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**CONSERVATION AND CAFFEINE:
THE HISTORY OF COFFEE TOURISM AND SUSTAINABILITY IN COSTA RICA**

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A thesis submitted to the University Honors Program
in partial fulfillment of the requirements for the
Honors Certificate with Thesis

Approved by
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Costa Rican coffee has had a long reputation for being some of the most flavorful coffee on the planet. However, it took many years for Costa Rica to establish itself as a coffee producing country, and many more years to develop sustainable coffee-growing systems. Out of the ruins of exploitation by the United Fruit Company, Costa Rica has built up a booming and sustainable agritourism industry, and coffee has played an integral role in its success. While there are many benefits and drawbacks to agritourism, Costa Rican farmers have managed to make every step of coffee production, from growing to selling, a sustainable process.

During spring break of 2018, I travelled to Costa Rica with the University Honors Program at SIU Carbondale for a class called “The Earth Around You.” My passion for coffee and agriculture was the sole reason for my participation in this class. I knew on this trip, students would tour coffee plantations and sample some of the best coffee in the world, so I made it a priority to be involved. Upon my arrival in San José, I was blown away by the coffee culture displayed before I ever stepped foot on a plantation. The entire week was an amazing learning experience about coffee, history, sustainability, and culture. I would specifically like to thank my tour guide, Roy Arroyo, for sharing his wealth of knowledge to me and the rest of our group throughout the week.

While the exact origin of the coffee plant is unknown, there are many legends about how it was discovered. Scientists conclude the coffee species we utilize today evolved from *Strychnos electri*, a plant in the asteroid family (Viegas, 2016). As for how the plant evolved and landed in our mugs every morning, historians are unsure. The general consensus is that the coffee plant was native to the Ethiopian plateau, and it was later discovered by natives for its ability to keep them awake. One legend tells of a therapist in Yemen named Omar who had the ability to cure any disease through medicines and prayers to Allah (Baker, 2010). The ruler of Yemen grew

jealous of Omar's abilities and forced him to leave the country. Omar found shelter in a cave, but was near starvation. He found a bush of wild red berries, but the fruits were too bitter to eat. He decided to roast the beans and place them in hot water, but the beans were still difficult to eat. To appease his hunger, he drank the juice off the berries. Very suddenly, Omar gained enormous strength and had energy that lasted for days. As Omar's patients visited his cave for medical advice, they tried his drink and were cured of their exhaustion. Before long, Omar was invited back into Yemen and was named a saint for his discovery (Baker, 2010). However, the most popular story of coffee's discovery is about a goat herder who noticed his goats wouldn't sleep at night after eating berries off of a particular tree. He then took the berries to the local monastery, where a monk made a drink with them. This monk noticed he was able to easily stay awake during the long hours of evening prayer after drinking the beverage (National Coffee Association USA, 2018). From Ethiopia, the berries traveled to the Arabian Peninsula. The first record of coffee was written by a Persian doctor named Razi in approximately 850-922. Razi used coffee for medicinal purposes and said "bunchum (coffee) is hot and dry and very good for the stomach," (Edo Barista, 2016). From there, coffee slowly traveled around Asia and arrived in Europe by the 17th century (National Coffee Association USA, 2018). Venice, Italy was one of the first ports for coffee imports into Europe, which set the stage for the coffee culture that would ensue in the country. The first coffee house on record opened in 1683 just miles away from the Venice port, though it is believed other coffee houses existed in Constantinople, Serbia, and Armenia prior to this (Baskerville, 2013). Political movements to take root in coffee houses and fostered the thoughts that sparked the , Italian enlightenment (Morris, 2010). Later in history, Italian coffeehouses would invent the first *crema caffè* that the world would recognize as espresso and put in their lattes every morning (Morris, 2010). After their arrival in Italy, coffee

beans quickly moved to the rest of Europe, including Spain. The Spanish people then sent coffee beans to the Spanish-conquered Costa Rica, and plantations sprung up all over the Central Valley.

