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The Collapse and Potential Renewal of US Timber Grower Stumpage Markets: A Forest Landowner Perspective

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Large logs loaded in a mixed product pine sale in Warren County, Georgia, USA in 2025

Introduction

Timber stumpage rates for private US timber growers have declined greatly over the last 20 years. In the same time frame, costs of land and inputs have increased dramatically. Landowner rates of return are down unless they are willing to sell their land and take advantage of post-Covid elevated land values. For long-term investors or owners of family land, the latter is not an acceptable option. The decreased stumpage prices are related to over supply, depressed demand, and decreased competition due to corporate consolidation. In order to be able to assess the current conditions well and make suggestions for improvement, we must first more fully understand the factors that got us here. I will discuss the primary factors of change in this paper. But first, I want to start with a story. I think this is necessary, because I believe that there is now an entire generation of US timberland owners and managers that need a vision of what a competitive and profitable forest product market looks like. They need it because they have never seen it if their careers are shorter than 17 years. Upon reading the story, it may seem too good to be true to today's young forest landowners or managers, but it is a story that I assure you is real and factual.

A competitive market example

During a 32-year active forest management and timber marketing career, I have brokered 2000+- timber sales. During this time, one timber sale bid-opening clearly stands out as the favorite sale of my career. While not as large as many sales I have brokered, it was that bidding activity level and market excitement that make this one sale stand out clearly in my memory. Setting the stage, the spotted owl harvest restrictions (policy influenced by environmentalism) moved a lot of sawmill production from the Pacific Northwest (PNW) to the US South in the early 1990's. This increased competition for southern pine resources considerably. Precipitation was high in the US South in the fall of 1992 and the winter 1993, which further amplified the competition between mills for accessible timber. Bill Clinton started his 8-year term in January 1993 and worked in a bi-partisan way with Speaker of the House Newt Gingerich (post-1994 mid-term Republican wins) to grow the economy at a fast rate. While annualized housing starts were only estimated at 1.42 million in 1994, the annual rise that would top out at just over 2 million housing starts in 2005 had now begun. Demand for forest products was high. Mill consolidation had not yet occurred at the rate it would over the next 10 years and NAFTA (North American Trade Agreement; January 1994) and the establishment of the WTO (World Trade Organization; in 1995) had yet to create the 'giant sucking sound' (per Ross Perot) that would decimate our US textile and furniture business in very short order. But, in 1994, and looking back with '20-20 vision', to say things were good in the Southern US timber business would have been a huge understatement.

In 1994, working for James M. Vardaman & Co. (prior to starting my own business in 1995) I had a small office (10' x 10' – enough for a desk, 2 chairs and a filing cabinet) in the Lumbee Guaranty Bank Building in Lumberton, NC. I picked up a timber sale brokerage job for a private landowner with a block of mature pine sawtimber sitting on all-weather logging ground and fronting on Hwy 24 (the main state highway running from Fayetteville to Clinton, NC) about ½ mile off of Interstate I-95. On the bid date, I had an office overflowing with bidders, with some standing in the hall to talk until the 10 am sharp opening. The Federal Paper Board mill (at Armour-Riegelwood, NC) buyer was sitting in one of my two chairs looking confident (a direct mill bid from Federal was very hard to beat at the time). At 9:50 a.m. the Weyerhaeuser mill representative from Plymouth, NC called in his bid and matter-of-factly told me that he would call me back after 10 am to arrange for deed preparation and closing. The Weyerhaeuser mill was 130 miles away from the tract of timber being sold. Opening the sealed bids at 10 am revealed 12 total bids (including dealers like Squires Timber, Canal Wood Corporation, C&P Timber, etc.). The dealer bids ranged from $75k to $170k. The Federal Paper Board buyer beat the highest of the 10 dealer bids by around $10k, and Weyerhaeuser bid ($193k) was another $13k higher than the Federal Paper Board

bid. Weyerhaeuser would close the sale within days and cut the tract within the month. The per-unit price for sawtimber would have been in the $350/MBF Scribner range (or $48+-/ton).

The story above demonstrates what a competitive market looks like for the younger generation of forest managers and owners who have only heard about better times. Fast forwarding 31 years to 2025, I just conducted a sealed bid sale (per-unit this time) of nice mixed product pine on all-weather logging access ground in Florence County, SC in September. I was pleased to get 7 bids that morning with a decent up-front advance payment offered. The difference though (other than 5 fewer bids) was that the bidders were likely only pricing the wood at three forest product mills (one pulp mill and one of two log mills) and the per-unit product pricing generally varied by $1/ton among most bids, with that difference really just incorporating and showing the variation in logging and hauling costs among a lesser number of larger individual contractors. Bidding activity is not the end all of the transaction. Rather, the number of undergirding mills competing for and pricing the various wood products is what is impactful in regards to stumpage pricing and landowner returns. Where the all-weather stumpage price in 1994 was around $48/ton for sawtimber, the all-weather price for pine stumpage in Florence County, SC in 2025 was $24/ton. This is indicative of the pricing trends over the 30 year period.

Something happened between 1994 and 2025 to radically change the timber growth for sale model in the US. To fully frame the issues that led to today's decline in competitiveness and profitability, and to set the stage for a discussion on ways to improve the market, we must go back a little further though. Let's briefly go back to the beginning of forest harvesting, sales, and management in this country.

Our harvest and manufacturing history

The United States has a strong history of active timber growth, harvesting and processing. When the first explorers discovered and initially traversed our land they found an incredible mature forest, one that we can scarcely imagine today, varying by species and attributes by region and tested and molded by each region's weather, risks, and indigenous people activities. As domestic need blossomed and global trade advanced, so did the early harvest exploitation of the original American forest. Exports of forest products to Europe started as early as the 1600's, with ship masts, lumber and turpentine being shipped to England to support its Navy and housing. In the 1700's to early 1800's the New England lumber trade flourished. Maine became home to the world's largest lumber port by 1830. As the New England timber resource began to run out in the mid-1800s the centers of lumber production activity shifted west into the Great Lake States. Exports continued but as exploration shifted

west across the central and tree sparse areas of the Mid-west lumber was needed for railroad crossties and the building of Midwest towns. By around 1880, timber production began to shift south to the great pine reserves of the Piedmont and Coastal Plain regions of the Southeast US and the grade hardwoods of the lower Appalachians and the Ozarks. By the early 1900's the majority of the Eastern forest resource was harvested, with much of the accessible land converted to farms and the less tamable land utilized by cattle. Around the turn of the 20th century, the harvests of the Pacific Northwest would begin and continue until its massive forests were worked through as well.

In 1900, only 125 years ago now, Gifford Pinchot established the Society of American Foresters. He and others like Carl Schenk and Dietrich Brandis would educate a group of new professionals and eventually work toward educating a nation in the ways of proper and sustainable forest management. This advancing management application would transition from selective harvesting and measured and managed annual cuts, to early pine plantation forestry in the 1930's to 1940's, to what is now a mosaic of species and natural and artificial management systems working across the forested regions of this country. This mosaic would create and work symbiotically with a growing, viable forestry industry with uses for harvested trees that would eventually ranged from lumber to poles, plywood to oriented strand board (OSB), and chips and pulpwood. These uses and manufacturing markets would create a great return for the landowners and maintain an incentive to keep forest land in forests.

