



# Lee Iacocca International Internship Los Cusingos, Costa Rica Summer 2015



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## Abstract

Our internship consisted of 5 weeks at the biological refuge Los Cusingos, located in the South Pacific of Costa Rica, where we did water quality testing in the local rivers and helped out with the other projects going on at the time. Our next location was at the Osa Conservation in the Osa Peninsula, where we helped with sea turtle conservation and provided additional help to a local farm Osa Verde. Our final component of the internship was promoting public health and awareness of dengue fever in the town of Puerto Jiminez.

## Site 1: Water quality testing at Los Cusingos

### Introduction

Los Cusingos is a bird refuge located within the Alexander Skutch Biological Corridor and is home to an incredible diversity of flora and fauna. White-faced capuchin monkeys, tyra, sloths, armadillos, the cusingo bird, hummingbirds, and herons live on site along with thousands of insects and hundreds of butterflies. There are also many rivers and streams that flow through the property that are vital to all the species there.

### Objective

Our main mission was to collect water quality data as part of an ongoing project run by Prof Don Morris using a multiprobe called the Manta.

### Results

Unfortunately, due to humidity we encountered technical difficulties while out in the field and were unable to collect data the entire 5 weeks while at Los Cusingos. We however learned a valuable lesson in the trials of working out in a remote field of study that you can only try your best and sometimes things still don't go your way. Our alternative projects were to explore the property and to identify, relocate, and tend to the different orchids inhabiting the refuge. While there they found a new species and are known to find almost ten new species a year! Another project of ours was using the Biotic index to assess the health of the rivers based on the macroinvertebrates found in them. The sensitivity of the species to pollution is given a specific number and used in a calculation to fall within a range that determines the health of the river. Next year, the students could possibly do this in conjunction with the Manta data to see how accurate the bugs reflect the health of the river.



Images of a "walking" palm, a horned basilisk, and interestingly colored plant all found at Los Cusingos



## Site 2: Turtle Conservation in Osa Peninsula



Left to right: Baby Olive Ridley hatchlings, turtle eggs being relocated, Mel helping extract the eggs

### Introduction

Turtles have been around for over 130 million years and overall numbers are continuing to dwindle each year. Things such as poaching for eggs and shells, natural predation, fishing lines, beach erosion, and the ingestion and entanglement from human made debris is taking a toll on the animals. In Costa Rica particularly, the human work force does not earn high wages and on the black market turtle eggs go around \$1 an egg. With nests containing an average of 100 eggs it unfortunately becomes an enticing pay day for poachers. The Osa Peninsula is visited by two main species of turtles: the Olive Ridley (*Lepidochelys olivacea*) and Green Sea Turtle (*Chelonia mydas*). Leatherback sea turtles (*Dermochelys coriacea*) and Hawksbill sea turtles (*Eretmochelys imbricata*) are also occasional visitors. They lay their eggs certain distances from the ocean's edge based on the species where they remain below ground until they hatch. Like crocodiles, the temperature at which the eggs incubate determines the gender of the baby and with the warming climate we are seeing an increase in females and decrease in males. The conservation has actually built their own hatchery to house any nests found on the patrols so the turtles can be given their best shot to live. To counter the temperature challenge, they built the hatchery so half is shaded and the other uncovered to attempt to replicate the 50:50 ratio of males and females that should be normally occurring naturally.

### Objective

The conservation monitors the nesting activity, predation rates, and hatchling success of these incredible species. Volunteers like our group from Lehigh participate in night patrols of the beach documenting any mother turtles or nests we come across. There are also morning patrols where we relocate any nests found to the turtle hatchery to reduce predation and increase their chance of survival. In addition to the turtle work, we also helped out at the Osa Verde farm that grows food to feed everyone at the conservation. Further down the farm Lehigh is also sponsoring a plot of land that will be planted with trees in attempt to contribute to the biological corridor.

### Results

With many long hours patrolling the beach we encountered several mother turtles laying their eggs and marked the nests accordingly. One morning after carefully relocating a nest to the hatchery, a nest of turtle eggs had just hatched and we got to release them into the ocean! We also were able to get our hands dirty and plant over 100 trees varying in species that will grow and be monitored by Lehigh students years to come.

## Site 3: Dengue Fever Project in Puerto Jiminez

### Introduction

Dengue fever is a painful, debilitating mosquito-borne disease caused by any one of four closely related dengue viruses. These viruses are related to the viruses that cause West Nile infection and yellow fever. An estimated 390 dengue infections occur worldwide each year, with about 96 million resulting in illness. Symptoms include: high fever, severe headaches, severe joint and muscle pain, nausea, vomiting, and in some cases bleeding of the gums.

### Objective

With help from the Community Development Association of Puerto Jiminez, we plan to promote awareness in the community of easy ways to reduce the carriers of Dengue in the town. Citizens merely have to pick of any trash that can collect sitting water where mosquito larvae can grow.

### Results

With a lack of funds for an adequate number of garbage cans, there was surprisingly a lot of garbage across the town. We got our hands dirty and cleaned up a soccer field riddled with trash hoping to set an example for the generations coming up. We also inspected a school, police station, and numerous streets for anything with standing water and found mosquito larvae at all sites. Our other contribution to the town is that Lehigh funded and printed fliers to hang up around Puerto Jiminez to promote awareness of the disease and what they can do to prevent it.



Left: Lehigh students Casey, Mel, and Ben showing the flyers that will be distributed around town  
Right: Trash shown with standing water that could house mosquito larvae



### Acknowledgements

Firstly, thank you to the Lee Iacocca International Internship program for funding our trip here, otherwise neither of us would have been able to go. We'd also like to give a huge thank you to Professor Donald Morris for setting up the internships and helping us transition into our new lives smoothly. Next, thank you to the entire Los Cusingos staff for being a supportive and helpful team to work with despite the technical difficulties we faced! We would also like to give a big thank you to our host families and all the friends we've made along the way that have made our experience even richer.



Clockwise from top left: Melody and her family, Ben and his family, the group of Lehigh students together