
BAUERS FAMILY TREE FARM NEWS

Miramar Costa Rica



FARM UPDATE

January 2020

As we ring in a new decade here in January of 2020, the Teak trees have completed 13 growth seasons on the tree farm. We are grateful for the immense success that has occurred over the years in such a beautiful part of Costa Rica. Many of these successes have been mentioned in previous newsletters, but we continue to mention them to stay focused on our goals and strive for continued success. The trees' growth continues to be strong with healthy actively growing trees in all areas of the farm. The vast majority of the trees have reached an impressive size for just 13 years of growth.



FARM UPDATE CONTINUED

Soils on the farm continue to be nutrient rich and have remained in good condition through careful management of the trees and undergrowth. The natural and native areas of the farm are healthy with an abundance of extraordinary native plants providing shelter and passage to a great diversity of fauna in the area. The farm has sequestered an incredible amount of carbon as well as provided an abundance of oxygen. The one aspect that has been slower than originally projected is the harvesting and commercialization of some of the trees on the farm. Part of this is due to the market for younger wood (sap wood) is taking longer to come together than originally projected and part of this is due to the farm requiring less thinning than expected due to the farm supporting trees growing at a slightly higher density. We are optimistic that a delay in selling wood won't negatively affect the overall results as the trees will be larger when finally cut and should be more valuable. Currently we are actively working on a plan to do a thinning during next years dry season approximately one year now. Even though it is possible that the farm could continue to support the current density of trees, we feel it is important to take some trees to market to generate some returns as well as set up for future success with larger, older and more valuable trees that will generate greater returns in the future.



FARM UPDATE CONTINUED

The past year has provided a good combination of rain and sun and has aided the farm in producing excellent growth for the trees. Consistent dry seasons with plenty of sunshine have helped the trees in producing quality wood by allowing the rapidly growing sap wood to harden and make the transition into nicely colored heart wood over the dry season. Nearly all the trees have reached a mature tree state with developed crowns, flowers and seed production. Some of the larger trees on the farm have girths in excess of 15-inch diameters and heights reaching 70 feet tall. Annual pruning of the trees continues to give the trees a long straight bole that will produce long straight lumber with few knots and a straight beautiful grain. Undergrowth maintenance has been reduced due to nicely spaced trees with a significant canopy. The main areas of undergrowth maintenance are keeping aggressive growing bushes and jungle vines at bay as well as keeping teak tree suckers and saplings that have grown from seed from competing with their parents.

Over the last 13 years we believe the farm has had a positive environmental impact on the planet. A beautiful piece of land that had been turned into a cattle ranch generations ago has been completely reforested. The large old growth native trees along the natural waterways have been protected and provided passage and shelter to a wide variety of wildlife from the top of the canopy down to the forest floor. On almost any given day you can find troops of monkeys and a variety of birds from parrots to migratory songbirds living and moving throughout the canopy of the forest on the property. The forest floor is home to an assortment of insects, reptiles and smaller mammals. Armadillos, coatis, lizards and possum (just to name a few) are all found on the farm.



FARM UPDATE CONTINUED

Though harder to measure the farm has also improved the air we breath. All trees absorb carbon and release oxygen into the air and many studies indicate that a young fast-growing forest absorbs more carbon and release more oxygen than a mature old growth forest. Though impossible to know for certain and there are conflicting data sets out there, we think that our farm has produced some 50,000,000 pounds of oxygen and absorbed some 20,000,000 pounds of carbon. We believe much of this carbon will stay sequestered for years to come as the trees continue to grow and then eventually will be milled into lumber and turned into furniture, flooring or other uses that will last for years.

As mentioned above, we are actively working on a plan to harvest, remove and sell trees, logs or lumber from the farm a year from now. We are currently networking with buyers and sellers that have sold plantation teak in the past to determine what the market is and where the best market will be for our younger teak trees. Based on the results of this research we will determine over the course of the year what amount should be harvested and from which areas of the farm. Then we can bring in the right sized harvesting team and determine what interior roads need to be improved to efficiently remove trees from the farm.

How to erase 100 years of carbon emissions? Plant trees—lots of them. Increasing the Earth’s forests by an area the size of the United States would cut atmospheric carbon dioxide 25 percent.

By Stephen Leahy

PUBLISHED July 4, 2019 In National Geographic

An area the size of the United States could be restored as forests with the potential of erasing nearly 100 years of carbon emissions, according to the first ever study to determine how many trees the Earth could support.