At first, coffee was merely an export. It was a commodity that Europe couldn't produce, but would buy in large quantities for almost any price set. However, over time the Costa Rican people saw coffee as a novel way to mimic European society and emulate European privilege (Rausch, 2006). By the 1820's, Costa Rica had a fully functioning coffee industry (Cafe Imports, 2017). In 1840, coffee made up 90% of all exports in Costa Rica, and it held this standing until the 1890's (Mendez-Chacon & Van Patten, 2018). While the climate was particularly suitable for coffee production, the infrastructure of Costa Rica was not. Europe was Costa Rica's major trade partner for coffee, but they didn't have any ports on the eastern coast. The only viable port was on the Pacific Ocean, so exportation was slow and inefficient. In 1884, a man named Minor C. Keith was granted a portion of underdeveloped land along the Caribbean coast for railway and port development (Mendez-Chacon & Van Patten, 2018). In 1890, the project was completed and Costa Rica was able to efficiently export to Europe. (Robles Sabana, 2016). However, this didn't fix all of coffee farmer's woes. The roadway system wasn't suitable to use for exports until the 1960's. Prior to this, farmers used ox carts to transport raw beans hundreds of miles to ports on the Atlantic. These ox carts were originally painted by the women of the household to distinguish their ox cart from others, but over the centuries, it has become an art form. Artisans now spend days painting a single ox cart in vibrant and intricate patterns (Smith, 2018). These ox carts carried the first cups of Costa Rican coffee Americans would ever consume. Costa Rica began exporting their coffee beans to the United States in 1916, and has become an amazing trade partner for satisfying America's caffeine craving ever since (Chicago Daily Tribune, 1916).



Figure 1: Traditional Ox Cart in San Jose (Smith, 2018).

The creation of a railway system for coffee exports came at a large price. After Minor C. Keith completed his project, he realized more freight was needed to pay off his debts. He experimented with bananas he had planted along railways for his workers, and it was successful. He then created the Tropical Trading and Transport Company to streamline his sales and partnerships. In 1899, Tropical Trading and Transport Company merged with Boston Fruit Company to create a new company named United Fruit Company (Mendez-Chacon & Van Patten, 2018). This new company used a vertical integration model to avoid losses, which meant they managed all production stages (Mendez-Chacon & Van Patten, 2018). To create land for production, natural rainforests were regularly being clear-cut by United Fruit Company. This is why prior to the 60's, Costa Rica was still considered to be a banana republic. The move to large banana plantations ruined the local ecosystem. It also kept locals in a system of poverty. The banana companies owned the houses their employees lived in, owned the stores in their neighborhoods, and kept their salary low enough that they were forced to use all of these

facilities (Smith, 2018). In 1950, United Fruit Company owned 4% of Costa Rica's national territory, 7% of the labor force, and 42% of all exports (Mendez-Chacon & Van Patten, 2018).

Few coffee farmers remained as United Fruit Company gained power, and the ones that were able to make ends meet faced many challenges. There were few coffee varieties available to farmers, and genetic diversity of the coffee crop grown was low. This made plants very susceptible to disease. In 1923, Costa Rica fought its first battle with coffee blight. Coffee blight was a foliar disease that made the plants appear scorched. New shoots would have stunted growth and sometimes would not produce beans. These symptoms shocked scientists, and they originally thought insects were to blame (Special Correspondence, 1923). For decades, farmers used at-home remedies to fight coffee diseases. There were no known treatments. It wasn't until 1953 that a round table group came together in San José to form the Interamerican Center for Pooling of Knowledge. This group was made up of agricultural scientists from all over the world with the specific goal to eradicate coffee diseases (The New York Times, 1953). This organization helped farmers understand diseases such as coffee blight, caused by a fungus known as *Ascochyta tarda* (Firman, 1965). This knowledge allowed companies to create fungicides to combat the disease, and helped the coffee industry take root. Now that the coffee industry was stabilized, it was in a prime spot to become the next major crop of Costa Rica.

