

Secondary wood processing



Maine's 'almost invisible' industry'



The role of secondary manufacturing in Maine in 2014

By Mindy S. Crandall, assistant professor, and James L. Anderson III, Ph.D. candidate, University of Maine

Following Leefers¹ (2016) analysis of the relative contribution of Michigan's secondary forest products processors, we conducted a parallel analysis for Maine². Leefers identified 31 IMPLAN sectors associated with the forest products industry. These were aggregated into 7 sub-industries: Forestry, Logging, Primary Solid Wood Products and Wood-based Power, Secondary Solid Wood Products, Wood Furniture, Primary Paper and Paperboard Products, and Secondary Paper and Paperboard Products.

The fourth and seventh sub-industries (Secondary Solid Wood Products and Secondary Paper and Paperboard Products) constituted the secondary processors. Reconstructing this

breakdown of the industry, we conducted an economic contribution analysis for Maine's forest product industry in order to isolate Maine's secondary processors and identify their relative contribution to the industry. The results from this analysis and Leefers' results from Michigan are summarized in the table below. *Percent* in the table refers to the percent of the total contribution attributed to secondary manufacturing. Output and labor income values are in millions of dollars.

Maine's forest product industry is roughly 22-29 percent the size of Michigan's, depending on the metric. Although the size of the industry is larger in Michigan, the overall role of it is smaller relative to the state's economy; Maine's FPI directly contributed 2.2 percent of the state's GSP in 2014 (\$1.25 billion of \$56.71 billion), while Michigan's directly contributed 0.7 percent of the state's GSP (\$3.17 billion of \$454.5 billion (Leefers, 2016, p. 9-10). The relative contribution of secondary processors in Michigan is around 40 percent, while in Maine secondary processors make up around 20 percent of the forest products industry's contribution.

1 Larry A. Leefers, *Forest Products Industries Economic Contributions to Michigan's Economy*

2 The aggregation of sectors and the proportion of some forestry support sectors allocated to forestry is slightly different in Leefers than in our previous analysis. We follow Leefers here to be able to directly compare Maine results to Michigan.

		2014 Maine			2014 Michigan (Leefers, 2016)		
		Employment	Output	Labor Income	Employment	Output	Labor Income
Direct contributions	Secondary	3,715	\$1,058.1	\$200.3	14,958	\$4,839.7	\$875.4
	All FPI	14,484	\$5,814.3	\$961.7	38,291	\$11,601.3	\$2,297.6
	Percent	25.65%	18.20%	20.83%	39.06%	41.72%	38.10%
Total contributions	Secondary	8,884	\$1,836.2	\$436.0	35,937	\$8,099.6	\$1,936.2
	All FPI	44,629	\$10,153.6	\$2,312.0	96,623	\$20,334.1	\$5,150.1
	Percent	19.91%	18.08%	18.86%	37.19%	39.83%	37.60%

Maine Secondary Wood Products Contributions, 2014					IMPLAN manufacturing sectors included
Impact type	Employment	Labor Income	Value Added	Output	
Direct effect	2,475.40	\$107,432,737	\$134,706,315	\$436,190,648	Secondary Solid Wood Products: Engineered wood member and truss; Wood windows and doors; Cut Stock, resawing lumber, and planing; Other millwork, including flooring Wood Container and Pallet; Mobile home; Prefabricated wood building; All other miscellaneous wood product.
Indirect effect	1,566.90	\$74,960,568	\$107,721,779	\$243,410,893	Wood furniture; Custom architectural woodwork and millwork; Showcase, partition, shelving, and locker.*
Induced effect	1,226.90	\$48,540,151	\$87,357,010	\$152,570,814	Secondary Paper Products: Paperboard container; Paper bag and coated and treated paper; Stationery product; Sanitary paper product; All other converted paper product.
Total effect	5,269.20	\$230,933,457	\$329,785,104	\$832,172,354	*Only a portion of the sector is included in forest products industries.
Maine Secondary Paper Products Contributions, 2014					
Direct effect	1,239.20	\$92,847,220	\$116,794,280	\$621,951,977	
Indirect effect	1,282.00	\$68,953,164	\$105,901,344	\$246,053,743	
Induced effect	1,093.40	\$43,266,335	\$77,873,058	\$136,005,784	
Total effect	3,614.60	\$205,066,719	\$300,568,681	\$1,004,011,504	

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Contact MFPC at 535 Civic Center Drive, Augusta ME 04330, 207-622-9288

www.maineforest.org, contact rscruggs@maineforest.org.

Cover photos (clockwise from upper left) courtesy of Hancock Lumber, Wells Turning and Finishing, Hardwood Products, Pride Manufacturing, and Maine Wood Concepts.



Above left, a giant snowshoe, symbolized Norway's designation as the "Snowshoe Capital of the World at the January 1949 winter festival. (*Norway Historical Society*) Top right, c: 1950s "The Largest Toothpick Center in the World. (*Strong Historical Society*) Lower right, Lewis Mann and Sons' giant clothespin sign. (*Woodstock Historical Society*)

Secondary wood processing stepped back from the brink and is growing again

By Roberta Scruggs
MFPC Communications director

It sounds like the plot of a science fiction movie. Disaster strikes, but a hardy band of survivors manage to rebuild their town, their world or, in this case, their industry.

Secondary wood processing, also known as value-added wood manufacturing, is generally defined as continued manufacturing beyond the production of lumber.¹ Capitalizing on the state's vast wood resources, Maine once boasted large mills, countless one-person shops, and everything in between. They produced clothespins, tool handles, golf tees, toothpicks, yardsticks, tongue depressors, popsicle sticks, pepper mills, rolling pins, kitchen utensils, drumsticks, furniture, bird feeders and much, much more.

¹ Maine's Future Forest Economy Project 2005, Secondary Wood Manufacturing, Page 120.

"Every town from Norway to Bethel and Bethel to Farmington had a woodworking mill," said Fred Huntress, a consulting forester in Poland Spring. "It didn't pay big, but it was a steady job. There was no unemployment in these towns up through here because there was a job for everybody in the family."

Now most people don't even remember that the industry once was a mainstay of the state's rural economy.

"It's almost invisible because it's so fragmented," said Lloyd Irland, president of The Irland Group and a long-time industry observer. "Everyone is doing something different."

Nor has the word gotten out that the state's secondary wood processing is growing again.

"Maine has the strongest secondary manufacturing of all the Northern New England states by far," said Dave Redmond, director of Wood Products Initiatives at the

Indices of the wood products industry in Maine, 1992-2002*

Index of industry	1992	1997	2001	2002	% Change
Number of Establishments	743	828	848	804	8%
Number of employees	10,794	10,431	10,071	9,544	-12%
Value of Shipments (all values in \$ million)	\$1,475	\$1,769	\$1,685	\$1,597	8%
Value of exports, Total	\$147	\$221	\$287	\$273	86%
Value of exports to Canada	\$125	\$208	\$285	\$272	118%
Value of exports to Mexico	\$0.05	\$0.13	\$0.07	\$0.04	-20%
Total exports as % of value of shipments	10.00%	12.50%	17.00%	17.10%	72%
Value of imports from Canada	\$77	\$144	\$281	\$323	319%
Value of imports from Mexico	na	na	na	na	na
Canadian imports as % of value of shipments	5.20%	8.10%	16.70%	20.20%	287%

Source: *The Effects of NAFTA on the Maine Economy, Planning Decisions Inc., 2003*

*NAFTA did not address trade in softwood lumber with Canada. That has been left to a separate negotiating track, which has led to several different systems for limiting Canadian imports over the years – Lloyd Irland, Irland Group.

Northern Forest Center. “Several wood products businesses during the recession went out of business, but the remaining businesses were stronger and were able to pick up the pieces and move forward.”

So at the request of the Maine Forest Products Council, Dr. Mindy Crandall and doctoral candidate James Anderson III studied the economic impact of secondary wood manufacturing in Maine in 2014, comparing it to similar Michigan research, released in 2016.

They found the total impact was 8,884 jobs and \$1.8 billion in 2014, about 20 percent of the forest products industry’s \$10.2 billion impact in 2014.

“Those jobs can make a big difference for specific communities,” Crandall said.

So what went wrong for secondary wood processors and what’s gone right?

