Photos by Robert Els.

Picotani's Gift to the Planet

Carbon Sinks and Credits

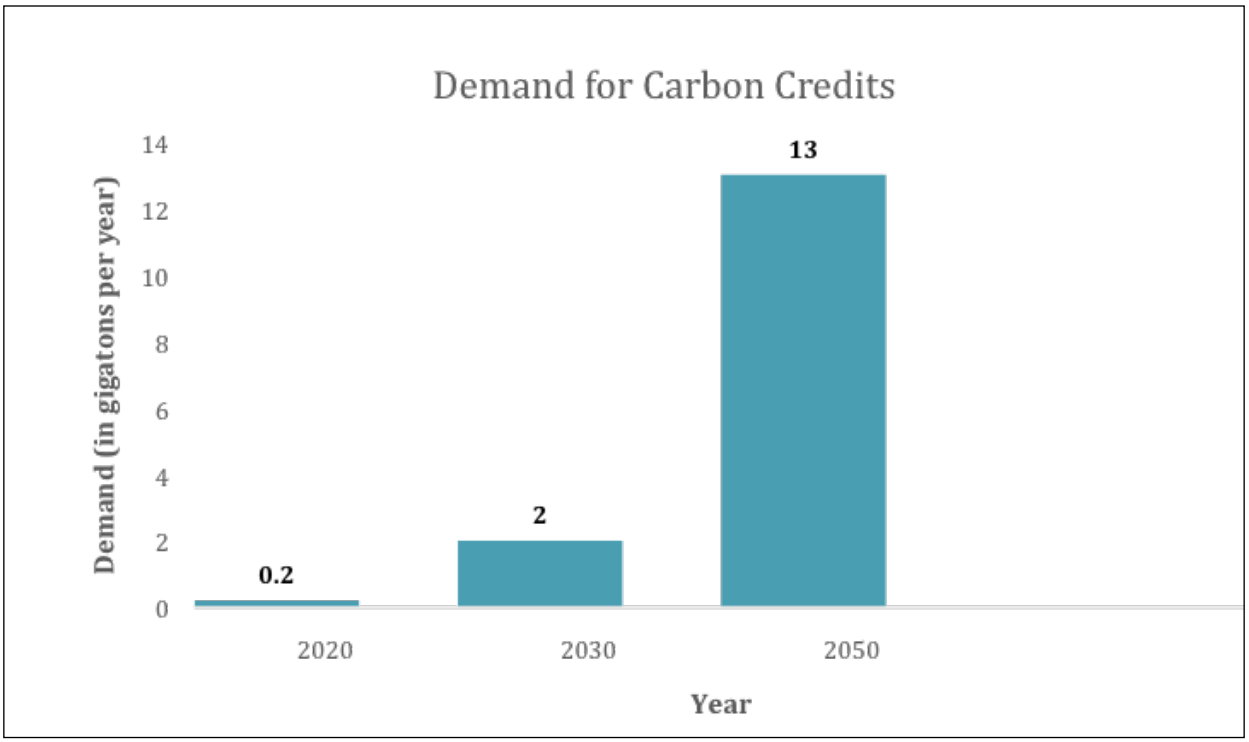
By Mike Safley

"It's a miracle. Photosynthesis: a feast of chemical engineering underpinning creations entire cathedral. All the razzmatazz of life on Earth is a free-rider on that mind-boggling magic act. The secret of life: plants eat light and air and water and the stored energy goes on to make and do all things."[1]

— Richard Powers

A carbon sink is a large geographic area whose ecology is ideal for sequestering and storing carbon dioxide (CO_2) from the atmosphere into a forest, the Amazon River basin, *bofedales* or vast grasslands that are grazed by livestock. A carbon credit is a generic term for any tradable certificate/permit representing the right to emit a set amount of CO_2 or the equivalent amount of a different greenhouse gas.

1 Powers, Richard. *The Overstory.* W.W. Norton & Company, 2018.



The potential growth of demand for carbon credits by the year 2050. Graph courtesy of McKinsey & Co.

