

Alpacas and Llamas as a Conservation Strategy in the Highlands of Ecuador*Creating Peace through Animals*

Dawn is breaking across the high grassland páramo as a young *alpaquero* begins his morning inspection of the corralled alpaca herd. As he approaches, the hums and whispers of the animals intensify, and he carefully examines each individual for injuries or illness while they stare back with wide and curious eyes. These animals are the start of a new lifestyle for this young man and the community that purchased them. Instead of continuing their efforts towards raising the conventional cow, sheep, and pig herds, this village pooled their resources and bought a small group of breeding alpacas. Across the Andes Mountains in Ecuador, the fleecy bodies of alpacas and llamas can be seen dotting the countryside with greater frequency thanks to new reintroduction efforts. Following the Spanish overthrow of traditional governments in the area, all of the alpacas and most of the Ecuadorian breed of llama were eliminated and later replaced by cows, sheep, chickens, and pigs. Conservationists and anthropologists are now working together to exchange these animals for the native camelid species, not only to help preserve high-elevation Andes habitat, but also to reconnect indigenous people with animals that were once an integral part of their culture. By building a peaceful accord with their environment and working with the government and surrounding towns towards water and soil conservation, these villages are given an unprecedented voice and power to thrive in their traditional lifestyle.

The reintroduction of alpacas and llamas has produced a cascade of benefits for the local communities, as well as introduced a way to work harmoniously with a habitat which is quickly being lost to development. The use of camelids as a conservation strategy is a recent initiative targeted at saving the small parcels of undeveloped páramo, or high-elevation grassland, that remain in the Andean Cordilleras while also improving the lives of rural people. Currently these areas are being lost at a fantastic rate due to plowing for agricultural production and the creation of pastures to support milk cattle, resulting in a loss of intact habitat for native species such as hummingbirds and the endangered Andean bear. Cows cannot glean a full range of nutrients from the hardy native grasses and herbaceous plants, so farmers elect to annually burn the area to regenerate new, more nutritious grasses or replant the area with a more succulent, non-native species. As a result, native plant species diversity has been proven to drop dramatically. Also, these heavy-set animals compact the soils and prevent rainwater from being easily absorbed. Cow paths channel water quickly downhill and into streams, and the overgrazing of the area allows for more soil to erode and flow downhill. When camelids are substituted for cattle and sheep, erosion decreases dramatically and the biodiversity of the grassland habitat is allowed to flourish due to their low impact on the land.

Although the indigenous population is recognized in the Ecuadorian constitution, the rift between different ethnic groups in Ecuador continues as indigenous peoples have historically been pushed to the fringes of society. The peasant class is slowly accumulating economic and political force by reclaiming their heritage and through the acquisition of land after agrarian reform in the 1970's. As a result, more land in the biologically diverse Andean region is being turned to pasture and agriculture, which is advantageous for communities looking to build schools and better the lives of their members, but it creates an ongoing conflict between man and nature. Conservation should not benefit the environment only at the expense of the people, but work to unite the two peacefully. By giving alpacas and llamas to communities, we would be encouraging harmony between people and the land, and also promoting a more profitable livelihood in the present and future generations. The more educated the next generation becomes, the more likely that they will make positive choices in the environmental, social, and economic futures of their communities.

Peace between man and his environment can also be carried to the governmental level. Currently, Ecuador is trying to expand its national park system, but many of these areas are already inhabited. As a result, clashes between park guards and community members trying to graze livestock on park grounds are a frequent occurrence. One solution was to trade alpacas for cows in these areas, so that both would

profit. However, tradition is paramount and opinions are hard to change in these areas, and due to a lack of communication on both sides the efforts failed and resentments intensified. The government is also fighting a losing battle against the forces of erosion, as millions of tons of sediment must be dredged from hydroelectric dams to keep them operating. Tensions are rising between the rural farmers who need farming to survive in this harsh climate and the more well-off urban populations that want clean water and electricity to be provided freely. The reintroduction of alpacas and llamas in a way in which local people and the government can agree will soothe simmering tensions between large electric corporations, the government, and the local sustenance farming population.

A healthy relationship with the natural landscape is essential for the economic, environmental, and social health of any community, which in turn support a stronger nation. However, action must be taken quickly because páramo grasslands are disappearing, and along with it many rare and unique species that survive only in that habitat. The idea supported by the Fundación Cordillera Tropical and Proyecto Llamas, the two organizations I will work with, is to use the natural habitat as it stands, leaving room for both the wild animals that rely on these areas and the economic benefit of the poorest class of people. The fiber from an alpaca is much more profitable than a cow's milk or sheep's wool, which provides a boost to families that rely on sustenance farming and opens the door of opportunity for their children to achieve higher levels of education and nutrition. Llamas are an important beast of burden and meat source, and a pilot project in "llama sausage" by Project Llama has already proved a sellout, providing a new income source for a rural community. The nutritious meat source from both of these animals helps to alleviate malnutrition in the most rural areas, and the manure can be used to support small vegetable gardens.

I propose to create solutions for this problem by aiding the efforts of Jorge Yépez and Dr. Stuart White, two individuals who have been instrumental in bringing back alpaca and llama populations in Ecuador. Jorge has recently lost funding for his successful Proyecto Llamas (Project Llamas), which before its termination had provided 3,500 llamas to remote communities in Chimborazo province. He invested in the future of these villages by training any willing member to specialize in llama husbandry, and in spite of very limited resources he continues to support these communities of rural poor with his knowledge and time. Stuart White, who directs the Fundación Cordillera Tropical in Cuenca, Ecuador would also be mentoring my efforts and putting me in touch with rural communities that are about to receive their first herds of alpacas. I met both of these hardworking individuals while studying abroad in Ecuador this past fall, and have observed the success of their efforts firsthand. In some respects, I see this project as a way to give back to a country that I grew to love, and to repay some of the hospitality shown to me by everyone that I met along the way.

The goal of my efforts will be to chronicle both the positive and negative changes that occur when a community acquires alpacas or llamas so that these programs could troubleshoot and then expand their reach in the most efficient way. For my project this summer, I will:

- Make informational booklets in Spanish for each village detailing common questions about alpaca/llama husbandry, contact information for veterinarians, the carrying capacity on their land, and markets for the processed goods,
- Coordinate training workshops in places that have recently received animals,
- Brainstorm with Jorge and Stuart ways to keep the llama program going once the grant funding has been used, and
- Work with Cajas National Park guards and the National Park system to come to a peaceful solution to the controversy of grazing rights and people working on protected land by encouraging the use of alpacas and llamas while slowly phasing out more traditional animals.

Gandhi once said, "You must be the change you wish to see in the world." I believe that the gap between social classes can be reduced by listening to local voices and working towards the goals of their community with animals that were once a central part of the Andean culture. Small changes in the livestock that graze in the Andes will create peace as the unique flora and fauna and the indigenous people, which coexisted for centuries, once again live harmoniously in Ecuador.