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PAYMENT FOR ENVIRONMENTAL SERVICES IN COSTA RICA'S OSA PENINSULA:  
A FEMINIST POLITICAL ECOLOGY PERSPECTIVE

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PAYMENT FOR ENVIRONMENTAL SERVICES  
IN COSTA RICA'S OSA PENINSULA:  
A FEMINIST POLITICAL ECOLOGY PERSPECTIVE

by

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**Abstract:** This dissertation investigates payment for environmental services (PES) programs on the Osa peninsula in southwestern Costa Rica. Three aspects of life in Osa Costa Rica are found to critically affect PES implementation: the unique geographical and cultural setting of Osa, a history of murky land tenure in the region, and the often underemphasized role of women. Osa's mountainous forested terrain makes enforcement of logging bans very difficult without the help of in-situ "guardaparques" (forest rangers) in the form of PES-participating landowners themselves. However, the agency in charge of enforcing environmental protection (MINAEC) is indispensable, despite its bouts with corruption and abuse of power. Broadly, though specific flaws in the PES program are identified herein, the program is, nonetheless, found to be a beneficial and core part of the ideological and financial evolution of the region. The related issue of nebulous land tenure in the region began in the 1960s and 70s when squatters were encouraged to settle and develop land on the peninsula. A stark shift came with the passage of National Forestry Law 7575 of 1996 which claimed all non-privately-owned forest for the state of Costa Rica, essentially ceasing the process of granting formal land title to squatters. This thrust hundreds of squatters into a state of legal and financial limbo, affecting their ability both to

participate in PES and to sell their land. Gender is also central to this investigation as only approximately ten percent of PES-participating properties in the Osa region are owned by women (nearly twenty percent if married couples are included), yet a greater prevalence of pro-environment and pro-conservation attitudes is exhibited by women in interviews than by men. For instance, women more often mention “more time with family” and “helping the environment” compared to men when asked what are their personal benefits of PES participation. Also, a much larger percentage of women than men see protecting the environment as the responsibility of the landowner. The concluding chapter lauds the philosophical foundation and the overall potential of payment for environmental services and also proffers several recommendations as remedies for specific foibles of the PES system.

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## **Chapter 1: Introduction**

The Osa peninsula on Costa Rica's southwestern Pacific coast is frequently described as one of earth's salient biodiversity hotspots (Mittermeier et al. 1998; Kohlman, B et al. 2007). Although it only occupies one one-thousandth of one percent of the earth's surface, Osa contains approximately 2.5% of the planet's biodiversity (Gilbert and Christen 2015). The peninsula has remained one of the least developed sections of the country, that is, until Costa Rica pioneered a version of development which actually protects, rather than destroys, its precious forests.

Late in the twentieth century, just as logging and ranching were beginning to encroach on the area, a wave of environmentalism impacted the peninsula which was tangibly manifested through the establishment of Corcovado national park in 1975 and the inception of a national system of payment for environmental services in 1996. These developments generated several "eco-friendly" streams of income for the region, yet this income was not always distributed via egalitarian social, legal, and economic structures. A murky land tenure system in Osa, which has kept large numbers of campesino properties in a perpetual state of abeyance called "posesión" (possession, yet not formal ownership), is the most poignant example of such structures. Running through all of these themes is the experience, the role, and the story of Osa women.

Costa Rica, like much of Latin America, has challenges with machismo and domestic violence (Chant 2000) while rural areas often have an added layer of discrimination based on traditional campesino values and gender roles (Isla 2001). Women of the Osa peninsula face both levels of these challenges. Yet with the help of a legislative women's movement since the early 90s, along with unique environmental perceptions, innovative entrepreneurship, and an at times fierce independence, women of Osa are carving their own path and making an imprint on payment for environmental services programs, and on the peninsula in general.

In this dissertation I will be utilizing a humanistic approach to illuminate three aspects of the payment for environmental services program in Costa Rica's Osa peninsula. First, I will dissect the P.E.S. system itself and present interviews with landowners as well as the government agents who administer the program. I will investigate the main benefits, drawbacks, and potential improvements for the system while also clarifying how this program intimately affects local landowners, both ideologically and financially. Second, I will divulge the ways that land tenure historically and presently plays a central role in conservation efforts, economic shifts, distribution of income, and in the P.E.S. program.

Third, I will highlight the role of women. Besides statistical comparisons of answers to my seventy-two-question interviews disclosing gendered trends in environmental perceptions and land use, this section will also adumbrate several female land-user archetypal profiles, and it will delineate the legislative changes which have comprised the Costa Rican women's movement over the last few decades. Finally, in my conclusions I will tie together the salient developments and substantive statistical highlights from each section and explain how they interact to produce the current observable realities in Osa today. Suggestions will also be proffered, with a particular emphasis on the role of women, as to how the P.E.S. system could be modified to better achieve its environmental (conservation) and social (poverty-alleviation) goals.

## GEOGRAPHY AND BIODIVERSITY



**Figure 1.1:** Source: freeworldmaps.net

The Osa Peninsula is a 25 x 65 km peninsula on the southwest Pacific coast of Costa Rica which is one of the least developed areas within the country, still maintaining over 80% forest cover (Sanchez-Azofeifa et al. 2002) and sustaining extremely high biodiversity. This 1625 square kilometer peninsula, only a fraction of Costa Rica's total territory of 50,660 sq. km., is mountainous except for the eastern plains and the lagoon within Corcovado national park. Although peaks reach only as high as 745 meters (Cerro Rincón), the mountain ridges on the peninsula generate sufficient orographic lifting of incoming air masses to generate over six meters of annual rain in these higher elevations. This is compared to three to four meters of rain annually along the eastern plains, on average (Gilbert and Christen 2015). April through December comprises the local rainy season, with September, October and November witnessing the heaviest precipitation. December through March is the driest time of year, and this corresponds

with the tourism high season. Four soil types can be found in Osa: entisols, inceptisols (principally at higher elevations), mollisols (within Corcovado national park basin), and ultisols (red clayey soils widely distributed on the peninsula)(Pérez, S., Ramirez, E., and Alvarado, A. 1978).



**Figure 1.2:** Forests meet the sea in Corcovado national park

It has been reported that thirteen ecosystems exist within Corcovado park (Vaughan, C. 1979; Tosi, J.A. 1969; Hartshorn, G.S. 1983) while 38 distinct ecosystems have been identified within the Osa Conservation Area (ACOSA) which encompasses and extends slightly beyond the Osa peninsula. Approximately 700 tree species have been identified on the peninsula (Sanchez-Azofeifa et al. 2002), as well as 80 plant species endemic to the Osa Conservation Area (twenty of which have been discovered and named by Reynaldo Aguilera, a local botanist), and between 320 and 375 species of birds (Larry Gilbert 2014; Sanchez-Azofeifa et al. 2002). Moreover, Osa's Corcovado national park is hailed as the true jewel of the country's national park system,



containing a local concentration of jaguars and pumas, all four monkey species found in Costa Rica (spider, howler, squirrel, and cara blanca), massive herds of tapirs, and some of the tallest trees in the tropics, often reaching heights above 70 meters.



**Figure 1.3:** Twin toucans in the Golfo Dulce forest reserve. Source: Jessica Norris, reprinted with permission

Corcovado park covers approximately 40% of the peninsula and it is connected to nearby Piedras Blancas national park by the vast Golfo Dulce forest reserve. Over 80% of the Osa peninsula lies either within Corcovado park or the Golfo Dulce forest reserve (see image below), both of which are entities which have only existed for four decades (established in 1975 and 1978, respectively). Though these conservation spaces have helped to diminish deforestation in the region, they have imposed very strict land-use restrictions which are a source of economic and social tension in the area.



**Figure 1.4:** National parks are burnt orange. Golfo Dulce forest reserve is green.  
Source: ACOSA

Puerto Jimenez, the area's largest urban area at around 10,000 inhabitants, is located along the coast of the eastern plains, while smaller settlements include, in decreasing size, Drake Bay, La Palma, Rancho Quemado, and Carate. Puerto Jimenez served as my research home base for my entire stay in Osa, and in addition I did have several overnight stays with remote farmers who lived at relatively high elevations in Osa's central highlands, as well as stays on the other side of the peninsula at Drake Bay to conduct interviews and observations there.



**Figure 1.5:** Urban settlements of the Osa peninsula. Source: osagroup.org

Geographic isolation and transportation infrastructure are also salient aspects of life in Osa. “For all intents and purposes,” remarked one U.S. Ex-pat, “this is the boonies.” An eight-hour bus ride from the capital city of San José, Osa is among the most remote parts of the country. The entire peninsula did not have any paved roads until the year 2010. That is to say that potholed, muddy, rarely tended roads with no bridges over the surging rivers were the norm until very recently. Transportation was slow and arduous and local cars and motorcycles were quickly rattled down to a useless pile of the individual parts from whence they came. “Un viaje de 30 minutos en la carretera anteriormente duró cuatro horas” (a 30-minute drive on the new highway used to take four hours), said Juan an 82-year-old local resident. Still today, there is only one paved road on the entire peninsula, and it connects the area to the mainland at one singular point where the Panamerican highway passes by on its way to Panama. Even this highway only passes partially down the peninsula’s western coast, while the rest of

the region is still without bridges or paved roads and drivable only in 4-wheel drive vehicles on undulating, windy, muddy mountain paths.

The most imposing roads are those composed solely of red clay. Called simply “barro” (mud) these beautiful tropical “ultisols” take on a deep red earthy color because of the iron and aluminum oxides (rust) left behind after virtually all other soil nutrients have been leached by the constant equatorial heat and precipitation. When wet, these clay mud roads take on the consistency of peanut butter, such that my access to certain parts of the peninsula was sometimes dictated by these challenging soils. Indeed, one of the most common complaints about paying taxes in the region is simply that the roads are not sufficiently maintained by the government.



**Figure 1.6:** Soil profile in Golfo Dulce forest reserve near the conjoining of the peninsula and the mainland. Vertical scale is approximately five feet.

## BRIEF HISTORY OF OSA

The Osa peninsula has for centuries been a remote, wild, and unpredictable frontier. As far back as the early sixteenth century French and English buccaneers such as Sir Francis Drake (after whom the local “Drake Bay” is named) would replenish themselves on Osa’s shores before venturing out again into the adjacent Pacific to rob and pillage passing Spanish ships. Locals commonly assert that Spain used this, Costa Rica’s most southerly peninsula, as a dumping ground for its particularly incorrigible thieves and murderers – something akin to how the British Empire utilized Australia. Even to this day it is common to bump into Westerners, particularly from the United States, who are fugitives of justice and have decided to take up permanent residence in this remote locale.

This remoteness is a combination of deliberate efforts and historical happenstance beginning over five centuries ago. Several critical eventualities, both human and natural, have seemed to align to keep this part of Costa Rica undeveloped. Though Christopher Columbus originally named this country “Costa Rica,” gold or silver wasn’t originally found in appreciable quantities, and this publicized dearth along with the colony’s extreme distance from either Spanish New World stronghold (in central Mexico and Peru) was very effective at keeping the area underpopulated for centuries.

In the mid-nineteenth century, Gabriel Lafond stoked the interest of French president Charles Louis Napoleon Bonaparte as well as British investors in the idea of a railroad across Costa Rica from the Atlantic to the Pacific, which would terminate in Osa’s Golfo Dulce. Ultimately, it was built through Panama because of previous legal claims raised by the Railroad Company of Panama on such a transcontinental passage (Barrantes-Cartin 2014).

What’s more, Abraham Lincoln had chosen the adjacent province of Chiriqui as the site for American former slaves to establish a Zionist colony (which eventually would be located in Liberia), but immediately after he sent his emissary to northern Panama to

establish the colony, the president was assassinated, the emissary returned to the U.S., and the plans were dissolved (Barrantes-Cartin 2014). Several decades later in the 1930s, United Fruit Company, which had already exploited innumerable central American landscapes for the purposes of fruit production, became interested in Osa as a potential site. Yet after extensive monitoring of precipitation and sampling of soils, they determined that the area was “unsuitable” for intensive banana production and they pulled out (Vaughan, C. 1979).

Suffice it to say that over several historical phases the Osa Peninsula has remained relatively unpopulated and – in ways both legal and biological – it has also remained observably wild. “Es más tranquilo aquí (Life is calmer and quieter here),” said one local woman who had moved from the national capital of San José. “No andan todos con tanta prisa, y hay espacio para que uno pueda vivir su vida (Everyone’s not rushing around, and there is space for you to live your life),” she continued. Passing overhead in an airplane or looking at Osa through satellite photographs on Google Earth, it just looks like a giant swath of rainforest. Approximately 80% of the area is still forested – essentially still a natural wilderness (Sanchez-Azofeifa et al. 2002). But what a casual observer cannot see is that in the past few decades and in the name of conservation, this area has become perhaps the most restrictive and highly controlled landscape in the country, in terms of land use.

## DEVELOPMENT OF AN ENVIRONMENTAL ETHOS IN COSTA RICA

The implementation of the payment for environmental services program in and around the Osa peninsula is being done, it must be acknowledged, within a particular context of local belief systems and ideologies related to the environment and how humans relate to that environment. Namely, local traditions are steeped in centuries of using the land to survive. Yet more broadly, Costa Rica as a nation has pledged to be 100% green energy-powered by 2021 (Tico Times, Sept. 23, 2014), it developed the

world's first national-scale payment for environmental services program, and it is a world-renowned eco-tourism destination. The cultural ecology of the Osa peninsula, therefore is at once institutional, traditional, local, national, and international.

This ideological foundation is several-tiered and includes colonial-era factors, a history of relatively decentralized landholding contributing to a healthy democratic process, consistently high spending on social and environmental welfare, indigenous influence, a strong local cattle ranching tradition, multi-decadal ideological shifts within Costa Rican state institutions, environmental ideology imported from Europe and the U.S., and a palpable local love of the land in the Osa peninsula.

First, during the early colonial period, the territory that is now Costa Rica was geographically distant from the two Spanish New-World strongholds in Mexico and Peru, making Costa Rica a less likely candidate for the immediate ravages of geopolitical subordination such as rampant primary resource extraction (Barrantes-Cartin 2014). This initial lack of Spanish interest was also based on the assumed (though inaccurate) dearth of gold in the country. What the European interlopers were unaware of was that the Pacific and southern sections of the country had significant gold deposits which were already being mined and expertly smithed by indigenous groups. Large gold deposits still exist in Osa, principally within Corcovado park, creating an obvious conflict with conservation agendas.



**Figure 1.7:** Pre-Columbian indigenous gold work in the national Museo de Oro

Second, Costa Rica did not experience significant capital-intensive extraction and agriculture, such as large-scale mining or sugar plantations, (relative to its central American neighbors) which tend to concentrate capital and generate socio-economic polarization (Paige 1998). A long tradition of small, decentralized land holding and land owning, largely mediated by the prominence of family-owned and worked coffee farms, tended to equalize and distribute national income, leading to a sizeable middle class that still persists today (Stetson 1968). Even when coffee agriculturalists rose to wealth and prominence, as did president Oscar Arias in the 1980s, they exhibited a conspicuous commitment to healthy democracy, social equity, and “progressive social change” (Paige 1998, 4). Furthermore, Dorothy Stetson’s extensive interviews of publically elected officials (Stetson, 1968) showed that lawyers and academics fill the ranks of the national legislature, rather than large land owners as in many Latin American nations. These educated legislators, it is often surmised, are the undergirding which has cultivated and maintained a strong precedent for the nurturing of both human and natural capital for decades (Flórez-Estrada 2011; Carriere 1991).



This pattern has in fact been a strong trend ever since the presidential administration of Jose Figueres abolished the national military in 1949. This liberated copious funds for the implementation of social services programs, namely universal free primary education, universal free health care, and what would evolve into several pro-environment initiatives. The previous year, 1948, saw what can reasonably be called a political miracle: after Figueres had led a successful coup that overthrew an unpopular president, he called for the drafting of a constitution that guaranteed free elections and the right to suffrage (Stetson 1968).

Third, Costa Rica's social welfare indicators often surpass what its economic and financial status would prognosticate, as compared to its middle-income cohort of nations (Berrios 2003; Trejos et al 1994) and the country has for decades displayed a notable commitment to prioritizing the environment. Notably, with only small differences in literacy rates, infant mortality, and income inequality, Costa Rica's life expectancy is only one year less than that of the United States, while its GDP per capita is one-fourth that of the U.S. (*World Fact Book* 2015) This makes it all the more striking that twelve percent of Costa Rica's land is committed to national parks, compared to two percent in the United States. Moreover, a World Bank report reaffirmed the notion that public spending in Costa Rica spurred the elevation of public welfare indicators via spending on health, education, welfare, and the environment (World Bank 1989, 3). Also, national funds have perennially been funneled away from militarization and back into the social and environmental service realms, as evinced by the 1949 abolishment of the national army as well as the country's 1993 declaration of geopolitical neutrality.

A fourth ideology related to the human relationship with the natural world in Costa Rica comes from the indigenous peoples of the country. Although the indigenous population in Costa Rica of two percent (*IWGIA* 2015) is modest compared to its central-American neighbors, this indigeneity is concentrated in the south of the country and could be said to exert more influence on the very southerly peninsula of Osa than, for

instance, on the main population centers in the central valley. The Boruca, Cabécar, BriBri, and Guaymí tribes have a notable presence and all have defined territories (Whelan 2005; Barrantes et al. 1990). In fact, FONAFIFO (Fondo Nacional de Financiamiento Forestal) officials in the southernmost Area de Conservación de Osa, in their Palmar Norte office, shared that they give more payment for environmental services funding to indigenous land-owning groups than in any other conservation district in the country. So, the question is, how much does this indigenous influence show up in the mindset of Osa landowners? The answer is that it has a subtle but not uncommon influence on both hunting and farming.

One thirty-four-year-old landowner suggested that the intransigent habit of hunting in the region is due to the indigenous reliance on hunting for millennia, while agriculture is an arena where indigenous ideas are perhaps most effectual and widespread. Numerous residents of Osa, both city dwellers and farmers alike, made not infrequent references to the importance of interpreting and knowing the cycles of the tides and moon, especially with regards to planting cycles. One man that I interviewed said that “Todo el mundo aquí tiene una porción de sangre indígena. Por eso cazamos así, por eso cultivamos con la luna, y por eso conocemos más esta tierra que cualquier oficinante del gobierno o turista.” (Everyone here has some indigenous blood. That’s why we hunt like we do, that’s why we plant with the moon’s cycles, and that’s why we know this land better than any government official or tourist). According to the man quoted, this indigenous cultural ecology has been inculcated for thousands of years and will not quickly be washed away by an environmental movement. A landowning woman named Francisca said that this intimate knowledge of natural cycles, along with the farmer’s absolute reliance on the land for his or her survival, is why deep-down, farmers are the greatest conservationists. They conserve the land because if they don’t, they will starve. “El campesino es un biólogo sin título,” (the farmer is a biologist without a university degree) she sagaciously commented.

A fifth ideological force which impinges upon land-use decisions in the Osa peninsula is the institution of cattle ranching. In much of Latin America and Costa Rica alike, cattle ranching is sourced significantly from Iberian traditions. Its beginnings in Osa had a different origin. Regarded as the first modern settlers of the region, the Chiriqui from modern-day Panamá brought with them a strong tradition of cattle ranching (Barrantes-Cartin 2014). When ranching began to spatially expand in Costa Rica at dramatic rates in the mid-twentieth century, though it was less extensive, this trend did affect Osa's forests and, perhaps more importantly, it affected the human/environment ideology of the region. In the mind of many ranchers, running cattle and forest conservation are fundamentally opposed endeavors. Standing forest simply represents inert, unused potential. In fact, those who often found the least benefit to PES in the area, as disclosed in interviews, were most commonly owners of cattle.

In my experience in Osa, cattle ranchers, perhaps in following with pre-Enlightenment European notions, see dense dark forest as dangerous, undesirable, and essentially waiting to be tamed or developed. This jibes with the promoted ethos of many mid-20<sup>th</sup>-century national governments who pushed for clearing, settlement, and development of their forested interiors. That is, many institutionalized belief systems have portrayed forest as essentially "wasted" land.

The sixth human/environment ideology in Osa is institutional in nature and it is significant because of its evolution over time. A salient example is Costa Rica's INDER (Instituto de Desarrollo Rural), which, in the nineteenth century, still referred to forested lands as "tierras baldías" (wastelands) which were in need of "mejoramientos" (improvements), namely the clearing of forest for "productive" uses (Hall, C. 1985). Yet this agency underwent a profound change from implementing the development and productivity of land from the 70s through the 90s to essentially a social development organization, only in the last few years, focused entirely on promoting health,

education, jobs, and infrastructure (Miguel Herra Miranda 2014). Besides the ranching mentality and newly evolving institutional discourse, there is also a palpable Western-based ethos of environmentalism in Osa.

Seventh, therefore, is a strong flow of Enlightenment-era notions of environmental conservation or “museumification,” which has been present for over a century in Costa Rica due to the long-standing ties with the United States. The establishment of Yellowstone national park in the U.S. in 1872 set a precedent for “setting aside” natural areas which were free of commerce, human habitation, and extractive industries. Because of the fundamental separation between humans and nature that they convey, European-Enlightenment-based notions can simultaneously condone both preservation and exploitation of nature. This is perhaps at the root of Western-centric neoliberalism’s still ambiguous goals for the natural world. This dichotomous approach was delivered in-person by such persons as Henri Pittier from Switzerland who became the director of Costa Rica’s Instituto Físico-Geográfico Nacional at the end of the 19<sup>th</sup> century. Pittier’s expeditions included innumerable zoological and botanical studies designed to quantify exactly “just what was theirs and how to exploit it” (Eakin, M. 1999, 131 as quoted in Gilbert and Christen 2015).

Also of influence in this vein were U.S. entrepreneurs such as the United Fruit Company and timber tycoon Warren Stetson who attempted to take advantage of the Osa peninsula’s climate and resources, respectively (Christen, C. 1994). In the 1960s, Western influence seemed to shift from extractive to scientific when Alvin Wright, Dr. Leslie Holdridge, and Joseph Tosi established the Tropical Science Center research site in the town of Rincón in Osa (Gilbert and Christen 2015). Later the Organization for Tropical Studies also conducted significant research in the region, and a British organization called Frontiers now has the most significant scientific research presence, in terms of total numbers of researchers, on the peninsula. These original researchers were the first to suggest that the Corcovado basin be set aside as a national park in the

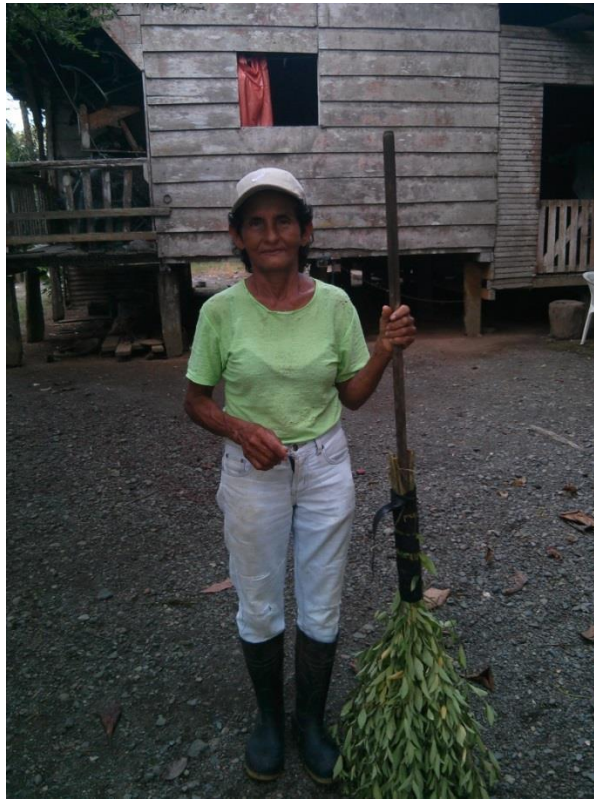
early 70s. The presence of these scientists, arguably, did not have as significant an impact on how locals view their land as did the up-tick in eco-tourism income since the 1990s. Consistently in interviews, respondents mentioned the fact that the conserved, intact forest is valuable in that it is a source of income from tourism, and that tourists will not come if it vanishes or is significantly degraded. These tourists are largely Western, and their dollars, as well as their enthusiasm and enjoyment of nature, has had a measurable and steady impact on the mindset of locals in all economic sectors.

The eighth notable mindset in Osa concerned with the natural world is simply countless landowners' love of their land. Something so subjective actually has very measurable and scientific causation. In more industrialized societies, often fewer than three percent of citizens are farmers, and similarly small percentages of people earn their livelihood via direct interaction with the land. This tends to erode the millennia-old bond between humans and the land itself and can profoundly change attitudes toward nature within only one generation. Costa Rica, on the other hand, still sees about fifteen percent of its denizens employed in agriculture as well as an ever-increasing portion earning its living in eco-tourism. Hence in very direct terms, a large percentage of Costa Ricans regularly interact in meaningful ways with the land and its flora and fauna. This is even more true in rural sections of the country such as the Osa peninsula. This creates and sustains a bond, a knowledge, an awareness, and even a love of the land that is often less prominent in more industrialized regions. Abilio, a good friend of mine and owner of a large piece of land adjacent to the national park, shared with me his adoration for his land. "Every good memory that I have from childhood took place at that farm. Everything good about me was learned or taught on that piece of earth. We *love* that land, Gregory. The water running in the streams may as well be our own blood, the trees serve as our lungs, and the soil is our flesh itself" (as translated from Spanish).



**Figure 1.8:** Abilio and the author on a two-day journey in the Osa highlands

Another farmer near the community of La Palma named Viviana told me that “I will work my land and fight for my land until the day that I die.” She had worked her farm alone and raised four children on her own for over forty years. In this rural region where a much higher percentage of inhabitants own and live on farms than in the country’s heavily populated central valley, stories like these are quite common. I personally was, in fact, raised by farmers from Nebraska, so this love of the land and of nature was inculcated into me from a young age, and perhaps this has sensitized me to this perspective.



**Figure 1.9:** Viviana

These ideologies and mental constructs presented above are, in varying proportions, constantly in a tug-of-war within most of the respondents that I interviewed on the peninsula. Some questions would elicit one mentality more than others, and the presence of certain family members during the interview may similarly elicit select perspectives. For instance, women tended to make more comments about the natural environment when a husband was either not present or non-existent. Specifically they spoke more about two themes: the health of the forest and the safety and protection of wild animals.

Local denizens who spoke English logically tended to display more direct influence from Western contact and ideologies. This bilingual group did not necessarily coincide with those who had more education – though sometimes this was the case – as

this ability to speak English seemed to be linked more to exposure to or affinity for North Americans and Europeans (English is patently the lingua franca of visiting Europeans). However, it should be noted that those respondents who had very little or no contact with foreigners, such as farmers in remote locations, still were often influenced by the *presence* of visitors from North America and Europe. This influence was divulged in the commonly stated realizations that eco-tourism was clearly a significant income stream and that if rich white people would fly all the way to Osa and pay to see these ecosystems, these flora and fauna must be something special.

#### MODERN LAND-TENURE AND LAND-USE ISSUES

Institutionalized environmentalism may delight and attract North American and European tourists but it also necessarily entails much stricter land-use restrictions which dramatically changes livelihoods on the ground, especially for rural Costa Ricans.

“Me tiraron en la carcel (they threw me in jail),” shared one homeowner in Puerto Jimenez, “nada más por causa de cortar un árbol de mi propiedad” (just for cutting down one tree on my own property). Apparently one of the tree’s branches was rubbing on the house and causing damage, but this wasn’t enough justification to cut the tree down according to the forest rangers. I spoke to several other individuals who had been incarcerated for precisely the same reason. Another man had been shot and killed by a park ranger because he was suspected of illegally extracting wood from a protected forest. The transition from a wild frontier to this hyper-controlled space began with the establishment of protected areas in the region – Corcovado national park in 1975 and forest reserve Golfo Dulce in 1978 – which set aside approximately seventy-five percent of the Osa peninsula’s land for conservation – effectively ceasing any plans for future development. Then a push for formal land titling on the peninsula in the early 1990s, showing hints of neoliberalism, did lead to more locals having formal land title, and at significant expense notably, but also meant that those who didn’t have



“escritura” (ownership documentation) were suddenly much more restricted about what they could and could not do on their land. Sale of land by undocumented owners became more difficult, as did the receipt of government conservation subsidies, or PES. “We want to help landowners get official paperwork and titles, but new government policies are making that difficult,” said Miguel Herra Miranda of INDER (National Institute of Rural Development). These restrictive top-down policies basically entailed the “controlaría” (controller) from San José dictating this cessation of title granting to the country’s spatial extremities where squatters were prevalent.

Indeed, Forestry Law 7575 of 1996 made several ambiguous claims about ownership of the nation’s forests, effectively nationalizing the trees by claiming them as “patrimonio del estado”(assets of the state). This initiated an era of very murky land tenure. According to most locals, the most significant shift came in 1998 with the establishment of a national system of conservation areas (SINAC) which meant that the local national park and forest reserve were now policed by government-employed park rangers who have been notoriously abusive and draconian about protecting the local forests. SINAC employees are referred to by their parent government office, MINAE, (Ministry of the environment and energy), and have become a bit of a local boogey man. I once passed children throwing stones into the ocean and overheard one of them threatening that MINAE was going to come get them because they might be harming the fish.

“Nos atan las manos” (our hands are tied) one land owner exclaimed. “No podemos maderar ni montar” (we can’t log or hunt), he lamented, “y ni siquiera podemos vender nuestra propiedad” (and we can’t even sell our property). This particular farmer, similar to perhaps half of all Osa land users, is stuck in limbo because he was granted rights to use his land as a “precarista” (akin to Oklahoma’s land-grab “sooners”), yet was never allowed to pursue full legal ownership due to the afore mentioned Forestry Law 7575. With the establishment of the protected conservation

areas in the late 70s, and the arrival of federal park guards in the 90s, the options for what one could legally do on one's own land suddenly became very restricted. This wild and unbridled frontier had quickly been transformed into a highly regimented and strictly policed conservation zone.

The final nail in the coffin for those who wanted to continue a "traditional" way of life in Osa (by earning one's living from the products of the land) was the cessation of the CNP or Consejo Nacional de Producción (National Council of Production) which subsidized planting, crop purchasing, and establishment of markets for local farmers until the late 1990s. This subsidy reduction was a classic example of neoliberal restructuring. After that, producing staple crops for sale in the region such as corn and beans became economically unviable and it essentially ceased. This left behind a landscape of abandoned agricultural fields being swallowed up by forest with perhaps half of the original farming families remaining to eke out survival on a small home garden and a few livestock. Derelict primary schools throughout the region are witness to the exodus of families which has resulted both from the cessation of CNP farm subsidies and the sweeping establishment of protected areas in Osa.



**Figure 1.10:** A few cows represent the greatly diminished but surviving livestock industry

## ORO VERDE (Green Gold)

Because of the arrival of this new conservation ethos and its concomitant legal restrictions, logging, hunting, farming, and cattle ranching – staples of the area in the 1970s – were decimated by the turn of the 21<sup>st</sup> century. Those who relied on these sources of income struggled to make ends meet in what now seemed like a foreign land to them. A government which had subsidized forest clearing, cattle ranching and farming now was throwing people in jail for felling one single tree and focusing its subsidies entirely on conserving the forest and its animals. From the rubble of this old way of life emerged a new way of thinking and earning a livelihood: protecting the environment both for eco-tourism as well as to receive payment for environmental services (PES). “My husband came here to raise cattle,” said Lorna, a long-time Osa resident, “but that all changed and now three of my six sons work as nature guides.” The entire peninsula had to recalibrate its relationship with the environment within a few decades – and this sometimes difficult, sometimes embraced transition is still in full swing. Former illegal hunters are now wilderness guides, while former ranchers are now collecting big government checks to simply allow the forest on their land to regenerate.

What this entails, essentially, is a community’s adaptation to changing local and international conditions. A more environmentally conscious world spurred by a changing climate began to ideologically impinge upon Osa in the 70s and this influence is still augmenting and increasingly observable in 2014. The presence of biological and geographical researchers in the area together with nature-loving visitors and a flowering of eco-tourism income is slowly evincing something extraordinary: that this wilderness is more valuable alive and standing than dead, packaged, and exported. Yet this environmental ethos was far from entirely exogenous. Native tribes have been a living and active part of these ecosystems for centuries. Moreover, essentially every presidential administration in Costa Rica since 1948 has shown steady public and legislative support for both social services and environmental protection (Stetson 1968).

This all brings us to the present day where a landscape which has been preserved from exploitation again and again by historical happenstance is now protected by formal decree of the national government. The result is a peninsula which is over eighty percent covered in rainforest, both primary and secondary, which has immense and growing potential for eco-touristic and conservation income. Several tons of gold were discovered in the peninsula's streams over the past few decades, and in mid-century the forest was seen as an impediment to agricultural development rather than a boon to it. But what is clearly emerging today is that the true treasure of Osa, Costa Rica is its lush picturesque forests that house legendary levels of biodiversity.

What makes this place, and others like it, potentially revolutionary in conservation circles is that they are now selling the natural ability of their ecosystems to clean the air and filter the water. That is, via environmental (a.k.a. ecosystem) services payments, a huge proportion of local land owners now receive monthly checks simply to leave their forests and wild animals untouched. These undisturbed forests sequester carbon and filter local water very effectively, and for that, their respective owners receive payments from those who locally and internationally benefit from this clean air and water. These ecosystem services currently exist in many countries around the world, but Costa Rica was the first nation to develop a national-scale system of such services beginning conceptually in 1989, putting them on the cutting edge. This place which has always been a geographical frontier is now proving to be a frontier for conservation innovation as well, and as such, a place where exciting new possibilities are taking shape.

I have visited Costa Rica sporadically over the past nineteen years as a translator and tourist, but field research for this project occurred in a six-month timespan divided between the summers of 2013 and 2014. I conducted semi-structured interviews with representatives of government agencies such as INDER (Institute of Rural Development), RBA (Rural Business Association), and most frequently FONAFIFO, at various locations

throughout Costa Rica and the Osa peninsula. The core of my data gathering entailed administering over 80 structured interviews comprised of seventy-two questions which asked local landowners – half P.E.S. participants and the other half not – about land use, finances, household management, environmental perceptions, and their opinions and experience with (or without) payment for environmental services. The qualitative and quantitative results of these interviews are reported in the body chapters of this dissertation.

#### REVIEW OF LITERATURE: POLITICAL ECOLOGY AND FEMINIST POLITICAL ECOLOGY

By definition, social science investigates and highlights not just positivistic, empirically measurable realities but also unseen elements such as information, emotion, history, and belief which are just as real and just as impactful in the study of a process, development, or place. In fact, it is precisely when outer observations and calculations are unexplainable that these deeper levels of inquiry become more valuable in that they help to divulge the energetic cause and undergirding of what is seen. This dissertation, therefore, as a work of social science looks not only at empirical statistics such as deforestation, income levels, and institutional decrees. It also delves into ethnography, sense of community, family relations, history, story-telling, anecdotes, humor, pain, love of nature, attachment to the land, patriotism, and sparks of social revolution. This is all to say that this work of social science research employs both the objective and the subjective, both the tangible and the sensible, both the observable and the perceived.

In terms of specific theories within the social sciences, this dissertation is framed by a feminist political ecology theoretical stance. Yet it is also undergirded by traditional cultural ecology and political ecology tropes. A brief description of cultural and political ecology will help to set the stage for the discursive launching point of feminist political ecology.

Both cultural and political ecology explore the dialectic between human beings and nature. Cultural ecology delves mainly into rural studies of traditional agriculture, food production, and resource management in a context of demography, sustainability, and human adaptation to environmental contexts. This divulges that these traditions are extremely well posited to facilitate a research project such as this thesis. Within CE, cultural behavior is divulged through investigations of “energy-flows” (Rappaport 1968) and “information-flows” (cybernetics and systems theory), that is, material and non-material elements of a society’s functioning (Butzer 1989). As a counter to environmental determinism, CE deeply invests in the ability of human individuals to make decisions, adapt, and be resilient in the face of changing environmental events and contexts. Relationships between human society and nature are not presented as simplistic, but complex reciprocal causalities (Butzer 1989; Bassett and Zimmerer 2003). Turner and Robbins (2008) trace the roots of both ecological anthropology/culture area studies in anthropology and cultural historical landscape/cultural ecology studies in geography to this *Landschaft* school from Germany. Both strains would eventually convene to form cultural ecology. One of its early accolades were helping to debunk the Pristine Myth in pre-Columbian Latin America.

Vayda and Walters (1999) offer that political ecology began as an effort to politicize the human ecology and cultural ecology approaches. Since then PE has evolved and could be said to have five core discursive pillars: 1) Multi-scalar causality (e.g. individual, household, community, region, globe) 2) a strong diachronic element, 3) a response to environmental destruction or conflict, 4) social power structures and an emphasis on the disempowered, and 5) consideration of the context of global political economy. Each of these five levels are integral and indeed interwoven herein.

Nietschmann’s (1973) *Between Land and Water* could be said to be an early iteration of political ecology in that it “scaled up” a study of indigenous Miskito Indians of Nicaragua by including interaction with the global markets via trade with Europe and

subsequent over-extraction of local resources (principally turtle meat). Others point to Michael Watts' *Silent Violence* (1983) because he seriously challenged cultural ecology at the time as being too normative and Newtonian-Cartesian. He pointed to a more pluralistic style of inquiry, relying on historical contextualization for deeper, more complex causations and truths (Robbins 2012, 93). Butzer (1989) suggests that Hecht's (1982) work in the Amazon was first to garner the label of political ecology because it included the world beef market, hence a global-scale political economy.

Perhaps the most commonly cited inception of political ecology scholarship is Blaikie and Brookfield's *Land Degradation and Society* (1987). In that work, PE is defined thusly: "The phrase 'political ecology' combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself" (P. Blaikie and Brookfield 1987, 17). One salient contribution of Blaikie and Brookfield was the idea that only with "chains of explanation" can environmental damage be fully or accurately understood (1987: 46). This rubric thusly became an antidote to myopic misperceptions of unilaterally local causation and "blaming the victim," which constituted a significant revelation within political ecology. Blaming the victim (often peasant land users) for environmental degradation (eg deforestation, over-farming, biodiversity loss, or soil erosion) thusly became methodologically taboo beginning in literature seen in the late 80s and early 90s. This error in assumption of proximate causation was, for instance, commonly found in ecological literature into the 80s, and in more technically oriented fields such as Land Change Science (Allen and Barnes 1985). In this dissertation, the pitfall of myopic proximate causation scenarios will be avoided by upscaling to see influences from regional, national, and global scales which all contribute to both beneficial and detrimental environmental trends in Osa.

Political ecology makes a deliberate and consistent effort to revalorize the indigenous knowledge, storytelling, and even instinct which was in large part cast aside

by Enlightenment thinking (Sandercock 2003). Bassett and Zimmerer (2003) highlight the salience of local knowledge studies in both cultural ecology and political ecology in the 90s. Knapp (1991 and 2010), for instance has emphasized the importance of getting authentic answers from local actors, rather than from scientists or politicians, and then trusting and utilizing that local knowledge. Local wisdom/western scientific knowledge hybrids are also being sought out as a way to surmise better practical solutions to unique localized human-environment issues. Butzer (1989) suggests that CE's investment in indigenous cultural and farming practices planted the seeds for today's fetishization of indigenous knowledge, legend, and oral tradition. Zimmerer also points to this expanding interest in "non-scientific knowledge" (Zimmerer 2007: 230). It was precisely this "non-scientific" myth and mysticism which was denounced by Enlightenment thought of the 17<sup>th</sup> and 18<sup>th</sup> centuries, along with the vicissitudes and fluxuations of human emotion (often attached to womanhood). This dissertation follows in this focus on local, non-scientific knowledge by drawing the lion's share of data from interviews with rural campesinos, including a conspicuous focus on women intended on some level to redress the underrepresentation of the female gender in much social science research (Watts and Peet 2004).

Some scholars have found PE to be not sufficiently critical of masculinist subtexts of hackneyed Enlightenment-era terms such as "conservation" and "environmentalism." This, together with a general call to infuse more politics into political ecology, made a space for the emergence of feminist political ecology (FPE). Through the lens of feminist political ecology, PE is distinguished from CE in that the former exhibits a stronger epistemological and ontological curiosity of how knowledges (and discourses) are sourced, constructed, and defined. FPE shares with ecofeminism a resistance to the masculinist meta-narratives that "big science" employs in its depictions of human-environment interaction (Mies and Shiva 1993; Haraway 1991).



On the most basic level, this dissertation is highlighting women's voices which, according to Sundberg (2003), are underrepresented in academic geography, both as subjects and authors of studies. It is also intended that this research can help to give attention to Latin American women's land-use practices which also are far from fully explored (Carmen Diana Deere and León 2001; Carmen Diana Deere and Leon 2003). A more thorough review of pertinent feminist political ecology literature is found in the "Women" chapter herein.

#### REVIEW OF LITERATURE: NEOLIBERALIZATION OF NATURE AND ACCUMULATION BY PRESERVATION

Neoliberal policies have dominated global economics for the last few decades, largely via the complementary institutions of the International Monetary Fund and the World Bank. Broadly, neoliberalism espouses market liberalization, austerity in domestic (national government) spending, and the privatization of business and industry. It is lauded for improving economic indicators in myriad nations, yet often criticized as exacerbating income inequality (Gissinger and Gleiditsch 1999), ignoring overall social welfare (Stiglitz 2003), and even evoking resistance and violence via "militant particularisms" (Featherstone 2005; Harvey 1996, 2000). IMF and World Bank strategies, as expressions of the neoliberal agenda, have been implemented in Costa Rica since the 1980s and have significantly affected the country's environment, specifically its forests. Payment for environmental services is a new modality which – due to its attempts to reconcile conservation with profit – has the potential to generate seismic shifts in capitalism's ideological bedrock.

There has been a long trail of theorizing about capitalism's deleterious effects on the environment, from Carl Sauer's 'destructive exploitation' to Schumpeter's and Marx's 'creative destruction.' In fact, Marx specifically refers to industrialization's effect on forests: "The development of culture and of industry in general has ever evinced

itself in such energetic destruction of forests that anything done by it conversely for their preservation and reservation appears infinitesimal” (Marx 1976 [1867]:248).

