A design anthropology approach to understanding human wildlife relationships: Monkeys, local development and participant conservation in southeast Costa Rica

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A design anthropology approach to understanding human wildlife relationships: Monkeys, local development and participant conservation in southeast Costa Rica

by

Yibo Fan

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Anthropology

Program of Study Committee:
Maximilian Viatori, Major Professor
Stacy Lindshield
Bambi Yost

The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

2018

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ABSTRACT

This project uses a combined methodology of participatory design and ethnographic fieldwork to study human-wildlife relationships and explore better ways to design and implement a monkey crossing bridge in the area of Talamanca, Costa Rica. It also examines how an interdisciplinary methodology can identify the needs of three species of monkeys and local beliefs, and to integrate these things into project design. The project not only answers how participatory design might promote a favorable human-wildlife relationship, but also explores local beliefs about development and conservation. Based on my research, I argue that the design of the bridge and the process of making it can be a potential passage to better understanding human-wildlife relationships, as well as establish community concerns about wildlife conservation. Three participatory design workshops were planned and hosted with the collaboration from local non-government organizations (NGOs). During the process, participatory observation was used to study the relationships between monkeys with different parties, and also examine the influence of participatory design-build. A participatory design-build project was completed near Cocles in Puerto Viejo de Talamanca, Costa Rica. The design and construction of a new monkey bridge brought up questions about human-wildlife relationships, environmental issues, development and the nature of decision making. This process revealed a human and wildlife entanglement. Local activists, expats and NGOs saw the problem of wildlife road-crossings through the lens of existing environmental issues and debates in the community that stemmed mostly from an ongoing road construction project. Monkeys and other charismatic animals were a concern of the expatriate community; this concern originated from the same concerns about their own living environment. In contrast, the residents who were in the community over many generations viewed “injured monkeys” as suffering, but tended not to actively participate in advocating about either monkeys or living environments as part of who they are. Though different, all local residents in the Puerto Viejo area saw monkeys, along with other animals, as part how they based their sense of place. Therefore, for the more active groups of community members, it was natural to extend the discussion of monkey bridges to the discussion of a bike lane and improving the environment.
for the community. People protect the place they live. The most common problems the community identified were from the forced down planning and speculative development by others who essentially did not live in the place, and were detached from the landscape. Through a combination of design anthropology and a participatory design-build project, I argue that a people with different interests can work together on a concrete design and build project, relying on expertise as a pooling of skills and knowledge to complete.
CHAPTER 1: INTRODUCTION

It is summer 2017. I am on a two-lane road along the southern Caribbean coast in Costa Rica. The traffic is blocked in both lanes. There is a long line of cars, trucks and motorcycles waiting in each direction and people are starting to get agitated and impatient. It is 9:30 in the morning. The power is out across the region. Where the road is blocked, there is a crane with its arm stretched high into the air at the end of which is a cluster of ropes. The wires disappear into the tree canopy that overshadows the street. The crane and the power outage is part of the installation day that I have planned for months. The result will be a new wildlife crossing bridge to span the gap created by the road. All this is the fruit of a meeting that happened in 2016.

I was trained to be an expert in biotechnology. Tropical flora and fauna are my passions. They are endangered because of political decisions about what to do with the land and species on this planet. Politics has created a losing battle for these "useless or useful things." When I started to explore the lush jungle in the humid tropics, there was a joy of vigor and life that motivated me to do something for the protection of these places. Because of this passion, I continued my education and majored in landscape architecture, where I learned design and problem-solving. In the spring of 2016, an opportunity to combine my different areas of expertise and passion presented itself through a meeting with Dr. Stacy Lindshield.

Dr. Stacy Lindshield is a primatologist as well as my thesis committee member. She has been studying monkey populations along what she called the peri-urban landscape of Puerto Viejo de Talamanca, a small community on the southern Caribbean coast of Costa Rica. Within this community a once-small road with only two lanes of traffic ran along the coast, slicing through the green jungle and connecting smaller neighboring communities. In recent years, however, there had been a constant battle over widening the road to allow better car traffic and conserving the green spaces for the local people and animals. Every week, there were injured or killed animals on the road. Some were monkeys who had tried to use powerlines to cross from one side of the road to the other.
Stacy is sitting in front of me in her office chair as we talk about the problem.

“There is certainly a design aspect to it (the bridge).”

“We tested many different type of bridges in the past.”

At that time I only knew that she studied monkeys because in her office room we were surrounded by taxidermied monkeys and their skeletons. She showed me websites of non-profit organizations that had many pictures of the “monkey bridges” they had built. These “monkey bridges” were connections between two trees across the road and mostly made of ropes. This was a relatively low-cost wildlife crossing structure that allowed tree-dwelling mammals to cross the street without getting injured or killed by traffic.

There are three monkey species native to the Talamanca area (all considered threatened by the International Union for Conservation of Nature (IUCN)), the spider monkey (*Ateles geoffroyi*), the howler monkey (*Alouatta palliata*), and the capuchin monkey (*Cebus imitator*). Studies show that *Ateles geoffroyi* and *Cebus* have large ranging areas in terms of foraging range and territories (Fiore and Campbell 2007, 167; Milton and May 1976, 460). Though *Alouatta palliata* have smaller home ranges (McKinney 2014, 578; Fiore and Campbell 2007, 167), the shrinking habitat and fragmented landscape resulted by increasing road and power infrastructures have been shown to cause stress to the population due to the effect of cutting out food sources and increased competition in between groups in smaller patched habitats (Arroyo-Rodríguez and Dias 2010). Hence, either the nature of large ranging patterns or current availability of food in a patch forest can drive monkeys to cross the roads in a fragmented landscape. Currently, power lines or telephone lines are often used as “bridges” to cross the roads. According to the local informants, most electrocution of monkeys happen near where monkeys have to use the power line to cross the roads, which give access to many of the newly built resorts. As a compensation of compromising prime habitat for hotels, restaurants, power supplies and transportation, there are limited local reforestation efforts. The Instituto Costarricense de Electricidad (ICE), the Costa Rican Power Company, and non-profits such as The Monkey Bridge Project and Salve Monos have installed simple rope bridges for arboreal monkeys to cross the roads. However, as Stacy’s research has
shown, these simple rope designs are only minimally effective in conserving Costa Rica’s monkey species (Lindshield 2016). There is an ongoing need for better-designed bridges that will help local monkeys to consistently and safely link the fragmented habitats upon which they rely for survival.

Different than ecological conservation work in form of conserving species and making land enclosures (Kockelman 2016; Kirksey 2015; Paige West, Igoe, and Brockington 2006), promoting habitat connectivity can be boiled down to smaller tactical interventions such as building a simple rope pass for certain types of fauna (Goldingay, Rohweder, and Taylor 2013; Weston et al. 2011; Goosem, Weston, and Bushnell 2005). On the other hand, small tactical interventions, such as Tactical Urbanism and Public Space Making, invite participation from the general public, and have been used in many urban settings to empower local residents in addressing urban issues (Lydon 2015). The problem of monkey bridge design is similar in scale with some of these tactical interventions, and open discussions to discover similar participation opportunities from local people to local problems.

**Thesis**

Monkey bridge design problems presented me with an ideal challenge and opportunity for combining participatory design with ethnographic methods to see if I could create a better monkey bridge design that would both be functional and work well for local monkeys, as well as satisfy the aesthetic demands of local people. My project involved linking knowledge gleaned from recent primatology research, promoting community engagement using ethnographic methods, and drawing on my training as a landscape architect. The result, I argue, is an interdisciplinary methodology that can provide a basis for initiating and sustaining community participant design projects. Though this participatory design project is limited to only addressing issues about aspects of monkey bridge design, as a combined design anthropology approach, it reveals the entanglements of the human and the wild in the Puerto Viejo landscape and how local people approach conservation. As a concrete design-build project, the process of building the monkey bridge demonstrated the nature of small tactic interventions as such, brought
together people with different interests and strengths; and relied on expertise from all participants rather than only by “experts” to realize the final design in physical reality.

The primary challenge of my research project was to find a way to understand and integrate numerous and sometimes competing constituencies, visions of nature and the economy, and what could and should be done to conserve local primate populations. In the Puerto Viejo area, there are two predominant groups of people: Afro-Costa Rican fishers and farmers who have a long history in the area, and expatriates. Most expatriates are from other parts of Latin America, who have relocated to the Puerto Viejo area either to retire, or with the hope of making a better living from the tourist economy. These groups of people had different views of the monkeys, which roughly corresponded with their differing visions of the local economy and their places within it, as well as the impacts or benefits that regional development and road expansion would have on them. Finding a way to balance these views into an effective monkey bridge project was a central challenge of this research. However, from another aspect, it proves the nature of entangled ecological understanding often based on care about the place that one lives in. This care extended into ecology, community planning and environmental issues. To local people, there is not a clear line between the needs of people and the needs of wildlife. The problems identified by them were developments forced into the place by planning authorities or speculators who were detached from the community and did not live there.

The Place – Puerto Viejo Area

My research started in the Southern Caribbean swampy coastal forest in Costa Rica near the Costa Rica-Panama border. The Puerto Viejo area is a coastal community loosely divided into 5 different neighborhoods – Puerto Viejo, Cocles, Playa Chiquita, Punta Uva, and Manzanillo. These five parts are connected by a two-lane asphalt road (Ruta 256) with a length of 11 kilometers from Puerto Viejo to Manzanillo (See Figure 1). Most of the people purchase goods for their daily needs in Puerto Viejo. The five small communities are connected in turns of community gathering events and some economic activities. The distance between communities can be easily covered by bike, motorcycle, and car.
Along the Caribbean coast of Costa Rica towards the north is Nicaragua. Towards the south, through mostly swampy coastal forest and wetland, it reaches the Bocas del Toro province of Panama. From north to south, small villages and tourist communities line up along the coast. Among those on a tourist maps ranging from north to south are Tortuguero, Limon, Cahuita, Puerto Viejo and Manzanillo. Tortuguero and the Limón region is known by the local people as "Caribe Norte" (North Caribbean). The region including Cahuita, Puerto Viejo, and Manzanillo is known as "Caribe Sur" (South Caribbean).

Finally, before reaching Panama, the small village Gandoca lies near Costa Rica-Panama frontier Sixaola. Due to a zoned national wildlife refuge, Gandoca is separated from the Puerto Viejo-Manzanillo neighborhoods. It is relatively remote, rural and does not receive many tourists due to its isolated location. In the "Caribe Sur" region the most famous tourist destination is Puerto Viejo or Wolaba in "Patwa," which means “the old harbor.” South of this, there are smaller communities Cocles, Playa Chiquita, Punta Uva, Playa Grande and Manzanillo. At Manzanillo, the road ends. Then, one has to drive back north or take the bus to where one can reroute to the international highway to Panama. Along the route, there are small villages and banana plantations owned by Chiquita and Del Monte.

![Figure 1: Area Map of Costa Rica and Caribbean Coastline](image)
My major field site, Puerto Viejo, is the major tourism community on the southern Caribbean side of Costa Rica before tourists reach Bocas Del Toro in Panama. It is one of the major tourist attractions among the Caribbean destinations: Tortuguero, Cahuita and Bocas del Toro in Panama. Puerto Viejo along with smaller neighborhoods Coles, Playa Chiquita, Punta Uva and Manzanillo form a linear complex of communities connected by Ruta 256, running along a linear coastal flatness in between ocean and hills. This popular Caribbean tourist community can still trace its once small fishing village past through the streets, buildings, and people sitting underneath the almond tree. Puerto Viejo or old harbor is the most popular destination, but still like other Caribbean destinations it is small and mostly rural. The major urban center of Puerto Viejo is mostly small businesses run by earlier settlers of this area, among which include Italians, afro-Caribbean and some "mestizaje," people with mixed ancestry of indigenous, Africans and Europeans. Though it is small in scale, it is divided into many different small neighborhoods: Cocles, Playa Chiquita, Punta Uva, Playa Grandi, and Manzanillo. These neighborhoods are scattered along the major road running parallel to the beach like grapes on the vine. The lack of physical boundaries makes these neighborhoods appear to be a fluid whole than distinct areas. Many who live in those neighborhoods work in service industries in Puerto Viejo or other small restaurants and hospitalities along the major road. The major road reaches Manzanillo and disappears at the end of the town in front of a bridge that leads to a trail into the jungle. People told me that trail reaches Gandoca, a small village south of Puerto Viejo and Manzanillo complex. It is more isolated due to the stopped road; the road reaches only Manzanillo and ceases to continue for another few kilometers. In between Manzanillo and Gandoca is Refugio Nacional Gandoca-Manzanillo, a state-owned nature reserved land. The hike through the trail from Manzanillo to Gandoca is a four hour hike for tourists, which is too much for the majority of them who can enjoy similar views and programs by staying in the complex from Puerto Viejo to Manzanillo. With no major road reaching Gandoca, its quietness from tourism is a major attraction for serious birders. Further inland, there are hills running along the major road. The other side of the rolling hills is the central valley of Talamanca and Ruta 36. This is the only road in the region to connect the
southern Caribbean coast with San Jose. It is also the only international highway on the Caribbean side that connects Costa Rica with Panama.

**The Local People**

Puerto Viejo’s residents represent a diverse, transnational population. In contrast to the northern Pacific side of Costa Rica, Puerto Viejo and its remoteness is not distinctively for retired “Americans” from the USA. The expats here are younger and diverse. Many are running small businesses, such as the only banana boat entertainment, run by an Italian. Right near the beach where the Italian banana boat welcomes customers, there is an Italian ice cream shop. The only bakery that sells artisan baked goods and breakfast sandwiches is run by Germany expats. I rented my bike for the project from another Italian who has been in this community for over 17 years and he looks barely in his 40s. Many of these expats started a family and because of this, many children, descendants of the expats or not, are bilingual, trilingual or speak even as many as five languages in some cases. In addition to older expats and business owners, young expats in their twenties from Europe seek to live a paradise dream where the influence of institutions are minimal and life is lived “close to nature”. Ray, a young artist, paints signs and murals for the businesses. The Caribbean dream is a “hippy” place to be where young people seek their “asylum” from the over-modernized, commercialized, and superfluous world. Today, immigrants still come to the town with the hopes of finding a “land of freedom” in the 21st century. This had made Puerto Viejo famous as a Caribbean paradise for young backpackers, especially European students and gap-year travelers. Most of them live in Playa Chiquita and Punta Uva neighborhoods. Puerto Viejo and Manzanillo has mostly descendants of Afro-Caribbean people who came here to build the trans-Atlantic railway, then worked for the United Fruit Company on banana farms since the 1870s (Lefever 1992, 63). There are also large numbers of whom are from Bluefields Nicaragua, who, originating from San Andrés and Providencia, immigrated not long after the Afro-Caribbeans in search of a better life by the end of nineteenth century (Lefever 1992, 64). Other parts of the neighborhoods are “mestizaje” and expatriates
from mostly European and North American countries who came in the late 80's to early 90's (Changwong 2016).

For those who live in the Puerto Viejo and surrounding neighborhoods, the pueblo, ocean and hills are their home where they enjoy life in a "Caribbean paradise." The existing major road (Ruta 256 even when under-construction, traffic jams almost never happened) had created the perfect connection to life necessities such as supermarkets, a hospital, warehouses, and transportation to other places. In many ways, Puerto Viejo is tightly linked with the other neighborhoods. Expats mainly own businesses in Puerto Viejo and along the major road. They live in the other neighborhoods and work in Puerto Viejo or buy their life necessities from Puerto Viejo. There are multiple supermarkets in Puerto Viejo and a few scattered along the road around the smaller neighborhoods. Two warehouses have all the material needed for building a house, and an automobile repair shop exists in the hidden corner of Puerto Viejo, which has only 10 streets in total. Anyone who lives in this kind environment can stay in the Puerto Viejo community complex for years without needing to go outside of it much. Living without planning out the whole week or even a month on a calendar, most of the local people call their slow-paced lifestyle the way of Puerto Viejo or the way of Caribbean. The group who originally lived in and still living a "Puerto" life, is the Afro-Caribbean. The Afro-Caribbean, most of whom are in their 60s, are mostly fishers who own land. Their major source of income is from selling their land piece by piece. Though they go fish and sell fish, it is not their livelihood. Puerto Viejo relies on mostly imported seafood from Limón. According to conversations with some local fishers and small vendors within this group, they are not active in formal civil society, such as through decision making politically, and do not think too much about long-term investment. The expats enjoy a life without too much stress, and enjoy the moment. It is almost perfect.

Now, the increasing popularity of Puerto Viejo for "Semana Santa" and national holidays is driving the expansion of the place into a much more crowded and littered reality. Also, the increasing numbers of international tourists who come to the town to party is in contrast to the natural paradise the expats and activists picture for themselves. The expats, NGOs, and activists have a very specific type of tourist that
they want to attract for the community, the birders and other eco-tourists who seek to enjoy the natural beauty of the place.

Gandoca, as mentioned, is a village located south of Manzanillo. Between Manzanillo and Gandoca is the Gandoca-Manzanillo nature reserve, which includes the beach of Gandoca Village. To go to Gandoca from Manzanillo, one has no choice but to either hike for four hours in a marshy coastal jungle with a local guide, or go back to Bribri and then take the international highway in the central valley to Finca 96, where you can wait at a banana farm owned by one of the global banana companies and hope the one taxi driver in the whole village will pass by. Due to its isolation, few tourists go there except for some serious birders and Costa Ricans from the other parts of the country seeking a quiet place. The major source of income for the people of Gandoca is agriculture, and many have started to build cabins to host tourists. The remoteness makes Gandoca earn comparatively less cash income from the tourists even during the high season. With significantly fewer tourists that the village Gandoca gets, some in the community hope to see the road connected so they can get more tourists. Pedro, whose family own cabins in Gandoca, says that even just day tours will be enough, as they can sell food to the tourists and give tours around the lake and bird-watching to make money either way. There are only rumors about the authorities’ intention of connecting roads to Gandoca or the international highway Ruta 36. The regional plan, in general, is to improve road infrastructure of the area, including resurfacing of the existing road (Instituto Costarricense de Turismo 2005). Other information is allusively mentioned in the region plan document, and there were mostly only rumors from local people about the rezoning of some of the wildlife refuge and a new real-estate development that followed this decision. Most of the development in the region becomes known to people only after it takes place; hence all the gossip. This real-estate development project coincided, according to local informants, with the discussion of rezoning and a big developer who, at the time, started to set foot in the heart of the jungle.

Without any information for the local people in neither Puerto Viejo-Manzanillo communities nor Gandoca, the construction happened as trees along the major road (Ruta 256) fell and the road widened. The new road started in what activists and NGO workers believe was nature reserve land. Rumors and
speculation were everywhere. The original two-lane road was proposed to be widened into four lanes. This plan was under construction by the time I arrived at the site. I only saw the construction in action with sections widened, and compacted gravel in place, waiting for new pavements. Our major concern was for monkeys that were once able to jump across the narrow opening in the canopy along the road. With road widening, the canopy was too wide for them to do that. It was also a major concern for the community that the widened road would be less bike friendly, since they were notified that no designated bike lane was planned. It was an issue to the communities because bikes are major transportation for both local resident and the tourists. The concern over high-speed traffic due to the wider road was mixed with their anger of not having any information or being part of the decision making process before the construction began.

Because powerlines are often used by animals to cross the road, the electrocution of animals was directly affecting the power company with damage to their facilities and reputation. The local power company has tried to address the issue of wildlife deaths by installing nylon rope bridges. However, the company has had a hard time convincing local residents that the power company is actually interested in protecting local wildlife. When animals are injured by the powerline, locals blame the power company. Maintenance of power lines has become more complicated because community members have put up resistance to cutting any trees or branches near the transmission lines. This is possibly due to the wildlife bridge project started years ago as result of local people’s reaction against Grupo ICE and Ministerio de Obras Publicas y Transportes (MOPT) cutting down trees and branches, and perspective differences between the local people and these organizations had complicated the situation. Hence, locals have not perceived the bridges as care for wildlife, but as an excuse for the company to cut branches.

Therefore, the “bridges” are open to design discussions. Along with the design discussions of bridges, the general discussion naturally turns to concerns over monkeys, other wildlife, and the landscape. Using a design anthropology approach to the problems of human-wildlife relationships in this context is appropriate. People in the community are considering the importance of wildlife crossings and the impacts of the long-term development plan of on their local landscape. Within this context, the
Monkey Bridge project addresses an issue that is not just about local primates, but also the concerns and desires that different groups of people have about their future, the local economy, and the environment.