Picotani's geographic region in Peru consists of altiplano grassland and bofedales. In Peru alone, there are 40 million acres of highland grasslands. Across the globe, there exists similar ecosystems. In Mongolia, they are known as the Steppes. In the United States, they are known as the Great Plains. In Africa, it is called the Savanna. Grasslands are among the most stable carbon sinks on earth.

The carbon credit is an instrument used to represent the reduction/sequestration of 1 metric ton (1 MT) of CO_2. These credits are used to convey a net climate benefit from one entity to another. An average acre of grassland sequesters 5 tons of carbon each year.

The Gold Standard, one of the most credible purveyors of carbon credits worldwide currently lists 33 projects on their carbon credit marketplace with an average sale price of $22.12/ton (April 2022).[2] According to the World Bank's Carbon Pricing Dashboard (carbonpricingdashboard.worldbank.org), which provides tracking data on all existing and emerging carbon pricing jurisdictions worldwide, there are currently 65 carbon pricing initiatives. The Carbon Credit Capital (www.carboncreditcapital.com) states, "The carbon price of the EU ETS, which had never consistently traded for more than €30 ($33 U.S.), has now jumped up to more than €50 ($55 U.S.), in May 2021." The market for carbon credits not only exists but is growing.

The World Wildlife Fund (WWF) recently published a piece on the importance of grasslands worldwide. During a survey on global rangelands conducted in 2021, these ecosystems made up 54% of the world's terrestrial surface.[3] Despite their key role in storing carbon, maintaining biodiversity, and supporting the livelihoods of millions of people, rangelands—which include grasslands, savannahs, deserts, shrublands and tundra often grazed by wildlife or domestic livestock—are seriously threatened and consistently overlooked.

"We can now definitively say more than half the world's land surface is made up of rangelands which are vital to both wildlife and people. Equipped with this new data, it's time for the world to recognize the critical role these valuable ecosystems play in mitigating climate change, sustaining wildlife populations, and supporting livelihoods."

— Martha Kauffman
Vice President of WWF
Northern Great Plains ecoregion

2 "Climate+ Portfolio: Variety of Projects." *Gold Standard Marketplace*, https://marketplace.goldstandard.org/collections/projects/products/climate-portfolio-variety-projects.

3 Kauffman, Martha. "To Know a Grassland." WWF, World Wildlife Fund, 28 Oct. 2021, https://www.worldwildlife.org/blogs/sustainability-works/posts/to-know-a-grassland#:~:text=WWF's%202021%20Plowprint%20Report%20has,portions%20of%20the%20Great%20Plains.

Carbon levels in soil sit close to 100 tons of carbon per hectare (tC/ha). Bofedales can hold as much as 700 tC/ha.[4] Photos by Robert Els.

Perched at 15,000 ft. above sea level, Picotani is home to roughly 50,000 alpacas and 10,000 vicuñas that graze the 100,000 acres of pristine grassland. This ecosystem can sequester up to 500 tons of carbon annually. The rate of CO_2 absorption is equivalent to 20,000 trees.

Community leader José Antonio Escalante remembers his father telling him about the first vicuña sighting in Picotani.

"José Vizcarra was managing 6 Picotani when they first decided to fence the alpaca pastures. On the day they closed the new gates, they found that four Vicuñas were within the fences mixed among the alpaca."

—José Escalante

Vizcarra told his dubious community, "Someday, the vicuña fiber will be very valuable." At the time, vicuñas were an endangered species. It was illegal to harvest and sell their fiber. Vizcarra convinced them to add a second, taller fence, to keep the vicuñas from jumping out. Over the years, they have added more vicuñas and expanded their habitat.

A family of vicuñas, one male, three females and two cria. The average family size is about 5-7 members. Photo by @loudscape.nef.