Yet to really submerge into literature about how the natural environment is commodified and exploited for capital profits via neoliberalism, most examples to be found are much more recent (Castree 2008a, 2008b; Heynen and Robbins 2005; Liverman and Vilas 2006, McCarthy and Prudham 2004; Katz 2001). The terms ‘neoliberal ecologies’ and ‘neoliberal environments’ are often utilized (Büscher 2012), and all point at nature as being submitted to neoliberal sovereignty. David Harvey tends to view neoliberalism as antagonistic if not antithetical to environmental conservation (2003), in that accumulation by dispossession is a central tenet of the former (Harvey 2003, 2005).

Other investigations of nature through the lens of neoliberalism often fall into the category of neoliberal conservation studies, which make a fundamental shift in that they are founded on the notion that nature can and is being saved by capitalism (McAfee 1999; Sullivan 2009; Iggoe et al 2010; Roth and Dressler 2012). In its constant search for a new spatio-temporal fix (Harvey, 2003), capitalism gravitates to the environmental crisis just as it is drawn to foreign gluts of labor and desperate economies advertising low tax rates and lax health regulations. In other words, the environmental crisis presents an opportunity space, a market niche that capitalist ventures can move into and occupy (O’Connor 1994; Büscher 2012). “Fair trade,” “organic,” “sustainably harvested,” and “environmental services” are modes of production and marketing that can invigorate stalled sales.

In this way, capitalism is almost falling backwards into benevolent practices. And these ‘green’ terms above are certainly problematic, with questions of proper certification, ‘green-washing’, and varied effects on local populations. Yet it is still almost elating to think that the global environmental crisis could recast capitalism’s fundamental relationship with nature and make a version of sustainability its new

default *modus operandi*, even if profit still as its ultimate goal. This does, however, point to the limitations of neoliberal conservation. As Büscher et al put it: “neoliberal conservation’s core axiom is that in order for natures to be “saved,” acts of “nature saving” must be imbued with profit potential or else there is little incentive for rational actors to pursue it” (Büscher 2012: 13).

The bifurcation of opinion about whether neoliberal economics are commodifying and destroying nature or identifying and saving it is manifested in the different approaches of the IMF and World Bank, themselves two of neoliberalism’s most dutiful sentinels (Stiglitz 2003). I will elucidate this idea later in this dissertation.

Foucault (2008) connects the term ‘biopolitics’ with neoliberalism’s clash with nature and he looks at the ambivalent and dualistic role of the nation-state in this implementation as it simultaneously gets itself out of the way but also guarantees the freedoms associated with neoliberal economic implementations. Other authors point to this duality: “On the one hand, while neoliberalism aspires to create a “utopia” of free markets liberated from all forms of state interference, it has in practice entailed a dramatic intensification of coercive, disciplinary forms of state intervention in order to impose market rule upon all aspects of social life” (Brenner and Theodore 2002).

A few authors who look at the effects of neoliberalism on forests specifically, which is the focus of this dissertation, are Lawrence (2001) who divulges links between the exploitative essence of both colonialism and neoliberal policies on forest management in Mali, though he never explicitly names neoliberalism, and Klooster (2006). Klooster writes about how Mexico’s forests are being shaped by international economic actors in the form of major furniture retailers who transfer their buyers’ demands for fair trade certified wood onto these developing world forest sites. He also reported that locally managed forests were more sustainable when the control structure was less hierarchical and more democratic. Others such as Guerrero et al (2000) looked at the impacts of international neoliberal treaties such as NAFTA (north

American free trade agreement) on deforestation in northern Mexico. NAFTA allowed transnational corporations to quickly take over commercial forestry, and pine forests specifically were decimated. The mandatory diminishment of trade barriers brought in cheap wood pulp from the U.S. and Canada, which increased competition and led to even more destructive forestry practices such as clear-cutting (Guerrero et al 2000).

Sierra and Russman (2006) investigated a program on Costa Rica's Osa peninsula where farmers were paid to leave forested land untouched on their property or reforest tracts that had previously been felled. They found this tactic to be increasingly effective the farther farmers were located from markets, and the study also suggested that, in general, payment amounts were too high since demand for these incentives well outpaced supply. Sierra and Russman do not present payment for environmental services (PES) as a neoliberal policy nor do they trace its international lending aegis. Ortiz (2004) similarly was focused on Costa Rican PES implementations but not on their larger political economic contexts or implications. He found that the primary impact of PES was improved forest conservation, while it also increased emotional well-being and connection to the forest by land owners, and to a lesser extent it was an economic boon to owners (Ortiz 2004). Also conducted in Osa, Ibarra Gené (2007) found that if PES payments were increased to \$75 per hectare per year, this would make PES participation more economically attractive than logging on the peninsula.

A very helpful framework for my study is Brenner and Theodore's presentation of "actually existing neoliberalism" in that it pins down the often ungrounded ideological descriptions of neoliberalism. In their words: "An adequate understanding of actually existing neoliberalism must... explore the path-dependent, contextually specific interactions between inherited regulatory landscapes and emergent neoliberal, market-oriented restructuring projects at a broad range of geographical scales" (Brenner and Theodore 2002:349). According to these authors, conveying this "embeddedness" divulges the physical manifestations and tangible implementations of neoliberal

ideology in a variety of contexts, making it clear that this is an “ongoing” processual phenomenon rather than a rigidly defined, totally formed framework (Brenner and Theodore 2002). Consistently exploring the essential spatiality that is intrinsic to capitalism, for instance concepts such as ‘creative destruction’ (Schumpeter 1994 [1942]) and Lefebvre’s ‘production of space’ (Lefebvre 1991), is what links Brenner and Theodore’s work (2002) to my study.

Moreover, whereas Brenner and Theodore (2002) focus on actually existing neoliberal implementations in urban areas, and other scholars echo this focus on the “neoliberal city” (Harvey 2008; Davis 2004), I will look at neoliberal effects on the natural environment. The effects of neoliberal policies on environmental governance and land tenure in Costa Rica provide practical examples of ‘actually existing neoliberalisms’ within the country (Brenner and Theodore 2002).

The outlay of the neoliberal model in Costa Rica is pertinent to this discussion for several reasons. Costa Rica is a global biodiversity hotspot, containing 5% of the world’s species within a tiny sliver of its terrestrial surface. Therefore any modifications to governmental or economic policy which affect settlement, land use, energy use, and even tourism have significant environmental ramifications. For instance, the formation of SINAC (Sistema Nacional de Areas de Conservación) in 1998 constituted a national-scale system of national parks and other protected areas which followed the U.S. (read: Enlightenment-era) model of reverence for yet separation from the natural environment via ‘museumification’ of nature. This system had decidedly big-government aspects in that the state usurped lands from private owners (yet with compensation). But it also contained connoted neoliberal tones in that the power to manage these areas was disseminated to the regional and local levels. For instance, the “plan de manejo” (management plan) for Manuel Antonio national park on Costa Rica’s Pacific coast, includes an environmental education program designed to reach 70 local

schools, the hiring of 30 local guides, as well as a discussion of the importance of coordinating with local NGOs, fisherman, and plantation agriculturalists (SINAC 2012).

Costa Rica's payment for environmental services program was the world's first to be implemented on a national scale. Giving value to entities in nature, and especially ecosystem processes, is consummately neoliberal in that neoliberalism, and capitalism more generally, aims to commodify, financialize, and marketize – everything. (Foucault 1990; Lemke 2001; Harvey 2005; Polyani 1944).

In that the neoliberalization of nature via the modality of payment for environmental services is central to my personal research, I see both the favorable and the unfavorable that it potentiates. Environmentalists cringe at the notion of 'putting a price tag' on flora, fauna, and abiotic resources because this obviously facilitates the extraction, sale, and capitalized mobility of nature. And this is a very real threat. Yet I also see that by giving soil, water and plants exacted monetary values, then these materials instantly become intrinsic to business plans and corporate bottom lines. If nothing else, this could make the thoughtless abuse of nature more difficult, as it will now represent a net financial loss, rather than an ignorable externality which is passed onto society at large (Daily 1997). M. O'Connor expresses this concept well when he writes that, via payment for ecosystem services, "...the primary dynamic of capitalism changes form, from accumulation and growth feeding on an external domain, to ostensible self-management and conservation of the *system of capitalized nature* closed back on itself. " (O'Connor 1993, 8).

Castree (2008) suggests that until "very recently" neoliberal investigations centered on purely social and fiscal issues such as employment, industry, trade, and government social welfare spending. He adds that most academics who are investigating neoliberal's meddling in nature look upon it unfavorably, and do not agree with 'market triumphalism's' central claim that the market is the ideal mechanism meeting the needs of the world's people and ecosystems. Büscher et al (2012) in fact,

contend exactly the opposite. They suggest that the environmental crisis is “saving” capitalism by becoming its most recent spatio-temporal fix and allowing commerce to expand into new green niches in the economy such as eco-tourism and a plethora of sustainable products and production processes.

These authors have two critical comments about neoliberal conservation. First, by fragmenting nature into sellable, consumable pieces, the context is lost which originally gave that product its meaning within a conservationist mindset. Second, they see neoliberal conservation as engaging in “appropriation and misrepresentation” via spectacle such as in elitist, highly commercialized eco-tourism which only seeks to protect catch-phrase mega fauna but not the overall biodiversity of a region. Blaikie (1995) has made a similar argument. Other examples of recent scholarship which is critical of the neoliberalization of nature are Bakker (2009), Foster (2014), Heynan (Heynen et al. 2007; Heynen and Robbins 2005) McCarthy (2006), and Prudham (2007).

Yet the other side of the argument is also represented. Brockington and Duffy (2010, 471) write that “neoliberal conservation is but the latest stage in a long and healthy relationship between capitalism and conservation.” They suggest that capitalism and conservation have been bound together from the beginning (three centuries of capitalist development). National parks were initiated by "capitalist interests" as were the incipient conservation-focused NGOs. According to Brockington and Duffy, the environmental movement in the US of the 1960s and 70s was actually a departure in that it desired to disparage and discursively separate itself from capitalism.

Methodologically, Castree (2008) shows geographers as disparate from other academics in these investigations. He contends that geographers treat the "nonhuman" environment as an actor with agency, not as a powerless background for the activity of humans. The natural world is shown by geographers as being able to affect policy and decision-making, which has significant ramifications for the sustainable development model. He also alludes to a political ecology approach, though not explicitly, when he

claims multi-scalar analyses as the realm of geographers more than that of other disciplines who tend more toward fetishization on one scale. Zimmerer (2007) also contends that geographers are better equipped to 'manage' cross-disciplinary or multi-scalar entities such as the intermingling of nature and neoliberalism, and in following, the often ambiguous realm of sustainable development.

There is a very real, rubber-meets-the-road pragmatism intrinsic and necessary to the successful coexistence of capitalism and nature, here expressed in relation to payment for environmental services. Though in favor of payment for environmental services, Gretchen C. Daily posits several practical challenges to the valuation of nature. Besides the messy ontology of classifying all manner of natural entities into price-similar groupings, then having those prices vulnerable to international fluxuation, there are also some qualitative services such as the "stability" of foodchains or ecosystems which are quite difficult to valorize financially (Daily 1997, 366–367). Marginal or incremental valuation is also a challenge. Exactly how much does cutting down one tree or ten trees or an acre of trees actually degrade a specific forest's hydrologic cycling efficiency? Moreover, Daily adds, should not payments be higher where more people are affected or higher-productivity farms are dependent on those services?

The book, *Nature's Services* (Daily 1997) for which Gretchen C. Daily is editor, serves as a marvelously useful – both conceptually and practically – compendium of works which argue for the indispensability of environmental services, implicitly as a facet of the rise of sustainable development. Though the contributors are generally in favor of this modality, they are not idealistically so, in that they thoroughly work through the difficult and ongoing challenges of identifying, categorizing, valorizing, monitoring, and safeguarding these natural commodities and ecosystems (1997, 369–372). The compulsion to do such work is essentially a response to what Marx identified as a fundamental flaw in capitalism's engagement with nature. Marx writes that, "Natural elements entering as agents into production, and which cost nothing, no



matter what role they play in production, do not enter as components of capital, but as a free gift of Nature to capital..." (Marx 1996 [1867], vol. 3: 745). And this free gift, especially when unmonitored, is ripe for abuse.

Latin American author Ana Isla (2006a) builds upon Marx's notion of nature's granting of free "gifts" (carbon sequestration, water filtration) with the free services provided by women for millennia (child rearing, domestic labor) to the modern masculinist economic system. In this way, Isla binds women and nature together (much as Marx ties the worker and nature together) as oppressed agents under capitalism, an eco-feminist tendency which has been critiqued within feminist political ecology.

Isla proffers a quintessential feminist political ecology argument that environmentalists in their own ignorance become accomplices in male-, class-, and race-based meta-narratives. In other words, neoliberal notions of conservation, including the commodification as well as the "museum-ification" of nature – e.g. carbon sequestration and the establishment of national parks, respectively – base their notions of nature on European enlightenment ideals which have often underrepresented women and non-whites. This conceptual lineage in part spurred the development of feminist political ecology as a critical response to these universalizing dominant natural-world discourses which did not acknowledge indigenous, women's and other "situated" voices (Haraway 1988). Borrowing from the implied personification of nature as an oppressed worker as presented by Marx and Isla, the argument could be made that in a socio-ecological system where financial systems, human systems, and eco-systems are intimately and inseparably tied (Berkes, Colding & Folke 2001), trees are performing the equivalent of slave labor, toiling day and night to produce oxygen, clean the air of carbon, filter water, and minimize soil erosion without acknowledgement of their contribution. Hence the need for payment for environmental services.

Beginning with Costa Rica's 1996 Forestry Law (law no. 7575) and the 1998 World Bank loan establishing "eco-markets," payment for environmental services (PES)

has been the predominant form of neoliberal commodification of the environment in the country. The 1996 Forestry Law delineated four ‘services’ that forest owners could be paid to cultivate: carbon fixation, hydrological services, biodiversity protection, and provision of scenic beauty (Burnett 2008). Curiously, in a way that symbolizes the confusing ambivalence of neoliberalism toward the environment, PES is both a method of conserving the natural environment and a method of profiting from it. Examples of this ‘paid conservation’ are \$81 ha/yr for watershed protection, \$64 ha/yr for carbon sequestration, and \$197 ha/yr for reforestation ([www.fonafifo.go.cr](http://www.fonafifo.go.cr)). Payment can be rendered both by the national government and by private entities in the form of tax breaks or direct payments. Initially the former were more common, but currently the latter vastly predominates as the more common method of payment. So, how has PES affected forestation rates in Costa Rica since the late 90s? Many reports suggest that payment for aggressive reforestation (10,000 ha/yr) has been so successful that it often equals or surpasses deforestation rates annually (de Camino 2000).

Another wrinkle to PES is that a scramble for biotech property rights with regard to forest products that can be made into pharmaceuticals is causing a flurry of activity, in both commercial business and academic critique (Escobar 1994). One case of seminal inception of this trend was the third World Bank 1995 loan SAP which specifically called for forest biodiversity to be protected for “pharmaceutical use” (de Camino 2000).

This new flood of interest in PES aligns with the World Bank’s (observed) environmental philosophy in that it entails very detailed surveying, categorization, and record keeping about natural vegetation and resources. Likewise, PES fits conceptually with the IMF’s relationship with the natural world because it identifies and commodifies virtually all natural elements within a nation’s borders as a potential money-making item or process. On one hand, this method has significant conservation potential in that it suddenly makes illegal logging and abuse of natural areas less *profitable*, and also much harder to hide. On the other hand, many scientists and scholars recoil at the

thought of putting a price tag on water, carbon, and trees both because they simply become easier to sell, and also because of the obvious philosophical conflicts of pricing Earth's resources, some of which having already existed for millennia (Escobar 1995).

Yet via commodification, natural entities are by definition incorporated into economic models which formerly ostensibly were devoid of them. Payment for environmental services, in particular, valorizes even abiotic actants such as water, soil, and the carbon that trees may sequester. What this engenders is a potentially galvanizing shift in capitalist philosophy because now the means of production (in natural, biotic settings) is healthy, functioning nature, rather than just *productive* nature. Standing forest now may have more value than felled forest. When environmental *functions* rather than just products become profitable, then soil as watershed protector and trees as carbon sequesters become the means of production. Destroying the means of production would be commercial suicide, rendering this form of capitalism unsustainable. Therefore, accumulation *by preservation* becomes a viable concept, and one that may have the potential to ease some of the fundamental tension that innumerable academics have identified between capitalism and the natural environment. Much like the stark sobering reality that the invention of nuclear weapons brought to the notion of military conflict – making the end of armed struggles suddenly seem attainable since the opposite was unconscionable – so has complete pricing of the planet, or “social-ecological system” (Collins 2010), the potential to disclose the inherent unsustainability of seeking pure profit – irrespective of the social and environmental consequences – as our highest goal.

As the primary agents of neoliberal economic restructuring, the World Bank and IMF have a profound influence on not only national fiscal policies and public welfare, but also on the natural environment. Through the second half of the last century, these institution's relationships with the environment was antagonistic at worst and negligent at best. Neoliberal policies led to massive deforestation in Costa Rica during this period.

However, in philosophy and action the World Bank has shown itself to be more environmentally aware and conscious than its counterpart (especially since World Bank president Barber Connable's 1987 public edict), while the IMF has been unapologetically focused on "efficiency" and "profit" often to the detriment of the natural environment (Kishor, Mani, and Constantino 2004). The initiation of payment for environmental services as a new neoliberal method of commodifying and profiting, yet also theoretically conserving the environment, has provided a middle ground where the IMF and World Bank can perhaps begin to ideologically reconvene. PES may also cause tremors in capitalism's fundamental relationship with nature in that it imbues sustainability with profitability. The major variable now in determining the long-term viability of PES will involve the day-to-day management and implementation of this new, promising, and controversial neoliberal modality.

#### DISSERTATION TOPIC AND APPROACH

Topically, this dissertation investigates the implementation and functioning of the payment for environmental services program in the Osa peninsula of Costa Rica, with an emphasis on women and the gendered aspects of pertinent land ownership and land use. The main source of data is eighty extended, structured interviews with landowners in the region, both male and female and both PES participating and non-participating. Secondly, interviews with representatives of government agencies on the peninsula – such as MINAE (ministry of agriculture and energy), SINAC (national system of conservation areas), INDER (national institute of rural development), and MAG (ministry of agriculture and cattle ranching) – provide a counterpoint and institutional perspective which puts local campesino perspectives in relief. Lastly, small focus groups as well as participant observation and participatory mapping are utilized as well. This is detailed in the methodology section below.

Interviews delve into the opinions and ideological underpinnings of the human/environment relationship in Osa including notions of conservation of nature, state influence on local people's land use, sources of livelihood, the economic evolution of the area in the past several decades, the establishment of natural protected areas, and resource extraction such as mining, hunting, and logging. All of these topics, among others, are utilized to construct a context of beliefs, lifeways, and history of Osa into which the P.E.S. program has entered.

Compiling interview data included isolating certain variables such as gender, education level, income, farm size, and P.E.S. participation or non-participation which allowed certain pertinent correlations to emerge. For example, female P.E.S. participants tended to have lower incomes and less education than women who did not participate in P.E.S., while the exact opposite trend was exhibited for male participants and non-participants. Discussion and explanations for these findings are proffered in corresponding chapters. These statistics are intended to enhance and elucidate the principal themes of this dissertation, but they are not presented as statistically significant conclusions.

Beyond just including gender as a statistical category, I highlight the social and ecological role of women by synthesizing innumerable anecdotes, interactions and interview information into female land-user archetypal profiles. In an attempt to disclose not only the traditional beliefs, but also the formal legislation that suffuse local notions of women's role in Osa society, I also delineate the legislative and activist implementations which have comprised the Costa Rican women's movement over the last few decades

In addition, very early in this investigation, land tenure emerged as a central issue which had a significant and long-standing influence on local livelihoods, incomes, and payment for environmental services implementation. Therefore including a history of land tenure on the peninsula was seen as critical for a more complete understanding

of present-day land-use trends and issues in the region as well as economic shifts, distribution of income, guidelines for granting of P.E.S. contracts, and similar topics.

In my conclusions, I will tie together the salient developments and substantive statistical highlights from the sections on payment for environmental services, land tenure, and women, and I will explain how they interact to influence and produce the current observable realities in Osa today. Policy recommendations are also proffered, with a particular emphasis on the role of women, as to how the P.E.S. system could be modified to better achieve its environmental (conservation) and social (poverty-alleviation) goals.

## Chapter 2: Methodology

Over the course of the summers of 2013 and 2014 I spent almost six months in Costa Rica. Perhaps 90% of that time was spent conducting interviews with landowners at my research site – the Osa peninsula – while the majority of the rest was spent in San José or Palmar Norte interviewing individuals at all levels within the FONAFIFO organization. These institutional interactions included a one-hour interview with Oscar Sánchez, the director of payments for the program, as well as multiple interviews with regional representatives such as Victor Sojo and his co-worker, “Minor,” at the Palmar Norte office (100 km north of my home base in Osa). My method of transportation was a 125cc United Motors motorcycle which was reconfigured to be able to handle the rough off-road conditions of the peninsula. Incidentally, that motorcycle ended up, amidst various extreme driving conditions, on top of me, completely under water, dismantled and reassembled in the middle of the jungle, as well as subject to police impound.



**Figure 2.1:** Author with a man who cared for this attractive piece of land near the city of Golfito on the mainland

## CAMPESINO INTERVIEWS

I conducted approximately ninety formal, semi-structured interviews with campesino landowners. Of those ninety, I found exactly eighty to be useable and viable interviews. Therefore, my effective sample for the purposes of this dissertation is eighty interviews. Of those eighty, forty are P.E.S. participants (twenty male/twenty female) and forty are non-P.E.S. participants (twenty male, twenty female). PES participant males were randomly selected from FONAFIFO lists, divided by micro-region, then rolling a die to determine a number, then choosing every “N-th” male PES participant on the list to interview, depending on what number was rolled. Since some of those selected were either absentee landowners or unreachable, I often had to go over the same list several times in order to extract a sufficient amount of viable interviewees from a certain region.



**Figure 2.2:** Interviewing a landowner near the town of Cañaza. Photo by Jessica Norriss



Garnering interviews with twenty female PES participants on the Osa peninsula was more of a challenge. This was due to the fact that on the entire peninsula, there were only twenty-seven properties under PES that were listed as being owned by women. As mentioned above, some owners do not live on their properties and others are simply difficult to physically locate, as can be the case in such a remote forested region. Therefore, in order to track down and successfully locate a full twenty PES participating women I utilized every resource at my disposal. The first and most manifest was the cell phone number listed for some PES participants on FONAFIFO's website. This worked in a few cases. Most commonly, I would go to the MINAE (Ministerio de Agricultura y Energía) office and ask two representatives there, named Walkiria and Sonia, if they knew the individuals in question, and if so, where they lived. Often their gross spatial estimates were good enough to get me to the proper area where locals could then refine their directions and eventually pinpoint the actual dwelling and individuals whom I was seeking.



**Figure 2.3:** GPS demonstration with the tourism director of Rancho Quemado

Walkiria was the most helpful because her job was basically to process incoming paperwork from PES-enlisted farms (properties) so the names were often fresh in her head. In directing me to certain land owner's homes, she would say things like "Go to Miramar. The daughter of the lady who owns the "soda" (café) works there on the weekends and she will know how to find this particular land owner." Or she may give more geographically explicit directions as well, such as "before you cross the fifth river after the town of Venegas, take a left and it will bring you to Los Angeles de Drake. Ask around when you get there and someone will be able to tell you where Teresa lives." So

I would take very detailed notes based on what Walkiria said to me and take them out into the field with me.

Sometimes I would get to a house where a desired contact lived and the neighbors would say that the owner had gone walking up into the hills to gather their cattle, or that they were in the fields tending to crops. So, rather than make the one or two hour journey to their home another day, I would set off on foot into their crop fields or towards the sound of cow bells. If I indeed located the landowner out in the forest or in their field, they would almost invariably do the interview with me right there on the spot. One owner, named Raúl, was “cleaning” (cutting with a stringed edger) his field when I approached. He simply put down his trimmer, and sat and did the interview with me for close to an hour. We talked in depth about his life. At times weeping when he spoke, he shared with me how lonely he was since his wife had died. As I am wont to do, I offered some of my metaphysical perspectives, hopefully as an emotional balm.



**Figure 2.4:** Landowner proudly displaying a cadastral map of her property. Photo: Jessica Norriss

Non-PES participant land owners, both male and female, were acquired by basic snowball sampling. For weeks I toured the peninsula, trying to give fairly equal attention

to all of its spatial sectors. When in a community or cluster of homes (usually separated from each other by a few hundred meters), I would simply knock on a few doors until someone opened, and I would explain my study and ask if they were the owner and if they would like to do an interview. I would then ask them if they knew of other landowners in the area who may be available or willing to do an interview.

Interviews lasted between forty-five minutes and 4.5 hours. The average was approximately two hours. Non-PES interviews tended to be shorter than PES-participant interviews, because the former involved fewer questions (54) than the latter (73). The interview began with basic personal data such as where they were born, how long they'd lived in this house, and level of education. A section of questions about the property ensued, such as how many hectares it is, how the land was acquired, and what is the groundcover/land-use division on the land (40% primary forest, 20% cattle pasture, etc.). Next, I asked several questions about gender and gender dynamics such as who manages the money in the house, how is decision-making power divided within the house, and more specifics such as if they thought women or men were more knowledgeable about the environment. Next, for PES participants, I would ask nineteen questions about the payment for environmental services program, such as inquiries about how effective the programs were at protecting the environment and providing useful levels of income to campesinos. They were also asked to comment on what were the salient environmental as well as personal benefits that they'd received from PES participation in addition to the ways that they thought the programs could be improved. The final sections of the interview involved questions about interaction with nature (hunting, fishing, mining), income, broad political questions, and finally what they considered most important in life.

Statistics were gathered for many of the questions in the interview, such as for income, total hectares of each property, age of respondent, and years of education, but also for observations and opinions which could easily be categorized statistically. These

statistics are all listed in a spreadsheet and processed using Tableau software. These statistics are included in order to enhance the historical, personal, environmental, and institutional findings of this study, and are not presented as statistically significant.



**Figure 2.5:** Landowner and daughter near “La Tarde,” one of the most remote parts of Osa

#### HUMANISTIC APPROACH

This dissertation espouses a humanistic methodological approach and a feminist political ecology theoretical foundation. In following with humanistic geography’s initial counterpoint to the quantitative, positivist movement of the 1950s and 60s (Gregory 1994), my research focuses on human agency, experience, morals, customs, and attitudes. This study concerns itself with the “feelings and ideas in regard to space and place” (Tuan 1976, 266) which offer an understanding that can be qualitatively different and more layered than solely statistical, empirically observable data.

While positivists of the quantitative revolution were critiqued as presenting humans as mere points on a map which were stirred into an anonymous mathematical

flurry of spatial analysis (Mondal 2015), my research employs hermeneutical interpretation of meanings as well as an iconography of landscape which highlights and presents the symbolic meanings inscribed upon the lands of Osa by its local denizens. That said, I do structure a good portion of my interviews such that statistics can be gathered which show numerical trends in income, education levels, farm size, respondents' observations, and the like. These statistics are presented in order to enhance and add to the humanistic data collected, but are not intended to purport statistical significance. Other humanistic geographers producing work sourced in Latin America are Christie(2008) , Sundberg (2004) , and Honey (1999) .

Espousing this broadly humanistic approach, I employed mixed qualitative methods including interviews, focus groups (two or three households in a neighborhood to discuss a particular issue), as well as participant observation and participatory mapping as tools of data collection. The amount of participant observation that transpired was based on the willingness of subjects to allow me to accompany them in their daily routine before, during, or after the interviews.

Approximately 25% of interviews involved this participant observation and usually consisted of me walking their "farm" (all properties are called farms, whether or not they include cultivated land) with them while they described or acted out some of their daily activities. Participatory mapping was utilized in the majority of the interviews, when time allowed. I would ask the farmer to draw a map of his or her lands and label general land use areas (Diane Rocheleau, Thomas-Slayter, and Edmunds 1995; Dianne Rocheleau and Edmunds 1997a). These hand-drawn maps provide an additional source of information about the subject's perceptions of their own land. In particular, these maps made it quite conspicuous what biotic or abiotic characteristics of their property were most important to them. The size of a feature on such maps is a good general indicator of its importance, and hence housewives would disproportionately

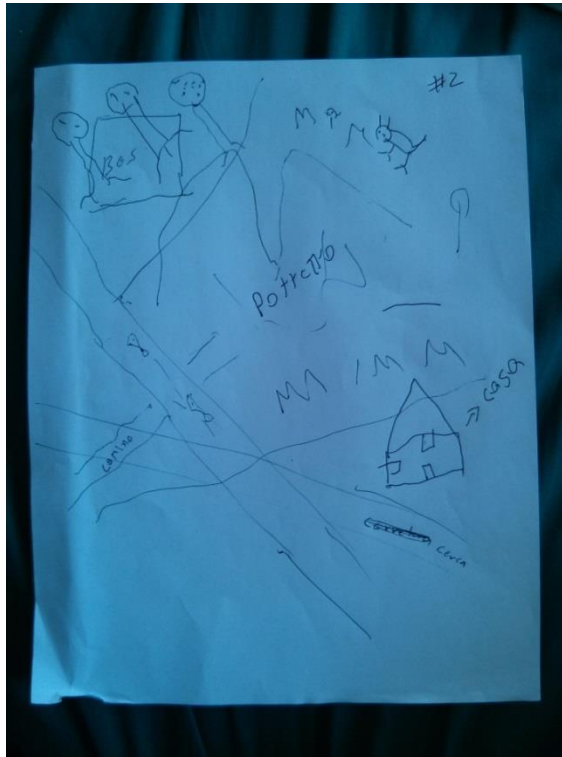


enlarge the house, while cattle ranching men would give spatial emphasis to their “potrero” (cattle pasture) for two rudimentary examples.

Just to provide some lineage, as a genetically European male conducting interviews in Latin America in Spanish, I follow in the footsteps of many other researchers, arguably beginning with clergymen such as Bartolomé de las Casas and Bernadino de Sahagún (1499-1590) (though Sahagún conducted written interviews in Nahuatl) who documented local perspectives and even local maps. (1992, Instituto Nacional de Estadística 1992). One critical detail that Sahagún and other nascent New World ethnographers helped to divulge is that indigenous maps at the time looked at territory in a more multi-dimensional, diachronic way than European maps. My participant mapping exercise was much more simplistic but nonetheless broadly founded on these early studies.



**Figure 2.6:** Resident of Rancho Quemado conceptualizing his hand-drawn map



**Figure 2.7:** Hand-drawn map by local property owner





**Figure 2.8:** An interview that turned into a three-hour horseback ride and a friendship

#### GROUNDNED THEORY

The goal of grounded theory is to develop a new theory or variation on an existing theory based on an iterative process of data gathered in the field over a period of time (Glaser and Strauss 2009). “Open coding” allows the researcher to modify his working theory intermittently based on new and changing information from the field, and in “selective coding” the researcher narrows his focus to “core categories” which identify central phenomena at work in his theory (Somekh and Lewin 2005). Strauss and Corbin (1990) describe this same process as moving from description to conceptual ordering to theorizing. The principal way that my research evolved over the course of field work is that the focus on gender ebbed enough to include an increased emphasis on land tenure and intricacies of the functioning of the PES programs themselves.

That said, I have fortified my investigations into the gendered aspects of this study for the same reasons which originally drew me to this angle of inquiry; it is understudied in the region, especially as it relates to PES programs. In rural areas in particular, the topic of gender is as much suppressed as it is simply non-existent. That is, with increased inquiry, I believe that I have unearthed some issues related to gendered land use in the region which formerly were not sufficiently known or acknowledged. One rural housewife approached me quietly after I had peppered her husband with questions about machismo and women's agency and she said underneath her breath "I have never heard questions like this asked before. This is a very important project."

Relatedly, Denzin and Lincoln (1994) have called grounded theory "post-positivistic" because it entails seeing a theory's unique expression in a variety of field sites, rather than "armchair" universalized theorizing done at a distance from the field. Hence, according to Denzin and Lincoln (1994), grounded theory is well-aligned with the core philosophy of feminist political ecology.

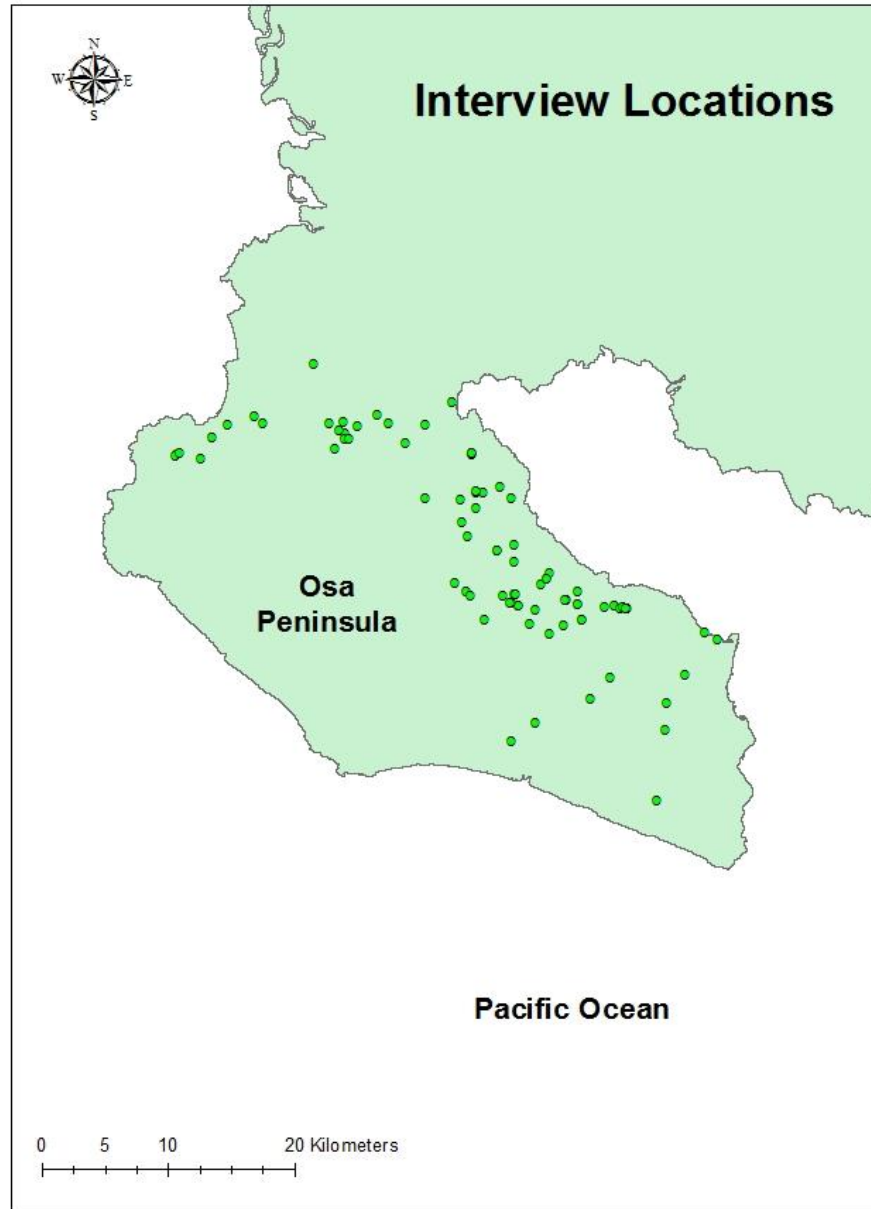
The initial theory that will be employed is this:

Payment for environmental services programs in Osa, Costa Rica affect and are affected by rural gender dynamics, a murky and sporadic land-tenure history, as well as economically and legally driven land-use shifts. Three main research questions are each expanded by several sub-questions.

## RESEARCH QUESTIONS

- **How do women's perceptions of and use of the landscape affect their role in payment for environmental services programs?** Subquestions include 1) Do women have land-use strategies and goals that are different from those of men? 2) How do women perceive and relate to the natural landscape and how does this affect their land-use decisions? 3) How do PES programs structurally favor land owners of one gender over another?

- **How does land tenure affect the implementation of payment for environmental services programs?** Subquestions include 1) How has the region's land-tenure history set the stage for current land-tenure conflicts? 2) In what ways does land-tenure status directly affect one's earning power within the payment for environmental services programs?
- **How do the unique social and geographical settings of Costa Rica's Osa peninsula affect how payment for environmental services programs are expressed and implemented there?** Subquestions include: 1) How have changing conceptualizations of the human/environment relationship among Osa residents aided in the acceptance and functioning of payment for environmental services programs in the region? 2) In what ways have land-use shifts in Osa, based on both legal and economic changes, made payment for environmental services a more viable modality?



**Figure 2.9:** Interview locations

## MOTORCYCLE DIARY

My chosen mode of transport in Osa was a motorcycle – a 125cc United Motors Sport edition which was retro-fit with off-road tires and a longer chain for increased wheel base. In this section I would like to explore how the use of a motorcycle as transport affected my data collection methodology. Briefly, the positives are increased accessibility, easy social interaction at street level, the ability to offer rides to locals while loading and unloading quickly, inexpensive inputs such as gasoline, direct multiple-sensory contact with the natural world, and the casual appearance of being a local. The negatives of driving a motorcycle in the tropics are that you are vulnerable to innumerable loose, aggressive dogs, you inevitably crash into wildlife of various physical sizes, and you get very, very wet.



**Figure 2.10:** Author scanning his list of potential interviewees in the town of La Palma. Photo by Jessica Norriss

The most important point to convey is that the basic utility of an off-road motorcycle is hard to beat, compounded with the fact that there are essentially no other options for someone desiring the extensive range that I did, yet on a scholar's budget. That is, off-road SUVs were available for rent, but at the exorbitant rate of over U.S. \$200/day. Considering that my housing rent was \$100/month, the SUV was officially an unattainable amenity. Cars were rentable for closer to \$70/day but their range was decidedly limited by the treacherous mountain roads and swelling tropical rivers. Therefore, cars were out as well.

As in many so-called "third-world" countries, two-wheeled transportation is more common than the four-wheeled variety. Scooters and motorcycles are the norm as they are cheaper to operate, fix, fuel, and store than cars. Also, in Osa Costa Rica, motorcycles are for sale but not rentable. This means that tourists are only ambulatory in taxis or rented cars and trucks. Therefore, by driving a motorcycle, I have instantly identified myself as someone who is invested in this place and someone who is planning to stay a while. This helps to build confidence with those with whom I come in contact and/or intend to interview. Even being described as "the gringo with the UM (United Motors) motorcycle" gains me immediate trust because it is understood that I *live* here and am not just visiting. The feeling is that any information that they proffer to me is not falling upon ears that will snatch their precious information then leave.

Hence, the simple act of owning a motorcycle greases the wheels of the snowball sampling modality in that word-of-mouth referrals are often laced with the character-fortifying information that I will likely arrive on a motorcycle. And again, this disclosed my commitment to the area in that if I had bought a motorcycle, I must be staying a while. Moreover, one's choice of motorcycle has become a reflection of their character in the area, much like what car one drives in Los Angeles, or the beer one drinks in Wisconsin (in both cases I speak from experience). The motorcycle one drives is the motorized lingua franca of the area and the common currency of choice in any high-

stakes barter. Hondas and Yamahas are the elite bikes which cost almost double that of the “Chinese bikes.” My United Motors bike, despite the anglicized moniker, is a Chinese bike, as were other brands such as Keeway. Brand new, my bike cost 735,000 colones, which is around U.S. \$1,450. A comparable Honda or Yamaha would cost nearly double that. This distinction, however, is blurring because many current Honda and Yamaha models are now assembled in China. Thus, Chinese bikes don’t have quite the stigma they used to, and a common sentiment spoken is “Hoy en dia, toda moto son de China” (nowadays, all motorcycles are Chinese anyway).



**Figure 2.11:** UM dealership where author purchased his motorcycle. Standing is the owner and head mechanic, Ricardo, who became a good friend of the author

Also, due to the Keynesian aspects of Import Substitution Industrialization (ISI) seen in Costa Rica, heavy taxes on imported goods meant that the only engine sizes that were financially feasible to purchase in the country were 125cc (the size of a standard scooter in the U.S.) and 250cc. The market was completely and exclusively dominated by motorcycles of these two engine sizes, and the requisite personality parallels emerged



for people who drove bikes of each size. 125cc drivers were seen as more practical, reasonable, and focused on the long-term. Drivers of the larger 250cc bikes were seen as powerful, aggressive, yet also wasteful and even cavalier. Each time I entered into a conversation about my 125cc bike with a local farmer, they would immediately say “Son muy económicos” (they are very economical), and I do not doubt that the psychological association with being prudent and economical was transferred onto me during many of those conversations. I’m not sure if that helped or hurt me in my efforts at ingratiation, but I suspect that it was disarming and in that way helpful.



**Figure 2.12:** Author speeding down the one paved road in Osa. Note photographer in rearview mirror. Photo by Jessica Norriss.

Motorcycles offer another advantage for the interloping researcher in that these vehicles make possible quick loading and unloading of passengers and hence facilitate the offering of rides. Given that this is one of the poorest regions in the country, a large proportion of the population is still dependent on walking for transportation. A ride of a



few kilometers to a few hundred meters can be a big help and can very effectively imprint a certain gringo on a Chinese bike into that individual's heart. Besides just wanting to always give back to this wonderful community that so selflessly helps me at every stage of my research, giving rides also put me in the good graces of countless locals and definitely smoothed the beginning of many interviews as I was often recognized as the "guy who once gave me a ride...." I would give rides to everyone from kids heading to the football plaza to very elderly people on a several-kilometer hike. I once drove a man's sick wife from their remote mountain-top farm to a bus stop on the main highway. I then went back and picked up the husband as well so that they could both take a bus to the nearest hospital. I also drove people miles in the pouring rain as we both got drenched.