**Literature Review**

It is obvious that communities in the study sites are heavily invested with tourism. The presence of charismatic animals is part of marketing strategies for many NGOs as well as small businesses. Names such as Congo Bongo, Sloth Club, El Tesoro and Aviarios Sloth Sanctuary are omnipresent in and near the study site (Lindshield 2017). Furthermore, preliminary research on the site had informed me about the prevalent eco-tours in this region. Programs such as Laguna Gandoca boat tour, with activities that include bird, sloth and monkey watching or sea turtle nesting hikes during the night were provided in Gandoca area. Increasing tourism and resort development brings the core debates of conservation and development into conflict. The first collision of development is its impact on the ecosystem and local people. The problem of increasing pressure on infrastructure development caused by the need for tourism development, in this case, is causing the local people environmental expenses. For example, increasing infrastructure footprints (e.g., road area) contributes to the fragmentation of local habitat, putting pressure on local species, many of which are the sources of income of eco-tourism, such as monkeys and sloths. Also, infrastructure is the facilitator of development and the initial step towards habitat loss. Studies show that major road development will follow by an avalanche of destructions of the habitat (Laurance, Goosem, and Laurance 2009; Barber et al. 2014). Many have accepted the general concept that development brings additional income to local people, hence it is beneficial to them, the cost of environment and habitat are just the price of progress. On the other hand, many people believe the general concept of conservation in the form of enclosed areas is good for nature and incompatible with progress. The two opposite stereotypes tell stories about different interests. This research proposes to
listen to the local people and their interests, and their concerns about the animals that live around their house, community, and farmlands. Do they see the wildlife as a source of income or not?

In addition, during the process of ecological tourism development, a new value can be attributed to Costa Rican monkeys. This makes Cost Rica an important place to understand local community and human-wildlife relationships. Meanwhile, different from traditional ethnographic methods, this research hosted and facilitated a series of participatory workshops on designing and making the crossing bridge for monkeys, during which I engaged in conversation with local people about their thoughts on these animals and their environment. Activity like this is believed to bring positive change to the local community in that it increases mutual understanding between people, attention to the issue and sense of ownership to the project and place attachment (Llambí et al. 2005).

**Anthropology of conservation (study of values and emergent future)**

The anthropology of conservation project has two aspects. The two aspects are interconnected with each other but slightly different. First, wildlife conservation is always entangled with people and values (Orlove and Brush 1996; Paige West, Igoe, and Brockington 2006). Human and wildlife relationships often raise issues about intrinsic values of certain wildlife to humans (Stronza 2001; Kockelman 2016). To realize certain species’ role in the overall health of the whole ecosystem is also an act of understanding a certain intrinsic value to humans (Ozdemiroglu, Hails, and Team 2016). Conservation projects were often put in place hoping to change the value held by a community and introduce new unrelated social paradigms (Kockelman 2016). By pointing out the common approach of creating protected areas as a form of enclosure, anthropologists are critiquing the taken for granted nature and human dichotomy and argue that inequality, as well as profit, were created through establishing such a reserve that its goal is at first inhuman (Paige West, Igoe, and Brockington 2006; Kockelman 2016). The way such a conservation area exerting power and bio-politics on local people is largely through virtualization conservation, which justifies ignoring local people and denies the human-wildlife entanglement as a fact (Paige West, Igoe, and Brockington 2006; Janzen 1986). Therefore, there is not
only a need for a different approach in conservation efforts that do not engage in the traditional sense of making an enclosure, but also a need for more anthropological research about small-scale tactical intervention as conservation practice carried out by local communities.

Second, anthropologists argue that we should seek a future outlook based on a better understanding of the human-wildlife relationship, instead of accepting an apocalyptic view and deeming the past as an untouched perfection to strive for (Kirksey 2015). To build a future we need to cope with a complex and often changing situation, described by Kirksey (2015) as Emergent Ecology. An intervention of seeding, nurturing and ultimate understanding and trust the system itself, “ultimately letting go,” is advocated over the practice which tries to cultivate an endangered species “utopia” and regard the past “untouched” nature as some goal that conservation efforts are fighting for (Kirksey 2015). Similarly, when anthropologists critique the practice of some eco-tourism project, there is an awareness about the need for more research to understand the host and tourist experience to remain optimistic about eco-tourism projects (Stronza 2001). There is also a trend of thought about understanding human-wildlife relationships under the background of climate change that argues for an approach through indigenous knowledge (Cassidy 2012; Nazarea 2006). Although these studies provide many valuable critiques about the issue of conservation and shed light on the understanding of human-wildlife relationships, to study human-wildlife relationships and how they can change by directly engaging in creating something for animals, instead of for humans that indirectly benefit animals, is not very well studied. Many of the eco-tourism activities and reforestation efforts are creating an ultimate “utopia” or “birdwatchers paradise” for tourists (Kirksey 2015). The conservation framework of creating alternative value is denying that virtue value can be an incentive for local people. Instead of creating a favorable human-wildlife relationship, it directs such a relationship to a merely monetary one (Kirksey 2015; Kockelman 2016; Paige West, Igoe, and Brockington 2006), which have led to many later problems (Vivanco 2001).

The ethnographic studies have laid out a framework for understanding the fact of entanglement of value, nature, and people as well as the need to look forward into the future of nature conservation. However, ethnographic research like this can do more than just document and generalize the cause and
effect relationships (Gunn 2013). The documenting and arguing about a problem will need to ultimately lead to practicing our understanding and solving problems. This project will take advantage of my landscape architecture training in that the topic involves landscape ecology, urban planning, and participatory design. Different from previous studies about conservation projects and human-wildlife relationships, this project embraces the advocacy and human aspects that were often discussed in the landscape architecture field. On the other hand, it uses anthropology deep inquiry and participatory observation to explore a better understanding of the current condition of human-wildlife relationships. In other words, the study was targeted to carry on a project with local people in mind and make no assumptions that local people were concerned only about economic value.

**Participatory design and tactic intervention**

Design defined as a plan for action and with a future-oriented nature and problem-solving has long been applied for the goal of achieving better results (Otto and Smith 2013); it used to be human nature before it turned into a profession (Alexander 1964; Louridas, Systems, and Group 1999). The design realm of city planning, landscape architecture, and architecture that have always leaned towards design for improving human environments, under the context of frequently discussed contemporary problems, started questioning the problem of design generated by top-down mass planning (Jacobs 1961). Many planners, designers, scholars, and individuals are criticizing traditional top-down planning and advocating for a democratic and effective approach (Walker 2003). These new approaches are often referred to as Participatory design, grass-roots actions, tactic intervention and adaptive design. These terms are mutually inclusive. One will find that many design processes have a certain level of participation. Participatory design is widely used in designing information technology, public parks and public art (Roussou, Kavalieratou, and Doulgeridis 2007; Hou and Rios 2003; Carroll and Rosson 2007). Christopher Alexander (2012) uses on-site marking of space and a “pattern language” (1979) to enable client participation during design and construction of an architecture project. Also, there are many practices in smaller scale grass-root tactic urban intervention and its potential effects on a larger scale
(Lydon 2015b). Lydon argued that these types of participatory design and small-scale interventions can be implemented fast and are easy to change when failing (Lydon 2015b).

Also, many (Vasconcelos et al. 2009; Llambí et al. 2005; Martin, Felten, and Duru 2011) have studied how participatory design with local communities can be applied for conservation projects. Howard (2004) argued that participatory design will benefit eco-design in that it can reposition the potentially socially harmful line drawn between expert and layman. Represented as serious gaming, some projects bring design back into the crowd to solve complex problems (Martin, Felten, and Duru 2011; Vasconcelos et al. 2009). Participatory design also answers the long underestimation of entangled human and natural environments, and champion the moral value incentive and place attachment of the local community (Llambí et al. 2005). Although these participatory designs have many benefits in conservation projects, in order to arrive at a successful outcome, a proposal needs to consider the local value and knowledge (Campbell and Vainio-Mattila 2003; Llambí et al. 2005). Environmentalist and conservationist need support from local communities to carry out a successful conservation project.

However, full support and active engagement from local communities do not generate naturally from a good design. Anthropologists, with their humble attitude towards others and awareness about culture, make no assumption about local people and can provide the crucial link to ground a design concept on its cultural contexts (Luz 2000) and critically evaluate the design details. Therefore, anthropological understanding of the local culture will help to empower local communities and potentially capture participants’ interests. However, the participatory designs are mostly larger scale planning and community visioning (Luz 2000; Llambí et al. 2005; Reed et al. 2009). The smaller scale tactic intervention was widely used in an urban setting to improve the living environment (Lydon 2015b) or achieve a conservation and education goal (Root-Bernstein et al. 2012). There is little work recorded in the literature on concrete designing objects and the direct making of material conservation efforts on a community-based level. Also, the participatory design projects reviewed here have their limits as do the other design projects; they were limited in using currently available knowledge to plan for the future. Therefore, by adapting anthropological field methods, the design will be able to immediately respond to
new findings on the site and adapt to the situation (Gatt and Ingold 2013, 139–41). Also, by collaborating
and studying with the local community, designers and advocators can actively bring the seed for changes
to the community and guide it towards a desirable future (Gunn 2013; Lydon 2015b).

The search for practical wildlife passages design is exclusively large structure span across
highways (N. M. Lister, Brocki, and Ament 2015) or covert under (Clevenger and Huijser 2011). There
are only a handful of arboreal crossing structure designs specially tailored to arboreal monkeys; however,
this kind of wildlife pass is in great demand and significant to wildlife conservation. Arboreal crossing
structures such as natural canopy bridges and artificial structures were proven effective in connecting
separated habitat for arboreal animals (Lindshield 2016; Weston et al. 2011; Goldingay, Rohweder, and
Taylor 2013; Lesbarrères and Fahrig 2012). Lindshield (2016, 364) observed that other species besides
monkeys are using rope bridges for crossing the road. Compare to other observed species, monkeys rarely
use the rope bridges. However, there are incidents of death and electrocution of primates along the road
(Lindshield 2016, 358–59). Therefore, more artificial crossing bridges are necessary to suit the needs of
arboreal monkeys. We still lack the extensive amount of exploration in turns of better bridge designs,
especially bridges that encourage usage by monkeys with larger body mass (Lindshield 2016).

Learning from previous studies about ecology and behaviors of these monkeys, care must be
taken in order to design a functional crossing bridge for arboreal monkeys. The design of monkey bridges
needs to suit the arboreal monkeys’ behaviors, such as using prehensile tail and quadrupedal walking
(Garber 2007, 545–50). Though, according to some studies, the design may need to shelter crossing
arboreal monkeys or other animals from predators (Weston et al. 2011) such as harpy eagles and crested
eagles (Miller and Treves 2007, 527), it is unnecessary for this project to consider harpy eagles and
crested eagles, due to the exclusion of these predators from the Puerto Viejo region. For the material of a
basic design, enough strength to support the weight of more than one monkey will ensure the safety of
both monkeys and traffic under the bridge. Weston et al. have experimented with bridge designs using
marine grade nylon (2011, 94). Nylon is a common material used in current bridge design. It is praised for
its strength, extendable quality, and UV resistance, however, it will degrade over few years under strong
sunlight. Therefore, a design that can be repaired locally and easily needs to be considered or more durable materials need to be sourced.

Lastly, when it comes to the issue of human-wildlife conflict and impact of the transportation system on wildlife habitat, the need to understand human-wildlife relationships is not only due to habitat fragmentation but also climate change and the two issues combined (Opdam and Wascher 2004). For some wildlife passes built along the highways in national parks, the social awareness of such structures were advocated through outreach and education programs (Clevenger, Ford, and Sawaya 2009) or the overpass as a significantly visible structure (Clevenger and Huijser 2011; N. M. E. Lister 2012). Those wildlife overpasses are in national parks and are structures that require specialized engineering design and construction teams with heavy equipment to build. Therefore, the outreach is mostly one directional from institutions to the public. As I discussed earlier, smaller highly visible tactic interventions through which community can partake in the design process and building of the structure enables deeper participation. Therefore, a smaller scale project around an urban or semi-urban environment which has slower traffic can be a manageable task for community-based conservation effort. Also the direct engagement with materials and making a wildlife crossing bridge can provide an ethnographic framework (discussed in the next section) for studying human-wildlife relationships and how they are changing.

**Design anthropology**

Design and anthropology as two interdisciplinary fields interact with each other in three different ways (Murphy 2012). Besides anthropological study of design as a human condition (Louridas, Systems, and Group 1999), design and anthropology are facilitating each other in a mutually reflexive ways (Murphy 2012). In design practice, many designers (Blomberg et al. 1993; Barrett et al. 2016; Muller 2003) have suggested that ethnographic field methods and anthropological knowledge can both provide a designer better understanding of user behavior (Wasson 2000) and a framework for user collaboration in creating a better design. Also, design provides anthropologists another ethnographic inquiry framework (Murphy 2013, 2012) due to its experimental nature and perspective in framing and analyzing a problem.
More importantly, the combination of design and anthropology allows anthropologists to shift their role from one that is only descriptive about design, to one that makes a positive impact on the changing future (Otto and Smith 2013). Also because design and anthropology have similarity in the intervention, design has been considered as an exploration of future methodology for ethnographic research (Murphy 2012). Design anthropology as an emerging field is exploring a new style of inquiry that seeks to experiment and study through a dynamic cycle of thinking and doing (Otto and Smith 2013). Lastly, another aspect of this theoretical framework is that design and anthropology can immediately respond to each other, and benefit from such an interaction (Gatt and Ingold 2013).

In a conservation context, this framework of correspondence (Gatt and Ingold 2013) has the potential to be applied to a conservation project to understand the local culture, which often reflects as human-wildlife relationships and the agency of material goods that play an important role in the process of a project (Kockelman 2016). Local culture in a context of ecological conservation is not only a barrier (P West 2005; Brosius 1999; Escobar 1998; Hirons, M., Comberti, C. and Dunford 2016) that needs to be considered, it is also an effective means of facilitating conservation efforts (Colding and Folke 2001). The material world is playing an equally important part in determining the success of a conservation project and is able to change the local culture through human interactions. A design anthropology framework combined with participatory design and ethnographic fieldwork to engage with the materiality of small tactic intervention will connect material and culture to uncover the specific human condition that generates such interaction (Jones and Yarrow 2013). For example, (Ewart 2013, 85) by working with the stakeholders and local community, Ewart was able to study the relationship between producer, designer, and materials; the design identified as planning and out-of-the-box thinking happened at both planning beforehand and during the building process when working with unfamiliar materials. Understanding the material aspect is related to a conservation project as the material world is directly connected to development, resources, and land-use. Direct making of a design object fills the gap between verbal communication about local people’s attitude towards development and the implied direct response to the material world.
Though there is much research about participatory conservation design projects, a process of design anthropological approaches in engaging with specific materials has yet to be widely applied in coping with conservation design, especially when applied within the conservation context to study human-wildlife relationships. Small-scale tactical intervention by means of participatory design can be an approach to encourage local people to empower themselves (Fraser et al. 2006; Lydon 2015b) and take action to protect their wildlife and utilize the local social capital to delineate a better future. Moreover, using this method as an ethnography study in the context of conservation issues about human-wildlife relationships will provide a possible passage to better understanding human-wildlife relationships, which can be an exploration of a more holistic understanding that guide future conservation design projects (Hage, Leroy, and Petersen 2010; Otto and Smith 2013) and potentially increase the success in achieving conservation goals.

**Methodology**

In this research, I planned and conducted three participatory design workshops with local NGOs. I documented the process of planning and implementing the design workshops, designing and installing the bridge and my daily interactions with local NGOs, and a variety of local people and tourists. Most of my ethnography focused on local people and NGOs. During the period of designing and installing the monkey bridge, I stayed in Puerto Viejo as both a tourist and an activist trying to maintain a good living environment for the residents in Puerto Viejo and neighboring communities. Most of my activities were in the public setting, such as a meeting hosted by me and my collaborating organizations. Sometimes, I closely interacted with the same local people as they kindly offered of their insight on the animals that inhabited the same landscape.

This project explored a methodology to combine cultural anthropology with a participatory design workshop through approaching the community with a concrete project: Design and build a monkey bridge. Partially referring to Caroline Gatt and Tim Ingold’s “Anthropology by means of design” (Gatt and Ingold 2013) in which the anthropologists worked as part of the designer team and studied their
interactions with other participants, I carved my own process of merging ethnographic field methods with a participatory design and build project. As I worked side by side with the local NGOs and activists, I not only created a trust between me and the participants, but more or less a work ethic that bonded me with the community. Therefore, just as Gatt’s role in their field work was neither merely a criticism by an outsider, nor a top-down manager of the development (Gatt and Ingold 2013), I achieved, with this method, a reciprocal relationship with the local NGOs and activists that fueled the research with rich materials and created a concrete design-build project in the process.

Because of my position as a researcher, I found that I was treated differently when interacting with different groups of people. Some considered me as a tourist for the most obvious reason that I came from outside the community and I had a return ticket, which indicates my intent to eventually leave this place. To some people, I was a tourist but not quite the kind of tourist they were expecting since I seemed not quite interested in the beach and other tourist programs here. Rather, I brought with me this project of building a bridge for the monkeys and all these questions about their experience of living with these animals. Having activists or volunteers coming from outside to help the community in form of a volunteerism tour is nothing new for the locals. But, this project, with its open process and a given subject matter, created a collaboration between me and the local people. Because of this bonding relationship with local NGOs, I kept sourcing most of my information from open informal interviews.

The workshops served as conversation starters, which brought up the question about wildlife conservation and local people’s interactions with native monkey species under the background of tourism development. The focus of the workshops were initially limited to the discourse of the location that was in need of monkey bridges and the design of the monkey bridge. However, the execution of the workshop took off as a conversation about larger issues within the community. The design of the workshop was intended to be informal and inclusive about topics that were related to the coexistence of human and wildlife in around the community. Hence, digression was allowed and documented in the form of voice recordings and notes. Responses related to two aspects were treated with care. First, the opinions about the presence of Costa Rican monkeys and the value that was associated with the monkeys, and second
how perceptions were shaped by development and how they could evolve in the future. These aspects will be studied by comparing these interview data with field observation and informal interviews. When planning the workshops, I knew data collection happened at the same time as the design workshop. Normally it is ideal to have a team with at least three people to carry on such a task. Yet the reality of working on that site alone left me no other choice but to host this workshop with a few local organizers; this allowed me to free myself from leading the workshops so that I could collect data. This setup created an opportunity for the local NGO to incorporate the workshop into their meeting, which later ended up driving the whole project in a different way. Such an approach, at the very least, guaranteed the participation from the local NGOs, since they were part of the host of the workshops and took ownership of it. Last, from reviewing previous studies (Kockelman 2016; Paige West, Igoe, and Brockington 2006), I identified the common mistakes of a conservation project where both the problem and the need for a solution were determined without local people, and the community was usually told to act on a certain plan by outsiders. Successful projects were able to recognize these problems. By collaborating with the local NGOs, I was able to avoid, to a certain degree, a top-down approach that ignored and flattened the reality in the community.

Outside of the workshop, I documented daily conversations while interacting with the local people about relevant topics. I sourced information from informal conversations carried with a selection of local groups, which included shop owners, expats, local fishers, local NGO workers, and landowners. Within the local people, there were people with power, such as the oldest landowner in the urban center of Puerto Viejo, and some with less power, such as the young expat trying to scratch out a living, as well as wage professionals in companies. Because the workshops had a low attendance rate and few participants participated in the three workshops continuously, I have to give up the plan to select suitable participants from the workshops for further interviews.

Specific steps that supported the three major workshops are as follows.

1. During the first two weeks, I did preliminary networking and research about Puerto Viejo and its surrounding neighborhoods: Cocles, Playa Chiquita, Punta Uva, and Manzanillo. This
included a walking and biking survey of the road where the bridge would be built early in the morning and in the afternoon. Locations ideal for the potential new bridge were marked and site photos were taken with Fulcrum GPS survey app installed on my phone. Conversations about local community members’ attitudes towards monkeys in Puerto Viejo and Manzanillo were also documented. In a few situations, there were many local people that offered help when they heard about my project. Meanwhile, I networked with some local contacts about the workshops and the monkey bridge design to reach an agreement on collaborating on the workshops.

2. Following the preliminary research, I set the date for the first participatory design workshop with my collaborator and started to spread the word about the workshop to recruit participants and plan the participatory design workshop.

3. The first participatory design workshop took place in the MINAE (Ministerio de Ambiente y Energía) building in Manzanillo. My collaborator invited people from the municipal government, activists and workers at the Jaguar Rescue Center. Because of the low participation rate from the general public, I had to change the original plan of dividing them into separate groups. Rather, I had all of them at the same table to discuss where to build the new monkey bridge and what design ideas they had in mind. The other two participatory workshops followed the first one with a slightly different focus and mostly different participants (not by design).

4. Stacy came to the site and we took the finalized design and locations to a meeting with the local power company. There we asked for their final approval of the plan and gave it. Following the approval of the plan, the installation date was scheduled with the power company to file a cut off of power supply during our installation.

