, or at least by voicing my disapproval. Or, as Nicaraguans might say, I may have been expected give them a *regañada*—or a public scolding-- for their indiscretion. Perhaps, to Doña Leda's disappointment, I did not in fact, react quite so publicly to this news. However, I did share this news with staff, as did Doña Leda, repeatedly and to anyone it seemed relevant to. Paso Pacífico employees, particularly some of the women charged with leadership roles, certainly did follow through with their *regañada.*

Upon hearing this news, Catalina, who is involved in the junior ranger program and has very good rapport with Pablito, saw him later in the day, as he walked through town. Catalina publicly teased Pablito on the street in front of the *comedor* when she saw him,

> I hear you were *hueveando*, Pablito. What's that about? I thought you were a junior ranger. I hope it isn't true… hum?
>
> *Me cuentan que andabas hueveando, Pablito. Y eso? Pensé que eras un guardaparque junior. Espero que no sea cierto… hum?*

Pablito seemed quite embarrassed by the attention, and several children playing on the streets giggled and whispered to each other as the interaction went on. Catalina stood her ground, hands on her hips she continued to tease Pablito, who looked down and picked up his walking pace as he passed the *comedor* smiling and shrugging his shoulders.

The interaction with Felipe was not quite so light-hearted but occurred in a rather similar fashion. Andrea, another Paso Pacífico ranger, saw him get off the bus in the evening. As he walked by the *comedor* she called out to him on the street that she had heard he'd taken a hawksbill nest, which is a very rare species of sea turtle, and likely fetches a higher price in sales. Felipe is an adult in his thirties and has participated in numerous Paso Pacífico activities. Andrea called out that he should be ashamed of himself, didn't he know better. Felipe seemed upset to be called out in front of 20-30 people who were also exiting the bus, he frowned and walked away quickly. Most of the community members in the *comedor* murmured that he probably used the money to go out drinking. This interaction, as compared to that of the *huevero* who took half the nest from the protected beach, seemed to indicate community members- or perhaps more specifically, women- are willing to forgive *hueveros* if they perceive they are using money to support their families and not for personal gain or spending money on drinking.

All of these examples point to a very different sort of power and management strategy employed by Paso Pacífico in relation to communities. Firstly, Paso Pacífico management has employed much more CEC than the post-2007 RVSLF. This is tied to the organization's employment of community members, who share in management decisions and conservation implementation. Despite Paso Pacífico staff having no official capacity in law enforcement, it seems that their ability to contextualize the likely causes that motivate *hueveros* and their ability to call out community members who do not abide by conservation norms, gives them the ability to influence community member behavior through social control, an informal means of control than that employed by RVSLF. I believe the use of informal networks and the employment of community knowledge systems both contribute significantly to increasing trust and diminishing conflict among community stakeholder groups.

In comparting RVSLF and Paso Pacífico's use of power and management within protected areas I am also reminded of something a one young man I interviewed spoke to the importance of being aware of the conditions which are lived day-to-day in the communities:

> Paso Pacífico, as well as Marena and the military, should keep in mind that the people that are poaching turtle eggs, they don't have a job. Others do it because it's an easy way to make money. [It's important] to raise awareness among people and treat them with kindness. Don't yell and scold. Do it with patience, with wisdom... If they yell and scold, I get beat up, what I do is- oooooh, I'll do it [poach eggs] with vengeance.
>
> *Paso Pacífico al igual que el MARENA y el ejército… Deberían de tener conciencia de que las personas que andan saqueando huevos de tortuga, no tienen un empleo, otras lo hacen porque es una manera más fácil de ganar dinero. [Es importante] tratar de concientizar más a las personas y tratarlas con mas amabilidad. No regañar al grito. Con paciencia, sabiamente. Me regaña al grito o al garrote lo que hago es- uuuuh-lo hago como venganza.*

7.2 Discussion: Connections to Levels of CEC

Qualitative analysis of my interviews reveals 142 cited examples of 'conflict'; of these, 18 are associated with 'MARENA' indicating that conflict is commonly associated with that management entity. There is evidence that the change in RVSLF management in 2007 eroded trust between communities and management entities. Qualitative analysis of interviews supports this claim within the 76 examples of 'distrust', 12 of which are associated with MARENA. For comparison, I found 1 example of 'distrust' is associated with Paso Pacífico.

Of course, in this examination it is important to keep in mind two things: 1) MARENA has worked in the area for much longer and through the most conflicted time period- the mid-2000s, while Paso Pacífico has only been in the area for 10 years, and 2) MARENA has official implementation and military support in implementing management decisions, while Paso Pacífico has neither.

Furthermore, by employing Arnsteins's framework, it becomes clear that while RVSLF is generally perceived as amenable to community interactions, currently, these do qualify as 'non-participation' due to the fact that communities are unable to engage in decision making, and at best consulted in decision- making. By comparison, Paso Pacifico's level of engagement can be characterized as 'tokenism' because their decision-making and management are structured in such a way that they employ community member feedback throughout their processes. These are illustrated in the Figure 14, located on the following page..

My research suggests that when community members are consulted in decision-making around natural resource management within protected areas these result in building trust with community members and incentivizing sustainable behaviors, these findings align with much of the current literature that indicates that integrating multiple stakeholder groups in resource management can lead to better outcomes through increased rates of compliance and implementation of realistic management plans.

