



Adolescent Program

Guides: Jack McArdle, Alex Pape and Caren Ross.

2023 Winter Edition

Introduction and Dedication By Caren Ross

Recently home from a wonderful school trip to Costa Rica, we dedicate this newsletter to our travels across this beautiful, peaceful Central American nation. The theme of our 8-day trip was biodiversity and peace, and as you read the adolescents' reflections, you'll see that they experienced what it means to live in harmony with one another and the natural world.

In the rainforest El Bosque Eterno de los Niños, we looked up at towering, fast-growing Ceiba trees and learned the peace of mutual interdependence from the way the tree naturally supports so much life - - all those epiphytes, each one generously supporting a whole ecosystem of its own. Like every orchid, every piper plant, every sloth, every snake, every frog, every bird, butterfly, and bat, we each had our own individual experience in the rainforest, as well as a communal experience of living together, depending on one another for our emotional, physical, social, and intellectual needs. We chatted in rocking chairs, played cards, laughed uproariously, screamed with surprise, gathered for warm meals, and listened to nighttime rainforest stories. We stood in awe at the sight of tiny creatures – phosphorescent, colorful, or camouflaged. We peered at emerald-green hummingbirds through binoculars on the station-house deck in the morning, and we looked out at the rugged, verdant, mountainous vistas to the sound of whistling birds. We hiked together both in silence and in conversation, taking in the sounds and sights, the textures, scents, and tastes of the rainforest.

Human solidarity and consciousness of the interdependencies among all living and non-living things is at the heart of a Montessori education. It is an understanding of mutualism, reciprocity, and gratitude, as well as inner equilibrium, that builds peace. As Maria Montessori wrote,

“Preventing conflicts is the work of politics; establishing peace is the work of education.” Our week in Costa Rica showed us the way, and you’ll see in the adolescents’ narratives below that education for peace entails a whole lot of pleasure and adventure.



Student Articles



A “Banana Republic” by Piper

In preparation for our trip to Costa Rica, we did projects so that we would be travelers rather than tourists during our time there. Maya and I researched the United Fruit Company, which included a lot of research on banana republics. This term is used to describe small nations in Central America, dependent on one crop as a major export.

The United Fruit Company had such a powerful role in Central America that the countries became known as “banana republics,” totally dominated by the big business and money to be made in bananas. The United Fruit Company operated in Costa Rica between 1899 and 1984, taking over more and more land and more and more power, until it finally had to change its name to Chiquita Banana because of its reputation and how it disgraced itself.

In 1870, Captain Lorenzo Dow Baker bought bananas from Jamaica and sold them for twice as much in the United States. Captain Baker then realized a great business opportunity and teamed up with Andrew Preston to form the Boston Fruit Company. They bought and took land from Costa Rica and ended up with 9% of Costa Rica's land mass. As a benefit of taking the land, they were able to afford the largest private ship fleet in the world. In 1899 Boston Fruit Company merged with a major banana magnate, Minor C. Keith. He had holdings in Costa Rica, Panama, and Colombia. Keith was

involved in producing, transporting, and marketing bananas, sugar, cocoa, etc. He owned a railroad system in Central America and Columbia. This new partnership became the United Fruit Company. The company became so wealthy and powerful that some countries seemed to lose part of their identity and became defined by their bananas. At one point, the company even overthrew Brazil's president and was accused of bribing government officials, abusing its employees, and paying little to no taxes.

The Night We Went to Baldi Springs By Kosi

After a long bus ride with a few stops, we came to our second hotel, a resort-like place where we'd spend the night before our departure to the rainforest. After getting our room keys and free drinks, we went into our rooms and preoccupied ourselves (whether it be with plushie fights or noisy room visits) before heading off to thermal springs for dinner and enjoyment.



Once we'd checked into this new place, the Baldi hot springs, and after I'd retrieved some forgotten spare clothes I'd left on the bus floor, we dropped off our spare clothes and belongings at the locker room and headed up to the buffet, passing various naturally heated hot spring areas. At the buffet, we were met with a variety of food, from pasta to the Costa Rican specialty gallo pinto, to fried plantains to marshmallows. Unfortunately, I'd only been told that the marshmallows were crawling with ants after I started eating them, of course.

