

Mill River Land Care Summer Interns 2011

Young Naturalists' Journals

For the entire month of July Mill River Park's Land Care department was lucky enough to host interns Nikita Gawande and Karen Escobar, two bright high school students from the Stamford office of Build On. Build On is an international service association that helps local urban youth gain valuable community building skills at home in preparation for larger service opportunities abroad.

In addition to Nikita and Karen, we were also fortunate to team up with our long term middle school Intern Danny Silverstein. In his second year of service, Danny continues to inspire us and his classmates to do their part to contribute to the restoration of the Mill River.

Since working outdoors at Mill River Park is always equal parts labor and adventure, we thought you might enjoy sharing some of the experiences that our interns felt were most memorable for them this summer. Attached are journal entries from Nikita and Karen as they reflected on their time here at Mill River Park. Danny Silverstein will be spotlighted in a future article.

We hope that sharing these stories with you will inspire a new class of interns to join in the fun along the river as we continue to grow together.

Nikita Gawande standing, and Karen Escobar, leaning over, cut away invasive plants from the Mill Pond site



Populus Alba cuttings from the Mill Pond site



Nikita Gawande and Karen Escobar teach about native and invasive plants to GE and Student Conservation Corps volunteers this summer



Nikita Gawande

— *A gardener for the earth.*

One of the main reasons I decided to apply for the Mill River Park internship was to learn about something new; something that I cannot learn sitting at a desk, hiding behind a computer. I wanted a new experience. This internship did just that and more. I learned about things I otherwise would never have known.

From the first day, I learned about identifying plants, how plants function, and what it means to be “a gardener for the earth.”

I learned that there are nearly 300,000 different plant species in the world and each of these plants has its own characteristics, serves a unique purpose, and provides for one specific insect or animal in its native ecosystem.

In Connecticut alone we can find about 3,000 plant species, about 2,000 of which are native. Thus it is often a great challenge to identify each specific plant.

While working on the Mill River we encountered a very mysterious seedling. There were so many of them crowding the banks. Although we used books and conducted internet searches, we could not easily find a clear answer to what this mystery plant was, so we searched deeper and noticed some characteristics about this puzzling species.

The first thing we observed was that the plant was only a couple of feet upland from the river and grew in colonies. The next observation was our biggest clue in identifying the plant. We found dry wood next to the populated bunches. This wood was washed up from the river. A light bulb went off in our heads. These plants may have come here from seeds floating in the water! This plant was not in our seed mixes and not in the plants that are native to the Mill River. It was an outsider.

After days of research and help from professional sources such as the CT Department of Environmental Protection Forestry Division and Bartlett Arboretum, we were able to identify the plant. It was most likely *Populus Alba* – commonly known as “White poplar.” It is an ornamental tree that originally evolved in its native range from Spain through central Europe to central Asia.

What in the world was it doing at our Mill River and how did it grow in such specific areas? We believe that somewhere upriver *Populus Alba* seeds entered the river from ornamental plantings. We deduced that the seedlings we found grew in colonies in certain areas because the bend in the river captured the seeds as they floated toward it during any of a number of rain storms last spring. After the bend, the plants were scattered everywhere.

Since our research told us that this tree was not native to the Mill River Habitat, and that it is actually listed as invasive in Connecticut.

Invasive plants are unwelcome organisms that tend to be especially destructive because they don't have native controls. They become aggressive and destructive. They reproduce faster and become stronger than their native counterparts, eventually taking over complete habitats while providing no food for the local wildlife.

During my internship I began to appreciate that plants have their own unique functions. They have their own homes and they provide for very particular insects. This becomes a problem when plants are moved from original homes.

I also learned that many foreign plants were brought here when people went on vacation, saw a pretty plant and brought it back to their gardens to enjoy at home. They don't realize the effects these often invasive plants have on our native plants.

Armed with this information we knew that the Populus Alba would not support our local wildlife, and we needed to remove it. Which we did, until we could find no more in our nearly two acre work zone.

There are so many different plants along the Mill River that it takes some time to learn how to identify each one and to learn how they fit into their habits. However, in only a few short weeks, I was able to identify so many shrubs and small trees not only in the Mill River Park but in my own garden. I really surprised myself.

One of the best things about this experience is how I could bring what I learned home. It taught me how to help my garden to become healthier and truly prosper. I was surprised to discover that many plants that I found in my garden were extremely invasive but only kept there because we thought they were pretty. Because of what I learned at Mill River, my first goal was to get them out as quickly as possible and to replace them with as many native species as I could find.

I have a new sense of pride and accomplishment when I am in the car or walking with my friends and I'm able to name trees and plants as I walk by them. This is certainly one experience I would not have gotten working in the office.

The most important lesson I learned from my internship at Mill River Park was that we are all farmers in the global context and that we all have a responsibility to act to improve the habitats on our own properties.