Some wood products once found in every household lost their market bases. Wooden clothespins, for example, lost out to plastic clothespins and clothes dryers. Wooden toothpicks also lost ground to plastic ones, as well as changing social norms. Emily Post, once considered the definitive guide to American manners, “pulled no punches when it came to the etiquette of using toothpicks in public: “Don’t!”²

² Los Angeles Times, 11/15/1993

Another change was the emergence of discount store chains followed by big box stores in the 1970s and 1980s.

“As soon as you get the monster stores – the Kmart, the Wal-Mart – whose order sizes are in the truckloads every week, all of a sudden that creates a huge opening for imports,” Irland said. “Importers can sell ship loads or container loads of these things. Just the sheer economics of quantity can overwhelm the smaller producers who are working through the old marketing chains.”

Many in the wood processing industry, however, date the dramatic downward slide to NAFTA, which went into effect in 1994, and the U.S. normalization of trade relations with China in 2000, followed by China’s 2001 entry into the World Trade Organization. Wood imports, primarily from China, surged into the U.S. market.

Across the nation, a fierce debate continues to this day about the consequences of free trade vs. protectionism and the interests of the producer vs. interests of the consumer.

“We have to realize that protectionist policies seem like they’re going to be beneficial in the short run but they’re going to raise consumer prices for absolutely everything,” Crandall said. “And so people are going to have less income. That’s a side effect that we don’t talk a lot about, but that’s really going to affect people in Maine.”

However, Mark Kemp, a wholesale wood products distributor in Farmington, believes NAFTA plus imports from China "just really destroyed our manufacturing companies. It wasn't just the wood industry, it was the shoe industry, it was the textile industry."

For example, Kemp could buy a one-inch bead then from Pride Manufacturing for \$60 a thousand, but his competitors started bringing them in from China and selling them for \$30.

"When NAFTA hit, we were dealing with roughly 60 or 70 mills in Maine, New Hampshire and Vermont," Kemp said. "We're down to three turning mills in Maine now, one in Kingfield, one in New Vineyard, one in Buckfield . . . Our sales dropped about 90 percent when NAFTA hit and China was let in."

Starting around 1998, "Mill closing" or "Last toothpick (or clothespin, dowel or Tinkertoy) rolls off the line," became more common. In 2003 alone, nearly a dozen wood mills closed, including C.B. Cummings in Norway, which five years earlier had 200 workers and annual sales of \$7 million in furniture, dowels, novelties and toys.

Brad Cummings, whose great grandfather founded the company in 1860, shared a pessimistic view of the industry's future with a reporter as he stood outside empty buildings.

"It comes down to American labor-intensive manufacturing -- it's out of here, and it ain't coming back," Cummings said.³

However, Irland points out that the

³ Clarke Canfield, Associated Press, 4/8/2003

Maine Wood Concepts



Town: New Vineyard

Owners: (From left in photo) Jody, Doug and Gary Fletcher

Founded: 1971

Employees: 97

Website: <http://www.mainewood-concepts.com/>

Wood Products: Fletchers Mill cooking tools, Lutz file handles and cleaners, handles, custom turnings, toy and game parts, wood dowels, molded parts, spin-



dles, custom balls, knobs, furniture buttons and plugs, custom wheels, axles, craft parts, beads, pegs and stool legs.

Great Recession slashed demand for many solid wood products, with both soft and hardwood lumber production falling by 50 percent. All items dependent on housing, whether primary or value added, suffered severely, he said.

"After 2006, housing starts fell to the lowest level since the federal government started counting in the late 1950s," Irland said. "Mild recovery began after about 2009".

Around 2008, the secondary wood manufacturing industry also slowly began climbing back as Maine's wood processors learned lessons that not only saved their industry, but could be valuable for others trying to survive in global markets.

"These are a new breed. They're sellers," Irland said. "They don't make something because it used to sell. It has to sell today."

Lesson learned: Secondary wood processors could not compete on low-end products, such as beads, dowels, knobs for cabinet doors etc. They had to “move up the food chain” to higher value products.

Doug Fletcher, president of Maine Wood Concepts in New Vineyard, was 16 when his father and uncle started the business in 1971. At the beginning, the entire staff consisted of the brothers, their wives and children. They made novelties, such as wooden dart barrels, toy wheels and candle cups. In time, Doug's father bought out his uncle, and in 1994, Doug and his brothers Gary and Jody bought the company from their father.

Maine Wood Concepts met the challenges of the 2000s by diversifying and expanding product lines, often by acquiring other companies or divisions. In 2005 alone, they acquired the Lutz File & Tool Co. division of Gorilla Glue Co., a spatula handle line from Downeast Woodcraft and Pride Manufacturing's custom wood turning division in Guilford, Maine.

“With manufacturing jobs leaving this country and the state, we simply could not sit by and allow another wood products company to bite the dust without at least

⁴ Bangor Daily News 10/19/2005.

⁵ Down Magazine, BEST OF MAINE SHOPPING & SELF <http://downeast.com/best-maine-shopping-self/>

exploring the options to see what we could do to help,” Fletcher said then.⁴

In 2012, the company acquired Vic Firth Gourmet Kitchen Products division and rebranded Vic Firth's rolling pins, salt and pepper mills and other kitchen items under its own Fletcher's Mill name. Fletcher called the acquisition “a perfect fit” that would add up to 20 additional jobs at the New Vineyard location.

Today Maine Wood Concepts list of products is long – everything from toys to tool handles -- and its Fletcher's Mill line is especially hard to resist, as Down East Magazine noted when it chose a pepper mill as “[Best of Maine](#)” in the Kitchenware category for 2016. “As fine as all the mills' features are, however, we admit we fell for their looks first. Made by [Maine Wood Concepts](#), the largest custom wood turning shop in the country, the mills come in such a variety of styles, sizes, and luscious colors that we've looked for excuses to own more than one. Luckily, there are salt mills too.”⁵

Maine Wood Concepts and the state's other surviving wood processors have come a long way back from the crisis in the 2000s.



Pride Manufacturing

Town: Burnham

Owner: Centre Partners, a New York investment firm.

Founded: 1930, Florida, relocated to Maine, 1956.

Employees: 100

Website: <http://www.pridemfg.com/>

Products: Cigar tips, golf tees, cleats and accessories, Lincoln Logs.



"Our industry is in a lot better shape than it was in 2008," Fletcher said "We've had to become more efficient at what we do."

Lesson Learned: To compete with imports, companies need documented quality control, proximity to markets, and must "sharpen the pencil at both ends."

Pride Manufacturing in Burnham began making cigar tips in Tampa in 1930, but moved to Maine in 1956 to be closer to the largest white birch tract in the country. White birch turns smoothly and faster than the other species, has less fiber tear and possesses a unique quality prized in any product that touches a human tongue – it doesn't taste bad.

"It also accepts coatings and flavorings really well," said Randy Dicker, Pride's senior director of manufacturing operations. "You get into other hardwoods and it can get a little tart, the stuff is too hard. Cigar smokers want to chew on the tip and get into the wood a little bit. It's hard to do that with maples."

Making cigar tips creates a lot of "off fall," such as red heart, cross grain and knots. So Pride put the extra wood to use producing golf tees, which grew into a bigger market than cigar tips. Then in 2001, China started making golf tees.

"It really challenged us. We had to really get some costs out, do things a little bit different to remain competitive," Dicker said. "We worked on our efficiency and machines – how we could do more in an hour – and we were able to take \$2 or \$3 million out (of the process)."

Pride also diversified, producing flooring blanks, making plastic golf cleats – in Taiwan – and even selling low-end golf tees made in China.

Then in 2014, Pride became a poster child for "reshoring" – bringing back jobs to the U.S. – when it was chosen to manufacture Lincoln Logs, invented around 1917 by John Lloyd Wright (son of the architect Frank Lloyd Wright).

"That was big news," Dicker says. "The governor had a news conference here and everything."

About 140,000 jobs nationally were lost to offshoring



Morning Sentinel photo by David Leaming.

Gov. Paul LePage, center, listens in 2014, as Randy Dicker of Pride Manufacturing announces the Burnham plant will now mill pieces for Lincoln Log toys. At left, Walt Whitcomb, ACF commissioner, and far right, Larry Fanelle of the K'NEX company.

in 2003, according to the Reshoring Initiative, but in 2014, for the first time in two decades, the U.S. realized a net gain of 10,000 reshored jobs. In 2016, "the tide has turned," the Reshoring Initiative said, with jobs coming back exceeding those offshore by 27,600 jobs. In the past five years, manufacturing has brought back more jobs than any other industry.⁶

Larry Fanelle, chief supply chain officer for K'NEX, the company that licenses the rights to sell Lincoln Log toys, summed up the reasons his company chose Pride at that 2014 news conference in Burnham.