5. I made the bridge with two hired workers and a handful of volunteers, most of whom were expats from Latin America countries. As there was a lack of local craftsman that could potentially help materialize the bridge design, I had to rely on my own knowledge of material
and design to realize the bridge. During the process, I was able to talk with the local people that helped me work on the bridge and those who were curious about our “strange” activity.

6. I installed the bridge with local stakeholders, the local power company, and local NGOs. Later, participatory observation and unstructured interviews continued to gain feedback from the local people about the new bridge. Because the bridge installation ran into some problems, I went back to the site with a hired local tree climber to fix the problem and further talked to the property owner on one side of the road about their concerns.

Significance of the topics

Participatory design projects are believed to be effective in getting community input (Martin, Felten, and Duru 2011; Llambi et al. 2005; Fontalvo-Herazo, Glaser, and Lobato-Ribeiro 2007). The topic of a conservation project in Puerto Viejo suited the theme, because the community is marketed for ecotourism and the expats lived a life closer to nature. The design of a monkey bridge to address the existing problem of injury and death of monkeys not only inspired the community into talking about the issues of human-wildlife relationships, but also to use concrete action to bring some more ideas forward concerning community development. Therefore, for ethnographic research, the process of hosting participatory design workshops about designing monkey bridges actively created the setting for observation and conversation about the topic of how the members of the communities view monkeys and how that shapes the community and the development. The building and installation of the bridge were documented by notes and photos. Ian J. Ewart (2013) pointed out that doing is itself part of the design process. Through the process of participating in the construction of two different bridges in Borneo, Ewart learned the materials culture and way of building in the community he studied (Ewart 2013). More than just through the process of design, the process of the building provided rich information about the community, their thoughts and culture through the interaction between the construction team and physical materials. In my research, I carried the project along into building the bridge and installing it in place in order to gain a deeper understanding about how things were done within the community, how decision
making was influenced by their stance about the design problem, and ultimately learn about participatory design and build as an anthropological research process. Lastly, the values that local communities constructed around monkeys was revealed through such an intensive process of working with them to build this project.

In the following chapters, I discuss the project in greater detail and articulate how the process revealed itself as an anthropological understanding of the community and participatory design. Chapter 2 is focused on the landscape of Puerto Viejo, its surrounding neighborhoods, the social-cultural context and historical contexts of these communities. I also discuss how the general desires and opinions about monkeys are shaped around the history and development of these communities and how the road development plan was regarded by members of the communities, and how all these issues shaped their views about monkeys. Chapter 3 is dedicated to describing the process of the project during which the workshops and the design of the bridge took place. I also document the reactions of the local people towards building and installing the bridge. Chapter 3 also contains the model of design anthropological approach through participatory design workshops. The dissertation concludes with the anthropological findings of this kind of conservation project, thoughts about concrete design and build project, and grass root actions.
CHAPTER 2: THE PLACE AND THE PROJECT MONKEYS, OLD HARBOR AND RUTA 256

Along with growing international tourism with an emphasis on eco-tourism in Costa Rica, there is, in Puerto Viejo de Talamanca in the Caribbean of Costa Rica, an increase of domestic tourists that come here during national holidays and "Semana Santa." A problem the local people are facing is the needs of wildlife in that region and local people over this political landscape. Within this mix, a major road, a symbol of development, that connects all smaller neighborhoods from Manzanillo to Puerto Viejo, and was supposed to bring convenience to the tourists and prosperity for the local people, is aggravating the problems. A construction plan to widen the road without informing the local people is demonstrating that, neither its design nor the necessity of this widening is with the local people in mind. Monkeys and many other animals are the first to be impacted by the widening road. Therefore, my project started with monkeys and employed a combined methodology of design anthropology to create an inquiry for studying Puerto Viejo monkey conservation. By engaging the community to create a bridge for the monkeys, the project makes no assumptions on the human-nature dichotomy and local people. Through the process, I set out to look for answers for Anthropology of conservation, participatory design, and design anthropology. Entangled nature created a project that shed light on the tentacular form of conservation future and development of the place which links to human, wildlife, and landscape. The answer to the questions should be answered through connecting the observations made today with the past of this region and looking at where people coming from with their perspective about ecology and place.

In this chapter, the fluid community of Puerto Viejo is introduced within its historical contexts and recent transformations. I argue that Puerto Viejo and its neighborhoods, by attracting expats from a variety of countries, has become an international community whose future is not only connected globally but also locally with the nation-state Costa Rica. As it shifted from an agricultural exporter to a tourist economy, this change happened when Costa Rica’s emergence as a place for international tourism has had
a complex impact on conservation and ecology. With the continued influx of not only international tourists but also domestic Costa Rican tourists with cars, problems have come to Puerto Viejo and its neighboring communities as what to do to maintain a healthy environment for both human and other life-forms in this landscape. Ever since the beginning of tourism in Costa Rica, there has been an immigration of expats in the Puerto Viejo area. Along with them, they brought a selective culture into this area. Some of these are environmental activists and NGOs working with conservations. There were many active NGOs in the area working on different aspect of conservation and engaging in the tourism economy. Due to this, the perspectives about monkeys were shaped by these activists and NGOs. However, the new road construction and other issues have created a perspective of environmental issues that concerns the well-being of both human and other life-forms.

History of Costa Rica

Costa Rica historically has remained as a "backwater" of the Spanish empire due to its terrain and lack of gold. It had declared republic independence from the Spanish crown in 1823 after Mexico and other Central America countries. In the 19th and 20th centuries, Costa Rica relied on the post-colonial accumulation of agricultural exportation of coffee and bananas. In the early 19th century it was forward thinking and progressive in economic power and political power based on tobacco and coffee exports. Coffee, with its family farm organized small plantation land ownership by individual farmers allowed Costa Rica to become economically advanced before other Central American countries. In the early 20th century, the building of railways had brought more than 20,000 Jamaicans to Costa Rica and the building of the banana empire by the United Fruit company made the biggest impact on the Caribbean coast of Costa Rica. This economy had little to do with the Costa Rica authority at that time due to an enclave arrangement.

Production of cacao in the Caribbean coast started in the 18th century and lasted until 1977 the cacao blight killed off the cacao industry. During the cacao boom, indigenous people were captured to work on the cacao plantations. Later, it was the African immigrants who substituted for the indigenous in
the cacao plantations. Railways were built to transport cacao products to the coast and export to Europe for a good price (Tyler 2008). After the 1977 economic crisis of Costa Rica, though many other exports such as agriculture and manufacturing products exportation had resumed, tourism became the most profitable industry in Costa Rica. Costa Rica had many advantages to make it into a great tourist place, such as the establishment of a national park system in 1969. Along with being a peaceful, socially and environmental progressive country, Costa Rica has experienced a stable increase in international tourists.

The Trips

My first trip to Costa Rica was in late July 2016. I planned to meet Stacy with her graduate student Giselle in Gandoca for my preliminary research. I landed in Central America, the disproportionately thin connection between two large continents. Along with me in line trying to go through customs were tourists in colorful short pants and t-shirts. Some are groups of old and young family members, and some are young couples, all talking to each other full of the joy of the promise of a paradise ahead of them. Located in the tropics, with both Pacific and Atlantic coasts, Costa Rica is blessed with the greatest biodiversity on this planet. The ecotourism industry boomed in the late 20th century in Costa Rica. This brought tourists in and development, which is now almost synonymous with the promise of fortune. After I went through customs, and dealt with the airline, and found my lost checked luggage, I finally met with the driver who was there to pick me up. He told me that we were late, and the last bus to go to where I needed to be would leave at 4pm. But if I did not make it, there were plenty of hotels around the bus terminal where I could spend the night and keep travelling tomorrow. The kindly driver made a call to the bus ticketing office asking about the ticket and reserved me one of the last few seats on that last bus. The bus took me away from the city of San José and drove into an endless green full of giant tropical grass and lush banana-like heliconia plants. Because of the long hours of travel, I fell into a shallow on and off sleep on the bus. Soon the night fell and the rain came. The bus took me all the way to the terminal stop, Sixaola, a small community near the border of Panama which during daytime has only a handful of people, let alone when I arrived at almost 10pm.
Sixaola is the frontier of Costa Rica and Panama, and received its name from the Río Sixaola that separates Costa Rica from Panama. Even though Costa Rica is highly developed for its tourism among Central American countries, a remote region such as Sixaola is mainly rural and escapes major waves of tourists. Therefore, I was immediately amazed by my first impression of the remoteness of Stacy’s field site. Here there is a need to introduce other major names of small communities that will appear. In the Caribe Sur region, the most famous tourist destination is Puerto Viejo or Wolaba in “Patwa” means the old harbor. Then further south there are smaller communities including Cocles, Playa Chiquita, Punta Uva, Playa Grande and Manzanillo. At Manzanillo, the road ends. Then one has to drive back north or take the bus back to Bribri, the capital of canton Talamanca named after the indigenous community inhabiting this place since the precolonial time, to reroute to the international “highway” to Panama and head south once again until further south than Manzanillo to go to the frontier town Sixaola. Along the way, small villages are scattered, and banana farms of Chiquita and Del Monte.

Puerto Viejo is the major tourism community north of Gandoca. It is located in between major tourist attractions of Tortuguero, Cahuita and Bocas del Toro in Panama. It is mostly a service and small
merchandise-based economy. This position had gained Puerto Viejo its popularity as a small Caribbean town for tourists to unwind and enjoy some nightlife. Therefore, most of the communities are engaging in small, tourism-based economies such as restaurants, small hostels, bike rental, tour guides and surfing lessons. The denser Puerto Viejo and Manzanillo with gridded streets are two of the earliest neighborhoods in the area. With an asphalt surfaced road connecting the two neighborhoods, later communities started to form along the road during the process of urbanization. Due to the linear coastline that is divided into capes and beaches, and capes usually are limestone cliffs where it is hard to build on, Puerto Viejo area is divided into many different small neighborhoods. The major urban center of Puerto Viejo is mostly run by Costa Rican nationals. The land in town is owned by mostly Afro-Caribbean, Chinese and a few families from Panama and Nicaragua. Outside the urban center, the community is divided into five different neighborhoods: Cocles, Playa Chiquita, Punta Uva, Playa Grande and Manzanillo. These neighborhoods are loosely organized along the coast, along the major road running parallel to the beach. The major road reaches Manzanillo and disappears at the end of the town in front of a bridge, which leads to a trail into the jungle.

Puerto Viejo was once a small village and remained mostly rural with the main source of income from cacao production. Delfina Chang Wong is the wife of Manuel Leon Chang Wong. They were one of the first families who lived in the early years of Puerto Viejo, and witnessed and partook of the development of this fishing village into an international tourist community today. Delfina Chang Wong wrote a history book about Puerto Viejo from what she experienced. At the time there was only lush jungle that met pristine water. It was remote. In the context of the 19th century to early 20th century of Costa Rica, the nation’s major economy was banana and coffee exportation. The failure of a British company to build the trans-Atlantic railway in Costa Rica had set the foundation for mostly U.S. Contractors and later United Fruit Company to create one of the most profitable businesses at the time in nearly the first five decades of 20th century, which led to the boom of Limón port and city (Mitchell and Pentzer 2008, 48–49). The railroad and banana industry had brought with them Jamaican laborers (English speakers) as well as many African descendants and Chinese. These immigrants were brought
over by an economy that was set up to produce bananas for the U.S., and they eventually stayed on the
Caribbean coast of Costa Rica (Longley 2004; Echeverri-Gent 1992). This migration is mostly between
Jamaica, Panama and the lowlands of Central America. There was a second major migration which
brought in Hispanic workers from Nicaragua and Panama over generations, starting from around 1920
(Longley 2004). As part of the lowland Caribbean coast, Puerto Viejo de Talamanca was a small village,
according to Delfina Chang Wong, who is a member of the oldest Chinese family in Puerto Viejo and
running the oldest grocery store with her husband. The village once mostly relied on the fishing and
agriculture community that used to be known as “Caserío.” It is translated as a hamlet in English, which
means a small informal settlement comprised of only few households. In this case, it was only Jamaican,
families from Limon, "Bluefields" Nicaraguans, families from Panama and one Chinese family. The
houses at that time were distanced from each other and had no potable water source except rainfall. The
houses were all equipped with a wooden cacao dryer, for at that time the cacao beans produced in their
farm were like gold. After the crash of the cacao economy in 1977, the community started to transition
into small businesses and aimed at tourism (Changwong 2016).

Figure 3: Photo of Puerto Viejo: it still kept the look of the village past

The beginning of tourism in Costa Rica was part of an important political move in trying to free
the economy of Costa Rica from exportation dependency. Since the crisis of coffee and bananas in the
mid-20th century, an alternative plan for developing the country's economy was needed (Mitchell and Pentzer 2008). After many attempts to resolve Costa Rica's economic crisis it finally diversified into many different products exportations, including manufacturers in the 1990s service industry, especially the green tourism industry that boomed due to the peace made by Costa Rica's political leader and a functional national park system (Honey 2003). In the early 20th century, Puerto Viejo was part of the cacao exportation economy with individual cacao farmers and Chinese family merchants, until the 1977 cacao blight crushed the cacao farms. That is also when the first few tourists started to show up in Puerto Viejo. In 1991 an earthquake shifted the landscape of Puerto Viejo and created more sandy beaches. Originally, it was mostly coral reefs (Changwong 2016). Since then, foreign tourists have flooded into Puerto Viejo. Many stayed to build their houses hotels and businesses in Puerto Viejo and other neighborhoods.

This “Walaba” (Jamaican English spelling of Old Harbor) as the name bears its West Indian roots of Afro-Caribbean descendants, lends its current identity to the Caribbean past. Most of the African bloodlines here have self-declared Jamaican roots today. Today, hostels, cabins, small restaurants and bike rentals can be seen all around the major road from Puerto Viejo to Manzanillo, and cacao farms show no signs of their once prevailing existence. Along with these developments, the major road, electricity, telephone services, potable water and primary educations came into the place to make the community into what it is today. With a basic network of infrastructures, roads, electricity, internet and so on, to facilitate the ever-increasing tourists, it is now a popular tourist destination among European travelers who seek a "little more adventurous route." However, though a famous tourist destination, Puerto Viejo and its periphery communities have remained rustic and dominated by small businesses rather than big resorts. According to Delfina Changwong, there was once a developer that tried to build a marina in Puerto Viejo with the municipal in 2007. The community fought against development like this (Changwong 2016, 13,61). This incident was also brought up during the monkey bridge design workshop.

Despite the number of tourists that come to Puerto Viejo, there is no trash can for the tourists in the urban center of the community. Trash service is provided with once a week pick up. Each hotel and
restaurant has enough trash enough to fill a small truck. Therefore, every Monday night and Tuesday morning are the prime times for vultures and domestic dogs to tear apart the plastic bags and gorge on this weekly feast. At the time I did not realize how this scene related to my work in this community and entangled with my investigation of human, wildlife, and development of this place. During the initial quest to identify the potential site for building the new bridge, most of the interactions with the local community members involved the conversation about the “new” and development of this place. The road expansion is part of the most recent decision of tourism development of the Caribe Sur of Costa Rica. Chopping trees and trim limbs is also very sensitive topic in this region, as it affects aspects of eco-tourism, and many expats settled here for the ecological value of the place. Many of these expats are now the major activists who work diligently on improving the local living conditions.

I arrived at Puerto Viejo on the 21st of May, 2017. I took my notebook and camera and started to wander around. As the roots of Jamaica descendants, Puerto Viejo today has Calypso and Raga dominating the music choices of the shops. The first thing I noticed was the number of tourists that are in Puerto Viejo. As I stopped at the very end of urban Puerto Viejo, where the local people called "Salsa Brava," which is named after the wave break, there were many surfers tumbling in the wave. I started a conversation with a local man named "Chino," a Hispanic mestizo who keeps a small shop selling flip-flops and swimming suits, about surfing and tourism in general about this area. That is when I learned

*Figure 4: Surfing as a Tourist Attraction (drawing)*
that it was a small peak of low season tourism. Though I already noticed the flow of tourists engaging in their tour in the area, nothing compares to the high season of spring and winter. He also told me a story about how this "Pueblo" transformed from cacao farm to tourism business after the cacao-blight. But he added that the waves had changed since the 1991 earthquake, coming from more west than it once was, and this had made surfing harder in this place. Maybe the additional challenge was what brought in more surfers. Salsa Brava is one of the most famous wave-breaks in Costa Rica. Many surfers come specifically for Salsa Brava, which means “Great Salsa.” It is a wave to dance to. Tourists like me are not commonly seen. When the local people find out I am from China, it added to their curiosity to find out more about what brought me here. It seems to them a Chinese here usually does not come for tourism. But, I am here to find out more about them.

During my first few days in these neighborhoods I tried to talk to as many people as possible. While trying to talk to local people about their views about the monkeys, I struggled to find a suitable open space for hosting the participatory workshop. My discussions with the people showed that they came from different roots than most Hispanic colonial towns. Today the groups that inhabit the Puerto Viejo area are diverse in both ethnicities and nationalities, compared to the immigrants who came into the Puerto Viejo area in the later 1900s. There are few "local" people in the sense that have lived in the place over generations (Changwong 2016, 36). These early inhabitants were mostly afro-Caribbean who moved to here after the indigenous tribes moved into the mountains to avoid the colonialists. They also had a complex history of mingling with the indigenous groups. But, their afro-Caribbean culture in the coast has been maintained. Today they are mostly land owners and earn their living by selling their land. The typical afro-Caribbean group are in their 40s to 60s, are fishers who usually go fishing for half a day and spend the rest relaxing and going to Church. The younger afro-Caribbean group is more engaged in the tourist industry. They are surfing coaches, bar tenders, musicians or working a tourism related job. The Hispanic mestizos from the second round of the migration are mostly running restaurants in the area. Expats who came here to live the paradise comprised the majority in the area. They were the most active group to participate in the design workshops and express strong attitudes towards conserving not only the
wildlife but also their own living environment. Though foreigners migrate into Puerto Viejo area in large numbers, there are rarely Costa Ricans from the central valley that move to the Caribbean. These people will only come to Puerto Viejo during national holidays with families in their car and make barbeques. Therefore, Puerto Viejo is both an international tourists' destination and national working-class holiday spot.

**Description of Perspectives and the Relationship with Environmental Issues**

As I stated before, the community is composed of expats from many countries, earlier immigrants from West Indian Islands, many expats and "mestizaje." Many of the expats and mestizaje are involved in political situations as activists and NGO workers. These are all the factors that contribute to their positions on the topics discussed in the three workshops. Therefore, the communities with Afro-Caribbean (Jamaicans), expats, Latinas, and Environmental activists, create a perplex mixture of positions about the wildlife. This major road had thrown in the mix with more and more people coming from outside with their cars, which created a series of reactions from the communities. Noemi, with whom I had collaborated in the participatory design workshop and had offered me great help through the course of the project until the very end, was a locally-born tour guide and environmentalist working with parrot conservation. She was the most helpful person in facilitating participation from the local communities. Among other activists within the community, she shared an ecological perspective and cared for her living environment and compassion for animals. Noemi and her fellow activists contributed to a very important aspect of the research and major findings. Among the activists, Edmee had a mixed ancestry of early expats, who later played a key role in leading the bike lane petition group that started from an idea that arose from my participatory design workshops about the monkey bridge. For expats, Dora is a recent younger generation expat and activist from Venezuela who came here to build her dream house with her son and was trying to live a peaceful life.

Dora, along with other expats, actively participated the workshops and branched-off into different areas in working towards a conservation goal for both the wildlife and human living environments. Their
perspective of the future of Puerto Viejo area informed me about the struggle of interests and the reality. They believed that a good environment for wildlife and for themselves needed to fight against top-down decisions from both the local authority and big capital enterprises. Some large pieces of land, especially those near the "Pueblo" Puerto Viejo were owned by early immigrant families dating back to the 19th century. Most of the older generation kept their local artisan fishing traditions today. Dwaine, Ajay, and Fidel were fishers with whom I communicated the most. Dwaine, who married a Greek expat, is an Afro-Caribbean fisher who owned many land pieces and a restaurant in Puerto Viejo. Playa Negra was in his 60s, and has a boat and still fishes as a hobby. He was warm-hearted and invested in the community. Through him, I met Ajay and Fidel, who were afro-Caribbean like him. These people had the insiders’ view about the early residents in Puerto Viejo and they had the longest interaction with wildlife in the area. Among those earliest families in Puerto Viejo area, I have to mention those who grew up in this culture and returned to it after years of absence. Merlin from Puerto Viejo and Rosalina, who grew up in Limón and came back to Puerto Viejo from New York, saw the history of this area and came back to a reality different than nostalgia; their views were in between early generation residents and expats. These perspectives were valuable to my research in that I referenced their perspectives with the local early generation Caribbeans who have never left.