My father, Phil Dougherty, pictured with a massive loblolly pine in Trinity County, TX in 2012 --- Representative of the size of pines Texas loggers cut in the early 20th century

At the end of the late 19th century and beginning of the 20th, we would see the beginning and subsequent rise of much larger integrated forest products companies. These companies, which would eventually become very corporate in nature and posture, started to actively buy their own large tracts of lands and form integrated forest management and forest manufacturing companies. Frederick Weyerhauser and partners, for instance, would purchase 900,000 acres in the year 1900 from the Northern Pacific Railway. From there, 125 years later they would continue their land acquisition until

their land footprint would exceed 13 million acres after the merger with Plum Creek in 2016. In general, this large integrated company has made major contributions to land management and manufacturing in North America. Another large company, International Paper Company, would originate in 1898 with the merger of 17 pulp mills in Northeastern US and Canada along with 1.7 million acres of land. Like Weyerhasuer, International Paper would eventually acquire several million more acres, but, in the early 2000's they would sell their land to focus on becoming a global manufacturing company only. This disintegration with the land would lead to a major disconnect with the US forest landowner. In contrast, Weyerhaeuser would separate its land into a large real estate investment trust (REIT; the move driven by US tax policy) but it would continue to better align with North American timber growers and landowners.

In the mid-1900's, two additional agents would come to power in the US that would greatly impact the US forest. These would include the domestic environmentalist and the US land grant universities. The prior would work to preserve the US forests, favoring a hands-off approach and the latter would delve deeply into the science and biology to support the utilization of forest plantation species such as loblolly pine, slash pine, douglas fir and hemlock, and red pine for each of the various US operational forest regions. The environmentalist of the 1960-1990's would bring positive pressure to enact improvements in land sustainability. They would simultaneously negatively decrease management in the Western Forests, an action that would play out decades later resulting in great losses to what was once a national treasure in the form of fires and forest pests. But from these losses, some hard lessons and re-direction would occur in regards to learning to combine conservation with science-based active forest management to actually protect important lands and forests in the US.

So, what do we see in our history up to this point? An early era of exploitation from global powers and domestic need. The origination and rise of very large, corporate functioning landowning entities with manufacturing capabilities; the rise of the inspired environmentalists; the creation of a great productive and sustainable forest industry supported by scientific research; then the separation of the integrated land-manufacturing companies; and finally, some positive education of the US environmentalist. From this perspective, what era do we now find or see ourselves entering into? I would define this new stage as a period of corporate led exploitation fueling misled environmental action (this time led by global environmentalists, uneducated consumers or competing retail product brands). Behind this symbiotic move is simply profit motivation and control/power. The corporations do what they 'must' in order to keep costs low and profits high, and the environmentalist and retail product brands jockey for control and impact through certification and carbon accounting. Like the period of environmentalism from 1950-1980,

some of the environmental efforts will be well focused, but other efforts will again have major unintended consequences. Looking ahead from our historically empowered vantage point, where does this new era lead? It leads to a period of forest landowner exploitation (as opposed to the forest this time) and to the subsequent and perhaps unintended consequences of forest land use change and carbon stock decreases through predictable but inevitable forest mortality. That is, unless wiser heads and a great messaging campaigns prevail and affect a strong direction correction.

The Questions at Hand

What went wrong to so undermine US stumpage prices? What is now going wrong? What can be done to realign management and markets in a time when we need forests to be sequestering carbon, providing clean air to breathe, and filtering and protecting water to drink. These are the questions at hand. Let's press in for answers.

What happened?

What happened (I'll let you assign 'right' or 'wrong' as there is certainly some of both here) can best be simplified and boiled down to consolidation, globalization, environmentalism, pulp and paper company separation from US land ownership, substitution of recycled products for wood, US congressional and executive policy and subsequent fiscal policy mismanagement, and tree planting decisions and subsequent supply manipulation. While there is likely a list of other impactful factors, these are the main factors leading to the collapse of US forest markets and now to the potential threats to the American Forest.

<u>Consolidation</u>

Corporate consolidation naturally follows expansion. In January 1940, spurred by Charles Herty's now infamous development of a new kraft pulp and paper production system initially utilizing southern pine species, an age of pine plantation forestry exploded and would grow to tens of millions of acres of pine plantation acreage in the Southeast US, most all planted to support a growing pulp and paper business (replacing an aging and declining turpentining business). By the late 1980's pulp and paper mills would be established throughout the United States, utilizing both softwood and hardwood species. The pulping process would be refined and the number of products utilizing pulp would grow to much more than just white paper and newsprint, but would also include tissue uses, filters, corrugated packaging, linerboard, liquid packaging and specialty products. What stopped the development of mills? A combination of a basic environmental moratorium due to a litany of permits needs that addressed paper mill consumption issues (water, chemicals, energy) and output issues (chemicals in the air and solid waste), and an unsupportable investment regime (massive

upfront investment without assurance of returns and freedom to operate without political restraint for long investment horizons). The last paper mill in the Southeast US was built by Willamette in 1990 in Bennettsville, SC. In 1990 there were many integrated (mill plus land and timber for processing), competing mills in the US. But with an effectual moratorium and questionable investment horizon in place, competitive raw material costs, and a growing competitive finished product market, the stage was set for consolidation of the pulp and paper industry.

International Paper Company, a company that started as a merger of 17 pulp mills in 1898, is perhaps the best example of an active corporate Merger and Acquisition (M&A) company. In 1985 and 1988, International Paper Company would purchase Hammermill Paper and Masonite Co., respectively. In 1994, they would acquire Federal Paper Board. In 1999 they would close on the purchase of Union Camp Corporation. In 2000, in an effort to keep Finnish company UPM out of the US market, International Paper Company would take on major financial debt to acquire Champion International. In 2004, IP would sell the majority of their landholdings to pay down debt.

Fast forward to 2024 and International Paper would hire a new CEO and subsequently adopt and aggressively enact his new '80/20' plan. In December of 2024, International Paper would indefinitely close their pulp mill at Georgetown SC. In April they would shutter the mill in Campti, Louisiana. In August and September of 2025 they would shutter both their Savannah and Riceboro, GA pulp mills. In August of 2025, International Paper announced it plans to sell off its Global Cellulose Fibers business to American Industrial Partners and focus on being a sustainable packaging business. In October of 2025, the International Paper CEO noted that if the economy did not improve faster, International Paper would move up and implement the next action items on its 80/20 plan. In one year's time, these International Paper realignments heavily impacted thousands of acres of forests, thousands of manufacturing sector workers, and many landowners up in the Southeast US. The negative effect on the forest will take another 6-15 years to show up clearly. The effect on the employees and the timber growers in the region shows immediately in lost wages and decreased stumpage prices. We will wait with anticipation to see what the next implementation steps are on the 80/20 plan action list; hopefully it is mill investments versus additional mill closures.

What has been the effect of International Paper Company's consolidation and mill closure effort on private US timber growers over the period from 1994-2025? I suspect they would describe it as a great contribution to 'sustainability'. I'll let you make your own decision.

Globalization

In January 1994, NAFTA was officially enacted. In 1995 the WTO was established. Collectively the global trade tariffs and environment were reset. Politician sold the efforts as ones that would decrease US consumer costs and extend corporate opportunities for global trade. They did both of course, but at the expense of both the US manufacturing capacity and the average American's standard of living. US manufacturing steadily moved off shore for the next three decades not to be 'checked' or reset until Donald Trump's entrance onto the US political stage. In the timber and wood-based manufacturing world, the immediate casualty of NAFTA and WTO would be the US furniture industry which once was famous for its solid and long-lasting furniture sourced from Northern, Appalachian and Southern US oak, maple, cherry and other elite Northern and temperate zone hardwoods. Hardwood logs and lumber that once went to feed specialty furniture-focus towns like High Point, NC would now begin to go in mass to China. Much of this wood would then return to the US as a self-assembly particle board furniture piece covered by a thin layer of quality hardwood veneer, i.e. a much lesser quality but more well-traveled 'piece' of furniture with limited lifespan ('junk'; disposable furniture).

