

## **4-H Youth Travel to Puerto Rico for an Environmental Study Trip**

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### **Abstract**

*Twenty 4-H'ers from Michigan and North Carolina spent nine days immersed in an environmental study of Puerto Rico within the context of service-learning. Through hands-on participation, youth worked with local organizations that were successfully contributing to solving environmental issues in their areas of the island. The youth spent time observing and performing activities that furthered their conceptual understanding of the interconnectedness of Puerto Rico's diverse environments. Through their experiences and reflection, youth were able to recognize their own role in being able to make a difference in their communities at home.*

**Key words:** Puerto Rico, 4-H Member, Experiential, Environment, Service Learning

### **Introduction**

4-H Environmental educational initiatives can provide a pathway yielding youth who are prepared to contribute as environmentally responsible citizens in a global economy. Having youth develop the skills, knowledge and attitudes to make informed choices about pressing environmental issues challenging the world, they can play a role in conservation. By building and broadening their own perspectives, developing a willingness to work interdependently to solve problems, youth will become more civically engaged. The U.S. Environmental Protection Agency Office of Environmental Education (2007) defines Environmental Education as: Teaching about the natural and built environment provides a real-world context for learning by linking the classroom to the students' community. Because environmental education encourages inquiry and investigation, students develop critical thinking, problem-solving, and effective decision-making skills. Environmentally literate students become citizens who are able to weigh various sides of an environmental issue and make responsible decisions as individuals and as members of their community.

With these ideas in mind, a program was collaboratively created by Michigan State University and North Carolina State University to take twelve 4-H members from Michigan and eight from North Carolina on a nine-day environmental study of Puerto Rico. The youth explored the many diverse environments of Puerto Rico; Visiting El Yunque National Rainforest, Guanica Dry Forest Reserve, mangrove forests of the coasts, kayaking a bioluminescent bay, and snorkeling the coral reefs of the Canal de Luis Pena Nature Preserve.

The environmental study was structured to give youth the opportunity to learn about the environment in a global context. Hansel and Grove (1986) found that youth traveling abroad increased personal characteristics such as adaptability, appreciation of one's own family, awareness and appreciation of the host country and culture, communication with others, critical thinking, exchange of ideas, self confidence, open mindedness and an independence and responsibility for self. These characteristics are necessities for youth that will someday be contributing and working in a global world. The youths' visit to Puerto Rico will encourage them to think more broadly about environmental issues affecting the world.

The trip also integrated service learning opportunities in order that youth were able to learn about Puerto Rico's environment through active participation in community projects. Service learning studies have shown participants have an increased problem solving (e.g., Eycler, Root, & Giles, 1998), civic engagement (Billig & Salazar, 2003), responsibility for the environment (Meyer, 2003) and exploration of careers (Furco 2002). Service-learning can influence students' understanding of attitudes toward diverse groups in society (Blyth et al., 1997; Yates & Youniss, 1996). Service-learning studies have shown to produce an array of positive impacts, strengthening the youths' Puerto Rican experience.

### **Purpose**

The 4-H youth journey to Puerto Rico was developed to provide young people the experience to learn, appreciate, and evaluate their own culture, themselves and another culture through the context of environmental service learning. Partnering with two local non-profit groups, youth participated in service projects that positively contributed to broader environmental goals held by the organizations as well as teaching youth responsible citizenship and community service. Additional learning experiences engaged youth in close observation of the different environments found throughout the island. The intersection of cultural exchanges,

investigations into the environment and contribution through service worked towards promoting communication, leadership, social skills, self-esteem and accepting differences.

### **Methodology**

A number of methods were employed to capture the participants' stories and experiences surrounding their Puerto Rico trip. Participants were given pre-surveys to establish their baseline understanding of various environmental concepts, and basic knowledge of Puerto Rico. The participants were also asked to report on an assigned topic about Puerto Rico. These initial reports formed a framework for developing the activities that would teach them environmental and cultural themes. During the trip, time was devoted each day for journal writing, participants were asked to reflect on questions to specific topics, as well as encouraged to expound on personal observations and experiences. Reflection dialogue circles were scheduled daily, enabling everyone to share stories and recap the day's activities. Post-trip evaluations and a Youth Climate Survey (personal communication with B. Silliman, June 6, 2007) were used to capture the participants overall satisfaction of their journey. Lastly, post-trip interviews gathered information about their experiences and to track behaviors they might have implemented upon returning home.