The Environment

Along the road today, from the urban center of Puerto Viejo moving towards Manzanillo, hostels and bars lined up to expecting tourists. With the recent boom of the tourism industry, many new hostels started to appear from the jungle like mushrooms, much like the new houses built by new expats who came here to live a “natural” life and build their own “dream home.” During my visit, there were construction sites every little distance along the road. Such an expansion of the industry has led to more traffic, both automobile and bicycle. Along with international tourist development, domestic tourism is also in the development plan (Instituto Costarricense de Turismo 2005). For domestic holiday beachgoers, cars will be driven to Puerto Viejo from San Jose and parked directly underneath the trees along the beach. Traffic
on this 11km road is becoming more and more of a problem. The expansion of the road thus became inevitable.

I was informed about the expansion of the major road from Puerto Viejo to Manzanillo long before planning the trip. It was only when I started to visit the site by biking along the major road did I realized the impact of this project, or more importantly, the attitude towards this road expansion. On this 11km road, there are many sections with construction signs, and heavy equipment occupied one lane of the road. Workers were laying down gabions to protect the newly defined shoulder of the wider road. Here and there I encountered different departments who were involved in the road construction; for example, some are responsible for cutting down trees that are in the way of the proposed road, while another put utility lines underground. Therefore, the first impression of the road was formed while passing by sections that one lane had to yield to the other. There was a man wearing an orange reflective jacket who held a sign with red “CEDA” on one side and green “SIGA” on the other to manage the traffic. At first, this construction contributed to my frustration of recording the site for potential bridge locations, since we relied on trees to attach the bridge. The trees on the roadside were changing due to the construction as more trees were cut down to make way for the expansion. This situation was not very popular among the local community members. Roadkill or electrocuted animals were not the only inhabitants that took a blow from the road on this landscape. Though the road will help people, the local communities are, from their perspective, not the targeted user for this new road expansion project. Biking is the prime way of transportation in this area. As the community is a small urban center, many people live just a few minutes bike ride away from where they work. This makes the bike the first choice for commuting. Though, many of the small business owners rely on the road to move their goods around and bringing in raw materials, the original road well fulfilled the need. The road itself, even when cleared for the widening, was mostly shaded by the tall trees of the coastal forest. The fast-moving traffic passed by the bikers with little clearance. Therefore, it was hard for the community to stay focused on the monkey bridge problems, because it is stemmed from the same issue of planning and decision making about the landscape. What it should be used for and how it should be used? It all seemed like these questions were
caused by increasing car traffic and tourists in the community. They led to many questions about related issues such as polluted water, trash boom and lacking a bike lane in the community. During my later study, I found out that the blame was usually aimed towards increasing to sacrifice forest for new buildings within the community, and the top-down regional plan from the governor.

Local NGOs and Conservation Activists

The spirit of activism is strong from the expats because that was how they protected the environment against “institutions” or “capitals.” According to expats and some local activists, there was only a certain type of tourism they wanted. Eco-tourism featured quiet birders and hikers rather than parties or Costa Rican national’s “family beach tailgating.”

The actual planning of the workshop started when I met Noemi. Noemi was born in Bribri with a mixed ancestry of indigenous Bribri and Latina. Now a single mother with one daughter and working two jobs, her passion for environmental activism was passionate. She emotionally talked about two big trees that were just chopped down, “I cried when they cut down the two massive trees. There were so many animals that depend on the trees.” What she referred to was the new development of a hotel on the opposite side of her tour guide office. Noemi ran a small business as an Eco-tour guide and served as the communication and outreach person for an Ara project (“Ara” is a local name for macaw parrot), by the local NGO focused on big Macaw breeding and conservation. The new hotel had a large construction footprint on the Puerto Viejo area. The owner had a few big trees chopped down to let in sunshine for the property.

This was not the only move that caused conflict with the local NGOs and other expat activists. A solid white wall enclosed the whole property, which had graffiti with quotes such as “we need to pass” from a turtle or crabs. On this landscape, as Daniel Buren and Andrew Sullivan stated, "Every act is political." The widening of the road and the connection from Manzanillo to Ruta 36 was among the kinds of political moves that directly influenced life will in this area. Since the residents along the major road to Manzanillo are expats who bought the farmland from the villagers, their properties were usually along the
road or a little inside the jungle. Therefore, how bike friendly was this new road, how fast the traffic would be, and how many more people the road would bring to this "paradise" was an issue for these expats.

Noemi offered collaboration on the monkey bridge project since she was the communication person for the Ara project (Green Macaw conservation effort) as well as a tour guide. The Ara project was a nonprofit organization dedicated to conserving the great macaw in Costa Rica. The Pacific side where the main office was located was focused on conserving the scarlet macaw, and the Caribbean side, with only two regular employees, worked on conserving the green macaw. Including the two people working with Ara, there was Noemi and Mario, who I met two days later in the afternoon as Noemi offered to show me around their project. The project site was inside the hills not far from the ocean where there was only a pebble road with an insignificant wooden sign leading into the hills from the main road to Manzanillo. The hills were immediately cooler than the rest of the Caribbean scotched beach and water. When we approached where the minivan could not climb, Noemi parked the van and suggested we start to walk up the hill on foot. We met Mario not far from where we started to walk. He came to pick us up with an all-terrain vehicle. This was a very compact conservation organization. There was a small gate set in between a dug out of a small channel through the saddle between two hills. There was only one small tin roof breeding facility and one building for the volunteers to live. There were few trees with a rope attached to one end with a wood plank and a big bowl. “We feed the Macaws in these,” Noemi told me. The routine operation of breeding, feeding, monitoring and setting up new nest boxes was carried on by Mario and volunteers coming from outside. It seems obvious that an organization that featured charismatic animals had no trouble in getting volunteers in helping carry out daily work and keep the cost of running the non-profit low. Later I found out that not only the non-profit organizations take advantage of volunteerism, but also fully functional for-profit businesses such as resort and hotels. It was very clear that Noemi and Mario were genuine passionate people who had devotion, at least to Macaws. Though at the time I could not agree with their attitude towards the local people about the difficulty of conservation outreach towards these people.
It is not uncommon for local non-profit organizations to share their expertise with local people by informational sections or tours. Both Ara project and Jaguar Rescue Center, two of the animal conservation-oriented organizations, expressed that their tours were free to local people. During my time staying in the community I saw a tight relationship between the local people and these two organizations. Whenever there is animal that needed to be rescued, they were called by local people. Therefore, there was in general a consent about the ecological environment to protect and help wildlife in the region. This large picture provided me the background for working in this community. Throughout the time, the local non-profit organizations provided much important support and reaction towards the project. Meanwhile, it is worth to mention that the project was introduced to the local non-profit organizations as a project planned by the Monkey Bridge Project, the US non-profit organization I am affiliated with. Therefore, my position is near equal to Ara and Jaguar Rescue Center. This situation also contributed later to the alliance that was formed during the project. The electrocution of animals, those injured or killed during the attempt to cross the road using power lines, can be a problem for eco-tourism that Costa Rica is marketed for. The state-owned power enterprise, who are proactive in environmental conservation efforts, had been installing ropes that provided animals an alternative pass across the road. However, those passes were limited in effectiveness in providing access for the animals to pass through the road. Flattened ghost crabs, frogs, and toads could be seen all over the road when I was biking to look for a potential site for building monkey bridges. In this region, the monkeys were never documented to be on the monkey bridges.

In addition to the effort that the Monkey Bridge Project has put into monitoring and identifying a suitable site for building monkey bridges and provide advice for Grupo ICE, building and designing wildlife over-pass and have the local people making the functional bridge was a new approach. The major people involved in the organization were employed locally. Stacy Lindshield believed that such a conservation effort provided employment for the local people. For years, major tasks were conducted by hired local people and a few volunteers on a discreet basis. Many times, when I talked to the local people to gather data, I did not mention my affiliation with the organization to avoid patronizing and disempowering local people.
Monkeys, Place, and Ecology

Different than I thought, there was no indigenous hunting with blowing darts in most people I interacted with during my stay. Instead, there were memories from earliest people when the “village” was a land of bounty, and who always had more than enough to eat. Monkeys were never a major food source for them, and neither did they think too much about their presence. Monkeys and Baboons (how Afro-Caribbean called howler monkeys) were like other animals. They were part of the place, and normal. They would go fishing and catch sea turtles, but never monkeys. There were no protectionist laws until recently. The most vocal reaction about protecting the monkeys from traffic were from the expats. Monkeys, like sloths, were victims of the increasing traffic and electrocution. This led to their opposing the under-going road widening and any clearing of forests or cutting tree branches. The conflicts were mainly coming from the authority trying to develop the infrastructure to promote tourism and increase the numbers of new and bigger hotels built with walls and no trees. A debate over the legality of rezoning a once wildlife refuge and a new real estate development situated in the rezoned land had further complicated the discussions. It is a legitimate fear that any bridge would be cut in the future due to further construction without any effective way to limit the destructive forces. Even when I was there, slogans such as "Own a piece of Caribbean" from real-estate sellers could be seen along the major road (256). During the study, different views of monkeys split into three situations. Afro-Caribbeans and the expats all saw the monkeys as a being who suffers when there were accidents. Those from conservation-focused NGOs had a perspective that monkeys were part of an ecosystem. The expats also have another perspective to associate monkeys with their living environment, which they came here for. When these views were expressed in the same design workshop, there was a problem of how the bridges would need to be designed and where to build these bridges.

How Fishers Think About Monkeys

The first time I heard the local people call a howler monkey a baboon was from Camille, the Caribbean cake maker. She is Afro-Caribbean descendent. After that, I found out other Afro-Caribbean
people also refer to howler monkeys as baboons. Their loud voices indeed sounds bigger than other monkeys. Daily encounters with these loud animals do make them even more “baboon.” Baboon here may be traced back to the etymology roots as from old French and English origin as “to bark”: some loud, foolish animals. Ajay do hold a different opinion towards three different monkey species. The way they describe this difference is by how elegant the animal is. To an extent that they think each animal has a “doctor” to treat animal illness. How good the “doctor” is will be how elegant or smart the monkey species is. Spider monkey among all the monkeys, they believe has the best “doctor” because no one has seen any obvious disease around the group, as opposed to baboons (howler monkeys) who were often seen with a skin disease of some kind.

The people I talked to saw a shadow of the human within the monkeys. None of those who I talked to would like to eat monkey meat. “They look too much like a human,” or “Baboon just nasty,” they said. To some extent, they think each kind (species) of animal has its own doctor. This reflects their afro-Caribbean medical practice. It is hard to say it is not traced from the herbal medicine that they still use today. During my staying there, one of the most talked about topics was the use of every grass, vine, and tree. During the few occasions I felt sick in the community, they would give me all kinds of plants (limón, sorosi…) to cook a remedy and promise me that it would cure my disease in the way that it “cleansed my body.”

**How Expats Think about Monkeys**

To expats, the monkeys were like the other charismatic animals in the region. Along with sloth, sea turtle, and Ara macaw, it represented the wildness, the tropical paradise they came for. Also, the monkeys were a form of life who experienced “suffering.” The animals were something the expat could show their sympathy towards. These animals were all part of the debate over land use and development. Many of the questions about monkeys or conversations about monkeys naturally led to the sloth and deforestation. In general, there was a comparison between monkeys and sloths. Because the sloth moves slower, they could not easily relocate once a forest was cut down. Many time sloths ended up in an
isolated patch and could not move due to being scared of the moving traffic or humans. Therefore, the local people, including expats and the born and raised near Puerto Viejo, all mentioned how monkeys crossed the street was an issue, but the situation with sloths was only worse. There were a few expats who spent more than ten years living in the community who also mentioned how the place looked different a decade ago with bountiful wildlife all around. Now what we saw was just a remnant and highly endangered. It was true that the wildlife had died in great numbers during my visit there. Flattened ghost crabs were everywhere on the road, as were toads and Costa Rica’s signature red eye tree frogs. Compared to monkeys, those animals were smaller and less impressive, except for red eye tree frogs. However, once they are flattened, they just turned into a brown crimson stamp on a black asphalt surface. Only when I mentioned crabs would the people respond immediately, as if a shared pain, saying that they are everywhere. But soon the topic turned to land turtles or other invertebrates.

The monkeys’ problem is a problem of the power structure. It is a problem of being unable to resist the change they are simultaneously trying to deter but meanwhile rely on. This dilemma was well articulated by one of my encounters with an expat from Colorado. She said there were times in the low season you can live in the paradise dream. But once it got to the high season you would see people everywhere, but you would have money. “By that time you would wonder what are those people doing in my backyard?” But many of the frustrations associated with monkey issues was the lack of voice over situations such as the road development project. The widening of the major road to the community was so far the greatest frustration. To them, the destruction brought by this project not only threatened the monkeys and other wildlife, but also their peaceful dream of living in a good environment. They escaped the damaged environment from where they were to come to Puerto Viejo and its surrounding neighborhood. The way that the monkeys suffered were the inconvenience the expats escaped from. It is understandable that they cared about the issues of wildlife crossing and made an immediate association with their own suffering with increasing automobiles in the region. During my stay in the community, the distance from Puerto Viejo to all surrounding smaller neighborhoods were within biking or walking distance. Even to Manzanillo, the furthest distance within this community took only around
forty minutes or so by bike. The local people were never in a hurry due to the languished Caribbean sun. According to the community members, the road was not widened for the community. The major car issues were from the “Ticos” who came here to spend weekends. They usually drove from the city and parked their cars right on the beach and have a tailgate-style grill out. I was shocked by how similar the scene was to the typical US barbecue holidays. Especially when there were national holidays when they have breaks to drive from San Jose to the south Caribbean region to enjoy a family pass time. The Pacific side or anywhere nearer from San Jose were all international tourists. The remote South Caribbean though with international tourism still remained small, informal and working-class friendly.

**How NGO Think about Monkeys**

The Ara project, Jaguar Rescue Center, Corredor Biológico and Bandera Azul showed their activism during the project. They all worked relentlessly on the niche they identified and offered to help the best of their abilities to us. There was a strong activism and advocacy culture in the community. Once they knew my intention to work on the monkey bridge, they were the first few people that actively engaged, and the last persons to leave. Jaguar Rescue Center has been saving injured animals in this region for years. Established by a Spanish expat couple, they carried along and addressed the human-wildlife conflict. Monkeys were part of many wildlife they rescued, mainly from injured cases. It was during my stay in the community that I heard about one case of electrocution of a monkey in the busy center of Puerto Viejo, and the animal was rescued by JRC. Another, a case of a separated sloth cub and mother that I witnessed. They first rescued the cub because it fell to the ground and had a volunteer track the mother. In turns of expertise, JRC has a crew of vet, staff, and volunteers. They have a large private reserve to rehab these animals and countless volunteers to work their holiday for this organization.

Thanks to my mission of building monkey bridges, I got a free tour of the rescue center. There I saw in the cages the monkeys were happy and playing. It looked like a zoo on the surface, however, due to the mission of rehabilitation the animals get their wild section daily. The monkeys are social animals, so they have human interaction with a few workers who take them outside to the forest to play, and calls them
back in the afternoon. This was an institute that practiced nurturing the injured and release those who they think they are ready for the wildlife again.

Any accident, like electrocution, that happens to the monkeys or other animals puts pressure on JRC, for they will be responsible for rescuing injured ones. They take on a role to identify locations where measures need to be taken to prevent electrocution. This role made them see monkeys as part of their range of activities in the region. There are tourists who come with great awareness and visit only the projects such as JRC and Ara to support local conservation efforts.

Ara project has a more difficult situation with the monkeys. During my visit to their conservation site, Mario told me their problems with monkeys. Capuchin monkeys will go into the great green macaw’s nest and steal the eggs and young chicks. This makes Mario personally unwelcome to monkeys. However, beyond that aspect about monkeys, Mario made an immense contribution to the project. He helped me climb the trees on a bridge site to install monkey bridges. The hostility was really towards the incidents of capuchin monkeys who ate eggs from one of the Macaw nests. Besides, the other species, such as spider monkeys, are elegant animals who were usually appreciated by most people. Noemi from the same organization had asked me to participate multiple times in their reforestation activities and outreach events. She made the connection that both great green macaws and monkeys rely on trees (forest), specifically, one key species named "almendro de la montaña" (*Drelyx panamanesis*). Hence, she contributed great effort in helping with the monkey bridge. It is not hard to conclude that these local non-profit organizations involved with conservancy work understand monkey as a species in the eco-system that needs to be conserved. Monkeys were dependent on this landscape, and the over-exploitation of this region's vegetation was a threat to these charismatic animals.

These aspects are all opened to design problems. The immediate response from the local people when hearing about monkey bridges was “I have never seen monkeys using those bridges.” I explained to them that that was the reason for me to be here, to talk to them about what they think could work as a monkey bridge. It was not hard to engage the community with a conversation about designing bridges for monkeys. As the concern of the community about their living environment, monkey bridges were
solutions to wide tree canopy gaps that were too wide for monkeys to cross. This has been an issue with the community when ICE wants to trim the tree branches around their powerlines. Simple rope bridges have never been considered as functional by the community due to lack of witnesses that the animals used them. The effort that ICE put in was not recognized. It caused community members to reject ICE’s maintenance work, which was vital to the safety of residents around the powerlines. In order to present to the community that Monkey Bridge was a way to reduce monkeys’ “suffering” by reducing accidents and reconnect habitat to other community members, the design needed to be demonstrated functional. People needed to see the result of having this bridge. Therefore, to make a design that is recognized by the community and owned by the community can be a start to show how to address the issue of wildlife crossing in the thick of the road widening in the community. Such a design project also needed to explore the problem of what kind of a process can help create a strategy for the community to take the initiative in the future? It will need to consider the community’s ideas about the monkeys as a design consideration, and about the monkeys’ need to live in the same landscape with the local human inhabitants. As much as the monkey bridge is for the monkeys, it is also for the local community.

Started as a fishing and farming community, Puerto Viejo has increased in population from all over the world. It was made into a diverse tourism dominated complex of communities where international meets domestic, human meets wildlife and land meets the ocean. History continues into the present, which keeps bringing more people to Puerto Viejo today. Especially, there is an increasing number of domestic tourists with cars, who come here to spend a day or two with families in the Caribbean. These people need better roads, which shaped the attitudes of local people about monkeys and other animals. Within this mixture of people, wildlife, and land, there are many active NGOs and activists who came here to live and protect a "paradise." They also brought with them a culture of activism, which contrasts to Puerto Viejo's past of minimal institution due to its remoteness and low population. Now with many politically active parties, conservation is lending itself as the entanglement of various environmental issues/justice that local people use to try to create a voice. The next chapter is about the workshops that demonstrate the entanglement and, tells the story that local people as well monkeys are
part of the inhabitants of the landscape and now face the threat from a development with neither local people nor animals in mind.
CHAPTER 3: PARTICIPATORY DESIGN AS IDEA FORMULATION

Planning Workshops

Three workshops were planned for different purposes. The first workshop was to initially identify a site to build the Monkey Bridge designed by local people. The second workshop was focused on the design of the bridge itself. The third workshop was for final decision making. The setting of three workshops was in part to try to engage as many people in the communities as possible. In another aspect, to bring together different parties to the same table to discuss what was necessary for the monkeys and monkey bridge design. The form of a workshop was chosen for its open and encouraging process to approach collective decision making. Also, it was a good way for empowering the local community to take action in making something for their communities. To combine anthropology with participatory design, workshops where a platform for local people to speak out and communicate about what do the monkeys needed was a good setting to understand local perspectives about monkeys, ecological conservation and the development of communities. My plan for the participatory workshop was to present a selection of potential sites for building the new wildlife overpass according to a document that ICE had in their files about where there was a need for wildlife pass and the condition of powerline were favored for the construction. Eventually, during the second workshop, we invited ICE workers to sit down with the local people to talk about what was feasible or not for the monkeys. However, due to an overly emotional reaction from the local expats and local people against the fact that no information about the under-going construction for the road widening, ICE did not meet with the local people in the workshop for the protection for our participants. Instead, Stacy and I met ICE on a separate meeting hosted by them to understand their position on this project.