Other products like pulp and paper would thrive for a time under this period of globalization and access to additional markets but as all good things must come to an end, the US-based pulp and paper industry's dominance would decrease. Global manufacturing competition increased in China, and global virgin wood production would greatly increase in countries like Brazil, Uruguay, Chile, China and others. In the early 2000's Brazil's plantation resource, both pine and eucalyptus, would begin a strong upward growth trend that even now seems to grab another gear while US intensity falters, yet increasing the South American footprint and prominence. Blessed with deep, fertile soils, limited pests, a great growth climate, and international investment and technology sharing, Brazil's forest yields and production have exponentially, and the manufacturing footprint would increase in parallel fashion.

My professional colleague and friend Dr. Jeff Wright pictured here with two very large Eucalypts on a consulting visit to Uruguay. Uruguay is just one of the South American countries capable of strong eucalypts wood

US pulp companies once actively sought joint ventures in Brazil and US Universities that actively recruited Brazilian and other South American Country graduate students effectively

educated and mentored Brazil and other South American countries to assist in their forest resource growth production rise. Now, Brazil needs no help from North American leaders. Over the 2024 to 2027 period, Brazilian firms have either completed, broken ground, or are committed to three huge new pulp mills including: 1) Suzano S.A.'s single-line pulp mill in Mato Grosso do Sul (annual production capacity of 2.55 million MT), 2) Arauco's $4.6 billion bleached eucalyptus market pulp mill project (3.5 million MT/year capacity) to start up in 2027, 3) Bracell's $4 billion project to build a 2.8 million MT/year pulp mill in Água Clara. Collectively these add up to a total projected increase of right at 9 million tonnes of increased production in just a 3-year span. In parallel with the mills, they either have or are establishing the integrated forest plantation resources to support them. The global demand for pulp products is expanding at 1.5-2% annually, but the increasing demand is not being met by the US, rather it is to be met by South America.

In the early 2000's, Brazil would co-found BRIC (now BRICS), a trade alliance that now includes China, Russia, India, South Africa, Egypt, Ethiopia, Indonesia, Iran and the United Arab Emirates and by collaborative nature opposes the US and European trade alliances. Simultaneously, South American based companies purchase mills in the Southern US to further increase South American imports into the US and to gain further share of the final product markets in the US. Suzano, the world's largest pulpwood company, purchased two paperboard mills from Pactiv Evergreen in Arkansas in October 2024. In June of 2025, Suzano announced a new joint venture with Kimberly Clark, to be headquartered in the Netherlands, that will encompass or license many of Kimberly Clark's existing brands and mills in dozens of countries around the world. The same deal, which has 51% controlling interest going to Suzano, contains a call option for Suzano to acquire the residual 49% ownership held by Kimberly Clark. The South American resource, its alliances, and its capital are fueling major global reach and growth.

Meanwhile, in the US 11 major pulp mills representing 8.2 million tons of pulp capacity and 25 million tons of annual wood use (925,000 log truck loads) have shut down since 2022 (Forisk Consulting, 2025). Since 2014, 32 pulp and paper mills have closed, eliminating demand for over 43 million tons of wood annually (1.9 million log truck loads). Whatever capacity the US has lost, countries like Brazil and other producers have gained. The Brazilian forest sector growth is not to be blamed for their success, but likely rather to be congratulated. They have risen out of political corruption and a wrecked, high-interest-rate economy of the 1990's and have built a strong business model. Over the same time since the 1990's, the US due to environmental and political concerns would stop building new or replacement pulp and paper mills, thus ensuring a pending period of decreasing efficiency and eventual obsolescence. It is important to realize that US policies gave away our

business prominence, our manufacturing base, and our standard of living. Other countries gladly took it and they are not planning on giving it back.

Misguided Environmentalism and Unintended Consequences

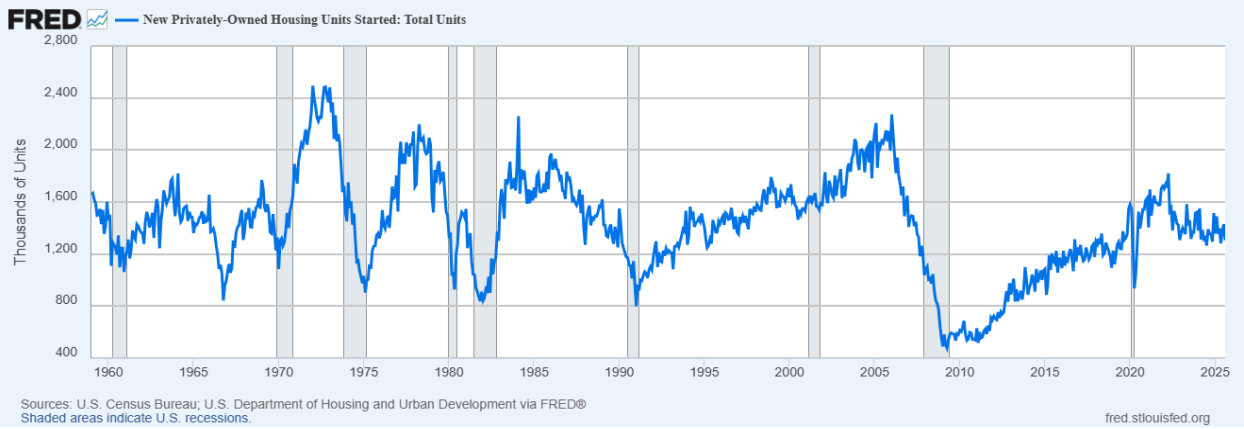
America certainly experienced a period of timber exploitation and environmental mismanagement. Our timber was clearcut over vast acreages. Our timbered regions were converted to agriculture on slopes well beyond wise use and without best management practices in place. Our once very deep and fertile soils washed and eroded substantially, and our creeks and rivers ran red (in the piedmont) and black (in the coastal areas) due to sedimentation. We are still paying for these mistakes today in the form of lost productivity potential. But, the current state of environmental protection is at the opposite end of the spectrum of that during the exploitation stage. The pendulum of environmental management quality has swung full circle. Our environmental protection is now world leading, established, and engrained in our professional resource managers and landowners through solid day-to-day protocols. Our foresters are trained. Our loggers are trained. Our farmers are trained. Our landowners are educated. Our state associations and forestry commission are active. Our best management systems are top-notch and regularly implemented.

Even our conservation groups are more educated on the balance of the environmental management and the need for active markets for quality timber management. But in the 1990's, the latter was not true. In an effort to save the old growth forest of the Pacific Northwest, the overstepping environmentalist movement would mount a successful campaign to greatly decrease logging in the Pacific Northwest. Linking the thought-to-be unadaptable Spotted Owl to the old growth trees, starting in 1992 the environmental community would successfully kill many needed markets in Washington, Oregon, California, and other PNW states. Over the period from 2000 to 2024, burn fuel stocks increased dramatically. From the period of 1983 to 2000, an estimated 27.4 million acres (1.6 million/year) burned across 11 Western US States. From the period of 2001 to 2018, an estimated 55.9 million acres burned and in 2020-21 alone nearly 15 million acres of Western US lands burned (3.5 million acres per year). While many will primarily blame climate change for the issue, land managers with forest thinning and prescribed burning experience know the truth, i.e. the hands-off management approach that led to the out of control build up fuels and major areas of mountain pine beetle mortality left a powder keg just waiting to explode.

Altered US Timber Supply

Users of timber stumpage benefit from low stumpage prices. The basic rule of microeconomics is that high supply and low to moderate demand means low equilibrium prices. At the time of this writing, this describes the markets for US timber growers. This is good for buyers of timber and manufacturers of forest products that like low raw material costs. This is negative for timber growers trying to pay for the land, pay taxes and operating costs and work towards a residual return over an extended rotation holding period. In the US today, we have a major oversupply of timber stumpage and low to moderate demand and subsequently very low US stumpage pricing. It is important to understand all three variables well if we are to improve our stumpage markets and therefore maintain forestland in forests versus alternative land uses.