"It's not just so we can say our product is American-made," Fanelle said. "We're closer to our market, the North American market, and it reduces our excess inventory because we don't have to project so far in advance to make the products. We can always meet the order now . . . We can be closer to the market and bring new designs to the market quicker."⁷

Dan Crowley, then president of the Maine Wood Products Association, added to Fanelle's list, saying "a lot of retailers and buyers have found that products made overseas are not necessarily of the same quality as those made in the U.S."

It wasn't the first time Pride Manufacturing acquired

⁶ Reshoring Initiative, <http://www.reshoren.org/blog/reshoring-initiative-2016-data-report-the-tide-has-turned/>

⁷ Portland Press Herald, Central Maine Newspapers, 9/17/2004

a “reshored” customer. In 2009, a company in search of a better quality cigar tip and production schedule brought a high-volume account to Pride in 2009. The production time element was an important consideration because a cigar tip is “a highly engineered piece and if it sits around, it changes. Wood changes shape if it sits,” said Scott Taylor, Pride’s wood buyer,

The provenance of the wood was another concern for Pride’s reshored customer.

“They can make wood look white, you know, they bleach it, they do different things,” Dicker said, “But the Maine tips have character. They have a little color, they’re natural. We could provide MSDSs (*Material Safety Data Sheets*) and we could support what we put on the tip. That made a difference to them. They had no idea what was on the tip coming across from China.”

Lesson Learned: Be nimble, be persistent, and keep looking for market niches.

Hardwood Products in Guilford is the last popsicle stick maker in the United States and that, ironically, is a benefit of the downturn in secondary wood processing across the nation.

“Twenty years ago there were six of us in the United States,” said James Cartwright, vice president of operation. “Today there’s only one. There’s a reason why those five left and a reason why there’s not six more coming. It’s because it’s very low profit margin on super high volume.”

In 1919, Cartwright’s grandfather, Lloyd Cartwright, founded the Minto Toothpick Co. in Saginaw, Michigan. The company originally sold mint-flavored toothpicks purchased from Forster Manufacturing in Strong, once called the toothpick capital of the world. Minto toothpicks became so popular they started to cut into Forster’s market share, so Forster’s abruptly shut off Cartwright’s supply.

Undeterred, Lloyd Cartwright relocated to Guilford because of Maine’s ample supply of white birch, and began operations as Hardwood Products. The company still makes toothpicks, selling millions each month, but it also produces under the brand names Gold Bond and Trophy, including ice cream sticks and spoons, candy sticks, steak markers, mustard paddles, cocktail forks and hi-ball spoons, swizzlers, tongue blades and manicure sticks.



Hardwood Products

Town: Guilford

Owner: Privately held company

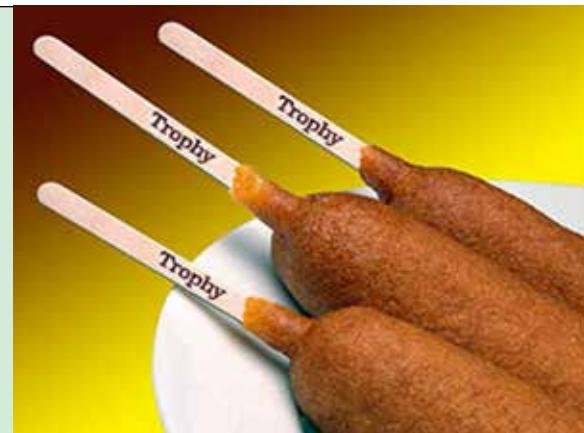
Founded: 1919 Michigan, moved to Maine, 1920s.

Employees: 450 (most in Piscataquis County¹)

Website: <http://www.hardwoodproductsco.com/>

Products: ice cream sticks, corn dog sticks, wooden skewers, wooden toothpicks, wooden spoons, wooden utensils, wooden craft sticks and more.

¹ <https://www1.maine.gov/labor/cwri/publications/pdf/MaineCountyTop25Employers.pdf>





Wells Wood Turning

Town: Buckfield

Owners: Christian Chandler and Simon Varney

Founded: 1985

Employees: 30

Website: <http://wellswoodturning.com/>

Products: Rolling pins, custom and promotional wood turnings, custom wood handles, toys and craft parts.



Even when its main mill burned to the ground in 1958, Hardwood Products didn't give up. Employees and townspeople banded together, rebuilt the mill and had it up and running in two years. In the mid 1960s, the company diversified into medical and health products under the brand name of Puritan.

China imports also impacted Hardwood Products, but when North American ice cream manufacturers turned back to North American suppliers, the only companies still making popsicle sticks were Hardwood Products and John Lewis, a subsidiary of Groupe Rémabec, in La Tuque, Quebec.

Hardwood Products also found a new market niche in corn dog sticks, after Solon Manufacturing closed its Skowhegan mill in 2005, which employed 500, consolidated operations in Rhinelander, Wisconsin, then sold out to an Ontario company in 2009.

"When Solon went out, I said, 'Boy, we better get into that business,'" Cartwright said. "We did and we got it and business was good from 2011 up until last December. We still have quite a bit of it, but we lost a large amount of it, too."

Hardwood Products 'major customer for corn dog sticks was sold three times in seven years. Although the first two owners wanted American-made sticks, the third owner turned to China. So Hardwood Products has gone from making 1 billion corn dog sticks annually to about 600 million, Cartwright said.

"The big customers are what keep us going," he said. "So when we lose a big customer because of pricing, that's huge."

He believes that customer will return because it will see that Maine's white birch sticks won't break during manufacturing like lighter, weaker substitutes used in China, which costs labor, machine downtime and the loss of the ice cream that was on the stick

"They could pay double for the sticks and because they have no downtime they're still saving much more on the other end," Cartwright said. "We will get them back."

Lessons Learned: Think beyond geographic boundaries, seek customers' ideas for new products, use today's technology to reach new customers.

After all the headlines about wood mills closing, it was

a pleasant surprise to read a very different headline last December in the Lewiston Sun Journal: “New owners of Buckfield wood-turning business plan for growth.”⁸

Why did Chris Chandler, a corporate/commercial lawyer, and Simon Varney, a senior marketing/communications manager, both from Portland, buy a mill with 30 workers in Buckfield, a town with 2,009 people, only 300 people more than in 1860?

“We were looking for a business opportunity,” Chandler said then. Six months later, they’ve experienced no buyer’s remorse.

“I don’t think we regret our move for a second,” Varney said. “We’re very happy and very pleased.

Chandler and Varney bought the business, they said, because it was well-run, profitable, had “a very interesting and impressive list of accounts,” and experienced workers, most of whom live within 10 miles of the mill.

“They know wood. They know how it works. They know how it turns,” Chandler said. “These are people who know what they’re doing and how to do it. That’s an advantage that a place like Buckfield or any other rural Maine community has.”

Chandler and Varney give considerable credit to Tom Wallace and Alan Chesney, the previous owners, who bought the mill in 2003, when so many wood processing plants were closing. Wallace had been vice president of manufacturing and Chesney was chief financial officer at Brunswick (ME) Technologies, a fiberglass manufacturer. The company went public and one stockholder, a French multinational corporation, wanted to take it private and there was a hostile takeover.

Just as other surviving companies did, Wallace and Chesney looked for lower-volume markets “up the food chain,” where China and other offshore manufacturers couldn’t compete with transit time and quality. They also added services, such as finishing and other secondary operations, Wallace said, “Typically in smaller volumes, looking at 1,000 parts instead of 100,000.”

One high-profile product line are colorful wooden eggs, which have been featured at the White House Easter Egg roll since 2006. In the Obama years, the egg designs tied in with First Lady Michelle Obama’s exercise initiative, such as bunny twirling a hula hoop, while another

design featured Bo, the family dog.

This year, the Wells eggs got an extra level of attention, because the new administration’s Easter order came in a bit later than usual. On the upside, though, “we certainly got a boatload of publicity from it,” Varney said. “We made the New York Times. We were in the Washington Post. We were on local news channels as well as in Washington DC. So it was kind of hectic and busy both from a public relations standpoint and to get the order through the mill, but we were pleased to do it.”