4 shapeofthingstoni. "What the Hell Is a Bofedal?" *The Shape of Things to Come*, 19 Sept. 2014, https://shapeofthingstocome.org/2014/09/19/what-the-hell-is-a-bofedal

Alberto Fujimori, the former president of Peru, shown here at the at the Pampas Galeras National Reserve in 1995. This is the first chaccu after he granted fiber rights to the communities if they protected the vicuña. Photo by Mike Safley.

The year 1995 was a major turning point for Picotani. José Vizcarra's vision came true. Former Peruvian President Alberto Fujimori, passed an innovative new law to govern the management of vicuña and transferred the ownership and sale of the vicuña's shorn fleece to the highland communities. This law made the sale of vicuña fiber legal and had a profound impact on Picotani.

One pound of hand dehaired vicuña fiber is worth approximately $400 in 2022. Photo by Ana Caroline de Lima.

Luxury brands like Loro Piana and Zegna are artists when it comes to creating timeless pieces from natural fibers. These same brands are the primary purchasers of vicuña and alpaca fiber. In 1995, they became well-known in the Picotani community. Loro Piana currently has a 5-year contract to buy 100% of the vicuña fiber Picotani produces. Zegna uses the community's fine baby alpaca fiber in the manufacturing of their garments.

These two companies are examples of the ideal candidates to capitalize on Picotani's gift to the planet. By establishing the value of carbon credits that lie in the pastures of Picotani, these two brands can lead the fashion industry's campaign to reach their stated goal of **Zero Net Emissions by 2050**. A brand could dramatically reduce their carbon footprint through a carbon credits program and today's environmentally conscious consumer would reward them handsomely for their effort.

"Adapting to climate change will be the existential imperative in the coming decades."

—United Nations
during IPCC August 2021

The fashion industry is currently one of the leading contributors to the Global Warming crisis. They need sustainable solutions to reduce their carbon footprint. Dame Ellen MacArthur focused on this problem in a Business of Fashion (BoF) Podcast in 2021.

> ***"The way we make and use things accounts for 45% of greenhouse gases and 90% of biodiversity loss."***

Her solution to attacking global warming in an authentic way without "green washing, is to bring the entire supply chain to bear on the issue."

> ***"We need to work together to make this happen. You need the entire value chain in the room. Though such comprehensive change is a challenge, it's also an opportunity. Business as usual doesn't work. It's not the solution."***[5]

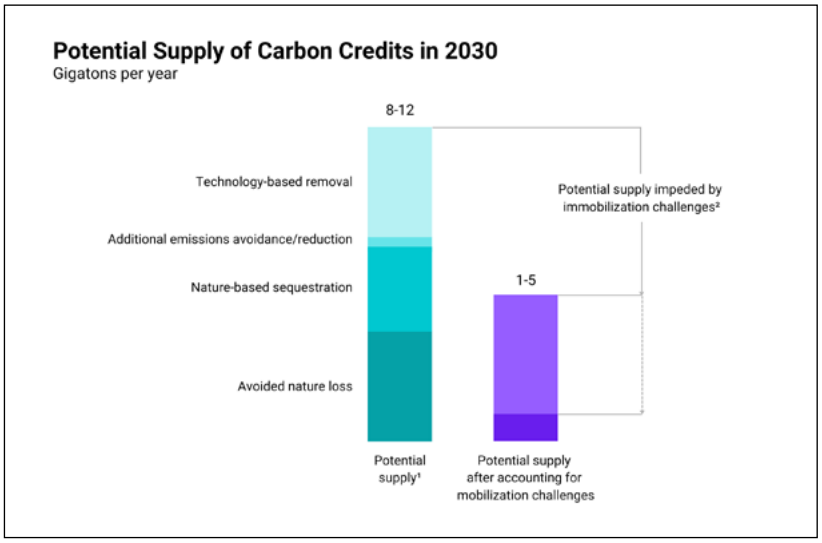
In March 2022, the SEC formally offered a 534 page proposal **forcing publicly traded companies to report greenhouse-gas emissions from their own operations as well as from the energy they consume**, and to obtain independent certification of their estimates.