Demand for sawtimber stumpage (used for lumber and plywood, etc.) is heavily driven by housing starts and remodeling. US housing starts as well as forecasting housing permits issued are vigorously tracked by the US government and reported monthly. Historically, from the post-WWII to 2007 period, housing construction would respond to demand, it would boom, and then bust or bottom out. After the bust, there would be a short-lived trough, usually 1-3 years, and then the rebuilding boom cycle would spool up again. Average housing starts for this roughly 70-year period would be roughly 1.5 million annual starts (including both single family residential and commercial). The period from late 2007 to present, has been dismal in comparison, with housing starts as low as sub-500,000 and only exceeding 1.5 million annual starts for a minimal period over this 17-year span. There has been a large, pent-up demand for singe family housing for many years now. A recovery back towards the norm was underway prior to Covid, and the remodeling boom immediately past Covid was a great shot in the arm. But the huge free-money-handouts from the Biden Administration sidelined labor, created major inflation, subsequently increased interest



US Housing Starts 1960-2025: Limited Recovery Since the 2007 Crash; held down by US economic Policies

rates, and high closing costs for housing undermined any housing recovery. Due to a miscalculation by US lumber manufacturers that the immediate 2020 pandemic response would look like the 2007 recession demand, all lumber manufacturers seemingly curtailed production simultaneously sending lumber costs through the roof (to record highs) when remodeling suddenly peaked, further crushing new home starts. While lumber prices are now down at lower pricing levels, those same policy issue mistakes regarding inflation and interest rates are now lingering and still undermining the housing recovery 5 years later.

Demand for pulp and packaging products is in large part connected to the general economy level (domestic and global) and subsequently excess discretionary spending and consumer confidence. Simply put, if the population has money in their pockets throughout the pay period and at the end of the month, demand for pulp-based products is strong. World economic levels are a sum of the regional economies. But the economic success of domestic markets and those of our international trading partners have major impacts on the demand for standing US pulp-sized trees. Tariffs, major wars, trade balances, and trading alliances (like BRICS) have impacts on standing US pulpwood tree stocks. 2025 has been one of the more disruptive global trade years of all time as the Trump Administration works to reset both trade balances and tariffs with all most global partners. As the US is one of the top 2 economies and consumers of goods on the globe, demand and supply and manufacturing capacity are in the process of re-aligning.

Supply can affect equilibrium prices on both the raw material end and the finished product sale end. With major declines in demand for pulp, lumber and panel products over the period from 2007-2025, excepting the major spikes in need for packaging and lumber during and immediately after the Pandemic, a major oversupply has been created in both pulpwood and sawtimber standing stock in the US. We are growing more than we are cutting and surplus supply continues to increase. Per NAFO (National Alliance of Forest Owners) private forests in the US are producing 57% more growth compared to harvest). Before the pandemic, some US timber regions were eating through the surplus and working back toward some balance, but then, the US government provided a major disruption with free-money, created inflation, sidelined labor, and increased interest rates. This undermined the economic activity levels and further allowed oversupplies of standing timber to build in the US. But now, with the major pulpwood mill production capacity decreases from the run of closures, and no end in sight to the depressed economy, oversupply is likely to really build excepting the areas hit by Hurricane Helene in late September of 2024.

These poor economic times and increased oversupply might could have been worked through better except for the ‘wall-of-wood’ created by government manipulated tree planting programs of the late 1980’s to early 2000’s. Between the Conservation Reserve

Program (CRP) program, the Wetlands Reserve Program (WRP), EQUIP or other USDA Program, the US government incentivized the planting of an estimated 8+ million acres of farmland into pine and hardwood trees. This does not count the impacts of state government cost share systems (some of which are partially industry supported) or NGO supported cost share. 8+ million acres of timber planted and growing for 25 years at average growth rates could place 1.1 to 1.4 billion US tons of merchantable wood on the market over that rotation length. Or, if you prefer truckloads (27 tons/load), 37 million to 52 million log truck loads. For those lesser number of US timber growers that received the afforestation cost share and the annual payments for 10-30 years their rate of return was very good. For the other non-participating but competing timber growers, their reward for the government subsidized planting programs was received in decreased timber stumpage for wood they sold.

Pulp and Paper Company disconnect with private timber growers

Pulp produced in pulp mills can be used for both paper, paperboard and packaging. Paper types include printing and writing paper, newsprint and specialty papers, and tissue. Packaging includes corrugated boxes, folding cartons, molded pulp packaging, bags and sacks, and liquid packaging. Each of these lines has its own specialized customer demands and product requirements. Each product requires a different recipe (mix of fibers, bleaching, water and electrical use, etc.). Every product has logistics considerations and costs.

International Paper Company's Savannah Mill --- Closed 2025 (getty images)

Pulp and paper mills have some of the highest requirements of energy, chemicals, and water usage of any manufacturing sector. They also have high levels of emissions and are heavily

regulated and heavily scrutinized. They are placed under a microscope by environmental groups, the government, customer brands, and the public. Their 'high-ground' position and response to this scrutiny is 1) the heavy use of recycled paper, and 2) certification of their virgin fiber sourcing.

Pulp and Paper Recycling

Not all pulp and paper products can utilize the highest levels of recycled paper for manufacturing. Tissue will rely heavier on virgin fiber. Heavier weight boxes have a higher component of virgin wood required in them as virgin wood fiber has increased strength compared to recycled fibers. But other paper products are heavily recycled and the recovery of used mix paper (60-65%) and corrugated packaging (65-75%) is high (because it is a paying commodity business). The individual original fibers may be recycled 3 to 7 times before they are unusable.

Global used paper recovery and recycling is a large business. A ton of recovered paper will cost well more than a ton of virgin wood. The Environmental Paper Network (EPN) published a 2012 white paper titled, "Comparing Recycled to Virgin Paper". They reported that recovered paper requires less energy (33%), less wastewater (49%), and less chemicals as opposed to virgin wood in order to produce a ton of printing and writing quality paper. It also lets off less gas emissions (37%) and produces less solid waste (39%). Note however that the virgin wood waste will be used for by-products and some of the process will be used for energy production to offset the stated excess energy use. In addition, the collection and delivery of the virgin wood may be more efficient than the collection and delivery process for the recovered paper. Early debate raged as to whether use of recyclable recoverables was better than the use of virgin wood. The current consensus is likely that both processes are needed and they compliment each other.

But the question remains: What happened to our US pulpwood market? Recycling happened, and it took away a huge portion of the demand for pulpwood size and quality trees grown by US forest landowners. Per EPN's paper listed above, it takes only 1.4 tons of recycled paper to produce the same tonne of marketable paper that requires 4.4 tonnes of virgin wood to produce; roughly a 3X difference. In 2024, 46,000,000 tons of recycled paper were utilized domestically (AFPA website). How much recycled marketable paper would that produce if you made 100% recycled content paper? 46,000,000 / 1.4 = 32,857,143 tons of paper product. Approximately how much standing virgin timber use did that offset? 32,857,143 x 4.4 tons = 144,571,429 tons of standing timber harvest offset in 2024. In tractor trailer loads, that would be 5,354,497 truckloads/year. While this certainly saves trees, the question might should be 'Does it save the forest?' or 'Does it save the community and the landowners that established the forest for the pulpwood sector?'.

This latter question is not new, but I don't think it has been widely circulated enough. With every pulp mill closure the impact and emergency for the forest landowner and the US forest surfaces with more clarity. The paper mills walk away, because they can ('must' for profits), utilizing the recovered recyclables and having zero issues sourcing the lesser volumes of virgin wood now needed from the now oversupplied US forest plantations prepared for them. The US timber growing landowner is left holding the bag (of low valued trees) and the paper company is sharing stockholder returns. Is this 'cold'? Or is it 'corporate'.

