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Maine's Logging Economy



A study of the economic impact of professional logging in Maine



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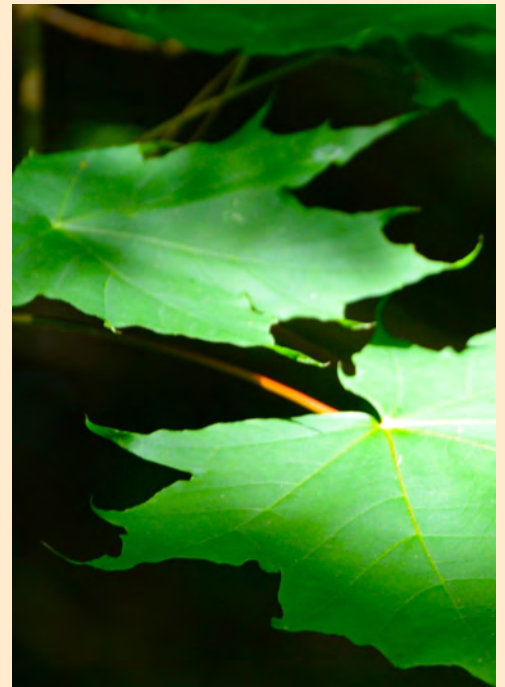
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The Professional Logging Contractors of Maine (PLC) is Maine's only trade association which exists to give independent logging contractors and sole proprietors a voice in Maine's forest products industry.

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The Economic Impact of Logging in Maine, 2014 study was prepared by Mindy S. Crandall and Anil Raj Kizha of the University of Maine, Katelyn McCulloch of Farm Credit East, and Steve Bick of Northeast Forests, LLC, with assistance from Jessica Clark of the PLC and James Anderson of the University of Maine.

The study discussed in this report was funded and supported by a Farm Credit East Agricultural Enhancement Grant 2015, Professional Logging Contractors of Maine, USDA National Institute of Food and Agriculture, McIntire Stennis project 1005416, and the University of Maine.



Maine logging creates: 7,342 direct and indirect jobs \$882 million economic impact

Summary Mindy Crandall, Assistant Professor, School of Forest Resources, University of Maine

The forest products industry in Maine contributed an estimated \$9.8 billion in output to the state’s economy in 2014. It employed some 16,551 people directly and was responsible for 38,151 jobs in total – one in every 21 jobs in Maine. An essential component of the industry is logging, which has a direct impact on the availability of and cost of delivered wood. 7,342 total jobs in Maine are directly or indirectly tied to harvesting activity. Today, with Maine’s forest products industry competing in a global market, the competitiveness and viability of the logging sector is increasingly important.

Economic impact analyses are often done for the forest products industry as a whole, or for output sectors such as pulp and paper, ignoring the harvesting base that

This report details estimates of the economic impact of logging in the state of Maine for 2014 developed through both IMPLAN analysis as well as a survey delivered to members of the PLC in the fall of 2015. The survey requested employment, harvest, and equipment outlay information for 2013 and 2014. Survey implementation and financial investment analysis was done by Farm Credit East, with assistance from the PLC. IMPLAN and survey results were analyzed by researchers at the University of Maine.

all the other sectors rely on. In part this may be because data required for full economic analysis – tax filings, financial reports, and the like – are frequently confidential. In addition, the predominance of sole proprietorships and family-organized companies limits the amount of secondary data available and the ability of researchers to gather primary data if no industry trade group or advocacy organization exists from which to draw information.

| Economic impact including *multiplier effects | | | | |
|---|---------------|-------------------------|-----------------------|---------------|
| | Harvesting | Other forest industries | Non-forest industries | Total Impact |
| Output | \$493,586,761 | \$71,064,691 | \$318,115,318 | \$882,766,770 |
| Employment | 4632 | 195 | 2516 | 7342 |
| Compensation | \$199,574,388 | \$10,364,670 | \$92,552,211 | \$302,491,269 |
| Proprietor Income | \$97,362,789 | \$7,774,967 | \$11,778,077 | \$116,915,833 |

*Multiplier effects = indirect + induced effects. Indirect effects include production in other sectors purchased by the harvesting sector in order to do business. Induced effects are generated by the purchases that households supported by logging make.