Disease didn't just strike coffee. A fungus known as Panama disease (known today as Fusarium wilt) struck Costa Rica's banana plantations (Mendez-Chacon & Van Patten, 2018). This disease would clog the vascular tissue of leaves, leaving them discolored. Panama disease also caused the stems of banana trees to split, and causes banana bunches to be discolored (Queensland Government, 2018). United Fruit Company didn't want to put money and resources into discovering a cure. Instead, United Fruit Company drew out of Costa Rica in 1938, leaving

many workers without jobs (Mendez-Chacon & Van Patten, 2018). This created an unemployment crisis for Costa Rica. To combat the crisis, newly elected Francisco Jose Orlich Bolmarchich declared Costa Rica would use ecotourism and agritourism to escape poverty in 1962. By the 70's, United Fruit Company was almost completely out of the country. Farmers still have not forgotten United Fruit Company and their monopolizing tactics. While the three largest plantations in the country sell to Starbucks and other large corporations, most small farmers are part of cooperatives to prevent any large-scale abuse of producers (Gudmunson, 2014).

During Bolmarchich's presidency, he took it upon himself to make Costa Rica a tourist-conscious country. He saw the beauty Costa Rica naturally obtained, and decided to use agritourism to boost the economy. Agritourism is generally defined as tourist activities that consist of visiting farms or rural settings (Agricultural Marketing Resource Center, 2019). Agritourism first began in the late 1800s in America when families in the city would visit farming relatives to escape the summer heat. Over time, agritourism transformed into visiting agricultural museums, going on farm tours, horseback riding, and wineries (University of Tennessee Extension, 2005). For Costa Rica, this meant the country could profit from tourists coming to see how the coffee they drank every morning was produced (Phillips, 1962). Coffee wasn't the only driving factor for tourists. Bolmarchich advertised tourists' ability to visit banana plantations, active volcanoes, various hiking trails, local mountain ranges, beach areas, and national parks to draw in crowds of tourists from America and Europe (Phillips, 1962).

Setting up an agritourism industry after United Fruit Company's reign was not an overnight endeavor. It took Costa Rica a long time to reclaim the land that the banana plantations and ruined. However, the government saw the need to bring back the natural landscape, not just for the sake of the environment, but for the sake of tourism. Coffee is grown on mountain sides,

so when tourists come visit the plantations, they will see the entire landscape of the country. If all you could see were barren fields, it wouldn't attract many tourists. The government decided they needed to beautify the landscape for tourists to continue to visit. Parque Nacional Manuel Antonio is being feuded over by the government and United Fruit Company's subsidiaries to this day. The Federal Government reclaimed this land and transformed it into a beautiful costal beach and national park after it was left abandoned by United Fruit Company. Now, the United Fruit Company is trying to sue. They want the Federal Government to pay them for today's value of the land. The federal government is willing to pay the land value at the time it was reclaimed (Smith, 2018; Evans 1999). This is only one example of how the banana companies have tried to impede on the local culture and ecosystems.



Figure 2: Parque Nacional Manuel Antonio (Smith, 2018).

Local organizations were also successful in reclaiming forests leading up to the Poas Volcano, one of the most visited volcanoes in the country. If you travel up the volcano today, one side of the path has thick, lush primary forests, while the other side is a secondary forest

mostly covered in cane. While park rangers monitor the area, the plan is to allow the forests to go untouched (Smith, 2018). My personal favorite example of successful land reclamation is the Eternal Children Forest. In the 80's, some 6-12th graders in Sweden heard of Costa Rica's environmental issues. They raised awareness in their local community and fundraised for years to aid sustainability. A private company used these funds to plant native tree species and reclaim the land (Children's Eternal Rainforest, 2018). Thirty years later, the forest had turned into a beautiful secondary forest. The children from Sweden decided to visit the forest they helped create, and they brought their 6-12th grade children along. It's now known as the Eternal Children Forest (Smith, 2018).