However, due to the notable differences in the SES of the two types of protected areas it may not be realistic to presume that the employment of high levels of CEC will work as well in RVSLF as it does in Paso Pacifico

protected areas.

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Figure 14: Community Participation and Resource Regulation in Protected Area Types

Type of Protected Area	**Pre-Revolution** ***1920s-1979***	**Post-Revolution** ***1980s- 2007***	**2007-2014 (form of CCM)**	**Form of CCM**
RVSLF	Playa La Flor Informal, unregulated	Playa La Flor Community Control (Community Control, Delegation, Partnership)	RVSLF Nonparticipation (Informing Consultation)	RVSLF Tokenism (Placation)
Resource Regulation		Organized *arribada* harvest by Marena and communities	Total ban of *arribada* harvest enforced by military and Marena (non-community members)	
Paso Pacífico Beaches and Farms	Informal, unregulated	Informal, unregulated	Informal & Non-participation (Informing, Consultation)	Tokenism (Placation) & Community Control (Partnership)
Resource Regulation		Unknown quantity of individual sea turtle egg harvests	Total ban of individual sea turtle egg harvest, no official enforcement by Paso Pacifico, monetary incentives offered in exchange for harvest (community members employed by Paso Pacifico)	

CHAPTER 8: FINDINGS & DISCUSSION, COLLABORATION AND CO-MANAGEMENT

8.1 Findings: Collaboration

Despite the somewhat tense trajectory of the protected area, my interviews indicate that overwhelmingly different stakeholder groups view RVSLF as a protected area to which they currently have access; it is also generally perceived as a protected area which presents opportunities for communities both in the past and currently. The protected area is perceived as presenting opportunities in biomonitoring, environmental learning and eco-tourism. More recently (since 2014) RSLF also has also presented opportunities in collaborative management through the formation of a committee, known as the CCM. Here, a community businessowner Luis, continues the narrative of La Flor's management:

> [...] it changed and now the Ministry of Environment allows for community members that live nearby the refuge, free, *pues*, there are no problems with pay. And they allow you to go in freely through the main entrance, like everyone else. Well of course, you can't take out eggs–although it happens illegally, as it always does in protected areas.
>
> *[...] cambiaron y ahora el ministerio de ambiente permite ingreso de los comunitarios aledaños al Refugio La Flor, gratis, pues, no tienen problemas con pago. Y te permiten el ingreso libre, como todos, por la entrada principal. Pero eso si- no puedes extraer huevos- aunque se realizan ilegales, como siempre, en las áreas protegidas.*

Many of the opportunities are sponsored directly by MARENA. Current community engagement opportunities include *charlas* -- workshops or talks-- on environmental education and eco-tourism training. My interviews and observations indicate the presence of these opportunities has significantly improved both community relations and changed perceptions on the value of sea turtles both in and outside of the refuge.. Luis goes on to say:

> I have used these facilities with visitors, with tourists, for me it has been beneficial because I think I have learned we should work with the resources, you should not be an enemy of the resources.
>
> *Yo he hecho uso de estas instalaciones con visitantes, con turistas. Para mí ha sido beneficioso, porque creo que he aprendido de que los recursos son mejores amigables, que uno no debe ser enemigo de los recursos.*

My field research indicates, RVSLF administrators collaborate with community members in biomonitoring efforts, conducting *charlas* and are amenable to collaborating with Paso Pacífico in wildlife filming, beach clean-ups and general programs (such as the Junior Rangers). During our eco-tourism workshops, MARENA administrators were welcoming and supportive.

Perhaps because of my affiliations, I found interests and opportunities in eco-tourism are particularly attractive to many communities in the area. MARENA has worked with InTur to promote and support what they call *guia comunitario/*community guide certifications; this certification is connected to efforts to increasingly hire, and even require that, community guides be employed by groups that visit the refuge with private tourism companies (usually headquartered in San Juan del Sur).

While conducting our first set of eco-tourism guide workshops in August of 2017, communities were abuzz with rumors of an upcoming InTur- sponsored initiative that would guarantee community members directly benefit from tourism through the certification. Whether, or how, this promise is to be delivered remains unclear. However, in can report that this promise bolstered relations between communities and MARENA administrators at RVSLF.

Several of the part workshop participants, who I later interviewed, are also involved in these certification efforts. Esteban, an enthusiastic young community member in his twenties, shares how he had acquired biomonitoring experience when he was just 14 years old, through a temporary ranger position volunteering with MARENA:

> In the beginning the gave me the opportunity only when there were arribadas. They started to lay eggs. Then the opportunity to count, they had to write down how many where preyed upon, how many were poached, so they would say to me- you are out of time, - then as time went by and the years went by, I asked for the opportunity to be a community *guardaparque.* They just gave me a little help, to substitute. And then they gave me another opportunity, for which I was there for several years working for them[…]
>
> *Y al principio me daban la oportunidad solo cuando las arribaras. Empezaron a poner. Entonces la oportunidad de poder contabilizar deberían poner cuántas eran depredadas, cuantas saqueadas, entonces ya me decían -ya no tenés más tiempo, -después conforme va pasando el tiempo Y los años, solicite una oportunidad para ser guardaparques comunitario. Sólo me iban a dar una ayuda, para subsistir. Y me dieron la oportunidad por la cual estuve unos años trabajandoles.*

Esteban goes on to say that this experience led him to fall in love with the work with sea turtles. He stated he was becoming a certified guide through InTur, in the hopes it will help him secure more steady employment.