Therefore, in this chapter, I describe the three workshops in detail and how I interacted with the local people inside and outside the workshop settings. During the process, I encountered and overcame
some difficulties in realizing the design of the bridge. While the expats and local NGOs actively participated in the design workshop, the local Afro-Caribbean showed less interest in participating in the workshop. Conversation with local Afro-Caribbean fishers and other groups indicated that their lack of participation in all kinds of public gathering events other than church was habitual, and part of who they were. Through the experience of hosting and managing the three participatory design workshops, I argue that in a community highly populated with tourists, expats and animals, conservation projects need to navigate the entangled human and animal existence, which in this case, expressed as the inseparable concern of local expats and NGOs about their own living environment and the monkeys. Though the community took ownership of the workshops and used it to address issues such as their living environment, they still expressed care about the monkeys as part of the place as it is. For Afro-Caribbeans, the workshop was a good thing to have, but they preferred to talk to me personally without having to be in the gathering during that specific time window for the participatory workshop. This situation was regarded as normal and uniquely "Puerto" for this region. Therefore, though there was only limited participation rates for the design workshop, it did not mean that the local people did not value "monkey" or the project and only thought about the benefit of monetary income that development brings. A widely shared sympathy for monkeys from all groups combined with other concerns brought by the widening road not only proved the entangled situation of human and nature in Puerto Viejo, it also informed the ability for participatory design workshops combined with anthropology study as a way to uncover the complex terrain of entangling problems of human and other life forms. Although the participatory design workshop led to problems beyond the scope of this project, it provided a good platform to address conservation issues and the needs of the community from their perspective.

**Workshop I (Animals are Suffering, so are Humans. We Don't Need a New Road.)**

The distance of 11 km on a dashing car was never covered so fast. It was 12:50 pm, we were almost late. The first workshop was scheduled in Manzanillo-the last community on the coastal road. The workshop started at 1. But I had a meeting with the food and drink supplier beforehand to set up the
workshop. We finally arrived at the center where the people were supposed to gather. It looked normal with no sign that anything was going to happen. The supplier was not there. I went on to the shop of the suppliers to get the food and drinks I ordered. Jimena, one of my suppliers, told me she already went to the shade in front of the beach, but no one showed up. Therefore she went back to the shop. While could not split into two people to get everything ready for the workshop at one time I realized the preparation time would be longer than just pinning up a poster in school. I have everything I learned with me, but at the time I can only hope to understand the tedious work of organizing, participating and documenting a workshop like this. All in all the process of a “participatory design workshop” looked clean and simple on the glossy paper of an academic book or a company’s website. It was half past one, still no one showed up. I expected people in Latin American to be late on a regular basis. This was notoriously known to all. However, on the other hand, there was nothing to convince me that in the end anyone would show up at all. Even though a day or two before, they all promised me with an astounding certainty that they would come to the workshop and were genuinely interested in the topic. “There are many monkeys around our community” “I know where the bridge needs to be built” or “I have seen a lot of monkeys around…” From their responses to my invitations, one cannot help to ramp up the hope of a decent amount people showing up for the workshop. However on the day of the actual event, not even one person showed up at the shade of the beach. Nor my suppliers who promised to come later when I brought the food with me to the event. It was around 2:30 now, still with no sign of anyone to come to the workshop, I received a call from Noemi, who I had planned the workshop with and told me she will come at 2:00. “Where are you?” “I have people here waiting for you,” “the Jaguar Rescue Center and the local government.” Hanging up from this call, why there was already local government involved with this? Without too much time to make sense of why the local government was there waiting, I was surprised about why Noemi directly headed to the gathering location of plan B. We had two gathering locales. The shade near the center of the community was the prime option due to its openness. Any big gathering in this place would bring more people out of curiosity. The only problem with this location was when it rained, I would have to cancel everything. Therefore, I prepared another location with Noemi’s help but this location was under the
compromise of the effect of community engagement. Perhaps it was due to the misunderstanding that the second location was only in case it rains, or perhaps she felt that the second place was more proper for the people she invited, such as the municipality officers.

Ten minutes later when I rushed into the second gather location with the fruit juice I asked my local supplier to prepare, I saw in total 8 people on the “scene”. It was the MINAE building- a typical Caribbean wooden lodge with an extended front galley. I first noticed the Jaguar Rescue Center’s staff in black shirts. There were two “local government” municipality people in their blue shirts. Then there was Noemi in her green Ara shirt. There was Liezel, the activist from Germany and Maria staff in Congo Bongo eco-lodge. The participants were very different than what I had pictured. Puerto Viejo and its communities were just starting to reveal themselves to me. That first workshop involved more people with affiliation from local organizations: ARA project, Jaguar Rescue Center and Municipal. The only other two people who were not affiliated with an organization were activists. Most of them knew Neomi and came by her invitation. Before the workshop, I had distributed flyers and going from door to door with Ernesto (a paid local worker) in Manzanillo and Puerto Viejo to recruit participants for the workshop. These people included the supplier of food and drinks for this event.

Jofre and Julia were from the Jaguar Rescue Center. They were the people with experience in primate behaviors of the local monkey and interested in helping with the project. Joaquin and José were from municipals and worked for the environmental department. Liezel was an expat who kept a blog “make Puerto Viejo green and weird.” She was a more recent expat who still goes back to Germany during a certain time of the year. Noemi was my collaborator from the community who worked for the ARA project. Then, Maria, a local "mestizaje" who worked in an eco-lodge. The mixture of the crowd was towards the side of educated people working a stable job. That was different than I expected, as I had planned an all-inclusive design workshop that brought to the table people from different classes. It seemed like activism was specifically for certain groups of people in this situation. Despite my effort of recruiting the participants the previous week in Manzanillo and Puerto Viejo, using food and drink as an incentive, make it convenient for the community to participate, and provide transportation for people in
Puerto Viejo to come, seven people were all I had in the workshop. The response I got from the rest of the people that I tried to recruit turned out to be verbal promises that were never realized. However, at that time I did not have too much time to give the participants a careful thought. I was there and was asked to present the monkey bridge project.

First reactions about participatory workshop I

Setting down my backpack and the juice, I took out the map I prepared and unfolded it on the picnic table. Looking around the picnic table, everyone was waiting for me to start talking. While practicing the Spanish verb tense I knew in my head, I started with the standard procedure I learned from the book. Informed consent for the research should always go first. I had prepared two types of voice recorders to document the workshop, including my cellphone equipped with an app to capture data and upload it to cloud space instantly to avoid loss. Once I set up the two recorders, the participants seemed slightly distracted by the devices. Without the time to think twice, I started talking in Spanish, which sounded more like spelling each word out and waiting for some kind of miracle to happen in the middle air that those words would find each other and make a sentence. Meanwhile, from time to time, I could not take my eyes away from everyone around that picnic table with an effort to seek for cues that indicated confusion and questions potentially brewing in a human brain. They seemed to understand at least a rough idea of my project. The map was a good starting point, and once I guided them to the map everyone started to point on the map to tell their stories of encountering the monkeys crossing. It soon started to feel more like a workshop. Conversations between people started to flow freely and break into smaller groups of two-people discussions. All of a sudden, voices started to come from all around the table. Among those voices, Noemi was very clear and spoke relatively slow. She first called out to everyone, “Vamos a trabajar un poquito”. “Decio un proceso comunitario.” “Sí” “Porque yo sé Congo Bongo. Pero no sé otro lugar”

There was no problem for them to identify where they had seen many monkeys cross the street. However, since Marial recognized her vision was limited to near the Congo Bongo area, Jalia also raised
concerns about the animals’ behavior over time. Therefore, a bridge installed statically could potentially fail. This result was very useful to consider as a design problem. The selected group that showed up for the workshop was collectively very familiar with animal behavior and worked in related fields, which brought their expertise to the table. The most direct sensation towards monkeys and other animals in this landscape was when Jalia told me that, every day, she saw at least three different kinds of animals in front of her house. "Tres animales. Minimal." She then continued with a long introduction of how her strategy of protecting the wildlife was “collaborate” with ICE, who had identified more than 100 dangerous places from Cahuita to Manzanillo in the progress of insulating the cables. “The bridge they have on the main road now was not working. It worked for other animals but not monkeys.” She continued with the following critiques. “The monkeys are active in the canopy layer. The way they installed the bridge was too low.” Since the Jaguar Rescue Center has been in the forefront of taking care of the injured wild animals, they have both the close contact with the problems and the expertise to formulate a solution. Especially Giselle, who was one year ahead of me in this program, and was working on research using their resources about best monkey bridge designs that cater to animal behavior. Therefore, to Jalia, it all made sense to design bridges not only for monkeys, but also for many other animals. The situation was less optimistic for ground dwellers such as turtles and crabs. Jalia made a long statement about subterranean crossing for animals and how this needs to be considered during the design stage of the project.

Figure 5: Workshop I
At this point we linked the monkey bridge project goals to how the other animals could cross the road, how the road should be designed with animals in mind, and asking "who was in charge of building the road?" since the community had no idea about the road until the construction began. Almost all these questions were aimed towards the two municipality participants. The position of the local participants soon surfaced. "Carretera para quién?" (Road for whom?) Jalia finally asked. To the participants, the road was not in favor of local animals or local people who don't need a road with high-speed traffic in the heart of their community, which they saw as dangerous to animals, bikers, and children. Then the meeting went quiet. "Para los animales" (For the "animals") I said in a joking manner. This led to some laughter to release some of the tense atmosphere. These questions are hard to answer for the municipality officers since they do not know where the decisions comes from. Then the question moved to "what could they do now?" This set the stage for the next workshop, when the community would take full ownership of the workshop and make it into a "meeting." I waited for a quiet moment to direct the conversation back to the monkey bridges. This time, I suggested that the next workshop was for designing the bridge, not just considering function but also certain messages that the design and process can carry as to make a statement about the issue that the road brought to the community. However, this suggestion was not delivered well, so the participants didn't see the connection between a design process and a statement for community outreach. Jalia responded that I should make the design functional, and then carry on community outreach as a separate activity in the form of information flyers. She followed up her statement with a disappointing prediction. “I think people will not be interested.” This reminded me of what Noemi had told me: she used to have information sections on the beach, but no one showed up in the end. It was like the interest in the workshop, that only a few people from different classes other than the activists who worked a stable job. However, just because few people showed was not sufficient to draw the conclusion that "the majority of local people don't care." At this point, I believed that there was much to learn from the community but I cannot predict what their knowledge was and how to gain it.

The workshop showed that people had a good grasp about what needed to be done to protect the fauna in their life. When Jalia mentioned how just one rope will not work for the sloth or monkey, one of
the municipality officers immediately responded that one needs to consider the prehensile tail of the monkeys "para la cola." Jalia mentioned how subterranean passes for the animals was an obligation for building a road like this in other countries, but here this was important because "we have people who come to see the animals, and was what all of us lived for." About half hour in, once Jalia started to talk about how you cannot build the subterranean pass for any more as the engineering of the road expansion was in the middle of construction. This had started a series of questions about how the development and decision were made. All that was available for them was rumors and speculations. The environmental issues such as trash, sewage, and high speed traffic suddenly surfaced into the meeting. They were trying to find an answer about how the big picture of development can be understood. Then Liezel stated that the community lacked transparency, or a channel to communicate with the decision makers. This discussion took most of the meeting time and it was not until the end, later in the other workshop, that the real needs of the community started to reveal themselves. However, despite the many issues they talked about, the general sensation towards fauna and monkeys was clearly revealed in the meeting. Jalia specifically mentioned that every day, she saw at least three animals passing her house. After that many other participants agreed with a confirming voice. The participants are used to see and appreciate the presence of the animals. They also mentioned that, sometimes, they were be emotional about seeing animals die because of the traffic or electrocution. Now, the conversation was turning into a questioning of the municipal, opposing the new road that was under the construction and widening project. The true root of tension that the road brought up only appeared much later: a general concern from the community about domestic tourists who only come here to enjoy the beach without thinking of protecting the place.

After the workshop. Workers from the Jaguar Rescue Center, municipality, and Liezel left subsequently. I wrapped up the map and gadgets and cleaned up the trash from the meeting, and followed Noemi to leave the place. With only seven local coming to the workshop and the statement from Jalia and Noemi about how most people will not be interested in the issue, I started to think about how to talk to as many people as possible to understand their perspective. I left the workshop place with Maria, who told me that she was from Nicaragua and now settled in Costa Rica working a job in an eco-lodge. She
continued to tell me that she was concerned about the environment and animals. She saw many animals (wildlife) daily near her lodge. Her involvement was a personal interest, a passion and derived from love. Therefore, she was always looking to be very involved in environmental movements. In her words, “always doing things such as planting trees and cleaning the beach” “sembrar arboles y limpiar la playa con Noemi.” Maria was then the only person without affiliation in any organization. She had a love towards the "green" of this place and always wanted to take actions to keep it green. She also often saw animals around her house, and enjoyed the presence of animals as part of the paradise she was living in. Being able to see the animals every day in their house was mentioned by everyone for so far, and with an obvious positive association. The importance of being able to keep seeing these animals passing by was implied by how these activists' took part in the workshop and tried to drum up attentions about the issues. There was, at that time, certainly an alliance and many different projects other than just monkey bridges in my mind brewing along-side which yet to surface. Only until much later would I find out how the community was demonstrating its own need and voice through participating in my projects and actively incorporating and accept the monkey bridge project as part of its own voice.

It was Saturday (one day after the first workshop). I checked Facebook only realize that Liezel had taken an initiative to write a summary of the “meeting.” It was framed as “Reunion Iniciativas ambientales.” This was the first time I started to realize how social media such as Facebook played a major role as the extension of the community in not only outreach but more importantly, to carry the project along. The first workshop was advertised on Facebook as a poster about the event. This single post on the public page of the Monkey Bridge Project generated as many as over 1500 “likes,” which showed a much “bigger” influence than the 8 person workshop. Liezel’s blog “Keep Puerto Viejo green and weird” wrote about the whole “meeting” and drew attention that later showed in the second workshop. In this blog post titled “Reunion Iniciativas ambientales” or “Meeting of environmental initiatives in the area” in English, the whole process was documented with the Monkey Bridge Project as one component. The primary “contribution” of Monkey Bridge Project was “brought a map of the coastal area from Cocles to Manzanillo through which in order to identify where the important place for animals to cross
the road is.” Though at the time I was shocked that despite all my efforts in trying to keep the workshop informal and open, it turned out to be a larger deal than I intended it to be and most importantly, it was not solely about monkeys anymore.

Though the blog post was in both English and Spanish, the carefully written Spanish paragraph clearly stated how the next meeting was about wildlife crossings, new roads, and environmental hazards. Therefore, the next workshop turned into a meeting that covered the bridge design, location and an effort to address the environmental hazards. All sounded very official and political. Moreover, Liezel moved a step forward and created a Facebook event for the next meeting with the name “Reunión comunitaria sobre estrategias de mitigación del impacto ambiental” which translates as “community meeting about strategies to mitigate the environmental impact.” Without any information about the workshop and a concrete goal of creating a design that needs to be built one month later, the focus of monkey bridge design was dissolved into one of the many strategies to mitigate environmental impact. At the end of writing it, “keep Puerto Viejo Green and Weird” did this in just a few hours, and made it sound official and serious. I wanted to make adjustments to make more “grassroots” people participate, especially those who did not have the power to make decisions during normal cases. It seemed that the sense of ownership taken by local activists had shifted the topic from monkey bridge design to a larger scheme of “mitigation of environmental impact.” Without a clear idea what to do next to make the following workshop stay on task, I communicated with Stacy about what had happened after the first workshop.

It seems like the “alliance” just formed was something we have to embrace whether it was out of the focus of the monkey bridge or not. Most importantly was that this result left us in a dilemma in turns of handling public relations. The Monkey Bridge Project had been relying on maintaining a good relationship with ICE to carry on the work. On the other side, organizations such as Jaguar Rescue Center
had always known to exert forces on ICE to be responsible for the electrocution of animals. This created tension between the organizations. The next meeting we planned to invite ICE to participate not only in bringing different power structures to the same table, but also as a way to accelerate the process of finalizing the design. ICE had the ultimate power to reject our proposal. Instead of gathering everyone’s opinion to present options to ICE, I wanted to have them involved in the process so that the response was instant and the decision final. Now with this complication of directly managing the next meeting, we could not bet on overly-passionate people with good intentions not to criticize ICE too soon, which would be counterproductive to finalize decisions on the new bridge design and possibly ruin the relationship with ICE that Monkey Bridge Project depended on. The meeting was scheduled to be held at the Jaguar Rescue Center, who already had a reputation of pinning down ICE. Therefore, the originally planned workshop had to be reorganized. ICE had to be excluded. The meeting with ICE was rearranged as an individual visit to the office, which in the end turned to a conversation over the telephone. What had happened later in the second workshop proved that our decision was a wise move.

**Workshop II (Where is "Asociación de Desarrollo"?)**

One week later the second workshop was scheduled. This workshop was designed to focus on the design of the bridge and finally localize the location of the bridge. However, due to the absence of ICE, the final bridge location could not be determined. Since the workshop was turning into a meeting with a wider scope, I was prepared to gather some ideas about where the bridge would most likely be, from as many members from the communities as possible, and to design the bridge with local people with idea sections and prototyping using strings. Two weeks earlier, when I looked at the calendar, I saw that I could only schedule two workshops, one week apart, to allow enough time to prepare and stay on schedule. Therefore, the result was three weeks of restless work. The advertisement, the content and smaller details to food and drinks for the participants all needed to be prepared.

Once again, I am almost late. Riding the beach cruiser as fast as I can towards Jaguar Rescue Center with the front basket full of papers and maps for the workshop, I finally arrived at the café at
Jaguar Rescue Center at 3:00 pm. There were few people in the café chatting. From the last workshop, it almost seemed impossible to me that there would be people motivated enough to come here earlier than the scheduled starting time. Feeling unsure about whether they were the participants, I asked. “I heard it’s the workshop about Monkey Bridge. It is here right?” My joy of hearing this was obvious. I told them that we would wait for few more minutes for other people and would start soon. After settling them down, I placed the sign of the workshop outside the café. Jofre was waiting for me; I asked about the whiteboard he promised and the clippers. I spread all the maps, the paper, and markers, distributed the questionnaire and served the drinks. If only I had few more hands. In the intended plan, today we were going to working with prototyping the bridge to find out about some of the grass root solutions and demystify the design process. Luckily, Noemi came shortly.

For the second workshop, I found myself standing in front of over 20 people. They were in a heated debate, but not about monkeys and wildlife passes. The air was moist and sticky. Though the hottest sun already passed and now headed towards late afternoon, the café with four reflecting pools was still giving off warm moist steam. Around the sitting area, trees straight up to over hundred feet tall were trapping all the moisture and created a feeling of being inside an exotic plant conservatory. Standing on the other side of the patio were Liezel, Noemi, Jofre and Municipality and me. When it came to a workshop with more than 20 people, there was no hesitation for Liezel and Noemi to decide that it was a good opportunity to discuss the community issues—the new road under construction, trash problems, and pollution. Just right before the meeting started, Liezel came up to me said “Yibo can you let us go first to talk about some of the community issues, it will be just 20 minutes? The last few days, people on Facebook got excited. They all come today.” It looked like they all decided beforehand so, without too much thought, I let them go first. Later, I found myself regretting this half-hearted decision. The 20 minutes turned into an hour-long discussion. I had only limited control at this point, and could only take notes about what was happening, yet cannot focus at all because of the tension in the meeting. However, I felt that second workshop was good for ethnographic observation. Whether it was intentional or not, the
whole process was open and participatory in a sense that the local organizations had equal power in leading the workshop. The result reflects the community as it was.

Participants, in this case, were expats, "mestizaje" and some second generations of expats. It was very much pointed at questioning the decision about the uninformed new road development. The anger about not being part of the decision making with the new construction of a road, according to Noemi, came from inside the biological refuge, especially the new widening of the major road which posed dangers not only to the local animals but humans. Many participants are vocal about where the decision came from. The questioning was mostly pointed at the municipal officer and about how municipal had not communicated with the communities about their decisions. "Donde esta Asocioación de desarrollo" "Costa Rica funciona ací. El Associación de Desarrollo es para comunicar la idea de municipal con la gente."

The uninformed road construction was not an isolated event that triggered this reaction. There were multiple issues that the communities were dissatisfied with, such as the polluted water from sewage from Puerto Viejo, the trash services and littering on the beach from tourism. The municipal was blamed for its lack of action towards solving these issues. Therefore, 40 minutes of this workshop turned into an interrogation about who should be held accountable for decision making that led to all these problems in the communities, and clarification from both Joaquin from the municipality about how he had no clue either. However, eventually compromises had to be made, the community settled on a bike lane project, a website portal where they could find out more about government plans and a movement for a petition about the much-needed bike lane and other accommodations for the communities. Monkey Bridge problem again was not the only problem of the community. This was not the only surprise I had from the second workshop. I could clearly see that the expats, second generation of expats and some "mestizaje" were very active, in that they took ownership of this meeting and used it to ask for what they needed for addressing the issues. They were either business owners or worked in a restaurant, worked as a tour guide or maintained cabins. Participants, such as Rodolfo, was born and raised here and lived in Manzanillo, but Rodolfo was highly engaged in the tourism economy as a local fishing guide. There were more people
who showed up in the second workshop. However, as in the first workshop, it was missing people from
different classes and those who were not directly engaged in tourism-related activities.