These accounting changes for publicly traded corporations, which most fashion brands/retailers are, could create some expensive problems that cannot be greenwashed away. Corporations will be held accountable to their greenhouse gas emissions projections. It is potentially the most significant environmental action to date by the US government.

> *"In some cases, companies also would be required to report greenhouse-gas output of both their supply chains and consumers, known as Scope 3 emissions. An SEC official said most companies in the S&P 500 would likely have to report Scope 3 emissions. Companies would have to include the information in SEC filings such as annual reports."*[6]
>
> —Paul Kiernan

The Scope 3 emissions referenced in the report require companies to report their carbon footprint and their goals for reducing it based on the emissions occurring in their entire supply chain. Please note these rules have not yet passed into law but the drumbeat on the march to Zero Net 50 is becoming louder by the day.

Impossible you might say. Watershed Technology is a new company with sophisticated software that can **"measure the carbon footprint of Parmesan shavings for a salad maker."** This same company was valued at $1 billion by investors in April 2022.[7] These rules are creating a new reality for companies that want to market themselves as green. Adam Kramer, CEO of nZero, a carbon management platform says, "Some companies are concerned about the risk to their reputation if they are found to have understated their emissions."



While the potential exists for the supply of carbon credits, this image demonstrates the challenges, like time of investment to physical return on investment, that could prevent this supply from reaching the market. Graph courtesy of McKinsey & Co.

> *"There's a growing acceptance that carbon credits are going to be part of the solution, that you can never get to net zero just by reducing your (carbon) footprint."*
>
> *"Demand for voluntary carbon credits world-wide more than doubled during the four years ending in 2020."*
>
> *"A single carbon credit offsets one metric ton of carbon dioxide… According to the World Bank, 25 carbon-crediting mechanisms had been implemented globally by last April, and six more were under development."*[8]
>
> —Luis Garcia

5 Team, BoF. "How Can Fashion Become Truly Circular?" *The Business of Fashion,* The Business of Fashion, 13 Apr. 2022, https://www.businessoffashion.com/podcasts/sustainability/how-can-fashion-become-truly-circular/.
6 Kiernan, Paul. "SEC to Float Mandatory Disclosure of Climate-Change Risks, Emissions." *The Wallstreet Journal*, 21 Mar. 2022, https://www.wsj.com/articles/sec-to-float-mandatory-disclosure-of-climate-change-risks-emissions-11647874814.
7 Eaglesham, Jean. "Startups Rush to Count Company Carbon Emissions." *Wall Street Journal,* 18 Mar. 2022.
8 Garcia, Luis. "Kimmeridge Energy Commits $200 Million to Carbon-Offset Startup Chestnut." *Wall Street Journal*, 18 Mar. 2022.

Part of the solution for fashion brands could be the indigenous people of Peru. The residents of Picotani use holistic grazing to manage high-altitude grasslands in the same manner as their ancestors. These grasslands have created a veritable garden of Eden that contains vast carbon sinks.

Today, only about 1 million alpaca and vicuña shepherds remain in Peru to tend the 40 million acres of healthy grassland.

The world is risking the indigenous people of Peru leaving the highlands, pulling up stakes and moving to the cities or going to work in the mines. Why? They can't afford to care for their families. Sarita, an alpaca farmer born and raised in Picotani, showed us the reality of life in the altiplano during her interview for Quechua Benefit's upcoming documentary *Vicuña Salvation.*

How important is it for you to maintain the traditions of Quechua culture?

"Very important, because in the past everything was respected, now everything is being lost and the new generation migrates to the cities, they are almost no longer in the countryside, only one or the other."

There is no doubt that textile producers are concerned about the future of alpacas in Peru. One owner of a very large textile firm said, "We are afraid that there will no longer be an adequate supply of alpaca fleece in the next 10–20 years." Another mentioned "The alpaca breeders do not want to raise alpacas anymore. They want to move to the big cities or work in the mines." Sarita takes issue with this observation as she speaks from her heart. When asked about Picotani's future, "My dream is to keep going, no matter what."