Another interviewee, Andrea, explained that she had first learned about sea turtles while helping her father count and protect turtles in the refuge as a child. She now works "in the struggle to raise consciousness" around conserving turtles and tropical ecosystems. Her narrative coincided with that of Tatiana, who is also in her thirties and works in conversation efforts. Tatiana shared that today local high school students still often complete community service hours in the refuge, while younger children engage in beach clean-up efforts, birding walks and other recreational activities.

A variety of organizations in the region work specifically with youth and conservation and number of these have provided local community members with jobs as community organizers and teachers. Many of those employed in these positions, including Andrea, have been women. This presents a particularly unusual opportunity, as many women in Nicaragua are often more limited in the sources of employment.

8.1.1 Connections to Community Opportunities

This set of findings confirm that increasingly, community members view protected areas of sources of opportunity and collaboration. This has been spurred by efforts by MARENA and Paso Pacifico alike, both of which have increased CEC efforts through educational opportunities, trainings and community activities. These findings indicate that contrary to some of the assumptions instilled in fortress conservation models, community members are willing and able to engage in conservations management. This must contain an important caveat of course- and in this case it is that communities are willing to engage in conservation management so long as it does not directly compete with their access to consumable resource, their livelihoods or necessary income to support communities that often struggle with poverty. In recent years Nicaraguan institutions, including InTur and MARENA have made efforts to benefit community members in areas adjacent to protected areas and these efforts have yielded increased interest in eco-tourism employment. This form of employment, as compared to sea turtle egg collection is less extractive and, to use Luis' wording "does not make people the enemy of the resource".

This finding illustrates that by aligning conservation and community goals, both types of protected areas have aided communities in exploring further opportunities to not only survive but thrive in aligning conservation. This finding coincides with other studies within Latin America that have found that engaging communities in conservation efforts, by employing their knowledge systems and aligning with their goals, can yield positive outcome for both communities and conservation.

8.2 Findings: Co-Management and the CCM

Nicaraguan national law delineates basic management plans for all nationally protected areas however, these are (at least in theory) to be adjusted through participation of

communities and later approved by MARENA municipal delegates and the national ministry (*Estado de Gestion Compartida de Areas Protegidas*, 2005). Although processes aim to involve communities, it is prolonged and requires them to attend several meetings in the capital city of Managua. Government documents published in 2005 indicate that, out of the seven protected areas listed that year, RVSLF had the highest level of community participation. Yet, even communities surrounding RVSLF have had challenges engaging in management planning. One community leader shared some of their experiences of being involved in the CCM, stating:

> [...] we have been studying the management plan, a management plan that has been repealed, delayed since 2004 [...] we have to be looking at what works for us [communities] and what doesn't work for us.
>
> *[...]estamos estudiando lo que es el plan de manejo, un plan de manejo derogado, atrasado desde el 2004 [...] nosotros tenemos que venir viendo lo que nos sirve y no nos sirve.*

Despite the ongoing struggle to fruitfully develop a management plan, this community leader did express they felt they were on the verge of finalizing a new management plan. In more recent years (my findings narrow the time frame roughly between 2014-2016), RVSLF has successfully assemble a *Comite de Co-manejo* (CCM), or co-management committee. The CCM is composed of MARENA managers and delegates as well as several leaders from communities near the refuge. The CCM's assembly is facilitated by two private consultants and funded through a grant acquired by Paso Pacífico. My field research indicates that in 2016, the committee began to draft a new management plan integrating community feedback throughout several meetings. By the conclusion of this research in August of 2017, a complete management plan had been drafted and was awaiting MARENA delegate signatures for approval and implementation.

In my interviews I cite 13 examples of community collaboration and 6 examples of high levels of community participation affiliated with the CCM. Additionally, I spoke with four

individuals involved in the CCM; when I asked one interviewee with decades of experience working in the area, about the relationship between RVSLF and communities, they reiterated that it has historically been tense, perhaps due to the fact that while government institutions promise CEC, this has not yielded tangible outcomes in the past several years:

> Again, it has been a relationship [between RVSLF and communities, has been one] of conflict. And the idea with the committee [CCM] is to improve that relationship permanently. That is the purpose of the committee, to improve the relationship so that it is a participatory one. Exactly that, is the idea.
>
> *De nuevo, [la relación entre RVSLF y comunidades] ha sido conflictiva. Y la idea del comité [CCM] es para mejorar esa relación definitivamente. Ese es el propósito del comité. mejorarla para que pase a ser una relación participativa. Exactamente esa es la idea.*

The above quote, along with the numerous examples of collaboration and community participation associated with the CCM throughout interviews, indicate that the CCM represents an increase in community participation and management within RVSLF. Whereas the post-2007 years can be characterized as 'non-participatory' by Arnstein's framework, inclusion of communities in more recent years represents a step up into "tokenism". Thus, this research indicates that formation of the CCM, and the presence of a management plan draft has led to an increase in CEC. It bares reiterating, however, that the CMM's management plan was not approved or implemented by the conclusion of this research in 2017. Furthermore, both of these actions rely explicitly on the MARENA. Communities are invited to the table, yet power is not redistributed from MARENA and planning and decision-making responsibilities are not shared jointly. This indicates that despite an increase in CEC, the formation of the CCM falls short of community empowerment, per Arnstein's definition.