### **The Puerto Rico Story**

#### *Casa Pueblo*

Perched on the top of a hillside and headquartered in a brightly painted pink house, Casa Pueblo stands as an instrumental advocate towards preserving the integrity of Puerto Rico's environment. The organization initially formed from the vision of one community member to stop open-air mining that spelled catastrophic change to the island's ecosystem. By bringing the strength of an entire community together, Casa Pueblo successfully achieved its goals, continuing to expand their reach to the "protection and management of natural, cultural and human resources. (Casa Pueblo, 2007)."

The 4-H youth spent two days at Casa Pueblo learning about their philosophy through dialogue with community leaders, interacting with volunteers, touring their projects and contributing through service. As part of their efforts to maintain a sustainable source of income that supports their outreach projects, Casa Pueblo grows, harvests, roasts, packages and sells sustainably produced coffee. The 4-H'ers assisted in the production of packaging, labeling hundreds of jars. Through giving of their time and skills, youth contributed to a larger group effort. They worked together, communicating and cooperating to effectively and efficiently find ways to quickly label the jars. In the words of one 4-H youth:

I thought the service learning experience at Casa Pueblo was really significant. Even though it seems like putting labels on jars couldn't be a very important job, if someone didn't do it, they wouldn't be able to sell the coffee and if they couldn't sell coffee, they would not have any income to support their program. I felt honored to be able to work as part of such a wonderful organization.

Casa Pueblo provided a starting point for students to think about how they can contribute to solving problems in their own communities. Through modeling their efforts, those that come to study with Casa Pueblo leave with a message of hope and perseverance. One 4-H'er responded with this message:

To preserve what was the native people's land was (possible) due to Casa Pueblo. I love how one man had a dream that turned into a goal and then a reality. Many times in life I find myself dreaming of projects I would love to accomplish, but then I shoot myself down saying it is unrealistic, and I, a small girl, am not capable of a project or goal so large. The people of Casa Pueblo did not get discouraged. The one man was not afraid to tell people what he wanted and he was able to get help. I think, as an onlooker, I learned that it is okay to take a risk and accomplish a goal that may seem out of reach.

Youth involvement in service learning can facilitate them into thinking more broadly about the world and connecting them to the community. Silcox and Leek (1997) remark, "Combining many practices of school reform movement – teachers as facilitators, active student learning, reflective teaching, and connection with real-life situations - this new emphasis on project has built into it the "ethic of service": students thinking of someone besides themselves, students as resources for the community, and an increase in students' understanding of the value of citizenship."

Casa Pueblo's story left lasting impressions that emerged through later reflection and discussion. One youth commented, "The history of Casa Pueblo made me realize how possible it is for one single person to make a large difference in the world when they are determined to stand up for their beliefs." Another youth echoed, "(We should) strive and fight for our beliefs no matter how hard it may seem. Also, that when one thing doesn't work out as expected, you should find a way to turn the experience into a positive one." Youth conversations continued, with them realizing they could be assets to their own communities in creating change. A youth concluded with her own words, "Casa Pueblo was very inspiring to me because I've thought about doing things like that, but didn't really think I could do it and didn't know how anyways. Now, after hearing their story and seeing the results I know that I could prevent a new landfill or industrial pollution or whatever I needed to do. I think it is wonderful that they accomplish so much."

The active participation in Casa Pueblo's projects served as a catalyst to encourage youth to begin thinking about ways they can evaluate environmental situations and be an advocate to actively build community to make a difference.

### *El Yunque*

Building on experiences at Casa Pueblo, our youth visited a project that their Puerto Rican 4-H peers were undertaking to limit soil erosion and reestablish habitats after hurricane damage. Fajardo County Cooperative Extension partnered with the El Yunque National Forest to start a native tree propagating and planting program. Most of our youth had never experienced the lush environs of a tropical rainforest, and to begin the process of understanding the types of plants the Puerto Rican 4-H'ers were growing, they talked with the local horticulture agent, and explored the El Portal Rainforest Center, a place with exhibits that displayed information on the local plants, land use history, animals inhabitants and cultural importance. Youth also went on hikes through the mountains of the rainforest, performed a species diversity index and immersed themselves in journaling.

