



Rosa shepherds her family's alpacas from dawn to dusk, seven days a week, rain or shine. Photo by Bruce Forster

Can Alpacas and Vicuñas Help Save the Planet?

By Mike Safley

Global warming is the world's single greatest environmental threat to the planet, its inhabitants, flora, and fauna. The warming commenced with the advent of the industrial revolution. Mass manufacturing was born, and oil became part of every supply chain. Lush grasslands were plowed under, and forests were burned or cut down to be replaced by row crops, feed lots, asphalt roads, parking lots, and huge gas guzzling cities, all while clean water dwindled.

Global warming occurs when carbon dioxide (CO₂) escapes into the air, creating the greenhouse gas effect that prevents heat from escaping the atmosphere, thereby raising the global temperature. Global emissions of CO₂ have increased over time.


In 1950 the world emitted just 6 billion tons of CO₂.


In 1990 emissions quadrupled to 22 billion tons of CO₂.


Today more than 34 billion tons of CO₂ a year are emitted

*What if there was a way
to reverse our carbon emissions?
What if the solution was right under
our noses, located in the Andean
highlands of Peru?*



Vicuñas float through the bofedales that move water slowly through Picotani's pastures. Photo by Robert Els

The Peruvian highlands and its vast grasslands are managed by the one million indigenous Quechua people who herd alpacas and protect vicuña. Their pasture management skills are key to the reduction of greenhouse gases and global warming. Charles Mann, the author of *1491*, a history of life in North and South America prior to the European invasion, calls humans a “keystone species,” one that “affects the survival and abundance of many other species.”

Vicuñas and alpacas living in the highlands of Peru are perfect examples of how humans, animals, and the environment can co-exist, showcasing each in their best light. These South American camelids are the most environmentally sustainable **producers of textile fiber** on earth. But their shepherds remain some of the poorest people in the entire world.

In 2013 Bill Gates said, “most of the poor people in the world are farmers.”

It is the indigenous producers, the poorest and most vulnerable people, who shepherd the vicuña and alpaca, whose communities suffer financially from the reduction in demand for virgin natural fibers.

Fashion is one of the least environmentally sustainable industries. It accounts for approximately 2.1 billion tons of CO₂ each year, which is 4% of annual global emissions. More than 70% of these emissions come from the industrial production processes. **To add insult to injury, 17.5 cubic meters of textiles—the equivalent of one garbage truck—is either burned or sent to landfill every second.**²

COP26 (Conference of Parties) met in Glasgow, Scotland in the fall of 2021. It was the latest in the United Nations’ series of conferences that aims to tackle climate change and its impact. *Business of Fashion* (BoF) and McKinsey & Company Consultants in January 2021 detailed the conference’s impact on the global fashion industry. Key points from the report and BoF article are included below.

COP’s number one goal is to **secure global net-zero emissions by 2050 and keep the 1.5-degrees Celsius warming limit within reach.** While commitments to source and use of better materials are encouraging, fashion brands will need to understand and address emissions in the entire production and consumption process down to the deepest tiers of their supply chain.

1 Charles C. Mann, *1491: New Revelations of the Americas Before Columbus* (New York: Vintage, 2006).

2 Harry Bowcott, Leigh Chantal Pharand and Libbi Lee (McKinsey & Company), “How Fashion Can Deliver on COP26 Ambitions,” 06 December 2021. www.businessoffashion.com/articles/sustainability. Rachel Cernansky, “Is there space in sustainable fashion for synthetic fabrics?” *Vogue Business* 8 July 2021. <https://www.voguebusiness.com/sustainability/is-there-space-in-sustainable-fashion-for-synthetic-fabrics>

How then might the textile industry and the alpaca shepherds of Peru help save the Planet? Indigenous farmers are the “keystone species,” managing the grasslands as their ancestors have done for at least 7,000 years. The Amazon River basin was managed almost exclusively by indigenous people for the last 30,000 years.

The Altiplano grasslands stretch across 40 million acres and the Amazon Rainforest covers 40% of Peru’s land mass. Together these two landforms constitute one of the largest CO₂ sinks on Earth.

“Pete Jackson has said an acre of healthy grassland continuously removes more carbon from the atmosphere and releases more oxygen into it, than an acre of rain forest...”. Hal Collins, a microbiologist with the Agriculture Research Service of the U.S. Department of Agriculture says, “One acre of pristine prairie can store about 5 tons of carbon”. An automobile emits less than 5 tons of carbon per year.³

A study from the University of California, Davis, found that grasslands and rangelands are more resilient carbon sinks than forests in twenty-first century California. As such, the study indicates they should be given opportunities in the state’s cap-and-trade market, which is designed to reduce California’s greenhouse gas emissions to 40% below 1990 levels by 2030.⁴

There are several reasons grasslands may be more effective at sequestering carbon than a forest (especially a rain forest). First, due to their moist nature, rain forests harbor rot that releases CO₂. Second, grasslands include a huge amount of functioning photosynthetic green tissue and few non-photosynthetic tree limbs and stems. Third, grass has as much as 90% of its biomass underground while trees have 90% of their tissue above ground. (A forest fire will release trees’ stored carbon into the atmosphere.) In other words, there is a lot more to grasslands than meets the eye.⁵



Quechua women move their family’s alpacas from one pasture to the next based on the season. This practice is known as holistic grazing and ensures the viability of the grassland. Photo by Ana Caroline de Lima

3 Dan Dagget, *Gardeners of Eden: Rediscovering Our Importance to Nature* (Reno: University of Nevada Press, 2005).

4 Kat Kerlin, “Grasslands More Reliable Carbon Sink Than Trees.” July 09, 2018. <https://climatechange.ucdavis.edu/news/grasslands-more-reliable-carbon-sink-than-trees/>

5 Adapted from Dagget, *Gardeners of Eden*.

So what does this have to do with the fashion industry?