Economic Impact

Jon Humphrey, PLC Communications Coordinator

Logging in Maine has an enormous impact on the state's economy that extends far beyond the direct jobs and payroll generated by timber harvesting. It affects every portion of the forest products industry and the communities that depend on it.

Logging is a capital-intensive business. Loggers purchase equipment, fuel, parts, property, services, and insurance. They pay interest. They pay taxes. Hundreds of companies both in Maine and beyond its borders depend wholly or in part on serving the needs of timber harvesters.

While the number of loggers in the state is relatively small compared to some industries, the truth is that nearly every business using wood fiber in Maine depends on Maine loggers and the wood they harvest from Maine forests.

Secondary data in this study revealed there were more than 4,600 individuals employed directly in Maine's logging industry in 2014 with an average annual wage of

4 \$42,795 for employers reporting wage information to the state. Including induced and indirect effects, the

number of people employed due to logging was calculated at 7,342, and the total economic impact of the industry calculated to be \$882 million.



RISING WAGES

Average annual wages for workers employed by logging firms rose from \$30,751 in 2004 to \$42,795 in 2014, a real increase (\$30,751 in 2004 had the same buying power as \$38,538 in 2014)

Wage compensation and proprietor income from direct employment totaled over \$296 million in 2014, and the value of the sector's timber sales (harvesting output) was \$493 million that year.

For insight into some of the less obvious economic contributions of Maine logging, the study compared investments over 2013 and 2014 for respondents: Investment in capital increased in 2014, relative to 2013. Fewer respondents were able to provide full capital investment information, but did indicate expenditures of \$24.4 million in 2014 - a substantial increase from \$16.4 million in 2013. A cautious estimate of the annual contribution from logging in interest dollars for 2014 is over \$2 million for total expenditures and \$272,959 for 2014

purchases.

It is worth noting many trucking jobs are directly tied to logging, with a large economic impact resulting.



The Industry

Scott Madden, President, PLC

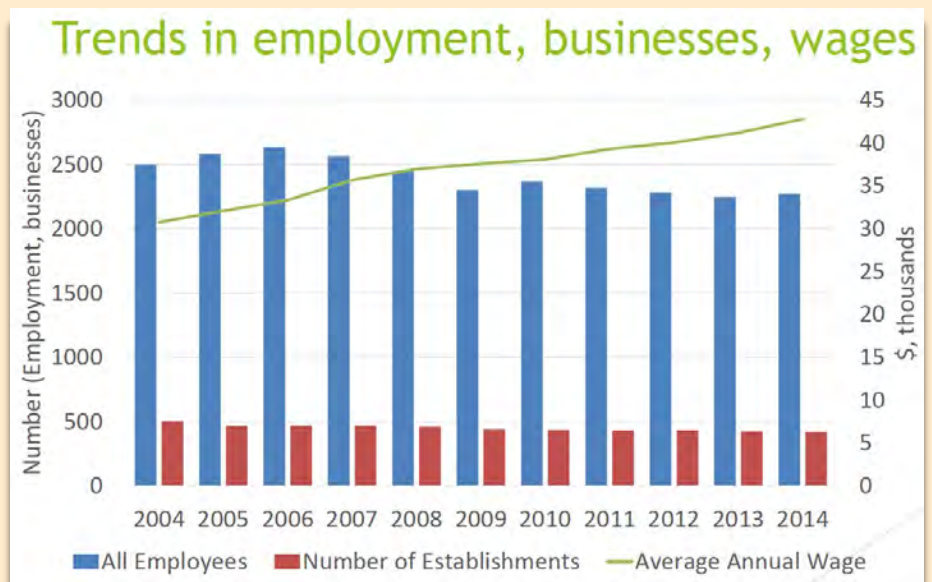
When I think back on the changes many of us have been through in our careers in logging it is the move to mechanization that stands out most. I remember the last spruce budworm outbreak and I think that and worker's compensation insurance really pushed the mechanization of logging as the industry demanded higher production to quickly harvest thousands of acres of defoliated forest, and safer operating conditions for workers.

