WOOD MARKETS UPDATE

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Study: smoke exposure heightens mortality risk for wildland firefighters

A first-of-its-kind study reveals the increased risks of lung disease and cardiovascular mortality for wildland firefighters due to smoke exposure. Firefighters carried air-sampling devices during their shifts to record measurements of smoke exposure. Researchers used that data to extrapolate health risks. A five-year career with short fire seasons increased the risk of dying from lung cancer by 8 percent, and the risk of cardiovascular mortality by 16 percent. For 25-year-long careers and longer seasons, those numbers climbed past 30 percent.

Kathleen Navarro of the U.S. Forest Service is the lead author of the study. She says, "We're seeing an increase in the number of wildfires each year with a longer fire season... and that there is potential for adverse long term health outcomes. We need to start thinking about ways to reduce exposure to bring that risk down."

Navarro adds the study likely underestimates health risks because it focuses on wildfires. For future research, she wants to look at prescribed burns as well.

The study appeared in the journal *Environmental Research*.

GENERAL INTEREST

More ash trees will fall as jumping tree lice spread through Winnipeg

April 18, 2019 (cbc.ca/news)—Hundreds of ash trees are being removed from Winnipeg neighborhoods as the city's forest canopy is hit by yet another invasive species. The cottony ash psyllid (CAP)—also known as jumping tree lice—has been added to a list of threats to Winnipeg trees, which also includes the emerald ash borer and Dutch elm disease. "About 700 black ash trees are going to be removed," city forester Martha Barwinsky said Wednesday. "These are black ash trees that we identified last year that were either dead or dying because of the CAP infestation." The insects are about three millimeters long (only slightly larger than an aphid). They have yellow and black markings, clear wings with shading toward the tip, and can jump.

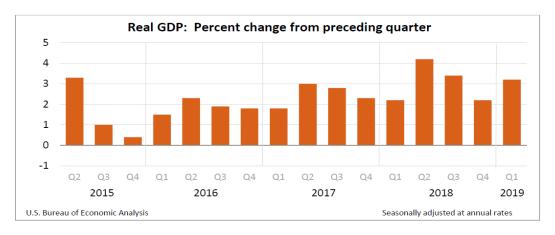


They infest Manchurian and black ash trees. When eggs hatch in spring, the nymphs (immature insects) suck the sap out of new leaves, causing them to curl, and produce a white cottony substance. A second generation of nymphs that hatches in August then feeds in the curled leaves created by the first generation. The insects weaken trees, leaving them vulnerable to disease and premature death, although trees can recover if they're not badly infested.

ECONOMY & HOUSING

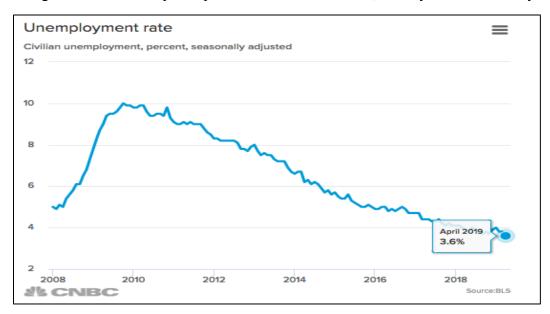
Real GDP grew 3.2% in Q1

April 26, 2019 (BEA news release)—Real gross domestic product (GDP) increased at an annual rate of 3.2 percent in the first quarter of 2019, according to the "advance" estimate released by the Bureau of Economic Analysis. In the fourth quarter of 2018, real GDP increased 2.2 percent. The increase in real GDP in the first quarter reflected positive contributions from personal consumption expenditures (PCE), private inventory investment, exports, state and local government spending, and nonresidential fixed investment. Imports, which are a subtraction in the calculation of GDP, decreased.



Jobs surge in April, unemployment rate near 50-year low

May 3, 2019 (cnbc.com)—The U.S. jobs machine kept humming along in April, adding a robust 263,000 new hires while the unemployment rate fell to 3.6%, the lowest in a generation, the Labor Department reported Friday. While last month's drop in the jobless rate came with strong increase in hiring, it also was helped along by a sharp decline in the labor force of 490,000. That brought the labor force participation rate down to 62.8%, exactly where it was a year ago.



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March housing starts down 14.2% from March 2018

April 19, 2019 - The U.S. Census Bureau and the U.S. Department of Housing and Urban Development jointly announced the following new residential construction statistics for March 2019. Privately-owned housing starts in March were at a seasonally adjusted annual rate of 1,139,000. This is 0.3 percent below the revised February estimate of 1,142,000 and is 14.2 percent below the March 2018 rate of 1,327,000. Single-family housing starts in March were at a rate of 785,000; this is 0.4 percent below the revised February figure of 788,000. The March rate for units in buildings with five units or more was 337,000.