As for Paso Pacífico, the organization's support of the CCM through financial and human resource needs, presents yet another example of an opportunity it has created for communities. However, the formation of the CCM, allegedly has no direct effect on community

participation within Paso Pacífico protected areas. In fact, when I asked if the organizations led the process, one interviewee affiliated with Paso Pacífico asserted:

> No. No. We accompany. We accompany and support [...] We do not want to come to substitute the government functions but facilitate the processes. Partnership and facilitation of the process because, really we contract consultants so that the plan and those that help create it are new people. But the group that leads it and everything is MARENA. It's not like we have the strongest opinion on how this should be.
>
> *No. No. Acompañamos. Apoyamos y acompañamos [...] Nostotros no queremos venir y substituir las funciones del gobierno, pero facilitar el proceso. Acompañar y facilitar el proceso porque, realmente nosotros contactamos las consultadoras para el plan y ellas ayudan a crearlo con gente nueva. Pero el grupo que lidera todo es el MARENA. No es que tengamos la opinión mas fuerte en como debería de ser.*

This Paso Pacífico staff members adamantly insisted the organization did not lead or control management plan outcomes in the CCM. And numerous Paso Pacífico staff were very aware of and careful not to upset power dynamics wherein MARENA assumes decision-making control.

As seen in the previous section *Differences in Power and Management*, Paso Pacífico's management has higher levels of CEC than does MARENA. Additionally, many of the Paso Pacífico staff are community members, whereas MARENA staff and military are overwhelmingly not community members. This means that participation within Paso Pacífico often results in higher amounts of CEC just because of the demographic composition of the staff. This further leads to building rapport with communities that see their needs integrated into Paso Pacífico protected area management plans.

Despite the progress being made, there is reason to continue to track the progress of the CCM, for there is little certainty that the development of the plan on paper will ensure continual incrementation in CEC, in fact, there is a possibility that the CCM may in fact present a front of CEC through 'tokenism' when in fact in reality it functions more in a role of informing or confirming the beliefs of those in power, which would characterize it more as 'non-participantion'. One interviewee deeply involved in the CCM commented:

> Now if I am frank, I have to say: what is the weakness that I see within this the collaborative management committee? Well, if you look at the leaders and all the people that are participating- they are the same party leaders, the governing party.
>
> *Ahora, si le hablo francamente, le tengo que decir, ¿cuál es la debilidad en lo que yo veo, dentro del comité de co-manejo? Bueno, si ves los líderes y toda la gente que están participando- son los mismos del partido, el partido del gobierno.*

Throughout my years of experience in Nicaragua, both as a researcher and in years prior, spanning as early as 2008, citizens commonly expressed political concerns- namely that the dominant national party was becoming increasingly powerful and increasingly party affiliation and registration was becoming necessary to acquire official identification cards (or *cédulas*) and sometimes employment. This concerned community members throughout my field work. Here one interviewee, I spoke to in 2017, observed how despite a "good deal of participation and it's meeting quorum" the CCM, was affected by political conditions:

> [...] Now, what's the deal [with the CCM]? That if you look, the leaders and all the people that are participating are from the same government party [the FSLN]. So, in a certain way the participation is kind of conditional, because you have to more or less follow that same line.
>
> *Ahora, ¿cuál es el asunto [con el CCM]? Que, si uno ve, los líderes y toda la gente que está participando son los mismos líderes del partido, gobernante [FSLN]. Entonces desde cierto punto es una participación pero medio condicionada, porque tiene que seguir más o menos una línea.*

The description being employed here lines up quite neatly with Arnstein's description of 'non-participation' for it implies that those that are consulted in the CCM already are generally in agreement with the management entities. This person went on to say,

> So, from my point of view, that is limiting, because it is a restricted kind of participation. It has conditions. And the community leaders we have here [in the CCM] are the same leaders of the party. If there is something they want to bring up that isn't in line with that of the politics or philosophy of the government… it's going to be difficult.
>
> *Entonces desde mi punto de vista, eso es una limitante, porque es una participación limitada, condicionada. Los líderes comunitarios que tenemos aquí [en el CCM], son los mismos líderes del partido. Si hay algo que quieren decir que no va de esa línea, con la línea de la política o filosofía del gobierno… va ser difícil.*

This insight was also echoed more broadly. Since August, 2017 numerous international organizations, including Human Rights Watch, the Organization of American States, the United Nations have all condemned a dramatic increase in human rights violations tied to political dissent and instability within Nicaragua. Nicaragua has been subject to criticism brought forth by numerous international democratic watchdog organizations, many of these reported an increase in threats to democracy, many of these came to a head after the conclusion of this study in March of 2018 when largescale citizen protests, civil unrest and political persecution increased within the Central American nation ("Human Rights Watch, Nicaragua" 2019).