I started my logging company in 1977. Up until that time, I had always been part of a hand crew working with my father and brothers so it was only natural I continued on that way. At first, in the late 70's and early 80's, I remember it being hard to sell certain species. Being on some pretty strict quotas soon after that, things changed. Wood was in demand and markets were good. I had 6-12 hand crews working at any given time. The normal contract would call *(continued page 6)*

Tony Madden, Scott Madden, Steve Madden, Randy Madden, Fernald Madden, Derek Madden, Andrew Madden and Corey Madden represent one of the largest extended family logging operations in the state of Maine. All have their own logging businesses.

Together, the Madden family employs 114 people in the greater Bangor region and is responsible for harvesting 450,000 tons annually.

The family has been in the timber harvesting business since Alson Madden began logging with horses in 1945.



Trends data above from U.S. Bureau of Labor Statistics.

Logging: The Industry

(continued from page 5) for harvesting trees 10" and up, day.

depending on the species. Then came the spruce budworm. After that, a normal contract would say salvage cut, with instructions to cut anything 6" and up. I remember trying to cut dead top spruce and fir with hand crews, which was not very safe or profitable. By the mid 1980's we were all moving towards mechanical equipment.

The first mechanized equipment looked a lot different than it does today. I remember early equipment did not have air conditioning so most of the time we took windows out and installed screens in the summer. Equipment was also less expensive than it is today. In 1982 a new feller-buncher cost \$165,000, a grapple skidder \$78,000, and a tracked delimeter \$140,000. Today, those costs have in many cases tripled.

Just in the Madden family, we all had different ideas about mechanization and what worked best. Fernald started first in 1982 with an excavator style slide boom delimeter. Tony then bought a track feller buncher and a grapple skidder in the spring of 1983. Steve and Randy went with rubber-tired feller bunchers and truck mount limbers. By then, I had a track buncher and track limber. Fernald bought the first whole tree chipper in the family.

Bucksport's mill was our pulp market and we sold pulp on a dry ton. Spruce fir pulp went 4' to Bucksport. Our hardwood went to local chip sites headed for Old Town. We also had two local stud mills and three to four local pine mills. Another of my brothers, Freemont, bought the first slasher and would travel from job to job.

6 Most of our trucks would haul three to five loads per

Up until the late 1980s most mills owned the land, and some still had company harvesting and road building operations, but these were replaced by independent contractors. This gave most of us the chance to expand. Some of the larger mills and landowners combined. Mills began selling off assets. Some logging contractors started buying land.

Harvesting shifted gears again in the early nineties. Clear cuts and replanting became more common. Up until this time, harvesters had cut mostly softwood. Our limbers now

had to be updated since most of them had topping knives, not saws. Harvesters needed to be updated with saw heads instead of knives. By now most equipment has air conditioning. The harvest contracts now require us to cut wood down to 2".

Most of us had a pretty good plan on replacing and updating equipment - until prices on that equipment rose dramatically.

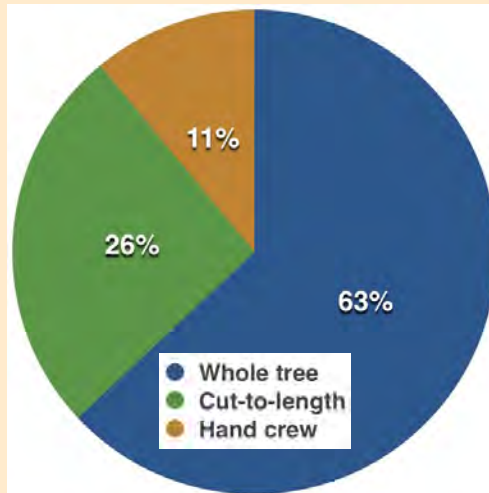
My first new limber was a 1997 John Deere 690 – it cost \$212,000 including tax. By 2015 a 325 Cat cost my company \$400,000

– with no tax.

