

*A teen's perspective: Using butterfly farms and exhibits to engage teens in critical environmental issues such as climate change*

**Katie Genovesi**

Sophomore, Hopewell Valley Regional High School

**Sponsored by: Jacqueline Genovesi, Ph.D.**

Vice President, Education, The Academy of Natural Sciences of Drexel University  
1900 Benjamin Franklin Parkway, Philadelphia, PA 19103-1195

## **INTRODUCTION**

Climate change is one of the most critical issues facing the world today. Teens are not fully engaged with this issue, yet they will be most affected by its impacts. Really understanding how climate change relates to everyday life; the impact it is having on culture; and ways people can adapt to the challenge will affect young people more than older adults. Through an experience in Costa Rica, visiting El Bosque Nuevo Butterfly Farm, a group of teenagers learned firsthand about biodiversity, butterfly farming and the affect climate change is having on both. Here is a teenage view point on how butterfly farms and other invertebrate institutions can engage teens in one of the most critical issues facing our world.

## **A TEEN'S VIEW ON CLIMATE CHANGE**

Imagine this: a world without polar bears, a world where summers are so hot it's too dangerous to go outside, a world where the beaches people know and love have vanished, a world where species are going extinct before we can even discover and name them. These are all worlds that could quickly become reality if we don't stop the growing effects of climate change. In fact some are already affecting the lives of those around us. In America today climate change is an issue the nation recognizes as a problem that needs a solution; and fast.

In an Infobase Learning article about controversies on how the government should handle climate change, one study shows that "In 2013, China and the United States together accounted for roughly 45 percent of the world's CO<sub>2</sub> emissions"(Infobase Learning, 2016). Forty five percent! That's huge! Anthropogenic by definition is a word used to describe human caused climate change (Reuss, 2015). In the United States today anthropogenic climate change is one of the country's main concerns. By definition climate change is seen as a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels. For example unexpected snowfall in early April isn't a tell-tale sign of climate change. Rather the record high temperatures that are popping up all over America display the effects of climate change. Receding surface ice is another sign of climate change (Reuss, 2015). Climate change is an increasingly dangerous problem and as American's it is our duty to prevent it from affecting the nation by adapting to rising sea levels, changing weather

patterns, and finding solutions that will decrease our carbon output in order to combat this monumental issue.

In the world today climate change affects all citizens, and the severity of the situation must be addressed. As a leading producer of the world's percentage of CO<sub>2</sub> emissions, citizens of the United States must discuss solutions to reduce our CO<sub>2</sub> emissions drastically. The biggest issue that plagues Americans today is ignorance. Many people do not believe that climate change affects them, some even believe that it's a hoax. These beliefs sprout from lies created by big businesses trying to make money. In his long awaited Oscar award speech, Leonardo DiCaprio addressed the crowd not with a story about his success, but instead with a speech on how we need to care for our planet. "Climate change is real. It is happening right now... It is the most urgent threat facing our entire species, and we need to work collectively together and stop procrastinating" (Mooney, 2016).

The main problems in America caused by climate change are increasing temperatures, rising sea levels, and severe weather patterns. These can cause ecosystems to collapse, and growing seasons to change. Young children, disabled people, and the elderly are at risk the most. Rising temperatures bring heat waves that kill more Americans every year than hurricanes, tornadoes, floods, and earthquakes combined ("A Student's Guide to Global Climate Change"). Climate change also allows for diseases to spread faster. All of these things will change the lives of Americans in the years to come if we do nothing about them. If we do not adapt to rising sea levels, houses might be swept away. If we do not warn asthmatic friends about the increased risk of attacks they might be hospitalized. If we do not alter growing seasons, crops that we depend on could fail to grow. This means that citizens of the United States must adapt together to protect one another from the dangers of climate change.

## **CLIMATE CHANGE AND COSTA RICA:**

When looking for the signs of climate change, it is easier to see these changes in some countries as opposed to others. For example, when we studied climate change in Mongolia, the signs were easily distinguishable. A few examples that come to mind are the decrease of water in the Tuul River, the dust storms, and the grasses being extremely short for the time of year we traveled.