After dinner, we waded into the different thermal pools, which were heated by magma from the nearby volcano, Arenal. At first, we stayed together as a group, but gradually began dispersing, leaving people in the pools behind us. One of the pools was so hot it felt like walking through boiling water; others were quite cool. Having had enough of the pools, we returned to the hotel, only to realize that Levey and I had no room key. Apparently, Levey had earlier told me to get the room key out of the locker room, but I either hadn't heard or wasn't paying attention. So, Levey went to sort out the room key issue while I went in through the backdoor and waited.

Eventually, Levey came back and we ended up watching Tom and Jerry clips on YouTube until we heard a knock on our door. I thought that it might be Pape (for whatever reason), so I decided to open the door without asking questions. That was a mistake. Liam and Fred came barging into the room and started beating Levey and me with pillows until we shouted at them to cease, desist,

and leave. While they were leaving, Pape appeared and, well, they didn't come out again that night.



Land Conservation and Children's Eternal Rainforest by Arthur

On the third day of our trip, we entered the Children's Eternal Rainforest or the Bosque Eterno de los Niños (BEN). BEN was created in the 1980s to combat the spread of deforestation on the western side of Costa Rica. The first donations were

made by a Swedish school but the project spread to 44 countries and conserved 55,000 acres of some of the most biodiverse rainforest in Costa Rica.

We woke up every morning to the sound of howler monkeys and went on a short hike before breakfast, observing the early morning wonders of the rainforest. After breakfast, we further explored the rainforest with our lively, knowledgeable, bilingual guide, Eduardo. Walking through the dense forest knowing that thousands of hidden eyes could be watching me, whether they be ants or monkeys, was a thrilling and surreal experience. Every day we would see more incredible creatures – leaf-cutter ants, eyelash vipers, and white-faced monkeys. It was impactful to trek through the forest, knowing that if those Swedish children hadn't started this movement then the land I was walking on would not be a rainforest.

Impressions of a Solo Experience in Costa Rica by Liam

We walked single file through the rainforest, our numbers dwindling. One by one each of us was abandoned. Every 30 meters, routinely another and then another. Once one was out of sight another was dropped off. Finally, it was my turn – to be left alone in the middle of the trail, in the middle of the rainforest. As my peers disappeared into the foliage, the sound of footsteps faded and was replaced by the sounds of the rainforest. I stood in the middle of that trail, completely silent, listening to the sounds all around me. As I looked about me, I saw nothing but dense vegetation. It was impossible to see more than a few feet off the path in

each direction. I saw leafcutter ants marching by the thousands along their little paths. Looking up, I saw no sky. I heard birds in the trees; they made their presence known through the dense canopy.



After 30 minutes of gazing at the beautiful rainforest, the rest of the group returned, single file and silent, to collect me and to return whence we came.



Costa Rican Animals by Abbie

On our trip we saw a variety of frogs, insects, and lizards. We were conscientious while walking on the trails because we didn't want to step on the hundreds of thousands of leafcutter ants carrying food to their colonies. We were excited to see the wildlife but we were also cautious because we were reminded that the snakes could slither in between

us at any time. We didn't want to get close enough to any eyelash palm pitviper in case they struck and bit us, injecting fatal poison into our bloodstream. We were told, however, that was really uncommon. We were also able to set up trail cameras in order to record nocturnal animals. And we saw some really cool mammals such as tons of coatimundis, a relative of the raccoon with a long, pointed muzzle, a long, bushy, ringed tail, and brown to reddish fur. We also saw many families of peccaries. A peccary (also known as skunk pig) is a medium-sized, pig-like mammal. We watched them forage around in the dirt for insects. Finally, the most exciting animal we saw recorded on our trail cameras were pumas! We saw two of them sniffing around the area and looking directly at it.

How Soundwaves Travel in the Rainforest

by Levey

In Costa Rica, we all were tasked with coming up with and working on a project, to leave with the rainforest and to help guide future students. For my project, I worked with Kosi to research how soundwaves traveled through the primary and secondary forests (primary is older and thicker



with more species of trees, while secondary is younger and thinner with fewer species of trees).