Another benefit of driving a motorcycle is that two wheels rather than four lets you access many things that an SUV, for instance, cannot, such as homes that are reachable only by walking trails. Perhaps 10% of my interviewees lived in locations such as this. Besides better physical range, being on two wheels also improved street-level social interactions. Sitting on a bike, you are at eye-level with people walking on the street which is an equalizing phenomenon. Handshakes and hugs are easy to exchange and help to build relationships. In an SUV, you are elevated and separated by a hulking steel structure and it is a bit implausible to remove your seatbelt, step out of the truck, give someone a quick hug or hand shake, then reboard, refasten your seatbelt, and repeat that 50 meters down the road. Moreover, stopping on mainstreet in Puerto Jimenez, the largest urban area in Osa, is not plausible in a big SUV because it stops the flow of traffic. But on a motorcycle it is quite manageable. Therefore, driving a motorcycle actually translates to more physical and social contact with people at the street level. Over time, this incrementally builds relationships in ways that are imperceptible at first, but can grow to be significant.

This person-to-person access also allowed me to easily hand out laminated photos when I saw the subjects of the photos on the street. Following the very prescient advice of my doctoral committee member, Rebecca Torres, I took photos of interviewees' families and offered them printed, laminated copies of the photos as a small token of appreciation for the interview. This not only gave me a copy of the photo for my own use in jogging my memory, but also further ingratiated myself to local community members.

The last advantage of using a motorcycle as one's transportation as a researcher in the tropics is that bikes get excellent gas mileage and hence are very cost-effective. Even though gasoline in Costa Rica is approximately U.S.\$6/gallon, my UM bike would travel 70 miles on one gallon of gas. What this does is remove that nagging feeling that excessive exploration is just "burning money" and this tends to free the researcher to explore just over that next hill or just beyond that next river when perhaps thoughts of prohibitively high gasoline would have curtailed many such sojourns.

The negatives of motorcycle transit are also myriad. The most obvious perhaps is that riding a motorcycle in the tropics means that you will necessarily and regularly get very wet. My summer break from classes coincided with the rainy season in Osa, Costa Rica, so it rained essentially every day. Often it followed a late-afternoon classic monsoon pattern, but this was not always consistent or predictable, so I always packed full rain gear. Also, I had to synchronize my schedule with that of the farmers I was interviewing, so not driving in the afternoons was not an option.



**Figure 2.13:** Author returning home to Puerto Jimenez at night in full rain gear

I protected myself from the rain in various ways. I wore my backpack under my rain coat because it housed my precious paper-copy interviews as well as my GPS units. This worked surprisingly well to keep my valuables dry. The only detail was that my sturdy brown leather shoes would invariably get soaked through and through. The following morning I would try to catch as much sunlight as possible to bake my shoes dry before the next day's ride.

My helmet happened to be the kind that does not have a front face shield (see photo above). The only time that really mattered is when it rained at night. If it rained in the daytime, even though rain pelted my face somewhat painfully, it did not get into my eyes because I was wearing sunglasses. But at night, without a *clear* wind/face shield, I

had to wear dark sunglasses to protect my eyes. Yet the dark shade made it very difficult to see in the darkness. Because of the relative isolation of this area and the difficulty of acquiring specialty items, such as clear-plastic eye protection, this random helmet selection ended up slightly affecting my research schedule. Night driving had to be extremely limited. If an interview ran long and I found myself at a good distance from home as darkness fell, I usually just made the trip without glasses and let the rain pelt my face and eyes. This was somewhat painful and, of course, made it difficult to keep my eyes open, which made me slow down, which increased drive time, etc.



**Figure 2.14:** An ill-conceived attempt to protect vital electronic parts from the rain overnight

Another negative was that mounted on two wheels I was very vulnerable to the amazing ubiquity of dogs of all sizes and aggression levels in the region. Most farmers had multiple dogs as did many urban dwellers, though people in rural areas tended to have more. Something about the motion and sound of the motorcycle triggered

aggression in many dogs, or at the very least, the conditioned response of chasing, barking and nipping at my feet. This appears to be a widespread tendency in dogs, as a colleague of mine – Josh Rudow – had nearly identical anecdotes from his motorcycle trips in high-elevation Peru.

As it turns out, the only time I was actually bitten by a dog was when I was on foot. A pit bull at the home that I frequented most during my stay in Osa decided one day to sink her teeth into my calf. I found the reaction of the family's sweet elderly matriarch to be particularly fascinating, as she not only did not pull the dog off or chastise her, but rather smiled and praised the dog for "protecting her." I outline this woman's strategies for exercising her social power in my female land user profiles section, but suffice it to say here that she counted on her six sons and aggressive pit bull dog to carry out her every request and accomplish any of her personal goals, be they social, material, or otherwise. The most pressing danger of being chased on a motorcycle by aggressive dogs, as Josh Rudow and I came to consensus on, is that it can make one drive erratically and make very risky maneuvers on the road. Both of us, thankfully escaped injury in these situations, though he did drive straight into a beehive while eluding dogs and several bees entered his helmet.



**Figure 2.15:** Evidence of dog bite

Something that could be considered both a positive and a negative of traversing the tropics on two wheels is that one comes into close contact with nature....too much contact in fact. The biological fecundity of the ecosystems in Osa is visually and audibly stunning. In fact, all five of the human senses can't help but be engaged by the teeming wildlife – the sweet taste of wild mangoes, the smell of moist decaying leaves matting the forest floor, the lilting, plaintive call of a toucan together with the cacophony of howler monkeys roaring, the sight of schools of flying fish leaping from the ocean as if it cannot contain them, and the feel of moist balmy evening breezes just a grateful few

degrees cooler than daytime gusts. It was truly a feast for the senses, literally and figuratively.

As one drives down mountain roads of Osa, I would say that monkeys, birds, butterflies, and ants are the most visually conspicuous zoological inhabitants. Leaf-cutter ants are ceaselessly transporting chunks of leaf from high in a tree and caravanning across roads to their home where they deposit the leaves and feed on the fungus that grows while the leaves biodegrade. Whenever possible I would avoid running over these foot-wide ant trails, but I was not always able. I personally don't believe in killing any being without reasonable cause, so these mass ant homicides by motorcycle tire actually gave me pause. Eventually I resolved that it was part of the circle of life and the cycle of nature. Animals without malice will walk across these trails and kill hundreds of ants as well, not to mention the tapirs and other animals that feed on ant trails like a buffet.

Butterflies were also amazingly numerous and prevalent on the Osa peninsula that it was impossible not to run into them while driving. At the end of a drive of any length, several semi-conscious majestically beautiful butterflies would be plastered to my front headlight or button-down shirt front. In certain stretches of road, they clouded the road as if someone had just tossed confetti into the air in celebration of some event. Indeed, this beautiful display of life in the rainforests of Osa could quite accurately be called a celebration and a boastful display of earth's ecological pulchritude. For instance, I had only seen one of the 8-inch-wingspanned luminescent blue "Morpho" butterflies before I followed one of my interviewees three hours on horseback up into the forest to his rancho. On that trip, several morphos danced and surfed on the warm air around us and almost consciously flashed their regal colors at us via reflected sunlight.

Birds are of course also a "danger" when riding on an unenclosed vehicle such as a motorcycle. Hawks and falcons are fairly weighty birds that can dive at over 100 miles per hour, while macaws have statistics that are nearly as impressive. If I'm travelling at

around 50 mph (my average speed on the 15-mile stretch of only paved road in Osa), a collision with a bird weighing two or three pounds and traveling at, say 50 mph, would be extremely dangerous. This exact scenario actually happened more than once. In fact, two birds once struck me simultaneously – one in the chest and one on my flip-flop-clad foot. Luckily for me, the birds were fairly small, but it still made quite an impact, somewhat akin to being hit by a pitch in a baseball game – well, two pitches simultaneously to be accurate (I played college baseball, which gives some credence to this analogy).

Monkeys would also cross the road at various points, usually via the tree canopy so that they were well out of the reach of motorized danger. I remember stopping on one mountain road as a troop of perhaps fifty spider monkeys abled from branch to branch on an impromptu catwalk high above the roadway. Osa is the only section of Costa Rica where all four major monkey species exist – spider, howler, squirrel, and cara blanca – and they are known to move in groups of up to one hundred.

The final issue with motorcycle riding is the possibility of falling off. Riding in the Osa offers the comfort that since there are few paved roads, falling usually means hitting mud or verdure rather than asphalt. I did indeed take several spills, but luckily all were at low speeds and only one was on asphalt while starting the bike. On one particular exploratory trip, I found myself essentially trapped in a high basin with, apparently, the sole escape route being a steep slick path of wet red ultisol. As described in the introduction herein, locals simply call these ultisols “barro” (mud), however, the word “barro” was not used to describe simple wet earth. It was used exclusively to describe this wet red clayey ultisol soil which is sticky, viscous, and virtually impassable by vehicle, much less on horse or foot.

On this day, the steep hill of wet red clay that stood between me and freedom had already thwarted several high-speed charges. As I approached half way up the hill, my tires became coated with the peanut-butter-like clay at such a thickness that they



ceased spinning. At that point, the bike would fall over, on top of me or otherwise, and we would slide together back to the bottom of the hill. Eventually I thought of running next to the bike while I pulled the accelerator, and that produced a higher climb on the hill but ended in a similar fate. I had to remove the fenders so that the clay-packed wheels would have increased space in which to spin, but this too was ultimately unfruitful. I was approaching the financially discouraging realization that I would have to leave the bike there and hike many miles home with little hope of recovering the bike before the dry season in October.

As I began my crestfallen hike, I eventually came upon a small schoolhouse where I recognized a woman who was dropping off her daughter. I had interviewed this woman only days before and she had been so thankful and surprised that I had introduced concepts of female empowerment and gender balance for household decision-making in the home. She was, as a result, quite happy to help me. She chuckled a bit at my disheveled appearance and said simply “hay otra salida” (there’s another way out of here). And she pointed across the river. I had been rescued. An eight-year-old neighbor boy showed me the way, but just before I mounted my steed for my victorious exit, I handed the boy my cellphone and asked him to snap a picture of me and the bike (see photo below).



**Figure 2.16:** Author covered in red clay soil. Note the detached fender to the right

### **Chapter 3: Payment for Environmental Services (P.E.S.)**

#### **HISTORY OF P.E.S.**

The value and operations of ecosystems in Western culture have been discussed for millennia. To revisit Plato, he lamented post-deforestation erosion over 2,400 years ago:

What now remains of the formerly rich land is like the skeleton of a sick man, with all the fat and soft earth having wasted away and only the bare framework remaining...The plains that were full of rich soil are now marshes. Hills that were once covered with forests and produced abundant pasture now produce only food for bees. Once the land was enriched by yearly rains, which were not lost, as they are now, by flowing from the bare land into the sea. The soil was deep, it absorbed and kept the water in the loamy soil, and the water that soaked into the hills fed springs and running streams everywhere (Hillel 1992, 104).

Pre-Colombian Incas established tree plantations to stem the destruction of forest resources for consumption purposes (Mann, 2005). Centuries later, R. Cantillon (1952 [1734]) offered one of the first modern notions of the valuation of nature with his “*Essai Sur la Nature du Commerce en General*” which presented the pre-classical economic notion of land being the foundation of all value.

The era of classical economics (mid-18<sup>th</sup> to mid-19<sup>th</sup> centuries) chose to see labor as being of increased importance for determining value. In his rebellion against the entrenched and landed elites of 18<sup>th</sup>-century England, Adam Smith preferred to emphasize the selfishly minded individual passionately pursuing profit as more critical than land and land holdings (Smith 1961 [1776]). David Ricardo (1817) also intimately wove labor into his theory of value, while Marx (1867) saw labor as essential in “adding value” to goods extracted from the natural environment. Some argue that no pre-20<sup>th</sup> century economists acknowledged the intrinsic value of nature, nor its ecological

importance for human life support, but rather quantified the natural world only in terms of its “use” or “instrumental” values (Crocker, T.D. 1999). David Ricardo is quoted as writing that natural elements make men richer because “they perform their work gratuitously, as nothing is paid for the use of the air, of heat, and of water, the assistance which they afford us, adds nothing to value in exchange” (Ricardo 1932, 271). He also writes: “Let water become scarce...and be exclusively possessed by an individual, and you will increase his riches, because water will then have value” (Ricardo 1932, 261).

G.P. Marsh’s 1864 publication of *Man and Nature* and *The Land Ethic* by Aldo Leopold (1949) nearly a century later both explicitly described the services that nature provides as well as the interconnectedness, indispensability, and intrinsic value of ecosystems. Rachel Carson’s *Silent Spring* (Carson [1969] 2002) is often credited with being a catalyst for the modern Western environmental movement which galvanized public awareness and concern for the health of natural and agricultural ecosystems. Schumacher’s use of the term “natural capital” in his landmark book “Small is Beautiful” (2010 [1973]) provided a foothold for other discursive developments such as Ehrlich and Ehrlich’s (1982) concept of ecosystem services (Gómez-Baggethun et al. 2010).

In 2005, the Millenium Ecosystem Assessment (MA) constituted a landmark study by 1,360 researchers of how 24 ecosystem services improved or degraded in various ecosystems over the past 50 years (MA 2005). This study’s sheer scope and depth resulted in its somewhat widespread effects on policy at the national and institutional levels. For example, the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) and UN’s Reduced greenhouse gas Emissions from Deforestation and Degradation (UNREDD) were established immediately following the MA study (“Ecosystem Services” 2012). Often the worth of an ecosystem is expressed in terms of Total Economic Value (TEV), which includes human beings’ direct and indirect usage of nature, as well as option value which measures the potential future value of

these resources, such as for yet-undiscovered medicinal purposes. Non-monetary rubrics of value tend to focus on nature's effects on human health, income, recreation, and cultural expression, while abiotic approaches measure quantities of water filtered or amounts of carbon sequestered ("Ecosystem Services" 2012).

Beyond these principally discursive attempts at valuing and categorizing ecosystem services, a brief lineage of actual cases of money being exchanged for the services that ecosystems provide will help to orient this dissertation's offerings. In Japan, for over a century, downstream water consumers have paid upstream landowners for the privilege of using their clean, naturally filtered water (Richards, M. 2000). Some precursors to PES programs have operated for decades, such as so-called "agri-environmental" programs in the U.S. (Claassen, Cattaneo, and Johansson 2008) and more recently \$11 billion was spent in 14 European countries in the mid-90s to convert millions of hectares of developed land back to forest (OECD 1997).

In Costa Rica, the Forestry Law of 1979 marked the initiation of tax-based incentives for ecosystem management, while its later iteration in 1986, called "Certificados de Abonos Forestales," or CAF, used tax incentives to allow land owners to recoup the costs of reforestation efforts for up to five years (Sierra and Russman 2006). Because of these early and gradually increased efforts, employees of FONAFIFO (Fondo Nacional de Financiamiento Forestal), the agency that conducts the payments for the nation's PES program, have differing estimates as to when PES actually began in Costa Rica, varying from 1988 to 1996. Yet Forestry Law 7575 of 1996 was indeed the first formal and nation-wide implementation of a payment for environmental services program in Costa Rica, and indeed in the world. This law established both the PES program as well as the national system of protected areas (SINAC) which comprise 25% of the country's land space.

In other parts of the world, PES has also taken hold in various forms, most prominently in Brazil, Indonesia, China, and Mexico. The penultimate example has

implemented the Sloping Land Conversion Program (SLCP) which incentivizes farmers to reforest formerly cultivated hillsides in order to mitigate erosion from extreme rainfall events in 25 provinces. Similar to Costa Rica, China has a plan to commit 25% of its total national territory to areas protected for biodiversity and ecosystem services ("Ecosystem Services" 2012).

## THEORETICAL OVERVIEW

My research deals with payment for environmental services, a neoliberal modality centered on forests, while my methodology falls broadly into a classic political ecology approach in that I focus on giving a voice to an underrepresented group (Osa campesinos, particularly women), center on natural resource conflicts/management, and employ a multi-scaled approach. Perhaps the original political ecology work focused on forests was the work of Susana Hecht (Hecht 1982; Hecht 1985; Hecht 1990) which included dynamic investigations of local people, processes, and activists like Chico Mendes, and tied them to global political economy such as the international beef market. Other PE work on forests includes Peluso (1994), Rocheleau and Edmunds (Dianne Rocheleau and Edmunds 1997b), Isla(2001), Coomes, Takasaki, and Rhemtulla (2011), and Hyma and Nyamwange (1993), while Lambin et al (2001) could be said to be a political ecology/land change science hybrid investigation of forest cover change.

Authors who look at the effects of neoliberalism on forests include Klooster (2006), Guerrero et al (2000), Sierra and Russman (2006), Ortiz (2004), and Liverman and Vilas (2006). Klooster's article, with a clear political ecology substructure, writes about how Mexico's forests are being shaped by international economic actors in the form of major furniture retailers who transfer their buyers' demands for fair-trade-certified wood onto these developing-world forest sites. He also found that locally managed forests were more sustainable when the control structure was less hierarchical and more democratic. Others such as Guerrero et al (2000) studied the impacts of

international neoliberal treaties such as NAFTA (north American free trade agreement) on deforestation in northern Mexico. As a result of NAFTA, transnational corporations quickly took over commercial forestry, and pine forests specifically were decimated, while cheap wood pulp from the U.S. and Canada quickly dominated Mexican markets (Guerrero et al 2000). Scholars such as Ortiz (2004) and Liverman and Vilas (2006) looked at neoliberal approaches to forest management (PES) yet eschewed the “scaling up” that would be required to qualify as true political ecology.

According to Neumann (2005) the model of “scientific forest management” (a conceptual precursor to neoliberal forest management) was initiated in Saxony in the late 1700s and this has essentially been the model employed ever since. Neumann cites Peluso (1992), himself (1997), and Scott (1998) as criticizing this technique as oversimplifying of ecosystems while not fully recognizing local knowledge of the forest. This model has many similarities with the neoliberal forest management model in that they are both founded on a deep belief in the positivistic assessment and utilization of nature, and also on the notion that privatization of property will preclude outcomes such as Hardin’s classic *Tragedy* (1968). The transition of local commons into private property strata has been a central tenet of European colonization of the tropics for several centuries. Many scholars point to the latter half of the 19<sup>th</sup> century for this development (Neumann 2005) but this practice was well documented among British colonizers in the Indian subcontinent as early as the late 1700s (Wolf 1982, 247).

I personally share the environmentalist fear of allowing capitalism to fully infiltrate the natural world and essentially ‘put a pricetag’ on every living thing. Yet I also see a profound leverage in the infiltration of nature into the capitalist world – a point that some authors have acknowledged (Daily 1997) – such that, via neoliberal PES programs, terms such as “trees,” “oxygen,” and “healthy soil” now appear on fiscal quarterly reports and are included in a TNC’s fiscal bottom line. When nature has

financial (instrumental) value, then suddenly it is on the radar of even the most avaricious, dehumanized corporations. And that, on some level, is progress.

A few authors have delved into the topic of payment for environmental services (PES) in a Costa Rican context. Liverman and Vilas (2006), for instance, provide examples of P.E.S. programs in Costa Rica which delineate prices for carbon sequestration and hydrology services per acre, while Sanchez-Azofeifa (2007) assesses forest cover change in P.E.S. vs non-P.E.S. lands within the country. Pagiola (2008) and Pagiola et al (2005) investigate the overall efficiency of P.E.S. programs in Costa Rica, and also assess their effectiveness in actually improving environmental services, as well as their ability to alleviate poverty. This author's research is looking at how the PES program functions in the Osa peninsula and the project assesses the role of women in these programs, and also offers suggestions of how the programs can be improved overall.

One work that also covers PES on the Osa peninsula deserves highlighting – that of Sierra and Russman (2006). This was an extensive and useful study, yet some of the conclusions summon deeper analysis. The authors found these services to be increasingly desirable the farther farmers were located from markets, and the study also suggested that, in general, payment amounts were too high since demand for these incentives well outpaced supply.

I would like to give this point more attention, because this specific conclusion by the authors is a prime example of the inadequacy of purely quantitative approaches at guiding policy in socio-ecological systems (SES), in that it was based almost unilaterally on supply-and-demand economics while essentially ignoring social factors. My interviews and surveys overwhelmingly showed that if anything, PES payout amounts \$64/ha/yr were too low. When asked if the PES payments were enough to live on, the most common phrase given in response by campesinos was that the payment amount was “una mierda” (shit). Ibarra Gené's (2007) study of P.E.S. in Osa concurs with my



findings that payment amounts should be raised, mainly so that conservation can become more economically viable than logging in the region.

There are two reasons why lower payments are ill-advised. First, with below-subsistence payment amounts, the incentive for and likelihood that PES participants and others in the region will resort to illegal hunting, logging and mining to survive is increased. This is a palpable, observable, and everyday reality on the Osa peninsula today. Second, the PES system as it stands favors large landowners because fixed costs (paperwork, judges, lawyers, surveyors) are the same for large as for small farms while income, of course, expands proportionally with the size of the farm. At \$64/ha/yr, a 50 hectare farm will take in \$3,200 in a year, which is approximately one-fourth of Costa Rica's per capita GDP in the country. At the same rate, a 300-hectare farm will take in \$19,200, which is clearly a more "liveable" amount. Sierra and Russman's study (2006) was heavily quantitative and their suggestion that PES payments should be lowered shows a deep disconnect to these on-the-ground social realities in the region.

Hence, there is a very real, rubber-meets-the-road pragmatism called for in payment for environmental services. Though in favor of payment for environmental services, Gretchen C. Daily posits several practical challenges to the valuation of nature. Besides the messy ontology of classifying all manner of natural entities into price-similar groupings, then having those prices vulnerable to international fluctuation, there are also some qualitative services such as the "stability" of food chains or ecosystems which are quite difficult to valorize financially (Daily 1997, 366–367). Marginal or incremental valuation is also a challenge. Exactly how much does cutting down one tree or ten trees or an acre of trees actually degrade a specific forest's hydrologic cycling efficiency? In Costa Rica's system, these values are all determined and standardized per-hectare based on which specific environmental service is being provided. Although there are over fifteen categories of services provided, they fall into three general categories: reforestation (paying U.S. \$197-297/ha depending on species planted), protection of

forest (paying U.S. \$64/ha), and productive land use (agro-forestry/sylvo-pastoralism paying approximately U.S. \$1.10 per tree planted). Moreover, Daily adds, should not payments be higher where more people are affected or higher-productivity farms are dependent on those services? This exact implementation was suggested to me by SINAC overseer of ACOSA conservation area, Juan Jose Jimenez Espinoza.

The book, *Nature's Services* (Daily 1997) for which Gretchen C. Daily is editor, serves as a marvelously useful compendium – in ways both conceptual and practical – of works which argue for the indispensability of environmental services. Though the contributors are generally in favor of this modality, they are not idealistically so, in that they thoroughly work through the difficult and ongoing challenges of identifying, categorizing, valorizing, monitoring, and safeguarding these natural commodities and ecosystems (1997, 369–372). The compulsion to do such work is essentially a response to what Marx identified as a fundamental flaw in capitalism's engagement with nature. Marx writes that, "Natural elements entering as agents into production, and which cost nothing, no matter what role they play in production, do not enter as components of capital, but as a free gift of Nature to capital..." (Marx 1996 [1867], vol. 3: 745). And this free gift, especially when unmonitored, is ripe for abuse. An overall implication of Daily's book is that what the neoliberalization of nature brings is more *attention* to nature. The success or failure of sustainable development hinges in part on what *kind* of attention this entails, and how harmoniously the rival siblings of nature and capitalism can be made to coexist as a result.

Based on my nearly six months of research in Osa, several issues with the payment for environmental services program, specific to the region, become salient. Some are positive and predictive of success of the program in the future and others were points that needed attention and whose resolution could translate to a notable increase in program efficiency.

## PRINCIPAL ISSUES

### Issue #1: P.E.S. payments are too small

The largest category of PES, “proteccion de bosque” (forest protection), pays U.S. \$64 per hectare per year. This rate does not vary based on any factors such as size of farm, length of participation in programs, nor, most interestingly, strategic importance of the land. The most common single comment about the PES payment amounts was that they were “una mierda” (shit), and that the only reason they were so desired was related to the conspicuous dearth of other sources of income in the area. Of central importance is that, under “protección de bosque”, an owner cannot use or develop his or her land in any way, and this is very strictly enforced. This means that essentially the only way to make money from these lands are through PES or eco-tourism. Many other PES categories allow for alternative sources of income on the land, such as “reforestación” which ironically is implemented almost exclusively for tree farms which are felled after 15 years, then replanted. Reforestation pays \$197/ha/year but then there is a huge payoff in 15 years when the trees reach maturity and can be cut and sold for lumber.

Each teak tree can be sold for approximately \$1,000, for instance, while approximately 500 teak trees can be planted per hectare (3m x 4m standard spacing), resulting in a \$500,000 profit per hectare spread over 15 years. “Sistemas agroforestales” and “sistemas agroforestales en café” (agroforestry and coffee agroforestry systems) both pay per-tree protected, which comes out to a maximum of approximately \$60/ha/yr which is very similar payments as proteccion de bosque. Yet, with sistemas agroforestales, like tree plantations, there are intermittent harvests which are a secondary – and larger – source of income. Therefore, farmers participating in proteccion de bosque have very limited options for income while they are also protecting contiguous indigenous stands of rainforest (either primary or secondary forest). Therefore they are getting paid the least to do the most important conservation

job. The main problem with these low payments, compounded by the lack of alternate sources of income is that the temptation to break the law and hunt, log, or mine for gold is increased, which undermines the PES program's goals.

#### Issue #2: Expensive and time-consuming paperwork (trámite)

PES participants reported costs of between U.S. \$200 to U.S. \$800 per year to comply with the lengthy application and renewal processes for PES. Along with “pagos bajos,” “demasiado trámite” (too much paperwork) is the other most common complaint. This is not surprising in a country that is admittedly bureaucratic, to the point that in the past ten years there was passed a “Ley de Simplificación de Trámites” (law of simplification of paperwork) in order to streamline bureaucracy in all public processes. Bureaucracy is a hackneyed challenge in any large state apparatus such as semi-socialistic Costa Rica, yet the benefits are undeniable, such as free education and health care. As a PES participant, a farmer has three categories of paperwork: solicitud (original application), mantenimiento (annual maintenance of contract), and grace period (renewal after 5 year contract ends).

The biggest paperwork hurdle for a potential PES participant is in the original application for PES funds. Yet there is a notable difference between titled land owners and “precaristas” or squatters, which make up 40-50% of the peninsula's farmers. Those with formal title need only turn in photocopies of all official ownership paperwork. To be fair, the process of acquiring full formal title, called “escritura” or “folio real”, is expensive and time-consuming in itself, but once it is done all other transactions, such as PES application, are dramatically simplified. For a non-owner or “precarista” (squatter), the trámite for a PES application is quite a bit more involved, in terms of time, travel, and finances. Here is a list of the required documents and their normal prices which must be included in an application packet for a non-title holding farmer:

- “La solicitud” (the request for PES funds), a one-page free document

- Copy of Costa Rica identification card
- Declaración jurada (legal declaration of ownership), verified by a lawyer, U.S. \$200
- Plano Catastrado (land survey and drawing of land) U.S. \$40, verified by lawyer, U.S. \$10
- Document from IDA/INDER (Institute of Rural Development) recognizing this individual as the rightful owner of this property, a free document.
- Affirmed point total under FONAFIFO guidelines for preferential granting of PES contracts, a free document.
- Declaration from SINAC (national system of conservation areas) declaring that this property lies within or without of the Golfo Dulce forest reserve, a free document
- Declaración de testigos (declaration of witnesses) by three Costa Rican citizens that verify that this is your land and you have lived on it for a minimum number of years (10). Verified by a lawyer, U.S. \$600 total.
- Declaración de Colindantes (declaration of neighboring boundaries) by three adjacent neighboring land owners. Verified by lawyer, U.S. \$150 total.
- Total expenditures: \$1,000

The second category of trámite (paperwork/bureaucracy) is maintenance. PES participants must pay the ingeniero who drew up the original “plano catastrado” (registered land survey drawing, i.e. cadastral map) between 5 and 10% of their PES payments throughout the full temporal extent of the contract. This is the most significant annual maintenance fee. One of the ingeniero’s responsibilities is to fill-out and turn in to FONAFIFO a fairly simple one-sheet document with basic questions about the property. This is significant because in perhaps 10% of interviews, PES payments had stopped unexplainably during the 5-year contract. Farmers surmised that FONAFIFO

simply ran out of money periodically or intermittently tries to save money hoping that farmers will continue protecting the forest regardless. But speaking to FONAFIFO officials, they clarified that the only reason payments would stop is if the ingeniero does not file the proper one-sheet document mentioned above for contract renewal each year.

So this is a simple lack of diligence/organization on the part of the ingeniero, as well as his or her failure to communicate that to the landowner. Also included in maintenance is the purchase of signs (rótulos) by the landowner which demarcate a property as being under PES and that logging and hunting are strictly prohibited. These are sturdy metal signs costing \$5 each. Annual inspections (inspecciones) are also mandatory in which a FONAFIFO official comes to the farm/property to verify that the section of land under PES has indeed not been altered.



**Figure 3.1:** Sign or “rótulo” advertising that this land is under P.E.S. protection

The third and least understood category of trámite (paperwork) for the PES program is that which occurs during the grace period between 5-year contracts. Though previously having a PES contract does give a farmer some preference for acquiring a

contract in the future, it is by no means a guarantee. Therefore, when a farmer's contract ends, the same application process repeats again, though with a few simplifications. This renewal period trámite costs between \$200 and \$800. This variation depends largely on how many years it takes the landowner to re-sign a contract, and also the distance of the property from the FONAFIFO office (a two-to-four-hour drive from most farms in Osa). Manuel, who helps to run a tourism development organization for the mountain town of Rancho Quemado, reported that he paid \$600 per year (300,000 colones) for three years, for a total of \$1,800. Amelia, another resident of Rancho Quemado, verified that she paid between U.S. \$600 and \$800 per year during the so-called "grace period."

Notably, this community is fairly remote and separated from the main highway by several rivers, which are often impassable, and challenging mountain roads, all of which adds to the cost of trámite because many of these documents must be turned in in person. Other farmers living closer to the main highway tend to report lower costs for this grace-period paperwork, hovering closer to 100,000 colones (U.S.\$200) per year. Juana, a farmer in more remote Rancho Quemado, commented that the worst financial aspect of this grace period is that you are paying for these paperwork requirements yet you are not receiving PES payments to help offset the costs, and all the while you still cannot develop or harvest from your forests on your land, or those hectares will no longer be eligible for PES in future years. This is a critical point because this is a way that FONAFIFO extracts value out of Costa Rican land owners. By having a frequent grace period wherein landowners must continue providing forest protection, yet landowners are not receiving payment for this service, FONAFIFO is effectively extracting this extra value as conservation "profit" or added carbon sequestration and biodiversity increases. In a Marxian sense, this grace period is structured in such a way as to facilitate the exploitation of the service (or labor) provider, which is the forest-protecting landowner.

### Issue #3: The P.E.S. system favors large, established landowners

Being a large land owner, and an established land owner are two different issues which will be dealt with. First, large landowners benefit in simple mathematical terms because the costs for trámite (paperwork), are fixed and hence disproportionately cumbersome for farms which bring in smaller incomes and have fewer financial resources. Several hundreds of dollars for the application process, then hundreds of dollars per year to navigate the bureaucratic reapplication process can be prohibitively costly for smallholder campesinos. Also, larger farms participating in PES take in more total money than smaller farms.

For example, as cited in an earlier chapter, a 50 hectare farm under the PES category of “proteccion de bosque” earns \$64/ha/yr which adds up to \$3,200 per year. For an entire campesino family, this amount of income is not enough to provide for basic survival. A 300-acre farm in the same PES category will earn \$19,200 per year, which is nearly double the national per capita GDP, and is especially abundant relative to the lifestyle and prices of the remote Osa peninsula. In both cases, these property owners go through the application process and complete the same paperwork to maintain their contracts, and other than “mantenencia de carriles” (clearing forest paths), there is no actual physical service related to the land which they provide. What they are really paid for is the omission of activity (hunting and logging). Therefore, large landowners within the PES program have a significant advantage relative to the size of their farm.

The other principal issue is that, “established” farmers, or those who possess formal land title, are also at significant advantage for three reasons. First, the application process is much less expensive because they do not need to generate several methods of proving that they indeed own their land, then having those declarations officially verified by expensive lawyers and judges. This application process costs approximately U.S. \$1,000 for farms without formal title, but less than \$100 for



those with title. Second, farms with formal title can legally sell wood from their land. Of course, they still cannot cut native forest, but they can take advantage of and sell valuable trees which have fallen naturally (usually as a result of high winds at higher elevations on the peninsula or not infrequent storms at lower elevations). This can prove to be a significant budget supplement for farmers in the region, since one manglillo tree can fetch U.S. \$6,000, and one cristobal tree can garner anywhere from U.S. \$8,000 to \$40,000.

Third – and this third point has both social and ecological significance – formally titled land owners can legally participate in PES reforestation programs. This benefits the landowner financially in one specific way but harms the environment in several ways. Most manifestly benefitting of the formally titled landowner is the fact that reforestation pays \$197/ha/yr, which is over three times as much as the payment for protección de bosque (the only category available in Osa to non-titled landowners). Ecologically, the PES category of “reforestation” only involves two species of tree – melina and teak – which are both non-native species. Moreover, the seeds or seedlings used to establish such a tree plantation must by decree be purchased from official Costa Rican government providers. FONAFIFO officials say that this is to ensure that no “low quality” wood enters the market, but this could also be interpreted as another example of hyper-control by the state.

Other ecological consequences are that chemical fertilizers are often applied to these tree plantations, which of course leaves chemical residues in the soil and is leached into groundwater and percolates through said watershed into local surface water systems. Finally, root structures in teak trees, for instance, naturally plunge deep into soil which is the opposite of the root structures of most indigenous species. Due to the rapid leaching of any organic material in soil in the intense tropical heat and precipitation, local tree roots collect in the top soil horizon in order to fully take advantage of briefly available nutrients. These surface-level root structures also

significantly assist in soil structuration, reducing erosion (Isla 2006a). Moreover, Teak leaf fall is less voluminous than many local endemic species, leaving the top level of soil further exposed to “rain-splash” effects, which also increases erosion.



**Figure 3.2:** Teak-tree plantation in Osa

Recognizing some of these advantages of large landowners, FONAFIFO prudently created a point system in 2011 which decides who receives PES contracts based on certain farm and farmer characteristics. Before this, contracts were literally delved out on a first-come, first-serve basis. Therefore, previously, payments were based more on farmer demand than on ecological need, which was found to be disadvantageous for the overall ecological goals of the program (Sierra and Russman 2006). Under the new system, four things are prioritized: location within a biological corridor (80pts), land within an indigenous land grant territory (85pts), farm size under 50 ha. (25pts), and

farm previously being under a PES contract (10pts). The more points a given farm qualifies for given these categories, the more likely it will be to receive funds. The ACOSA (Area de Conservacion OSA) contains more indigenous territories under PES contracts than anywhere else in the country, as indigenous populations are clustered near Panamá, which has a much higher overall percentage of indigenous inhabitants than Costa Rica.

The point system has also notably resulted in a spatial reorganization of PES funds to target farms within the Golfo Dulce forest reserve, which serves as a biological corridor between Corcovado national park and nearby Piedras Blancas national park. This fact has made many “old school” environmental activists in the area very pleased. One former activist who shall remain anonymous had spent her youth clashing with Stone Forestal who wanted to establish a wood-chip mill in Osa. Resistance and resultant conflicts were so intense that two of this woman’s compatriots high in their organization were strategically murdered, that is, assassinated. In the end, she and those resisting the chip mill were victorious. Speaking to her almost three decades later, she had not realized that FONAFIFO had changed its point system to prioritize the biological corridor, ostensibly under its own volition. This made her pause in our conversation and with an astonished look on her face, say “Eso es magnífico” (that’s fantastic), and then in English she said “that makes me very happy.”

#### MINAE (Ministerio de Agricultura y Energía)

To landowners, the issue of MINAE is arguably the most important issue in the region, as the organization is perceived as an amalgam of Big Brother, the Boogie Man, and the local police. In reality, in terms taken from the U.S., MINAE is a blend of the EPA and the national park service, but with a draconian twist. MINAE’s approximately sixty officers (approximately twenty administrators and forty field officers/guards) patrol the entire 1,625-square-kilometer Osa peninsula with the mission of preventing

environmental abuse. Because they are understaffed, however, remote illegal hunting and logging – though usually small-scale in nature – can never be completely controlled. Instead, MINAE controls what it can, meaning that the most common agency/public interaction tends to be MINAE officials over-imposing their authority on essentially defenseless small-holders for tiny infractions.

This hyper-controlling nature is more than a specter and regularly results in campesinos and/or city dwellers spending a few nights in jail for something as small as trimming a branch from a tree that had grown to be in contact with their house. I heard multiple stories of this exact scenario all across the peninsula. What this amounts to is that the land-use enclosure brought about by the establishment of Corcovado national park and the Golfo Dulce forest reserve has significantly delimited rural options for income and is only exacerbated by the draconian enforcement of these new restrictions by MINAE officials. “Nos atan las manos” (our hands are tied) was a proclamation that I heard on more than one occasion. Yet from the perspective offered by MINAE officials themselves, this story is rounded out somewhat, as one senses a true desire from these educated and earnest civil servants to both help their fellow Ticos, while also stemming the tide of illegal activities which hurt the sustainable livelihoods in the area. They feel constrained by the top-down mandates and laws coming out of San José which often don’t translate to a setting such as Osa. The main concerns surrounding MINAE are the following:

#### Harrassment

The number-one complaint about MINAE from residents of Osa is that of harassment. There is a very pervasive belief that MINAE officials abuse their power, and disproportionately so upon poor campesinos who have the least ability to protect themselves. Several of my interviewees had farms which were only reachable on foot or horse. One such farmer, named Carlo, told of an encounter with two MINAE officials

who suspected him of illegal hunting. They took every article, large and small, from his house and dumped it onto the mud and brush outside of his home in order to search for hunting paraphernalia or relics.

Often landowners in these settings are “remote” in many senses of the word and this facilitates this type of abuse. Beyond their spatial separation from the major population centers, they tend to have less formal education (such as Juan who had no schooling whatsoever) and hence tend not to be aware of their rights. This makes them more susceptible to abuse. Another woman from whom I bought fresh coconut oil (used as a skin moisturizer, sunscreen, and food additive) who lives in the local city of Puerto Jimenez, said that she had spent three nights in jail because she was “caught” cutting down a small mangrove tree that was causing damage to her roof during a storm. It should be noted that both Carlo (above) and the woman in the mangrove forest had these experiences *on their own land*. This highlights the extremity and controversial nature of MINAE’s strict rule enforcement. On one occasion, a man carrying the equipment for artisanal gold panning was shot and killed by MINAE officials late at night on a remote mountain road. However, acts of physical violence like this by MINAE are extremely rare.



**Figure 3.3:** A few MINAE employees inside Corcovado park. Photo by Jessica Norriss.

Overall, the agency has come to play a role much like Big Brother. Many residents appreciate its presence and acknowledge that without them, illegal extraction from the forests would be rampant. But at the same time MINAE is feared and resented because of the many tales of harassment which circulate, and also because MINAE perhaps unfairly receives the blame for many of the economic shifts which have transpired in the region over the past few decades.

The irony of this draconian environmental enforcement by MINAE is two-fold. First, officials tend to pick battles that they can win by harassing “the little guy.” Wealthy landowners normally have very positive relationships with MINAE officials, either as the direct result of bribes (a common accusation), or out of the fear of retribution by landowners with economic or legal power. Also, “permissions,” as they are called, to log forest are still given in rare cases to exogenous lumber companies on a very small scale, while tree plantations of teak and melina are felled on the peninsula every 15-18 years. That is, while some smallholders are jailed for trimming a branch

from a tree on their own land, exogenous companies are felling tens or hundreds of trees for profit only kilometers away. The second irony is that MINAE itself is not immune to corruption.

### Corruption

“Todo que conocen MINAE es su oficina con aire acondicionado” (all that MINAE knows about is their air-conditioned offices) was a comment made more than once to me during interviews. There is a perception among finqueros (farmers) that MINAE officials tend to collect in the office in Puerto Jimenez or the stations inside of Corcovado park when they should be out patrolling. This is difficult to empirically prove, but I can offer at least some anecdotal evidence. My assistant spent a few weeks inside Corcovado national park as a park “intern.” She commented that the park guards, which are MINAE field officers, almost never patrolled the park except for one daily thirty-minute walk. The vast majority of the time, MINAE park guards were lounging at the station, putting around on the rivers in a MINAE motorboat, or even worse, catching the fish that they are paid to protect. In fact, my assistant clearly stated that fishing took up the majority of the daily activities of the park guards whom she was around. One of the officers repeatedly told my assistant “No hables de esto a nadie” (don’t tell anyone about this).

To MINAE’s credit, when my assistant reported this behavior to the higher-ups in the regional MINAE office, they were very supportive and very grateful to her, rather than being dismissive or denying. The manager whom the assistant spoke to seemed vindicated that this behavior had been reported so that he could eradicate it. As time went on, however, the only action taken which could be verified is that the offending officers had been given a stern talking-to.

Corcovado park guards (also MINAE officials) were also rumored to have profited from allowing an ongoing large-scale gold mining ring inside the park in recent years.

The peninsula in general and the park specifically are known to still have large amounts of gold, and even though commercial mining is no longer allowed, artisanal “pick and pan” mining is still quite common.

Antonio Orozco, a MINAE administrator who works in the Puerto Jimenez office, says that guardaparques (park rangers) in other countries are more like educated guides, but in Osa they are police with guns trying to monitor and prevent law-breaking. He suggests that MINAE needs to elevate the level of services and behavior that their park guards offer to the public. Ideally they would take on a more intellectual and scientific approach and serve more as docents of the forest than an armed security force.

One last factor that contributes to the appearance of some level of corruption related to MINAE is that its employees receive an inordinate amount of vacation time. With some digging, however, I learned that this is official policy for this region. In the 1970s when Corcovado was established as a national park, SINAC directors found it difficult to find employees who were willing to relocate to the “remote” Osa peninsula. However, SINAC leadership was bound by a very delimited budget, so they came up with a creative method of incentive. If employees would agree to work for a set number of years in Osa, they would only be required to work eight days, then be off for six days. This accounts for the reason that several of the SINAC/MINAE management with whom I was in frequent contact were constantly driving back-and-forth between Osa and San José to enjoy their vacation time with friends in the central valley.