This has been the trend for Maine loggers, increasing equipment costs to do the same job, but with less profit and fewer markets.

Now as we look ahead to 2017 and another year of logging, the spruce budworm is on its way to our state again, but Maine loggers are adaptable, and I believe by standing strong together that we will still be logging for years to come, it just may look different tomorrow than it does today.

Surveyed firms operation types 2014



Survey respondents reported an average of 22 employees within each logging firm:

- 12 in the woods
- 2 in the office
- 6 in trucking
- 2 mechanics



Harvest and Value

Jay Haynes, President H.C. Haynes, Inc.

Loggers are very important to what we do, because if you don't have good people with good equipment who are dependable and trustworthy, everything falls down around you. You've certainly got to take care of the people that pretty much feed the whole forest community.

Times are tough right now in harvesting. The worst part is that in the last 24 months we've lost several pulp mills and that has just changed things dramatically.

Most loggers, at least north of Bangor, are cutting mainly hardwood, aspen, and spruce that will make high grade stud wood, but sadly we're having to work around a lot of timber that we should be harvesting if we had the markets to do it.

When it comes to biomass, everyone's really operating at about half capacity or maybe even less, and there are a lot of chippers parked, and the ones that aren't parked are pretty much chipping part-time.

As a result, what we're doing out in the woods right now is not always the kind of forestry I would like to be doing; we're going around trees that should be cut and having to do more high grading just because of what we can sell, and that's not a practice that long-term any of us as landowners want to be doing.

Maine wood has value and supports a lot of jobs

and businesses; at the very top are the high grade veneer products that we produce and those go out to companies like Michigan Veneer and are distributed through their system nationwide, and probably to other countries as well. Saw logs are sold all over, particularly the hardwood logs for flooring or hardwood lumber. On the softwood side you've got pine going to mills across Maine and some border mills in Canada. And of course pulpwood and biomass, those are the tough markets right now.

To do the kind of forestry we'd like to be doing we need good markets, and also good logging contractors. Many contractors that have worked with us are second generation and even third generation, some have been with us for 35-40 years.

As time has gone on the cost of everything in logging has gone up a lot, and the logging contractors we depend on need to be paid a very fair price in order for them to be able to continue upgrading their equipment and making a profit. As a business we are only as good as the people who work with us and for us, and we've got to take the best care of the people that work for us that we possibly can.

Times are challenging right now in this industry, but we're a very resilient group, and we always bounce back.

Logging: Harvest & Value

TOTAL MAINE TIMBER HARVEST 2014:

14,188,085 tons

*Maine Timber Harvest 2014

Pulpwood 7,289,270 tons

Saw timber 4,004,051 tons

Biomass 2,894,764 tons

*Maine Timber Harvest 2013

Pulpwood 7,565,832 tons

Saw timber 3,833,158 tons

Biomass 2,693,201 tons

**Harvest data above from Maine Forest Service.*

Trucking, logging's key companion industry

By Jimmy Carrier, Company Coordinator, Richard Carrier Trucking Inc.

I've been working here since I was 15 years old, I'm 44 now, and I've seen a lot of changes in trucking.

My father started this business with one truck, but we now own chip plants, sawmills, mulch operations, land - basically you can say that we are self-sustained and self-sufficient. We are our own forest products industry. We have over 600 employees, and 162 trucks in our fleet.