Starting in the primary forest, we essentially found the average decibel level of different levels of conversation using the decibel meter on the Apple Watch, and played an audio track at the same sound levels. We then walked until we couldn't hear the audio anymore, and measured the distance with the measurement app on a separate phone. We repeated this process in the

secondary forest. Then we thought of the three animals we wanted to see most on the trip (monkeys, jaguars, and snakes), and did research on their hearing in order to find out how much better or worse they could hear than us (the monkeys were about the same, the jaguars were 3.5 times better, and the snakes were 20 times worse), and adjusted our findings relative to their hearing.

We concluded that no matter how quiet you think you are, you are still being disruptive to another animal, which is why you should do your best to be quiet and respectful.



The Waterfall by Fred

I walk deeper into the forest, reluctant but slightly anticipating what's to come. As the trees grow thicker around me, my feet are met with the slippery rocks that are taunting me to fall flat on my face. The forest grows even more silent than ever, until a determined tree frog breaks the peace by slightly adjusting his hiding spot high up in a bush. I carry on through the mysterious forest with the end in mind. The wildlife around me is watching carefully. They all know I do not belong here, for I am only an observer, watching a productive ecosystem as it carries on right before my eyes. There is a roar that I am quickly able to identify as a

body of water. It is near... the very thing I have waited to see is only steps away. I swiftly walk through the doubtful bushes that are attempting to hold me back with their thorns. I follow the long and winding trail that is leading me to my destination. I can see it. The trees around it drift in the wind as if they are dancing to the lovely song Mother Nature is singing. Can you hear it? I sit on the bench that overlooks the rushing water, amazed and dazzled.

Leaf Cutter Ants by Eli

I was first drawn to leafcutter ants because of their pathways, which are miniature trails through the forest. Half the ants on every trail are going in one direction, to gather leaves, and the other half are

going in the opposite direction, to deliver the leaves to their nest. Leaf cutter ants cut leaves into pieces and use them to grow fungus for food. Their nests are huge and the ants can excavate up to two dump truck loads of dirt for the nest.

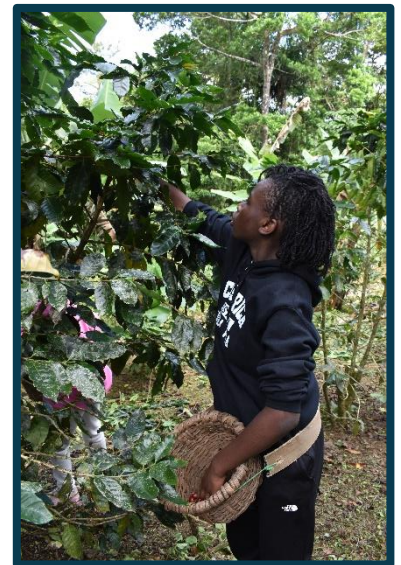
For the rainforest symposium I tested whether leafcutter ants will walk on artificial pathways in exchange for more efficiency in gathering leaves. I made them a bridge out of a stick so they could go right across a drainage trench instead of having to go around it. What I found in my experiment is that the ants will not go on a path that isn't theirs, and when put on a path that isn't theirs they will get very confused and try to find their way back to the path. I decided to do a different experiment because I couldn't get the ants to go on the path. I decided to test whether the ants would go around obstacles that I put in their way. First I put a leaf in their way and half of them went around it, the other half went over it. Then I put a large seed on the path and I got the same result. Then I put a leaf over the entrance of the nest to see if they would cut through it. The ants didn't cut through it and just decided to use the other entrance. I put the leaf back on the entrance with a hole in it and the ants still used the other entrance but after a while they figured out they could go through the leaf.



The Pearl Cat by Tallash

While at the Pocosal Rainforest Research Station we were required to leave a piece of our work at the station and present it at our Rainforest Symposium. For years now I've enjoyed creating creatures on my own and I realized this would be the perfect time to test my abilities.