Government corruption more broadly is a significant problem in Costa Rica, both at the national level, and at the local level as well, depending on the local municipality. For instance, on a scale from 1 to 4, Osa residents whom I interviewed stated 88% of the time that government corruption at the national level was at the maximum level of “4”. At the local level, those living within the Sierpe municipality (at the conjunction between Osa and the mainland) most commonly chose “1” or “2” as the level of corruption, while



those living within the Golfito municipal jurisdiction to the south chose “4” 90% of the time. Therefore, corruption at the local level has a good deal of variability, and certainly playing a part in this perception of and reality of corruption is the MINAE agency.

Other anecdotes show that this issue is often clouded by shades of grey rather than clear black-and-white. Ismael, an eighty-year-old dairy farmer in a mountainous village of Osa, told me that a MINAE officer promised him informally that he would receive monies from the agency if he personally protected his land from illegal hunters. This stalwart, hard-working man would walk the grounds of his seventy-five-hectare landholding several days a week in efforts to keep up his end of the informal deal. However, after more than a year of these efforts, he has received no further contact from said MINAE official.

#### Understaffed

As mentioned above, the entire MINAE staff consists of approximately forty field officers and twenty administrators – the latter are based in the office in Puerto Jimenez, the largest city in Osa. This staff is charged with patrolling and protecting the approximately 1,625-square-kilometer peninsula which, other than one thirty-kilometer stretch of paved highway on the east side of the peninsula, is traversable only on very poor roads. These roads are usually constructed of “lastre” which is crushed rock mixed with river-bed material taken from the local Rio Tigre. Road quality is constantly and steadily degraded by the steady rains in Osa. From 3,000 – 3,800 mm fall annually in the lowlands, while 6,000 mm or more can fall at the mountain peaks and along the coast of Corcovado national park (Gilbert and Christen 2015, 25). Hard-copy road maps for the Osa peninsula are non-existent – such maps only exist in the minds of locals with extended tenancies. Moreover, approximately 50% of MINAE field agents are sourced locally, while the other half are from other regions of the country. These exogenously

sourced agents need a few years just to begin to comprehend the complicated web of mountain roads and paths which serve as their transportation arteries.

Adding to these formidable logistical challenges, the agency has only six total vehicles at their disposal to achieve the entirety of their conservation and enforcement goals. Anything from zero to four vehicles can be seen parked at the MINAE office in Puerto Jimenez at any given time. This means that if a call comes into the office about illegal logging or hunting, it can take 90 minutes or more to reach the site of the crime if it is at any distance from the office. Innumerable farmers and landowners told me that they had heard packs of hunting dogs on their land, called MINAE, and they never showed up at all. In the rare cases when they did show up it was usually the next day, long after any wrongdoing was over and done. The lack of confidence in MINAE's ability to prevent environmental harm or thievery was widespread, yet not ubiquitous. Predictably, those who were related to or good friends with a MINAE employee tended to see them as more effective at their job.

A landowner named Calilo whose son works for MINAE understandably had a more positive view of the agency. He saw them as a benevolent group of men who earnestly want to help the area protect its environment to the benefit of locals. In my experience, incidentally, this does describe the organization's management, but less so its field agents. He mentioned that illegal loggers have extensive phone networks which always keep track of MINAE trucks so they can stay one step ahead of them in order to avoid getting caught. There are four lumber mills in La Palma, the second largest city on the peninsula, that will buy illegal wood. Once wood is cut and processed, the trail of theft is gone and it's like any other wood, complete with a "factura" (paper receipt). Relatedly, during October of 2014, Greenpeace used lumber-mill receipts to uncover a ring of illegal logging in the Amazon. The receipts have to list a geographical origin for the wood, which Greenpeace immediately investigated using the most recent remote sensing images. They frequently found that these locations were falsified, and that most

of them were located within one large private, fully forested farm. This, of course, is an ongoing challenge in Osa as well, which is only made more difficult by the fact that one Manglillo tree, for instance, fetches around U.S. \$6000 US and a Cristobal tree can garner between U.S. \$8000 and U.S. \$40,000 for a single tree.

The understaffed MINAE which has to navigate the vagaries of internal corruption, underfunding, and a dismal transportation infrastructure, is also up against a strong tradition of hunting in the region. In interviews, the most common reasons given for the intransigence of the hunting tradition in Osa are: 1) people don't have options for employment and PSA pays too little, so they have to hunt to eat or to sell, 2) there is a strong, multi-generational tradition among men (fathers and sons) to hunt with dogs for sport, 3) people are resentful of MINAE and their rules, so they kill animals out of spite (this theory was only mentioned a few times), and, 4) One mid-thirties landowner suggested that biologically (genetically) all Costa Ricans have some indigenous blood, so they are instinctually driven to hunt. 12.5% of respondents admitted that they still hunt for subsistence. None admitted hunting for commercial purposes. 54% of respondents said that hunting still transpired in their area, while 19% said that hunting remained "very common" in their area.

A woman named Mayra who lives in Drake Bay has a petition going around to be signed by locals that would create a law outlawing the ownership of the specific "raza" (race) of dogs that are used for hunting. "There is no reason that someone would have this race of dogs," she says, "besides for hunting animals. MINAE says that they can't do anything about people and their hunting dogs because of a small law that prohibits intervention on their part." MINAE administrator Carlos "Mickey" Quintero spoke of this general phenomenon when he said that the main frustration for MINAE is that they are restricted "from above" by the dictums delved out from the central office in San José and also by the national legislature (Carlos Quintero 2014). "We want to help more than we are allowed to," said Carlos, "which puts us in a tough position." He suggested

that they would give more permissions for farmers who don't have official "escritura" (ownership paperwork) to sell naturally fallen wood from their land, but this is currently illegal.

Carlos and I agree that this restriction is "una estupidez" (a stupidity). Owners with official ownership paperwork can sell this wood, but not squatters, even if they've lived and worked the land for their entire lives. "It makes absolutely no sense," Carlos offered "since if a fallen tree is not utilized, it will biodegrade and release its carbon back into the atmosphere, which is counter-productive to our larger goals" (Carlos Quintero 2014). As conveyed below, even those with full property ownership must go through a lengthy paperwork process which can often take up to a year just to sell one fallen tree.

#### Trámite (paperwork)

Like most Costa Rican government agencies, paperwork and bureaucracy is a significant factor. Landowners and "precaristas" (squatters) must submit applications for permission to cut or sell any naturally fallen wood on their property. Cutting a standing tree is never permitted. These "permisos" (permissions) are frequently denied, but more commonly they simply take quite some time to be granted. I heard many accounts of permissions taking several months to a year or more to be granted, in such time often a fallen tree will become rotten and no longer useable. In addition, when an official landowner wants to sell this fallen wood from their land, they must apply for an additional permission to transport the wood to a lumber yard. Such transport must in all circumstances be done with a MINAE escort. Getting this entire process approved, scheduled, executed, and processed – assuming it receives the green light at every stage of the process – can be extremely exasperating.

For this reason, combined with the pressures from the depressed economic conditions of the area in general, denizens frequently circumvent this arduous legal

process and just sell fallen wood illegally to local lumber yards. This is, of course, only added to the indeterminate amount of illegal logging by non-residents which transpires on a somewhat regular basis, based on eye-witness (and ear-witness, hearing chainsaws) accounts from landowners around the peninsula. One landowning woman and former PES participant to whom I spoke innumerable times said that she had once waited nearly a year for permission to sell lumber from a tree that fell on her property. MINAE was dragging their feet on it until she mentioned to them that she had a good friend in the MINAE office in San José whom she was going to mention this to. The permission arrived the very next day from the local MINAE office. This is powerful evidence that the sluggish viscosity of MINAE's bureaucracy is not as much based on the machinations of the agency as it is based on disorganization or simple unwillingness.

#### Misnomer

Every time locals refer to MINAE, they are really talking about SINAC (Sistema Nacional de Areas de Conservación). For facility, I have done the same in this dissertation. Yet MINAE is actually the umbrella national-level government agency which deals with environmental issues. Under the organizational tree of MINAE is SINAC, which technically exists to staff and protect the nation's various protected natural areas. Although SINAC employee uniforms do designate the SINAC label, their trucks are provided by MINAE and labeled as such. Since most locals' experiences with SINAC/MINAE amount to not much more than seeing the "MINAE" truck drive by and perhaps bark admonishments, the agency of SINAC became known more commonly as MINAE.

Because Osa's territory is approximately three-fourths comprised either by national park or forest reserve, virtually the entire peninsula is under SINAC's protection. This intensive SINAC presence does not exist in such density and pervasiveness anywhere else in Costa Rica, hence the steady stream of conflicts

between SINAC (MINAE) and locals. For the purposes of this dissertation, I use the term that locals use (MINAE) to refer to SINAC since it is so unilaterally used as such in the local setting and even in some correspondence with SINAC itself.

#### Dissention among the ranks

A few knowing locals as well as the MINAE administrators with whom I spoke have noted that there is a core difference between MINAE administrators and MINAE field agents. Carlos “Mickey” Quintero, who has worked for MINAE for 18 years, stated that administrators tend to have more education and also tend to be employed within the agency for longer periods of time. Field agents tend to be much less educated (high school education or below) and also, notably, are armed. These men are the face of MINAE to the public and if they are uncouth or disrespectful or overly aggressive for personal reasons, then this attitude comes to represent the entirety of MINAE to the general public. Carlos Quintero said that most of the administrators do not want to carry guns or even are personally against it. Carlos also gently insisted that MINAE officers are conservationists at heart and in fact that their purpose is to prevent environmental harm, rather than to prosecute it after it has already occurred.

What this means, according to Carlos, is that their focus is actually to educate rather than to monitor. Juan Jose Jimenez, affectionately known locally as “Jota” (J), is the SINAC director of the entire ACOSA (Area de Conservacion Osa), was very industrious about creating and promoting bi-monthly environmental education events for the local community which were called interchangeably “charlas”(chats), “conversatorios”(discussions), and “talleres” (workshops). These ranged in topic from “identification of leaf structure” to “sustainably developing Osa,” several of which I attended. These provided an excellent interface for amicable MINAE/public interaction and also allotted a vector for the transmission of critical environmental education, such as the ecosystem-level effects of illegal logging. Another local organization that is even

more prominent as an environmental educator is ASCONA, which is run by and founded by Costa Ricans themselves.

Extended interviews with MINAE (SINAC) officials themselves certainly shed light upon and rounded out the picture of MINAE for this study. Carlos Quintero, who has worked for MINAE for 18 years though he appears to still be in his late thirties, offered very useful perspectives. As mentioned earlier, he felt very constrained by the fact that MINAE is a very “top-down” organization and decisions and policies are dictated from the central office in San José. This facet of the organization would depict it as decidedly centralized and hence non-neoliberal. Each national park having its own unique “plan de manejo” (management plan) is evidence of the opposite, so clearly MINAE includes a mix of socio-political approaches. Carlos said that (as translated from Spanish) “The people feel too controlled by too many environmental laws, so we need to make fair but effective laws. They live from the land. If they don’t own the land (and are in “possession”), why should they have incentive to conserve it?” Here Mr. Quintero is of course alluding loosely to Hardin’s “Tragedy of the Commons” and suggesting that raising ownership rates will increase conservation rates. This focus on increasing formal land titling in a given area is a core inscription of neoliberalism on the landscape.

Carlos was vociferously in favor of and on the side of the campesino (rural farmer). He sees them as they see themselves – with hands tied due to the disappearance of options for income in recent years. He believes that the removal of options for income has forced campesinos into the exact illegal activities that MINAE is charged with policing. I was a bit surprised to hear one statement which clearly posited Carlos into the pre-environmental movement cohort which saw forest as “unutilized” land with great potential for human development. He said that “Our job is to help people produce from the land, but instead, we see ourselves “frenando” (halting/breaking) these types of activities” (Carlos Quintero 2014).

Further questions and answers with Carlos were the following: (translated from Spanish)

**Q: Do you think that MINAE (SINAC) has enough resources and money to do its job effectively?**

“In reality, no. This year’s budget is identical to last years, so effectively that is less money. We cannot legally accept monetary donations, so the only way we survive is by receiving donations in the form of equipment, such as trucks and cars. Without that, we couldn’t survive. We have 1,625 square kilometers to protect with only forty field agents and six vehicles – we are stretched too thin. There are five government agencies operating in Osa: Caja Nacional (IRS), ICE (telecommunications and electricity), INDER (rural development), and MAG (ministry of agriculture), and MINAE. MINAE is the only one of these five which is charged with protecting the environment. The job is too much for just us to handle.”

Carlos sees society as evolving, but SINAC and other Costa Rican governmental institutions not evolving with it. He mentioned that Panamá has had “seguridad alimentaria” (equivalent to food stamps) programs for three years and that they are needed in Costa Rica.

**Q: From 1 to 4, how effective is MINAE at protecting the natural environment?**

“Three...sometimes two, but not for lack of effort. The majority of us are married to our job, and even though we are paid poorly, we still regularly put in extra time.” Of note, of the eighty interviews done with campesino land owners and land users, their answer to this question averaged 2.3.

**Q: From 1 to 4, how effective is MINAE at serving and helping campesinos?**



“Two, because we can’t help more than the laws made in San José will allow us. We often want to help more than we do, like giving more ‘permisos’ (permissions) to utilize wood on one’s property, but we are “amarrados” (tethered) by the laws from San José.” Again, the lack of formal titles is a huge hindrance to the campesino. Approximately 50% of campesinos on the peninsula have formal title, yet you need it to acquire a “certificado de origen” (certification of origin) in order to sell any wood from your land. Of the eighty campesino interviews, the average number offered as an answer for this question of “how effective is MINAE at serving and helping campesinos?” was 1.5.

The disparity between MINAE being seen by locals as better at protecting the environment (2.3) than at serving campesinos (1.5) is definitely present in their anecdotes and informal comments. Most campesinos would likely agree that MINAE is necessary to stem the tide of illegal logging, hunting, and gold mining. “Without MINAE,” said one farmer, “it would be chaos.” MINAE is still seen, nonetheless, as not highly effective at their task, but rather a baseline presence of environmental enforcement and at least a notable threat of being punished. What the vast majority of campesinos does offer is that MINAE field officials (guardaparques) could do their job just as effectively without being so brusque and even abusive. Many farmers simply view MINAE as an organization that hassles, nags, and bothers local residents. The least enfranchised and poorest residents had the most complaints in this department. It should be made clear that “abuse” refers almost unilaterally to threats and legal restrictions along with the confiscation and/or search of property. Only in one case did I hear of actual person-on-person physical abuse, which was the case mentioned above where a MINAE official shot and killed a suspected gold miner on a remote mountain road.

Another MINAE official in the Puerto Jimenez office (Osa’s principal MINAE office) named Antonio Orozco agreed largely with Carlos Quintero that the

organization's main problems are a dearth of resources and the campesinos' "falta de escritura" (lack of formal land title). This lack of formal title makes it very difficult for MINAE to aid campesinos in utilizing their land in any reasonable and sustainable way as a source of income. He put a heavy emphasis on the idea that MINAE (SINAC) actually exists to protect the environment, not to prosecute wrongdoings after-the-fact. In his mind, the only true protection is prevention, and this comes in the form of environmental education campaigns, awareness raising, community workshops, and the like.

He would like the organization to both focus more on these endeavors and to be perceived of as more of an educational agency, rather than one centering on policing. In his brief interactions with park guards from the U.S., Antonio sees them as well-informed and educated "guides" and environmental teachers, rather than armed guards. This evolution has to come to Costa Rica's SINAC in his mind. In response to the question, "From 1 to 4, how effectively does MINAE protect the environment?" Antonio answered "Two." He also answered "Two" when asked how well MINAE helps and serves the campesino. Based on the small sample of MINAE officials answering these quantitative questions, they seem to have a realistic idea of their own effectiveness at protecting the environment, but they slightly overestimated their success at serving campesinos. This may be due to the fact that formal interviews were conducted with office administrators, rather than the agents in the field who had more direct interaction with locals.

## ANALYSIS OF DATA

In the final section of this chapter, data from interviews in this study will be presented and analyzed. Two or three variables at a time will be analyzed in order to disclose significant correlations, if any. Some salient relationships are noteworthy enough to be accompanied by a visual graphic. However, these data are intended as an

enhancement and additional clarification for the themes of this dissertation, and they are not presented as statistically significant offerings.

- PES Participation :: Age:

There is a fairly strong correlation between age and PES participation from my sample. Age is not kept as a statistic by FONAFIFO (the national government agency who controls the PES system), so I have no national-scale statistics as a comparison. To reiterate, Interviewees were grouped into forty PES participants and forty non-participants, with half of each category being men and half women. The first and most clear distinction was that average PES participant interviewed was 57.6 years old, while the average non-participant was 51.5 years old. PES participants were much more prevalent in the 50-80 age group categories than non-participants. However, over the age of eighty, and below the age of fifty this trend was reversed as non-PES-participants were more common. For those under the age of fifty, perhaps this lower rate of PES participation is related to the fact that they have had less time to accumulate capital and/or land title which makes PES participation both more streamlined (much easier paperwork for properties with formal title paperwork) and more profitable (only properties with formal title can receive PES payments for the much more lucrative “reforestation” category). For those over eighty, a lower PES participation rate may relate to the fact that they were already in their sixties when PES was first officially offered by FONAFIFO, so perhaps they were already either established and didn’t need the money, or already “set in their financial ways.”

Also, the older residents of the region have a greater chance of having been around in the 60s and 70s when Osa Forestal was actively attempting to dupe campesinos into signing land rental contracts which would erode their rights and access to the land. This fear of a large institution deceiving (engañando) the campesinos into signing away their land is still a very real spector, and is still stoked by the first-hand

memories of the older members of the community. So, fear of signing property-related contracts with large monolithic institutions – be they Osa Forestal or FONAFIFO – is still quite palpable in Osa and may partially explain the lower rate of PES participation among those over the age of eighty. This discussion point highlights the importance of the post-Enlightenment empirical categories of emotion, experience, history, perspective, and relationships. Though not commonly recognized by positivist approaches, these categorical foci are indeed explicitly investigated by political ecology, and hence, must be developed in this particular study. The fact that these traumatic land-tenure transactions and relationships between campesinos and large institutions in Osa are the cause of present-day reticence evince the fact that emotion and past experience can and do affect tangible, on-the-ground changes to the physical landscape.

- PES Participation :: Education

There are no notable or significant trends relating these two categories. A small exception is that everyone in the two highest educational categories (“some college” or “possessing a college degree”), which comprised only two people total, did participate in PES. Conversely, those with no education whatsoever tended slightly not to participate in PES (five participators to seven non-participators with no education). The absence of a strong correlation between PES participation and level of education definitely goes against my predictions as well as the predictions of other studies done in the region (Zbinden and Lee 2005).

Zbinden and Lee (2005), for instance, found that educational level was a significant variable in determining PES participation. Yet they also found that a landowner’s prior attendance at PES informational meetings also had a notable impact on participation. Although prior attendance at such meetings was not a variable investigated specifically in my study, I did personally attend informational meetings on the peninsula, and I did chat with those farmers (former interviewees) whom I

recognized. What I noticed was that the farmers who actually showed up at these meetings were those whose homes were located within reliable transit networks, i.e. good roads. Those whose farms could only be reached by horse or foot were much less likely to attend informational meetings. Even those whose local road had not been maintained/repared in some time (poor road maintenance was, incidentally, the most frequent complaint among local tax payers) showed lower desire to travel to population centers for any reason.

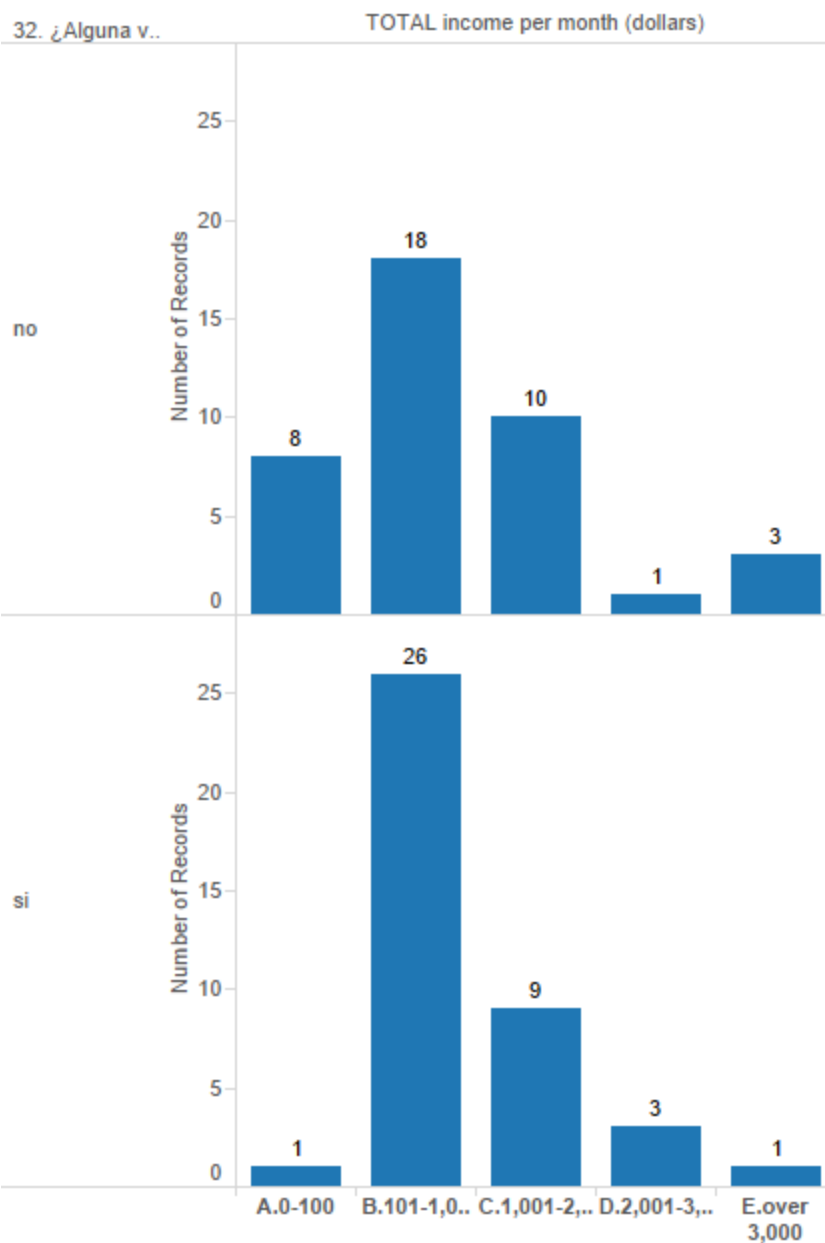
Indeed, the most common response by non-PES-participants to why they are not participating in the programs was that they “had never heard of them.” Therefore, a farmer’s remote location made him or her less likely to attend PES informational meetings, which, based on Zbinden and Lee’s (2005) prediction, would make them less likely to participate in PES. However, this directly counters the findings of Sierra and Russman (2006) who concluded that distance from markets was a very significant factor in raising a farmer’s likelihood of PES participation. Greater distance from markets in terms of transit time (and hence road quality as well as proximity to roads) raised PES participation rates because without the potential source of income from markets, PES income became much more critical. Hence, Sierra and Russman found that the more remote a farmer, the more likely his or her desire to participate in payment for environmental services. Yet Zbinden (statistically) and my study (anecdotally) found that the more remote a farmer, the less “informed” and hence the less likely they were to desire to participate in PES.

What may help resolve this issue is that, around the turn of the century, government-sponsored agricultural markets run by the Consejo Nacional de Producción (CNP) ceased to exist. These were local markets in Osa, such as the largest in Puerto Jimenez, where the CNP purchased staple crops produced by local farmers at subsidized rates and sold them in local markets which were also built and run by the CNP. The CNP also provided local farmers with seeds for each year’s new crop. When these markets

and subsidies vanished, suddenly beans, rice, and corn from local farms could not compete with the economies of scale of such farms in the country's central valley. At that point, local staple crop production collapsed. Therefore in the first several years following the turn of the century in Osa, proximity to markets steeply declined as a critical factor influencing PES participation.

- PES participation :: Income

## Sheet 1



**Table 3.1:** PES participation and income. “No” and “si” indicate PES participation. Dollar ranges are income levels. Number of respondents at each income level is indicated atop each column

There was exhibited a slight tendency for PES participation to be higher among middle income groups, and lower among the lowest and highest income groups. 35/40 PES participants were in the 2<sup>nd</sup> and 3<sup>rd</sup> income categories (\$100-1,000 and \$1,000-2,000/mo) compared to 28/40 for non-participants, for instance. In the 0-100\$ per month income group, there were eight non-PES participants and only one PES participator, whereas in the highest income category of over \$3,000, three were non-participants in PES and only one was a participator. It is logical that the lowest category of income wouldn't have many PES participants because even a base-level income from PES can boost most farmers out of this lowest income category. Most in this category were subsistence farmers who had no income, yet had plenty of resources (food in particular) to survive. Many of these farmers were also more remote geographically (only reachable by horse or foot), and showed a slight, though not exaggerated, tendency to be less educated than PES participants as a general group. Hence, this does follow the education-related findings described by Zbinden and Lee (2005). These geographically (not reachable by motorized vehicle) and discursively (slightly lower educational levels) marginalized farmers in Osa did, in fact, show the lowest rates of PES participation.

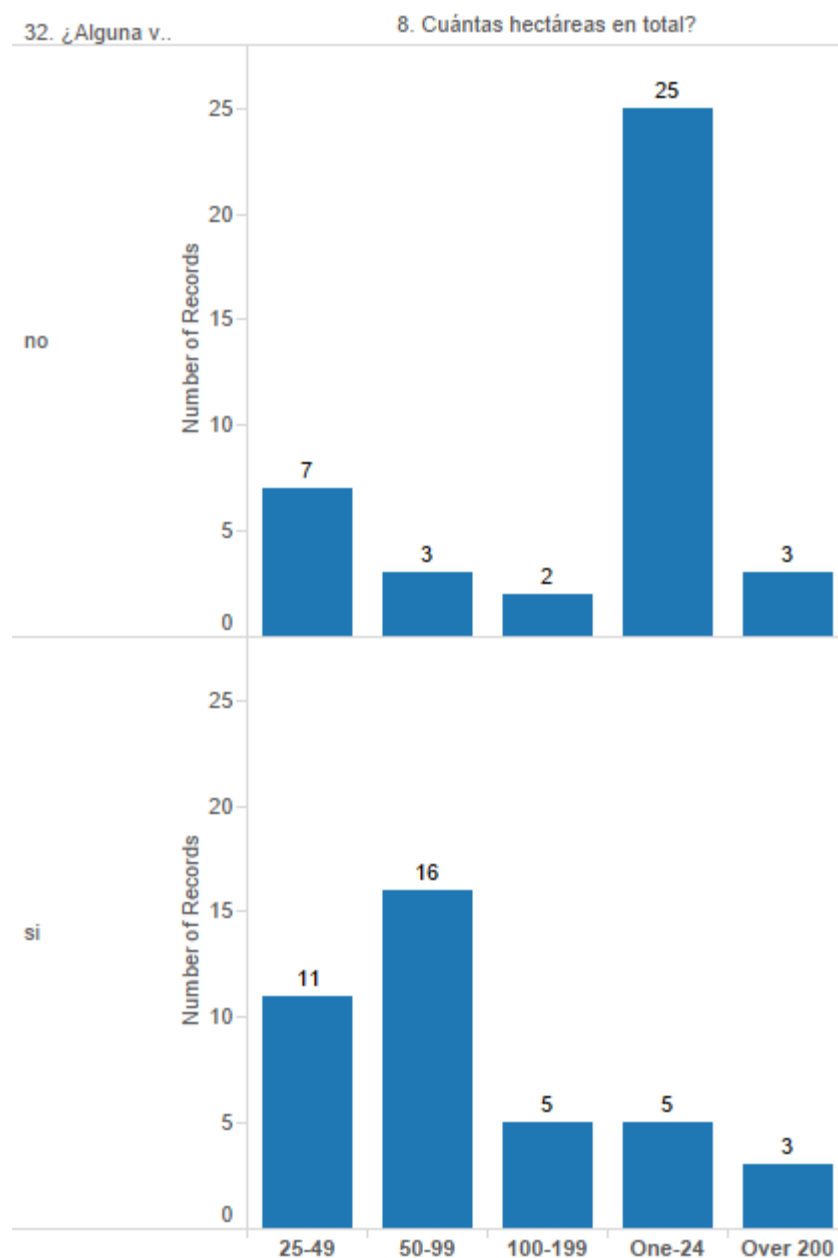
- PES as % of total income

Logically, PES participators in lower income brackets had PES as a higher proportion of income. Among those in the 100-1000 income per month, for instance, 15/26 or 57% earned at least half of their total income from PES, while only 1/13 did so in all higher income brackets.

- PES participation :: Size of Farm



## Sheet 1



**Table 3.2:** Size of PES and non-PES farms. “No” and “si” indicate PES participation. Numeric ranges along the bottom indicate farm size in hectares, and numbers atop columns indicate number of farms of each size

The average farm surveyed was 55.9 hectares. PES farms averaged 79.2 ha and non-PES farms averaged 41.8 ha. which is a clear and sizeable difference. Beyond this there were other notable trends. First, in the survey given, there are five categories of farm size: 0-24ha, 25-49ha, 50-99ha, 100-199ha, and over 200ha. There is a striking trend toward middle sized farms (25-199 ha) being much more likely to participate in PES than both smaller and larger farms. 62.5% (25/40) of the non-PES farms were in the smallest size category for farms, 0-24ha. Conversely, 80% (32/40) of PES farms fell into the three middle-sized categories of 25-49, 50-99, and 100-199 hectares.

This trend was likely more significant before 2011 when FONAFIFO initiated its point system which gave preference to, among other things, farms smaller than fifty hectares. Grouping the properties in terms of those larger or smaller than fifty hectares, from this study's sample, twenty-four of forty PES-participating farms were larger than fifty hectares and sixteen were smaller than fifty hectares. The general reasoning that larger farms receive more mathematical incentive to participate in PES is that with more hectares, total PES income is proportionately larger per-owning-family. Also significant to note is that all other efforts and costs involved in the PES process are fixed and independent of farm size. Providing proof of "posesion" or formal ownership of a farm is mandatory during the PES application process and it costs approximately \$1,000 (posesion) or \$100 (formal ownership or "escritura") regardless of farm size. Obviously there is a bias toward formally owned properties evident as well. Yet the point at hand is that if two properties of differing sizes are both under posesión or both under formal escritura, they both have the same fixed costs associated with PES application, yet their financial benefit for participation varies greatly. This is a clear incentive for larger farms to participate in PES over smaller farms.

The new point system as of 2011, which gives preference to farms 50 hectares and smaller, does help smaller farms to actually receive PES contracts. That is, more applications for PES are received than can be funded, so the new point system does help

smaller farms to at the very least begin receiving funding for the environmental services that they provide. However, this does not help to mathematically remedy the large-farm bias which is woven into this system. A few of the more analytically inclined farmers interviewed suggested that giving more money per hectare for environmental services provided by small farms would help to even out this bias. From the government's perspective, this is a less efficient way to acquire environmental services and natural conservation, but from a social perspective it is a reasonable way to approach poverty alleviation and income inequality.

- PES Participation :: Location within Forest Reserve

A strong correlation between PES participation and a farm's location within the forest reserve was noted, likely in alignment with the 2011 FONAFIFO point system which heavily favors farms inside protected areas (Reserva Forestal Golfo Dulce in this case). 78% (31 of 40) of PES farms in this study were located inside the forest reserve whereas 33% (13/40) of non-PES farms were found inside the reserve. These 13 non-PES farms inside the reserve would be ideal candidates for PES participation because they now qualify for a strong preference for the granting of funds from FONAFIFO since 2011. The creation of this 2011 point system constituted quite an important change to the functioning of the payment for environmental services on a few levels.

The highest point level achievable (85 points) is now granted for farms within indigenous territories. Though the ACOSA (Area de Conservación de Osa) grants more PES contracts to indigenous groups than any other region of the country (according to Palmar Norte regional manager, Victor Sojo), indigenous populations and territorial holdings are still a minor factor in Costa Rica, especially relative to most central and south American countries. Therefore, indigenous participation in PES was not a focus of this study. The second highest amount of points granted in FONAFIFO's new point system is 80 points for farms which lie within biological corridors. The Golfo Dulce

Forest Reserve on Osa, connecting Corcovado national park with Piedras Blancas national park, is one such corridor. Before the new point system was initiated, PES funds were allocated with no consideration given to geographical location nor biodiversity or ecosystem functionality. It sounds absurd to acknowledge this even a few years later, and this was a salient arguing point for environmentalists in Osa who suggested that PES was just another way to funnel monies between the government and wealthy cronies.

This point-system change is in alignment with current conservation biology wisdom about biodiversity “hotspots” (Myers et al. 2000) and biological corridors (Arturo Sánchez-Azofeifa et al. 2003), spatially focusing our landscape conservation efforts on spaces which are determined to be more critical than others is absolutely essential. Actual land-cover change associated with this new point system focused on biological corridor conservation in Costa Rica and Osa is being assessed in emerging studies such as a forthcoming doctoral dissertation by a fellow friend and researcher in Osa (Hogan 2015).

- PES Participation :: Form of Land Acquisition

There is actually no significant difference in land acquisition between PES participants and non-participants. 45% (18/40) of non-PES participants acquired their land from some sort of market purchase, while 48% (19/40) of PES participants acquired their land from a market purchase. Moreover, 33% (13/40) of non-PES participants acquired their farms via precario (govmt. land grant from IDA) while nearly the exact same percentage, 35% (14/40), of PES participants garnered their land in this manner. This is a testament to two things. First, the most common method of PES is forest conservation, which does not necessitate formal land ownership, all but negating the variable of how one’s land was acquired. Second, squatters, or “precaristas” are very common in Osa and the logistical pathways for their application to and funding by payment for environmental services programs have been well-routinized over the past

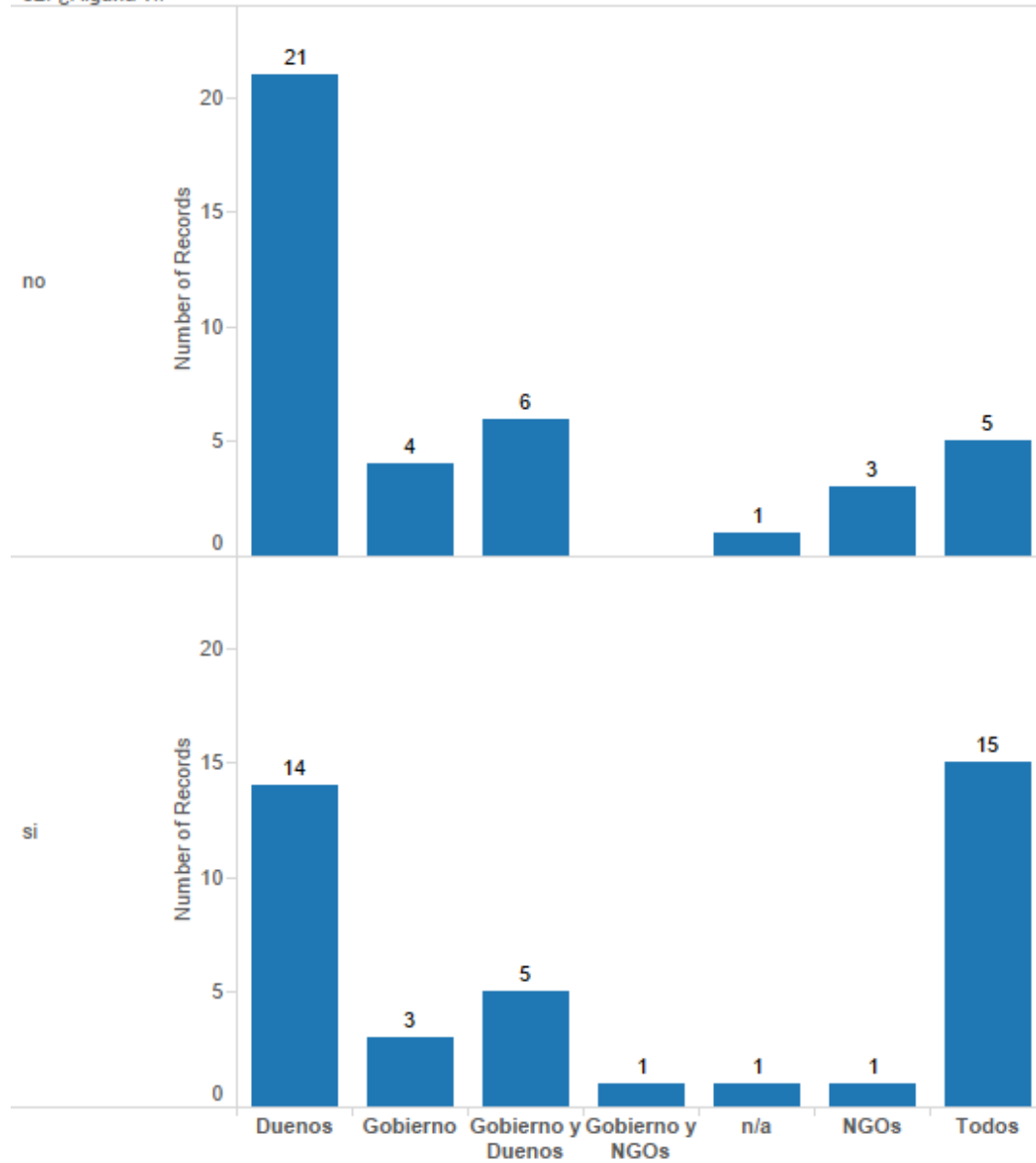
two decades. What this does not explain is the fact that those without formal title have a more expensive and time-consuming pathway to application to the PES program, and hence this should logically serve as a deterrent resulting in lower participation rates. Yet these statistics do not divulge that influence, so further investigation on this point is needed.

- PES Participation :: Who has the responsibility of protecting the environment?

## Sheet 1

32. ¿Alguna v..

67. ¿Quién tiene la responsabilidad de conservar el ambiente?



**Table 3.3:** Perceptions of responsibility for protecting the environment. “No” and “si” indicate PES participation. “Dueños”(owners), “Gobierno” (government), and “Todos” (everyone) were options given for who should be responsible for protecting the local environment

Respondents were asked “Who has the responsibility of protecting the environment?” and were given choices of 1) Property Owners, 2) Government, 3) NGOs, or 4) the Next Generation. For non-PES participants, 53% (21/40) answered “Property Owners”, as compared to 35% (14/40) for PES participants. This is logical given that non-PES participants are indeed managing their land ostensibly without help from the government in the form of PES or other payments. This self-sufficiency – specifically in terms of environmental stewardship – is a sentiment that campesinos conveyed often, in formal quantifiable ways and also in anecdotal ways. A large majority of campesinos interviewed expressed that they believe that it is their responsibility to care for their land, the trees, and the animals living therein. The government and environmental agencies such as MINAE are seen as bookkeepers, office workers, and tax collectors, but almost never are portrayed as having any significant knowledge of or personal connection to/responsibility for the country’s natural fecundity.

Therefore, in following, the responsibility naturally falls upon the campesino, and almost invariably, this responsibility is taken on proudly and without complaint or comment. This attitude is shared both by those who preserve the vast majority of forest on their land, and also often by those who have previously cleared most of their land for cattle ranching, for instance. In both cases, the landowners feel that the burden of “caring” for the land as well as the benefits from the land should both be borne by the landowner. Hunting is also still somewhat prevalent on the peninsula. Exactly 78% of PES participants and, interestingly, 78% of non-participants said that hunting still occurred in their area. Although illegal hunting, especially for commerce or with hunting dogs, is generally looked down upon, subsistence hunting (one or two animals per month) is generally less stigmatized. “El campesino que caza de vez en cuando para dar a comer a su familia no es el problema. Esto ha ocurrido por siglos. El problema son los que no viven aquí y vienen con camiones y perros cazadores y que matan veinte o treinta animales en una noche con la intención de venderlos.” (The campesino who

hunts from time to time to feed his family is not the problem. This has occurred for centuries. The problem is the ones who don't live here that come with trucks and hunting dogs who kill twenty or thirty animals in one night with the intention of selling them).

This complicit acceptance of subsistence hunting along with the conservationist messages shared by many cattle ranchers in the region points to the fact that the notion of "caring for" the land often blurs the line between conservation and what Gifford Pinchot would have called "wise use" on an individual scale. That is to say that the vast majority of Osa campesinos gladly accept the responsibility of stewarding their own land, but with widely varying notions of what that stewardship entails on the conservation spectrum.

Another point is that, as stated above, PES participants showed a much stronger tendency than non-participants to see land stewardship and environmental protection as a collaboration to be shared by multiple individual and institutional actors. For instance, although it was not listed as a response option, 38% of PES participants responded that "everyone" (todos) is responsible for caring for the environment. Every category listed, in other words, must work together to care for the environment, in the opinion of a large portion of PES participants. This is compared to only 13% (5/40) of non-PES participants. In order for someone to initially seek out and apply to the PES program, this entails a requisite amount of interest and openness to multi-lateral environmental stewardship regimes. This same openness seems to be being disclosed in the voluntary selection of "everyone" as a common answer by PES participants to this question of "Whose responsibility is it to care for the environment?"

In unstructured interview time, respondents got deeper into this question by commenting that NGOS had good scientific knowledge, but that the campesino has "applied" knowledge which is indispensable to the NGOs. The words of one female farm owner did well to sum up a very popular sentiment. "Conocemos la tierra. Vemos,



oímos, y sentimos lo que pasa todos los días aquí en el bosque, en tal manera que no puede ser medido por científico.” (We know the land. We see, hear, and feel what happens every day here in the forest, in such a way that cannot be measured by a scientist). There was also a common suggestion that MINAE – almost unilaterally synonymous for “the government” here in Osa – only understands the inside of their air-conditioned offices. “Concreto y aire acondicionado es todo que conocen ellos” (concrete and air conditioning is all that they know). Many campesinos believe that MINAE’s budget should be diminished greatly and the lion share of that money given directly to campesinos, who are, to many, the real guardaparques (park guards).

In essence, this is what the PES funds are accomplishing – putting money directly into the hands of landowners and land-users themselves for the purpose of conservation. In my final conclusions and recommendations I will delve into this point further, but suffice it to say here that I believe firmly that finding avenues through which to fund atomized conservation by rural campesinos – of their own land – would be very fruitful in terms of forest and biodiversity conservation. MINAE’s budget, however, is not where these funds should come from, in my opinion. MINAE is already operating on a shoestring budget and for that money it is asked to protect 600 square miles of some of the most precious and biodiverse forest on earth. Although MINAE has its faults and has proven to at times harass campesinos as much as help them, they are nonetheless an indispensable basic measure of environmental security and enforcement.