Chandler and Varney plan to work more closely with existing accounts, create new ideas, find new products and “expand that smaller slice of the turning pie to get a bigger piece of the larger industry.” To help achieve those goals, they’ve redesigned their website and “raised the bar” on marketing.

“There’s a group of younger people out there who are developing products based on wood,” Chandler said. “A lot of them are working in totally different industries and that’s probably the most exciting component of the market that we’ve seen, one that we were totally unaware of before.”

They’re also noticed increased interest in wood as an organic, non GMO, product and an alternative to plastics. There’s also a trend toward buying American-made products, rather than imports.

“This idea of reshoring is not just a buzzword, it’s actually happening,” Varney said. “I can’t say it’s happening in an overwhelming amount, but it certainly is occurring.”

Maine’s secondary wood processors certainly haven’t forgotten the dark years and many challenges remain, from foreign labor rates to the strong U.S. dollar. Still, there’s a cautious optimism that the industry can continue to grow and to play an important role in the state’s rural economy.

“I have a hunch if we can get more of this new capital -- motivated people who will make investments -- I think it can certainly survive and probably prosper,” Irland said. “I would really like to see a way for more firms like this to get started.”

Private employment and wages for selected Maine forest

Manufacturing Industry*	Average Annual Employment				Total Payroll		
	2001	2006	2011	2016	2001	2006	2011
Plywood and engineered wood	1,166	1,028	495	623	\$39,188,058	\$39,478,909	\$20,353,548
Converted paper product mfg.	2,048	1,804	1,576	1,303	\$71,766,308	\$75,923,388	\$76,707,724
Sawmills/wood preservation	2,365	2,423	1,776	2,020	\$70,596,996	\$84,892,443	\$68,232,258
Other wood products	3,613	2,768	1,857	2,028	\$92,422,367	\$81,224,162	\$58,889,277
Total	9,192	8,023	5,704	5,974	\$273,973,729	\$281,518,902	\$224,182,807

Source: Maine Department of Labor Center for Workforce Research and Information, Forest Products Cluster 5-17-2016.

Can Maine's wood processing industry keep growing?

When the Maine Forest Products Council (MFPC) checked in last November with Dr. Robert Wagner, formerly of the University of Maine, he'd learned a lesson that ultimately led to this report.

Wagner was just a few months into his new job as director of Purdue University's Department of Forestry & Natural Resources. Previously, he served as the forest professor and director of the School of Forest Resources, the Center for Research on Sustainable Forests (CRSF) and Cooperative Forestry Research Unit (CFRU) at the University of Maine.

Wagner also was a leader of the initiative to develop a strategic plan for Maine's forest products industry, also known as the roadmap project.

So MFPC paid attention when he said in an email that Indiana's forest products industry was "unexpectedly large."

"Lesson learned so far is that secondary manufacturing is very important to a healthy forest products economy," Wagner said. He also shared a few "fun facts" about

forest products in Indiana, including:

- Sixth largest industry in Indiana.
- A leading producer of kitchen cabinets in the U.S.
- Third in hardwood lumber production in the U.S.
- More forestland than in the 1960s (1967=3.8 million acres; 2008=4.6 million).
- Grows 3.8 times more hardwood volume than its cutting.
- Wood products have a \$3 billion/year direct impact on the Indiana economy, with a total of \$17 billion indirect impact.
- Hardwood industry directly employs more than 35,000 people with indirect employment of 86,139.
- Rivals corn and soybeans in economic impact in the state.

His assessment followed on the heels of Michigan's release in August 2016 of an economic impact report on its "surging" forest products industry. Gov. Rick Snyder announced Michigan had achieved its goal – two years

products manufacturing sectors 2001, 2006, 2011, 2016

	Average Annual Wage				Change 2001 to 2016						
	2016	2001	2006	2011	2016	Employment		Payroll		Annual Wage	
						Net	Percent	Net	Percent	Net	Percent
	\$30,562,652	\$33,609	\$38,404	\$41,118	\$49,057	-543	-47%	-\$8,625,406	-22%	\$15,448	46%
	\$73,598,390	\$35,042	\$42,086	\$48,672	\$56,484	-745	-36%	\$1,832,082	3%	\$21,442	61%
	\$89,496,009	\$29,851	\$35,036	\$38,419	\$44,305	-345	-15%	\$18,899,013	27%	\$14,454	48%
	\$72,954,536	\$25,581	\$29,344	\$31,712	\$35,974	-1,585	-44%	-\$19,467,831	-21%	\$10,393	41%
	\$266,611,587	\$29,806	\$35,089	\$39,303	\$44,629	-3,218	-35%	-\$7,362,142	-3%	\$14,823	50%

*NAICS 3212, 3222, 3211, 3219

early – of contributing \$20 billion annually to the state’s economy.

A Michigan business magazine’s story also made the same point as Dr. Wagner had: “The sector’s future expansion will depend on establishing a manufacturing base to produce new and innovative wood-based products, including paper and timber.”

So it was natural for the Council to wonder about the status of Maine’s secondary wood manufacturing industry. Also natural to ask for help from Dr. Mindy Crandall and Ph.D. candidate James Anderson III, who completed an economic impact study for Maine’s forest products industry in 2016.

When their research showed secondary wood manufacturing already plays a vital role in our state’s economy, we then wondered if the industry can continue to grow and what it needs to make that happen.

Here are some thoughts, insights and ideas from manufacturers and industry observers.

EQUIPMENT – Tom Wallace, former owner Wells Wood Turning, Buckfield: “I would think one of the biggest hurdles to the companies here being able to branch out is spending a fairly large amount of cash to

bring on a different piece of equipment. If there were some matching grants that could take the sting out of that, then the company’s exposure is less and consequently they’re going to be more willing to make that leap of faith.

Mark Kemp, Kemp Enterprises, Farmington: “It takes a lot of money to start any kind of wood manufacturing mill. The wood industry itself, as far as how wood is harvested and everything else, has changed so much. It’s a good question and I honestly don’t have an answer. Would I love to see it? Yes. But you’re talking millions of dollars to set up a dowel mill or a turning mill.”

TRAINING – Dave Redmond, director, Wood Products Initiative, Northern Forest Center: “I think there’s a need for a change in perceptions about the manufacturing, service and tech sectors of our society . . . You know it’s nice to think you’re going to be a professional, but if you come out of college with loads of debt, you’ve got a challenge on your hands. Hopefully that’s going to begin turn around. In Vermont there’s a focus on the tech education side and the state legislature is focused on more funding and much more marketing in that area. I think it should happen in Maine and other states.”

Randy Dicker, senior director of manufacturing operations, Pride Manufacturing, Burnham: “It’s hard to find employees today who, when they come in, want to stay with you, who have what it takes to be successful on a weekly basis, who want to work . . . We’re starting to work with [JobsInMaine](#) and get more exposure in high schools and colleges, because a lot of the kids don’t know what types of jobs are available to them out there.”

EAST COAST MARKETS – Bill O’Neill, Michigan state forester: “I would say that Maine has some real advantages. You’re on the East Coast. You’re not that far from Boston. That’s a pretty big market. You’re not that far from Connecticut and New York City. So you have that northeastern seaboard. Just draw a circle around that and look at the wood product use there. You have a seaport. Certainly the southeast is leading in pellet development and sending all these pellets over to England and Europe to burn as fuel. But you folks have deep-water ports right there.”

SECONDARY WOOD PROCESSING SUPPORTS PRIMARY MANUFACTURING – Charles Levesque, president, Innovative Natural Resource Solutions: “We still have substantial production at the primary level, which means sawmills. So there’s lots of raw material from which secondary products can be made. It’s all connected. Clearly the secondary manufacturing can help the primary . . . So it really comes down to why aren’t there more facilities using the raw materials for further manufacturing to add value in the region? And the answer to that is just the classic answer -- that so many other places in the world can produce these same products at a much reduced cost.

MASS CUSTOMIZATION – Eric Kingsley, vice president, Innovative Natural Resource Solutions: “The ability to do mass customizations probably has huge opportunities. You go to a website and you pick the size, the edging, the legs, the stain and they assemble it for you and you’ve got five choices on each one of those. So it’s not truly custom, it’s not like you draw it up and they build it, but it has a meaningful element of customization and you get it in two weeks, three weeks, a month later. It’s the model that made Michael Dell and Dell computers incredibly successful. Mass customization is sort of one of the bigger movements. Really, that’s how you buy cars.”