The pearl cat, or *Borhyaena venetus*, is a small member of the Borhyaenidae family and is not a true feline. Named after its reflective fur and its affinity for shiny objects, the pearl cat is a five foot long arboreal predator that primarily hunts agoutis, peccaries, coatis and other medium-sized mammals as well as large fowl. Pearl cats are known to use their fangs and patagium (gliding membrane) to leap off of branches and aerial roots onto unsuspecting prey to sink their fangs into them. Due to the force of landing on their target, the pearl cat's fangs contain iron similar to many rodents so they do not break on impact. Pearl cats are primarily crepuscular animals, meaning that they're most active during dawn and dusk. They are known to sleep in the large holes



of large fig trees and will often decorate their houses and themselves with feathers of prey and shiny objects to show off.

When the mating season occurs, a female's throat sac will become more colorful and bright, displaying that she is in heat. During the season, females will often mate with up to two or three males. After she reaches this threshold, she will become aggressive towards most males that try to mate with her. Pearl cats tend to mate for life and will have one cat they spend their lives with but females do often mate with other males regardless. Once the female mates with another male it isn't uncommon for her to become aggressive and attack the male, chasing him off or killing him. Even though male pearl cats are larger than females, females are much more aggressive than their counterparts. Due to this behavior, it's common for males to have much more scars than females. Pearl cats have a six-month gestation period and most give birth to one or two joeys a year. The female will nurse her young for up to four months before her male mate becomes the primary caretaker of the joeys. During this time, the female will be the breadwinner of the family but will occasionally help teach the joeys. At around a year and a half, the juvenile will grow a deep desire to leave her family and find her own way.

Costa Rica by Miles

Where the wide river roars,
And the constant breeze blows,
Where the Ceiba trees sway,
And the creeks flow,
I am perched in a tree,
Where the postman butterflies play,
And the black vultures soar,
And the monkeys go astray.
Oh jungle, oh jungle, you beautiful place,
I want to be just like you,
And feel the warmth on my face.
I hope you feel me perched in this tree,
Loving you dearly,
And feeling your glee.





How a Very Special Mysterious Brown Powder Almost Stranded Us in Miami

by Maya

The brown powder came from a family-run coffee farm, La Finca Esperanza, which we visited in the northern highlands of Costa Rica. We picked the coffee beans right off the tree, then hit them with sticks to get the skins off. Next, we used a fan to blow all the skins away, then roasted the coffee beans over the fire and ground them into powder.

We never imagined this delicious brown powder would get us in trouble with airport security, but it did. Our flight was about to take off and there we were standing like a group of drug traffickers waiting for our bags to be searched. The security officials were suspicious of our brown powder, rubbing their scanners over every square inch of our bag. Our flight was boarding without us, and we were all crossing our fingers and wondering how this could go any slower. Finally, almost everyone else got through security and darted off to the gate. But I was held up as the last brown powder smuggler. Eventually, I broke free, and Piper, Sra, Pape, and I sprinted as fast as we could through the airport when we heard the last call. We just made it. The only reason we made it was because our other classmates were holding the flight up by refusing to board the plane and demanding to see the manager.

La Paz y La Biodiversidad Por Riley

Después de llegar al aeropuerto en San Juan, fuimos al United World College. Allí pasamos la tarde con los estudiantes del colegio. Había aproximadamente veinte estudiantes de muchas nacionalidades y culturas diversas. Esta fue una excelente manera para aprender un poco sobre la paz y la coexistencia antes de comenzar a estudiar y vivir la biodiversidad y la paz en el Bosque Eterno de los Niños. La educación del UWC tiene raíces en el aprendizaje experimental y prácticas en sostenibilidad, diversidad, y paz. Estas ideas no son muy diferentes a nuestra increíble experiencia en Millstream.



Al UWC conocimos a Jeff, el líder del programa de biodiversidad y paz en que participamos en Costa Rica. Después de cenar con los estudiantes del colegio tuvimos un seminario en una de las aulas de ciencias. Exploramos el concepto de la paz y que significa para nosotros. Tuvimos una

extensa discusión con unos diez estudiantes de Jeff. En este seminario leímos *Education and Peace: The Foundations of Modern Society*, por Kurt Hahn, y un extracto del libro *Educación y Paz*, por Maria Montessori. Los dos autores son líderes significativos para una mejor comprensión de paz, y sus lecturas explican ideas similares a las que nosotros estábamos discutiendo.