What all rational and ethical people should consider 'corporately cold' is the pulp and paper sector's next steps after mill closures and permanent capacity decreases is their purposeful efforts to keep private US timber growers in without replacement markets. In 2025 alone, they did this by lobbying for increased imports of Brazilian bleached eucalyptus kraft (BEK) and by lobbying against the use of excess pulpwood trees for bioenergy. Both of these moves work to further keep US timber demand low and to continue to depress pulp-sized tree stumpage prices for US timber growers. Continued or even increasing oversupply of pulp-sized trees increases profits for US paper mills. This has been the case for 20 years now, i.e. the time elapsing since the paper companies sold their US forestlands.

Pulp and Paper Imports

Even as much of the paper making capacity has shifted to utilizing recycled material, and as pulp mills have closed, the AFPA (American Pulp and Paper Association) currently lobbies to maintain and increase access to imported international pulp. Per Fastmarkets (September 2025), in 2024 the US imported 5.95 million tonnes of pulp, of which 2.8 million tonnes was BHK (bleached hardwood kraft; 85% from Brazil, 11% from Uruguay, 4% from Canada) and 2.42 million tonnes was BSK (bleached softwood kraft; 81% from Canada, 11% from Sweden and 8% from Finland). Let's consider what these imports would mean to US timber growers and to loggers displaced after recent pulp mill closures in Georgia and South Carolina. You can further extrapolate what the effect would be if imports were further increased above the 2024 levels.

An Applicable Import Displacement Case Study

Let's simply take the 2.8 million tonnes of total imported BHK and solve down to the impact of BEK from Brazil alone. And, since we are talking about US timber growers and loggers, lets calculate the number of 27-ton tractor trailer loads of US hardwood that this one year of Brazilian hardwood pulp imports displaces. Of the 2.8 million tonnes of BHK, 85% was BEK from Brazil, so 2.8 mil x 0.85= 2.38 million tons from Brazil. Now, lets convert to US tons by

multiplying by 1.1 tons/tonne and we get 2.62 million tons. The incoming BEK is finished pulp. Assuming that it would take 4.5+- tons of US hardwood to produce 1 finished ton of pulp, then we would need 2.62 million tons x 4.5 = 11.8 million tons of standing, green US hardwood tons to produce the BHK in the US. If we divide that number by 27 tons/load, the Brazilian imports displaced a potential of 437,000 loads of hardwood pulpwood hauled from US timber grower lands by US loggers. Is that a lot? If US loggers haul around 16 million loads of timber each year, then this would only be 2.7% of our annual US national estimated haul. Considering from the 'Globalization' section above, and the Forisk Consulting estimate that we lost 8.2 million tons of pulp capacity (925,926 tractor trailer loads of harvested trees), in the mill closures since 2022, it is likely that some loggers trying to make equipment payments and feed their family would like to have some of that load quota. Similarly, many landowners wishing to complete timber stand improvement cuts or even clean clearcuts would love to have that quota and that stumpage payment to help cover taxes and land ownership costs. This only covered the Brazilian import displacement, but the math would be similar for the residual 3.6 million tonnes of imported pulp from other countries.

Pulp and Paper Company Innovation Goals

Innovation is a huge part of the evolution of pulp and paper business lines. Innovation is the primary stated goal and need of these businesses now (Fastmarkets North America and International Containerboard Conference, 2025, Miami, FL). Their innovation may be to the benefit of the US timber grower, if the innovation replaces competitive plastic packaging uses for instance, or if a breakthrough improves the ability to hold and store liquids, or if it decreases product perishable time. Alternatively, pulp company innovations can negatively affect landowner markets if they decrease the amount of wood needed for an individual product, further utilize more recycled wood, or utilize some component of non-wood composite material. Currently, sustaining virgin wood markets, forest health through active management, and healthy and viable landowner return rates of the private sector forest growers are not stated goals.

Who owns the current US pulp mills?

Understanding who owns the residual pulp mills could perhaps give some insight into what we might expect from the residual existing markets. I have recently reviewed the current AFPA members and listed out their headquarters, ownership, and focus. Upon doing so one will find the following member divisions:

- American family owned --- Examples are Green Bay Packaging and Hood Industries
- Asian owned – Owned by BRICS members – like Domtar with Indonesia ownership or Nine Dragons with Chinese ownership
- South American owned – Example Suzano, BRIC members, growers of BEK
- Nordic Block owned – Example Billerud, generally NHBK or NHSK grower / users
- Shareholder owned, NYSE traded, like International Paper, WestRock, etc.

The American family owned members have been solid contributors to US landowners. They have generally made continued investments into their facilities. They also often remain integrated, i.e. still have a land base and have common property right goals. The Asian and South American owned companies will be well run, large and corporate, but will have trade alliances with geopolitical rivals of the US and may not work in our interests. They may also own US facilities for the purpose of utilizing their home country virgin pulp, or even gaining assess to US virgin standing timber for export back to their country. The Nordic block ownership mills are often strong and steady producers that share a common latitude and interest in producing quality Northern latitude-sourced pulp (very high quality fibers). The NYSE companies are corporate, predictable, and not aligned or concerned with the private US timber grower nor the US forest. I believe that they could only be moved to pay attention to these focuses through end-user consumer pressure or through negative scrutiny, both of which they would work to manipulate and control with their capable communication firms and policy lobby.

What might the particular production line focus potentially tell you? Newprint, of course has fallen on the hardest of times in this digital age and most lines have been closed or converted to other uses. Corrugated and packaging lines are the healthiest perhaps, with annual growth projected, but they have major global overcapacity at present. Tissue production is a large global business. Compared to corrugated packaging for instance, it is a much more cost-intensive endeavor. Compared to paper it may use a higher content of virgin wood. But with good cost control (energy and raw material cost management is important) and large scale of sales tissue can be profitable.

Overcapacity for any type of paper production focus often leads to low operating rates and lessened profitability for a mill. Overcapacity is addressed by corporate owners through either 1) mill closures, 2) mill longer term idling, 3) scheduled mill downtime (i.e. 1-2 weeks or a month), 4) decreased shifts, or 5) mergers and acquisitions (M&A; sometimes followed by refitting, investment, or closure of some assets). If you see mill idling and excessive downtime at your local mill, it may not be a positive sign of economic health. Facility age, amount of subsequent updating and investment, current capital call magnitudes for needed updating, and the paying capability and current capacity of the market sector, all evaluated

collectively may be the best way to evaluate the stability (or longevity) of your local mill(s). At one time I thought that if you had one mill present, you were exposed to market loss and stumpage price drop risk. But now, even if your region has 4+- active pulp mills you may need to dig a little deeper into your local mill variables to forecast your future for small wood diameter tree usage. If you owned land in Greenville, Florida for instance, just 3 years ago you would have had 5 mill options (2 at minimum haul distance, 1 moderate haul, one long haul, and one extended haul) for moving your pulpwood. Today, after the GP closure of the Perry Florida mill in 2024, the closure of the GP Cedar Springs mill in early 2025, and the closure of the WestRock Panama City, FL mill in 2022, you are left with one reasonable-haul-distance option (PCA-Valdosta) and one long-haul-option (GP-Hosford) for your pulp-sized trees. Note, private US timber grower markets can degrade very quickly.

What does this knowledge and assessment empower? Other than preparing yourself for uncertainty or further market collapse? It may provide some incentive or initiative to research the stability of your regional pulp mills. If they are not stable, growers may want to adjust their management regimes, land uses, and land holding patterns.

What can be done to improve US timber grower markets?

There is a long list of things that can be done to improve the forest economics for private forest landowners in the US. These include truths to be realized, messaging to be formed and communicated, and action items to be enacted. Lets consider some here.

“It is the economy stupid!”