8.3 Discussion: Connections to National Governance

Findings indicate that beginning in 2012 the establishment of the RVSLF CCM represents a promising shift toward further CEC, and it can lead to increased trust, higher rates of compliance and to achieving both community and conservation goals. Qualitative interview data analysis supports this claim, for in the 57 cited examples of CCM, 13 examples associated with higher levels of CEC ('tokenism' or 'community management'). This indicates decision-making has recently integrated more community feedback. In my data analysis of interviews, I also found that the CCM is co-coded with 9 examples of 'collaboration'. I believe this may indicate that the CCM is increasing trust between communities and protected area managers, and it may also decrease incidences of conflict.

It is important to note that the CCM is a relatively new development, run my MARENA, supported and funded by Paso Pacífico, it is subject to political and budgetary changes. While CEC has increased through the formation of the CCM, this co-management

plan, remained by August of 2017, a non-bunding contract "on paper" and by the conclusion of the study no action had been taken to set it into place. Furthermore, as one experienced interviewee aptly points out- the CCM may lack a healthy inclusion of divergent viewpoints, if this trend continues, it would characterize the plan as representative or 'non-participatory' form of CEC, while if the committee does promote non-selective engagement from community members it could promote higher levels of CEC through 'tokenism' and/or 'community empowerment'.

In conclusion, my research found that the formation of the CCM has increased CEC, and promises to further improve relations between RVLF managers and communities. When examined employing Arnstein's model it is evident that its formation, and the development of a new management plan, has elevated CEC from 'non-participation' to 'tokenism'; however, the CCM has fallen short of reaching the upper rungs of CEC, through 'community empowerment'. Moreover, interviews and participant observations coincide in evidencing growing concerns among communities in regard to the health of Nicaraguan democracy. These concerns for national democratic engagement are also shared by a variety of international watchdog organizations and can represent a real threat to recent increases in CEC within protected areas in the Pacific Isthmus region. I conclude, within my research that by August 2017 CEC is increasing significantly. However, whether this trend continues or reverses remains to be seen, as this may be threatened by a decrease in democratic participation within broader governance systems on the municipal, departmental and national level.

CHAPTER 9: CONCLUSIONS

9.1 Research Limitations

No research worth its salt is complete without disclaiming its limitations; thus, I delineate some of the most important limitations to this research here. The first limitation is this case study contains 18 interviews, a relatively small sample size, and certainly not a statistically significant one. Despite this, I believe the integration of varied stakeholder groups as well as the addition of numerous participant observations- in both types protected area types, through active participation in workshops and, (perhaps, more importantly) interacting with community members informally- yields a rich triangulation and a cohesive set of central findings.

Another limitation is that not all stakeholder groups were officially interviewed in this case study, although all were included in participant observations. The RVSLF landowner, MARENA managers and/or delegates, *RVSLF guardaparques* and soldiers are absent from interviews within this research. There are several reasons for this, firstly when I sought community input and Paso Pacífico guidance, both cautioned that interviewing these groups was a delicate exercise and many doubted these groups would be willing or able to provide official commentary on protected areas and natural resource management. I made efforts to engage with these groups when visiting RVSLF on numerous occasions. However, when I spoke to members of this stakeholder group-- MARENA managers, *RVSLF guadaparques* and soldiers-- they also shared that speaking with outsiders (in an official capacity) about their relationships with communities was difficult. Some concessions were made by individuals of these groups who spoke to me unofficially, however, their insights have been largely diluted because I have honored their request to preserve their individual and organizational anonymity.

I was also limited in my ability to gain perspectives from the RVSLF landowner and MARENA delegates for both are located outside of coastal communities. While the former is an ex-patriot who few Paso Pacífico or community members have ever interacted with, and few seemed to be able to share his place of residence or contact information. As for MARENA delegates, I was limited, in the way that many communities are limited, by my lack of access to a personal vehicle, I was daunted by the long multi-day journey it would likely take to gain access to an interview. I was also frankly reluctant to risk the resources, time and effort of traveling to national and regional offices just to be overlooked or not attended to.

I would also be remiss to not highlight the fact that at the time in thie field (June 2016-August 2018) political tensions within Nicaragua were high and rising. This limited my willingness to probe deeply into controversial issues, and I am sure it also limited research participants willingness to disclose (especially on record) their uncensured perspectives on interactions with government officials or institutions. Throughout the progression of my field research I experienced a visceral sense that a more oppressive political regime was on its way. This awareness grew out of many small and nearly daily interactions-- a resident in San Juan del Sur commented to me that there was a decline in tourism and stated she was preparing for potential economic downturns; women in communities heatedly discussed their grievances with the Nicaraguan government criminalizing the mobility of several large groups of undocumented migrants attempting move from the nearby Costa Rican border to Honduras; NGOs within Nicaragua were increasingly leaving the region, due to political tensions, an inability to meet goals due to government intervention. In one of communities an entire free clinic, donated by a foreign NGO, with state-of-the-art equipment, a birthing facility and the only functioning ambulance in the area had been abandoned before its inauguration due to recent tensions. In regard Paso Pacífico is unusual in that it seemed to be functioning quite

smoothly, several community members attributed this to the fact that since the organization employed community members they were generally tolerated as such, but there were conscious efforts made to not make waves as an organization. By the time of publication, several of my Nicaraguan friends and acquaintances with means had left the country due to intimidation or as political refugees, and within Nicaragua conditions have changed for community members who I have stayed in touch with over Facebook and other means. Unfortunately, I believe my caution was not unfounded.