Keeping water pollution at bay is another major concern for the coffee tourism industry. Pure, clean water is necessary for plant health and to maintain accommodating tourism facilities. Currently, the country doesn't have any government agency that oversees water quality. This has led to the exploitation of many water resources. Currently, 88% of all available water used in the country comes from groundwater sources (Guzman-Arias & Calvo-Alvarado, 2013). Without careful use of this water, the coffee tourism industry could collapse. Approximately 21.2% of all available water is used for agriculture and 6.8% of available water is used for tourism, so it is vital to the industry that every drop remains viable to use (Guzman-Arias & Calvo-Alvarado, 2013). Local people and the government work hand-in-hand to keep the waters clean. When I was at Parque Nacional Manuel Antonio, I saw grounds keepers test the beach water. Our tour guide said that this is done once a week because some of the coffee plantations' water flows into the beach. They test every week to assure no pesticides are leaching into the beach water (Smith, 2018). We also saw a national effort to keep pollution out of waterways. Our various tour guides would regularly ask us to stay put while they went to fetch a piece of plastic in a ditch (Smith,

2018). These small efforts by both citizens and the local government have made a large impact on water quality to keep the local water sources clean enough for tourists, locals, and farmers to enjoy.

Preserving Costa Rica's water also has an impact on their supply of electricity, as 75% of all energy in Costa Rica is provided by hydroelectric dams (International Hydropower Association, 2017). The country has set a goal to use 100% renewable energy by 2030, and they are expected to reach that goal well before its deadline (International Hydropower Association, 2017). Using only renewable energy is vital to keeping the coffee tourism industry sustainable long-term. In 2016, Costa Rica finished Central America's biggest hydroelectric dam, known as the Reventazón Dam. This dam is now able to power an estimated 525,000 homes in the area (Dyer, 2016). While sustainable energy is vital, hydroelectric dams do cause destruction to the surrounding ecosystems. This is why President Luis Guillermo Solís banned damming on the Pacuare and Savegre Rivers for the next 25 years. These rivers are known for their strong tides and would be ideal for dams. However, many tourists also come to these areas (Dyer, 2016). He is looking to find a balance between the preserving natural landscapes, the tourism industry, and sustainability. The Presa Sangregado Dam is one that many coffee farmers use. This dam sits on Lake Arenal next to the Arenal Volcano. Lake Arenal is one of the largest lakes in Costa Rica, which makes it ideal for hydropower (Smith, 2018). This lake is a wonderful symbol of renewable energy for Costa Rica. The lake goes on for as far as you can see, and on the small island in the middle there are a handful of wind turbines (Smith, 2018). Wind turbines currently create approximately 10.5% of the energy in Costa Rica, making it the second largest renewable energy source in the country (Arias, 2015). Costa Rica had 16 wind farms in 2017, and this number continues to rise. Wind farmers run their own land and sell the energy they produce to

the Costa Rican Electricity Institute. This way, farmers can negotiate prices to a living wage, work in a competitive environment, and keep prices low enough to be affordable to the tourism industry (Arias, 2015). It is vital that all Costa Rican industries keep the tourism industry in mind because of all the benefits it provides the country.



Figure 3: Presa Sangregado Dam and Wind Farm (Smith, 2018).

Agritourism has helped Costa Rica thrive in many ways. To start, it has helped preserve the natural beauty of the area. We can see this in the stories of Parque Nacional Manuel Antonio and the Eternal Children Forest. Many farmers have also converted low-producing pasture land into forested areas to move towards a more sustainable and beautiful tourist experience (Little, 2017). We also see an increase in environmental education. The Cloud Forest in Monteverde is a prime example of this. The Cloud Forest is a national wildlife preserve that is high enough in