After investigating their surroundings, the 4-H youth had deepened their knowledge of the connectedness of the trees in their role of limiting soil erosion. They tracked the impact of soil

erosion down the mountain into the ocean where the coral reefs were growing. The sediment pollution caused by the soil tumbling into the water was inhibiting the coral's growth and in many places killing it. The 4-H youth learned and helped with the methods of propagation and care for trees that would ultimately be distributed by Puerto Rican 4-H'ers to communities in need. The post-trip evaluation revealed that over 95% of the youth felt like the service learning projects increased their knowledge of the Puerto Rican environment.

Studies suggest that students quickly recognize the value of service learning experiences and report that such programs have changed their attitudes toward people and communities they have served and made them more inclined to follow other service opportunities (Colby et al., 2003; Eyster & Giles, 1999). One of our 4-H'ers was particularly struck by the similar environmental destruction created by soil erosion. In her North Carolina community, her rivers are inundated with sediment pollution and she considered how she might play a role in remedying her situation. Upon her return home, she created a 4-H horticulture community club with an emphasis on sustainable practice. She commented, "I hope to develop a similar native propagation and planting project with my own club members."

Margaret Mead pronounced, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has." Our youth's experience in making active contributions to a community provides a path to empowering themselves to make a difference. The self-esteem and responsibility one develops through an experience of giving to others can serve to make positive change in the future. Through our Youth Program Climate survey, 96% of our youth strongly agreed that serving others is important and over 93% believed that they could make a difference and were being encouraged to take responsibility.

### *Environmental Awareness*

Puerto Rico provides a diversity of environments for youth to investigate and further their understanding within individual ecological niches, and also to observe the relationships to the broader system as a whole. John Muir (1911) said, "When we try to pick out anything by itself, we find it hitched to everything else in the universe." One system study began with the El Yunque rainforest. Youth hiked through the rainforest and settled in to do immersed journaling, or what we termed a 'bio-blitz.' They had an hour to reflect on their surroundings and experiences and to put their thoughts in words. One of our program goals is to strengthen the youths' connection to the natural environment and promote an aspiration towards conservation. Environmental educator, Malcolm Plant (1998), finds that "If environmental education aims to promote a compassionate intelligence and a passion for conservation of the natural environment, all children should be given the opportunity to experience the natural environment first hand and sometimes in solitude." Plant also states "The way humans see nature cannot be separated from the way humans see each other and to understand nature means gaining a better understanding of ourselves." We found that the participants' writings gave detailed observation of their surroundings. One youth wrote:

Bright leaves glow in proud verdescence while the rich blue sky peeks through the lush foliage. A myriad of textures, interposing on each other. Sharp, smooth, thick, rubbery, rough, pebbly, slick, each fighting for prominence. Soft feather-ies blend into rock, content with modesty.

Everything is green. Small accents of red, yellow and pink break up the monotony like starbursts in the night sky. The scene pulses with life. Plants grow and thrive on all surfaces around rocks, tree trunks. Many simply hang in the air suspended from a high branch.

Occasional piercing cries and squawks punctuate the steady cacophony of the forest. Rivers rush over rocks, raindrops plip and plop as they fall from leaf to leaf and the wind whistles through the canopy, rustling branches as it passes. Soft twittering of birds and chirps of coquis fill out the broad spectrum of sound.

The rich, earthy smell of humus and pure, fresh scent of rain and water permeate the air. Its so easy to breathe. A large, primitive snail, slowly oozes across a philodendron leaf, metaphoric of time in this place. The rainforest feels older than old, a timeless youth who never ages, yet possesses more wisdom than modern civilization could guess.