Liezel’s advertising for this event was successful. Over 20 participants was a significant
improvement over the first workshop. However, I still felt like I only gained access (reach out) to a part of
the community that Puerto Viejo represents, since the workshop failed to achieve diversity by bringing
different groups together. An obvious indication was that there weren’t any afro-Caribbean participants,
despite our efforts of outreach, which gained many promises of participation. They were once the major
residents in the area after the indigenous Bribri people. They had seen changes from the very beginning,
when Puerto Viejo was still a small village whose major source of income was fishing and cacao farming.
The expats who came here mainly saw the opportunity to have their voice heard by the municipality.
They knew from the beginning that the municipality would come to the meeting, as Liezel had reported
after the first workshop. There was a rage and frustration regarding the lack of a channel for providing
their voice to the municipality. Many questions were directed to the ongoing construction of the road and
government plan. The problem of increasing tourism and infrastructure development that followed was
the core of their concern. The human-wildlife conflict was just a parallel image of the local-tourism
conflict and the large-scale decision and personal sacrifice conflict. The connectivity of monkey habitat,
in this case, also related the connectivity of human habitat. This connectivity was both physically
expressed as a bike-able community and a psychologically sustained sense of community that
automobiles could not offer. Their understanding about the ecology as part of the living environment for
human and wildlife stemmed from identifying the root of the problem for both human and wildlife in this
area: the widened road that was designed for people outside the community without the local people and
wildlife in mind.
Workshop III

The third workshop was planned for the final decision making, which included the community finalizing the bridge design and location before I presented this information to ICE to ask for permission and support to build this bridge. I was still trying to reach out to the Afro-Caribbean since I was convinced that their perspective was important for the understanding of the community. Therefore, before starting to plan for the workshop, I spent most of my time visiting a local fisher, Dwaine. Like many of the middle age afro-Caribbean, he fished the Caribbean Sea with fish traps made with chicken wire. We had a brief conversation about the monkeys while I bought fish. It had been a good day for fishing. His brother caught many lobsters. Feeling half-hearted about the lobster, I said, “They are nice, but I couldn’t afford the lobster.” This soon gets Dwaine’s attention. He repeated in an unbelievable voice “You
couldn’t afford lobster?” Knowing that the local people usually think tourists have more money than locals, I answered that I am here for building bridges for the monkeys and really on a budget. This opened a door for a long conversation. Orlando told me he had paid attention to the monkeys too, and realized that they have the desire to go across the street and he had been contemplating about how to make a bridge for the monkey to cross too. I was overjoyed.

How I prepared for workshop III

Before the third workshop, I took the result from the previous two workshops to create a fully visualized map indicating where the results from the previous participation overlapped with the map of suitable bridge locations for ICE. Also, I planned to answer any questions about the map from ICE and what was feasible for protecting monkeys against electrocution. The bridge design and materials were displayed on a table along with a printed map indicating the few optimal locations, and photos from the potential bridge locations show which trees were suitable for attaching the bridge. This setup was for the participants to make a collective decision on a final location for the new bridge and, provide feedback about the current design of the bridge. This time, I planned to host the workshop in Puerto Viejo’s gathering space “Casa de la Cultura” next to the Saturday farmers’ market gathering. The intention was to make it convenient for the participants who are fishers and small famers, because this location was close to these groups of people. Expats and activists usually were motivated enough to commute to the workshop. Especially for preparing for this workshop, I went to help the fisher Dwaine paint his boat, make fish traps and prepare baits. This gained me more insight about these people and their perspectives. Dwaine thought "Casa de la Cultura" was a convenient location when I asked him.

I was half an hour early at “Casa de la Cultura” where they held their weekly fair. This was a colorfully ornate Caribbean bungalow with a tin roof. It was spacious inside with a dark cacao bean colored wooden floor. The paint on the floor was worn down from years of people walking and dancing on it. The back wall was painted with a mural of Afro-Caribbean people playing Calypso music. I looked around at the many plastic chairs stacked together in the corner of my right-hand side and couple of tables
against the left side wall. I set my pile of maps, papers, and backpack with my laptop on one of the tables. Then I went on to move the tables and chairs: a table for setting up the project, three for laying out all the maps and a drawing I created from the previous workshops, to invite community members’ critiques. After setting up the projector on its table and booted to let it warm up, I spread the chair into rows surrounding the carefully prepared “stage.” Now I was only waiting for the people to show up.

The result of this workshop was a surprise. It reminded me of Fidel’s words: “Maybe one, maybe two or maybe nobody will show up.” Actually, five people showed up at different times during the two hour time window. Dwaine showed up after I called him. I guided him to Stacy and he talked about his thoughts, which he had already told me the first time we met. “The monkeys are smart. If you just make the bridge with plastics, they will not come. The best bridge is to use the whisks (vine) that grows fast and let it grow on to the two trees.” He also talked about how there was a need to have a PVC tubing to cover the rope and then have the whisks (vine) to grow and cover the PVC to make it look like a natural overgrown vine that bridged the canopy on two sides.

Owen came on time. He greeted me and asked: “How is everything going? I like to work. Just tell me what to do. I can help you build the bridge. Just let me know what you need, friend?” Later, approaching the end of the workshop there came a couple. They were expats from Austria and came specifically for the monkey bridge project. They were very interested in knowing the details of this project and asked many questions about the materials and processes to build it. What kind of rope are you going to use for making the bridge? “The lower mesh will be Paracord. We will make a net out of the Paracord.” “The top rope will be Polyester rope. It can hold thousands of pounds weight and withstand UV exposure.” When they knew that I need tree climbers to help install the bridge, they gave me a name card asked me to give them a call whenever I needed help for climbing trees. Dora came as Ernesto invited her. She told me that that day was Costa Rica's national holiday. Many people were out for a holiday with their family. This had increased the area's tourists, hence most people were busy during that time. Even Noemi was not there. But those who came that day to the workshop saw the bridge design. Dwaine thought the monkeys need a natural-looking bridge covered with vines. This was similar to some
of the expats’ ideas. To mimic a natural-looking habitat was part of what monkey habitat should look like. Industrial materials were regarded as scary to animals and against the animals’ nature to use them. I explained to the participants about my technical concerns such as durability, and conductibility. They agreed that the choice of materials was necessary, though far from ideal. Because of this workshop, I was able to understand the opinions from the few participants about the bridge design and use of materials. Most importantly, I gained support from them as who volunteered to help build the bridge.

It was not true that "local people" didn't care about the ecological health of the place. Even Earl-Orlando had come especially for the workshop, which was intended to build a bridge for the monkeys. His group was widely known as hard to get to any community gathering other than church. I need to say it was a feat to get him to come to an event for monkeys. Many that did not show up had told me about the stories of the pass when there were many monkeys around, and how these had changed, and how the monkey bridges were not working as no monkeys were seen on the bridge. People like Orlando, Merlin, and Fidel all said something has to be done to protect monkeys and other animals. Otherwise, there would be no future for the monkeys. Dwaine told me, the monkeys and birds, they are here before us. Merlin thinks the injured monkeys are suffering and they are part of the place. As in the past, everything was green and there was always enough for everyone. Those are all logistic ecological concerns.

It was ecological, not in an academic way, in that people knew these animals were connected to the place and their life with many invisible ties. It was the "study of household," which was inferred by the Latin roots: "eco- and logo-". It was both life forms and the place which included humans, other lifeforms and the landscape. It was this concern from the local people that had created what was regarded as a "difficult situation" for ICE to carry out their works in the Puerto Viejo area.

After the completion of the third workshop, we created a proposal to build the new bridge. This document specified the two potential locations for ICE to pick and a detailed construction drawing for the new bridge and materials. This concluded our participatory design workshop and we were ready to proceed to the next phase of building the bridge, once we had ICE’s permission.
Meeting with ICE

As mentioned before, ICE (the power company) was advised not to come to the second workshop for the sake of keeping a good relationship with them. Instead, we moved on to the meeting with officers from different regions that Stacy and I had planned before I arrived at Costa Rica. The meeting took place over two days. The meeting with ICE was the last review or hurdle to pass. The meeting had a diverse agenda. The first day was mostly about wildlife bridges. Tonilo started his presentation. It was a list of videos captured by their field cameras showing that the effectiveness of their one rope bridge as a wildlife crossing. All different species of wild animals used the bridge. The evidence was all captured as video files stored in his laptop. By showing these videos, Tonilo thought that what they had in place was effective and economic. Because people did not see animals crossing did not mean it was not functioning. Tonilo went through and played all the footage to show how much progress they had with their one rope bridge. While demonstrating the efficacy of the bridge, Tonilo explained the misconception about their work from the public. The public just sees the partial story and then takes a photo and posts it on social media, which leads to a spread of certain rumors. There were many complaints about ICE cutting down trees and branches, which animals relied on to cross the street. To Tonilo, their job was to maintain the tree branches that could damage the power lines and be a potential hazard to nearby humans, since those branches touching the power line could be charged with electricity. ICE certainly had difficulties in working in this region. They also told us this particular community was difficult to work with. My conversation with some of the residents proved that ICE did hit resistance when trying to trim the tree branches. Though the consequences of tree branches falling on power lines could lead to a power shut off for the whole community for days, when they saw ICE cutting branches it was still a difficult fact for them to accept.

"Somos una empresa de electricidad," Tonilo had repeated many times during the meeting and phone conversations. He wanted us to be the messenger between ICE and the Puerto Viejo communities. As he stated that ICE was a power enterprise and cost was their concern, in addition to many other
ecological impacts from their company. The road was not the only thing they needed to care about. Sea
turtle lights, protecting the power line, making use of the waste, preventing animals from climbing up the
pylon. Through our conversations, we uncovered the complexity of the conservation issues. But, when
given the right support, ICE was glad to help within what they can.

Tonilo wants us to carry their message to the local people, since local people were sensitive about
cutting or trimming trees. He told us when the monkeys had the option to use the overlapping canopy to
cross they will tend not to use artificial bridges. So trimming branches was also a way to train the
monkeys to use artificial bridges. Over time the monkeys would use the rope bridge, as the monkey
population in the Pacific sites did. The Pacific side had better success with artificial bridges. They were
single rope or more complex designed bridges. The monkeys there were more habituated to use artificial
structures. Here in the Caribbean, the monkey bridges are relatively new. There were only 6 bridges in
total within the eleven kilometers’ distance.

At the moment when Tonilo was showing us the footages, it seemed almost for sure he was going
to say no to the new design proposal. It was a somewhat short notice for Tonilo and ICE. I know it would
be difficult for them to schedule a time for installation and turn off the power in the community. However,
him showing the footage seemed more than just hesitation to make an arrangement for installing the
bridge. The meeting appeared to be a dissuasive meeting that tried to prove to us how the design does not
need to change. I was paying extra attention in that meeting trying to find any evidence that indicated an
extra rope or just slightly different design could improve the usage of the bridge by monkeys, and there
was. Tonilo later showed us a series of different bridges in other regions and all designed in different
styles. The monkeys appeared to like some better than the others. At this point, Tonilo clarified that ICE
was a company that had their own economic considerations. Their perspective was from all the animals.
There were many other animals that used the single rope bridge, and this to them had been an effective
solution. Our focus was the monkeys. Therefore, the single rope for us was not the ideal solution. The
only one rope tied in between to trees was proved effective to many species. It was the minimalistic
solution that mitigated to some degree this problem. However, it was not the ideal solution. Tonilo also
showed us some of their other experimentations with a more sophisticated design. This clearly indicated that they were concerned about the cost of making the bridge rather than not trying to experiment better design.

Now it was my and Stacy’s turn for the presentation in the meeting. We had a presentation in one file. Stacy was going to present first with the findings from one of her former graduate students' study about different bridge design and preference by the monkeys. The data spoke eloquently about the preferred style, the ICE’s people all listened and sometimes asked questions.

The second part of the presentation was my turn. I showed them our work with the community and their feedback on the monkey bridge ideas, and how a more complex design was favored by the community. We showed the final design we drew and how we would use materials. The material and the design received the most questions. After heard the presentation, he said to his colleague that Stacy and I would provide the bridge and find a climber to tie the bridge. All they needed to do was to crane it across the powerline. Then he turned towards me and said, “There was only one requirement for you to build the bridge. That was no metallic parts were allowed.” The powerline underneath the bridge was a tri-phase 30,000-volt major facility. It really needed protection, because any metal parts near the powerline could potentially hurt the power transmission and facility in case the bridge dropped onto it. This was understandable. I immediately explained how this bridge would be made from all plastics and synthetic ropes. The other ICE colleague asked about how we were going to support the mesh on the bridge, because the model did not show anything. I explained that the mesh for animals to walk on would be created from PVC pipe to keep the mesh unfolded. So no animal can warp by the web once it was walking on it.

Then after the long presentations, the meeting turned to many smaller conversations. Tonilo pulled me aside and said that why not just to use this opportunity to schedule a day for the installation. Tonilo suggested to his colleagues that we all go to the site together and scout it for the installation. Hence a process would have originally taken a month, was now be set in stone in just a few minutes. It was to us the greatest news, given all the footage we watched on how effective their previous mitigation
was. On our way driving to the site Stacy said to me “It seems like ICE is going to install your bridge now.” I said, “Yeah, I think so. When they show the videos it doesn’t seem like they were going to approve it.”

We all arrived at the site ten minutes later. It was at around four in the afternoon. ICE’s trucks and SUVs had pulled over in front of us, including one of their utility trucks with ladders and equipment. Juan was the one responsible for this area’s maintenance and was in his ICE working uniform and bright yellow reflective vest. They started to talk about the site and asked me about which tree the bridge would be attached to. I pointed out the trees on each side of the road and said that this bridge will be at least three meters above the high voltage power line. We had some discussion about the trees, though I had looked at them many times and Stacy had looked at them as well. Tonilo told me they could get the crane there and park the crane half inside one of the landowner’s yards. Those would be the construction procedure details. The only thing I need to do before the installation was to gain the landowner’s permission to trim some of the branches around the lower voltage powerline that sits few meters below the thirty-thousand-volts major transmission powerline. That was easy, as we ran into the landowner when we were there on the site. The decision was made that the bridge would be installed by the end of July. The 27th of July I would need to attach one end of the bridge on the tree and Tonilo said he will come to inspect the work and clear some branches as well. The installation day was scheduled on the 28th. Now it was our work to get the bridge built and hire tree climbers.

**Local Ideas on the Workshops, Monkey Ecology, and Development**

The workshops had limited participation from the local people; many local people gave me verbal promises to come but never showed up. One of the local residents told me before any of the participatory workshops that it would be much better to go from house to house to talk to people than trying to have local people come to the workshop. This project, in the end, relied on information from interacting with the local people outside of participatory workshop as much as in the workshops. Especially for people such as taxi drivers, who do not work on a schedule, so could not possibly participate any workshop. But
a taxi driver provided me crucial information that other participants did not have. Josef had driven on the
major road during late nights and as early as four in the morning and saw where the monkeys had come
down to the road. Also, I received many ideas from the fishers about monkeys and how monkey bridges
should be designed. They had noticed monkeys and they saw them prefer certain bridges over others. In
general, the prehensile tail of these monkeys was frequently mentioned during conversations about bridge
design. Therefore, for this group of people, it was more effective to approach them with a conversation
about their day. To get a more representative sample will, hence, rely on a combined ethnography on
normal everyday settings and participatory design workshops.

A participatory design workshop was not merely a democratic decision-making process. The Bike
lane petition group probably would not have initiated it without the monkey bridge design discussion that
branched into other topics. It was easy to confuse low participation for lack of concern on a certain issue.
As people normalized how in the past, the promise of participating in a workshop turned out to be nothing,
there was a certain way of acting within the Puerto Viejo area. They preferred no plan, and to chat with
casually rather than have to be somewhere at a certain time. Therefore, it was not a lack of concern about
ecology and wildlife. The local NGOs, people, and expats had every reason to discuss the bike lane in the
workshops. Their ecological concern was not merely about animals or other lifeforms besides humans. It
was the care of the landscape and its integrity, identity, and people who inhabit the landscape.

For those expats and the activists who were involved in other organizations, they saw this project
as an opportunity to talk to the municipality and ask for more support. For those activists, they were more
involved with all kinds of environmental activities. To them, they always related monkeys as
environmental issue (together with clean water and increasing automobile traffic). Often they are involved
in more than one organization. In terms of monkeys themselves, they saw them as not particularly
different than sloths or other animals. To them, tourism was problematic. The development brought more
and more into the community. With those who came in trying to build their business or a paradise retreat
home, “many trees were cut down to build more buildings.” To activists like Noemi, Liezel, and Edmee,
this was the biggest concern. This also contributed to part of their perception of the “local people” who
did not care. They thought monkey problems were caused by development (they especially questioned the current development of road and infrastructure). The issue of a needed bike lane was the concern from the same problematic road designed neither for the monkeys nor for local people. Expats and international tourists travelled this 11km mostly by bike. Without a dedicated bike lane, it was just as detrimental to monkeys' habitat as it was local people's habitat. They knew that the wider road would mean faster traffic and more danger to bikers. The problem pointed to other potential users of the road, the “Ticos”- Costa Rican family tourists from the central valley and surrounding region who drove here to make a day trip or overnight camp. According to the NGOs and expats, these tourists were the root of many problems such as the polluted beach, littering and road widening.

During my visit, I saw many new developments under construction aside from the road widening project. Some were carried out by investors. Though the Puerto Viejo and surrounding communities are in general free from a big gated resort, there were many smaller gated resorts that were shaping the local landscape. Some of the investors were very detached from the local community, and were hated for cutting down multiple big trees and in general failing to communicate with the rest of the community. The common assumption was that the place to them was nothing more than land to make a fortune. I witnessed one of the small resorts under construction. It was located right across the street from Noemi’s tour guide office, where the tall trees and lush green were suddenly interrupted by massive white walls that ran for about 300 feet along the road and left zero set back from the road. Because in general things in Puerto Viejo area are small, and the zero set back from the road made it stand out Therefore, it was immediately unwelcomed by the community. There was much graffiti are on the wall of this resort with environmentally conscious slogans to remind the owner of the need of the wildlife to pass through the walls. Many of the graffiti had patterns such as crabs and sloth voicing out their existence. When development meets the animals’ needs, it really depends on the owner to make those decisions. One of the property owners I had a conversation mentioned her construction that was taking place on one of the previously ignored lots. These lot were over-grown with “softwood trees” (her term), and was perfect for building a cabin which allowed her to gain more capacity, as much as 30 more double rooms to host
tourists during high season. This softwood lot was home to many wildlife such as iguanas, but the opportunity was too good to miss. Therefore, she told me “I spent days whispering to those animals to ask them to leave and find other places for home, before starting to clear the land.” By the time I left the massive white walls were covered with a green mesh, which left the graffiti vaguely seem even more eye-catching as the green mesh created more myth behind it.

To the Afro-Caribbean group, monkeys were part of the bounty of the place, along with their care-free life, even in today with all the tourism development. These relatively wealthy landowners still fished, usually for half a day, more like a hobby. They could invest and start a business. However, as Orlando himself said, it takes a lot of time to manage rentals. Sometimes they just lived by selling their land piece by piece and continued to live their care-free life in the "land of freedom," though it was not "green and quiet" these days. They also the benefited from the development of the place – the land they hold, the access to the contemporary convenience, and at the very least, the break from cacao farming. Of all the people who hold a materialistic view of the world, these fishers have the most "Zen" and remain calm in the fast-growing merchandise world, just as calm as they would be in the middle of the roaring ocean swells. Concerned? Yes! But life goes on. Political decisions in a workshop to them was, more or less, like a "bourgeoisie" idea. Institutions have never been part of their life and it will never be at the age of 50 or 60. The village used to be an isolated and neglected corner of the world.

**Participatory Design Process / Decision Making**

The participatory design workshops cannot address every issue and solve all problems. Other than proved the difficulty in staying focused, it did reveal the complex nature of conservation work over a landscape. This fact also proves that participatory design workshops have advantages, such as to start from the local people and have them identify their needs rather than trying to impose a "need" on them. Without first trying to start from somewhere, the local need or priority will not surface, because no topic or focus was established. In this case, the focus I tried to establish was the monkey bridge, and it was linked to the road and expansion of the road. The problem that the community identified from this focus
was wider, and included all problems associated with the road: environmental issues. Participatory design process does review local perspectives about ecology, the landscape, and environment. Trained as a multi-disciplinary specialist, I still tended to view monkey crossing as a merely ecological problem. To those who participated the workshop, it was an environmental problem that was related to trash, pollution, and bike lanes. They and the monkeys both inhabited the same landscape. They saw the workshop as an environmental initiative. This was indeed the entanglement that West et. al mentioned (2006) in action. My narrow perspective of trying to move the project forward and eventually build the bridge had blinded me in recognizing this pattern until months after the project. It was similar to Kockelman’s (2016) case, when their project had a deadline, but the local perspective was overshadowed by predetermined questions and scopes of a conservation project. In this entanglement of human, other life-forms, and the landscape, there was a care about the place and other lifeforms as part of the place. It contributed to how people would talk about the place, their willingness of contributing expertise and motivation of being part of a participatory workshop.