I was also limited in my ability to gather field data and travel alone, due to a decreasing sense of safety. Military presence on the border and within coastal communities increased significantly in my second and third visits to Ostional. To give a few examples, increasing numbers of soldiers were stationed on the border checkpoints along the coastal road, and housed by the dozens in rustic encampments and remote *casonas* along the road. Buses began be stopped and inspected between coastal towns and San Juan del Sur and passengers we were asked to show government-issued identification (within Nicaragua, citizens increasingly could only access these as FSLN-registered party members) or risk being detained indefinitely. By the end of my field visits in August 2017, I began to feel uncomfortable traveling alone or at night and after years of walking the roads and beaches on morning walks I started avoiding areas on the outskirts of town after being heeded to do so by a number of community members.

Thus, while the omission of both military and government officials is a concern, I was by no means inclined to let it trump my sense of safety; furthermore, this absence also represents a very real sensitivity to not disrupting community and organizational relations with higher authorities. These facts explain why Paso Pacífico employees and affiliates are overrepresented within this study- 50% of interviews were conducted with this stakeholder group. Another limitation, I concede, is that my role as a community organizer and Paso

Pacífico partner perhaps limited my opportunities to engage across a broader set of stakeholder groups, for example, while I would be very interested in interviewing *hueveros* directly, this would be highly inappropriate given my organizational ties.

There is also, of course, always chance that my positionality meant that community members were "*echándome el cuento*" which is a colloquial way of saying they were telling me a story that they thought I wanted to hear. Yet, of course, in academic research there is always a chance that qualitative samples are not entirely representative; despite this, I am confident my research methods are robust and I have intentionally triangulated findings across several methods to demonstrate a consistent and robust effort has been made to expose potential pitfalls. I have also, as I stated in the *Research* chapter, to the best of my ability exposed the epistemological assumptions, axiomatic motivations and personal positionality that informs this research in the hopes that other scholars will critically review, analyze and challenge my work in order to produce an even more refined analysis and research.

9.2 Mirando Hacia Adelante/Looking Forward

In conclusion, it is my hope that this case study has exposed "the other face" of conservation narratives by examining community perspectives, across various stakeholder groups which have included somewhat less represented groups such as community leaders, cooperative members, as well the more typical protected area managers, employees and organizational affiliates. Again, the two key findings within this research evidence that sea turtle eggs harvested in RVSLF have historically been viewed as a common-pool resource, however, increasing connectivity to a globalized world has led coastal communities to fundamentally *change* their relationships to, and conceptualizations of, natural resources;

whereas many resources-- exemplified in this case study by sea turtles and their eggs-- were formerly valued for their ability to provide sustenance related to traditional livelihoods, today they are increasingly valued for their ability to provide income and/or employment primarily through commercialization and/or ecotourism opportunities. Thus, change in resource use sets the stage for many of the other findings in this study.

Another finding is that increased connection to the international conservation efforts has shifted priorities within protected areas to center on species conservation rather than community engagement-- this has resulted first in the ban and criminalization of traditional practices and, secondly, in the use of fortress conservation models within RVSLF. This has been done by drawing upon environmental crisis narratives wherein community members' extraction of eggs is portrayed as the primary cause of decreasing sea turtle populations. The 2007 dramatic change in both RVSLF management and national law to protected endangered and threatened species resulted in excluding communities from protected areas, devaluing their sources of knowledge and deprioritizing their values. This resulted in increased conflict and decreased trust (in both scientific reasoning and management entities) between communities and management entities.

Despite these polemics, this case study provides evidence that since the mid-2000s there has also been a change in community goals related to changing values of natural resource use; increasingly, community members refer to a growing *concientización*-- or critical consciousness-- of the need to sustainably manage natural resources; my findings indicate motivations for this are twofold: 1) communities realize that the decreasing abundance of natural resources which now increasingly face pressures related to commercialization, is also a threat to many of their livelyhoods, and 2) communities realize that growing opportunities for income derived from

ecotourism within the Pacific Isthmus region may be an attractive opportunity in an area where experiences of poverty and vulnerable employment are common.

A comparative examination of RVSLF and Paso Pacífico management structures indicates that while more top-down management approaches-- as seen in RVSLF-- have the effect of decreasing trust, more horizontal approaches- -as seen in the Paso Pacífico-- maintain trust and incentivize non-extractive behaviors. Lastly, findings indicate that beginning in 2012 the establishment of the RVSLF CCM represents a promising shift toward further CEC, which can increase trust between stakeholder groups, lead to higher rates of compliance by community members and better achieve both conservation and community goals. One notable caveat is that the success of CEC is contingent upon a larger government commitment to democratic principles of engagement, and staying atune to current events and changes in the health of democratic practices within Nicaragua will largely dictate whether smaller-scale CEC efforts within the Pacific Isthmus region are successful.

9.3 A Call to Action: The Conceintización of Conservation

It is with these thoughts in mind that I now return to words of Don Carlos, who I introduced at the very beginning of this thesis and who provided me with valuable insight on the lived and day-to-day experiences confronted by community members in the *pueblos*. In this thesis I have examined protected area formation and management by focusing explicitly on these experiences; in doing so, I hope I have provided insight of the *lucha*-- or struggle-- that many communities, protected area managers, employees and the international community face in engaging in sustainable resource management.