IN-BOUND MARKETING – Simon Varney, vice president, Wells Turning, “There are certain things you can do on the technology side, kind of designing a site search to help people find things. There’s this concept called in-bound marketing. The approach is not only outward going calls, but how do people find you, contact you? So this is a mix of your website, social media, blogging. These sorts of nouveau marketing practices could be very effective, very powerful for us here.”

WIDENED PANAMA CANAL – Lloyd Irland, president, The Irland Group: “I think the just-in time thing is why some manufacturing – they call it reshoring – is coming back, because of the long supply chains, the long delays in shipments. How is the new widened Panama Canal going to change that? Because all of a sudden we’ve got some of the ports in the Southeast gearing up to be able to take these super ships, that were too big to go through before. A wider canal means that big ships are going to start coming from Asia through the Panama Canal to the East Coast, cutting out that long train trip across the continent. So whether that’s going to change our economy in the northeast or not is a question I think is worth asking.”

EVEN A FEW JOBS IS A GOOD THING – Mindy Crandall, University of Maine: “I think we should be articulating that rural development has intrinsic benefits, but also not over promise. Tell people, ‘Hey, this could provide a few jobs and that’s a good thing.’ More importantly it provides a market for low-grade material, a market for hardwoods and increased ability for landowners to sell their stuff . . . Secondary wood manufacturers are already here and they’ve already invested, so why not help boost them? It’s so hard to get a big business and it’s kind of a race to the bottom as more states compete with each other to try and land the big company. And the fact remains that even if you get the big mill, the global economy matters more than what we can do it this state.”

ANSWER SHORT- AND LONG-TERM QUESTIONS – Chris Chandler, Wells Turning: In the short term – one or two or three years – it might be something like help with marketing or providing access to customers that otherwise we might not have. In the long term, it’s much more strategic, such as trying to figure out how you insure a workforce in a state with declining youth population. We have to look at not only what’s happen-

Articles of Wood imported and exported, Maine, China and Canada

All values are in USD		2008	2010	2012	2014	2016
China	Imported	\$4,032,081	\$3,711,964	\$515,707	\$1,248,100	\$2,945,747
	Exported	\$32,651	\$26,504	\$43,000	\$43,697	\$129,462
Canada	Imported	\$3,184,294	\$1,967,118	\$3,147,436	\$2,741,441	\$2,981,716
	Exported	\$1,215,659	\$1,227,904	\$1,286,011	\$3,288,259	\$4,486,656

Data provided by the Maine International Trade Center, from: <http://www.wisertrade.org>, data from U.S. Census Bureau Foreign, Trade Division. Data on U.S. Imports of Articles of Wood from China only goes back to 2008.

ing in the market today but, if we're successful, is there going to be sufficient work force here in rural Maine to provide the people to do the work? How do you deal with long-term energy when we really don't know what the cost of electricity might be?"

TRADE – James Cartwright, vice president, Hardwood Products, Guilford, didn't hesitate when asked what would help his business most. "Fair trade," he answered.

On July 6, for example, John Lewis Industries, Hardwood Products' competitor in La Tuque, Quebec, received a \$569,250 grant from the Canadian government to install a third finishing line and molding equipment in its wood processing plant.¹ At the same time, Bioénergie in La Tuque received a \$500,000 grant to carry out feasibility studies needed to start up a biorefinery to convert forest biomass into biofuels.

"We've just got to get fair trade," Cartwright said. "That Canadian company up there is only six hours away. They get subsidies from the government. They're getting money from the government to keep jobs in these certain towns. And then all their customers are in the USA so they get a 35 percent advantage on the exchange rate, which is huge. So it's tough to compete with them."

Dave Gordon, president, Katahdin Forest Products, Oakfield, however, has seen that efforts to achieve fair

trade can be a "double-edged sword." Since the U.S imposed duties on Canadian softwood last spring, his cost for cedar have risen about 25 percent. When workman's comp costs rose in Maine years ago, Gordon said, the state's cedar mills moved to Canada – most within 5-10 miles of Maine's border. Another issue, he said, is how increased costs for Canadian lumber will affect the U.S. housing shortage.

Don Tardie, former manager, Maine Wood Products, "Sawing hardwood is a quality game and it's also a game of very, very strong cost positions. Just the fact that our dollar is worth so much more than the Canadian dollar is a huge, huge factor in our inability to compete."

Canada also has spent decades, building "a whole value-added chain around consuming all aspects of the log," Tardie said. For example, in Saint-Georges, Quebec, just across the border from Jackman, is a major wood manufacturing center. "When a log goes over there they make a whole range of different products out of that log," Tardie said. "So you get all these value-added facilities within arms-length of each other. They leverage a lot of wood out of Maine for that specific manufacturing complex . . . We've got to have a plan to get ourselves back up on our feet. Everything should be on the table. Everything! Let's not underestimate the value of some of that stuff. It may be small today, but it may be huge tomorrow."

¹ Wood Business, July 6, 2017 <https://www.woodbusiness.ca/industry-news/news/la-tuque-biomass-projects-get-federal-funding-boost-la-tuque-biomass-projects-get-federal-funding-boost-4330>

Primary or secondary manufacturing: What's best?

You often hear discussion about the importance of primary or secondary manufacturing in a state or regional economy. But what does it mean that Michigan's secondary wood and paper products sectors are 40 percent of the forest products industry's total economic contribution, while in Maine it is 20 percent? Is one necessarily better than the other?

In general, the primary sector makes direct use of natural resources, while secondary manufacturing takes outputs from the primary and finishes or combines them to create a new product that is often sold directly to consumers.

In Maine, a pulp mill is a good example of primary manufacturing. The raw materials, primarily chips and water, are processed into pulp before being further refined. Secondary manufacturing is represented by industries such as furniture making, where pre-processed wood is turned, finished, and assembled into a final consumer product, such as a rocking chair.

Manufacturers consider many things in choosing where to locate. If these factors didn't vary by geography, then primary and secondary manufacturers might be spread evenly across all regions. In reality, businesses are balancing things that do vary geographically, such as raw materials, process power, adequate land, transportation infrastructure, labor force, capital, and markets.

In forest industries, primary processing involves utilizing a heavy, bulky raw material that is expensive to transport. From a primary processor perspective, the unique advantages of Maine are clear: There is an abundance of both wood and water. Locating close to the raw wood fiber reduces transport costs greatly, and both the pulp and paper, and the sawmill industries have relied on water throughout the centuries, for process needs, transportation, or power.

In contrast, secondary manufacturing costs of production are often more related to the distance to markets and end consumers rather than raw materials.

The primary processors have already eliminated much of the bulk of the raw resource. Even just turning a log into a cant is a big space and transport cost-saver.

Dr. Mindy Crandall

*Assistant Professor, Forest Management and Economics
University of Maine*



Secondary processors may be, however, delivering products to a myriad of consumer locations. In this case, it is often better to be centrally located with respect to population centers, ports or marketplaces.

In both primary and secondary manufacturing, you might have businesses that range in size from one person – a logger or a specialty cabinet maker – to several hundred, as in a large sawmill or major manufacturer of wooden medical supplies. In both, you can see a wide range of value being added and investment in things like research and development. And in some cases, the line between primary and secondary manufacturing is even a bit blurry, as some businesses develop forward and backward linkages along their supply chains.

So what's more important, primary or secondary manufacturing? Neither, in my opinion.

There are good reasons for some regions to specialize, and there is a lot of variety in what each might bring to a rural community. In addition, lower transportation costs and e-commerce opportunities are shrinking distances for both inputs and outputs, changing the nature of regional advantages.

While we should certainly develop as many opportunities as possible to utilize and add value to Maine's natural wealth, our best competitive advantage is still our vast and accessible forest, our sustainable forest management, and our workforce.

Maine's forest products industry is better served by focusing on the big picture that benefits all: Maintaining a working forest, improving our infrastructure and worker training, and maintaining the social acceptability of forestry, so that it's a great place to do business – whether you are a primary or secondary manufacturer, or a proud resident who loves the Maine woods.

Has white birch bolted from Maine markets?

By Lloyd C. Irland, Irland Associates,
and Kenneth M. Laustsen, Maine Forest Service

In the late 1970s, it was a commonplace that, cord for cord, white birch was Maine's most valuable hardwood, whether it was at the mill or on the stump. Its uses were legendary, based on its turnery, readiness to take paint, oil, or dyes for finishing, uniform color, and mild grain.