elevation that you are walking through the clouds. The Cloud Forest works with local high schools to involve their students in their conservation efforts. Students work with conservation officers to set up trail cameras and monitor the local species. The data collected by these students is used to present a slideshow to tourists about what types of species they may see while hiking (Smith, 2018). In the coffee industry, farmers use plantation tours to educate tourists about their sustainability efforts and how they work to preserve the environment. These educational tours help employment rates, as well. Locals help lead tours, maintain facilities, and maintain the fields. There are also Nicaraguan immigrants who help harvest the coffee every year. As immigrants come into the country for work, they spend money in that country and pay taxes to that country as well, which helps boost the local economy (Smith, 2018). Interestingly, using sustainability as a way to market to tourists promotes a real culture of sustainability. Costa Rica has spent decades trying to make their country look eco-friendly to tourists, and that mindset has also moved to the locals. This promotes a cycle of sustainable practices. As the tourism industry uses sustainable practices, tour guides who are also locals promote sustainable practices, and their mindset moves to friends, family, and the rest of the nation. Then Costa Rican citizens vote for sustainable methods, and it becomes easier to bring tourists in by marketing how sustainable the country is (Smith, 2018.) The unique culture of Costa Rica is also encouraged through agritourism. Tourists don't usually come for just the coffee, so they spend time in the country to eat local food, listen to local music, and get a feel for the culture of the area. This sends people around the world with the unique experiences that only Costa Rica can provide (Smith, 2018).



Figure 4: Doka Estate Educational Tour (Smith, 2018).

Over-visitation to some of Costa Rica's major tourism spots creates a few problems for the country (Narayan, 1998). There's an increase in garbage and pollution from tourists, whether or not they realize it (Koens, Dieperink, & Miranda, 2009). My group regularly stopped to get snacks at convenience stores because our days were so long and physically demanding, and so it's unavoidable for a wrapper to accidentally fall out of someone's backpack (Smith, 2018). There's also the increase in garbage and pollution from restaurants, hotels, and transportation (Guzman-Arias & Calvo-Alvarado, 2013). Crime is also a major issue, specifically drug-related crimes. People from Costa Rica and neighboring countries have used the influx of tourists to make money through drug dealing, and criminal activity around tourist locations is common because there is a perception that tourists have money (Guzman-Arias & Calvo-Alvarado, 2013). Local culture is also degraded to a degree because tourist areas are asked to abandon their small, local cultures for the larger, encompassing "Costa Rican" culture (Smith, 2018). There are also reports of food service workers being asked to work on dirt floors and with little equipment for

the sake of a “traditional experience” for tourists. This just ends up putting strain on the workers and suppressing technological advancement (Vandegrift, 2008). As the industry expands, more facilities are needed for tourists to stop in. Souvenir shops, extra roads, and education centers increase the amount of land clearance that happens. While it is on a smaller scale than banana farming and other practices, it is still considered a drawback for the industry (Koens, Dieperink, & Miranda, 2009). These facilities also disrupt the natural biodiversity of the area. While traveling in the Cloud Forest, the tour guide mentioned that on one tree in the rain forest houses up to 200 different plant and animal species. Each tree is considered to be their own ecosystem, so to move a single one of these trees means to disrupt hundreds of species (Smith, 2018). For coffee plantations to be good stewards to biodiversity, they must utilize the land they already have to produce the most coffee they can instead of clearing more trees. It is here that sustainability becomes a driving force for the coffee agritourism industry.

There are two coffee cropping systems commonly used in Costa Rica: sun coffee and shade coffee. Sun coffee is the type that I saw the most in Costa Rica. I personally toured the Doka Estate plantation, and they told us all about how sun coffee was grown. Sun coffee is grown very similarly to how corn and soybeans are grown in America. There are rows of bushes for acres on end, and people come through and hand-pick the berries. Doka Estate sends people through the fields every two weeks to pick the newly ripened berries, but some farms pick them all at once. In this type of farming, the bushes can be precisely managed. Farmers can spray pesticides evenly, irrigate if necessary, and fertilize accordingly. They harness most of the modern agronomic technologies to make sure their fields are uniform, healthy, and productive (Smith, 2018). Shade coffee is considered to be more traditional approach to coffee farming. It replicates the way coffee was traditionally grown between trees. It creates an agroforestry system