También discutimos la historia de Costa Rica, la abolición de la militar en 1949, y como el país ha mantenido la paz mucho más efectivamente que los países vecinos. Nos pusimos de acuerdo de que la paz no es solo la ausencia de guerra, sino el sostenimiento de la armonía. El seminario nos dio contexto al estudio de la biodiversidad en el bosque lluvioso. Como dijo Maria Montessori, la paz es algo que involucra "all mankind and perhaps even the universe itself, creation, [and] cosmic harmony." En la definición de paz tenemos que "considerar the life of [all] the creatures of the earth" porque "all creatures that live on earth have a cosmic role to play" en la conservación de la paz.

Personalmente, aprendí mucho en el intento de entender, definir, y describir la noción de paz. Me gusta mucho explorar las interdependencias en el mundo natural. Reconozco lo que hemos aprendido sobre relaciones simbióticas cuando estoy en el bosque lluvioso de Costa Rica, o en la granja Millstream, o en mi hogar en Connecticut, o aun cuando estoy esquiendo en el norte. Incluso después de regresar de nuestra increíble experiencia en Costa Rica, sigo escribiendo sobre la paz y biodiversidad porque me gusta. Espero que mi vida me traiga de vuelta al Bosque Eterno de los Niños. Mi viaje a Costa Rica fue la experiencia educativa más valiosa que he tenido y espero que más niños de MSGH y de todo el mundo tengan la misma oportunidad.

Peace and Biodiversity by Riley

After landing in San Juan, we drove to the United World College, where we spent the afternoon with 11th- and 12th-grade students from diverse cultures and nationalities. This was a great way to learn about peace and coexistence before embarking on our Biodiversity and Peace experience in the rainforest. The UWC high school, with campuses all over the world, is rooted in experimental learning, sustainability, diversity, and peace; ideas not unlike our incredible MSGH experience at Millstream.

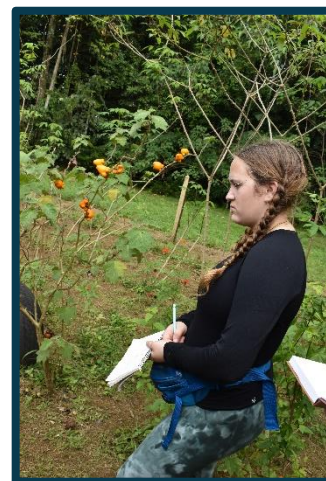
It is at UWC where we met Jeff, the leader of the Biodiversity and Peace program, and joined him in Costa Rica. After dining with the UWC students, we experienced a seminar in one of their immersive science classrooms. We explored the concept of peace and what it means to us, participating in an extensive discussion with ten or so of Jeff's students. In the seminar, we read *Education and Peace: The Foundations of Modern Society* by Kurt Hahn, and an excerpt from Maria Montessori's *Education and Peace*. Both authors are major figureheads for a deeper understanding of peace, and their work meticulously explored similar ideas to what we were discussing.

We also explored some topics of Costa Rican history, including the abolishment of their military in 1949, and how the country has maintained a state of peace far more successfully than any neighboring countries. This led to a consensus that peace is not merely the absence of war, but rather the sustainment of harmony. This seminar provided context to the work we would be doing with biodiversity in the rainforest because as Maria Montessori puts it, peace “is something that involves all mankind and perhaps even the universe itself, creation, [and] cosmic harmony.” In defining peace, we must “consider the life of [all] the creatures of the earth” because “all creatures that live on earth have a cosmic role to play” in maintaining peace.

Personally, I comprehensively participated in trying to understand, define, and describe this notion. I have found it rather fulfilling to explore the interdependencies in the natural world, which were demonstrated phenomenally during our studies in the rainforest. I have found myself recognizing and observing interdependencies and symbiotic relationships in many places – from the Costa Rican jungle to my everyday life at the farm, to my home, and even when I'm up north skiing. I continue to have a penchant for writing about how I interpret it all, even after we have returned from our incredible experience in Costa Rica.



Costa Rica Trip



Costa Rica Trip