In this country in forest products and in everything else, everything moves by truck, but when the recession hit a lot of trucks came off the road, a lot of companies went bankrupt between the recession and the implementation of new regulations on emissions. Those numbers have been rising again, but there is a lot of turnover in trucking and there's a big shortage of drivers.

More changes will be coming. I see more regulations in the future, and more uncertainty. This country

needs a strong trucking fleet to have a strong economy. The same is true for the logging economy. You can't have one without the other.

What has changed?

- Costs of buying, maintaining and operating trucks have risen.
- Emissions rules and other regulations have increased.
- Trucks now move virtually all Maine wood. Even wood moved by rail leaves the woods on trucks.

Most survey respondents trucked all or the majority of the material harvested by the firm. One-quarter (24%) relied on outside sources contracted for trucking



What needs to change?

- Educate the public on trucking and the needs of the industry, truckers are not the enemy.
- Establish a level playing field between large trucking companies and small owner operators.
- Make trucking more attractive as a career for young people by reducing insurance obstacles and making it easier and less expensive to start out. Create industry conditions where it is affordable to pay truck drivers at a level that justifies the responsibility and hard work of the job.
- Use new technology to lower costs.



Key Trends: Safety, Professionalism, Nontraditional Markets, Education

Harvesting is an integral part of Maine’s forest products industry. Wood, wood pulp, and paper and paperboard were Maine’s 4th, 5th and 6th most valuable exports, respectively, for 2015, according to the U.S. Census Bureau. In an increasingly global world, the competitiveness of these

exports relies on the economic feasibility and health of the harvesting industry that makes it all possible. The industry today faces an increased need for nontraditional markets, professionalism, more education, and a strong focus on safety. These trends are key to the future of the logging industry in Maine.

Safety

By Ted Clark, Acadia Insurance Company

Emphasis on safety with a focus on reducing injuries and accidents has brought many benefits to logging companies. Safety-related losses experienced by an organization can have long-term negative effects on a company.

There are two types of costs associated with a loss: direct costs and indirect costs. Direct costs are expenses that result from a loss that are either covered by the insurance company (medical and compensation costs) or paid for through a deductible. These losses can have more effects than the initial costs, as each loss plays a role



in developing a loss trend. Negative trends and high loss areas can result in elevated premiums and possibly cause the insurance company to non-renew the policy, forcing the logging firm to find coverage elsewhere, often at a more expensive price.

Indirect costs are typically significantly higher than direct costs, and are generally not covered by an insurance policy. These costs can include: delays in production, legal expenses, overtime expenses, hiring and training costs, regulatory fines, and many more.

Today’s increased emphasis on safety in the logging industry can significantly improve production and job performance while reducing overall operational costs and employee turnover. In addition, it creates a safer worker environment, improves employee morale, and attracts new talent into the workforce.

Logging: Key Trends

Professionalism



By Ted Wright, Executive Director of the Trust to Conserve Northeast Forestlands

Logging today demands an increasing level of professionalism and forest stewardship to meet landowner expectations and environmental standards. Maine has been a leader in these areas for decades.

The Northeast Master Logger Certification Program was established in Maine in 2001 as the world's first independent third-party certification program for timber harvesting. Since then it has expanded to seven northeast states from Maine to New York, with 98 loggers currently certified, including loggers representing all 16

counties of Maine.

Master Logger was awarded the first in the world SMARTLOGGING Certificate through the Rainforest Alliance.

The program's primary aim is to keep a thriving and sustainable forest products industry in place using nine goals focused on sustainability and worker safety.

Master Loggers are audited by independent field verifiers every four years and the program is audited yearly by the Rainforest Alliance of Vermont under the SMARTLOGGING certificate. The program benefits forest health, the forest economy, and landowners because it ensures certified loggers are maintaining the highest standards of professionalism and forest stewardship in the industry today.

Education

By Peter Collins, Milton CAT



Logging is a capital intensive business where time is critical. Modern mechanized logging machines are sophisticated and computerized so that all systems work together to maximize operational speeds and fuel efficiency.