It was used in a wide range of products, including dowels, turned apples and other fruit, knife handles, wheels and other toy parts, and all sorts of pegs. Back in the late 1940s a mysterious "dieback" swept a lot of it away, but by the 1970s, few people noticed because there was plenty of it across the state, due to past harvesting practices, land use practices, and fire.

Numerous small firms sprinkled across northern New England, made birch into products in the region's small communities. Much of the white birch was sold as "boltwood" in sections ranging from 50 inches to 8 feet.

Boltwood has a nice niche, pulpwood sized trees, usually a minimum 8" DBH to a 6" DIB top, with a nearly sawlog stumpage price. This was great for landowners, as it helped offset the tendency of birch trees to avoid growing in anything resembling a straight line. This growth habit may account for why white birch has never been a major lumber item.

In the dowel, turning, and specialty markets, white birch has now been displaced by imported woods and plastics. Next time you are at your favorite yuppie coffee shop, ask the barista behind the counter to look at the box of wood coffee stirrers, if they haven't switched to plastic. You'll find they come from China. There is a lot of birch in northern China and Mongolia, and whether it's as good as Maine birch doesn't matter, the customers don't seem to care.

Years ago, imported ramin from Asia was already pushing its way into the dowel market, and eventually ran most dowel production out of the Northeast. Further, from toy wheels to popsicle sticks to clothespins, wood gave way to plastics. This trend was doubtless accelerated by the offshore movement of so many of these industries. New England's small plants were not suited to filling high volume export shipments, and freight bills made it unrealistic to ship Maine wood to Asia.



Many of the things people made from birch cost very little. Their end users often got them for free. The people purchasing toothpicks, golf tees, or tongue depressors probably could not tell you the price of these items. But distributors could, because large volume and tiny cost differences count, just like for today's big box retailers.

In 1960, white birch accounted for 28 percent of the state's total hardwood log harvest, second only to sugar maple. Its share stayed at that level to the mid 1970s, when red maple was finally listed separately from other hardwoods, and thence has steadily slipped to being only 8 percent now.

While there is a specialty birch plywood market, volumes are small, and it was never an issue of material competition for northern New England producers. The Finns, good at peeling small logs down to small cores, ruled this market for what was termed "Baltic Birch."

In 2016, white birch, despite its declining market, was still second in sawlog harvest volume among Maine's hardwoods, after sugar maple, but 28 percent of that harvest leaves the state as logs.

In 2015, the highest white birch veneer prices were found in Aroostook, Oxford, and Piscataquis counties at \$626, \$637, and \$639 respectively, well above the statewide average of \$576.

In the pulpwood markets, white birch has a special interest because in the past there have been mills that wanted white birch for its particular characteristics and other mills wanted it because customers asked for

birch-only pulp. In MFS reports, white birch is not separately tallied, as it usually moves with other hardwoods.

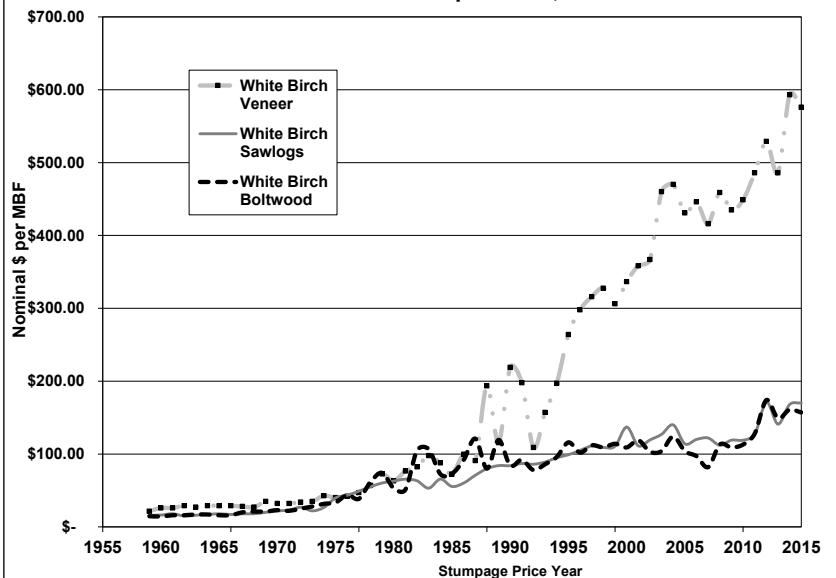
Nominal stumpage price trends since MFS began collecting the data are instructive. The long period of decline in boltwood markets is evident in the stagnant stumpage prices for boltwood from the early 1980s through the late 2000s. The recent uptick after 2010 has leveled off again.

What is striking from a forestry standpoint though, is how the premium for high quality in the form of veneer has advanced so strongly, taking little notice of the weak markets for bolt and sawlog wood. In view of risk acceptance, holding sawlogs to reach veneer sizes may not be for everyone, and there is no certainly this pattern of high appreciation will repeat itself in the future. It could be that white birch has caught up now. *See Figure 1.*

Whether bolts sell for better than logs appear to vary by time periods, but they went from a small premium in the early 1980s to a discount by the 2000s, reflecting the market weakness. Plainly, from the chart, veneer did a lot better. In 2015, white birch veneer logs were third in stumpage price among the principal veneer species, selling at \$576/MBF, compared to \$790 for yellow birch, \$537 for red oak, and \$863 for sugar maple.

If we switch to real prices that have been adjusted for inflation, we need to temper our enthusiasm just a lit-

Figure 1 - Nominal statewide average stumpage prices (\$/MBF) for 3 white birch products, 1959 - 2015

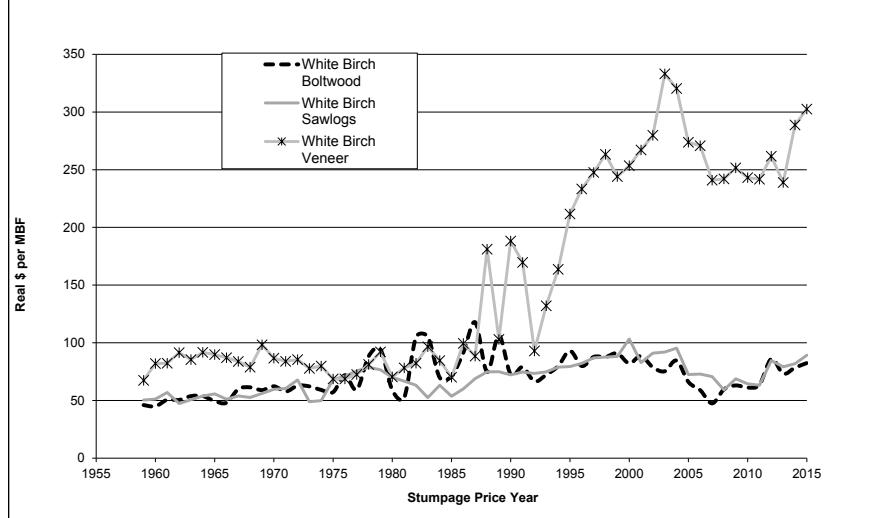


tle. White birch sawlogs appreciated at 1.7 percent per year, after inflation, from 1959 to 2015, matching yellow birch (1.7 percent), but behind Oak (1.9 percent) and sugar maple (2.1 percent). Boltwood and sawlogs were stagnant through the years of 1959 – 1975, after which boltwood carried a premium, even exceeding veneer pricing, until 1990. This is when veneer took off, peaking in 2003 at a real price of \$333, and then settling in for a run of years in the \$250 range, but again rising over the last two years to \$303 in 2015. *See Figure 2.*

Besides market demands on stumpage pricing, we should also consider the supply side, of the potential boltwood inventory, and see if that also has an influence. Our first look is at the distribution of stand size

classes within just the White Birch forest type and there are declines in each of the classes. Large diameter, i.e. majority of trees are sawtimber size (11.0"+ DBH) has declined 25 percent from its 2004 peak. Medium diameter, i.e. majority of trees are poletimber (5.0" – 10.9" DBH) and where boltwood would typically be most prevalent are down 18 percent from 2007. The biggest decline is in small diameter, i.e. saplings (1.0 – 4.9" DBH), with a 44 percent decrease since 1995, and even more dramatic is the 42 percent decrease since 2010. Being a pioneer species, the occurrence of this forest type is very dependent on fires and other ground clearing distur-

Figure 2 - Real statewide average stumpage prices (\$/MBF) for 3 white birch products, 1959 - 2015



bances like clearcutting, so the decline is not unexpected. *See Figure 3.*

But white birch, the tree, just does not occur in this forest type, but is a component of many other forest types around the state. What are the inventory trends of this product? Boltwood is essentially a high quality, small diameter, saw-log; within FIA, this is best matched to the tree class of growing stock and the 2" DBH classes of 8, 10, and 12.