James Carville’s now infamous quote from the 1992 Bill Clinton Presidential Run has many applications but all strongly suggest that the economy level is always the main driver. In regards to forest product market levels, the overall economic activity and vigor is almost always a huge driving force in the demand for forest products and strong activity potentially increases forest stumpage pricing (unless masked by consolidation). While manufacture consolidation can greatly decrease this relationship and diminish stumpage pricing, increases in quota and marginal pricing are generally in the positive direction for US timber growers. So, supporting or advocating for policies that drive economic success, are often the most impactful triggers to improve forest product markets.

What are key drivers to manage and support?

- Low unemployment – promote policies that put people to work, limit give-aways for non-working people, and improved US worker total payrolls.

- Lower interest rates – while letting the free-market work, lower interest rates empower homebuying and remodeling
- Decreased taxation – leave money in consumers pockets for discretionary spending
- Lower lending costs – basic home lending closing costs now are easily $5,000-$15,000, with much of this going to service and lending fees. Lower closing fees equates to more people purchasing and remodeling an existing home or building a new home.

Create and retain a pro-forest and forest landowner business and policy environment

If nothing else, I hope this paper demonstrates that US policy dictates the business environment and opportunity for the private forest landowner. While timber is traded on a global scale, the US timber grower sells his or her product in a local market. When a buyer of forest products has a monopoly on a certain size of trees in a region, this may not be a monopoly throughout the nation but it is an effective monopoly in that multi-county region. Most timber regions of the US had active and competitive markets for the various products (pulpwood-size and quality trees, small sawtimber sized trees, large sawtimber or plylog sized trees) in the mid to late 1990's. Today, there are many market 'holes' for many products across the timber producing regions. For instance, NAFO (National Association of Forest Owners; 2025) estimates that 24% of the US South is currently without a viable pulpwood market. Federal, state, and local governments need to (and would benefit from taxwise) place a large amount of concentration and energy into assisting to restoring viable markets for these areas. Beyond the local and state policy and economic environments, the federal government needs to protect and promote US manufacturing, US ownership of manufacturing facilities (keep the capital returns at home) and protect the sale of US products with proper tariffs to create good trade balances.

Educate well-meaning environmentalists

Primary goals of the environmental community and today's carbon economy are to store carbon through eliminating deforestation and completing afforestation carbon projects. New EUDR tracking and geolocation of global standing timber purchases has a goal of verifying that timber purchases do not lead to land use change (even from forestry to agriculture or cattle). Global pulp and paper companies pursue certification of all timber purchases to insure multiple standards are adhered to including protection of special cultural areas and proper consideration of indigenous peoples. All work to potentially

control the private landowner, i.e. limit the US timber growers access to markets if their actions are not deemed to a high enough environmental or social standard.

The case for US sustainability

Do US timber growers really need to be managed by global certification programs? Should certification programs and retail brands take credit for what the US timber grower does? Should the US timber grower be lumped in with the degraders of the tropical rainforest? Or even have a shadow of doubt placed on them? Or be guilted into proving their worth? The level of inherent training and implementation of best management practices and sustainability practices that are ongoing (and have been for decades now) in the US are worth considering, and communicating. Our logging force is incredibly seasoned and professional. The firms that are now operating have gone through tough times (real world training) and considerable structured training (programs that commenced in the 1990's and expanded in the early 2000's). Loggers in the Northeast US go through a Master Logger Certification Program® (MLCP). Per the MLCP website, this program 'is built upon a single standard with goals related to professionalism, forest health, safety, and continuous improvement'. In Georgia, loggers go through the Master Timber Harvester Program. In Oregon, loggers can be certified as 'Qualified Logging Professional'. These and similar programs throughout the country are certified by the Sustainable Forestry Initiative (SFI).

Our forest managers are likewise trained by accredited schools (the most capable in the world; as attested by global attendance), licensed, and take annual continuing education. All are either Registered Foresters in their respective state(s) of operation or have earned a Certified Forester designation through the Society of American Foresters. Even our Forest Technicians are now being acknowledged and branded. Loggers, forest managers, and forest landowners adhere to very detailed and high standard Best Management Practices (BMP's). In addition to regular training and standards, most states have a regulatory arm capable of imposing penalties and requiring repairs in occasional instances for streamside or sedimentation violations. In many cases, there are even individual watershed rules that are even stricter than the high quality BMP's.

Collectively, US private forests are growing 53%+- more than we are harvesting (NAFO, 2025) and we are maintaining forestland acres, i.e. we are sustainable by volume and acreage and we have been for many decades now. These facts make it hard to explain why other countries would be requiring certification of a model program. So why the pressure, tracking or attempted controls over the US timber grower? Because pulp and paper companies, rather than prove the exemplary case of the US grower, instead undermined the grower early

on and corporately worked hard (major resources expended) to control the grower that was already sustainable, leading the way in quality, and continuing to look for even further improvements. Certification, review and audits without added compensation, are another example of downstream effects of globalization, consolidation, and corporate behavior. Certification has been sold as a way to prove that your wood is grown well at high standards. It has been incentivized in some cases with acknowledgement and awards (rarely with compensation). When enough lands are certified, and oversupply is great enough, instead of being an incentive it may instead be used as a point of product access exclusion and raw material price and grower method controls. Current misplaced EUDR controls may become more prevalent.

US Timber Grower Messaging

While great efforts have been made for messaging on behalf of the US timber grower, a collective in-mass sector-level response has never been fully engaged. But if ever there was a time for clear and active (fully leveraged) messaging, this is it. What needs communicated and to whom? Listed below are potential messages to US Policy Makers, US and Global Environmentalists, and to US Timber Growers themselves.

<u>Primary Messaging for the Policy Makers</u>

As already mentioned, US policy has a massive impact on both the US forest and the US grower. We have a very strong, established history of forest production (doubling every 20 years for multiple cycles) in the US. It needs to be fully supported and protected, and simultaneously not erroneously undermined. The following are some listed points for consideration for messaging:

1. The existence of forest product markets empower professional management of US forests versus threatening sustainability.

Without options for thinning our existing and future stands, vigor will be lost, forest health will be endangered, increased mortality is assured, and production of durable and lasting goods that store carbon will be minimized to some level. Existing markets are not the threat, rather declining markets are the threat to be concerned about.

2. Producing timber in our high production forest plantation areas empowers the protection of our precious set aside forest areas (old growth forests, erodible soil areas, scenic and tourism spaces, wilderness and wildlife areas)

In our major forest plantation resource management areas, a huge portion of the products produced to support the US public are now sourced from pine, fir, or hemlock plantations. A

much lessened and increasingly minimal amount comes from our naturally regenerated forests. This is positive as it empowers the protection of so many beautiful set-aside areas while still meeting the needs of the public.

3. Our forests are at risk of major mortality when markets are removed.

US land, regardless of location, has a maximum carrying capacity. When the volume grown is larger than the soil water holding and nutrient supplying capacities will support, trees die and fall to the ground. Perhaps of a greater issue, is the fact that before they die, they are in a state of low vigor and can serve as a vector for both diseases and pests. With such a great area of low vigor hosts, the diseases and pests are allowed to reach epidemic levels and have huge negative impacts on large expanses of the US forests. The Mountain Pine Beetle attacks of the Pacific Northwest serve as a solid, recent example. There is a long list of forest pests that thrive when thinnings are not possible due to lack of markets.

4. Grower forest product markets are local and currently remain almost totally unprotected by US policy.

Hauling raw wood products to the mill has a per-mile cost. It is this cost that defines the geographical area limitation of a given market. When fuel costs are really high, forest products may be hauled only 40-60 miles to market before the process is economically non-viable. When fuel costs are really low, they may be hauled as much as 70-95+ miles. But either way, this is a very limited reach. If there is no US sawmill within 95+- miles, then there is no ability to sell timber for lumber at mass in that region (without mileage costs eroding the value). More importantly, if there is no small diameter wood market, then there is no local market supporting merchantable thinnings, thus forest health is an issue in that local market, and economic viability (of all product classes) is then at heightened risk in that local market. Poor economic policies, lack of recognition and enforcement of effective local monopolies, and poor global trade policies that allowed unfair trade have left the US timber grower unprotected.