This case study provides strong evidence that the true villain of conservation is often inequality and lack of engagement with communities, rather than an unwillingness or inability of communities to manage resources sustainably. This is evidenced by the findings centered on change in resource use, which demonstrate that integration into global systems, especially post-revolution, resulted in increased pressures to extract natural resources from RVSLF. Furthermore, the second set of findings centered on differences in power and management, evidence that the 2007 RVSLF management plan not only lacked CEC but decreased trust in natural resource managers and increased incidences of conflict. Meanwhile, more engaged CEC, by part of Paso Pacífico and later with the formation of the CCM have had the effect of increasing trust with communities and demonstrated that members of the *pueblos* are both willing and able to engage in management. I hope that the last section of findings, focused on the CCM, provides hope for CEC and further cautions of the potential pitfalls of selective, rather than representative engagement with communities in conservation.

All of these findings intend to complicate and critically examine conservation in protected areas. It is my hope that by examining this case study under the lens of political ecology, employing an SES framework and Arnstein's model to gauge levels of CEC I have carefully situated this struggle, provided a nuanced examination of the various component that affect ecological outcomes and illuminated the merits of working alongside historically marginalized communities in order to seek solutions in conservation.

I will conclude with a challenge to academics, practitioners and those who consider themselves part to the international conservation movement: In this case study, I demonstrate that while fortress conservation models may be informed by noble aspirations to preserve ecological resources, when this is done without the employment of CEC, a keen focus on historical patterns of injustice and culturally appropriate implementation, it can lead to

questionable conservation results. Furthermore, fortress conservation models applied to protected area formation and management can increase conflict and distrust of protected area managers. Conversely, engaging in CEC can lead to an increased opportunity for community members, an increased willingness to sustainably manage resources and an expansion of novel opportunities, including environmental education and eco-tourism development, both of which provide opportunities to generate income and employment within communities. Furthermore, CEC, when implemented effectively, has the added benefit of increasingly providing incentives to sustainably manage ecological resources.

Today, global threats to conservation have are growing. The conservation movement has largely moved beyond preserving charismatic species and, perhaps, even beyond mere habitat and biodiversity loss, to center on global threats such as anthropomorphic climate change and the preservation of world ecosystems. Just as the conservation has broadened its lens to be more global in scale, so must those who engaged in conservation also begin to increase their awareness of how conservation efforts reinforce or deconstruct patterns of global injustice. This case study demonstrates that between the Global North and South, the North has long dominated in setting conservation agendas and prioritizing their implementation. Between national and community governance, within recent years (notably since 2007) national institutions within Nicaragua are dominating in decision-making, despite the alleged post-revolutionary commitment to more localized forms of governance.

I argue that those with power, resource and influence bear a proportional responsibility of remaining conscientious of the fact that there is more than one struggle at play in the formation and management of protected areas. Since the formation of the IUCN the need to achieve conservation goals has dominated decision making around the formation and management of protected areas, and this need is real and legitimate; however, *if* conservation

models fail to integrate the communities that are most intimately affected by change, there is a very real risk that protected area formation and management further perpetuate and entrench patterns of global injustice. Embracing CEC is a highly effective, and perhaps even reconciliatory, model for conservation that can better integrate community goals *alongside* conservation goals. It is time for the *concientización* of conservation.

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APPENDIX

Survey and interview questions are presented here in both English and Spanish. The consent script- which contains details required by the IRB, such as study aims, participant selection, as well as details on secure data storage and data analysis- was read prior to interviews, but is not included here.

A: Survey & Interview Questions in English

Community Development and Protected Areas

Part I: Survey

Please share all known information about yourself and your organization or group. This data will be used to understand the composition of individuals that make up or use conservation areas. Personal details will not be shared outside of the study or in the final project.

Please share information about yourself:

Group, Organization or institution: _____
Time affiliated: _____
Role: _____
Original living location: _____ (town or region of country)
Living location: _____ (town or region of country)
Highest educational level (please check one):
Primary _____
Secondary _____
University _____
Masters_____
Doctorate _____
Other _____

What is your age? _____

In relation to your group or work team, answer the following questions. Please fill in blank spaces with estimated number of members, do not worry it the numbers are not exact.

Name of organization group: _____
Number of individuals in organization or group: _____
Living location of members: _____ (town or region or country)
Original living location of members: _____ (town or region or country)

Please estimate the number of people in your organization or group who have attained the following as the highest level of education:
Primary _____
Secondary _____
University _____
Masters_____
Doctorate _____

Other _____

Gender: Women_____ Men_____ Other_____

Please estimate the number of people belonging to the following age groups:
People age 0-18 years old: _____
People age 18 to 30 years old: _____
People age 30 to 50 years old: _____
People aged 54 more years old: _____

Part II: Interview Questions

1. Please tell of the evolution of your relationship with protected areas, if it was one of exclusion or participation. For example: when did it begin, how long it has it gone on, if it has changed, and how you have used protected areas.

Notes:
Protected areas identified are: _____
Organization or Program mentioned: _____ * this name will be inserted instead of organization/program or group in cases below

2. What opportunities or limitations have you had in [your protected areas]. For example: study, personal growth, recreation, access to resources, cultural or economic activities etc.