However, care about the local environment does not mean that people will be automatically be motivated enough, or available to meet at a certain place in a certain time to participate. First, workshops can only engage a limited amount of people, depending on who has the free time to participate. Second, when people care about certain issues, they need to believe the workshop has a solution or see the hope that this activity will make a difference. This was reflected in the second workshop. When people saw the report about the first workshop and knew there would be people from the municipality to participate in the second workshop, they came to the workshop to try to communicate with the municipal officer. In other words, it takes the trust of the ability for Monkey Bridge to change the status quo for the community to get them to engage in designing monkey bridges. When taking into consideration the debate over rezoning of conservation land for real-estate development, it directly questions the effectiveness of our effort of protection against much stronger forces of potential destruction; therefore, it takes more trust for the local people in the workshop to address issues of decision making and larger policy problems to come and participate. Hence, within this entanglement, there are human, other life forms, politics, problems and
hope. All of them contributed to the reaction of the local people. Through the participatory design workshops combined with ethnography, I saw this entanglement in Puerto Viejo landscape.

Because this entanglement of ideas contributed to the focus of the research, attention was given to the participants about their perspectives and ideas. However, a balance was needed for moving the concrete design project forward and completing ethnographic observation. Staying focused on bridge design was compromised for the ethnographic observation. In this project, I mostly chose to let the local participants finish what they trying to convey through the workshop and then direct the conversation back to the bridge design. This resulted in some distraction and limited time for design discussion. However, it produced rich ethnographic data about the local perspectives on ecology and human relationships to the place. Due to the anthropological fact that participants all came into the workshop for different goals, the conversation could not be limited to discussion about monkey bridges. Also, it should not be limited to the discussion on monkey bridges as this project was about research as much as it was about social activism. According to some local people, the project was one that its results could be seen in a short time; it was a good opportunity to gain people's participation. The platform created by the design workshop was a chance for local people to gather thoughts and form consent about community issues. Therefore, considering the social effects of this project, the free-flowing ideas in the workshops were not strictly managed in order to keep a balance between gathering data to push the project forward and social activism of anthropological research.
CHAPTER 4: DESIGN REALIZATION THROUGH BUILDING

In the last chapter, I focused on analyzing what happened in the participatory design workshops and how this reflected the local perspectives about the project, monkeys and local ecological conservation. I created a construction document from the results of participation and it was approved by ICE to build in the final weeks of my time in Puerto Viejo. In this chapter, I will focus on the ethnographic work on the process of physically building the design with the local people. The workshops pointed towards human and wildlife entanglement as the local participants demonstrated their concern about the wildlife as part of a larger issue related to the debate of current road construction. These active participants were mostly expats, activists, and NGO workers. During the building phase of the project, the participants were a different mixture of people. Through concrete building process and working with materials, local people demonstrated their support for the visible process of this project and achieved a pooling of different expertise working towards a conservation goal. Therefore, in this Chapter, I review the process of realizing the design with community members and argue that when realizing a design, relying on expertise as skills and knowledge was important, rather than experts with titles. Anthropology study combined with participatory design-build can help us recognize the expertise within the local community and take the complexity of a conservation project into consideration while designing a plan for conserving an ecosystem.

"What do you want us to help you with?" The community members were assets in addition to expert outsiders. For the monkey habitat issues and the bridge design, it was not easily perceived that people without biology or engineering background can do things or should care about things. This is the harmful line often drawn between experts and laymen. Not only does it create a power struggle—expert over layman—but also stops people from thinking about what they can do and isolate themselves from taking action. The actual building of this bridge reversed the relationship, as even the taxi driver had a lot to offer to problem-solving and to bring the expert's idea into reality. Action, in the end, is what creates
the scenario when local people can contribute their efforts in the project and see the possibility of making a difference. Small tactic intervention in action and reality prove that when it comes to creating a visible and concrete design-build project, the community composed of people with different interests can formulate around the actions of making the project to contribute information, ideas and skills for realizing the project. Small tactic projects, where the results can be seen in the short-term was regarded as an opportunity to create a voice. It also materialized the connection of conservation to reality to make the vision of the local people, which is common in many conservation projects (Paige West, Igoe, and Brockington 2006). Actions of such are needed for creating a future that is different than creating a utopia for endangered species and exclude people from the scene. Last, there is a need to mention that many design projects remain as an idea. There are few that can be realized in physical reality. A project like this is considered as a design-build project in design terms to differentiate from a design project that might or might not be built. Because building a physical project is limited by a lot of logistics and time, it uncovers the boundary of actions towards conservation and unlimited entanglement of issues within the landscape where the conservation action that place.

In many cases, conservation projects were carried out by a group of specialists from outside identifying problems with an existing model of problems and solutions. This usually resulted in real projects excluding local people from the landscape by making an enclosed space for conservation or introducing an alternative livelihood that is identified by the specialists as less harmful than the original one (Paige West, Igoe, and Brockington 2006; Kockelman 2016). The identifying of problems was fundamentally different between local people and outside specialists in this project. Monkey bridge problem was seen as part of the environmental issue by the expats and activists. Almost all local people saw monkeys and other animals as part of the place, a distinct perspective from my own narrowly focused species view. Hence, either making enclosures or introducing "alternative livelihoods" can only be introduced with an alternative value, which is inherently ignorant about the local situation. Local people does not have the expertise due to lack of accreditation. The limited participation from the local people can be misinterpreted as the local people caring more about their living environment over the monkeys.
There is even a misunderstanding from the local activists about the other local people who appeared to care less about animals because they rarely spoke about environmental issues. The project proved that when it comes to a concrete action for creating the bridge for monkeys, many people generously offered their expertise within their available time. Participatory design is not the magic ingredient of grassroots action that makes everyone happy; it requires expertise from everyone rather than only "experts" with a title from accredited sources. Design anthropology can help rediscover the expertise of the participants and bring them to help a conservation project like this to navigate the complexity of human and wildlife entanglement.

**Building the Bridge**

With ICE’s permission and a deadline to get this bridge built, there was no time to waste. I sent out the invitation to those community members who volunteered to help with the process to ask for collaboration. Before we could start any building process I needed the volunteers to determine where to build this bridge. In my mind, an open, centered and communal space would be ideal for engaging the community further, since those who passed by could see it and interact with us. I proposed two options to the group. One was the basketball court near the bus station in Puerto Viejo, the other was the beach front near the bus station. Because the configuration of Puerto Viejo town lacks a center square space, the bus station is where people gathered and had some time to kill while waiting. Eventually, the volunteer group decided that the basketball court would be a better space than the beach because less sand will stick to the bridge. Stacy and I agreed that MBP would pay a few of the local people to help so the bridge could be finished on time.

I hired two temporary workers, Ernesto and Owen. Ernesto once worked with Stacy on a field survey. He grew up in the Playa Chiquita neighborhood. For younger generations like Ernesto, they needed to earn a living by working a job. Tourism created both opportunity and challenges. Voluntarism is great for non-profit organizations who run with minimal funding. Non-profit organizations in the region
are not the only ones who took advantage of voluntarism. Many for-profit businesses also benefit from voluntarism. It is very common for local hotels and cabins to take volunteers to work in exchange for accommodation or food. "Once the volunteers do it for free, why pay to hire people to do the job?"

Therefore, many of these people worked temporary jobs paid on a daily basis. Owen was from Limón, and was trying to settle in Puerto Viejo, and offered to work on the project.

It was another normal morning. Owen was already waiting on the basketball court. I told him we would first build a prototype with the rope I brought. There was no netting expert among us. More importantly, the bridge needed to cross a span of 34 meters. This posed a challenge to create a net that balanced the longitude and lateral tension. Otherwise, the mesh would shrink into a narrow rope due to lateral tension.

![Figure 7: Making the rope Bridge on the basketball field Drawing](image)

When I was building the mesh, a middle-aged typical Latino man in a vibrant blue t-shirt started talking to me as if he knew me already. He asked if I was trying to make the bridge out of those ropes. Shocked by how he already knew this much about what I was doing out there in the middle of the basketball court, I answered yes. He stayed for a while a left, then there was another similar man in a light blue shirt there started to be curious about our task at hand. Josef was my taxi driver in one of the workshops. He started to demonstrate the different types of knots that could be used to make the bridge. I had no idea how he knew all these kinds of knots, but all of us all tried to learn from Josef. He
demonstrated one and then another. While we were still trying to figure out one he started another saying “Or, you can do it this way.” This moment of collaboration was priceless. Everyone for a brief moment forgot about the place they needed to be, the surroundings and other problems in the community. It was a concrete act of interaction with material that accumulated itself into achieving this abstract idea of helping the monkeys.

![Image](image.jpg)

*Figure 8: Building the Prototype*

The rest of days, the bridge building was all done by the hired local people. It was a slow process since the midday sun in the Caribbean was unbearably scorching. So, the work was concentrated in the morning and afternoon. However, in the later afternoon or evening, the basketball court was used as it was designed, to play basketball. Therefore, there were only about 5 hours of quality time each day to build this bridge. In this manner, to work persistently was a more dedicated effort. Volunteers relied on their availability and interests. Even hired workers had to work on this task for days, and finally finished the making of the bridge just a day before the installation was scheduled. However, even non-experts on building a bridge, Gregori, Dora, Ernesto and Owen, worked build on top of each other and pass the expertise along to create a finished bridge. So a week later, after some days of procrastination on it by myself and Ernesto, we had the bridge built and ready to be installed.
Installation and Priorities

Finally, the prescribed date had arrived. I arrived at 9 am, knowing that our tree climber could only come late because he had to rescue a macaw chick that had fell from its nest the night before. ICE’s crane was already waiting. We had two hours of time to install the bridge. To me, it was more than sufficient with two tree climbers on both sides to fix the bridge. However, that day the time seemed too short. The two tree climbers I had scheduled did not come at 9 am. ICE’s workforces were waiting there. Juan arrived a few minutes past 9. He saw the ICE workers waiting there. He said, “can we start?” I said the tree climber would arrive 15 minutes late, we need to wait for a few minutes. He is not satisfied, and told me “Estamos sin corriente” (we were running without electricity now). Until then I knew that he hoped this installation lasted less than two hours and would be able to turn the electricity back on. They were under pressure. Although the residents had notice ahead of time, they were dependent on electricity.

Figure 9: Installing the Bridge
Under pressure, I had to call my tree climber, Mario, who worked for Ara project climbing trees to check on great green macaws daily, to ask about his ETA. Mario, knowing the bridge needed to be put in a high place on the trees on each side of the road, offered help and with an intention to do it on a voluntary basis, until I insisted to pay him for the work. After waiting for fifteen minutes and Mario told me he is on his way, I told Juan that they can start to set up the crane and proceed to at least get the bridge past the powerline. ICE worked on this one fast. In just a few minutes the crane was up with its cradle in the air. They threw down a rope and asked me to tie the other end of the bridge to it. I was still taking pictures and was totally unprepared. Luckily, Ria and Kilian were there taking pictures as well. I did my best the first time trying to tie a knot, and both ropes were soon finished. ICE started to pull the bridge up and I was watching the bridge raising. Suddenly, just a few meters up, the bridge and the rope detached and fell off. The ICE worker did not notice right away but kept pulling. When finally the worker noticed the bridge was not on the rope, he had to lower the rope again. I needed help, since I couldn’t be in so many places all at once. The process needed to be documented, the bridge needed to be tied to trees in the place where it was designed. Tree climbers needed instructions. The traffic was blocked and the line of vehicles waiting was getting agitated. It would have been ideal to have someone to explain to the waiting crowd about what was happening. But mostly, I just need someone to share the load of pressure.

It was a half hour later when Mario finally showed up. At the time he arrived, ICE already took the other end of the bridge to the other side and started to tie it on the very outside branch where they could reach by crane. Because the process of passing the power line was fast and the road was completely blocked by the crane, I compromised, asking them to tie the bridge on where the crane can reach and suggested the tree climber was on his way and would retie the bridge in position. Therefore, when Mario came I first had to tell him that the other tree climber had never shown up and he would need to climb both trees to anchor the bridge in the intended place. I showed him the branch where the bridge was tied. By this time the crane was already folded up with the cradle detached. ICE packed up and left the site. When Mario saw the branch, he started to pace around the tree to gain better vision and obviously showed signs of hesitation.
The first bad news was the branch where the bridge was tied was hard to get to, due to various reasons. The tree was a species named Hobo, which is known for very softwood that can easily break under the weight of an adult person. So, he was uncertain about this tree since it has no thick enough branch above where the bridge was tied. After few going around the tree, Mario finally found a spot that could potentially give him access to the branch where the bridge was tied. The way he climbed a tree was called dynamic rope climbing, which used an elastic rope to support his weight on the tree. This made the climb rely on a branch that is high enough to allow access to lower level branches. Since the tree spread horizontally as a mushroom, there were more branches spreading horizontally than vertically. It was a densely grown tree that gave few places to shoot a rope onto an ideal place for climbing. Besides, just as the other trees in this region, this one was in a roadside forest with a swath of dense tropical vegetation. The base of the tree was shaded by the canopy from hundreds of shrubs and giant herbs which created a dark wet environment. Water oozed out from the leaf litters and the mossy trunks. I was underneath the tree holding the rope and kept it tensioned while Mario climbed up the rope above my head. The tension I put on this rope was to keep it from dangling so as to make the climbing a little easier. The other end of the rope passed through the branches and extended back down, tied to the base of another tree. He used this system and climbed the tree on the other side of rope without a problem. However, on this side of the road it was much more difficult.

What Mario used to do was to climb "Almendro de la montaña," a tree with perfect shape and steady branches to climb with a rope system like this. Hobo, with a twisted form and weak limbs, is less attenable to using a rope climbing system and Mario knew about this. After two attempts we were still unsuccessful in climbing this hobo tree. The time was ticking, at 11:00 the power was supposed to resume for the community. However, we could not anchor the bridge in its position. A decision had to be made. We could not do anything at this point since the side of the bridge is inaccessible. Now I could only hold the pressure to ask Mario to climb again onto the other side of the road where he climbed a day ago to tighten the bridge so as not to leave it hanging too close to the high voltage powerline. Juan, though unwilling to delay the time for resume power supply, had to agree that the current position of the bridge
was too low. So, he requested a hold on switching on the thirty-thousand-volt powerline. The power was still off, the tree still had to be climbed. When Mario was preparing to climb the tree, I went to buy a cold drink for him. The installation to this point was nowhere near smooth.

After many efforts had been made to climb the trees and place the bridge to the position, we were still unsuccessful. Mario finished tying the bridge on a branch over his head and was ready to return back down to the solid ground. Juan told his colleague through the walky-talky to resume the power supply. The bridge was hanging loosely above the powerline. It was not functioning in this position. The tension in this bridge was way too small to have it function as a bridge. In this position, the passing wildlife is at the risk of electrocution due to how close to the power line it was. Any weight on the bridge would make it sag even more onto the power line. Moreover, the branch on the Hobo side was infested with fungus. So, everything was temporary. As Mario packed up the climbing equipment I told him that I would try to look for the other climber, who climbed with a different system. To untie the bridge, then bring it into the center of the tree and tie it higher without having the bridge touching the power line seemed like a mission impossible. Without too much time to think about all these details, I told Mario to stay with me and go to Selina, where Ria had prepared us a lunch as a support for this environmental act. Though in the end, the bridge had some issues waiting to be fixed, Mario, as well as ICE workfers had genuinely worked towards realizing the bridge and dedicated part of their expertise into the physical existence of the final product-the bridge. Ria, by providing lunch for us, had also shared in the expertise to this built-project.

**Challenges of Design and Build Process**

Thanks to these people, I had the project partially executed, although the installation proved to be more complicated than previously thought. During the installation, these fellow non-profit organizations were not the only ones who showed interest in the project. SINAC (Sistema Nacional de Áreas de Conservación) is a state-owned organization that appeared in the middle of nowhere. Many faces unknown to me had shown up in uniform and started to take pictures of the process, and nonetheless take
pictures with me and others who were in this together. Because of the complications of the project management I did not have a chance to talk to these people in depth. They also did not stay for long. Later I went on to SINAC’s website and tried to look for some information, but I did not encounter anything.

Rudo worked for the Monkey Bridge Project in the past, but he did not come to the installation day because of school. He grew up in Gandoca, a small village south of Manzanillo. When Rudo came to Puerto Viejo, I took him to the site and told him my plan about how to work on fixing the bridge. He listened carefully and thought about it while examining the tree to find a potential way to climb it. In the end, I thought, any plan to fix the bridge would depend on if Rudo can get to where the bridge was tied at the moment. Unable to access the branch was the sole reason causing the complication. However, this time Rudo gave me a positive answer, he said he can climb this tree but only needed a rope to keep him from falling. He then talked to me to confirm he understood my plan. Therefore, with what I drew, I explained again to him the details of how the bridge could be let loose without touching the powerline and be tightened with a great tension that he cannot possibly achieve while standing on a mossy slimy tree branch.

After clear about what I was trying to do, Rudo agreed on the feasibility and started to plan a schedule around his studying to help me set this bridge into better position. I got up early and waited for Rudo to show up. We planned to start early because he had a class at eleven that day. It was seven in the morning, he showed up with his motorbike. Then we went to the “ferretería” to buy the rope we needed for this task. It was early, and we were one of the first few people there to buy ropes. I went to check which type of rope was best for the job. The hardware store was good in terms of the amount of selection. It was not difficult to buy a light and durable rope for this task. I also bought a small hammer for installing the field camera. Therefore, with this one-stop, we had the material we needed for the adjustment of the bridge and installation of the field camera.

Later we arrived at the bridge site with everything we just bought and took the slingshot and the climbing gear that MBP had. This was a quieter task, because I didn’t advertise our work. It was just me and Rudo to retie the bridge in a higher position and tier. The first step required Rudo to climb onto
branches. He took a small slingshot out and looked at me, “how do you want to do this?” I took out the lightweight cord and said, “we shoot this cord.” (I can place a rope onto the tree branches that is above the branch that Rudo need to get to). “Do you have a weight bag to shoot?” “This is easy, we just find a rock” Both of us started to look at the ground for rocks. Almost all of them were round pebbles perfect for shooting in a slingshot, but hard to tie the cord to. Later I found one in an elongated egg shape with a narrower middle. Then I tied the cord to the rock and handed it to Rudo. He took the rock with the cord and the small slingshot to launch it in between branches. He had experience with this since a young age, and was an accurate shot. However, the only problem was his favorite slingshot from childhood was not powerful enough to launch the pebble to the higher branches.

I took out the special slingshot and assembled it together with the rod for launching. Rudo aimed it at the branch and told me to hold onto the rod to keep the orientation while he tried to pull down the sling to launch the cord. The sling was pulled down with great force, and the energy was stored in the tough rubble tube making a tied tearing sound. Shoo, suddenly the rubber band let go the stored energy and was released in a second, which drove the pebble with the cord dashing into the air. Then we heard the pebble collided with the wooden trunk and bust into a crispy noise. The pebble was bounced off the trunk. We collected the cord and pebble and tried again. This time it was a success. The rock dragged the cord and passing through the branching dropped to the other side. By wiggling the cord, it lowered under the weight of the pebble. We can attached the climbing rope to the cord and pulled it through the branching with the cord.

Now that the climbing rope was set into place. Rudo looked at me saying “can I borrow your backpack?” Understood he is trying to take all the gadgets needed for this task with him up the tree, I took my backpack and emptied out all the camera lenses, pens, pencil, and notebooks. Then I packed the field camera, hammer, rope we brought for adjusting the bridge into this backpack, and handed it to Rudo. He put the backpack on and tied the climbing rope on his waist without a harness and asked me to tie the other end of the rope onto the other tree. After making sure the rope was firmly tied, Rudo started to climb on the small tree right next to the one we needed to climb. This is not the first time I saw people
“climb” a tree by climbing the smaller tree next to it, then swing into the tree that he was supposed to climb. It is commonly seen when the person is climbing without any equipment or protection in a dense tropical forest. This way of climbing is similar to how monkeys get around obstacles in the jungle, by seeking an indirect route that makes the impossible to climb tree possible. This time the tree next to the big hobo tree was smaller, hence easy to grab it, tie, and climb like a rod. Also, the small tree was more elastic so it could be used as a swing to swing towards the big tree. Last but not least, this species was not as brittle as Hobo, so Rudo knew he would be safe. Rudo used to climb trees with his bare hands. This gained him the freedom to move around different branches easily. Versus the rope climbing method Mario had used, his whole weight was transferred into the tension of the climbing rope. It is more like climbing rope rather than climbing tree trunks.