Published today in Science, "The global tree restoration potential" report found that there is enough suitable land to increase the world’s forest cover by one-third without affecting existing cities or agriculture. However, the amount of suitable land area diminishes as global temperatures rise. Even if global warming is limited to 1.5 degrees Celsius, the area available for forest restoration could be reduced by a fifth by 2050 because it would be too warm for some tropical forests.

“Our study shows clearly that forest restoration is the best climate change solution available today,” said Tom Crowther, a researcher at ETH Zürich, and senior author of the study.

That does not alter the vital importance of protecting existing forests and phasing out fossil fuels since new forests would take decades to mature, Crowther said in a statement.

“If we act now, this could cut carbon dioxide in the atmosphere by up to 25 percent, to levels last seen almost a century ago,” he says.

It could take more than a hundred years to add enough mature forest to get sufficient levels of carbon reduction. Meanwhile 40 billion tons of carbon dioxide (CO₂) from burning fossil fuels are being added to the atmosphere every year, said Glen Peters, research director at Norway’s Center for International Climate Research.

“The only way we can keep below 1.5C or 2C, is to stop emitting fossil fuels,” Peters says in an email. That means no new fossil fuel-using infrastructure can be built, and some existing power plants need to shut down early, based on a major study published in Nature on July 1.

That said, large-scale CO₂ removal through reforestation will help offset emissions from sectors like aviation where alternatives are not yet available, and perhaps help lower temperatures, he said.



Carbon-eating trees

Trees—all plants, in fact—use the energy of sunlight, and through the process of photosynthesis they take carbon dioxide (CO₂) from the air and water from the ground. In the process of converting it into wood they release oxygen into the air. In addition to the CO₂ that trees capture, they also help soil capture significant amounts of carbon.

Researchers studied nearly 80,000 high-resolution satellite photographs of protected forest areas across a range of ecosystems to determine the natural level of tree cover in each. That was combined with the mapping software of Google Earth Engine to generate a predictive model to map potential tree cover worldwide.

It turns out that more than half the potential to restore trees can be found in just six countries: Russia (151 million hectares); USA (103 million); Canada (78 million); Australia (58 million); Brazil (50 million); and China (40 million). Those countries have so much potential because they've already removed much of their existing forests, said lead author Jean-Francois Bastin of ETH Zürich. "Anyone can plant a tree and we can start doing it tomorrow. Reforestation can buy us time to cut our carbon emissions," says Bastin.

While tree plantations can also store carbon, they don't support much wildlife such as pollinators, whose decline is very worrying, he said.

"In my opinion the implications of our study are that we need to respect forests as humanity's best ally to protect the climate and our life support system," he says.



Africa's potential for trees

Having suitable land area to grow forests is just one factor. Forests are far more important than their ability to soak up carbon. Tropical forests, for example, are where 90 percent of all terrestrial species are found, said Robin Chazdon, an ecologist at the University of Connecticut.

Climate change isn't humanity's only global environmental challenge. Earlier this year a landmark UN global assessment warned that one million species are at risk of extinction, threatening the very foundations of our economies, livelihoods, food security, health, and quality of life.

It takes a long time to make a new forest so there has to be a wide range of benefits for local people and society at large beyond just capturing carbon, said Chazdon. Along with 11 other experts, she used high-resolution satellite imagery and the latest peer-reviewed research to rank regions that provided the best carbon, water, wildlife, and other benefits and were the least costly and risky to reforest.

In total they identified more than 100 million hectares of lost lowland tropical rain forests spread out across Central and South America, Africa, and Southeast Asia. Their findings appeared July 3 in the journal *Science Advances*.

The top forest restoration hotspots are all in Africa: Rwanda, Uganda, Burundi, Togo, South Sudan, and Madagascar. Reforesting some of the marginal cropland and pasture lands that were identified brings great opportunities to protect a diversity of species at low cost and low risk, while bringing a range of benefits to local people with enough financial support, Chazdon explained.

Different paths, same goal

Forest restoration can take many forms—from enriching pastures with trees, to growing coffee or cocoa beneath a forest canopy, to adding forest buffers for national parks and protected areas to enhance tourism.

“Many locals want these kinds of things to happen but they have to be involved and supportive or it won't work,” Chazdon says.

Indigenous Peoples and local communities hold at least half of the world's land, including most tropical forests. Deforestation rates are far lower in forests where indigenous land tenure is recognized.

“We have served as guardians of these lands for generations... We also understand how to restore them to health,” says Joan Carling, a member of the Kankanaey tribe in the Philippines and Co-convenor of the Indigenous Peoples Major Group for Sustainable Development.