3. What is the mission of [your organization] or yourself? What is your role within this?

4. How is [your program or group] organized internally? Explain communication decision-making and responsibility.

Social-Ecological Systems Questions:

A. Please identify, illustrate or write using a specific example:

-The natural resource used or managed by your program or yourself

-Use or a desired use by society or local communities

- Entities that manages and makes decisions about natural resource use

B. What is the relationship between natural resource management and local communities? Is it participatory?

Notes:
5. Who is allowed access to natural resources with and conservation areas? What is the process, cost etc.? Please give an example.

6. Who is excluded from accessing these resources? Are they compensated in any form? If yes: how? If no: why not?

6. Does [your program] participate in natural resource management in alongside the ACG or Paso Pacífico? Why for why not?

7. How would you characterize the relationship between local communities and protected areas? For example: is it one of collaboration, conflict, both, or neither?

8. What goals do you hope to accomplish for [your organization] or yourself, in participating within protected areas- in the short-term (the next few years)? In the long-term (within the next 10 years)?

9. What are some of the weaknesses and strengths of [the ACG or Paso Pacífico] in helping reach these goals?

10. What else should I know about the relationship between [Area Conservación Guanacaste and Paso Pacífico], your program and local communities?

Notes:
For question 9 and 10 only the area relevant will be mentioned

11. * Specific question for the person or organization.

12. Who else do you recommend I talk to about these topics?

13. Do you have any questions for me?

B. Survey & Interview Questions in Spanish

Desarrollo comunitario y áreas protegidas

Parte I: Encuesta

Por favor compartir toda la información que pueda o desee sobre su persona y su organización o grupo. Estos datos serán usados para conocer la composición de individuos quienes usan o están afiliadas con las áreas de conservación. Detalles personales no serán compartidos en del estudio o en el proyecto final.

Por favor compartir información sobre su persona:

Grupo, Organización o Institución: _____
Tiempo que lleva en ella: _____
Puesto que desempeña: _____
Domicilio: _____ (pueblo o ciudad)
Domicilio original: _____ (pueblo o ciudad)
Nivel de educación completado:
-Primaria _____
-Secundaria _____
-Universitaria _____
-Maestría _____
-Doctorado _____
-Otro _____

¿Que edad tiene usted? _____

Con respecto a su grupo o equipo de trabajo, conteste las siguientes preguntas. Por favor rellenar los espacios en blanco con estimaciones de números de miembros no se preocupe si no tiene números exactos.

Nombre de grupo/organización: _____
Número de personas en grupo u organización: _____
Domicilio de mayoría de miembros: _____ (pueblo o región)
Domicilio original de mayoría de miembros: _____ (pueblo o región)

¿Género, de miembros de su organización o grupo?
Hombres _____ Mujeres _____ Otro género _____

Número de personas que tienen aproximadamente estas edades:
Personas que tienen 0-18 años _____
Personas que tienen 18
-30 años _____
Personas que tienen 30-50 años _____
Personas que tienen 50 o más años _____

Nivel de Educación:
Primaria _____

Secundaria _____
Universitaria _____
Maestría _____
Doctorado _____
Otro _____

Parte II: Preguntas de Entrevista

1.Por favor cuente de la evolución de su exclusión o participación en el área protegida. Por ejemplo, cuando empezó, cuánto tiempo lleva en ella y si ha cambiado la manera en que ha usado el área de conservación.

Nota: Cuales son las áreas protegidas identificadas:
2. ¿Qué oportunidades o limitaciones ha tenido en el área protegida? Por ejemplo, estudio, crecimiento personal, recreación, acceso a recursos, actividades culturales o económicas etc.

3. ¿Cuál es la misión de su programa o grupo y su función entre ella?

4. ¿Cómo está organizado internamente su programa o grupo? Explique la comunicación, toma de decisiones y responsabilidades.

5. Sistemas Socio-Ecológicos:

A. Por favor identifique e ilustre o escriba:
-El recurso natural que usa o maneja usted o su programa:

-Sociedad o comunidades próximas, como lo usan o desean usar este recurso natural

-Identificar ente que lo manejo toma decisiones sobre su uso:

B. ¿Cuál es la relación entre el manejo de recursos naturales y las comunidades?

Notas: ¿Es participativo?
-¿A quién se les permite acceso a recursos naturales dentro del área de conservación? ¿Cuál es el proceso, el costo etc.? Puede dar un ejemplo.

-¿A quién no se les permite acceso a recursos? ¿Se les compensa de alguna forma a aquellos que no tienen acceso? Si sí, ¿cómo? Si no ¿Por qué no?

6. ¿Participa su programa en el manejo de recursos del ACG o Paso Pacífico? ¿Cómo? ¿O por qué no?

7. ¿Cómo caracteriza usted la relación entre las comunidades y las áreas protegidas? Por ejemplo, colaborativa o conflictiva, ambos o ninguno.

8. ¿Qué metas espera cumplir usted/su grupo con su participación en las áreas protegidas a corto plazo (en los próximos años) y a largo plazo (en 10 o más años)?

9. ¿Cuáles son las debilidades y fortalezas del ACG o Paso Pacífico en alcanzar estas metas?

10. ¿Que más debería saber sobre la relación entre ACG o Paso Pacífico y su relación con la comunidad?

11. Preguntas para persona o organización.*

12. ¿Con quién más me recomienda hablar sobre estos temas?

13. ¿Tiene alguna pregunta para mí?