In Costa Rica, the effects of climate change were sometimes more difficult to see. During the Mariposa Project, we traveled to different ecosystems and learned about the consequences of anthropogenic climate change on these habitats. Here are three examples of what we learned:

**Example 1: Playa Rajada, coastal habitat:** We visited this rocky beach and learned about the biodiversity of the Costa Rican coastline. While there we saw different species of aquatic life. Over the course of time, climate change will cause the sea levels to rise and the pH and temperature to change. These changes will have a detrimental effect on this ecosystem. For example the bioluminescent species we saw in the ocean at night will be impacted by the temperature change. Scientists predict that the warm water species will expand at the expense of the cold water species.

**Example 2: El Bosque Nuevo Butterfly Farm:** This was the first time I had been to a butterfly breeding farm. It was interesting to see how a sustainable farm worked. The staff would care for all of the stages of the butterflies completely by hand. They would remove parasites, change out plants, and move each stage of the butterfly to a new enclosure to ensure the health of the butterfly. During our tour, Ernesto and Mark talked about how the butterflies and plants are dependent on each other and how changes in climate effect plant growth, cause parasites to increase and can cause the decline of certain species of butterflies.

**Example 3: Rincón de la Vieja Park:** During our stay in Costa Rica we hiked several different National Parks. I loved the hikes through the rainforest the most because we got to see plenty of animals as well as a sulfur pool and the Rio Celeste. This was also the messiest part of the trip. We ended up hiking the volcano while ankle deep in mud. I enjoyed this thoroughly. We saw Capuchin monkeys, coatis, and all sorts of tropical birds and butterflies. If the temperature or weather patterns were to dramatically change in the rainforest these animals would suffer dearly.

## **WHAT THE STUDENTS SAID ABOUT THE EXPERIENCE**

Trinity- I really lived! This trip it was an experience, everything was so new and I loved it. I can recall a moment where I was sitting on the bus and I was looking side to side and smiling because I really enjoyed seeing the new things and I loved trying everything and being in the moment.

Mazina- I liked how we traveled a lot around one province in Costa Rica. So we didn't just experience one part, we got to see different climates, cultures and experiences!!

Linda- This trip made me get out of my comfort zone and experience new things that are not in Philly. The mud hiking at the National Park was awesome!

Muneeba- I actually didn't know that bioluminescent animals existed, so seeing them was really nice and supercool.

Cashe` - I also learned that with land at different sea levels, it affects the day to day weather and how often it rains.

Chelsea- It was really cool to see the butterfly farm that was self-sustaining. Just to know how much energy we can use, and how to limit the energy we use. And that climate change can affect people on a personal level, with profits and livelihoods.

## **WHAT WORKED, WHAT DIDN'T AND HOW OTHERS CAN MAKE AN IMPACT ON TEENAGERS**

I believed that going out and seeing the different biomes really helped us understand just how diverse Costa Rica's environment is. This insider's view also helps us see how climate change would affect more than just the animals that inhabit the rainforest. In addition exploring the

butterfly farm was a great experience. It helped the girls and I understand what Ernesto does for a living and the tedious work he and many others do on a daily to provide others with these butterflies. Some things that didn't work quite as well were the times of day certain activities occurred. For example, I found it increasingly difficult to pay attention to a presenter when we explored the butterfly farm in the heat of the day. Workshops should be kept for times in the early morning when people are bright eyed and bushy tailed. With trips such as these the element of education should be thoroughly mixed with the element of fun. Teenagers are used to sitting and listening to long lectures. What really makes an impact is going out into the field and introducing them to things they might've never experienced before. Finding activities where students can explicitly experience climate change really has a lasting impact.

**Pictures from Costa Rica trip:**





## LITERATURE CITED

"Climate Change." *Issues & Controversies*. Infobase Learning, 18 Mar. 2016. Web. 17 Apr. 2016. <http://icof.infobaselearning.com/recordurl.aspx?ID=2015>.

Mooney, Chris, (2016). Leonardo DiCaprio's Oscars Speech Was about Climate Change, Which Could Be Worse than We Thought. *The Washington Post*. 29 Feb. 2016. Downloaded from the Web on 17 Apr. 2016.

Reuss, Alejandro (2015). Climate Change: What Is It? What Causes It? What Can We Do About It?. *Dollars & Sense* 317:34. *Points of View Reference Center*. Web. 22 Apr. 2016.