Rudo is agile. After a short moment, he got to the first branch and asked me to tighten some of the rope that he had on his whist. I retreated some of the rope and made a knot to hold it back. Then he threw the end of the rope we brought for the bridge down, and took the other end with him to walk towards where the ICE worker tied the bridge. I was waiting right below the Hobo tree, so my sight was blocked by dense leaves and branches. All I saw was the rope tangling in the air and squirming like an earthworm. After a while, Rudo shouted, “Now pull the white rope.” I pull down the white rope with all my strength, and the bridge stretching over a span of thirty-seven meters is heavy. In the end, I have to put all my body weight on the rope in that I am almost climbing up to the white rope to weigh it down. I pulled it down to where the rope had no more room to give in to my body weight. Then I tied it to the same tree that the climbing rope was tied. During the time Rudo was shouting back to confirm “Is it tied?” Yes, finally after my spending all the strength under the tree. Then he started to loosen the bridge and after a while, he shouted again “where do you want this bridge to be tied?” “Tie it higher” The only branch that can be classified as higher was in the center of the tree. Besides, it was a major trunk that was many times stronger than any branch in the periphery. By this time I was moving around under the tree to find a glimpse of him to look for a position to tie the bridge. He took the end of the bridge with the whole bridge supported by that extra rope we just attached, and looked for an ideal point to tie the bridge. “Like
“this?” he shouted again. I ran out to the roadside and looked at the distance that the bridge was hanging from the power line. After all, that was the most important consideration.

“A little higher” I shouted back. After a few dangles, the bridge went a little higher. “A little more” I shouted again. Since Rudo was in the tree, we were all getting used to shouting after a while. When the bridge’s position was fixed, it left Rudo to tie the lower mesh down to stretch the bridge to its designed tension. This was a trickier task due to the need to find a balance between the two ends. I ran back to underneath the Hobo tree where I took out all the lenses and cameras out from my backpack and grabbed my binoculars. By looking at how the mesh distanced from the main rope, I guided Rudo in adjusting the tension of the bridge. Up till this point, the day had been going smoothly. Once the bridge was in place, Rudo loosened the white rope that was attached for adjusting and asked me what I want to do with this rope. I told him to leave it attached to the tree to offer extra support for the bridge. Then he re-tightened the white rope. After the work with the bridge was done Rudo took out the field camera to install, “Where do you want me to put this camera?” “You can see better than me (up there).” He understood and started to use the hammer to start and drive nails down to the tree trunk to install the field camera. He is finally ready to come back down. The white rope was eventually left on the site and Rudo made it into a quick access rope for checking the field camera.

Therefore, Rudo, with his ability to shoot a slingshot with accuracy, being an agile climber and knowledge about trees and knots had overcome the greatest challenge of installing the designed bridge in proper position. He proved that by participating in the action, even with a monetary incentive, can bring skills mastered by what seemed useless from playing at a young age can reveal its own place within a concrete participatory design-build project. In fact, most design and engineering projects involve many people who do not have the accreditation of an expert. But, in this case, expertise was not limited to accreditation. Participatory design and design anthropology combined can reveal such a nuance when normally, these people were shadowed behind the ideas from an expert, or local people who were excluded from a conservational plan altogether. As previously mentioned by Noemi and Jalia, they thought the other people did not care about the animals due to low interest in information tables and their
outreach events. On the other hand, expats and local activists and NGOs actively repurposed the workshop for a larger political case of both monkeys and humans environments. However, when the project is in the concrete building phase, people from different classes and with different interests all had something to offer in realizing the design. It is a pool of expertise from different people. In this case, the bridge relied on Josef, the taxi driver's knowledge in knotting, rope cut by volunteers and persistent working from Ernesto and Owen, who finally found a system of creating the designed mesh. Due to the difficulty of the site, the bridge was finally installed by a combined effort from professionally trained technicians to work over the powerline, a professionally trained tree climber to fix it on high branches and Rudo's ingenuity and agility. Even food provided by one of the hotels for the project had helped the realization of the bridge. Therefore, a small concrete build project with its visible result is not just favored by the local people from a range of different backgrounds, but also creates the opportunity for them to provide their expertise in action to create something for the good hope of a future.

**The "Limited Scope?" of a Concrete Design-Build Project**

During the workshop, the participants pointed the issue towards a larger scheme. It was recognized that the monkey bridge could not solve the problems rooted in a political decision made by some unknown party about developing the road. While the project was being built, the support in many ways was realized by the making of the physical bridge. During the making of the bridge, Josef solved the difficulty of making an efficient knot that the bridge depended on, Mario climbed the most trees for the installing the bridge, ICE used their resources and workforces to help the installation. It shows that people with different interests can still come together to create a physical build project by pooling their expertise. The workshop showed differences and larger concerns, the physical build showed the shared common ground of cooperation and targeted focus. A concrete project usually comes with a concrete goal and a set time frame to achieve this goal. The framing of the problem and the scope of the project are usually set in stone before being shown to the community.
The community’s desire would not have been revealed to such a degree without the extensive interaction with the community members through building this bridge from a participatory approach. There are many aspects of this project that created an inseparable tie with the deeper issues within the community. Human-wildlife relationships are highly political problems, as well as human relationships. The human-wildlife conflict in this community is derived from the same root as residents-tourist conflict: economic development in the form of tourism development. The two topics and the need for the community are in the end all connected to the same concern: a peaceful life in a tropical paradise. It is very natural for the expat to consider that wildlife is part of their living environment and part of the landscape that should be protected against further damage. Clean water, lush forests and bike lane are all the necessities of the lifestyle they identify with. The "limited scope" of building this monkey bridge, hence, reveals the limited logistics and time as contrasted to the unlimited entanglement of relationships of human, wildlife and landscape that a conservation project needs to address to become a full and potentially beneficial to the maximal parties. Thus, this "limited scope" of such a participatory design project has achieved an unlimited realization about the complex nature of Puerto Viejo landscape.
CHAPTER 5: CONCLUSIONS

In this thesis, I have shown that participatory design for a built project when combined with anthropology—as a design anthropology approach to conservation practice and inquiry about local perspective on ecology and development, reveals human and wildlife entanglement on the landscape—creates a potential model for addressing conservation issues in a participatory and inclusive way that draws expertise from all possible sources rather than few experts to a conservation project. In this coastal plain of the Puerto Viejo area, divided into five different communities, there was a divided reaction towards participating in the design of a monkey bridge. While most local people did not show up despite their promise to participate, the expats, activists and local NGOs took ownership of the project. After hosting three participatory workshops with communities in Puerto Viejo area, this project concluded with a collaboration between local NGOs, residents and activists to build a monkey bridge project over a major road. People’s different reactions to the workshop, attitudes about development and ecological knowledge of the monkeys tells the story of the diverse cultural perspectives and different identities at play in environmental issues in the Puerto Viejo area. Drawing on these experiences, I argue that a conservation project in its greatest complexity is not just about protecting animals and plants in a utopia of endangered species, but a symphony of care that addresses the well-being of local people and their living environment in concert with all other life forms that inhabit the same landscape. People’s different reactions to the workshop, attitudes about development and ecological knowledge of the monkeys tells the story of the diverse cultural perspectives and different identities at play in environmental issues in the Puerto Viejo area. Drawing on these experiences, I argue that the conservation project in its greatest complexity is not just about protecting animals and plants in a utopia of endangered species, but a string of care that addresses the well-being of local people and their living environment in concert with all other life forms that inhabit the same landscape.
What Can We Learn Through Design Anthropology Participatory Design from this Project?

My participatory design workshops revealed the complexity behind the local ecosystem and local people on the landscape. The participation of community members in these workshops made it clear to me that local people considered monkey crossing to be but one of a larger range of ecological issues. Thus, my participation in the workshops showed the limitations of my project of building a monkey bridge, which was constrained by time and monetary costs and could only address how and where to build monkey bridges. However, because the local people saw the monkey bridge problem as being part of a larger set of environmental issues, the project provided a way to learn about the local's approaches to those issues from concrete, limited projects such as the monkey bridge.

Thus, local expats and NGOs had taken ownership of the participatory design workshop and framed it as meetings for environmental initiatives echo with the monkey bridge design as the project addressed problems created by the major road development, which had created many other problems in the community. Participatory design, when applied in conservation project had, indeed, created what Llambi (2005) had mentioned in creating a sense of cooperation and sense of ownership towards the project. The participation had many disagreements in between groups, but it respected the community's understanding about ecological problems as part of larger environmental issues. Judging just from the number of people participating and the failed focus on only monkey bridge issues during the workshops, it would appear that the local people didn’t care about the monkeys or ecology as much as their living environment. This can be a common misconception about participatory conservation project. Low participation from people across different classes was identified as "people don't care" by both Noemi and some other NGO workers. The failure of participation in workshops from more representative groups across different classes is the drawback of participatory design workshops. In the end, the project relied on interactions with local people from outside of the design workshops to generate a more holistic picture of local perspectives. For local people to participate the workshop at a certain time and place, one needed enough motivation, and trust from the workshop organizers about the ability of the workshop to make a
difference. Without an anthropological understanding, the determined focus of participatory design is limited in grasping the full human-wildlife relationship. The framing of the problem, in this case, was habitat fragmentation, and the solution was already framed as building monkey bridges. However, for the local people, they held a different understanding of the problems and solutions. Because of this discrepancy, the participatory design workshop had to prove to the local people that it was an opportunity for them to address their concerns or it has the power to make a difference. Therefore, at first, the participants had doubts about this project since the problem, “monkeys are victims of the traffic,” and solution, “build monkey bridges,” were already determined. This also explains the active participation from the expats and NGOs and how they demonstrated their understanding of the problem and solutions as to create a voice to the decision maker on the case of the road, when they realized that municipal officers were going to participate. People from different class backgrounds did not come to the workshop for many reasons. A possible alternative is to communicate with these people in a different setting. In case that people do not trust that the workshop will make a difference, to provide certain monetary incentive may bringing people, however, the result will be subjected to the risk of framing human-wildlife relationships through a set framework that local people cared more about economic value than the wildlife. Also, in a community like Puerto Viejo, a large enough monetary incentive is harder to determine and provide through limited funding for the project. Hence, to bring up the wildlife outside of participatory design workshop was complementary to the workshop itself in gaining insights from different groups. This way, we were not limited to interpreting the human-wildlife relationship through a particular framework such as values (Kockelman 2016) or indigenous knowledge about ecology (Anyinam 1995; Jungerius 1998).

**Design Anthropology as a Model**

Design anthropology in this project has achieved the study of the local perspectives about monkey, ecology and conservation in the Puerto Viejo area. Through analyzing participation of the workshops, I was able to utilize the stage created by participatory design to observe and listen to the local
people. With either just anthropology or participatory design, one cannot analyze in detail. With only participatory design, I could have thought that the local people did not care about the project, because of very limited participation. However, anthropological observation will add to our understanding of how low attendance rates at community activities is a chronic condition for the Puerto Viejo community. Similarly, with only anthropology, studying human-wildlife relationships will not have such an opportunity to recognize local perspective on the place, the bike lanes. Participatory design and build projects use expertise rather than experts. Anthropology reveals the fact. This why tactical intervention and grassroots action can blur the harmful line between layman and experts (Lydon 2015). As this kind of social action and method were tested in an urban setting to address community issues and creating people space based on public actions rather than bureaucracy processes, it creates a series of products based on doing and collaboration based on the task at hand. It is not just about qualification from the institute. In this project, the design and eventually building of the bridge relied heavily on local people's expertise. This part is easily overshadowed in a world relying on institutional-certified specialists where mechanical system production finds it indispensable (Alexander 2012), and creates a liability filled legal landscape that leaves no room for expertise from a layman (Lydon 2015). Anthropologists, by being part of the participatory design project and being humble, create a design anthropology approach which delineates a holistic view of the ecologic landscape. In the end, it creates the reciprocal relationship mentioned by Otto and Smith (2013) in between Anthropology of conservation, and participatory design. Through observing ways of design, I understood the local perspective related to the monkey bridge, the road and local ecology. On the other hand, by embracing the anthropological understanding of the place, being flexible in ways of working with the community, the monkey bridge was able to be built and supported by the local people.

Hence, the participatory design workshop and the result of finally building the bridge and pool expertise from people who came to help proved that it was an act of creating a community effort while doing anthropological research. Design anthropology brought actions into passively gaining information from the community (Otto and Smith 2013). The ownership taken by expats, activists and local NGOs
had created the reciprocal relationship between design and anthropology; the local people and me. I was in a mutual relationship of giving information about monkeys, the bridge design and what monkeys need to the community and receiving information from the expats, activists, local NGOs and Afro-Caribbeans. Such a mutual relationship was not limited only between me and the local people, but also among local people themselves. It expressed as the conversation among organizations and the expats who were trying to set up a committee for a petition for a bike lane, and who learnt about the other NGOs goals. This model worked in embracing the fact that anthropological study will create changes to the community and actively create a benign change. Through creating and driving the change, this study also gained information from a witness and engaging the process. Therefore, in anthropology by means of design and participation, it not only loyal to the traditional participatory observation but also giving back to the community in a natural way through work with them side by side. However, this model is not ideal in that the participatory workshop failed to engage people of different communities and class backgrounds. This created limited conversation in between groups from different class backgrounds in terms of conservation needs. It was proved that to reach out to these people, talking to them individually was more effective than to try to have them gather in a workshop.

It is hard to do everything at once for one person. However, this was a good way to let the community lead the workshop and not dominate the local, which was already somewhat determined by the position I held when I came to do this research, in their reality. The fact that I had the privilege to come and do the research and eventually walk away from the reality that local people are living in, is creating a power dynamic that was bridged by letting the community members lead the workshop. Therefore, a positive reciprocity through design workshop is stemmed from their identifying the problem from their own perspective in the design workshops. As a result, the workshops looked like it was organized by local activists and NGOs. This is a situation that anthropology participate observation is looking to achieve: blending in the community and observing without standing out from the communities' daily acts. In the end, the building of the bridge achieved exploring design anthropology as a method of activism research with unified receiving and giving. It created a passage of obtaining information from
the people I studied and a collaboration through which the local people and I can do something for the good of the place.

**Anthropology of Conservation**

Activists and expats were the most actively participating groups from the community. During these workshops, the topic always went from monkey bridges to the new road development, which brought up a heated debate of deteriorating living environment and increasing tourism that contributes to the deterioration. In this case the bike lane itself is an ecological concern, just as real as the monkey bridge. Since people are not excluded from the image, they will demonstrate their need and this landscape as a whole. This can easily be perceived as the local people took over the participatory design workshop to address their communities' issues. However, the local people's perspective of human and wildlife entangled landscape is connected as environmental issues. Monkeys crossing the street is just as critical as the mobility of local people: the bike lane. Human-wildlife entanglement. Pollution, bike lane and residence-tourist conflict. These problems were viewed as part of the monkey bridge conservation. Monkey crossing is an environmental issue. Therefore, from the passion of people that participated in the workshop, the place identity and daily wellbeing of the people is in the same set of concerns with the monkeys and other animals in Puerto Viejo area, which all originated from this road expansion project. Therefore, when the local organizations and activists understood that the result of this project will get seen fast, they considered it as an opportunity to gain attention from the authority and start to plan other projects along with ours. However, this does not mean they have comparatively less care about the monkeys and local ecology than themselves. With this project, I gained support from the local people in many aspects. For the community, seeing the injured wild animals is equal to seeing “pain” and “suffering” of other beings and this shared compassion about animals such as monkeys and sloth were shared across different groups within the community. While the majority of the Afro-Caribbeans did not participate in the workshop because that is not how they usually do things. However, that does not mean they have no feelings towards the place and monkeys. The Afro-Caribbeans will mention the "old days" as the land of
abundance, when there were more animals seen than today. Monkeys were part of the place as it is with "Baboons (Howler monkeys) and turtle and green trees". The fact that monkeys and other animals were normally seen by all groups from the area around their house and accept them as what life in Puerto Viejo area looks like had a major account for the general attitude towards the monkeys, road and development. Therefore, other than economic value, the local people mostly regard monkeys as part of their living environment, part of the place, and as an indication of a healthy and uncorrupted environment. This is a local perspective different than frameworks mentioned by Kockelman (2016), Cassidy (2012) and Nazarea (2006). This proved that one cannot make the assumption that the local incentive is merely a monetary one. This perspective is both about local animals and local people who inhabit the same landscape and suffer a similar disturbance created by the same road. In this situation, the local people put actions of cutting trees as dichotomy opposite that is against nature rather than human, as done in many national park management programs (Paige West, Igoe, and Brockington 2006). Therefore, the nature and human entanglement here, is expressed as inseparable concerns about the monkeys and other animals as part of their living environment.

**Conservation Future**

Drawing from the conclusions from this research, the conservation of the ecological environment is beyond counting species, nurturing them and their habitat. Conservation is originated from our deep care about our lives, those around our homes and the landscape we are living in. Here, I use a "braided strings of care" to describe the care of local people and the environment they depend on as two entities from the same roots, inseparable in its nature. Conservation, as it implies, is not saving nature or species as it is separated from human but a combination of care towards both the local people and the environment. This is about the state of well-being of these people. Because environment is part of their habitat and directly tied to the fate of the opening of more land for the road and increasing automobile traffic, which separated not only the wildlife from their continuous habitat of the ocean and mountain that offered food at different time of a year, but also human from their sense of leisure, community that most
expats had come here for. It is reasonable for both expats, afro-Caribbeans and other local people to deter the widening of the major road (256). None of them needed a wider road for commuting around the communities by bike. Many of them do not need to commute much at all. The integrity of local ecological environment is essentially part of the life of local people. As the local perspective suggests, conservation future, in this case, is not about creating an endangered species' utopia as described in Kirksey (2015), but taking care of the landscape for both the local people and other life forms which, ultimately, we can let nature take care of the rest. This is not an attempt to romanticize the harmonious people who are the guardians of nature as a noble savage, but a rational view stemmed from the local perspective about ecology. Eventually, our care about the wildlife, ecology, philanthropy, and other people together form the string of care towards the landscape to stay with the trouble of living in a problematic ecosystem and abandon an apocalyptic ending (Haraway, n.d.; Kirksey 2015).

**Future Research in Puerto Viejo**

The extended understanding about local’s perspective on ecology in Puerto Viejo area is covering multiple species, the place and both human and other life forms. There is a need to addresses further questions such as “Is the design created by public input effective?” Monitoring the bridge with field cameras and improving the design with field testing results and collaboration from systematic research needs to be done to provide the participant tangible result on their efforts. It was proved in this research that the trust of local people in the result of the project is a big concern, expressed in the workshops as well as most of the critiques about bridge implemented by ICE. With the increasing urbanization of the studied area, the wildlife passes involve multiple species of both arboreal and terrestrial habitat, and will be in greater demand over time. This urbanization with cars raises problems not only for non-human fauna but also a new reality for local people to face. Therefore, more than merely an issue of wildlife but the local environment needs further conversations that allow local people to participate and take part to change the future of the place in their sense. The local people’s wide concerns about local habitat and ecology, within the complex issues of building an accessible environment for both wildlife and human, is
constantly in battle with top-down planning decisions. Hence, further studies could be done to examine the way that local people react to a participatory project with a larger scope to address issues covering the planning of both human and wildlife environments, more than just the monkeys. To carry this project further to consider wildlife beyond just monkeys, one has to consider the potential predator-prey interactions in case of the terrestrial animal pass for small reptiles and amphibians, and the public concern about potential prey trap that the wild life pass might become.
REFERENCES


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Mitchell, Margaret T. (Margaret Tyler), and Scott Pentzer. 2008. Costa Rica : A Global Studies Handbook. ABC-CLIO.


APPENDIX. IRB APPROVAL LETTER

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
2420 Lincoln Way, Suite 202
Ames, Iowa 50011
515 292-4366

Date: 3/23/2017
To: Yibo Fan  
3102 Pearson

CC: Dr. Maximilian Viorati  
319B Curtiss Hall

From: Office for Responsible Research

Title: Design anthropology approach of understanding human-wildlife relationship through perspective of local monkeys, development and the change that participating conservation project can bring in Southeast Costa Rica.

IRB ID: 17-114

Study Review Date: 3/23/2017

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

• (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  ▪ Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  ▪ Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exempt means that:
• You do not need to submit an application for annual continuing review.
• You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, na"uro or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. Only the IRB or designees may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

Please be aware that approval from other entities may also be needed. For example, access to data from private records (e.g., student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. An IRB determination of exemption in no way implies or guarantees that permission from those other entities will be granted.