5. Land use will change from forests to other uses if timber markets falter further.

If markets for small diameter and large diameter wood alike are not protected, forestland will be converted to other uses including development, row crop or other agriculture use, horticulture or nut production, or cattle. None of the uses sequesters durable carbon at anywhere near the rate that plantation forests do. When the timber is worth so little and it doesn't provide a sufficient rate of return on invested capital and doesn't pay the taxes and cost of operation well, it will be bulldozed and the land will be put into another use. Rules like the EUDR don't protect land from deforestation in free market areas of the world, rather they potentially encourage deforestation.

6. Lost mill jobs is a small portion of the total job loss that occurs at the time of mill closure.

Corporate companies state job losses at the particular mill at the time of closure. But upstream from there are a host of field and management office workers that are affected. Some of these affected have special knowledge and capabilities that are not easily replaced. All of these upstream workers have families to feed and rural communities that they support. If rural jobs are lost, they are not as easily replaced as for the individual that lives in a metropolitan area. Upstream from the pulp mill closure, jobs lost include logging field jobs and the truck driver jobs. Even further upstream, the timber inventory and land management personnel, then, the site preparation contractors, the tree planters, the tree nursery workers and owners, the seed orchard workers, and the research scientists. Downstream from the pulp mill closures are the many secondary manufacturer jobs as well.

7. Government intervention into US timber supplies has a taxpayer cost on the front end and a US tree grower impact on the back end --- let the free market reign in regards to land use.

Mill users who want to maintain access to low cost raw material will lobby for mass tree planting programs. Environmentalists will lobby for mass planting programs out of ignorance of the downstream (20-30 year) impacts. Government congressmen and women will push mass tree planting policies in order to look green and environmental to voters. But almost all non-free-market motivated plantings in a mature business sector lead to oversupply, subsequent lower stumpage prices, and altered rates of return for forest product growers. With many US mills now closing, the chance for mismatching oversupplies with non-served markets is even higher. If you don't have incredibly intensive and accurate data and foresight, it is best to avoid mass, government supported tree planting programs.

8. Proper government roles include prioritizing grants for innovation and subsidizing start-ups for innovative market game changing products. The prior should be unrestrictive (let great minds work), and the latter should have a high bar for funding.

Research and innovation in specific raw material and product areas can result in the creation of business lines that support a sector for decades to come (consider the Herty kraft paper innovation of 1940 or the OSB innovations of the 1980's). Venture capital cost is high and the magnitude needed for product scale up is often greater than the inventor can personally gather or mount. Supporting these innovation and development niches is a great and justified area for government to support where many others cannot. Of course, the case for the investment needs to be well justified so as to not waste taxpayer money. Current

government innovation and development grants are needed and justified to help minimize that time that alternative uses are identified and established for small diameter wood use.

Primary Messaging for the Environmentalists

General public and natural resources managers that lean toward land and forest resource protection have a positive role to fill. They do so best when they are scientifically and historic-lesson-empowered. Short term emotionalism without facts, without understandings from past examples, and without longer term forward looking vision do not lead to the desired end, rather they lead to different magnitudes of unintended consequences. There is great value in mature and balanced messaging for the environmental community. The following are some important points from a timber grower perspective:

1. Utilization of our plantation forest resources (SEUS and PNW) and our natural hardwood and mixed softwood forest (New England, Lake States, and Midwest) is important for Forest Health and Carbon Storage

A high percentage of the urban public believes that trees live forever, growing at the same rate, and continue to sequester carbon at the same rate. Few people have access to basic forest stand dynamic growth lessons.

2. The potential magnitude for carbon offset of fossil fuel use with bio-energy production utilizing small diameter trees is incredible. Not utilizing them is an opportunity that is missed with every gallon of petroleum or ton of coal substituted.

In the forest sector, there is considerable conversation and understanding that big trees utilized for lumber or poles or furniture or houses store carbon for an extended time. The US public and environmentalist likely see this as well. The combined effect of using large trees for long-term storage, and small diameter trees for offsetting fossil fuel use is not well recognized (still heavily debated in regards to the bioenergy component), in large part because of the disinformation put out by alternative uses. The positive math (carbon offset) needs to be further communicated.

3. Aging forests capture less carbon as growth rates drop, and release way more carbon to mortality than managed forests do.

In US timber grower plantation systems, with proper timed thinnings, mortality is minimal with the exception of major storm (wind or ice) or pest related events. With the use of

improved genetics and moderately low planting densities, even wind loading or ice-loading mortality can be minimized. With proper timed thinnings, growth and vigor (and carbon capture and storage) may be maintained deeper into the rotation. But regardless of forest origin type, natural or planted, older trees in thicker stands will slow down in growth rate and even stagnate at some level before mortality actually causes losses in carbon. Forest regeneration (preferably following a harvest) is positive for keeping carbon capture high.

4. The mosaic of plantation, natural and mix pine hardwood forests in the US is a beautiful pattern that effectively supports wildlife (game and non-game species) and people (of all races and origins) in the US. The free market and the multi-resource goals of the US landowner are the assurance of this, i.e. not any certification, cost share system, or trading partner restriction.

While some US timber growers have a single management objective of maximizing returns from timber harvesting, this is rare in the US. Most landowners have multiple objectives, with producing timber harvest revenues somewhere on the list. Other common objectives include optimizing wildlife habitat, recreational hunting, other recreation like hiking or riding, conservation or preservation, agroforestry, or single-family residential or cabin or camping. Reforestation (artificial and natural) and management systems (selective cuts, clearcut and replant, mid and long rotations) are all utilized in a mosaic pattern that matches owner objectives and markets. The free market, for both the land purchases, timber commodities, and recreational services determines the mosaic well.

<u>Primary Messaging to the US Timber Growers</u>

1. Market development and protection are not something you do when the house is falling in around you. They are ongoing and daily focuses.

While many state organizations have given lip service to market development over the years, when the mills in their state are closing and the press level is high, the efforts suddenly ramp up and all the right words are said. As a little time fades, the reporting on the demise often continues, but little more is accomplished than just conditional reporting. Joint activities like go on in emergency session market focuses (often including the state forestry association, the state forestry commission, US land grant colleges, and state or local business development entities in the same room) should be maintained. If our government and business development agencies supported and pursued new and existing markets in the same way that pulp and paper businesses pursue new innovations for their packaging solutions for their customers, US timber growers would not currently have limitations for their markets.

2. What you say out loud, is often what you produce.

For the last 10-15 years, landowners and college surveys have noted that many US forest landowners now place a low priority on timber production and markets, or don't even care about market access. I hope that is the case, because that is indeed where such statements and conclusions lead. The existence of healthy forest product manufacturing markets empower overall forest health (pest encroach the non-market focused land owner and the utilization focused US timber grower alike), empower property forest improvement projects (like wildlife habitat improvement), and provide clean air and water (beyond single unit forest land boundaries). These mills (small, medium, and large corporate) can also be very helpful when taxes increase or individual landowner fortunes change. Landowners should be interested in maintaining healthy and viable mills regardless of their personal and current land management objectives. In part because a tenet of landownership is that we are just stewards, i.e. the next owner or generation may need active markets for their opportunities and challenges.