We also include the 6" class as the seed stock to become boltwood, and can look at trends starting with the first FIA inventory in 1959. The 1982 inventory was the watershed for the 6 and 8 inch classes, both have declined 23 percent since that time; though since 2004 the 6-inch class has maintained a steady inventory in are of 5.5 million green tons. *See Figure 4.*

Some of these losses were due to diameter growth and progression into a larger class, which we see happening in the 10-inch class which peaks in the 1995 to 2004 era, but then drops 21 percent to its current 2016 inventory of 5.8 million green tons. The 12-inch class is similar with an even later peak in 2013 and a smaller decline of only 12 percent. These negative inventory dynamics, along with the major forest type decreases, raise a cautionary note for the future of boltwood.

Today, anyone with a good boltwood market for white birch ought to count themselves lucky. White birch illustrates a situation, that may seem strange at first glance, where even in a declining market with stagnant real prices; premiums for managing for high quality have persisted over long periods.



Stephen Lumbra, vice president, Lumbra Hardwoods, Milo: “About 7-7.5 percent of our dry lumber sales go to customers in Maine that produce end products made of or partially made of wood. We also sell a little lumber to Northern Penobscot Tech in Lincoln for their cabinet making class.

“Secondary wood processing should be a bigger part of the economy in Maine. Regulations and energy costs are two of the biggest culprits holding up expansion of secondary wood products in Maine. I know of small shops that have come on line that have just one or two people working and seem to be doing OK. But it is not a big-time thing and that I believe is where the regulations come in.

“Most of the people I know that attend certain events to sell their products sell out because there is such high demand for a nice quality, heirloom product.”

Figure 3 - Distribution of stand size classes within the white birch forest type (FTYP=902) charts displays percentage share and table displays acres for selected inventory years

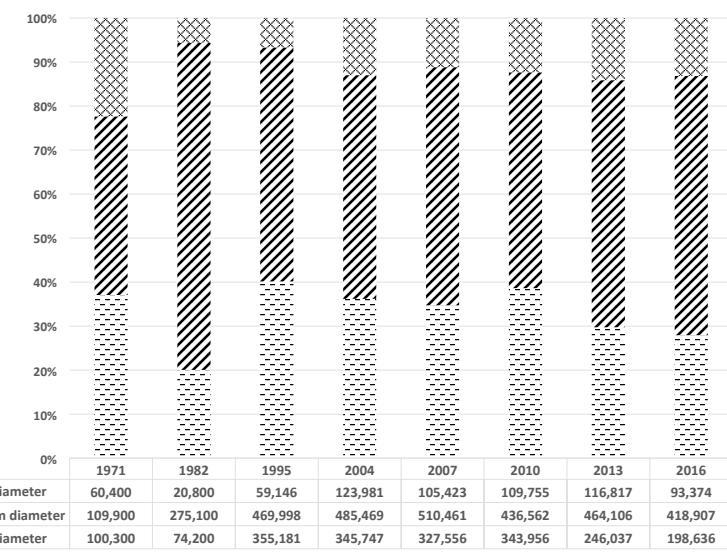
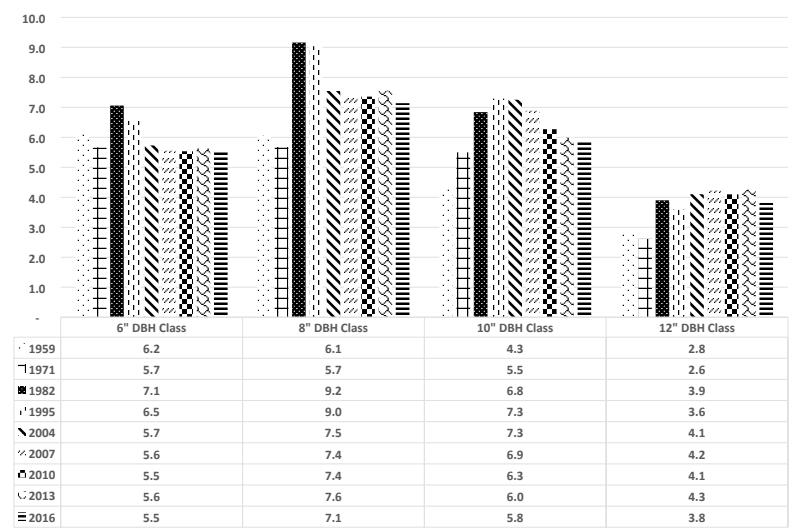


Figure 4 - White Birch growing stock inventory (million green tons), by 2" DBH Class for select inventory years



Maine sawlog export and import flows

By Kenneth M. Laustsen, Biometrician,
Maine Forest Service

The individual reports that make up the annual wood processor report provide a glimpse into the movement of forest products within the state, exported out of the state, and imported into the state. As such it is just data, without context as to the underlying influences that drive the movement of forest products. The tables below provide wood flows for all sawlogs for 2016 and for the four-year average for 2013-2016.

The sawlog exports that go beyond the northeast region to Indiana, Michigan, Ohio, Pennsylvania and internationally to China and Thailand represent those very highly priced, but low volume veneer logs.

Within the northeast, New Hampshire is our major customer, obtaining on average 99 percent of Maine's

U.S. destined sawlog exports. But hidden in the four-year average is that in 2015, 126 MMBF went to New Hampshire, a four-fold increase over any of the other three years. Why, I don't know.

Another aberration is exports to Quebec, which averaged 152 MMBF, but had a range from 113 MMBF in 2015 to 179 MMBF in 2013. Is this a market reaction to ongoing negotiations of the softwood lumber trade agreement?

Sawlog imports represent a little more than half of the exports, averaging 137 MMBF, and show less volatility over the years. New Hampshire also provides the largest inflow (68 percent) of U.S. originated sawlogs, followed by Massachusetts and Vermont, each with 15 percent.

Our two Canadian neighbors switch places, with New Brunswick providing the 96 percent of imports, whereas Quebec received 80 percent of Maine's exports.

2016 Exports of Sawlogs and MBF reported volume from Maine County of Origin to the primary processing destination in a State/Province/Country														
County of Origin	Indiana	Michigan	New Hampshire	Ohio	Pennsylvania	Vermont	Sub-Total USA Destinations	New Brunswick	Quebec	Sub-Total Canada Destinations	China	Thailand	Sub-Total International Destinations	Exports Grand Total
Androscoggin						29	29		1,215	1,215			-	1,244
Aroostook	14	6	1,179		60		1,259	35,800	22,221	58,021			-	59,280
Cumberland			270				270		45	45			-	315
Franklin			8,223			32	8,255	213	5,650	5,863		380	380	14,498
Hancock			20				20	149	999	1,148			-	1,168
Kennebec							-		478	478			-	478
Knox							-		8	8			-	8
Oxford			18,618			141	18,759	129	3,903	4,032	645		-	22,791
Penobscot							-	2,124	30,304	32,428			-	32,428
Piscataquis							-	79	38,778	38,857			-	38,857
Somerset			68			318	386	578	55,234	55,812			-	56,198
Waldo						4	4	12	1,021	1,033			-	1,037
Washington			2,025				2,025	201	2,202	2,403			-	4,428
York			5,229				5,229			-			-	5,229
Grand Total	14	6	35,632	60	524	36,236	39,285	162,058	201,343	645	380	380	237,959	
4-Year Average	31	49	65,468	13	60	513	66,133	38,155	151,500	189,655	268	220	488	256,277