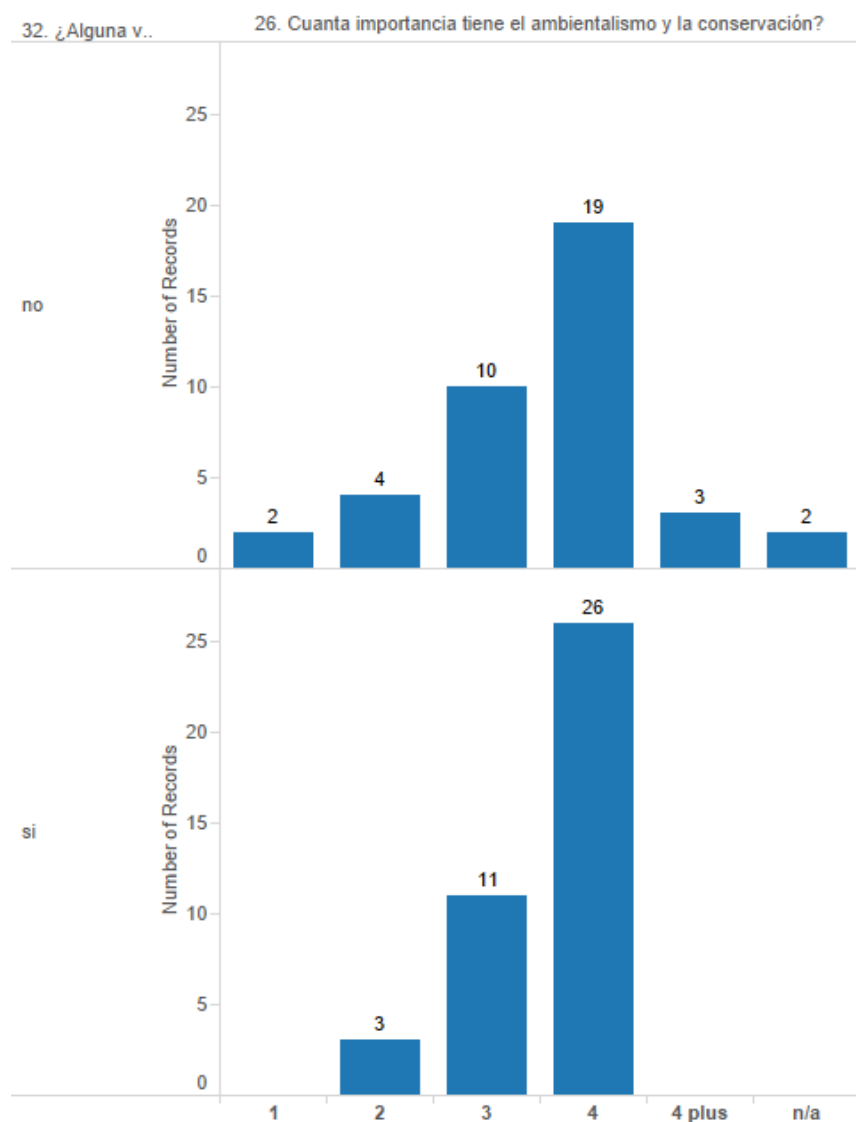
- PES Participation :: Hunting

Only 5% (2/40) PES participants admitted to occasionally hunting on their land, as compared to 20% (8/40) of non-PES landowners. However, exactly the same amount – 78% (31/40) – of campesinos said that hunting still occurred on their land, either “a little” or that it was “common.” Rebecca Torres, my doctoral committee member, suggested that I follow up “do you hunt?” with the question “is hunting common

here?” so as to remove the fear of admitting to wrongdoing. It was certainly very useful advice, seeing as the answers to whether hunting was common were exactly the same on PES vs non-PES lands, yet those who admitted to hunting themselves were much more scarce among those whose land was under a PES contract. Incidentally, higher numbers of respondents living within the forest reserve (81% or 34/42) answered that hunting happened “a little” or “commonly” in their area than for those living outside of the reserve (72% or 24/33). This may be explained by the fact that animal populations are likely higher inside the forest reserve and people living outside the reserve are more likely to live in denser urbanized settlements where hunting is less plausible.

- PES Participation :: How Much Importance Does Environmentalism and Conservation Have?

### PES x Importance of Environmentalism



**Table 3.4:** Perception of importance of environmentalism. “No” and “si” indicate PES participation. X-axis numbers represent a 1-4 scale of importance of environmentalism

65% (26/40) of PES participants chose a maximum “4” out of 4 in this category, as compared to 48% (19/40) of non-PES participants. Also, none in the PES category gave the lowest number of “1” while two non-PES responders did so. Therefore, PES participation is associated with a higher incidence of environmentalist sentiment than

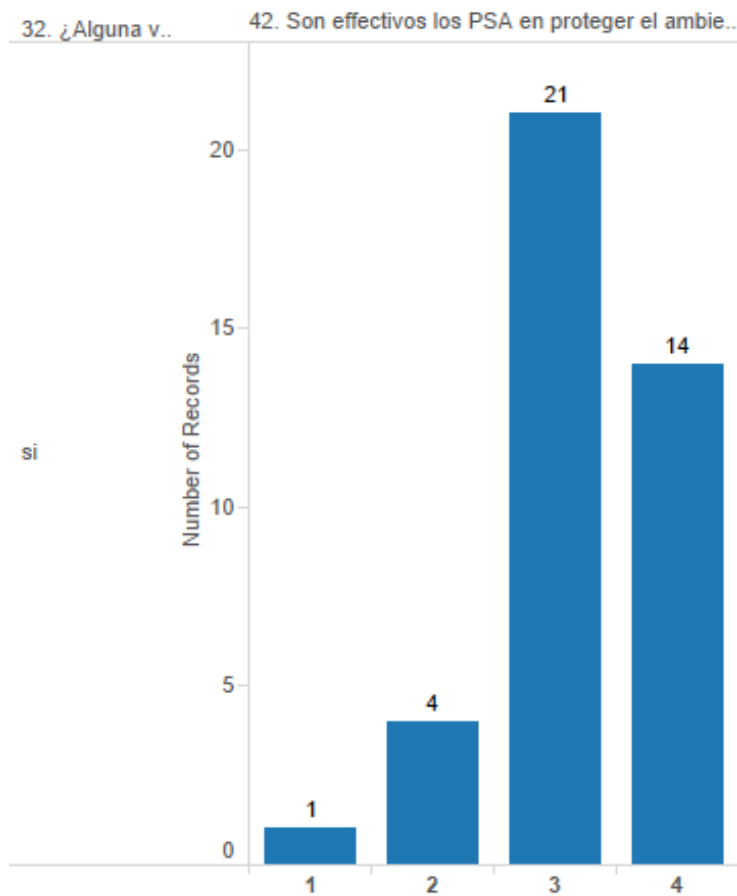
that found in the general population. This helps to dispel the idea that PES participants are simply “out for the money” in a unilateral sense. That said, vehement environmentalists did exist among non-participants. Three non-PES participants were so vociferously in favor of conservation and environmentalism that their response was recorded as “4 plus” out of 4. So overall, affinity and support of environmentalism among PES participants is more consistently high, while non-PES participants showed a much wider range of support (or lack of it) for this subject.

The fact that PES participants exhibit more environmentalist leanings (65% compared to 48% for non-participants) than the general population is encouraging on one level and it does support the notion that PES land owners can perform well as “guardaparques” (park guards) on their own land, especially if payments are increased. Yet the true long-term potential for PES as seen by this author is that, as payments rise in accordance with global carbon taxes and the corporate caché of contributing to such funds, more and more landowners will be attracted to the programs on a purely financial basis. In other words, when conservation equates to profit, then all manner of interested parties will emerge.

At that point, assuming that the newly initiated may not share the heightened environmentalist tendencies found in this 2014 Osa sample, outside monitoring of land use will become more critical. This will protect against “double dippers” who attempt to collect conservation funds then also cut and sell timber from their land. With increased monitoring, the expansion of PES to non-environmentalists is possible. And once conservation is decoupled from environmentalism – that is, once protecting the environment doesn’t depend on the good intentions of the on-the-ground actor – then acreages of protected forests may rapidly increase. After all, deforestation is primarily driven by financial or survival interests, not by people who simply enjoy cutting down forests or trees. So if it becomes financially more advantageous to protect trees than to cut them down, a sea change is possible.

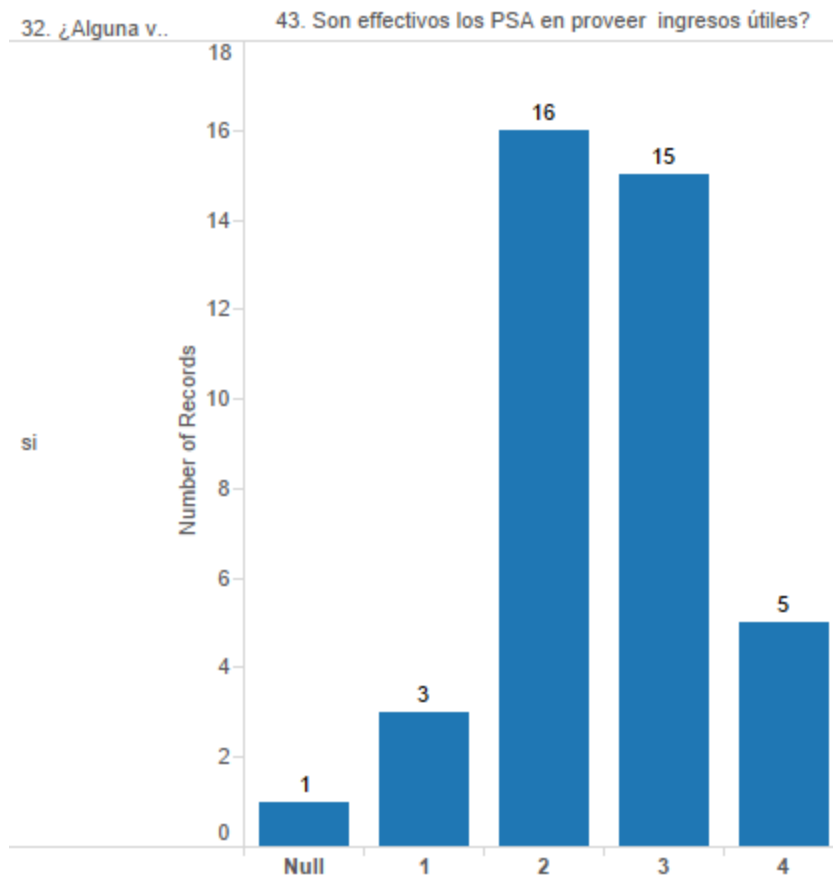
- PES participants :: Are PES Effective at Protecting the Environment?
- PES participants :: Are PES Effective at Providing Useful Income to Campesino Participants?

### PES x Effectiveness at protecting environment



**Table 3.5:** Perceptions of PES effectiveness at protecting the environment. “No” and “si” indicate PES participation. 1-4 on X axis is scale of effectiveness of PES at protecting the environment

### PES x Effectiveness at providing useful income



**Table 3.6:** Perceptions of PES effectiveness at providing useful income. “No” and “si” indicate PES participation. 1-4 on X axis is a scale of effectiveness of PES at providing useful income to campesinos

These two questions were only asked to PES participants, and a range of 1-4 was suggested for their responses. Participant responses averaged 3.2 for the first question (“1” got one response, “2” got four responses, “3” got the most at twenty-one responses, and “4” was answered fourteen times), and averaged 2.5 for the second question (“0” was answered one time, “1” was given three times, “2” got sixteen responses, “3” had fifteen responses, and “4” received five responses) meaning that program participants saw the program as more effective at protecting the environment

than at providing income. In fact, overwhelmingly the most common complaint about PES was “bajos pagos” (low payment amounts). And the amount given annually to farmers was quite commonly described as “una mierda” (a pittance/shit). But farmers are often put into a situation where they have fewer and fewer options for income amidst escalating environmental restrictions, so FONAFIFO’s PES program becomes one of the few reasonable, and legal, options available. “No me da bastante para vivir, pero es mejor que nada,” (It doesn’t give me enough to live, but it’s better than nothing) said one landowner near Drake Bay as we sat and discussed the payment for environmental services program in a café.

This is also precisely where I think the programs can be updated and improved. Increasing payment amounts will allow farmers – both land owners and long-time squatters – to survive and support a family on the PES payments alone. What this can do is slowly bring farm families back to the Osa, not to farm the land, but to protect it. The exodus out of Osa’s rural areas over the past few decades since the cessation of the government-sponsored staple-crop markets (CNP – Consejo Nacional de Producción) and the creation of the Golfo Dulce forest reserve has been sizeable. A plethora of abandoned primary schools dotting the landscape are evidence of this shift not only from rural to urban areas in the region, but from rural areas in Osa to other parts of the country. One resident of Miramar, in southeastern Osa, said that twenty years ago, he had forty neighbors in his small community. Now he has four. It is likely that this depopulation of Osa’s forests has made it easier for “outsiders” to interlope on weekend commercial hunting or logging escapades. The built-in “neighborhood watch” system so fundamental to safety and optimal functioning in close-knit rural communities around the world has systematically been dismantled in Osa.

On the surface, a depopulated forest sounds like an Enlightenment-era conservationist’s dream, somewhat akin to the conservation biology approach. Yet depopulated does not necessarily mean non-humanized, as full-time residents are often

replaced with these ill-intentioned weekend marauders out for precious woods and animals. Elevating PES payment amounts, but only to live-in owners, could help to bring about the gradual repopulation of Osa's mountainous, forested interior and put in place a very well connected web of "guardaparques" who have unmatched knowledge of the land and its floral and faunal inhabitants. One caveat is that the deep-seated beliefs in Osa about human/environment interaction – generally the mid-century notions that the forested land only serves humanity when it is cleared and productive – need to continue to be brought into alignment with more sustainable and holistic human/environment perspectives that "scale-up" and contextualize local actions into the global setting of social and natural-world ramifications. Having forests managed and protected by live-in guardaparques who possess environmentalist tendencies as informed by exposure to political ecological frameworks holds great potential to ameliorate many current problems with legal and illegal deforestation in Osa – and for that matter, around the world.

- PES participants :: Personal Benefits of PES Participation

In following with the idea of the importance of raising the PES payment amounts, the most common personal benefit mentioned as a result of PES participation was money. Eighteen respondents mentioned money, eleven mentioned that it gave them more time with family, seven mentioned joy of improving the environment, while six said that it gave them the free time to seek other employment. Other payment for environmental services research in Costa Rica (Ortiz 2004) found that improved family relations and more time with family was a significant personal benefit for PES participation. This jibes with the findings of this present research, yet income maintained the paramount position in participants' minds. One particularly well-educated and well-spoken interviewee suggested that if payments for reforestation (\$64/ha/yr) were approximately doubled, then no other economic activity could



compete. A cattle rancher himself, this glib informant suggested that neither farming nor cattle ranching nor selling milk and cheese can produce more than \$130 per hectare per year. So if PES payments hit that price point, all incentive to participate in these land-clearing practices would all but vanish.

The beautiful economic wrinkle in this forest-saving financial bottom line is that forested land is vastly less valuable than most urban land. Rent is very low, incomes are very low, and hence in order to trump one's current form of income the per-hectare offering is relatively low. A one-city-block-sized space, perhaps equivalent to two hectares, in the San Jose metropolitan area could easily produce – via property taxes or individual business incomes – thousands of dollars per year in a very conservative estimate. These spaces provide housing, employment, income, and activity space for perhaps hundreds of people. Offering an alternative use for that urban space that is more attractive and advantageous to its dwellers could be quite challenging and expensive. Yet remote tropical rainforest in the Osa is obviously less intensively used than an urban area of such description, and, according to my interviewee, a meager offering of \$130/ha/year could completely change the land-use trajectory of that space ad infinitum.

- PES participants :: Environmental Benefits of PES

Of forty total respondents on the question of “What are the main environmental benefits of your PES participation?”, twenty-two said “more animals”, seventeen said “more forest” or “healthier forest”, ten responded that there was a change in rain patterns (eight said more rain, two said less rain – a nod to increased forest increasing the seeding of clouds), while eight said that there were essentially no changes to the environment since initiation of the PES program. This final group of respondents tended to live on land that had not been touched in years or even decades prior to PES participation, such that no significant environmental benefit was expected or observed.

This recalls that in previous studies such as Sierra and Russman (2006), PES was shown to be often implemented on lands which would have been left to reforest whether or not funds were acquired for forest protection.

Certainly, these environmental benefits are only anecdotal and based on human naked-eye observations. The most current remote sensing assessment of land-cover change related to PES in Osa is a forthcoming dissertation by Sean Hogan at University of California, Davis (2015). The focus of this dissertation herein was not to assess or measure land-cover change or “additionality” (Engel, Pagiola, and Wunder 2008; Sierra and Russman 2006) provided by PES but instead to understand who participates, why they participate, does gender play a role in the program, and what are the main problems and socio-economic benefits of the system as it stands now. Yet I did want to include at least the perceived environmental benefits of the program as garnered from the interview format. What this approach does offer, which remote sensing cannot, is tallies of animal-population change and qualitative assessments of the forest such as “healthier forest.” Also, landowners reported how many hectares of their forest were primary and how many were secondary, often accompanied by a “ground check” guided tour. Remote sensing is certainly an invaluable tool for countless industries and investigative trajectories, yet my interview data here can help to supplement its well-decried deficiencies such as inability to distinguish effectively between primary and secondary forest, difficulty or reticence in aggregating data at the household level (Rindfuss et al. 2004), and inability to observe or count fauna. Zhang (2007) and Ninan and Inoue (2013), for instance, coming from the Land Change Science tradition, call for more in-depth, site-specific PES studies. Ostensibly, more ethnographic inquiry and anecdotal information can do well to compliment the highly technical and often spatially expansive remote sensing studies.

## **Chapter 4: Land Tenure**

“El campesino es biólogo sin título” (Rural farmers are biologists, just without college degrees)

- 65 year-old landowning woman near Cañaza, Osa Peninsula

Land tenure on Costa Rica’s Osa Peninsula is complicated, murky, and the paramount land-use issue in the region. Clear land ownership rubrics are crucial because without them, land users have challenges in acquiring bank credit, have difficulty selling their property on the open market, and tend to make land-use decisions from a short-term mindset (Feder and Noronha 1987). Moreover, unclear land tenure in a region translates to lower land-tax revenues, which is unsavory to neoliberal lending institutions and governments.

There are several individual factors which contribute to this complicated land-ownership situation in Osa which has temporal, spatial, and land-use-related components. First, the establishment of Corcovado national park in 1975, which relocated over eighty families, is described by many as illegal and unbinding and by others as an important coup for conservationists. Second, the steady and significant evolution of the organization known first as ITCO (Instituto de Tierras y Colonización) then IDA (Instituto de Desarrollo Agrario) and presently as INDER (Instituto de Desarrollo Rural) has played the most significant role in both granting and restricting formal titles to properties on the peninsula over the past four decades.

Third, the landmark 1996 Ley Forestal 7575 is the single most important piece of national-level legislation in terms of its effect on the people and land-use of the Osa peninsula. Land tenure and land use in the region could easily all be categorized as “Pre-Law 7575” and “Post-Law 7575.” Fourth, this chapter will look at the process of attaining formal property title in the region and how the complexity and expense of this process affects land ownership and income as well as PES participation. Fifth, the

repurposing of formerly cleared lands – principally comprised of potreros (cattle pastures) – for plantations of “palma Africana de aceite” (African oil palm) or non-native tree plantations simultaneously raises the ire and the incomes of countless locals. Water-use and water-rights issues will also be touched upon here. And lastly, analysis of land-tenure-related interview statistics will help to clear up the local perspective and experience with this tenuous issue.

First let the issue of the establishment of Corcovado national park be presented. To Ticos and non-natives alike, Corcovado national park is widely regarded as the jewel of the Costa Rican park system in terms of total biodiversity and sheer extent of primal tropical wilderness. For instance, thirteen unique ecosystems exist within park boundaries and provide habitat for 375 bird species, 124 mammal species, and 71 reptile species, while trees tower above 75 meters in height (Vaughan, C. 1981; Gilbert and Christen 2015) Most of the 41,537 hectare (161 sq. mi.) park exists within the Corcovado basin in the southwest portion of the peninsula, while the entire park covers approximately 40% of the peninsula itself.

In order to fully understand the land-tenure undergirdings of the park’s establishment, one must trace back to the United Fruit Company’s plans to create banana plantations in Osa in the 1930s. The company was sold massive sections of “tierras baldíos” (wastelands, which were actually primary forests) in and around Osa by the national government – a form of income for the Costa Rican state that constituted a financial M.O. for many decades (Hall, C. 1985). Yet after extensive soil and terrain analyses, the soils of Osa – a combination of regasoils, hydromorphic, and alluvial soil types – were determined to be of unsuitable mineral content, structure, and accessibility for banana cultivation (Vaughan, C. 1981). In addition, it was predicted that irrigation would be necessary during the dry season (December – April) and drainage during the wet season (May - November). United Fruit’s giant land tracts were therefore simply deeded to one of its retiring senior employees, and his family later sold the land

to a conglomerate of buyers from the U.S. who held the territory under the name Osa Productos Forestales, Sociedad Anónima (Christen, C. 1994). This management entity, now popularly known as Osa Forestal, was essentially an early form of an LLC. Notably, approximately half of lands currently under payment for environmental services in the country are held by anonymous LLCs, according to FONAFIFO's director of PES (Oscar Sanchez 2013).

Because this land owned by Osa Forestal was originally categorized as "wastelands," its owners were fully authorized and even encouraged to clear and develop it. Yet by the year 1963 when Osa Forestal was beginning to develop plans for rotating logging and reforestation as well as gold mining in the area, there were already over 150 squatter homesteads within the boundaries of the lands that the company owned (Vaughan, C. 1981; Christen, C. 1994; Gilbert and Christen 2015). This created a fundamental problem of conflicting land-tenure qualifications on these lands. Rural regions have a tradition of basing land ownership on time spent on the land and improvements made to it. Therefore, when Osa Forestal bought 16,000 hectares of the peninsula (ownership based on modern, institutional rubrics), there were already between 500 and 1,100 people living on it, improving it, and claiming it as their own (traditional ownership rubric)(*La República* 1973; C. Vaughan 2012).

Hence, conflicts ensued between Osa Forestal and local squatters. Osa Forestal managers, namely Yale Forestry graduate Alvin Wright, used both personal and legal tactics in attempts to push squatter farmers off of their land. Osa Forestal was known to throw farmers in jail, spray their homes with automatic rifles, and even burn and bulldoze campesino homes. Legally, they conducted censuses to help identify this "undesirable" population, tried to get farmers to sign dubious rental contracts, and even sued many of them (Christen, C. 1994). In an interview with Miguel Herra Miranda of INDER (formerly ITCO), it became apparent that farmers finally started fighting back against Wright, and armed conflicts in the early 1970s were the result. The response by

the Costa Rican government was to pass the Ley de Tierras y Colonización of 14 October 1961 which established the Instituto de Tierras y Colonización (ITCO) aimed at helping campesinos acquire full legal ownership of their lands (Miguel Herra Miranda 2014).

Another interesting note is that the process of promoting the park did not involve the rallying of local grassroots support from Osa inhabitants. Instead, it focused on the circulation of a brochure called “Cuenca del Corcovado” (Corcovado basin) which touted the biological accolades of the micro-region. This strategy centered on pulling in support from high-level and powerful entities, but it did not “scale down” to reach out to and gather opinions of locals. One proposal circulated in 1973 touted the “very low human population” of the Corcovado basin as a way to further diminish any perceived importance of the opinions or even the existence of locals (Christen, C. 1994, 290).

The cumulative ramifications of this harassment and exclusion of Osa locals still reverberate in the region today. Specifically, they have transmuted into a palpable and inculcated mistrust of “norteamericanos” (north Americans) who are interested in information about land holding, land tenure, and certainly land purchase on the Osa peninsula. “Hemos estado engañados” (we have been deceived in the past), was a statement made by multiple campesinos whom I encountered. Other shady land deals have only reinforced this circumspection. According to a 1994 doctoral dissertation about Osa history, President Figueres established strong financial ties to a north American company called Vesco which laundered money in Costa Rica by purchasing land and other assets (Christen, C. 1994). During my research in the region, it was very curious to witness the comingling of this learned mistrust of norteamericanos with the natural openness and incredible inclination to be hospitable to visitors in Osa. I alternately had to battle against, and benefitted greatly from, these two local attitudes.

One local man, Ricardo Madrigal, with whom I spoke several times at length, is writing an 800-page graduate thesis (University of Costa Rica) entitled “Osa Forestal:

Verguenza Nacional” (Osa Forestal: National Shame) in which he depicts this on-the-ground perception of the establishment of Corcovado as both illegal and unacceptable to locals. The land-related conflicts between Osa Forestal and local “precaristas” (squatters) are at the heart of the land-tenure confusion and conflict that remains to this day in the area

During the 1960s, ITCO and Osa Forestal underwent years of tense negotiations and failed plans for resolving the area’s land-tenure issues. Osa Forestal manager, Alvin Wright, wanted a quantitative assessment of the region’s forest and logging potential, so he hired Leslie Holdridge and Joseph Tosi, founders of Tropical Science Center in San José, to establish a research site in Osa (Rincón) to this end (Gilbert and Christen 2015). This station developed into a very prolific research site in terms of biological publications and international notoriety. Wright’s original intentions backfired as Tosi was the first to suggest that a national park be established on the peninsula. This idea eventually caught fire with key administrators of the national park service, Mario Boza and Alvaro Ugalde, and a strong push for the park was initiated (Gilbert and Christen 2015). Responding to pressure to sell their land on the basis of years of unpaid taxes, Osa Forestal eventually agreed to a giant land swap which ceded the entire territory which would become Corcovado park. In 1975, the park was officially created by presidential decree of President Daniel Oduber.

Alvin Wright’s multi-lateral and ambivalent interest in the natural environment of Osa serves as a fairly good encapsulation of the dichotomy found within the neoliberal approach to conservation and nature. Perhaps the central tenet of this approach is the empirical, positivist measurement and recording of natural entities such as total floral and faunal species, total hectares of primary and secondary forest, soil typologies, etc. This groundwork greatly facilitates both conservation or exploitation of these natural entities. The confluence and concatenation of myriad other elements unique to each specific local setting determine which path – either conservationist or

exploitive – will be taken. In the case of Osa, a strong scientific research presence ultimately resulted in a shift in the area which was overwhelmingly focused on conservation. Yet Costa Rica's other Pacific-coast peninsula to the north, Guanacaste, teetered in the other direction and its barren landscape is now a cautionary tale for unbridled tourism and over-exploitation of resources.

This scientific leaning is still very prevalent today, as biologist Larry Gilbert of the University of Texas, Austin, has maintained a research station within Corcovado national park since the 1990s, while the British research organization known as "Frontiers" has a major research facility in the town of Piró perhaps 10 kilometers from Corcovado, which is regularly staffed by up to 25 researchers and international volunteers. Moreover, plans to sustainably develop Osa by prominent private development organization RBA (Reinventing Business for All) include attempts to sustain the region as primarily a scientific research zone. My interviews with RBA representatives elucidated that they were very aware of the research-intensive beginnings of the peninsula and were keen on presenting that as one potential development trajectory.

Another factor in the questionable nature of the establishment of Corcovado national park was the fact that the park's residents were essentially squatters and hence had no proof of ownership. This was "remedied" via providing approximately U.S. \$1,000,000 in cash to squatters for "improvements" that were made to any possessed lands (C. Vaughan 2012), as well as the granting of twenty-hectare plots to every relocated family in the eastern coastal plains of the peninsula. It proved problematic that 20 hectares was the standard plot size granted, regardless of the size of the family's former holdings within Corcovado.

In the tiny modern settlement of Los Angeles de Drake in northwest Osa, I came upon a one-room dilapidated shack at the crest of a hill which contained a man in his eighties named Juan. He told me that he had owned approximately 200 hectares within Corcovado but was kicked out and given only twenty hectares near the town of Balsa.



Later a large landowner in Balsa claimed that he was on his land and that the government of Costa Rica had never fully paid him for the land and it was not theirs to give. After resisting this interloper, Juan was jailed and eventually removed from the land. Now, forty years later he is indolent and living in a remote shack without electricity or running water. According to my extensive interviews in Osa's eastern coastal plains, perhaps half of the "deslojados" (displaced) former residents of Corcovado had their government-granted 20-hectare plots questioned and/or eventually retracted from their ownership.

#### ITCO/IDA/INDER

Throughout the squatter battles with Osa Forestal, the two institutions that were on the side of the campesinos were PASO (Socialist Action Party) and ITCO (Institución de Tierras y Colonización). The latter played a much larger role and continues to today. ITCO, following a very agenda as other Western governmental internal development agencies, aggressively pushed for the settlement and development/cultivation of what is called in various Western-hemisphere settings "the interior," "the wilderness," or "unbroken land," all of which were widely perceived of as useless until developed. ITCO encouraged campesinos to migrate into the area and begin making "mejoramientos" (improvements) to the land. These "mejoramientos," of course, almost always began with clearing of the forest, followed by land cultivation or cattle ranch establishment. According to Miguel Herra Miranda, long-time ITCO/IDA/INDER employee, in 1980 ITCO began granting formal ownership of these improved lands to squatters. Around the same time the agency's name changed to IDA (Instituto de Desarrollo Agrario). As long as squatters could prove that they had resided on that land for a minimum number of years (usually 10), and that visible improvements/development to the land had been implemented, then IDA would grant them formal title to the land. IDA was also involved

in the demarcation of the “cantones” or territories of Osa, Golfito, and Corredores in Costa Rica’s southwest.

As with many aspects of life in Osa, IDA’s main thrust changed notably with the 1996 passing of Forestry Law 7575. The principal philosophical shift was that the forests of the country were now considered intrinsically valuable, rather than just valuable in a so-called instrumental or practical sense, such that their colonization and clearing immediately ceased to be a goal. Under the new law, any forests which were not formally and privately owned were now to be considered “patrimonio del estado” (assets of the state). The three-word phrase is on the tips of the tongues of many campesinos and it has come to represent the looming state spector which they believe is trying to make the entire peninsula into “patrimonio del estado.” Evincing their point is the fact that Corcovado national park together with Golfo Dulce forest reserve – inside both of which hunting, logging, and commercial mining and fishing are all outlawed, even on one’s own land – now cover about 80% of the peninsula.

The way in which this Forestry Law 7575 affected land tenure is that it essentially immediately halted IDA’s granting of formal titles to squatters in Osa and elsewhere. Because this process had previously been taking place in a spatially frontal pattern, there now exist sections of the peninsula where nearly all squatters are still without formal title, and others where nearly all have formal title. The dividing line between these two groups is most often very clear and stark, for instance a river or a line of latitude, yet rarely consistent. Campesinos often speak of “the line” where IDA stopped granting “escritura” (formal title), which refers to this literal physical line, or front, behind which they granted titles and beyond which they had not. This random twist of fate proved to be a strong determining factor in the future of these farms and families that were affected, for obvious reasons. Nearly always, those farms which had been granted formal title by IDA were more prosperous now than those which had not been so. This is due to the fact that land owners can participate in reforestation which is the

highest paid category of PES, they can sell wood from their property commercially (though it has to be wood that fell naturally, not cut wood), and they can of course sell portions or all of their land for monetary benefit. In addition formal ownership makes attaining credit and loans more likely. These are just a few of the obvious benefits to formally owning one's land. "Sin escritura, uno no tiene nada," (without land title, you have nothing) proclaimed a farmer near Drake Bay who still has not been granted title from IDA. One of the IDA/INDER reps with whom I spoke stated that the increased presence of the regional "controlaria" (controller) ensured that INDER all but ceased its formal-title-granting practices after 1996. Not surprisingly, the apparently random nature of IDA's land-tenure dealings with "precaristas" (squatters) is a salient, and perhaps the paramount, complaint among campesinos in Osa.

Following the evolution of ITCO/IDA/INDER, in 2012 the Law of Rural Development changed IDA's name to INDER (Instituto de Desarrollo Rural) and also changed its mission and methods. Having begun as an agency to promote colonization and development of lands, the law of 2012 cemented its full transition to a social development agency. Since that point, the agency's foci have been the furthering of education, health care, and infrastructure in rural areas. This marks the point at which their modus operandi has almost completely decoupled from natural resource and land-related endeavors. The mission statement on the wall of the INDER headquarters in Rincón now states that the organization's focus is to "improve the living conditions of the population...as managers of social, economic, environmental, and cultural development" (translated from Spanish). This social focus is exhibited even more in their "Vision" statement, centered on "the construction of an active citizenry, attached to the principles of solidarity, respect, and compromise" (translated from Spanish). Besides the general social development already mentioned, INDER's goal focuses specifically on increasing incomes for low-income campesinos. They aim at achieving this by promoting agricultural markets for existing farms to sell their products, pushing

MINAE to allow naturally fallen trees to always and immediately be sellable by the owners (or squatters) on the land, and also helping to promote rural tourism such as participatory farm stays and horseback tours of private farms.

#### LEY FORESTAL 7575 of 1996

It is commonly, and correctly, assumed that the neoliberal influence brought an increased push for formal land titling to many developing regions in the later decades of the twentieth century. What is incorrect about this assumption is that this was a new phenomenon. Eric Wolff (1982) showed that as long ago as the late eighteenth century, the British were rapidly enforcing formal titling of land in India in order to increase income from property taxes. What is also incorrect is the notion that somehow this neoliberal impingement on 20<sup>th</sup>-century land-tenure contexts was implemented in a unilateral or consistent way (Ferguson 2010). In Costa Rica, for instance, the strong top-down state presence was only very briefly suppressed by a neoliberal ideology in the country, but re-emerged in many ways, one of which being Forestry Law 7575. Rather than individually parceling and privately titling lands, this law was centered on the setting aside of giant tracts of land for preservation (ostensibly non-productive uses in a traditional sense), and even established a de-facto resistance to granting further formal land titles (in Osa's squatter community especially) as imposed by the state controller as a means, purportedly, for the state to control more of its valuable forests.

This law as originally written contained seventy-five articles which were distributed among six "titles" or sections, each of which containing several chapters. The salient achievements of the law include the creation of FONAFIFO (national forest finance fund), outlining of system of incentives for environmental management and conservation, the procurement of one-third of the national fuel tax (later diminished to a much smaller percentage) for the funding of FONAFIFO programs, and the

proclamation of the ability of the state to claim swaths of public and private forest as its own property/assets. The following is a more specific delineation of the details above:

#### Forestry Law 7575

##### Article 1:

“The presented law establishes as an essential and priority function of the state to care for the conservation, protection and administration of the natural forests and the production, exploitation, industrialization and promotion of the country’s forest resources destined for this purpose, according to the principle of appropriate and sustainable use of renewable natural resources” (translated from Spanish).

This one sentence encapsulates the ideological “changing of the guard” in Costa Rica at the time in terms of how it viewed and expected to interact with its natural resources and wilderness. Only two decades before this law’s enactment, Costa Rica was experiencing among the highest deforestation rates on earth, yet by the mid-90s was promoting a new and decidedly conservationist stance. Evincing this turbulent recent few decades, the first sentence of Article 1 of the law is very ambivalent as it calls for the state to take on as a priority the care, conservation and preservation of forests, yet also the expediter of the exploitation and industrialization of those same forests. This calls to mind the double-speak rhetoric of Gifford Pinchot as the U.S. first head of the U.S. forest service who famously called not exclusively for forest conservation, but instead for its “wise use.” The resultant Wise-Use movement burgeoned as essentially a reaction to the growing environmentalist ethos spawned largely by Marsh and Thoreau decades earlier. The Wise-Use movement focused on natural resource management for the benefit of human beings. I loathe the admission as a self-proclaimed political ecologist, but PE also has been accused of this ultimate bottom-line focus on human beings, as compared, for instance, to PE’s sister discipline, Land Change Science, which centers more on changes in biotic and abiotic elements of an ecosystem.

#### Article 2:

This article establishes legal precedent for the state of Costa Rica to expropriate any lands, private or otherwise, under any current land-use regime, for conversion to a state-owned protected area.

#### Article 3:

Definitions are given for forests, tree plantations, agro-forestry systems, and environmental services. The definition of the latter was broken into four categories: carbon sequestration, protection of hydrological resources, conservation of biodiversity, and preservation of scenic beauty. While the definition of forests was outlined thusly: “Native ecosystem (intervened or not) covering more than two hectares, comprised of mature trees of different ages and species, with 70% of the area covered in canopy, and where there are more than seventy trees per hectare with a diameter at chest height of at least fifteen centimeters” (translated from Spanish). As stated above, the letter of this law is on the minds and tongues of locals every day.

Campesinos are summarily cognizant, in particular, of the fifteen-centimeter guideline for the definition of trees constituting forests. This is because cleared lands which belong to farmers that are allowed to regenerate are, after the trees therein reach fifteen centimeters in diameter, declared to be “patrimonio del estado” and effectively usurped from the private landowner by the national government. It is often rumored that campesinos who are well aware of this law will allow regenerating trees to reach 10-12 centimeter diameters and then fell the entire section and attempt to sell the wood illegally, rather than allow the section of forest to transfer to being owned by the state. The compulsion to do this is particularly strong for non-landowning squatters because, without formal title, squatters are unable to participate in and be paid for the “reforestation” category of P.E.S., which pays the highest annual sum of \$197/hectare

for non-native species and \$297/hectare for native species. Therefore, any regeneration of forest on the land of a non-formally titled squatter will inevitably (in theory) revert to being owned by the state unless subversive action is taken.

Article 13:

This article delineates which types of forested land shall become “patrimonio del estado” (heritage/assets of the state) and henceforth be owned by the central government of Costa Rica.

Article 37:

This article set forth that MINAE would be in charge of, and have the authority to, enforce the protection of these newly defined national forest areas. Effectively turning the Osa into one giant guarded reserve, this barely two-decade old article dramatically changed the daily life of campesinos on the peninsula.

Article 46:

Creates FONAFIFO and conveys its goals and missions as a government agency.

Article 69:

Officially purposes one-third of the monies taken in from the “impuesto nacional de combustibles” (national fuel tax) to pay for the environmental service incentives and payments. Still today, this fuel tax provides the lionshare of funding for the country’s PES program, with a few European banks and state-owned Costa Rican hydroelectric power plants also being significant contributors.

## NON-PES LAND-TENURE ISSUES IN OSA:

### Oil Palm

African oil palm is among the most rapidly expanding plantation crops on earth, particularly in insular southeast Asia, central Africa, and Latin America. In the process, it has become one of the most significant drivers of deforestation globally, namely in Indonesia. Oil palm has also gained a quick foothold in Costa Rica in the past decade and is quickly gobbling up ever-more territory. One critical difference is that, according to the letter of the law in Costa Rica, oil palm – and any other agricultural plantation for that matter – can only be established on land which had already been formerly cleared. Due to the significant decline of cattle ranching in Costa Rica in the late 80s and early 90s as a result of structural adjustment ranching subsidy reductions, much vacant cattle pasture, or “potrero,” now sits idle. This land has become very attractive to both commercial-scale oil palm as well as smallholder oil palm cultivation. Abandoned agricultural land, also as an indirect result of structural adjustment austerity measures (ceasing seed subsidies and government-run rural food markets), is fair game for the oil palm industry. The fact that forest cannot be felled in order to plant oil palm is hugely significant, and it removes the number-one gripe against planting large tracts of this exogenous floral species. Still, several specific issues make oil palm a highly contentious and certainly much-discussed issue on the Osa peninsula.

- Finances

First, oil palm brings home the bacon. It is, without question, the largest source of income on the peninsula per-hectare. The plant produces roughly 10 tons of oil fruit per hectare per year, while local refineries currently pay 70,000 colones (U.S. \$140) per ton. Ranchers and farmers claim that this total of \$1,400/ha/yr for oil palm is approximately 10-times what one can earn from food crops or livestock, based on the fact that animal husbandry or food crop cultivation rarely produces more than U.S.



\$100/ha/yr. Even less, the most common category of payment for environmental services, forest protection, pays only \$64/ha/yr. Hence the financial draw of oil palm both in Costa Rica and worldwide.

When asked to rank the five principal sources of income in the region (oil palm, rice, PES, tourism, and smallholder agriculture) from first to last, interviewees chose oil palm first in thirty-four out of eighty cases. Yet when asked to rank these same activities in their benefit to the environment, respondents only ranked oil palm first in fifteen of eighty cases, and in fact, twenty-four of eighty respondents ranked oil palm last environmentally.



**Figure 4.1:** African palm oil plantation in Osa

- Year-round cash flow

African oil palm trees produce fruit year-round, each tree yielding from 9-12 rugby-ball-sized fruit pods annually. This allows for bi-monthly harvests (employing manual laborers), bi-monthly shipments to the refinery (providing supplemental income

for many truck drivers in the region), and bi-monthly paychecks for the plantation owner. “Es mejor que la cocaína” (its better than cocaine) as a source of income, exclaimed one truck driver at a roadside restaurant, “porque el dinero nunca deja de echar, y a fin de cuentas, ni siquiera estás haciendo algo ilegal” (because the money never stops flowing, and at the end of the day, you’re not even doing anything illegal).



**Figure 4.2:** An oil palm harvester standing by 4 to 6 tons of the product, valued at U.S.\$560 to \$840.

- Monopoly and Dubious Spread Effects, yet still Benefits for the Smallholder

Most African oil palm cultivation in Costa Rica is owned and run by a company called Palma Tica. In Osa, there are numerous small producers of the fruit, including 11 of 80 farmers interviewed in this study. However, the vast majority of the total acreage of palm oil on the peninsula is owned and operated by Palma Tica. This is significant because structurally it follows the colonial dependency model whereby a foreign entity (San José-headquartered Palma Tica) extracts value from the poorer region (rural Osa in this case), in the form of labor and the oil itself, then siphons this profit to other

geographical areas of the country or the world, leaving the producing region destitute and also stripped of natural resources. Recent Latin American history is, of course, replete with stories recounting this exact scenario. Northeast Brazil (sugar, cattle), Bolivia (silver, tin), and Haiti (sugar) are particularly poignant examples of locations which produced great wealth for their overlords yet now are observably mired in poverty.