Many of these machines are worth half a million dollars and it takes a high degree of training to run them safely and efficiently. Yet qualified operators are in short supply, and many are now reaching retirement age.

We need the next generation of operators to begin training for the industry now. Our high school logger pipeline programs and the new Mechanized Logging Operations Training Program being launched through Maine's community college system are critical to meeting that need for highly skilled, professional operators.

Nontraditional markets: Biomass

By Sarah Boggess, Director of Communications and Governmental Affairs, ReEnergy Holdings LLC

Lumber and pulp markets have long been the cornerstones of the Maine logging industry, but nontraditional markets have now become indispensable to maintaining profitability. Biomass to feed growing demand for renewable energy is currently the most important of these to Maine's loggers.

Standalone biomass power plants in Maine generate baseload renewable electricity from millions of tons of low-value forest material and mill residue, supporting hundreds of jobs in the forest products sector while improving grid reliability and mitigating climate change.

10 Loggers are the lifeblood of this form of renewable energy. ReEnergy conducts business with



88 logging/trucking contractors that are located in 14 of Maine's 16 counties, and each year purchases almost two million tons of biomass material from loggers and mills. Working in partnership with its many stakeholders,

ReEnergy hopes to ensure the long-term viability of its four biomass power plants in Maine.

Challenges include: record-low wholesale electricity prices; lack of stability in New England renewable energy policies; and high and increasing transmission costs, particularly for facilities wheeling out of northern Maine to access the New England electricity grid.

The viability of biomass in Maine can and should be improved, and this is critical to the viability of the entire forest products sector of the economy.



The Future: Dana Doran, Executive Director, PLC

Maine's history of timber harvesting stretches back over two centuries in which generations of families, communities, and businesses were built on the value of wood, but in recent years the industry has faced unprecedented challenges that have threatened to end this story.

Yet with more forested land now than it had in the 1950s, and a technologically advanced logging workforce second to none, Maine is ideally positioned to take a leading role in the global forest-based economy and write new chapters in its history if it can adapt to the realities of today's market and capitalize on the strengths of its abundant resources and experience.

Maine loggers have taken the worst that the markets, weather, and rising expenses can throw at them, and they are still standing. Those loggers who remain are the best of the best, and with new markets and new opportunities they are well positioned to lead a resurgence in Maine's forest-based economy.

The challenges are many: Slow but steady losses in Maine's forest products industry have been reducing the population and economy of rural Maine for the past twenty years. Loggers face other hurdles including reduced prices as a result of market supply and demand elasticity, steep increases in equipment costs, tumultuous

fuel prices, and a mild winter in 2015-16 that frequently left the ground too soft for timber harvesting.

Yet despite the steady drumbeat of doom and gloom in media reports suggesting Maine should move on from its forest-based heritage, the state's loggers have no intention of quietly fading away, and they are actively working together and with lawmakers and industry to ensure their future.

An imminent collapse of the state's biomass energy market in 2016 was averted through legislation to offer short-term contracts to producers in hopes of buying time for efforts to create new opportunities in that market. Legislators also approved a fuel sales tax exemption for farmers and loggers that will take effect in 2017. A new mechanized logging operator training program will begin educating students in early 2017 to create the next generation of logging operators. This is all good news for some of the hardest working people in Maine.

Maine loggers are moving forward despite many challenges and can quickly flourish again in an environment favorable for bringing new ideas and new markets to fruition. A tree is only as strong as its roots, and Maine's loggers will ensure that the forest products industry in our state stands tall for generations to come.

Logging: Economic Impact 2014

Logging companies employed 4,632 workers

Average capital expenditures per company were \$626,000

Worker wages and proprietor income exceeded \$296 million



Logging created an additional 2,710 indirect jobs

Logging timber production value was \$493 million

Workers earned an average of \$42,795/year



Maine logging contributed **\$882 million** to the state's economy in 2014