I truly believe that I learned so much more than I could have anywhere else. This internship taught me lessons about personal responsibilities to each other, and to the earth. And that plants, like people, should have our respect and care because they are unique, and have important roles wherever they live.

http://www.itsrelevant.com/content/4635/Student_Builds_On_Parks_Success?ref=khskl

Karen Escobar

-The Mill River Experience

Karen Escobar rides to work along Mill River this summer in the Toolcat



Many people don't pay much attention to the world, and what's around it. I used to believe that Mill River Park was just a simple park where people can walk and play. I didn't realize how important Mill River was, not only to the local neighborhood but to the nearly 40 square miles that make up its watershed from New York to the Long Island Sound.

This summer I started an internship program where I was chosen to work in Mill River Park. At first I really didn't want to do it, because I thought it would be boring. But it turned out to be fun. I learned about invasive plants and native plants, I used nets to catch fish in the river and I tested the water. Doing all these activities made me realize how important it was to protect and bring new health to this special place.

My first day at Mill River started off with me reading about invasive plants and native plants. I really didn't care as much because I thought to myself what is this going to do for me in my life. But as I was continued reading I realized how important it was to control invasive plants. These are overly aggressive plants from other ecosystems. Invasive plants tend to eliminate

other good native plants by reducing the light, water, nutrients and space they need to survive.

I learned that not all foreign plants are invasive. In fact some of our favorite food like rice and soy and animals like pigs and cows are not native here, but do not cause major ecological or economic damage.

This summer I had the chance to cut away the invasive plants along Mill River. It made me feel good to help the earth but what I liked the most was testing the water and catching fish. One day I had to work on water testing manually without digital instruments. It felt really cool because I felt like I was back in school doing lab experiments, which I love because you get to interact with the tools and learn at the same time. I've never really gone wading into a river but that day I did, with muck boots of course, and I had to pick up water samples to test them.

We tested the turbidity which was the cloudiness or haziness of a fluid caused by individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality. We found that the river was actually very clear.

We also tested the salinity which is the saltiness or dissolved salt content of a body of water. It is a general term used to describe the levels of different salts such as sodium chloride, magnesium and calcium sulfates, and bicarbonates. From this we discovered that the river is actually surprisingly fresh, with a very low salinity level – at least at low tide when we checked.

I've also tested PH. For those who really don't know, it's the measure of the acidity or basicity of an aqueous solution. Vinegar, for example is acidic, while ammonia is basic. In Mill River

we found our reading to be about half way in between, which is just fine.

Dissolved oxygen is the next thing we tested for. It is the % of oxygen dissolved in the water and necessary for all life forms in order for them to breathe. We found that we have a healthy amount of air in our water, especially below the new boulder riffles that were installed in the Mill Pond site.

Water temperature is the next thing we tested. Cold water holds more oxygen than warm water. We found that in the middle of summer the water temperature was cooler in shady spots and warmer in sunny spots, but was generally around 25° C (about 77° F). Just right for a wide range of fish and other animals.

After testing water for most of the morning, I realized there were fish in the river which I thought was pretty cool, because I never knew Mill River had any. I was determined to find out more about them, so Nikita, the other intern, and I worked out a plan to catch and identify them.

We grabbed our boots, our courage and took a variety of nets from the tool shed and marched down the river bank to see what we could catch. At first it was very frustrating because the little fish we found swam faster than we could follow with our dip nets, oversized aquarium nets on a broom stick. After hearing some commotion, our supervisor Vinny came down to the river and helped us by bringing out something called a seine net, a big rectangular net about 10 feet long with a wooden pole on each end. This type of net required two people to work together in order to catch the fish.

With this new tool, Nikita and I finally caught a school of little fishes. We identified two types in our net. They were a juvenile largemouth bass (a valuable fresh water fish), and an adult mummichog, a generalist fish common to Long Island sound and estuaries like Mill River. We

named our new friends Marlin and Nemo. We kept them in pails before releasing them, just long enough to identify them and let the thrill of our adventure soak in.

My experience with Mill River was incredible, the month that I spent there passed by so quickly that I can hardly believe it. I got a rare chance to have fun, explore, learn and work at the same time. If you ever have the chance to visit, I highly recommend you discover the other world Mill River Park brings you.

Juvenile Largemouth Bass



Mummichog – In Seine Net



Karen Escobar on right and Nikita Gawande on left, net some fish this summer in Mill River



Science Notes from the CT DEP Fisheries Department:

The green shaded fish with the longitudinal stripe along its lateral line is a juvenile largemouth bass (*micropterus salmoides*) and the other fish in the image is a mummichog (*Fundulus heteroclitus*).

The mummichog is in the killifish family and is commonly found in fresh and brackish waters of rivers and tidal marshes. The specimen in your picture might possibly be a banded killifish but I think it more resembles a mummichog.

Largemouth bass are freshwater fish and can often be found in the freshwater layer overtopping the salt wedge layer in coastal tidal rivers. This is why you will find a mix of fresh and saltwater fish in the same sections of our coastal rivers.