Moreover, the establishment of a sizeable oil palm plantation necessitates a significant capital investment, as well as the ability to wait for a return on that investment until the first harvest (two years after initial planting), making it more attractive to those who are already somewhat financially secure. That said, due to the relatively non-technology-dependent harvesting method (cutting or jostling pods with a long pole or bladed pole), production of this crop can be scaled down to very small acreages and still provide meaningful margins of profit. Therefore, it is not uncommon to encounter privately owned plots of oil palm that are between one and five hectares in size.



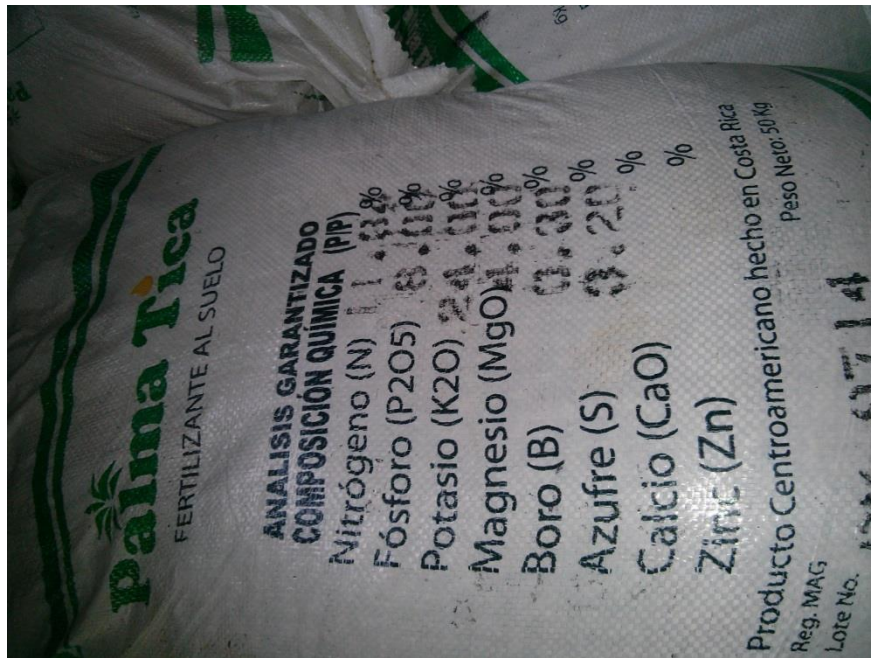
**Figure 4.3:** The nearest palm oil refinery to Osa on the mainland

- Ambiguous Environmental Benefits

The environmental benefits and drawbacks of African oil palm are not widely understood in Osa. Opinions tend to be polarized on the subject, with more geographically and discursively isolated individuals showing somewhat of a tendency to tout the plant's environmental benefits, which are almost exclusively that it sequesters carbon/produces oxygen and that it feeds local wildlife. It was very common to hear that locals have observed local monkeys, birds and other animals eating the oil palm fruit. The other side of the argument generally centered on the fact that the trees required varying amounts of pesticide application as well as fairly consistently large amounts of petro-chemical fertilizers applied at least monthly.

One Nicaraguan-born oil palm farm owner named Reyes showed me the approximately seventy 50lb bags of chemical fertilizer which he told me that he would apply to his 30-hectare plantation within the next two weeks. At 3,500 pounds of fertilizer total, this equates to over 100 pounds of fertilizer per hectare per two-week period, or over 200 pounds/ha/month of applied chemical fertilizer. I also spoke with a man who was employed by Palma Tica as a pesticide applicator, however it was difficult to garner specific volumes and amounts of pesticide applied. The most common method of pesticide application in this region as well as in the third world in general is for an individual to spray the chemicals through a wand which is attached to an approximately 10-gallon tank on his back. Generally liquid pesticide is cut with water (in industrial-world applications as well) and then sprayed where deemed necessary.





**Figure 4.4:** A bag of fertilizer in Reyes' barn

Palma Tica has a conspicuous environmental propaganda agenda, which enlists a few vectors for its dissemination. Its numerous employees on the peninsula were certainly exposed to concepts that the company wished to project. Also, signs were posted on the outer limits of their oil palm plantations which abutted roadsides and donned slogans such as (as translated from Spanish) “The earth isn’t inherited from our parents, but borrowed from our children” and “Habitat of high conservation value for threatened species.” (see photo below)



**Figure 4.5:** Palma Tica billboard in Osa

According to the Roundtable on Sustainable Palm Oil (RSPO) which is the most prominent such organization in the world, Palma Tica did not apply for membership until 2014, yet they plan to be fully compliant by 2015, with even subcontracted smallholders coming into compliance by 2017. Measures aimed at achieving compliance include training and awareness programs, (proper) fertilization programs, and “technical support” (RSPO 2014). Pointing to the egalitarian distribution of palm oil cultivation, currently Palma Tica has 21,466 hectares cultivated in 33 oil palm plantations in the contiguous cantons of Osa, Corredores, and Golfito, yet it boasts another 25,228 hectares subcontracted out to smallholders in the same territorial zone (RSPO 2014). In total this is an area slightly larger than Corcovado national park.

Overall, the presence of African oil palm in Osa does bring measurable carbon sequestration as well as significant income to the area, while ostensibly not deforesting at all. Smallholders who own their own plantation do tend to financially benefit vastly more than employees of Palma Rica. Also empirically true is that regular pesticide and

petrochemical fertilizer applications are relatively standard, though some smallholders commented that they did not use pesticides. Anecdotally there was also copious evidence that a range of local wildlife is fed by the palm fruit, which is notable, yet considering the heavy chemical applications mentioned above, the benefits of this feeding source become mixed. I myself tasted the fruit and it is remarkably similar to the taste of pumpkin, only more fibrous and more oily.

- Sub-contracted Palma plantations

As mentioned above, Palma Tica also manages palm oil plantations on land which it does not own in a sub-contracting arrangement with landowners on plots of a wide range of sizes. These subcontracts actually make up over 50% of Palma Tica landholdings in the three southern cantons (counties) of Costa Rica, including Osa, Corredores and Golfito. Land owners are provided with start-up seedlings and a basic level of capital and resources in order to establish a plantation, and then profits are shared in an undisclosed proportion once harvests begin.

## Reforestation

“Fucoricon” is another company which has achieved a presence in Osa in the past decade by purchasing land outright from landowners and then making money from this land either through palm oil production or participation in payment for environmental services. RETEKA, as the name implies, (“teka” translates to “teak”) commonly purchases land in Osa with the sole goal of planting and growing teak trees, preferably under PES financial aegis, and then selling the trees normally after 15-18 years of growth. Though purists remark that truly mature teak is only achievable after at least 100 and preferably 200 years, a landowner can still sell a single 15-year-old teak tree for often a minimum of several hundred dollars. This means that the gross financial

product for a teak plantation (excluding PES monies of \$197/ha/yr) can easily be over \$200,000 *per hectare* after the 15 year growth period.

Reforestation as a PES modality is fundamentally affected by land and resource ownership in two ways. First, only individuals who have full formal ownership of their land are able to participate in the “reforestation” PES modality. This means that the murky land-tenure situation on the peninsula resulting from ITCO/IDA’s vascilating programs and policies over the decades has left approximately half of campesinos in “posesión” (possession but not formal ownership) of their land. Hence the significantly higher per-hectare payments of reforestation (\$197/ha) compared to forest protection (\$64) are not available to a huge portion of campesinos. Considering that these squatters originally came to the area as industrious, yet landless and often jobless, migrants, this lack of formal land title and blockage from more lucrative reforestation PES serves to exacerbate income inequality in the area rather than diminish it. In other words, the higher-paying PES modalities are therefore much more accessible to those who already have a capital base and/or are of better legal status or enfranchisement.

Second, the national PES system delineates two forms of reforestation, which are called “reforestación” and “reforestación de nativos/especies en peligro de extinsión.” The latter is much less common and attractive since it is extremely difficult to acquire permission to cut and sell native-specie forest, so these particular projects are vastly less lucrative than non-native reforestation. This fact has resulted in the fact that, for instance, in 2013, in the entire country of Costa Rica there was only one active PES contract for “reforestación de nativos” while there were 139 of “reforestacion” (of non-natives) (fonafifo.go.cr). And this goes one level deeper. When one wishes to participate in “reforestación” of non-native species, the only two species which are allowed are teak and melina. Furthermore, the seeds used to establish one’s teak or melina plantation must be purchased directly from government sources. MINAE officials claim that this policy is designed to preclude “low grade” wood from entering the



market. Yet from another perspective this is evidence of the specter of top-down state-centered control of this sector of PES, which is decidedly non-neoliberal. Considering that there are legal barriers to participation for landowners, and the government itself controls distribution of seeds and seedlings, the reforestation portion of the PES program could easily evolve into a crony capitalist regime which does not help to alleviate poverty in any way (which is, incidentally, a written goal of the PES program).

Environmentally, reforestation of non-native species is also dubiously advantageous. While planting these trees does sequester carbon over their lifetime, this is apparently where the environmental benefits end. Due to their exogenous origins, teak and melina trees do not create suitable habitat for local animal wildlife, nor do they provide useful food (however, there is some anecdotal evidence from interviews that wildlife does consume parts of the melina foliage to some degree). More importantly, the root structures of these two species of trees naturally project downward deep into the soil. This is the opposite of many rainforest tree species, because most of the biodegraded organic humus in such soils exists within 70-100 cm of the soil surface and then is effectively leached away by the copious rains and constant heat (Isla 2006b). The result is that in teak and melina plantations, soil becomes quickly degraded and the trees are not able to effectively absorb soil nutrients. Therefore, chemical fertilizer applications are often utilized, which pollutes soils and aqueous runoff. Also, leaf fall of these non-native species is much less copious than that of native species, leaving ground exposed to erosive tropical precipitation (Isla 2006b). In addition, the giant teak and melina leaves (commonly over a foot long and wide at full size) can distribute water in such a way that the erosive effects of rain-splash are measurably increased (Isla 2006b).

## FOREIGN NGOs

The Nature Conservancy has had a presence in Costa Rica for over four decades and Costa Rica was, in fact, the organization's first international campaign. TNC has traditionally focused on the Talamanca and Osa regions in the southern portion of the country. Their conservation implementations in the country are quite varied, including the teaching of indigenous Talamanca highlanders how to sustainably survive via eco-tourism, as well as the initiation of the "Forever Costa Rica" campaign which has successfully affected sea turtle populations which nest on the beaches of the Osa peninsula ([www.nature.org/ourinitiatives](http://www.nature.org/ourinitiatives)). One of the methods of conservation enlisted over the decades by TNC has also been outright purchase of land, especially in and around the Osa peninsula and the southwestern slopes of the central mountains. TNC, along with the World Wildlife Fund, was heavily involved with the lobbying and creation of Corcovado national park. At various times they speculated about purchasing a portion of the territory to be designated as parkland, and immediately after the park's creation, Corcovado's administration was supposed to fall under the financial aegis of The Nature Conservancy. For the most part, however, TNC has kept a relatively good reputation in the region and has carried on successful wildlife conservation and sustainable development programs for decades.

The second notable foreign NGO in Osa is called Osa Conservation. It was started and is headed by a man from the United States, though much of its local staff is Costa Rican. Many locals believe that this organization is only conservationist in name and has ulterior financial motives. The mistrust for Osa Conservation by locals was consistent and copious. "Reciben millones de dolares y no hacen NADA" (they receive millions of dollars and they don't do ANYTHING) was a statement, almost verbatim, that I heard from more than one person in Puerto Jimenez. Former employees often suggested that the organization was so disorganized and poorly run that it almost seemed as if this was deliberate. An interview with the highest ranking Costa Rican in Osa Conservation gave

me more confidence that the group had reasonable intentions and methods, so as is usually the case, the truth likely lies somewhere in the middle.

Somewhat restoring of the organization's image is that they do in fact own several thousand hectares of forested land near the southern tip of the peninsula, most of which was granted by north American donors who agreed that the land would never be developed. Besides these land acquisitions, however, I personally found no evidence of conservation, education, or community outreach implemented by Osa Conservation. The organization has also changed its name from "Friends of the Osa" to "TUVA" and finally to "Osa Conservation" over the past few decades. Most interviewees implied that these frequent name changes were attempts by the organization to escape legal trouble and paper trails of former illegal activities.

#### NEOLIBERAL LAND REFORM

The neoliberalization of Latin America also had profound effects on land tenure, most clearly from the neoliberal counter-reforms of the 80s and 90s. These normally entailed returning estates to large private land owners and attempting to sectionalize and privatize formerly collective land holdings, such as those of indigenous groups and other land collectives. Deere and León (1997) found that Costa Rican women land owners fared best, along with Colombians, among eight nations studied in the neoliberal (land) counter-reforms of the 90s in Latin America. Later research by Deere and León (2001) suggests that countries with smaller indigenous populations, such as Costa Rica, for some reason fared better during these land-tenure shifts. In Mexico, women and men were guaranteed equal participation in Ejido land collectives, but with the neoliberal push for formal titling, local traditions posited decision-making power onto the 'head of household' which was usually a man. Hence, with the neoliberal shift to privatization of Ejidos, female membership has declined to approximately 20% as

they have been largely, though not entirely, excluded from private ownership (Carmen Diana Deere and Leon 2002).

#### ATTAINING FORMAL LAND TITLE

There are several ways to obtain formal land title in Costa Rica: through purchase from a legal owner, through inheritance (the most common way for women to own land), via a land grant from the national government (for instance as retribution for being relocated), and also by converting one's squatter holding from a state of "posesión" into formal title. This final category is very common in Osa and also the most complicated. The following is the process for attaining formal land title for a squatter who currently holds land in a state of "posesión."

- 1) First, the property must be measured and a cadastral plan has to be drawn up. Sometimes these were executed by previous land users and can be found online via the national registry and simply downloaded. If not, the present possessor of the land must hire a topographical engineer to create a three-page cadastral plan for approximately 13,000 colones (U.S. \$26).
- 2) Certification of cadastral plan/map by a lawyer for 5,000 colones (U.S. \$10)
- 3) Provide one of three forms of proof that the land indeed belongs to current possessor. The first method of proof is a bill of sale listing one's name as the current owner. The second method is to receive a formal written proclamation from IDA/INDER stating that you were originally a squatter, have been on the land for a minimum number of years, and performed improvements to the land sufficient to have earned legal ownership. Since the 1996 Forestry Law 7575, IDA/INDER has been very sluggish about providing these ownership proclamations, based mainly on pressure applied by the "controlaria" (state controller) to maintain as many national forests as possible under state control.

- The third method of proving ownership is to acquire three “declaraciones de testigos” (witness declarations). These are written statements by local residents stating that you have indeed lived on this land for the minimum amount of time (technically three years, but in actual practice ten years of residence are usually necessary), and that to their knowledge no one else has a legal claim to the land.
- 4) Verification of witness declarations by a lawyer, 50,000 colones (U.S. \$100) each
  - 5) A representative of the “juzgado agrario” (agrarian court) visits the property and verifies that all is in legal order, 20,000 colones (U.S. \$40).
  - 6) Certification by lawyer of agrarian court verification, 80,000 colones (U.S. \$160)
  - 7) Judge grants what is legally referred to as “Folio Real,” and commonly referred to as “escritura,” both referencing formal property ownership paperwork.

#### ANALYSIS OF DATA

Land tenure conflicts and history comprise the context and background for this project’s investigations of payment for environmental services and the experience of women. Interviews focused, therefore, on PES and gender issues. There were, however, a few land-tenure data comparisons which are worthy of analysis below. These data are compiled and presented as enhancements and additional information for the themes herein, and are not proffered as statistically significant.

- How the property was acquired :: Gender

As predicted by Deere and Leon, women are disadvantaged in acquisition of land in the open market, ie via direct purchase. This does play out slightly in our statistics as 17/40 males compared to 14/40 females acquired their land from direct purchase, though this is not a notable difference. This relatively high rate of market-based land acquisition for women, however, does not jibe with copious other research on the subject (C.D. Deere 2003; Carmen Diana Deere and Leon 1997; Agarwal 1994a) which states that inheritance is the most common way for women to obtain land in Latin

America. In our sample, including PES participants and non-participants, inheritance only accounted for 5/40 women land owners and 6/40 males.

Women also showed a slightly higher tendency to have acquired their land through government land grant (*precario*) as squatters (15/40 female land holders, 12/40 male land holders). This is consistent with the notion that it is harder for women to acquire land due to market-based hurdles (Rowlands 1997), family or tradition-based hurdles (less farming knowledge garnered as a child due to that focus given to male children and hence weaker relationships with farmers, suppliers and land sales agents)(Radel 2011), and and community-based hurdles such as women not being seen or categorized as the “principal farmer” or head farmer on a piece of land even if they have more farming experience (Deere 2003) . Therefore, it is logical that women would seek land outside of these avenues, namely, through the government and “*precario*” squatting rights through IDA.

- How the property was acquired :: Income

The main two categories are “*precario*” (squatter) and “*compra*” (purchase), and the income distribution is extremely similar in the two categories, which is somewhat surprising. In both cases, the 100-1,000 income category is the most common (15/31 *compra* and 12/37 *precario*). Interestingly, 9/37 *precaristas* were in the 1,000-2,000 category, compared to 8/31 for the *compradores*. Overall average income for *compradores* (buyers) was \$603, while for *precaristas* (squatters) it was \$1,304, or more than double. This is the single most suprising and land-land tenure statistic, and one which perhaps could be addressed by a land-tenure-focused study in the future.

- How the property was acquired :: PES status

Comparing the method of land acquisition by PES participants and non-participants did not show any striking differences. Eighteen non-participants bought

their land, thirteen were squatters, five inherited the land, while the four remaining were renting their land. Among PES participants, the distribution was fairly similar, with seventeen purchasing, fourteen squatting, and six inheriting.

## Chapter 5: Women

A significant aspect of my research in Osa involves highlighting the female perspective in land use, land ownership, and payment for environmental services contexts. This entails an investigation of discriminatory hurdles that women face in these settings, but also it is a charge to simply let women's voices be heard – not as a plaintive reaction to male dominance but an independent investigation and celebration of the wisdom and perspectives of females who live and operate in these realms (Sundberg 2003).

In a broad theoretical sense, this work fits into the political ecology – and more specifically, the feminist political ecology – canon. Political ecology seeks to restore diversity in many arenas. It fights to save floral and faunal biodiversity as much as it attempts to magnify underrepresented voices and promote dynamic research methodologies. Nonetheless, some scholars have found PE to be not sufficiently critical of masculinist subtexts of hackneyed Enlightenment-era terms such as “conservation” and “environmentalism.” This, together with a general call to infuse more politics into political ecology, justified the emergence of feminist political ecology (FPE). Through the lens of feminist political ecology, somewhat of a distinction is made between CE and PE in that the latter exhibits a stronger epistemological and ontological curiosity of how knowledges (and discourses) are sourced, constructed, and defined. FPE shares with ecofeminism a resistance to the masculinist meta-narratives that “big science” employs in its depictions of human-environment interaction (Mies and Shiva 1993; Haraway 1991). Sauer's “vantage point” perspective epitomizes the masculinist gaze that places the European, heterosexual, bourgeois male as the elevated observer who is connoted to be superior to all non-males and non-whites (Rose 1993).

Donna Haraway's “situated knowledges” (1988) provides a core FPE concept that all knowledge production comes from a perspective that is influenced, biased, and



contingent upon its temporal, geographical and personal context. Haraway writes, “I am arguing for the view from a body, always a complex, contradictory, structuring, and structured body, versus the view from above, from nowhere, from simplicity” (1988, 589). Rocheleau et al (1996) discuss theoretical approaches such as ecofeminism, feminist environmentalism, feminist post-structuralism, and then present the “new” approach known as feminist political ecology which is based on gendered knowledge (formal and informal), gendered rights and responsibilities, gendered environmental politics and grassroots activism, women’s effect on the environment, as well as on environmental discourse and the multiple roles of women. In lay terms, FPE is an alternative view countering mainstream generalizations about how people and the environment interact and should interact.

Jackson (1993) sees the female/nature coupling not as natural or biological but entirely socially constructed. Without this decoupling, says Jackson, women will never achieve true emancipation. In that their main recourse against universalizing male pedagogy is simply acknowledging and reporting situated, contingent female knowledges, Jackson suggests that FPE scholars do not go far enough in explicitly decrying the ideological and structural subordination of women. Rocheleau would respond by saying that perspectives from all different sectors (and genders) of society allow the expansive practice of “seeing multiple” which in itself is a liberating discursive goal (Rocheleau 2008, 724). Mies and Shiva (1993) follow Jackson by paralleling the “colonization” of women, nature, and the third world by men and the West in her eco-feminist rubrics. Ecofeminist and FPE goals often clash with Western environmentalist themes because in the latter, women and nature are often grouped together discursively and both subjected as the subaltern (Isla 2006a; Jackson 1993). However, Nesmith and Radcliffe (1993) suggest that women do have a vested interest in ceasing the subjugation and degradation of nature because of their shared domination by males and masculine institutions.

A few authors have built the FPE theoretical and empirical base with global-scale foundational works (Boserup 1970; Momsen 1991; Momsen 2004; Agarwal 1994; Massey 1994; D. Rocheleau, Thomas-Slayter, and Wangari 1996) while others have provided key terms and ontologies (Haraway 1988; Haraway 1991; Jackson 1993). Rocheleau (2008, 722) highlights that FPE studies range “well beyond specific studies of women and gender” focusing more on process and methodology aimed at disclosing multiple contingent knowledges. Relatedly, a few authors have produced important work with connoted, though not explicit, feminist political ecology themes (Peet and Watts 2004) such as the application of non-mainstream/non-linear, locally contingent views of nature (Zimmerer 1994). Peet and Watts (2004) also seek to remedy the underrepresentation of women both as subjects and practitioners of scientific research.

The constructed link tying women and nature together became insidious when conceptualizations of nature as unruly, unpredictable and in need of external control were transplanted onto women who frequently became seen as witches and counter-cultural elements during and after the Enlightenment (Jackson 1993). Women, closely tied with the unpredictability of emotion, were disregarded as irrational, sporadic, and uncontrollable. Hence, Enlightenment discourse and its unilateral narratives largely deemphasize the role and contribution of women and effectively corralled and ostracized women along with the pedagogical pariahs of superstition, myth, and corrupt religious influence. Resulting in part from this, women were and largely continue to be excluded from Western scientific epistemologies – that is, from the production of knowledge – both as researchers and subjects (Sundberg 2003). Thus, in many respects, FPE is simply an effort to validate women’s knowledge and perspectives (a non-reactionary stance) by building an empirical base of data about how women’s knowledges, social and leadership strategies, and land-use decisions are unique, dynamic, and effectual – and no longer overshadowed by or necessarily compared to

those of men. I intend that my study herein is a component that adds to the momentum of this directive.

Though much research delves into FPE themes, it is somewhat rare for pieces to self-identify as FPE. For instance, Zimmerer and Bassett (2003: 105) call FPE “gender ecology” and seem to dismiss FPE as a pet project of Rocheleau “and her colleagues.” Watts and Peet (2004) are the exception in that they self-identify as FPE and, in a sense, promote the field of study by name (Elmhirst 2011). Elmhirst goes on to suggest that the themes of gendered environmental knowledge, gendered access to resources, and gender in development policy are all answering FPE questions, if not explicitly.

The work of Latin American scholars such as Arturo Escobar is very discursively aligned with feminism and especially its enthusiastic embrace of alternatives to mainstream logic and praxis. The term “feminist” has also faded in the past 20 years because post-structural and performative approaches in social theory have located gender among race, class, and other variables, and such a diminished focus has been looked upon unfavorably by many feminists.

Beyond theoretical understandings of the interaction between women and men as well as between women and the environment, this dissertation will expand the body of empirical evidence of such discussions. Women have been estimated to provide up to 70% of agrarian labor in the developing world (FAO 2002) while often contending with entrenched masculinist traditions and gender dynamics, especially in Latin America (Chant 2009; C.D. Deere 2003; Sachs 1996). Yet there is a commonly cited dearth of academic research on female land users in Latin America (Radel 2011; Valdès 2003). Moreover, the World Bank, UN, and countless NGOs have prioritized women as central to the overall development process.

The gendered aspects of my study focus on how neoliberal policies (P.E.S.) and gender dynamics affect women’s land-use decisions, and how these decisions affect the

natural environment in Costa Rica. This research fits into the feminist political ecology (F.P.E.) literature which is a faction of the larger canon of political ecology (P.E.).

Radel (2011) addresses the lack of research on Latin American female land users and attempts to remedy that with her ethnographic work with women in an agricultural organization in Mexico. Much scholarship has also detailed the devaluation of female labor, especially rural labor, around the world including in Latin America (Blumberg et al. 1995; J. Momsen 1991; Paludi et al. 2010). Deere and Leon (1982) write about the “invisibility” of women’s labor, noting its underrepresentation in national statistics in Colombia and Peru. They also proffer that women’s economic subjugation is not monolithic in that it is uniquely expressed based on a wide range of localized contingencies.

Case studies on women’s land use are somewhat more prevalent outside of Latin America (Agarwal 1994b; Carney 1993; Jacobs 2013; Sachs 1996; Shiva 1988; Trauger 2004) and several authors point to women’s ability to adapt to environmental and gender-related hurdles to land use (Sachs 1996) by engaging in strategies such as generating their own land-use maps (Rocheleau, Thomas-Slayter, and Edmunds 1995; Rocheleau and Edmunds 1997a) and by modifying their schedules and activity spaces (Awumbila and Momsen 1995). Some researchers argue that women have been shown to exhibit more concern than men for the environment (Mohai 1992; Ross and Benedatos 2010) and scientific models and biodiversity conservation initiatives have been criticized as incomplete and less effective when they do not consider women (Haraway 1991) or do not address women’s lack of access to seeds, land, and harvesting of certain plants (Howard-Borjas 2001).

The majority of research on female land users in Latin America has looked at how external forces impinge upon women and their land-related decision-making process. Benton (1993), Radel (2011), Rowlands (1997), and Schmink (1999) look at the influence of social and civic support groups on female land users, while Meertens

(1993), de la Torre and Tapia (1997), and Thapa et al (1996) investigate women's labor on farms as well as the gender division of farm labor in Latin America. Household gender dynamics are seen in the literature as the stronghold of men's influence over women's land-use decisions (*Deere, C. D. & Leon, M. 1982*; Katz and Chamorro 2003; Sachs 1996). These themes undergird research sub-questions for my study in Costa Rica which provide context for female land use decision-making.

My research does investigate the forces acting upon female land users, but in addition, it looks at the agency of women and how their land use affects and changes both the landscape and the people and institutions around them. That is, I see women land users as agents of change as much as adapters to change.

To provide legal and historical background, my analysis of women land users in Costa Rica will elucidate a tension between neoliberal counter reforms of the late 80s and 90s and the national women's movement during the same time period, the latter being expressed largely via national legislation. Recent publications document gender-related legal shifts in the country within those decades related to land titling and inheritance, political representation, and domestic violence (Mena 2002; Sagot Rodriguez 2010; Sagot Rodriguez 2011; United Nations 2004) while Chant (2009; 2000) adds that these empowering legal changes have made women more likely to reject gender inequalities in the home.

Focusing in geographically and topically, my research specifically investigates how neoliberal land use policies, namely payment for environmental services (P.E.S.), both affect and are affected by women on Costa Rica's Osa peninsula.

Much like P.E.S. studies done elsewhere, such as Liu et al (2008) in China and Shapiro-Garza (2013) in Mexico, a few investigations in Costa Rica engage the theme of P.E.S., but they largely or entirely ignore the experience of women. Liverman and Vilas (2006), for instance, provide examples of P.E.S. programs in Costa Rica which delineate prices for carbon sequestration and hydrology services per acre, while Sanchez-Azofeifa

(2007) assesses forest cover change in P.E.S. vs non-P.E.S. lands within the country. Sierra and Russman (2006) delve more into the environmental and economic incentives for farmers' participation in PES programs in the country, and measure forest cover change on each farm. Yet none of these three studies specifically separates results based on gender, nor discusses gender as a distinct topic. The same gender lacuna is conspicuous in (2008) and Pagiola et al (2005) which investigate P.E.S. programs in Costa Rica focusing on their overall efficiency, their effectiveness in actually improving environmental services, and their ability to alleviate poverty, yet not the gender-related aspects of P.E.S.

Other articles discuss the effects of broader neoliberal economic policies (reduced social spending, cessation of farm subsidies, trade liberalization, etc) on women within Costa Rica, yet not in a land-use context (Fletschner 2008; Freidus and Romero-Daza 2009; Mannon 2006; Rivers-Moore 2010). The exception is Deere and Leon (C.D. Deere and Leon 1997) who found that Costa Rica's women fared the best, along with Colombian women, among eight Latin American nations studied, during the neoliberal agrarian "counter-reforms" of the late 80s and 90s in the region.

Very few projects investigate payment for environmental services along with female land users in Costa Rica. Exceptions are Ortiz (2004) and Isla (2006), yet with important caveats. Ortiz (2004) interviewed Costa Rican land users about the reasoning behind their participation in a P.E.S. program and their feelings about it in retrospect. He found that emotional benefits such as improved familial relations and pride in a particular stand of protected forest were the most significant positive result reported. Ortiz divides his respondents into "men," "women," and "companies" so he separately identifies female land owners, yet in his analysis of the data, he reports overall trends, not gender-specific ones.

Isla (2006) makes a pertinent theoretical contribution by postulating that men and masculine institutions enclose, delimit, and disempower women and the

environment in the same way. Carbon sequestration (a direct result of P.E.S.) – presented as a solution simultaneously to relieve Costa Rica’s debt crisis and the industrialized nations’ climate crisis – like cheap rural female labor and prostitution as ways to bolster male feelings of virility – are ways that masculinist universalist discourse is imposed upon the subaltern (women) and acts as “enclosure” (enclaustramiento) or dominion. I appreciate and will utilize Isla’s extended philosophical similes, yet my research will expand upon hers empirically by specifically juxtaposing women and P.E.S. programs within the same study. Hence, a clear lacuna has emerged in that women and payment for environmental services programs have not formed the focus of a study in Costa Rica.

I see my research project as new and meaningful because it not only remedies the decried dearth of scholarship on female land use in Latin America, but it investigates how these women actively change the people and environments around them, rather than simply adapting to powerful external forces.

#### THE WOMEN’S MOVEMENT: DE JURE

Since the “women’s movement” in Costa Rica is mentioned and discussed in this chapter and in other sections of this dissertation, the core legislative foundation and expression of that movement is delineated here. The state of Costa Rica has displayed a public, discursive, and legislative commitment to the equality of women within the last three decades beginning with the ratification of the Convention on the Elimination of All Forms of Discrimination against Women in 1984. Another landmark action taken by the Costa Rican legislature was Act 7801 of 1998 creating the National Institute of Women (INAMU) which established the frameworks to address social, economic, and legal equality for women, including the protection of women’s fundamental human rights. Many other pro-woman Acts were passed in the 90s and early 2000s. The highlights of which are the following:

#### Violence against women:

- Act 7499 of June 1995: Costa Rica Ratifies the Inter-American Convention on the Prevention, Punishment and Eradication of Violence against Women.
- Act 7586 of April 1996: Called the “Domestic Violence Act,” this piece of legislature had both measures of detection/prevention of these crimes as well as care and vocational re-integration programs for victims.

#### Family/Marriage Issues:

- Act 7689 of August 1994: Reformation of the Family Code, amending the process and financial spoils of divorce in ways that produce more gender equality.
- Act 7654 of December 1996: “Maintenance Act” speeds up the alimony suit process.
- Act 7532 of August 1995: Regulated De Facto Unions or what are called locally “uniones libres” which allows non-married couples to enjoy the rights and asset sharing of legal domestic partnerships. These “free unions” are very common in Osa.

#### Motherhood and Paternity:

- Act 7491 of May 1995 and Act 7621 of September 1996: Reformed Article 95 of National Labor Code in order to encode mandatory paid maternity leave.
- Act 7735 of December 1997 and Act 8312 of October 2002: Provided services for teenage mothers in the form of education, prevention, training, and responsible paternity.
- Act 8101 of April 2001: “Responsible Paternity Act” which essentially made it much more difficult to be a non-participating or non-financially supportive father.



#### Sexual Harassment and Sex Crimes:

- Act 7446 of February 1995: This act focuses on criminalizing sexual harassment in the workplace, recognizing that sexual harassment is a form of violence against women and an infringement on their human rights.
- Act 7899 of July 1999: This act focused on punishing the sexual exploitation of minors.

#### Broad Legal Shifts:

- Act 7653 of December 1996: Reformed the national Electoral Code in order to guarantee political participation and “representativeness” for women. It emphasized the right of women to “vote in all elections and public referenda and to be eligible for election to all publicly elected bodies...” and also guaranteed a woman’s right to “participate in the formulation of government policy and implementation thereof, and hold public office and discharge all public functions at all levels of government....” This Act required that women make up at least 40% of each party’s political candidates in any given election at all levels of government.
- Act 8089 of August 2001: Optional Protocol to the United Nations Convention on the Elimination of All Forms of Discrimination against Women is adopted and ratified by Costa Rica.

Sources: (CEDAW 2011; FAO 2013; Quota Project 2013)

#### THE WOMEN’S MOVEMENT: DE FACTO

Since the 1990s there has existed a strong and relatively consistent pro-women movement in Costa Rica which has had a clear legislative component. Several laws have been passed in this timespan which have improved the *de jure* position of women in the

country, particularly on the topics of domestic violence, political rights and participation, and to a lesser extent land ownership.

In the country's urban centers, resistance to gender discrimination is quite demonstrative and organized, due in part, no doubt, to the increased education levels, earning power, and independence of urban women compared to their rural counterparts. For instance, I came across a “manifestación” (march/demonstration) against sexual harassment in San José which comprised 15 similarly dressed women all wearing masks and carrying signs as they walked down the city center's Avenida Central. The signs bore slogans such as “Quiero salir sola y sentirme segura” (I want to go out alone and feel safe), “Ni con minifalda, ni con pantalón necesito tu opinion” (Not with a miniskirt nor pants do I need your opinion), and “Mi cuerpo no necesita tu opinion” (My body doesn't need your opinion).



**Figure 5.1:** A demonstrator in San José, May of 2014



**Figure 5.2:** Demonstrators in San José, May of 2014

Yet in the countryside, women's resistance to machista attitudes and entrenched discriminatory structures is much less overt. The financial and social power of rural women is undercut by lower levels of education and income, generally, than urban women. Perhaps due to this, gendered resistance in rural areas tends to manifest in small, interpersonal dialogues and interactions, or what James Scott (1990) calls "infra-politics." These small daily acts of resistance, according to Scott, can add up to very effective cumulative challenges to state or existing powers. Very often these infra-politics take the form of jokes aimed at chopping away at the monolithic notion of ubiquitous male superiority.

An example might be a wife saying to a husband who cannot calm a crying infant or get the television to work "En lo todo él me necesita" (He needs me for everything). At other times, a man may unsuccessfully struggle to pack all 15 bags of beans into his truck, while the wife merely steps next door and utilizes her human capital to ask the neighbor if he can put a few bags into his truck to make the journey easier. These types

of situations occurred from time to time and were often highlighted, again, by a joke from the wife such as “Los hombres creen que la fortaleza puede resolver todo, pero la mente de una campesina es la herramienta más poderosa” (Men think that strength can solve everything, but a woman’s mind is the most powerful tool of all). Rosalva (profiled herein) is a quintessential example of an Osa woman who employed Scott’s infra-politics as her chosen method of resistance to gender discrimination.

Approximately 30% of interviewees commented that the women’s movement had made important shifts in Costa Rican society which had truly improved the day-to-day experience of women in some measureable ways. The paramount examples were that domestic violence is now prosecuted and punished without hesitation, whereas in the past it was much more easily overlooked. Also, widowers now legally receive at least half of all land-ownings left by her husband, with the other half being divided up between all of the couple’s children. Formerly, stories were common of the eldest son and his mother battling over the land inheritance left by the deceased father and husband, with the son usually proving victorious (Agarwal 1994b; C.D. Deere 2003). Since the primary vector for women to own land is through inheritance, this new law has worked very effectively to increase women’s land holdings. In my sample, however, market purchase was a several-fold more common method of land acquisition by women than inheritance, so this particular legal shift has not been as effectual.

An interesting aberration from this somewhat general approval and support for the results of the women’s movement did emerge. In four interviews of the approximately 150 total interviews done for all purposes during the study, respondents believed that the legal advancements for women had had an adverse effect by “over-empowering” women who then take advantage of this positionality. For example, it was conjectured that women will now “cry wolf” to the police about domestic abuse anytime they want an upper hand in the household, whether or not such abuse is actually occurring. Increased access for women to government welfare and housing

assistance was also mentioned. Even more interesting is that two of the four individuals who expressed this opinion were women. What they all had in common was that they were over fifty years old and showed several signs that religion was an important part of their lives.

This advanced age and religiosity seems to play a part in their aberrant opinions. Two of these respondents went so far as to say that women are now so empowered as to have created a situation of “reverse machismo.” Gabriel, for example, is intelligent, amicable, generous, and an avid adherent to the Jehovah Witness faith, suggested that this over-empowerment of women had coincided or even caused a moral breakdown in women in the region. He believes that women who receive government aid in the form of a 500-square-foot concrete home in an urbanization (housing project) as well as a small monthly welfare check are now completely removed from needing a man to support them. This, in Gabriel’s mind, allows women to behave promiscuously because they no longer need the long-term support or loyalty of a male partner.

Gabriel offered another fascinating theory: that the true crux of what’s going on in Osa isn’t framed in terms of male vs female but instead state (central government) vs campesino. His comment did certainly jibe with copious observable evidence that the state’s conflicts and dynamic with the campesino were indeed paramount on the peninsula. One can feel this central tension between government and locals that Gabriel describes. Yet his dismissal of the struggles of women doesn’t ring as true. If anything, the absence of women’s demonstrative resistance to gender discrimination only further evinces the lack of women’s power and agency in the region. The dearth of open resistance, that is, is not proof that no mistreatment is occurring, but rather that the oppression is so deeply engrained that the oppressed group still hasn’t the tools to express its own grievances or rebellion.

On another level, the state’s oppression of the campesino is merely a macrocosm or reformulation of the male’s oppression of the woman. In both cases, the

dominant party (the state or the male) is powerful, regimented, unemotional, logistically and financially dominant, and downplaying of the opinions of the subordinate, while the subordinate party (the campesino or the female) is marginalized, of inferior means, exhibiting various degrees of disenfranchisement, desiring to be heard by the dominant party, and generally assumed to be more connected to nature in terms of the soil, flora, and fauna (campesinos) or the human body (women).

In terms of land ownership, specifically, Deere and León (2001) show that gender discrimination in Latin America must be tackled on both de jure and de facto fronts. The authors state that in all three forms of land acquisition – inheritance, adjudication (land reform), and purchase – there is strong gender bias. Legally, men are most often listed as the “administrator” on a farm, and so they receive funds or decision-making power, while culturally men are depicted as the principal “agriculturalist” or farmer and so benefit from the control of related resources, especially when inherited land is being divided between male and female children. An important initial step was the 1979 UN Convention on the Elimination of All Forms of Discrimination against women, which was signed first by Costa Rica, and resulted in most Latin American nations amending their constitutions to include gender equality, including in relation to land rights.

Indigenous women in Costa Rica, especially in the country’s southwest region are privileged to increased access to land ownership. This is because indigenous groups are often headed by women, so when land grants or FONAFIFO funds, for instance, are received by the group, the person in charge essentially commands all of these resources. These indigenous groups are the only cases, according to FONAFIFO officials, where FONAFIFO grants monies to a group rather than to an individual or an LLC. While this clearly posits indigenous female leaders, therefore, in a position of elevated landed power, the indigenous population of Costa Rica is very small compared to most Latin American countries, so this example is much more the exception than the rule.

Carmen Deere goes on to suggest that joint titling of land in the name of both a husband and wife is likely the most important land tenure-related legal shift in recent years (C.D. Deere 2003). This is because if a man dies first, his wife then legally inherits all land, which avoids the previously mentioned battles between a widow and her children over land inheritances. Joint titling, or even listing jointly titled properties in the woman's name alone, a tactic employed by CATIE and FONAFIFO in Costa Rica in order to boost the appearance of female land ownership, is therefore very effective at boosting (or at least maintaining) real numbers of female land owners as well.

Friedrich Engels (Engels 1985[1884]) originally argued that the shift from pre-capitalist (subsistence and communal property) agricultural societies to capitalist ones founded on production and sale demoted women to unpaid domestic laborers while elevating men to the status of the wage earner. These legislative measures in Latin America and Costa Rica more specifically in the last three decades are essentially a push to redress this exact gender disequilibrium that the emergence of capitalism (reinforced by the neoliberal turn) ostensibly brought about.

#### PROFILES OF LOCAL WOMEN

Beyond the social statistics, legal shifts, and even interview data that are compiled herein to make a case about the plight of women in Osa, there is also simply the story and experience of these women. Rather than attempting to tell all of their unique stories, I have distilled the information, anecdotes, histories, conversational styles, and machismo resistance methods of these women into a few archetypes. Many of these archetypes are based strongly on an actual individual with whom I spent a good amount of time, yet a few are better described as an amalgam. I have given each archetypal character a pseudonym.

## Selena

Selena is a fifty-three-year-old female who owns a restaurant as well as six hectares of land. She is married with three children. She is a powerhouse of a woman who was formerly a passionate environmental activist and campaign manager for a few regional environmental organizations. As we sat at a table in her restaurant overlooking the Pacific ocean – she, drinking red wine and smoking – her eyes began to tear up as she recounted one “manifestación” (protest) that she spearheaded perhaps ten years ago in a southern Costa Rican city against the regional government and Osa Forestal who were trying to fell sections of forest and establish a wood chip mill. She is a fireball of energy, passion, and resolve for these issues. “Yo discuto el ambiente, pero nunca lo negocio” (I will discuss the environment but never negotiate it) is a sentence that she repeated verbatim at various points in the interview. More than one of her fellow activists were assassinated for their resistance against powerful groups, which did not frighten Selena, “Sólo me enojó” (it just made me mad). Exuding the energy of a Che Guevara-esque figure, I was not surprised to hear from her friends that she used to wear a beret in her activist days.