The reason that alpaca shepherds are likely to leave is simple. Most families living in the remote alpaca breeding communities own somewhere between 25–100 alpacas. Their annual income is between $1,625–$6,500. Certainly not what you would call a living wage for an average family of five.

Sarita describes life in Picotani as:

*"**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 vicuñas' fiber has been made legal."*

One of the remaining alpaca shepherdesses with her herd in the background in Picotani, Peru. Photo by Ana Caroline de Lima.

A Quechua couple's ancestral home in Picotani. Photo by Ana Caroline de Lima.

The statement that the alpaca breeders **want** to leave the mountains for the mines or cities is simply not true. They inherit their alpacas just as they have inherited their culture and pasture management techniques for the last 8,000 years. For their culture, the grasslands, and their alpacas to survive, they need to increase their income from fleece sales.

The grasslands grazed today by vicuña and alpaca sequester approximately 200 million tons of CO_2 annually. The day the shepherds leave and no longer holistically manage the highland ecology is the day the grass will die from drought and sun. Seasonal grazing will not occur, thus eliminating the photosynthesis and carbon sequestration process that is essential if we are to defeat global warming.

What's worse about the land abandonment? The dry, barren earth will reveal itself and release 1,000 years of carbon emissions that are currently sequestered in the soil.

There are currently no programs or outside funding available for the 1 million Quechua people who manage and care for the vast grasslands. Without support, their alpacas and vicuñas may disappear.

Two Quechua women from Picotani. Photo by Robert Els.

Picotani community leaders with the Quechua Benefit team Mike Safley - Founder (4th from right), Dale Cantwell – Executive Director (2nd from left), and Alejandro Tejada – Peru Director, (3rd from right.) Photo by Ana Caroline de Lima.

If the fashion industry has any intention of making a genuine effort to meet the United Nations' goal of Net Zero Emissions by 2050, they must change their business model. Change is difficult at any level, but there may be a path that leads to a win-win solution for all. Consumers, manufacturers, producers, and farmers.

If highland communities like Picotani could qualify, quantify, and sell grassland carbon credits (worth an average of $20/ton at current world prices), it would allow the community to accrue capital and supplemental income. They could easily continue their way of life: regenerating, repairing, and expanding the grassland habitat for the future generations.

Textile companies could then purchase these carbon credits to offset their own carbon footprints and satisfy their Net Zero 2050 goals. They would finally make authentic contributions to solving the global warming crisis gripping the world.

> *More and more companies are pledging to help stop climate change by reducing their own greenhouse gas emissions as much as they can. Many businesses find they cannot fully eliminate their emissions, or even lessen them as quickly as they might like. The challenge is especially tough for organizations that aim to achieve net-zero emissions. For many, it will be necessary to use carbon credits to offset emissions they can't get rid of by other means.*[9]
>
> — McKenzie & Company

Quechua Benefit is an NGO that operates in the high Andean highlands of Peru. They know there is a better way than business as usual.

> *"Indigenous farmers are the poorest people on Earth. No one can argue with that."*
>
> —Bill Gates

We believe the grasslands the indigenous Quechua people holistically graze and manage can be packaged, verified, and sold in the form of carbon credits. This extra income would allow these communities to create additional programs that will continue to preserve the biodiversity of the habitat.

Quechua Benefit will partner with the communities to create and manage these projects across the highlands. The fashion brands can finally make an authentic contribution to the global warming crisis by funding the research necessary to create and bring these credits to market. Once the credits are marketable, they will be available for purchase from the fiber producing communities. Consumers would enthusiastically join in this project to defeat Global Warming.

Contact us at QuechuaBenefit.org to learn more.

9 Blaufelder, Christopher, et al. "A Blueprint for Scaling Voluntary Carbon Markets to Meet the Climate Challenge." *McKinsey & Company*, McKinsey & Company, 19 Feb. 2021, https://www.mckinsey.com/business-functions/sustainability/our-insights