2016 Imports of Sawlogs and MBF reported volumes from a State/Province/Country of Origin to the primary processing destination in a Maine County												
County Destination	Connecticut	Massachusetts	New Hampshire	New York	Rhode Island	Vermont	Sub-Total of USA Origins	New Brunswick	Quebec	Sub-Total of Canada Origins	Imports Grand Total	
Androscoggin			475	364			45	884	314		314	1,198
Aroostook				249		70	103	422	76,930	150	77,080	77,502
Cumberland	6	1,848	8,661				111	10,626			-	10,626
Franklin			289				1,420	1,709	50	1,919	1,969	3,678
Kennebec			202					202			-	202
Lincoln			707					707			-	707
Oxford	52	10,770	16,435	58	77	10,612	38,004				-	38,004
Penobscot			61				87	148			-	148
Piscataquis			168	23			644	835	1,055	192	1,247	2,082
Sagadahoc			14					14			-	14
Somerset	115	1,118	706				77	2,016	500	267	767	2,783
Waldo		315	4,107				196	4,618	15		15	4,633
York		8	11,312				15	11,335			-	11,335
Grand Total	173	14,534	43,275	81	147	13,310	71,520	78,864	2,528	81,392	152,912	
4-Year Average	631	10,832	45,192	277	106	9,795	66,831	67,145	2,738	69,882	136,713	

A partial directory of Maine wood processors*

Company	Location	Type of Business	Email	Approximate Employees
A.E. Sampson and Son	Warren	Millwork	www.aesampsonandson.com/	6
Block Brothers	Searsport	Cabinetry	www.blockbrotherscabinets.com/	4
Bradbury Barrel	Bridgewater	Custom wood displays, barrels, tubs	www.bradburybarrel.com	8
Brown Wood Products	Yarmouth	Custom wood products solutions, parts, components & assemblies	www.brownwoodproducts.com	2
Cedarworks Inc.	Rockland and Rockport	Northern White cedar indoor and outdoor playsets	www.cedarworks.com	30-40
Coastal Woodworking	Nobleboro	Distinctive wooden displays and packaging	www.coastalwoodworks.com	6
Cousineau Wood Products	North Anson	Gun stocks	www.cwp-usa.com/	80
Creative Wood Products of Maine	Wilton	Handcrafted boxes, totes, crates and components	www.creativewoodmaine.com	9
Different Drummer Workshop	Solon	Wooden toys for all ages	www.mainetoys.com	2
Dovetail Bats	Shirley Mills	High-end baseball bats	https://dovetailbat.com/	20
Pella Window Corp.	Vassalboro	Custom wood doors and Windows, Spiral Staircases	www.durathermwindow.com	60
GlobECOMaine	Dover-Foxcroft	Durafresh cloth, wood fiber textiles	http://durafreshcloth.com/company/	8
Golden Ridge Wood Products	Sherman	Wood crates, rustic crates, tool caddy totes, wood chests, tapered baskets and custom displays	https://goldenridgewoodproducts.com/	8
H.A. Stiles Co.	Westbrook	Custom wood turnings, dowels, crates, specialties	www.hastiles.com	9
Hewes and Co.	Blue Hill	Cabinetry	http://www.hewesco.com/	11
Hinckley Yachts	Trenton	High End Boats	www.hinckleyyachts.com/	200
Invironments	Hermon	Millwork and Store Fixtures	www.invironmentsusa.com/	20
Isaacson Lumber Co. Pallet One	Livermore Falls	pallets	www.palletone.com	175
JSI Store Fixtures	Milo	Store Fixtures	www.jsistorefixtures.com/	80
Kangas, Inc.	North Anson	Wood specialty products	www.kangasinc.com	11

* Compiled by the Maine Wood Products Association and the Northern Forest Center.

Company	Location	Type of Business	Email	Approximate Employees
Katahdin Forest Products	Oakfield	Cedar Log Homes and Fencing	www.katahdincedarloghomes.com/	80
KBS Builders	South Paris	Modular Homes	http://www.kbs-homes.com/	150
Kennebec Lumber	Solon	Sawmill/Flooring	http://www.kennebeclumber.com/	160
Kingfield Wood Products	Kingfield	Small Wood Turnings	http://www.woodturnings.com	40
Lie-Nielsen Toolworks	Warren	Hand tools for woodworkers	www.lie-nielsen.com	90
Little Harbor Windows	Berwick	Specialty Windows and doors	www.littleharborwindow.com	30
Littlefields Wood Products	Hartland	Smooth Sawn Wood Products	www.littlefieldswoodproducts.com	2
Longleaf Lumber	Berwick	Antique and reclaimed lumber for flooring, paneling and products	www.longleaflumber.com	20
Lumbra Hardwoods	Milo	Hardwood Sawmill	Pallets, pallet stock	35
M.R. Brewer	Portland	Commercial and residential construction, cabinetry and millwork	www.mrbrewer.com	20
Maine Barrel & Display	Lewiston	Handcrafted barrels, planters, buckets, displays & more	http://www.mainebucket.com/	25
Maine Bucket Co.	Lewiston	Wooden Barrels	www.MaineBucket.com	40
Maine Cedar Hot Tubs	Skowhegan	Custom Cedar Hot tubs and spas	www.mainecedartubs.com	6
Maine Dept of Corrections, Wood Industries Program	Warren	Cutting boards, bureaus, coffee tables, end tables, bookcases, jelly cupboards and stools, woodcarvings.	hwww.maine.gov/corrections/industries/	140
Maine Dovetail, Inc	Westbrook	Custom dovetail drawers.	www.mainedovetail.com	3
Maine Garden Products	Howland	Garden hods, cold frames, potting tables	www.mainegarden.com	6
Maine Grilling Woods	Waldo	Organic white cedar grilling planks, chip & chunks for smoking	www.mainegrillingwoods.com	6
Maine Heritage Timber	Millinocket	Reclaimed Wood from River and Lakes	www.maineheritagetimber.com/	20
Maine Line Products	Greenwood	Wood products, wood novelties,	www.mainelineproducts.com	6
Maine Made Furniture	Wilton	Residential,commercial and custom furniture, and millwork and components	www.mainemadefurniture.com/	8
Maine Wood Concepts	New Vineyard	Small Wood Turnings and Kitchenware Products	www.mainewoodconcepts.com	97

Company	Location	Type of Business	Email	Approximate Employees
Maine Woods Co.	Portage Lake	Hardwood Sawmill	www.mainewoodscompany.com/	66
Mathieu Saw & Tool,	Lewiston	Precision Saw & Tool Grinding	www.mathieusaw.com	3
McCoy Millwork	Portland	Custom moulding, trim	http://mccoymillwork.com/	
Moosewood Millworks	Ashland	Flooring	http://www.moosewoodflooring.com/	20
Mystic Woodworks	Warren	Bread, carving and counter boards, servers and lazy susans	www.mysticwoodworks.com	4
National Products of Maine	Oxford	Skateboards and other contract wooden products	www.nwpmaine.com	30
New England Tread & Custom Millwork	Gorham	Treads, mouldings, transition pieces	www.newenglandtreads.com	8
Old Timer Signs	Norway	Custom-made signs	https://walstonwood.com/	1
Owl Furniture	Stonington	Ergonomic Seating	https://www.owlstools.com/	4
Pack Baskets of Maine	Orrington	Weaved Pack Baskets	http://www.packbasketsofmaine.com/	5
Peavey Manufacturing	Eddington	Logging tools, tree pruning poles & equipment	www.peavemfg.com	40
Pride Manufacturing	Burnham	Cigar tips, Golf Tees and Lincoln Logs	www.pridemfg.com	100
Robbins Lumber	Searsmont	Specialty wood items, mouldings	www.rlco.com	150
Scythe Supply	Perry	European style sythes, blades, snathes, whetstones, hammer & anvils	www.scythesupply.com	8
Shaw & Tenney	Orono	Oars, paddles, spars, boathooks	www.shawandtenney.com	8
Thomas Moser Cabinetmakers	Auburn	Fine custom handmade furniture	www.thosmoser.com	125
Vic Firth Inc.	Newport	Drumsticks, mallets and percussion pieces	www.vicfirth.com	140
W. A. Mitchell Fine Furniture	Farmington	Fine custom furniture and wood products	www.wamitchell.com	8
Ward Cedar Log Homes	Houlton	Log Homes	https://www.wardcedarloghomes.com/	10
Wells Wood Turning and Finishing,	Buckfield	Custom wood turning, finishing and manufacturing	http://wellswoodturning.com/	30
Windham Millwork	Windham	High-end commercial Millwork	https://www.windhammillwork.com/	100

The Maine Woodland Owners' 2017 Directory of Maine's Stationary and Portable Sawmills also includes secondary wood products.