Recent evidence of housing's affordability struggle

April 26, 2019 (nahbnow.com)—Mixed housing data over the past weeks reveal a market struggling with an ongoing housing affordability challenge. Low unemployment, solid household formations, and accelerating income growth are supporting for-sale and for-rent housing demand. But despite lower mortgage interest rates (currently averaging 4.2% on a 30-year fixed-rate mortgage), high housing prices have held back sales volume growth, especially in the resale market. For example, existing home sales declined 4.9% in March and were 5.4% lower than the number of sales recorded a year ago.

For new home construction, single-family builders reported slightly more positive conditions in April, according to the NAHB/Wells Fargo Housing Market Index. However, Census Bureau data indicate that single-family starts for the first quarter of 2019 were 5.3% lower than the year prior, and below what NAHB had forecast. All regions of the United States recorded production declines — except the South, which improved by 5%. Additionally, multifamily construction was down 19% at the start of the year, compared to the first quarter of 2018.

Running counter to the existing home sales and construction reports, new single-family home sales improved in March, up nearly 5% from the previous month. Inventory fell back to a sixmonth supply, down from December's high point of a 7.4-month supply. Sales growth was recorded at the lower end of the market, with 50% of new home sales priced below \$300,000, compared to 39% a year ago. Median prices fell from \$335,400 in March 2018 to \$302,700 in March 2019.

The combination of product shift and price incentives, in tandem with lower rates, caused the pace of new home sales for the month to increase. Although this is promising news, it raises concerns for builders' future profit margins, given the ongoing growth in construction and regulatory costs.

FINANCE & MANAGEMENT

Verso announces Luke paper mill shut

April 30, 2019 (PRNewswire)—Verso Corporation (NYSE: VRS) today announced it will permanently close its paper mill in Luke, Maryland, in response to the continuing decline in customer demand for the grades of coated freesheet paper produced at the mill, along with rising input costs, a significant influx of imports, and rising compliance costs and infrastructure challenges associated with recent environmental regulation changes. The closure, which is expected to be complete by June 30, will reduce Verso's coated freesheet production capacity by approximately 450,000 tons, reducing total annual paper production capacity to approximately 2.7 million tons. Approximately 675 employees will be impacted by the closure of the Luke mill.

Top timberland owners and managers in the U.S. and Canada, 2019

April 24, 2019 (forisk.com)—The table below lists the 2019 top 10 timberland owners in North America. Weyerhaeuser continues to lead with 12.3 million acres, about the same as the next six firms combined. CatchMark Timber Trust leaps into the top 10 for the first time.

Top 10 Timberland Owners in the U.S. and Canada

Firm	Туре	Timberland Acres by Region (thousands)				
		South	West	North	Canada	Total
Weyerhaeuser	Public REIT	6,948	3,550	1,769		12,268
J.D. Irving	Forest Industry	-	-	1,248	1,900	3,148
Rayonier	Public REIT	1,723	378	V22	1.5200	2,101
Sierra Pacific Industries	Forest Industry	-	1,936	. -	1.2	1,936
PotlatchDeltic	Public REIT	1,133	629	126	-	1,888
Green Diamond	Private	452	1,274	-		1,726
CatchMark Timber Trust	Public REIT	1,550	18	(C=)	0.50	1,568
Acadian Timber	Forest Industry	11.00 mm	-	300	761	1,061
John Malone (BBC Land)	Private Individual	-	-1	992	-	992
Peter Buck (Tall Timbers Trust)	Private Individual	-	2	925	-	925

When looking separately at the top 10 timberland managers in North America, TIMOs, who manage timber assets on behalf of institutional investors and large private investors, hold six slots; these six TIMOs manage 15.5 million acres, or 58% of the 26.8 million acres managed by the top 10 firms. Four forestry consulting and management firms, including the largest organization on this list (American Forest Management), account for the balance.

Top 10 Timberland Managers in the U.S. and Canada

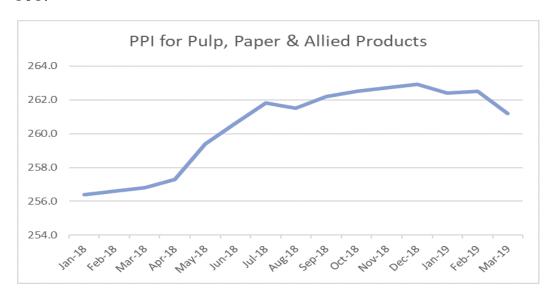
Firm	Type	Timberland Acres (thousands)			
Fillin	Type	U.S.	Canada	Total	
American Forest Management	Forest Management	5,500	9 5 .5	5,500	
Hancock (HTRG / HNRG)	TIMO	3,818	49	3,868	
Wagner Forest Management	TIMO	1,445	1,225	2,670	
The Forestland Group	TIMO	2,346	163	2,509	
Resource Management Service (RMS)	TIMO	2,280	_	2,280	
Forest Investment Associates (FIA)	TIMO	2,237	-	2,237	
Forest Resource Consultants	Forest Management	2,100	b= ;	2,100	
LandVest Timberlands	Forest Management	2,000	<u>-</u>	2,000	
Molpus Woodlands Group	TIMO	1,895	-	1,895	
F&W Forestry Services	Forest Management	1,741		1,741	