3. Energies are limited and dilution equals a decrease in effectiveness.

Tremendous research and practical application energies have been diverted from utilization forestry and market focuses, and even from silviculture research, over the last 10-20 years (really beginning in the mid to late-90's). Considerable research has been transferred to non-traditional, in some case non-utilization natural resources focuses. This would include human-forest interaction, carbon sequestration, and pseudo-sustainabilty issues. These new focuses, some of which are beneficial, are never-the-less a dilution from utilization forest management and forest market primary focuses that still generate the vast majority of forest revenues. Some of these focuses even seek to benefit from the downfall of conventional forest product growth, i.e. it is may be easier to sell ecosystem services by noting the need to replace conventional forest product production revenue losses.

4. Don't look for your antagonists, nor compromised peers, nor the government to save you. You are the US timber growers and base-level entrepreneurs, i.e. Americans with a heritage of work, innovation, and edification. If you want it, go get it (or create it) yourselves!

The US timber grower, whether small private owner of larger TIMO/REIT without manufacturing capabilities, has generally been without leadership in regards to small-diameter-wood uses for 2-3 decades now. When the large industrial landowners separated from their lands, they separated from research cooperatives and pro-land-owner policies. The new landowners, TIMO's in large part, did participate in research and tree improvement cooperatives, but at much reduced capital levels. In general, TIMO investments in land

upkeep and sector functioning has decreased as well (only because they are cost-conscious; they do care). Much of industrial leadership through which the entire US timber growers benefited from in the 1960's-early 1990's, ceased. During this period there might have been an assumption that our state and national level advocacy groups were actively leading us in regards to markets, but this was not so. The National Alliance of Forest Owners (NAFO) was actively advocating for specific market alternatives, protection and slants for the largest TIMO/REIT owners who they represent. The Forest Landowners Association (FLA) was actively working defensively on sustainability, access to domestic and international markets, protections from endangered species issues and more recently, taxation surrounding natural disasters. State-level forest advocacy groups are often led into logger focused or county level permit, road weight limit, taxation issues or similar. Serving landowners, loggers, and mills simultaneously limits state-level forest advocacy groups from full scale market development efforts. Likewise, state universities can also be undermined by multiple and contrasting alumni field support in regards to new market development (although still being able to work on innovative new technologies without issue). My point? It is not to demean any sector player, but just to note that each group must represent their membership, which can be diverse and opposing. When it comes to new market development, it may well be that the landowners and the forest managers that serve them may be the ones that need to lead the new market development efforts.

5. The next generation needs to lead and thus have skin in the game and a victory under their belt – the older generation needs to provide historical context, financial support, and can-do encouragement.

The younger forest management and contracting generations can offer a lot to the new market development efforts. Why? Because they have energy (youth) and they are technology empowered. They also have the most to gain, with potentially more years in the business. What they lack is historical perspective and at some level, leadership experience. Older, more experienced owners and foresters can and should serve as mentors, guides, encouragers and mediators as necessary.

New or increased forest manufacturing levels, efforts and ideas: Two potential levels

<u>Local collaborations – "A cord of three strands in not quickly broken"</u>

While one person can provide a vision or dream, two or three collaborative people can bring a dream to reality. Small collaborations could repetitively rise up to create multiple new market needs in our depressed regions. Our business sector, with sometimes more rural roots, has very capable men and women with above average commonsense and work ethic.

The loggers that are displaced with each mill closing are seasoned men and women with a great skill set for working with wood and equipment. The landowners who are suffering from depressed or failing markets, have mature timber, of many sizes, and in many cases have substantial capital. Some of the younger members of the logging or forest management force have dreams of working for themselves in non-corporate and outdoor environments. Collectively, every collaboration of these players, repeated many times across our wide geography, offers the opportunity for a new market. What is most limiting is vision (the rarest of business and life commodities) and subsequently a viable business plan. Forestry business mentors willing to work one on one with new potential owners may be available and important. Round table accountability groups may be important for new businesses after they get through the start-up phase.

Larger Landowner Cooperatives

If there ever was a time for Larger Landowner Cooperatives with integrated manufacturing capabilities, it is now. These would be a response to the mill consolidation, decreased competition and subsequently low landowner stumpage and low logger pay rates. Cost cooperatives in agriculture are fairly common in the US. Energy cooperatives are common. Forest landowner cooperatives are not. One emerging and exciting example with promise is the Great Lakes Timber Professionals Association in WI and MI. There are global examples. Sodra in Sweden is the largest and primary example. This cooperative has grown very large (over 50,000 members) and has developed product areas that include biochemicals, biofuels, biomaterials, building systems, dissolving pulp, electricity, heating, pulp, lumber, decking, roofing, cladding, and CLT. Sodra had developed a strong form of governance and operates according to family forest goals versus corporate goals. With reasonable competitiveness and stumpage pricing, continued sales to current large and medium sized corporate forest product markets make sense. However, at current stumpage pricing (which may moderate some if the economy or lending markets improve) the Landowner Cooperatives may be the next step for US timber growers. While Sodra is a great, mature example, the US timber growers would likely benefit most from 10-20 smaller cooperatives started in the lowest quota and lowest stumpage price regions of the country.

Grow local, sell local (for now)

The corporate consolidation, import market competition and price erosion, decreasing profits and grower controls are not unique to forestry right now. You can look at many agricultural based commodities and you will see similar issues. Chicken farmers have been

controlled by the large companies for years now. Many smaller producers were forced out of the market through excessive capital requirements for mandated chicken house updates. Pay scales were decreased and individual payments were relegated to within-pool competitive efficiencies. Much of the US hog farming and processing sector has been purchased by the Chinese. US blueberry production and profitability has been disrupted by Peru's sudden rise in production. US cattle growers have worked in a limited meat packer environment and through pricing issues like captive supply, formula pricing, and exclusive agreements. Regardless of the product, all issues have a common tie arising from globalization and consolidation.

If you don't like the current supply chains, their methods and their pricing, then you must reinvent or replace the existing ones. There are many questions for the US timber grower right now: "Will we be complacent and just roll on with the market degrades?"; "Will a little economic recovery and small spike in markets be enough to keep us on the bench?"; "Will we be proactive in providing a vision and support for the next generation of US timber growers?; "Will we innovate as needed to either re-invent new markets, re-invigorate or re-engage current markets, or both?". Starting small and initiating local manufacturing markets are real options. I believe that you will find support for this movement and method if you lean in. Support will come in the form of buyers and customers, capital and encouragement.

Where to start? Perhaps start with a sawmill and base loading and transporting equipment. Finding timber to work should be easy; remember, it is cheap and plentiful. Then solve for what to do with the residuals. Options for slabs, small wood pieces, and residuals include: pellets, pallets, shavings, sawdust, posts, mulch, firewood and bark mixes. Then what? Look for downstream value-added options: kiln drying, planning, routing and moulding. Develop some customers, ask what their needs are and try to meet their needs. From there, identify the next piece of equipment that would improve your productivity and profitability. "From humble beginnings, come great things!"

Conclusions -- A role and opportunity for all

There is a role for each forest sector player in the creation of new or increased forest manufacturing production. The state forestry commission and forestry associations may play an important role in supporting the existing corporate businesses in each state. We need to retain the proven markets that we have. Each of the existing markets is needed and has the potential to even increase production when the economy improves. The TIMO's and REITS have the potential to create associated mills like the Mission Sawmill in Corinth, TN that is supported by Timber Investment Resources (TIR). The National Advocacy groups can

work on large trade, labor, and issues limiting market access or entrepreneurial start-ups. The landowners and loggers can work to create markets organically. The research communities can come through again, identifying the next big breakthrough and next great forest product. We all can vote. We can vote for proven financial environments for forest product usage and growth. We can vote for congressmen and senators who will introduce and support pro-free-market and pro-US-timber grower policies. We all can educate as well. We can educate the public, the environmentalist, and the policy makers and their staff in regards to good, science-based forest dynamics and management systems. We can do this. We **MUST** do this now.

About the Author:

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