Detailed observation can lead to a better understanding of how systems work. Conrad and Hedin (1982) state, "For students to gain understanding and appreciation of their out-of-school experiences, it is important to arrange seminars of other sessions in which students are stimulated to reflect upon their experiences, to become more observant, and to perceive the relationship between what they observe and the school curriculum." John Dewey (1938) was the first to be credited with this progressive movement, linking experiential learning with formal education. He stated, "Experiential learning takes place when a person involved in an activity looks back and evaluates it, determines what is useful or important to remember, and uses this information to perform another activity." The 4-H Experiential Learning Model advocates youth to "Do" or experience the activity by performing or doing a task and then following up with reflection. It is often helpful during sessions of reflection on students' experiences to raise questions that can guide observation and recall while stimulating efforts at interpretation. This process of sharing leads to broader discussions of how youth can generalize and apply what they have learned in different contexts.

Understanding the complexity of a rainforest contributes to a connectedness to the earth that provides a point for pursuing preservation. Aldo Leopold (1949), a conservationist, echoes similar sentiments, "We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." The reflection exercises provided a path for youth to begin seeing the land as something to respect and study.

One youth took the opportunity to reveal an emotional attachment, empathize with the forest and develop a sense of belonging. She wrote:

As I sit here, I feel at peace. It's not very often that I can feel so content and happy. I feel like the person I want to be. I love not having to rush around. I love the way nature makes me feel. I feel at home here. I feel like this is the place I'm meant to be. The rainforest is so complex and large and yet cause these simple feelings in my heart. I just don't understand why people would hurt such a beautiful place. We are so lucky to have this nature, this beauty.

Plant (1998) suggests that understanding nature enables us to better understand ourselves, and we should not address environmental education as something “out there” but how it is inextricably linked with our lifestyles, emotions and inevitably shapes our human identity. Structuring situations that enable youth to reflect gives them the time to slow down and think about the association between themselves and the world around them.

Youth built on their bio-bltz journaling by conducting a species diversity index. Using an established protocol they counted numbers of species and individuals within a species for a given area. They took this information and compared it to the surrounding climate including soil type, moisture levels, and light. Each time they encountered a new environment, they used their species index to examine plant and animal life. Contrasting the diverse rain forest to the dry forest found on the southwest end of the island provided opportunities to understand plant survival and adaptation.

After learning from their Puerto Rican 4-H peers about the sediment pollution to the coral reefs, our 4-H'ers went snorkeling to discover what a coral reef was and why it needed to be preserved. One must be able to experience nature to know, understand and appreciate it, before one can develop a need for saving it. We followed the coral reefs to the mangrove swamps. Swimming close to the roots of this unique ecosystem we observed the sediment that roots hold together and garner nutrients from. Taking a night kayak trip, we witnessed an amazing phenomenon of dinoflagellates that glow when agitated. The youth discovered that it is the symbiotic relationship with the red mangrove trees that provide a habit for the luminescent dinoflagellates.

### **Educational Importance**

We finished our Puerto Rico project by accepting an invitation to share a traditional meal with the Puerto Rican 4-H families involved in the El Yunque tree project. Feasting on the fare, sharing conversation and attempting to dance with the same grace and agility as the locals provided an opportunity for our youth to connect and exchange cultural ideas. Ingram (1999) states that learning about different cultures contributes to the overall growth of our youth and experiencing different cultures can expand and broaden a young person's values helping them to become a well-adjusted contributing member of society". Ingram (1999) continues, "Learning about other cultures was also viewed as a vehicle for gaining greater understanding and appreciation of one's own culture."

By couching environmental study within the framework of service-learning, youth not only encountered environmental concepts they also learned about the culture through their contributions to the community. Synthesizing their experience, some youth created plans to begin projects at home, in their own communities, making global local. For other youth, the Puerto Rico trip provided an opportunity to see a new place, perhaps opening their minds for future explorations in the global environment. Conrad and Hedin (1992) find that we need to value our youth, "not only as the adults they will be tomorrow but as the spirited citizens they are today". They advocate teaching responsibility by providing opportunities for youth to make a real difference to the world. They conclude that the, "visual signs of success – the confidence of young people who can take initiative, the self-esteem of young people who have made a recognizable contribution, the motivation of young people who believe that their effort matters. Measurable or not, these are the qualities of caring, contributing adults." The Puerto Rico trip served as an experience for young people to find new perspectives, reaching into themselves to

realize their value in being a contributing catalyst for change, not only in their community, but the world as well.

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