where trees help the soil health of the area. The trees help keep carbon and organic material accumulate, limit erosion, prevent nitrogen runoff, and preserve soil water. They also help preserve biodiversity, most notably in bird populations (Sherry, 2000). Negative effects include costly tree trimming, intercepting sunlight, fostering disease, and more difficult management (Cirad, 2013). It was stressed many times to us that Costa Rica doesn't focus on being organic or conventional; they focus on being sustainable. This is why they use pesticides and hybrid crops. While no transgenic coffee plants are on the market, Doka Estate said if one were to come available with resistance to coffee rust, they would use it (Smith, 2018). Once the beans are cultivated by either system, they must be dried out before they can be sent off for roasting. The majority of Costa Ricans use the wet method of drying because it works well with hydroelectric systems. Doka Estate has a single hydroelectric machine that powers the entire operation. The beans are soaked to get the fruit off of the bean, and then they are dried out in the sunlight. No fossil fuels are utilized for this process. The roasting process happens off-site (Smith, 2018). The product of these mechanisms provides Costa Rica with the bean that influences so much of their culture.



Figure 5: Sun Coffee at Doka Estate (Smith 2018).



Figure 6: Unroasted Coffee Drying in the Sun (Smith, 2018).

Costa Rica is an export country when it comes to coffee. There are three grades of coffee, and the best two get exported, while the lowest grade stays in Costa Rica (Smith, 2018). Because

of this, Costa Ricans don't really have any knowledge on what "good coffee" is. They drink it for the caffeine, not the flavor or the experience. From what I could see, cafes are only in tourist towns. The only place you can get Doka Estate's premium coffees in Costa Rica is their souvenir shop on site. Most of their coffee is sold to Starbucks, Peet's Coffee, McDonald's, and Folgers (Smith, 2018). Starbucks has made an enormous impact on Costa Rica's coffee scene. Back in the 1990s, Brazil and Vietnam saturated the coffee market with cheap beans (Valdes, 2008). This took a huge toll on Costa Rican coffee farmers because they couldn't produce beans as cheaply. Starbucks partnered with many Costa Rican farmers to plant more high-quality beans rather than competing for the lowest price possible. Since this initiative began, Starbucks has grown in Costa Rica to the point that they now buy 15% of all the coffee grown in the country (Valdes, 2008). Starbucks also has a series of sustainable practices that they ask farmers to utilize in order to have their business. This keeps farmers focused on sustainability and not just the bottom line (Valdes, 2008). Café Britt is another coffee company that has done an amazing job of increasing coffee knowledge and culture in Costa Rica. They originally started with the mission to buy up fine Costa Rican coffees and sell them back to the citizens of Costa Rica. Over time, the brand has also popped up in hotels, airports, and souvenir shops all over Latin America (Cafe Britt, 2018). It has the same social connotation in Latin America as Starbucks does in the United States (Smith, 2018). Café Britt does a great job at giving back to the environment. Some of their different blends give back to various sustainability efforts. For example, their Habitat brew donates money to sloth preservation, and the Poas brew sends money to the preservation of the Poas Volcano (Cafe Britt, 2018). Like Starbucks, they also have sustainability values that farmers must follow. It says a lot about the type of business that happens in Costa Rica when two of the largest coffee producers require their farmers to be sustainable.



Figure 7: Cafe Britt Habitat Blend (Smith, 2018).

Coffee sustainability is even promoted in tourist shops. Chorreadors are in just about every souvenir shop you find. This is a common coffee brewing apparatus that closely resembles a pour-over system. The filter, known as a bolus, is reusable, and the entire device is made out of biodegradable materials. K-cups and other one-time use systems aren't encouraged in Costa Rica because of how detrimental the plastic can be to the environment (Smith, 2018). There are also various statues and models of the old coffee ox carts. While these ox carts don't necessarily promote sustainability, they help promote Costa Rican coffee culture as a whole (Smith, 2018). These items can be purchased by people from all around the world and taken back to their countries as a symbol of the sustainable agritourism industry in Costa Rica.

While the journey to sustainability was long and difficult, Costa Rica has developed a wonderfully eco-friendly agritourism industry. Coffee has been a vital component of this

industry since the beginning, and it remains an integral part of Costa Rica's culture. Despite exploitation by the United Fruit Company and the various challenges that agritourism brings, Costa Rica has reaped many benefits, both economically and environmentally, from becoming a tourist country. By utilizing sustainable practices, Costa Rica has and will continue to produce some of the world's best coffee for centuries to come.

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