Answering the question “how much of a problem is government corruption in Costa Rica and in this town?,” Selena answered the maximum 4/4. “How effective are PES programs at protecting the environment?,” received a 2/4. Yet when I told her of the new point system favoring biological corridors, her face slowly lit up into a smile and she said, in English “That makes me very happy.” Incidentally, in knowing her through many interactions, I noticed that she only uses English when she is truly excited or surprised, such as when I showed her a magic trick which she couldn’t figure out and she exclaimed “Oh Shit!” That is how I knew that hearing of this new PES point system did surprise and truly delight her. She admits that she’s become “muy desactualizada” (not up on current events lately) in terms of environmental developments, because she used to follow and fight for them so closely.



In terms of her personal land use, in 2006, Selena and her husband bought six hectares of ocean-front property a few minutes from Puerto Jimenez (where the interview took place) for US \$40,000, which she described as an excellent price, with hopes of developing it into a lodge and restaurant. But the economic crisis hit in 2009 and those plans dissolved. Now she would like to plant crops on the land in order to both use them in her restaurant and sell them to the public.

#### Rosalva

Rosalva is a sixty-year-old female home maker, widow, and mother of eight children (six boys and two girls). Her husband died of pancreatic cancer when she was thirty-five and he was thirty-seven. At the time she had eight young children and no job. She and her eldest son, who was seven at the time, went to work in order to support the family. Rosalva worked mainly as a maid, and after ten years, she had saved enough money to build a house on a plot of land that her husband had left her. As opposed to Selena, Rosalva tends to show her strength in quiet ways such as diligent work, raising her children on her own, and caring for the home. But she is not without teeth or power. Rosalva makes her wishes known to those around her in subtle ways but expects that they will be carried out. Even her dog – a pit bull mix – serves as an accomplice in protecting and realizing her wishes. I visited her house perhaps thirty times and ate there, worked there on her son's boat, and became somewhat of a regular fixture. One day, when I was alone and the rest of the family was inside the house, I went onto the back porch to get a brush to begin cleaning the boat when suddenly I felt the dog's jaws clamp down on my left calf, tearing my new pants. What interested me most from this caring woman was that not only did she not castigate the dog, but she praised its power and protective nature, chuckling and saying that I was lucky the dog has been a little sick lately or it would have done more harm.

With the added perspective of knowing her children fairly well and even a few in-laws, I have come to know that Rosalva bends the truth a bit when talking about her twenty-six acres of land and how she utilizes it. A family member told me that they cut wood from the land on occasion to sell, which is illegal without a permit. But Rosalva told me that they only collect trees that have fallen and died naturally (which is the only legal way to reap wood from one's land). I definitely sense some reticence and mistrust from her toward me as a north American and as somewhat of an authority figure in my position as a researcher. Rather than passionate and activist like Selena, I would say Rosalva is clever, subtle, and wise. Her telling of small somewhat innocent "mistruths" in order to protect herself or to resist authority is another example of James Scott's "infra-politics," (Scott 1990) which entail small acts of daily resistance. I had to wait the longest for my interview with her – a full six months in Osa passed before she would finally give me a formal interview.

#### María

María is a thirty-six-year-old mother of two who manages the family's small farm and its animals (ten pigs, twenty-five chickens, seven cows). The property title is in Maria's name because it was given to her through inheritance from her father. He had several sons, but decided to give the forty-two-hectare farm to his daughter because she cared for him as he approached death. Most women who are the sole owners of land came upon the land via "herencia" (inheritance), like María. Completing the framework of a "semi-proletarianized" household (Weismantel, 1988), María's husband works for Palma Tica, which is the largest African oil palm plantation company in the country. María is a very hardworking woman who also exhibits much hesitation at sharing personal details with strangers, authority figures, or men. Again with the perspective of knowing one of María's daughters fairly well, I can safely say that the woman whom I interviewed was a completely different woman than the one her

daughter always spoke of. “Mi mama es muy brava,” (my mom is very strong/bold) is what her daughter would say before each of many anecdotes that she recounted in which her stalwart mother stood up to her husband and essentially called the shots regarding the family’s property. María’s household is the classic example of a home that is traditionally male-dominated on paper, yet female dominated in everyday practice.

For instance, María’s husband wanted to convert ten acres of their land’s forest into palm oil production, but María refused sternly because she loves the forest and understands the environmental harm that accompanies oil palm cultivation. Her husband, in fact, sprays pesticides on the oil palm trees as his daily job at Palma Tica. I met her husband and he is a gentle, somewhat meek man in comparison to the tough, resolute María that was described to me. Yet in front of me, María was extremely deferential on any question about gender. When asked “Cuáles aspectos de la vida finquera conocen mejor las mujeres? (which aspects of farm life do women understand better?),” she answered that men are better at everything on the farm. And when asked “Hay diferencias en cómo mujeres y hombres administran una propiedad?” (Are there differences in how women and men manage a property?), she responded that men should do all of the management duties. This is clearly divergent from the character which was described to me by her daughter. Her environmental preoccupation did begin to show itself just at the end of the interview when I asked about what she perceived to be “cambios inquietantes” (unsettling changes) in Osa of late. She said that hunting animals for sport is wasteful, forests are cut illegally too often, and that ruining the environment “es un pecado!” (is a sin). Her husband was not present during the interview, but I, the interviewer, am a man, and her paid helper was also a man. Therefore, her answers to my questions were clearly skewed to appease the supposed gendered expectations of the men in her presence.

## Angelika

Angelika is a twenty-nine-year-old German woman with a Master's degree in biological science. She has lived in Osa for about two years and has her hand in countless environmental projects here, including the donation and installation of solar panels on the children's library in town by a U.S. solar company, as well as a pet rescue organization. Her deepest desire is to focus her efforts on biodiversity conservation on the peninsula. I find Angelika to be magnanimous, extroverted, sanguine, intelligent, and well-liked.

Her inclusion in my profiles is purposeful because she represents a contradiction of sorts in that she is a woman yet also a European/Western. Feminist political ecology (F.P.E.) represents a departure from and a rejection of European enlightenment universalist ideas about the environment and how to manage, protect, and/or develop it. F.P.E. similarly represents the creation of a canon of knowledge which serves as an alternative to masculinist environmental meta-narratives. So immediately, being a European woman, one is posited on both sides of this theoretical debate, at least from the F.P.E. perspective. White women, and tourists in general, in Osa tend to be pre-filtered by the logistical challenges of simply getting to Osa as well as the lack of standardized touristic-comfort amenities. That is, foreign visitors to Osa are much more likely to be somewhat environmentalist and also not scared away by a bit of tropical "roughing it." This is all to say that the stereotypical unaware rich American female tourist not speaking a word of the local language and demanding luxury and familiar north American foods is essentially non-existent in Osa.

Also, as is mentioned by Vandana Shiva (Shiva 1989) and other proponents of Eco-Feminist movement, often first world feminists do not emphasize race and class in their campaigns, especially evading the issue of the global north/south income divide. This oversight has put white Western feminism at odds with feminism in the global south, a dynamic similar to that observed in the United States during the coincidence of

the women's liberation movement and the U.S. civil rights movement in the 1960s. Shiva provides historical context by writing that originally under-represented voices fought against colonialism, and now they fight against the monolith of "development," which further complicates the symbolism of a figure such as Angelika in this region (Shiva, 1989).

Counterintuitively, however, race is not a salient issue in Costa Rica. Nearly everyone describes themselves as "mestizo" (mixed) or "Tico" (Costa Rican), when asked to self-define their race. Therefore, much of the race-based tension between first world white women and Costa Rican locals which would be prognosticated by Shiva (1989) is difficult to detect in interviews and observations. As an archetype, Angelika is also unique in that she is a Western woman who came to Osa to stay and not just to visit. She speaks very good Spanish (though with a heavy German accent), she has a Costa Rican boyfriend, and is in the process of buying a home in the area's main urban area, Puerto Jimenez. In other words, Angelika is certainly not flashing through town for a week of bird photography and indulging in piña coladas at a beachside resort. She is essentially assimilating into the local culture and earnestly doing what she can to help local environmentalist agendas. Moreover, Angelika has evolved into the best social networker in Puerto Jimenez, often connecting homes on the market with buyers, institutions with volunteers, and even "solteros" (single people) with a viable mate. Parties at her house are attended by a good blend of both locals and foreigners alike. "I just love it here, and I fit here," she said to me one day. I had to agree.

### Rigoberta

Rigoberta is an example of a woman who was raised partly in Osa and partly in San José. She passionately loves her country and her family yet still is open to and very often befriends non-Costa Ricans. Rigo had the benefit of a good high school education and took advantage of that opportunity to become fluent in English, as well, of course,

as in Spanish. She is exemplary of many women in the Osa, and in Costa Rica more generally, because she found herself pulled into a tourism-related career. With excellent language skills already intact, she decided to attend a year of tourism training at a post-secondary institute near San José where she learned a range of basic skills including restaurant and hotel operations, concierge duties, and basic cooking. Riding the wave of tourism expansion in Osa, Rigo worked various jobs at local resorts and hotels for a few years which allowed her to save up a reasonable nest egg of cash. “The jobs were here, so I took them,” she told me, “and I really didn’t know what I would eventually use the money for.”

Very often women fare better in terms of acquiring basic to intermediate level jobs relating to tourism and other burgeoning economies. Some have surmised, logically, that this is because women are traditionally care givers, cooks, and domestic laborers so they themselves as well as clients are comfortable with them in these intimate roles (Vandegrift 2008). Women are also less threatening to both genders in face-to-face interactions. That said, tourism jobs in the Osa are not entirely populated by women, as nature guides are overwhelmingly male, as are taxistas.

Rigo is also salient in that she works in tourism yet also is a landowner, by inheritance. Her mother inherited a 40-hectare section of primary forest near Drake Bay in the northwest corner of the Osa peninsula, which she has since passed on to Rigo. Rigo decided to take her nest egg of earnings and sink it into developing their land into an eco-lodge for tourists seeking total and undisturbed immersion into primary forest. Notably, Rigo admitted to not being an environmentalist, but that she recognized the potential for money from developing her site as an eco-tourism experience. Over the year or so of development, she told me that she was buying in more and more to the environmentalist ethos. “Los animales y el bosque me estan convenciendo” (the animals and the forest are convincing me) that they are worth protecting, she said to me.

I had to agree when I visited her land and spent a few nights there in a make-shift lodge. The modest cluster of four eco-lodges (one bedroom and bathroom each) rested atop a few small hills amidst astonishingly grand virgin rainforest, all within earshot of the roar of an impressive waterfall which was only a five-minute walk away. All water used on the property comes from a nearby natural spring, while all electricity comes from a run-of-the-river generator on a local stream. Much of the vegetables, herbs, and tubers served to guests will come from an organic garden on the premises, while fruits are in abundant supply from papaya, mango and coconut trees on the property.

Rigoberta has thus turned her education into opportunities in the tourism field, and combined that with the boon of a land inheritance to fully invest herself and her money into the establishment of a legitimate eco-tourism destination. This, in effect, defines Rigo as a modern woman in local terms. She is educated, single, determining her own destiny, and participating in the non-traditional industry and income source of eco-tourism. This is also an exhibition of the “chicken-or-the-egg” sourcing of the environmental ethos in Costa Rica. Elsewhere in this dissertation I detailed the institutional, philosophical, and personal sources of Costa Rica’s environmental leaning which, along with other outcomes, have converted the country into a well-known example of environmental stewardship. This has drawn eco-loving tourists from around the world to every remote corner of Costa Rica, which has, in turn, exposed traditional locals to this environmentalist, nature-loving fervor, albeit in a Westernized cast. This has in some cases blended with a long-standing local conservationist attitude, but more often it has been made to integrate with farmer and rancher ideologies which see land as primarily useful only when productive. Rigoberta loosely fits into this second category of a Costa Rican who was not originally an environmentalist but became swept up in the successive waves of awareness and passion for the amazing local flora and fauna.

Blanca

Blanca was recently divorced from a man whom she described as “extremadamente machista” (extremely male chauvenist). The most powerful women whom I encountered, in terms of interpersonal as well as community relations, were quite commonly women who had spent years living with an oppressive machista husband. This past tended to make women shrink into perpetual subservience or rise up, rebel, and demand respect and a new relationship dynamic. Blanca, now fifty-two, was quite set on making her future without the need of male companionship and based almost entirely on raising her children and grandchildren in exactly the way that she saw fit – a way, I might add, that smacked of health, balance, and providence.

Like many Latin American women with land, Blanca acquired her small plot of four hectares via inheritance as a result of the divorce, and now wants to raise her grandchildren as well as other interested local children, on the farm, teaching them the beauty of hard work while also inculcating into them a version of cultural ecology as they till, plant and harvest their own food and learn animal husbandry. “Nuestra relación con la tierra y con el mundo natural tiene una importancia profunda” (our relationship with the earth and with the natural world has a profound importance), she commented, “y la generación próxima tiene que entenderla” (and the next generation needs to understand that). Blanca explained that when a child is taught to recognize the idea of a symbiotic relationship between humans and nature, then they will be much less likely to desire or tolerate an imbalanced or disrespectful relationship between two people, especially between man and wife.

The many women like Blanca who had formerly been married to a “very machista” men and now exuded considerable personal power had sometimes remarried and other times not. If they did in fact remarry, they chose men who in no way displayed a desire to delimit his wife’s power nor her ability to express herself. This is actually putting it mildly, since invariably in these cases of remarriage, the term “le



canta la gallina” quite clearly applied. Literally translated to “the hen sings to you,” the true meaning of this phrase is better conveyed as “the woman wears the pants.” The last thing in the world that a woman cut from the mold of Blanca would draw to herself is another dominant, controlling man.

“Desempleo” (unemployment) was the most common problem in Osa according to the answers to an open question posed in the eighty-plus interviews in this study, and “vagancia” (homelessness/laziness) was also cited a few times as being related to this. Blanca recoiled at the notion that her children would ever be a part of the “vagancia” problem in Osa, and so she was determined to teach them the value of a hard day’s work on her four-hectares of cultivated land. “Si estás criado con trabajo, y se acostumbra al ritmo del trabajo, nunca te sentirás contento sin él” (If you are raised with a work ethic, and you get used to the rhythm of work, then you never feel quite right without it), Blanca explained as she unfolded her plan for raising industrious, productive children.

#### Norma (and Ariana)

Norma represents a relatively large cohort of older (fifty-years-old and up) Osa women who are married, live on a farm, and perform relatively “traditional” gender roles as a wife, mother, and farm laborer. Norma is a dutiful wife and mother who spends perhaps 70% of her time tending to domestic issues such as cooking, cleaning, and child rearing. The other 30% of her efforts go to feeding the twenty chickens and three pigs that the family maintains. Women in this general category tend to focus almost entirely on domestic care, but when their job definition extends beyond that, it is almost invariably in order to care for non-ruminant animals (not cattle). The care of cattle overwhelmingly is a chore of males, while husbandry of chicken and pigs – the other two most common domestic livestock on the peninsula – quite often falls to the woman of the house or children.

Just based on anecdotal totals in this researcher's head, a good estimate would be that perhaps one-third of Osa farmwives adhere fairly closely to Norma's example. They are soft spoken, deferential to their husband, rarely are the final decision maker in any matter relating to management of the family or farm, and yet their opinions are quite often or even normally "taken into consideration." Many husbands of such women said that they listen to their wives' input and then make the final decision based on all factors involved. In my statistically recorded interview data, men and women were asked to respond to the question "Who has the power to make decisions in your home?" with potential answers of "me", "my spouse," "my spouse and I equally" or "my spouse and I, but not equally." Ten of forty women said "Me" as compared to only four of forty men. Yet men were much more likely to admit that they unequally shared decision-making power with their wives (seventeen of forty men gave this answer as opposed to four of forty women).

Ariana, like Norma, is also a traditional Osa farmwife, yet she is only twenty-three years old. Most of her life she has fit into the same mold as Norma, but with one critical variation – Ariana wants more out of life. Ariana is young enough to have been raised amidst the atmosphere of the national women's movement, which has had significant legal, social, and interpersonal ramifications on rural society. More education is often a factor in the "modern" perspectives of many women like Ariana, but it is not a ubiquitous characteristic. What is omnipresent in such traditional yet ambitious women is an awareness of new possibilities and options for women. They have heard of or seen examples of women rising up, getting educated and employed and making a life independent of, or equal to, that of men. Ariana is such a poignant example because of the burgeoning ideas, desires, and skills within her that were struggling to be expressed and set free amidst her fairly simple, routinized, and pre-circumscribed existence. While her husband worked caring for the land of a more moneyed landowner, she stayed at home caring for their one child and home. In the sea of hours alone, she clung to any

avenue of self-expression and skill development that she could. “Me pongo un poco aburrida aquí” (I get a little bored here), she said. “Hay tanto que quiero hacer – tanto que puedo hacer – con mi mente y mis habilidades” (There’s so much that I want to do – so much that I can do – with my mind and my abilities).

For instance, she made several somewhat impressive miniature houses and miniature baskets out of leftover colored paper in their home, which she intended on selling at a local craftperson’s stand on a touristic street corner. Yet it was clear that this did not even approach satisfying her. Ariana was also very interested in learning English, because she commented that tourism only benefitted those in the area who were lucky enough to have language training in English. That is, she clearly understood the opportunities for life advancement that both tourism and English-language skills brought to the area.

Moreover, with primary school completed and some secondary education, Ariana and her cohort are more educated than the vast majority of all inhabitants of Osa, regardless of gender. In interviews, the average education level of all interviewees was “some primary school.” This elevated educational level translates well to Ariana’s comprehension of social, economic, and environmental trends on the peninsula. She had a very good knowledge about which local industries were deleterious to the environment (e.g. oil palm) and which were very beneficial (P.E.S.), while less educated interviewees often did not exhibit awareness that extended beyond, for instance, the exact concepts and statistics distributed by Palma Tica propaganda. Along with this expanded and broad knowledge, Ariana recognized the protection of the environment as “super-importante,” and this progressive bias did show up in answers to other questions during the extended interview.



**Figure 5.3:** Four generations of women living in two adjacent households in La Palma

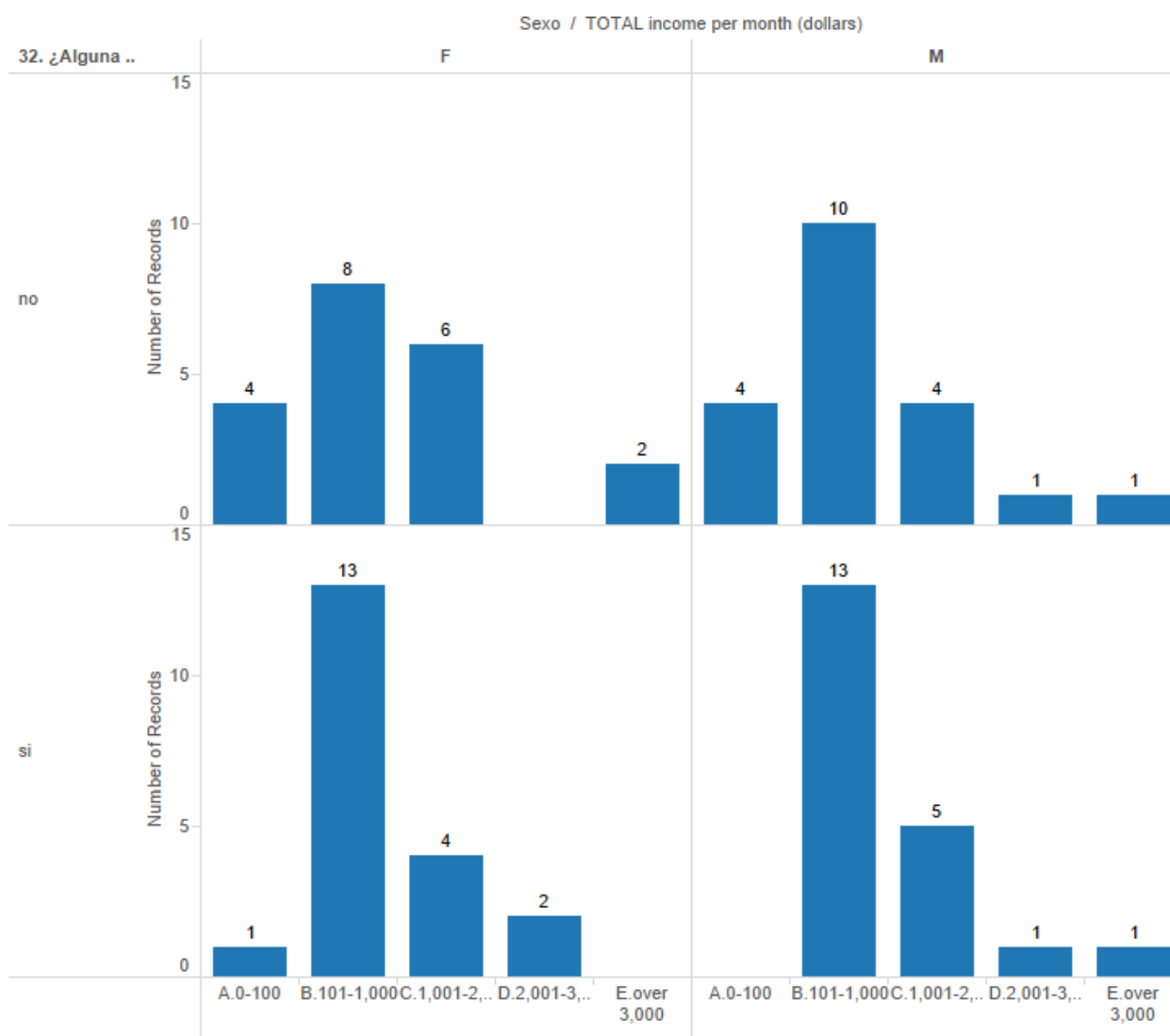
#### ANALYSIS OF DATA

Data from interviews in this study will be presented and analyzed. Multiple variables at a time will be analyzed in order to disclose correlations, if any. Some salient relationships are noteworthy enough to be accompanied by a visual graphic. However, to reiterate, these data are intended as an enhancement and additional clarification for

the themes of this dissertation, and they are not presented as statistically significant offerings.

- Gender :: Income

Sheet 1



**Table 5.1:** PES participation, gender, and income. “No” and “si” indicate PES participation. “M” and “F” along the top indicate sex of respondent. Numeric ranges along bottom correspond to graduated income categories

When analyzing gender as a variable, income statistics are very useful. Breaking the groupings into those who do and do not participate in PES, we see a strong trend. Among PES participants, Women averaged \$829 of income per month, while men averaged \$ 1112 per month, which is a significant difference (of note, the highest earner among female PES participants was actually a teenage girl whose name was put on the PES property as a business tactic by her wealthy father. Without that \$2,560 monthly income, the average female PES monthly income was only \$701). Higher male PES incomes might be explained away partially by the fact that male PES participant property size was 90.5 hectares, while those of women averaged 67.9. Since PES income is based entirely on farm (property) size, this could explain the proportional difference in male in PES income. The answer to why men have larger farms to begin with is a much larger story which is explicated in the introduction and land tenure chapters herein.

One very stark statistic, however, that contradicts the “plot size = income” theory emerges when we look at non-PES men and women. While male incomes were lower when they did not participate in PES (\$1112 decreased to \$759 on average monthly), female incomes were significantly higher when they did not participate in PES (\$1,107 compared to \$829). This is despite the fact that for both men and women, farms under PES contracts were on average much larger than non-PES farms (67 ha. vs 25 ha. for women, 90ha. vs 58ha. for men). What this divulges is that male incomes are much more tied to the land and land (property) size than women’s incomes. For men, more land loosely translates to more income, while with women the relationship is much more nebulous. Seeing that women who don’t participate in PES have higher incomes along with much smaller land holdings, it is clear that women’s incomes are coming significantly from sources other than PES and the products of the land.

So where is this extra female income coming from? Looking at sources of income that are not directly related to farm size specifically, we see that across all categories of women interviewed, fourteen of forty had a formal, paid job, while the number was sixteen of forty for men – reasonably equal numbers. The same number of men and women (five of each) earned extra income from selling milk or cheese, while four women said that her family helped support her compared to only one man. So familial support is one difference that is noticeable, but otherwise, when looking at land-based and non-land-based formal income, it is difficult to find the reason that non-PES women earn significantly more than PES women, and notably, more than non-PES men.

One possible answer is the informal economy. In many countries, especially those influenced by the neoliberal turn in the past thirty years, the informal economy has grown in importance and total numbers, especially for women. Structured interviews, which did delve quite repeatedly into income and sources of income, did not fully investigate the informal economy. This information had to be gathered anecdotally and in informal discussions about livelihoods, free time, hobbies, and alternate sources of income. In these conversational settings, I found that many women sold handicrafts such as 1) painted paper maché animals, 2) recycled plastic bags, seeds, and shells made into handbags, necklaces and earrings, and 3) paper cut, folded and painted into little houses, palm trees, and people. These artisanal works were sold in informal settings to tourists, such as at roadside stands, at parties or meetings, or just to friends. Many women also opted to clean apartments or homes of their neighbors in order to earn extra money.





**Figure 5.4:** Osa woman showing me earrings that she made from recycled or organic materials



**Figure 5.5:** Purse made with bottle caps by woman pictured in Figure 5.4



This seeking out of informal income sources validates the conclusions of Deere and Leon (2003) that women are disadvantaged in the acquisition of land, whether from free market sale or from direct grants from the government. Therefore, it is reasonable to assume that women will seek out other sources of (informal) income until legal, formal pathways to income – at least through land acquisition – are more gender neutral.



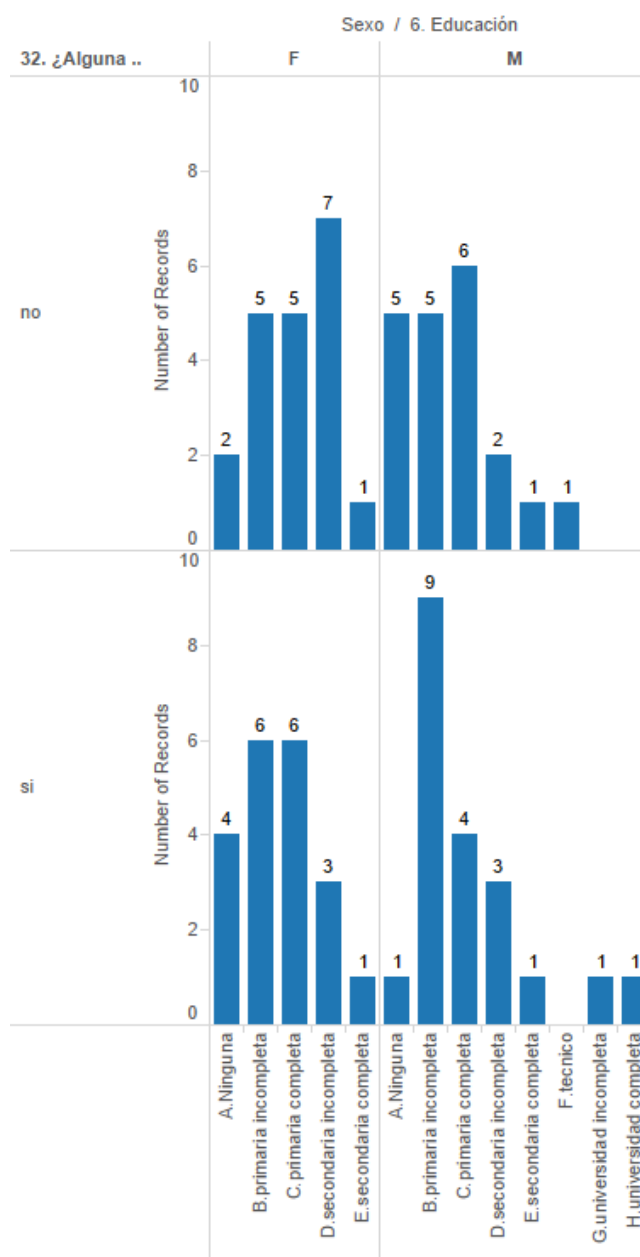
**Figure 5.6:** Author with a group of women who earned money by running this recycling center

- Gender :: Education

When education is injected into the equation, a clear pattern does result. Women who participated in PES had fewer average years of schooling (4.65 years) than non-PES participant women (6 years), yet this trend was almost exactly the reverse among men (6 year average among PES participants and 4.7 year average among non-participants).

That is, level of education and PES participation among women were indirectly related, while level of education and PES participation among men were directly related. What are some possible explanations for this? Education is a formal institution of the state (private education is rare among rural farmers), as is payment for environmental services. Men have traditional and existing advantages in formal institutional settings in Costa Rica, and to a greater extent in Latin America at large.

Sheet 1



**Table 5.2:** PES participation, gender, and education. “No” and “si” indicate PES participation. “M” and “F” across top indicate gender. Categories along bottom indicate level of education: “ninguna” (none), “primaria incompleta” (incomplete primary school), “primaria completa” (complete primary school), “secundaria incompleta” (incomplete secondary school), “secundaria completa” (complete secondary school), “técnico” (technical degree beyond high school), “Universidad incompleta” (University incomplete), and “Universidad completa” (University degree).

Traditional biases in favor of males (funneling of family funds to the first male born, strong gender roles such as pushing men to acquire more education, jobs, and property and encouraging women to be housewives and child-care givers, etc.) has transmuted into statistically observable disparities in income, education, and land-holding between men and women. A possible elucidating point from this is that women realize these unequal patterns and for decades have sought income and advancement outside of traditional and institutional frameworks, such as the informal economy. Perhaps educated women also perceive this and adhere to it, such that they choose not to participate in formalized state monetary grants (P.E.S.) in favor of pursuing more reliable or at least more gender-neutral forms of income in the informal economy. These sources of income include cleaning neighbors' apartments for money or goods, and creating art and goods which can be sold to tourists, such as handbags from recycled plastic bags, painted paper maché animals, and the like.

- Gender :: Age :: PES Participation

In this study as a whole, women interviewees were younger (51.7 years old on average) than males (58.4 years old). Female PES participants were younger (54.2 years old on average) than male PES participants (sixty-one years old), and female non-participants were younger (49.1 years old on average) than male non-participants (55.7 years old). This is significant due to the fact that women who participated in PES averaged twenty-five percent fewer years of education than those who did not participate in the program. That is, female PES participants were *older yet less educated* than their non-participating counterparts. Hence, it can be postulated that age is more strongly correlated than education in instigating participation in the payment for environmental services program.

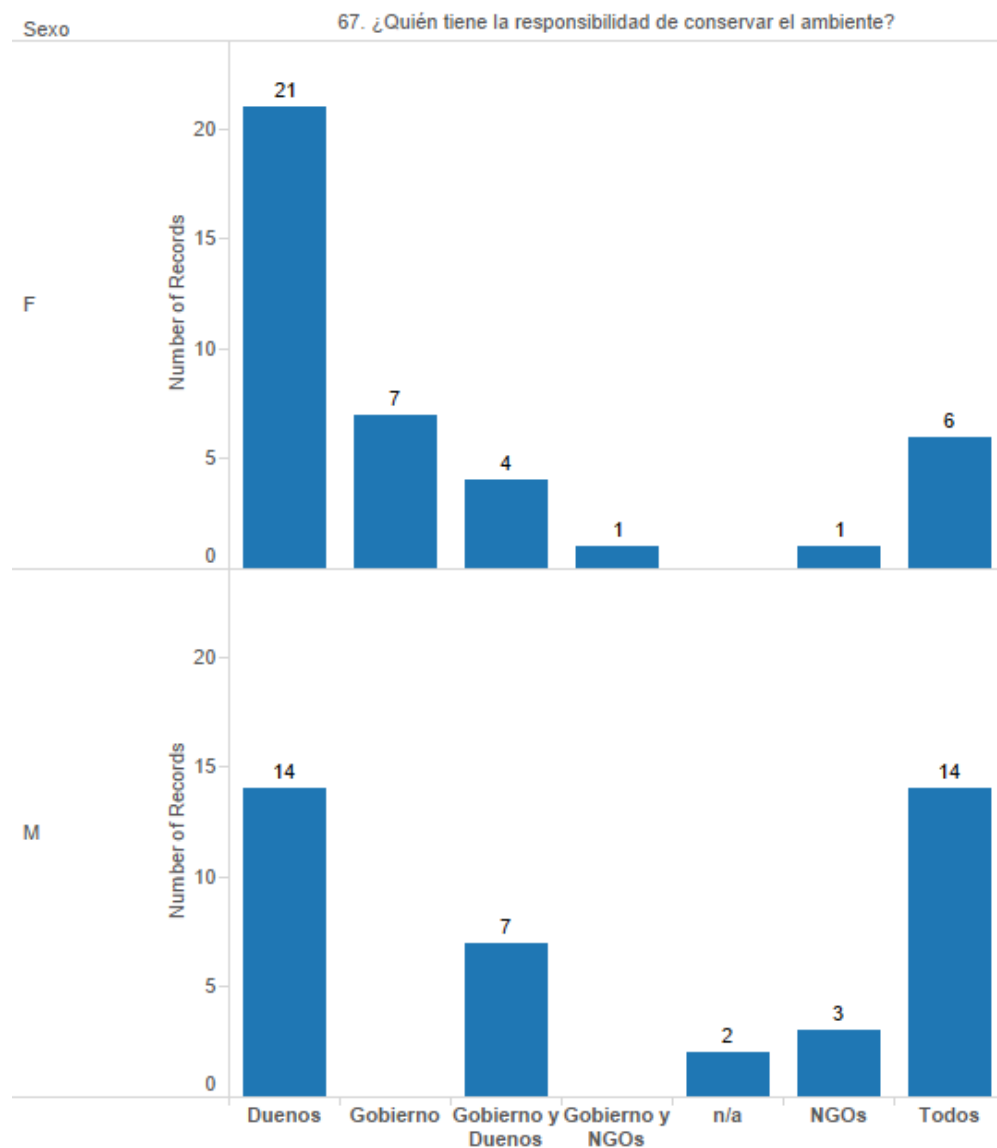
This points to social factors and personal maturity factors as more critical than formal education in making someone more likely to participate in PES. Perhaps social networks as conveyors of information about these programs are more important than one's personal ability to read about or gather research about them. In this community which has been marked by deception in the past – principally by Osa Forestal land-development company in the middle decades of the 20<sup>th</sup> century – people apparently trust their neighbors more than they trust high-level government or corporate documentation or promotional materials. I certainly found this to be abundantly true on the peninsula. Therefore, more advanced age may translate to stronger and more trusted social ties and relationships which can translate to more opportunities to receive reliable information about any “outside” land-related proposal, such as the PES program.

- Gender :: Perception of which gender has more knowledge of environmental issues

Respondents were asked “who knows more about the environment: men, women, or it's equal?” The responses were unexpectedly similar, and in fact almost identical. 6 women and 6 men answered that “men” know more about the environment, while 5 men and 4 women said “women” knew more. Twenty-eight women and twenty-nine men answered that environmental knowledge was “equal,” and two women did not answer. This could either mean that perceptions of gendered environmental knowledge truly are equal, or that efforts to be politically correct about gender questions truly are equal. The former would display a relatively elevated level of respect for females in the region, while the latter would at least show an acknowledgement that it is now “appropriate” to perceive women as equal.

- Gender :: Who has the responsibility of conserving the natural environment?

## Sheet 1



**Table 5.3:**

Gender-based perceptions of the distribution of responsibility for caring for the environment. “F” and “M” indicate gender. “Dueños” (owners), “gobierno” (government), “NGOs” (NGOs), and “Todos” (everyone) are choices provided for who is responsible for caring for the environment

Respondents were given choices of “property owners,” “NGOs,” “the government”(MINAE), and “the next generation.” Several respondents chose multiple

answers, and many simply said “todos” (all of them). Six women and fourteen men, in fact, said “todos” even though this was not presented as a potential answer. This answer, to me as the interviewer, displays a broader understanding of how social, economic, legal, and environmental players and factors must come together in order to solve the challenges with protecting the forest and animals of Osa and of Costa Rica. Responding “todos” signifies a grasping of the complexity of the problem of systematic environmental destruction to which the answer cannot be unilaterally financial (throwing money at the problem), social (environmental education), legal (tightening of environmental laws from the top down), or interventionist (allowing NGOs from the Costa Rican central valley and from foreign countries to impose their theories and plans on the social-ecological systems (B. Walker et al. 2004) of the Osa). The fact that so many more men responded “todos” (14) than did women (6) could suggest that men see, acknowledge, and rely upon state and private institutions more than women. This may certainly be based on the fact that men are favored statistically in receiving land grants from the government and agricultural loans from national banks. (Carmen Diana Deere and Leon 2003). That is, men might have more confidence in state and private institutions to aid in and ameliorate the lives of locals than do women, based on the above statistics.

Also notable is that twenty-one women responded that the sole entity in charge of caring for the environment were “property owners” as compared to only fourteen men. This fortifies the above point in that women seem to feel that they are on their own when taking on everyday challenges and tasks. A disproportionate reliance on the informal sector of the economy for income, for instance, evinces this mentality among women. Seeing it as their sole responsibility to care for the forest or environment actually could logically make women more likely to conserve forest without the incentive of PES, since they rely less on state and institutional help than men in general. That is, in the absence of outside funding as a director of female behavior, women are

operating in an environment less influenced by institutional ethos and influence than men. This fact could also be used as a stimulus to increase PES contracts to women since they are less likely to be “doing it just for the money” and less likely, therefore, to bend the rules (such as cutting and selling trees) when the threat of punishment were low.



**Figure 5.7:** A group of women volunteers who regularly did improvement projects in Puerto Jimenez

- Gender :: Do you hunt?

Respondents were asked if they themselves hunted. Nine of forty men said yes and only one of forty women said yes. Hunting is a strongly gendered activity to rural Ticos, with only the most fiercely independent and rural females participating. Young boys are often socialized to hunt as a father-son activity from a young age. In a region dominated by rurality such as Osa, subsistence hunting (once or twice a month) for families is very common. Sport hunting is historically just as common, based on anecdotal information, yet hunting for sport is increasingly frowned upon as



environmental awareness, along with eco-tourism income, grow. Incidentally, no women and only two men who were participating in PES admitted to hunting on their own land (hunting is completely prohibited on PES land).

- Gender: Are PES programs effective at providing useful funding to campesinos?

Respondents were asked to give a number between 1 – 4. Women averaged 2.7 while men averaged 2.3. Even though women and men PES participants happened to both receive exactly the same percentage of their overall income from PES (44%), and women's smaller average farms (67.9 ha. compared to 90.5 ha. for men participants) provided less PES income, women seem to feel that the PES program is more effective at providing useful income to campesinos. This may simply be due to the fact that women are historically less likely to receive government land grants or private bank loans than men, so they are more appreciative to receive such institutional funding.

- Gender :: Are PES programs effective at protecting the environment?

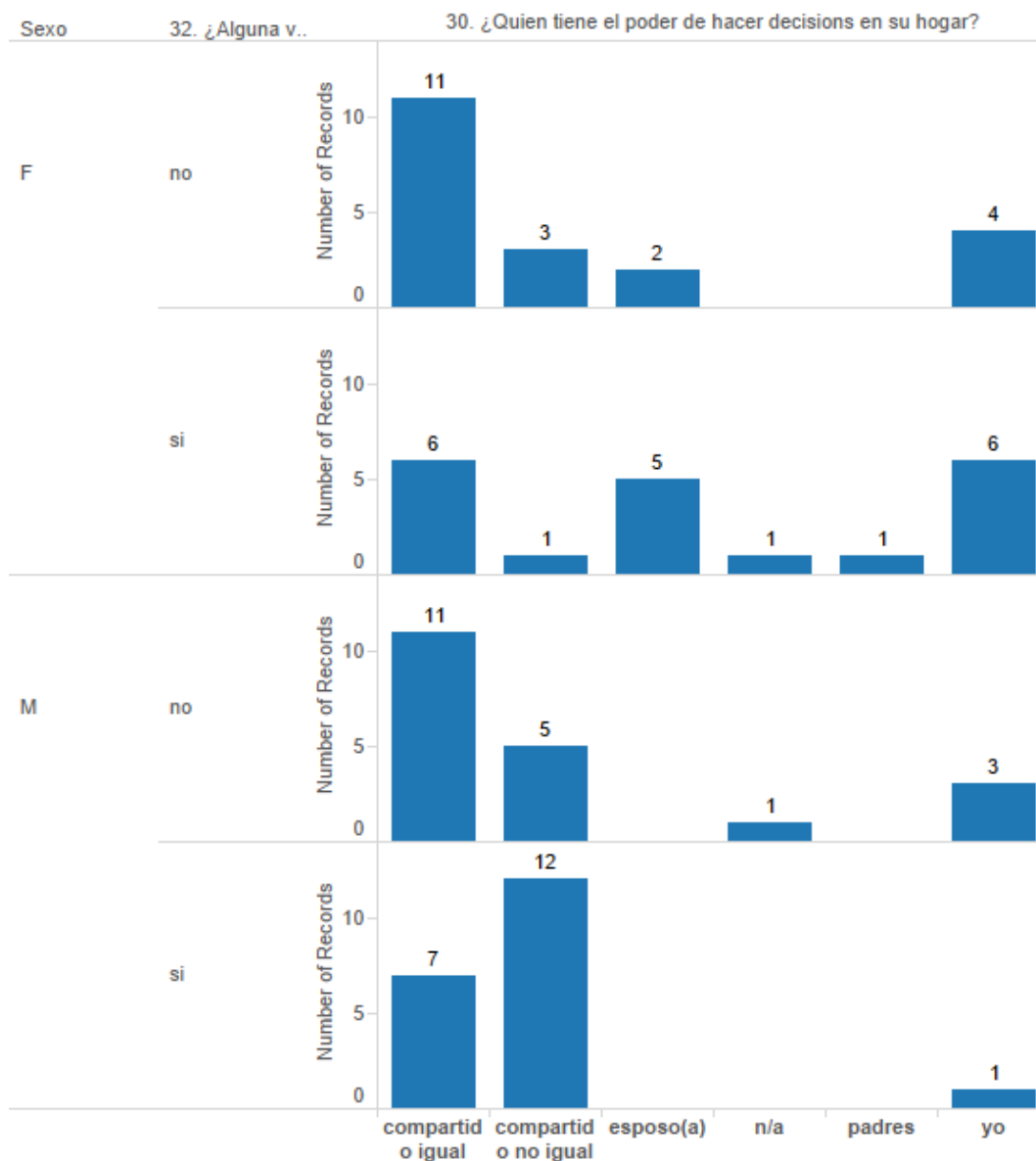
Respondents were asked to give a number between 1 – 4. Women averaged 3.15 and men averaged 3.25. At first glance and compared to the previously listed result above, this shows that all respondents see PES as more effective at protecting the environment than at providing income to participants. It also shows that men and women perceive PES's ability to protect the environment fairly equally, with a slight edge to men. This gender difference may be based on the fact that it was commonly reported that men spent more time outside or walking/caring for their land. "Hombres andan más en el bosque" (men go out into the forest more) was a common statement proffered by men and women alike when asked about gender differences in environmental perception and knowledge.