“With the security of our lands and resources, we can prevent destructive logging, mining, agribusiness, and other projects from occurring in our territories,” says Carling via email.

That security is under threat in many regions, most recently in Brazil. According to recent reports deforestation in the Amazon rainforest is accelerating under the new Brazilian government. Satellite images reveal that the area of forest being cleared is equivalent to losing a football field-sized amount every minute. In June, forest loss was 88 percent higher than a year ago.

5 Things You Need to Know about Investing in Timber

By Elizabeth Goldman

When you think of investing, you probably don't think of trees. Lumber is a commodity that's used for paper, wood furniture, even burning. Who would invest in something that burns? But, many of the wealthiest people on Earth invest in timber. Here are five things you need to know about this unusual opportunity.

It's Steady and Reliable

Everyone knows someone who lost money in 2008 in the stock market. The natural volatility in stocks is a double-edged sword. Some people even like the rollercoaster ride. If you don't, or you just want a way to diversify, timber is a steady investment that is still poised for growth.

Most people who invest in timber like the fact that they can physically see it, visit it, and easily understand how money is made off the land.

It's not like an investment in stocks or bonds, where you receive a piece of paper and you have to just assume there's a legitimate company behind it all.

Many people who buy timberland, or timber itself, like to visit it. For landowners, they like visiting their property, hunting, and fishing on it.

Investors who want to buy land directly are in for some sticker shock, however. Many times, land can't be purchased for less than \$5 million and that's for a few thousand acres on a few different parcels.

Most of the land for sale is in the Southeast, Pacific Northwest, and New England.

Older trees cost more, since they're closer to harvest, while younger trees are cheaper, but you have to be willing to hold them for longer periods of time.

It's Easy To Invest In

It's a straightforward real estate transaction. When you buy timberland, you're buying land. If you've got the money, all you need to do is sign the paperwork and it's yours. If you're taking out a mortgage for the property, then of course it gets a little more complicated.

But, even if you don't want to invest directly, there are ways to get into timber that don't involve direct ownership. A Real Estate Investment Trust (REIT) is one of the most popular methods. REITs are trusts that invest in real estate. A timber-focused REIT will get you into timber for as much money as you can comfortably afford, whether that's a few hundred dollars or a few thousand or millions.

The major Timber REITs are Weyerhaeuser, Plum Creek, and Rayonier. iShares Global Timber and Forestry ETF is another easy way to get exposure to the timber market. Like all exchange traded funds, the iShares Global Timber and Forestry ETF tracks the performance of the underlying asset – in this case, timber.

It has the liquidity you'd expect from an ETF too, so selling off your positions isn't a problem.

Good Land Is Intrinsicly Valuable

One of the best reasons to invest in timber is the fact that land is intrinsically valuable. With older trees, the profit comes from the actual harvesting. With younger trees, the income comes from granting licenses to hunters and fishers, and from selling pine needle cover, which is used in landscaping.

It's Hands-Off

You don't have to do much with timber. You buy it. You hold it. Stuff happens. Whether you end up leasing the land out, or selling the trees directly, the investment will eventually pay off. And, if you have a reforestation project in place, the income can be generational. In fact, many people buy land with the intent of passing the land down to their children and grandchildren.

It's a Hedge Against Inflation

Everyone's looking for a hedge against inflation. And, while many people flock to gold, it's still an asset that you have to stuff somewhere. If you don't want to worry about insurance, holding fees, and wild swings in the short-term, buy forest land.

Timber has shown to be an effective hedge against inflation, especially unexpected inflation. That's largely due to the fact that land prices tend to move in step with mortgage notes, which are tied to central bank interest rates which influence inflation.

Since land is a hard asset, and it doesn't move, it's inherently valuable. No one can make land, and so there's an inherently limited supply.

And, before you think that this is an investment for institutional investors, roughly 70 percent of the 500 million acres of commercial timberland in the U.S. is owned by private individuals. Mostly, investors own land through real estate investment trusts, timber investment management organizations, The Timber ETF, and direct ownership.



This newsletter is dedicated to Noylin Ramirez Briones, the mother of the family that takes care of the farm. She recently lost a long and hard battle to cancer. She leaves behind her husband (Martin), three impressive daughters (Nayudel, Kimberly and Francine) and two adorable grandchildren (Samantha & Tamara). Anyone that knew her knows that she was a hard-working dedicated mother and wife. She was incredibly welcoming to all visitors and cooked asthenic Costa Rican meals for anyone who visited her house. She always made sure all were taken care of and was quick with a smile. She will be greatly missed!

Thanks for your continued Support

Jake, Joe and Jaime