“Looking at the United Nations Sustainable Development Goals, number one is poverty alleviation. It’s not more recycled plastic in your collections.”⁶

The fashion industry needs to realize they will not have any material impact on global warming without attacking CO₂ emissions. Oil and gas are used extensively in almost every industry; they burn fossil fuels which are responsible for 46% of total CO₂ emissions. In addition, oil drilling is responsible for 30% of the methane gas and around 8% of CO₂ pollution. **What if instead of manufacturing more polyester-based textiles, they had a hand in protection and duplicating these carbon sequestering grasslands?** By considering a more in-depth partnership and interest in the grasslands with the pastoralists who are managing the pastures via seasonal grazing, they would come to understand that these natural grasslands are sequestering more carbon than they emit on an annual basis. With a strategic plan, a fashion brand could essentially have a net zero carbon footprint! The indigenous population has steadily declined since the Spanish Conquistadors arrived, and in recent years the decline has accelerated. There is no doubt that textile producers are concerned about the future of alpacas in Peru.

Together, we can provide a possible solution for an industry’s struggle to meet climate change solutions while simultaneously addressing poverty alleviation for those at the bottom of the supply chain.

One owner of a very large textile firm, who wishes to remain anonymous, said, “We are afraid that there will no longer be an adequate supply of alpaca fleece in the next 10 to 20 years.” Another said, “The alpaca breeders do not want to raise alpacas anymore. They want to move to the big cities or work in the mines.”

This is easy to understand when you consider that the current market value of alpaca fiber is \$4.50 per pound, so each alpaca produces about \$65 worth of fleece per year. The average herding family is two adults and three children, who own between 25 and 100 alpacas. Their animals are their primary cash income. Families’ annual income is between \$1,625 and \$6,500 per year. Not exactly what you would call a living wage for a family of five.



Quechua woman during Vicuña Chaccu at Picotani. Photo by Ana Caroline de Lima

⁶ Elizabeth Cline, director of advocacy and policy at the nonprofit Remake, in Rachel Cernansky, “Sustainability: Where fashion is heading in 2022,” www.voguebusiness.com/sustainability. 5 January 2022.

“It is sad. We don’t have enough of anything. Our men are leaving to work in the mines and the kids are leaving for the big cities. It has been a little better since the sale of the wild vicuña’s fiber has been made legal.”

–Sarita, Picotani native

The idea that the alpaca breeders want to leave the mountains for the mines or cities is simply not true; they inherit their alpaca just as they have inherited their culture and the way they manage the grasslands where they have lived for thousands of years. It’s simply about survival: they need to make more income from their fleece sales. And just as Sarita said as she finished her interview,

“My dream is to keep going, no matter what.”

The most direct way for them to earn an equitable price for their fleece is by adding value to the supply chain. For instance:

1. Use electric shears instead of hand shears to remove the fleece to avoid second cuts and create a more uniform length over the entire fleece.
2. Teach alpaca shepherds to use pattern shearing to separate the various qualities at the point of shearing, saving the textile companies that purchase the fleece additional time and money hand sorting the fleece in their factories.
3. Create/sponsor veterinary programs to provide education, vaccines, and training on disease prevention.
4. Create branding partnerships to attract environmentally motivated fashion consumers, who will gladly pay more for truly ethically sourced fashion that contributes to the fight against global warming
5. Reform the collection system to eliminate the middlemen.
6. Make sure all the *value added* makes its way directly to the producers.



“It’s sad” for the women of Picotani in particular. It does not need to be. Photo by Robert Els

The implementation cost of some of these programs or services would be minimal. The social and environmental benefit would be astronomical. The world cannot expect the indigenous population of Peru to manage one of the largest carbon sinks on Earth and produce natural fibers at below cost while maintaining a miserably low standard of living. And the world cannot afford for them to discontinue their way of life.

“My biggest fascination with Vicuña is its marketing potential. It is the story that no one is telling. It happens to be one of the most relevant stories about Peru. It is our National Emblem. The world knows nothing of the Vicuña and the fact that Peru is its champion, its salvation and its protector. It is a great wildlife conservation story.”

–Andrew Michell, Director of Michell CIA

The author is the founder of Quechua Benefit, a non-profit organization that services communities in the remote Peruvian highlands. Since 1996, this NGO has serviced over 40 communities through education, economic empowerment, and preventative medicine programs. Quechua Benefit is currently producing a documentary titled *Vicuña Salvation*. Focusing on the community of Picotani, it takes the viewer on a journey of a day in the life of alpaca herders to their noble and unspoken efforts of saving the wild vicuña from extinction beginning in the 1960s.