- Gender :: What have been the environmental benefits of your participation in PES?

Respondents were asked to comment on the environmental benefits/improvements of their PES participation as observed on their own land. Answers were freely given then later grouped into categories very easily, since there were essentially only five responses offered: more animals, more birds, more/healthier forest, change in rain patterns, or no observed change because the land had been untouched for years prior to submission into the PES program. “More animals” and “more birds” were merged into one category of “more animals” for streamlined processing of data. Nine women mentioned “more animals”, while seven mentioned “more/healthier forest” and three mentioned “change in rain patterns.” Thirteen men mentioned “more animals,” ten mentioned “more/healthier forest,” and seven mentioned a “change in rain patterns” (between male and female respondents, eight observed an increase in rains and two observed a decreased in rains.). Again, respondents were allowed to give multiple responses, though some only gave one observed change. Men were more likely to observe multiple changes to the flora and fauna on their land, which is likely related to the above-stated tendency for men to “go out into the forest” more than women, making them more likely to observe biophysical changes.

- Gender :: Who has the power to make decisions in your home?

## Sheet 1



**Table 5.4:** Decision-making power in the home. “F” and “M” indicate gender of respondent. “no” and “si” indicate PES participation. Choices along X axis are response to “who has the power to make decisions in your home?” They are as follows: “compartido o igual” (shared or equal), “compartido pero no igualmente” (shared but unequally), “espos(a)” (my spouse), “padres” (parents), and “Yo” (Me).

Respondents were asked to choose between the following responses: 1) Me, 2) My spouse, 3) My spouse and I equally, 4) My spouse and I unequally, 5) Parents. What emerged was, to me, very interesting in that a tendency for male dominance in the household was reported in PES participating families, regardless of whether a man or woman participant/land holder was being interviewed. Another way to say this is that in non-PES-participating households, women generally had more power. For instance, let us first look at women respondents. Among PES participant women, six said that the household decisions were made equally by her and her spouse, but among non-participant women, eleven reported this same gender egalitarianism. Moreover, five women PES participants said that their husband was the main decision maker, with only two reporting so for non-participants. Therefore a clear trend for gender inequality is notable in PES households when compared to non-PES households.



**Figure 5.8:** Osa farm wife and her family

Among male respondents, the trend was the same. Seven PES-participating men reported that he and his wife had equal decision-making power, as compared to eleven non-PES-participating men. In fact, twelve PES-participating men stated that power was shared between “my spouse and I but unequally”, compared to only five non-PES-participating men. Based on these results, it can either be assumed that gender unequal households tend to participate more in PES, or that the act of PES participation shifts household dynamics to favor men. Since many PES participators had only been a part of the PES system for 0-5 years, it is unlikely that this one changed facet of their lives for only a few years would have the power to shift established gender dynamics in the home so quickly. In other words, already entrenched household gender dynamics are likely the factor causing PES participation rather than the reverse. The reasons for this could be myriad. The easiest explanation is the fact that women are less conditioned to seek money or support from the government or other institutional sources, given the strong male biases pervasive in many levels of rural Costa Rican society. Therefore, female-dominated households would be less likely to seek out government-sponsored funding, in this case PES, than would male-dominated households. When males are the deciding force, in other words, they tend to seek out payment for environmental services programs more than when females are the deciding force.

- Gender :: What have been your personal benefits from PES participation?

Respondents were largely allowed to freely respond to this question, unless they needed goading with example responses. Multiple responses were also allowed. Responses were easily categorized to fit into four groups: “helping the environment,” “more time with family,” “money,” and “time to seek out another job.” Five women mentioned “helping the environment,” six mentioned “more time with family,” eight mentioned “money,” and two mentioned “time for another job.” This is compared to

only two men that mentioned “helping the environment,” five mentioned “more time with family,” eleven mentioned “money,” and four mentioned “time to seek another job.”

This divulges much more personal satisfaction among women being tied to improvement of the environment as compared to men, as well as a slightly higher focus on family. On the contrary, men were much more likely to tie their satisfaction with the PES program to how much money they made, which does reinforce findings elsewhere that showed men as viewing land more commonly as a salable commodity and women viewing land as a home for themselves and their children (C.D. Deere and Leon 1982). These results display that women may be more effective at protecting the forest environment as PES participants because their happiness and personal satisfaction is more tied to environmental improvements than for men. That is, assuming that FONAFIFO’s goal is maximum forest conservation, female participants in Osa show signs of aligning more with that goal than men, who focus much more on monetary income. Hence, it would not be unreasonable to direct more PES contracts to women than men as a way to increase overall forest conservation effectiveness without increasing total regional funding at all. This is a critical point.

## Chapter 6: Conclusions

During my field research in Costa Rica, I have connected with all levels of Costa Rican society, from one-one-one discussions with president Luis Guillermo Solís as well as his environmental minister to regional government-agency representatives to a bevy of remote rural Osa campesinos. From these interactions, I've compiled an amalgam of perspectives and insights from the political, economic, social, historical, and personal realms that allow me to construct a picture of Costa Rican human-environment relations which I feel is as representative, current, and useful as possible, considering that I am an outsider.



**Figure 6.1:** Author with Costa Rican president, Luis Guillermo Solís

In this brief chapter, I will summarize the critical thematic and statistical highlights of the main sections of this dissertation and relate them directly to the three core research questions of this dissertation. I will also offer my conclusions and policy recommendations as to the management of programs, institutions, and landscapes of

the Osa peninsula. The sections of this conclusion include a conceptual look at how payment for environmental services can help ameliorate the travailed relationship between capitalism and nature, as well as discussions of MINAE, P.E.S., land tenure, and women.

## CAPTIALISM AND NATURE

Adam Smith proffered the idea that healthy self-interest will make an economic actor productive, competitive, and will end up, through the guidance of the “invisible hand,” producing the most overall good for the most people. Smith’s approach may have been fitting for his time, as 18<sup>th</sup> century entrepreneurs were battling to be freed from the constraints of entrenched mercantilism, crony capitalism, royal birthright societies, and entrepreneurialism being generally suffocated by protective taxes and tariffs. But today, even pre-neoliberal (pre 1980s) global capitalism was vastly more liberal and unrestricted in most of the world than the conditions under which Smith wrote his *Wealth of Nations*. And therefore, is it not suitable that a new more fitting model be espoused for prodigious and provident economic growth?

For instance, John Nash, mid-20<sup>th</sup>-century nobel-prize-winning mathematician, created the “Nash equilibrium” which suggested that one’s decisions are more effective when one thinks collectively and includes the possibility, rationality, and influence of other’s choices in one’s group. This theory experienced wide acceptance and application in economics, military action, traffic flows, use of common natural resources (Hardin’s Tragedy of the Commons), etc. Around this same time (1950s), Carl Sauer was adopting and projecting the German philosopher Herder’s idea that Einfuhlen (empathy) was critical in understanding and interpreting any culture or group. These more collectively minded and compassionate approaches have, therefore, arisen from within economics and the social sciences.



Yet what of Western society's relationship with nature? In the Middle Ages, Europe's ideas about nature were still steeped in superstition, fear and mortal conflict. Nabatean Islamic agronomy (Tate 1996), for instance, presented a more holistic, harmonious relationship with nature as far back as the 4<sup>th</sup> century AD, while centuries later the European Enlightenment generated conceptualizations of nature which aimed at either protecting or controlling/subduing nature. Modern Western environmentalist writings which first elucidated notions of the synergy and synchronization of entire ecosystems could be traced to works by Thoreau, Marsh (1865), Leopold (1949), and later to Carson's *Silent Spring* (1962).

Therefore, Western civilization finds itself with new frameworks for understanding its relationship with both capitalism and nature. Yet capitalism has been heartily attacked for its tendency to degrade nature. From Schumpeter and Marx's "creative destruction" (Schumpeter 1994 [1942]) to Sauer's "destructive exploitation" (1938) to Arturo Escobar's "Alternatives to Development" (2011) the deleterious effects of capitalism have been well theorized and documented by some of this hemisphere's greatest thinkers.

The neoliberal wave, first expressed in the 1980s, became an unlikely candidate for the creation of a space where capitalism and nature can heal their troubled relationship. Partially as an expression of the neoliberal focus on categorizing and quantifying nature, but also reflecting its tendency to entrust the individual with monies and decisions rather than the state, was birthed an affinity for payment for environmental services.

Though pure environmentalists express fear that these programs may stimulate the "putting a price tag" on all of nature, other centrists such as I suggest that pricing ecosystem processes does something extraordinary – it makes trees and animals more valuable alive than dead. And this sole fact makes it possible that P.E.S. can engender revolutionary changes to the relationship between capitalism and nature.

## MINAE

The Ministry of Agriculture, Environment, and Telecommunications (as it is now called) is an indispensable government agency, but it is also a flawed government agency. It absolutely must continue to fully function on the Osa peninsula because many campesinos and urban dwellers alike remark that without MINAE there would be chaos and environmental degradation would dramatically escalate. So the organization serves a very important line of defense against illegal harvesting of all manner of natural goods, from trees to animals to gold. Campesinos believe that MINAE is awash with money and pays its employees hefty salaries, yet speaking to people within the organization it is clear that this is not the case. For instance, the organization's budget is not sufficient to purchase vehicles, but luckily it has received six donated vehicles with which it patrols the entire 1,625 square-kilometer peninsula. Any small augmentations to the MINAE budget would be, in my opinion, worth the money.

In terms of its personnel, MINAE's middle and upper management and office staff in general is educated, informed, professional, warm, and well-intentioned. Their affection and care for the peninsula and its people is clearly evident on a moment-to-moment and season-to-season basis. Over the course of countless interactions, both professional and personal, with MINAE middle and upper management, I can say that I have no reservation about their earnest commitment to help both the people and the environment of the Osa in any legal way that they can. Many of the MINAE employees pay for extraneous items or services out of their own pockets that will help them do their jobs better. A few employees' passion for protecting the environment even spills over into their personal lives. For instance, ACOSA director Juan Jose Jimenez Espinoza – affectionately known as J (“Jota”) around town – organizes bi-monthly environmental education “charlas” (workshops) in the evenings, and he runs field trips to the local arboretum where tree planting and demonstrations take place. Both of which are open

to the public and well-advertised. He also posts meaningful, substantive, work-related themes on Facebook on a daily basis.

That is a brief summation of the good aspects of MINAE, and I would say that the good outweighs the bad. The two main areas for potential improvement within the organization are the field agents' treatment of campesinos as well as internal systemic corruption. In terms of character and conduct, there is a noticeable divide between MINAE management/office workers and its field agents. MINAE's managers tend to have more education and tend to have been with the agency longer. Field agents tend to be less educated or uneducated and tend to be more recently hired. Field agents have trucks and carry guns. For a relatively untrained individual with likely a basic level of education, this small amount of power has shown the propensity to corrupt. Harassment of campesinos by MINAE field agents is a very prevalent complaint and anecdotes bear out the opinion that this harassment tends to be inflicted on the poorest farmers and therefore those least able to defend themselves legally or financially. Harassment can be anything from seizure of equipment which is suspected of being used for gold mining or full-out searches of homes which involve dragging everything out into the yard to inspect it. Field agents are also hyper-vigilant about the cutting of one tree or even one branch of a tree on one's own land, for instance if that branch is causing damage to one's house roof. Multiple times, I've spoken to people who've spent days in jail because they cut down one "troublesome" tree on their own property. This kind of ticky-tack draconian enforcement of the larger anti-logging thrust of MINAE is too extreme, an abuse of power, and is counter-productive.

I have also heard from several different sources that MINAE guards within Corcovado park have a collaboration with medium-to-large-scale gold miners in the park that allows the miners to illegally extract gold as long as the guards get a cut. The mining machinery and water pumps are visible within the park to prove that this is happening or has happened, but there is no proof save multiple anecdotes from unconnected

parties that this involves MINAE corruption. Many postulate that outside the park, MINAE field agents turn a blind eye to friends who wish to cut and extract trees nocturnally. Again, like many things that happen in the rainforest, this is difficult to prove or document beyond trusting the word of those who live in the area. I do have photographic proof that MINAE guards within Corcovado fish the rivers and eat their catch as a regular way of operating, which is shocking and discouraging to me. The fact that they are killing the very fish, animals, or trees that they are paid to protect is an abomination. To their credit, when upper management was told of this indiscretion, they were very grateful and said that they would take stern action. Locals say that the corruption runs so deep that no action would be taken in that particular case, and based on my sources still in the area, it appears that no decisive justice has yet occurred.

#### Recommendations

Given that MINAE, overall, is a critical line of defense against illegal harvesting, and that their middle and upper management are essentially very commendable and honorable employees, it is clear that MINAE's role in environmental protection on the peninsula is indispensable and should be continued. However, due to the various confirmed and unconfirmed cases of corruption within the organization, it is clear that some type of intermittent or continual audit and supervision of the organization at all levels is necessary. This should ideally be performed by an independent agency. Examples are 1) the Caja Nacional (IRS), both because of their obvious adeptness at tracking flows of money and also that they have a large enough staff that re-purposing one or two employees would not significantly affect their overall functioning, 2) ICE (National electric and telephone company) mainly also because of their large staff in the area, or 3) INDER (Rural Development Institute) because, even though they only have five full-time employees in Osa, the organization has the connections and savvy with farmers and the outdoors that the other organizations may not.

Another recommendation that I proffer is that each landowner should be allowed by MINAE to cut down and either sell or use one tree (of non-threatened species) per five hectares of their personal property per year. Although this may seem like a step in the wrong direction on the micro scale, in the region as a whole it could be very beneficial. First, this would put money into the hands of property owners. Property owners by and large have an elevated knowledge and love of their land. Yet with fewer and fewer options for income, they are sometimes pushed to take from the forest so that they can feed their families. Allotting them one tree/5 hectares/year would not only be a show of flexibility from the government and would naturally improve such relations, but it would ease financial pressure on campesinos and inevitably have some impact on illegal logging or hunting that they may have done instead. Furthermore, since annual cutting would only be allowed on pre-approved, pre-identified trees, it would be in large part regulated and trackable. And again, I only recommend permitting one tree per five hectares per year.

As the rules stand now, land owners cannot cut any trees down on their property under any circumstances. Even when a dead tree falls on their property, there is so much paperwork that often takes a year or more to be approved to cut and use the wood for construction. By that time it has often begun to significantly biodegrade and is useless. Carlos “Mickey” Quintero said that if fallen trees are allowed to biodegrade and otherwise not utilized, then they release the precious carbon that they’ve previously sequestered, so it makes no sense. Upper management within INDER also are pushing to allow landowners to be able to easily sell naturally fallen wood, at the very least, on their land.

## LAND TENURE

**Research Question: How does land tenure affect the implementation of payment for environmental services programs?** Subquestions include 1) How has the region’s land-

tenure history set the stage for current land-tenure conflicts? 2) In what ways does land-tenure status directly affect one's earning power within the payment for environmental services programs?

Subquestion 1 and 2 will be answered in unison below, as the themes are strongly intertwined.

Land tenure is a contentious issue on the Osa peninsula. As stated in the land tenure chapter, there have been several pivotal events or trends which have significantly affected land ownership in the region. The focus here will be on three of those developments: 1) the establishment of Corcovado national park in 1975, which relocated over 80 families and is still painted by some as an illegal land grab, 2) the evolution of the organization known first as ITCO (Instituto de Tierras y Colonización) then IDA (Instituto de Desarrollo Agrario) and presently as INDER (Instituto de Desarrollo Rural) which first granted squatters rights, then formal title to many landowners but now has been forced to cease granting such titles, 3) the landmark 1996 Ley Forestal 7575 which not only formally established payment for environmental services on a national scale, but also tightened forest protection laws and complicated pathways to formal land ownership.

First, the establishment of Corcovado national park in 1975. There were many questionable aspects of this territorial arrangement; one such representative detail was that then president José Figueres (who left office in May of 1974) had strong ties to North American companies such as "Vesco" who were known to launder money in Costa Rica through land purchases. Second was that the territory for the park was obtained from a highly debated land swap with U.S. LLC Osa Forestal. Third, Corcovado park was created by executive order of president Daniel Oduber in October of 1975, supposedly because of limited support among the legislature in Costa Rica at the time. Lastly, what

was effectively a nationalization of a giant tract of territory was decidedly opposed to the neoliberal ideals which would infiltrate the country less than a decade later.

Though I acknowledge the dubious nature of several aspects of the creation of Corcovado, I do not believe that a deep investigation into the legality of its establishment would be fruitful or beneficial overall. I do feel, however, that an investigation into the relocation of former residents of Corcovado is necessary in order to deliver fair and commensurate restitution for nationalized lands taken from long-time squatters. Detailed historical inquiries should be conducted, including interviews with surviving family members as well as government officials involved in the implementation of these dislocations at the time. Cash or land restitutions to these eighty families does not represent an onerous responsibility to the state of Costa Rica, but it would go a long way toward healing the rifts and grievances that were caused by the park's original land usurpation.

The other two significant issues of the role of ITCO/IDA/INDER and Forestry Law 7575 of 1996 are interwoven so they will be dealt with together. ITCO encouraged squatters to move into the Osa peninsula in the 60s and 70s so that the land would be settled and "improved." In 1980 the organization began helping "precaristas," or squatters, to attain formal ownership of their lands. Yet Law 7575 essentially ceased the conversion of squatter lands in Osa into formally owned properties. Article Two therein set up "legal precedent for the state of Costa Rica to expropriate any lands, private or otherwise, under any current land-use regime, for conversion to a state-owned protected area." This has heavy communist/socialist leanings as the state is claiming the right to appropriate any undeveloped lands and is clearly attempting to expand its landholdings. Specifics under the law, which a surprising percentage of Osa residents can recount, states that when a tree has reached greater than 15 centimeters in diameter it becomes "patrimonio del estado" (assets of the state). This means that

thousands of acres of formerly cut forest which are now recovering are constantly crossing that threshold and officially becoming assets of the state of Costa Rica.

The problems with the cessation of the conversion of squatter lands to formally owned lands center on the fact that perhaps half of all properties held by individual families on the peninsula are in a state of “posesión” (possession) and hence do not have formal ownership paperwork. Many studies from Hardin’s classic (1968) to more modern works (Erickson, Ryan, and De Young 2002; Hodge 2001) have exhibited that one’s incentive to protect the biotic and abiotic resources of one’s proximity increase dramatically with formal ownership of that territory. That is, when no one owns land, it tends to be abused for profit or survival by those with access to that land. There is also less of an incentive to protect that land from other interlopers, such as loggers or hunters, if one does not own that land.

Protecting the forest is the ultimate stated goal of Forestry Law 7575, and therefore based on the above evidence, removing blockages to squatters’ attainment of full formal ownership of land in the Osa would synergize with and further the goals of the Law. This would involve a change from the top down in that INDER wants to continue granting full ownership to “precaristas” but has been roadblocked by the national-level MINAE controller who lives in San José and is focused on upholding the edicts contained within Law 7575. This change would also bring more stability to the Osa by allowing squatters to earn a more steady income. Owners with formal paperwork can participate in the “reforestation” category of PES which earns over three-times as much per hectare per year (\$197) than forest protection, and they also can legally sell fallen wood from their property which can literally generate thousands of dollars in a given year. This increased income would ostensibly allow some extended family members to move back to the homestead and would increase the number of individuals who have a vested interest in monitoring and protecting their land, rather than the reverse. MINAE administrators in Osa whom I interviewed agree



wholeheartedly that the lack of formal titles is a big and pressing problem of paramount importance.

#### PAYMENT FOR ENVIRONMENTAL SERVICES

**Research Question: How do the unique social and geographical settings of Costa Rica's Osa peninsula affect how payment for environmental services programs are expressed and implemented there?** Subquestions: 1) How have changing conceptualizations of the human/environment relationship among Osa residents aided in the acceptance and functioning of payment for environmental services programs in the region? 2) In what ways have land-use shifts in Osa, based on both legal and economic changes, made payment for environmental services a more viable modality?

Subquestion 1) How have changing conceptualizations of the human/environment relationship among Osa residents aided in the acceptance and functioning of payment for environmental services programs in the region?

As described earlier, the ideological foundation for the human/environment relationship in Osa is several-tiered and includes colonial-era factors, a history of decentralized landholding contributing to a healthy democratic process, consistently high spending on social and environmental welfare, indigenous influences, a strong local cattle ranching tradition, twentieth-century ideological shifts within Costa Rican state institutions, environmental ideology from Europe and the U.S., and a conspicuous local love of the land in the Osa peninsula. These sometimes conflicting ideologies and environmental perceptions exist to some degree within most Osa residents and they manifest themselves in certain environmental and social situations more than others. For instance, women often seemed more free to express their pro-conservation opinions in the absence of male family members.

The principal ideological shift over time, which is pertinent to the implementation of P.E.S. has been one in which locals previously viewed the natural world as something visually beautiful yet also as a repository of life-giving sustenance in times of need (ie, hunting or logging). What is more observable now is an ethos which similarly recognizes the beauty of the landscape and its flora and fauna, but also sees the land as something to be protected both because it can bring in money and because it is the foundation of the future sustainable development of the region. What this entails is the fading of the utilitarian, extractive aspects of indigenous land use ideologies and the steady decline of the cattle ranching tradition and to a lesser extent the decline of the local tradition of hunting for sport. These out-dated ideologies are giving way to influences that have long been present at the local, national, and international levels.

Locally, indigenous conceptualizations of human/environment symbiosis are gaining prominence because they synergize with more conservationist ideas. Nationally, the long-time undercurrent of environmental conservation in government legislation and political platforms has also begun to trickle down to the remote areas of the country such as Osa. Lastly, international environmental conservation philosophies from Europe and the United States are, within the past forty years in particular, soaking into the minds of Osa locals, both anecdotally through interaction with tourists, and also discursively from literature published by NGOs and visiting scholars.

This broad shift from a more extractive to a more conservationist mindset over the past half-century has gradually prepared the local citizenry for the notion that payment for environmental services is something good, viable, and fitting for this region. Combining environmental protection and income was not a prevalent concept fifty or even twenty years ago in this section of the country. But these shifts in traditions, philosophies, and cultural ecologies have coincided well with the arrival of P.E.S. to effectively usher in a new era of conservation on this peninsula.

Besides modifications in beliefs and traditions, some very tangible changes in Osa have also made the arrival of P.E.S. very welcome, but mainly because other viable options for income have simply been removed. Several familiar local factors and processes are forcing Osa's rural residents off of their land and/or into compromised financial status: the establishment of Corcovado national park and the Golfo Dulce Forest Reserve in the 1970s, the cessation of government-sponsored CNP (national council of production) markets around the turn of the millennium, and Forestry Law 7575 of 1996.

These first three factors combine to create a situation called land-use "enclosure" (enclaustramiento) (Isla 2006a) because of the limitations imposed upon locals, and can work to increase the desirability of PES participation, since it is one of the few remaining legal forms of income in the region. As discussed in the "Land Tenure" section above, the same Law 7575 all but stopped the acquisition of formal land titles by squatters, reducing their overall economic and market-based leverage concerning the buying, selling, and utilizing of land. These changes have led to a sizeable emigration from Osa to more populated regions as family incomes and options for income have shrunk.

One option for income which has arisen to partially – though far from entirely – replace these lost streams of income on the peninsula is payment for environmental services. The remoteness of Osa and the vanishing of CNP markets have erased the Von Thunian aspect of distance from markets being directly related to desirability of payment for environmental services participation on which earlier studies in Osa had focused (Sierra and Russman 2006). Also, because of the "protected area" status of the majority of landscape on the peninsula, commercial farming, commercial livestock production, and significant tourism-space development projects are virtually non-existent. Therefore, the remoteness and museumification of the Osa peninsula has in

various ways removed the natural economic competitors that the P.E.S. program must economically out-compete in other areas of the country.

Subquestion 2) In what ways have land-use shifts in Osa, based on both legal and economic changes, made payment for environmental services a more viable modality?

The fundamental land-use-related legal and economic shifts in Osa, which have affected the implementation and reception of P.E.S. programs are the establishment of Corcovado park, establishment of the Golfo Dulce forest reserve, the cessation of government-sponsored agricultural markets, and the passing of Forestry Law 7575 in 1996. The first and the last of which will be inspected differently than in the land tenure section above. First, the establishment of Corcovado national park in 1975 relocated approximately 80 families and set aside 40% of the peninsula for strictly enforced conservation. According to University of Texas biologist, Larry Gilbert (Gilbert, 2015), the only alfisols on the peninsula exist within Corcovado national park, so this state usurpation of territory also took the highest-quality farmland from locals. Thus, this one act reduced land space available for settlement and livelihood and pulled farmers off of the best soil in the region. Second, the establishment of the Golfo Dulce Forest reserve in 1979 extended the “protected area” status to approximately 80% of the peninsula. Although forest reserve restrictions are more relaxed than those in a national park (eg. human residency is allowed), cutting living trees or hunting for any reason are forbidden. This means that the expansion of agricultural land or felling of forest for any category of development within the forest reserve is forbidden. The national park is essentially off-limits to locals unless they pay the high price to visit the park as a tourist, while the forest reserve is off-limits to any expanded development, or increases in territory for agriculture or animal husbandry. The combined effect of the

superimposition of these two protected areas on the peninsula critically restricted traditional money-making activities by locals.

Third, in a fundamentally neoliberal move, the central government ceased funding all CNP (national council of production) markets and seed subsidies to farmers. Hence, the farms that did already exist within the forest reserve and were still functioning now had no benefit of free seeds to plant, nor price-supports for their staple crops, nor local produce markets – all of which were formerly financially supported by the central government. As suggested earlier, this cessation of CNP subsidies, between 1998 and 2000, was the final nail in the coffin for traditional agricultural production in Osa.

This stimulated the gradual depopulation of the peninsula's farm communities, which has now grown to be quite conspicuous based on the number of abandoned farm houses and primary schools across the landscape. Those who stayed commonly express a feeling of being, more or less, trapped in a state of poverty, essentially completely financially disempowered. The fourth significant shift actually also happened in the late 1990s in the form of Forestry Law 7575 in 1996. This law was both a boon and a bane for local farmers. It effectively tightened the restrictions on all protected areas, provided funds for a force of park guards to enforce these restrictions, and – as stated in the section above – threatened to take over any forest which was not formally owned (squatter lands). The silver lining was that the law also created a national system of payment for environmental services. This system arrived, therefore, exactly when campesino life looked the most bleak and the most restricted, and it provided something campesinos hadn't had in decades: a new source of legal income.

Hence, the conditions were somewhat ideal for a rapid and precipitous change from agriculture, logging, and hunting to a widespread solicitation of P.E.S. funds for sustenance. Without the recent removal of the other viable forms of income – together with the ideological shifts described in Subquestion 1 above – P.E.S. would have

certainly made dramatically slower progress in the region. In other words, in the absence of other options for income, beginning in the late 90s, P.E.S. suddenly looked very attractive. This is evinced by the fact that applications for P.E.S. funds in the area always far outpace funds available.

### Recommendations

In the past two decades the importance of the P.E.S. program as a source of income in Osa therefore increased. In following, it is less than ideal that payments for the most common P.E.S. modality of forest protection are a mere \$64 per hectare per year. This means that a farmer with a seventy-two-hectare farm (the average farm size for a PES participant in my survey) earns only \$4608 in total income off of their property in a year. That \$4,608 family income is approximately half of the national average income for an *individual*. So suffice it to say that this is a stipend that is difficult to live on.

Moreover, even since the 2011 implementation of a new FONAFIFO point system favoring farms under fifty hectares in size for the acquisition of PES contracts, larger farms still have multiple advantages in the PES system. First, simply by the basic multiplier effect, a single-family farm of 200 hectares brings in \$12,800 per year (at \$64/ha/yr) while a single-family farm of fifty hectares brings in \$3,200 per year. Also, fixed costs for annual PES paperwork, costing between \$200 and \$800 per annum, are proportionately smaller for large farms. A smaller farm is much easier to patrol and protect by a single family than a large farm, so resources such as trees and animals could ostensibly be protected more effectively by these lesser-paid smaller farm families.

Combining this knowledge with the fact that MINAE is underfunded, under-equipped, and notoriously struggles to respond in a timely or effective way to reports of illegal logging and hunting, it seems a logical solution to transfer some of the

environmental husbandry and protection onto those who are already on-site: the landowners themselves. These in-situ “guardaparques” (park guards) effectively comprise an enormous, evenly distributed conservation and protection force that has massive potential for forest vigilance and the deterrence of illegal activities. If PES-participating landowners were paid slightly more and their responsibilities were augmented accordingly, they could rise up to be the tree huggers that environmentalists pine for as well as the crime deterrents that the state conspicuously needs. Owners of smaller farms not only are financially disadvantaged within the system but they also conversely have a clear spatial advantage when it comes to actually patrolling and protecting land, in terms of persons per hectare. When small holders cannot survive on meager PES payments, they are much more likely to abandon or sell their land, often to large absentee land owners. This transition can be very deleterious to conservation goals because this scenario results in the best line of defense against illegal harvesting – the smallholder him or herself – vanishing from the landscape.

Depopulation of humans and even domesticated animals is not necessarily always beneficial for desired conservation outcomes. Campbell (2002), for instance, challenges “traditional” enlightenment paradigms by showing how active community management of conservation spaces can be more effective than abandonment and museumification. Likewise, Sarkar (1999) exhibits how the removal of grazing cattle from Costa Rica’s Tortuguero national park allowed *Paspalum* grasses to invade and out-compete other desirable local plants for ground-space and sunlight. Reintroduction of small numbers of cattle helped to restore the vegetative balance. This is to say that the somewhat rapid rural depopulation of Osa after the turn of the century has not necessarily been good for forests and animal species populations, and this also clears the way for illegal interlopers and forest harvesters, as discussed above. I believe that an increase in PES payments for forest protection to small landholders in the region would

have beneficial effects on the local ecosystems as well as the local socioeconomic balance.

Therefore, my recommendation is that P.E.S. payments for forest protection be increased by 50% to farms under twenty-five hectares, raising the payment to U.S. \$96/ha/yr, and payments should be increased twenty-five percent for farms between twenty-five and fifty hectares, raising the payment to U.S. \$80/ha/yr. I believe that this could have multiple positive effects on the region. Other PES investigations in the region have also recommended an increase to at least \$75/ha/yr for forest protection because it would then become marginally more profitable than logging (Ibarra Gené 2007).

## WOMEN

**How do women's perceptions of and use of the landscape affect their role in payment for environmental services programs?** Subquestions include 1) Do women have land-use strategies and goals that are different from those of men? 2) How do women perceive and relate to the natural landscape and how does this affect their land-use decisions? 3) How do PES programs structurally favor land owners of one gender over another?

Subquestion 1) Do women have land-use strategies and goals that are different from those of men?

A salient set of responses in interviews came to the question, "What have been your personal benefits from PES participation?" Multiple responses were allowed and they were categorized to fit into four groups: "helping the environment," "more time with family," "money," and "time to seek out another job." More women mentioned "helping the environment" than men (five to two), and more women than men



mentioned “more time with family” (six to five). On the contrary, more men than women mentioned “money” as a personal benefit of PES (eleven to eight), and likewise more men than women (four to two) mentioned “time to seek out another job.” This discloses both that women tend to focus on how PES benefits the environment and their family, while men focus more on money-related rewards. Women, therefore, may be more effective at protecting the forest environment as PES participants because their happiness and personal satisfaction is more tied to environmental improvements than in men. In turn, women’s goals in P.E.S. participation are more similar to those of FONAFIFO (maximum environmental conservation) than male participants.

Other conclusions about female land-use strategies and goals are based on the female land-user profiles which I compiled over the length of my stay at my research site. Perhaps one-third of Osa women fall into the category of traditional housewife. Though to many women in this category, the thought of remaining static in that role is sometimes unsettling. Among the remaining women of Osa who are involved in land-use (non-urban dwellers or otherwise non-farm-residing or non-farm-owning), women fell into three general categories: those who openly opposed the environmental and gender-biased status quo, those who attempted to subvert the status quo and gain leverage through “infrapolitics” and indirect influencing of males, and those who removed themselves from masculinist and environmentally themed institutional and ideological superstructures in order to establish a completely independent land-use regime.

First, those who chose to directly oppose the land-use and masculinist status quo were generally more educated women, and most often transplants from larger cities or from the country’s central valley (where, notably, women’s roles are measurably different as in most stark rural/urban dichotomies). These women included business owners, farm owners, and NGO workers who made it their goal to shape and change the legal structures that guided (masculinist) land-use in the area. Their tactics included

environmental re-education agendas in the local communities, awareness building in order to influence voting patterns on issues related to the environment and land-use, and outright protests (“manifestaciones”) against exploitive TNCs in the area such as Osa Forestal.

Second, one faction of female land owner/users expressed their opinions and carried out their environmental will by influencing men to carry out these wishes for them. Most commonly this involved wives influencing husbands or sons to plant or harvest crops when and where they chose, to cut down or not cut down trees, to conserve forest amidst great pressure to convert to oil palm, or to build structures such as cabins on family property in order to attract tourist dollars. These women used their intra-family leverage to excise these favors or ends, and the men were compensated often by the wife/mother cooking their favorite dish, or simply by gaining family “capital” by being considered a good son or husband. Of note, these women outwardly allowed themselves to appear to be traditional women, but within the confines of the home, they carried themselves in ways which belied this appearance.

Third and perhaps most interestingly to me were the women who chose to remove themselves as effectively as possible from any institutional or male influence. These were invariably women who were formerly married to extremely machista husbands and now had either purchased or inherited a piece of property. These women showed many strong and similar tendencies. Without exception, they intentionally surrounded themselves with all females, save male children and extremely deferential or progressive men. Their living situations were essentially a circle of women and children that had established somewhat of an oasis from the influences of men and the state (as much as possible). What struck me as an observer was that these women tended to have a goal of self-sufficiency on their land – neither interested in commercial-scale profit-driven enterprises nor interested in government welfare or free small homes in local “urbanizaciones” (much like scaled-down Levittowns). A few

participated in P.E.S. and others not, but it was never their central pursuit. Rather, they idealized the notion of creating a family which could survive off of their own land through farming and/or animal husbandry. Teaching their youth how to do so symbiotically was paramount, as was rearing their children to be hard-working and to not grow up to contribute to the region's significant problem with vagrancy.

Subquestion 2) How do women perceive and relate to the natural landscape and how does this affect their land-use decisions?

Gender differences in responses to a few interview questions in this study were often telling. In answering the question "Who has the responsibility of conserving the natural environment?", twenty-one women responded that the sole entity in charge of caring for the environment were "property owners" as compared to only fourteen men. This fortifies the point that women seem to feel that they are on their own when taking on everyday challenges and tasks. A disproportionate reliance on the informal sector of the economy, and on non-state, non-institutional resources for support (due to well-documented social and institutional male biases in Latin America described earlier), for instance, evinces this mentality among women. Seeing it as their sole responsibility to care for the environment could logically make women more likely to conserve forest without the incentive of PES, since they traditionally rely less on open market forces and state intervention for matters dealing with property acquisition (C.D. Deere 2003; Carmen Diana Deere and Leon 2001b). That is, this fact could also be used to justify preferential offering of PES contracts to women since they are less likely to be participating solely for money and perhaps less likely, therefore, to subvert the system by illegally harvesting trees to augment income.

In another interview question, respondents were asked "who knows more about the environment: men, women, or it's equal?" Even though both women and men

frequently stated that men “andan más” (go around/spend more time) in the environment, respondents to this question implied quite clearly that environmental awareness is equal among the genders. Six women and six men answered that “men” know more about the environment, while five men and four women said “women” knew more. Twenty-eight women and twenty-nine men answered that environmental knowledge was “equal,” and two women did not answer. Of note also is that only one woman interviewed said that she currently hunted wildlife, while nine men did so.

Answers to one question provided a bit of a counterpoint to the rest of the examples in this section. Respondents were asked to comment on the environmental benefits of their PES participation as observed on their own land. Nine women mentioned “more animals”, while seven mentioned “more/healthier forest” and three mentioned “change in rain patterns.” Thirteen men mentioned “more animals,” ten mentioned “more/healthier forest,” and seven mentioned a “change in rain patterns” (most mentioned an increase in rains). Interviewees were allowed to give multiple responses, though some only gave one observed change. Men were more likely to observe multiple changes to the flora and fauna on their land, which is likely related to the above-stated tendency for men to “go out into the forest” more than women, making them more likely to observe biophysical changes.

Lastly, responding with numbers between 1 and 4 to the question “Are PES programs effective at providing useful income to campesinos?” women averaged 2.7 while men averaged 2.3. Even though women and men PES participants coincidentally receive exactly the same percentage of their overall income from PES (44%), and women’s smaller average farms (67.9 ha. compared to 90.5 ha. for male participants) command less PES income, women seem to feel that the PES program is more effective at providing useful income to campesinos. This is basic evidence divulges a feeling more present in women that the programs are fair and the payment for services rendered is proportional. Because of this, it is not illogical to assume that women may be more

likely to comply with PES regulations, and may also be more likely to renew their PES contracts after the initial 5 or 10-year period, which is critical for additionality and overall conservation outcomes.

Subquestion 3) How do PES programs structurally favor land owners of one gender over another?

Of all PES contract holders in Osa and Golfito cantons (which extend slightly beyond the Osa peninsula), women comprise only about 20% (57 out of 279 are women, but half of whom are married and hold the contract jointly) ([www.fonafifo.go.cr](http://www.fonafifo.go.cr), Sojo 2013). Therefore, only approximately 10% of PES contracts in the Osa and Golfito provinces are owned solely by women. Moreover, Among PES participants, women averaged \$829 of income per month, while men averaged \$ 1112 per month. Certainly this is a function of many factors, most of which perhaps that among the PES participants interviewed, property sizes for women averaged 67.9 ha. while for men they averaged 90.5 ha.

The reasons for this imbalance are of course largely due to the underlying and well-known land-use-based gender biases in Latin America which also significantly hold true in Costa Rica. Those include women's traditional role being domestic worker or unpaid farm laborer, the teaching of agricultural skills to males over females, the channeling of females into non-agricultural careers, the difficulty of accessing land-use-related lines of credit by females, and the assumption that the male is the "principal farmer" on the property (C.D. Deere 2003; C.D. Deere and Leon 1997; FAO 2013). All of these are reasons to take steps to redress this gender balance by adjusting PES payments in favor of women, which I recommend below.

FONAFIFO, to its credit, is at least acknowledging these gender imbalances and has taken one important *de jure* step toward redressing this by now listing all married

couple PES participants as joint owners of their property. On the surface, this boosts the appearance of female ownership in the area, but it also gives women a small measure of legal leverage, for instance after a divorce when property is divided up. Annual P.E.S. payments are issued in both owners' names, which also removes one financial hurdle for women.

On the other hand, changing names on checks and land titles does not necessarily have any effect on the gender dynamic in the home. That is, if the annual P.E.S. check comes to a household in the name of both a husband and wife, the wife may or may not have any control over that money or portion of the money. Changing power dynamics within a relationship or household – often via the woman's increased education or outside income (Chant 2009; Mannon 2006) – is a deeper issue and would need to be more directly addressed in order to truly equalize financial delivery of P.E.S. funds. This certainly is not in the realm of FONAFIFO's responsibility or specialization.

Lastly, female PES participants have significantly lower incomes and lower educational levels than female non-participants. Curiously, this trend is reversed in men. This gender differential may or may not be related to the payment for environmental services program. Yet one possible explanation is that PES homes tended to be more gender unequal than non-PES homes (see below), perhaps because these male-dominated homes apply for PES in higher numbers. Also, independent empowered women who make more money may not seek out PES as a source of income as much as others due to many women's disproportionate reliance on informal sources of income discussed earlier. Disclosing the source of this gender difference in income and education among PES participants may be a valid avenue for further research.

Also pertinent to this research subquestion is the data from the interview question, "Who has the power to make decisions in your home?" Respondents chose between the following responses: 1) Me, 2) My spouse, 3) My spouse and I equally, 4) My spouse and I unequally. What emerged was a tendency for male dominance in PES-

participating households. For instance, among PES-participant women, 6 said that the household decisions were made equally by her and her spouse, but among non-participant women, eleven reported this same gender egalitarianism. Moreover, five women PES participants said that their husband was the main decision maker, with only two reporting so for non-participants. Also, twelve PES-participating men stated that power was “shared between my spouse and I, but unequally”, compared to only 5 non-PES-participating men. Therefore a clear trend for gender inequality is notable in PES households when compared to non-PES households.

As described in the chapter on gender herein, already entrenched male dominance is likely the factor causing higher PES participation in these households rather than the reverse. Though explanations for this could be various, the most supported explanation is the fact that women are less conditioned to seek money or support from the government or other institutional sources, given the strong male biases pervasive on many levels of rural Costa Rican society. Therefore, female-dominated households would be less likely to seek out government-sponsored funding – in this case, PES – than would male-dominated households. When males are the deciding force, in other words, they tend to seek out payment for environmental services programs more than when females are the deciding force.

## Recommendations

Women’s overall levels of income in Osa are lower than those of men, as are levels of income for female PES participants compared to male PES participants. In addition, women show a greater statistical tendency to believe it is their responsibility to care for the environment themselves, and the rewards that they seek from PES focus more on conservation of the natural environment and family unity when compared to responses from men. For these reasons, I recommend that FONAFIFO give formal preference to female landowners in the granting of PES contracts. This can be done by

adding “female landowner” to FONAFIFO’s point scale which determines who is prioritized for receiving PES contracts in any given year. I would suggest that this category receive fifty points on the current FONAFIFO point scale. This one change could help to rebalance some of the gendered financial and social gradients within the PES system and on the Osa peninsula more generally.



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