PRODUCTION & PRICES

Production and raw material costs for the U.S. paper industry

April 23, 2019 (blog.forest2market.com)—Over the last two decades, several trends have driven customer preferences and changes in demand for forest and paper products. As a result of these changes, demand for one of the forest industry's seminal products—printing and writing papers—continues to decline rapidly; over the last decade, production of printing and writing papers has declined by 6% annually. Demand for newsprint has also continued to drop since the turn of the millennium—down almost 10% in 2017 from the previous year, and expectations are that this market will continue to evaporate. Most of the newsprint plants in the US South and Pacific Northwest (PNW) have been closed or converted to manufacture other products; the PNW alone lost seven major pulp and paper operations in the wake of the Great Recession.

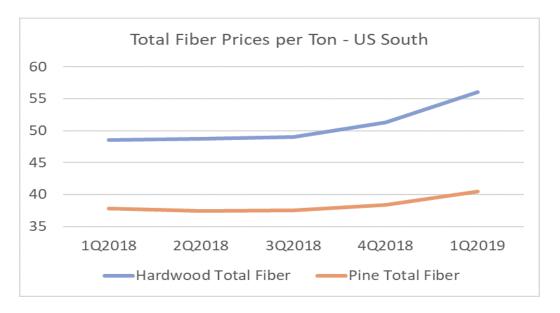
Industry consumption in the Pulp & Paper segment has flattened, which has further moderated raw material costs for fiber in most regions. The producer price index (PPI) for Pulp, Paper & Allied Products, which measures changes in prices received by domestic producers for their output, fell 0.2% in March driven in part by a strong US dollar, although the metric is up +2.3% YoY.



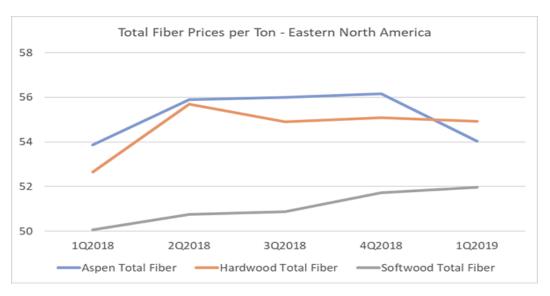
The cost of manufacturing these goods is trending up, but are raw material costs for pulp and paper manufacturers following suit? Regional differences in wood raw material costs are a market reality for all timber products, and the data demonstrates these disparities.

US South—Total delivered fiber prices in the US South were flat for most of 2018 but began trending up in 4Q and, more recently, have accelerated that pace in 1Q2019. Prices for hardwood total fiber increased roughly 15% YoY and prices for softwood total fiber increased roughly 8% in the same period. While the PPI has trended lower since the beginning of Q1, chip prices in the south have gone in the opposite direction.

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U.S. East---Delivered prices for aspen (Northeast and Lake States) have followed a similar path to the PPI, however softwood total delivered fiber prices have increased by 4% YoY and hardwood total fiber prices have increased nearly 5% YoY.



BIO-MARKETS

Minnesota offers funding for bioenergy, biochemical pilot plants

April 8, 2019 (ethanolproducer.com)—The Minnesota Department of Agriculture is offering funding to help advance bioenergy and biochemical production technologies to the pilot scale through its Agricultural Growth, Research and Innovation Program Bioenergy/Biochemical Pilot Project Grant. According to a request for proposals (RFP) issued in mid-March, the AGRI program aims to advance the state's agriculture and renewable energy industries. The state's Bioincentive Program is part of AGRI and is designed to encourage commercial-scale production of advanced biofuels, renewable chemicals, and biomass thermal energy through production incentive payments. According to the MDA, Bioenergy/Biochemical Pilot Project Grant aims to advance new products and production methods from proof-of-concept to pilot scale as part of those efforts.

EPA to issue proposed rule on biomass carbon neutrality

April 09, 2019 (biomassmagazine.com)—U.S. EPA Administrator Andrew Wheeler recently informed federal lawmakers that the agency is working on a rulemaking that will define biomass as carbon neutral. A proposed rule is expected to be released this summer. Wheeler announced the planned rulemaking during an April 2 hearing held by the House Committee on Appropriations' Subcommittee on Interior, Environment, and Related Agencies. The hearing was held to address the EPA's fiscal year 2020 budget request. During the hearing, Rep. Mike Simpson, R-Idaho, said the past several EPA appropriations bills have included language directing the agency to consult with the U.S. Forest Service and U.S. Department of Energy "to provide clarity on a rule that defines biomass as carbon neutral." Simpson referenced a policy statement issued by the EPA in April 2018 that states future regulatory actions will treat biomass from managed forests as carbon neutral when used for energy production at stationary sources.