

Photo (opposite page) by Wendy Weisiger.

Today’s Timber Markets: Who Will Buy the Low-Grade Wood?

Declining—even disappearing—markets present a challenge for family forest owners

By Charles Levesque and Eric Kingsley

Van Webb, a logger and farmer from Sunapee, harvested from a mostly white pine lot on a 57-acre property in Unity, N.H., in 2016. Many of the pine trees he harvested were low-grade—meaning the logs could not be sawed into boards at a sawmill. Instead, he sent the wood to the biomass plant in Springfield, N.H., where it was burned to create electricity. Without a local market for this low-grade material, the harvest would probably not have been possible.

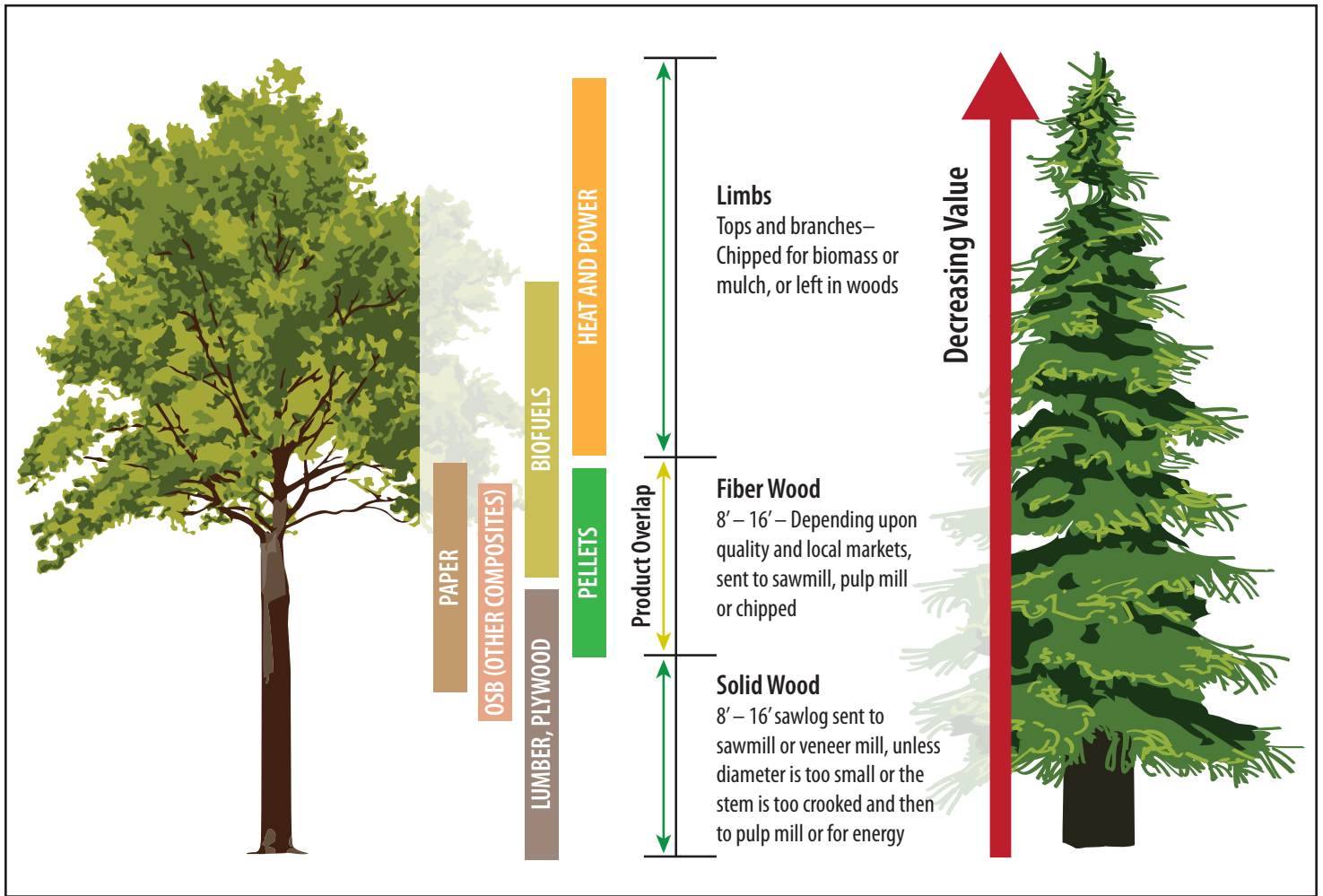
“I don’t know what we’d do if the Springfield wood energy plant was gone. In this part of the state, there is no other low-grade market for pine.” Webb said. “Without that market,

this landowner would not have been able to have this property harvested—or at least not in a way that removes the low-quality trees along with some of the good trees—and leave a shelterwood forest of good quality that can now regenerate naturally with new seedlings.”

On an average timber harvest in New Hampshire and the rest of the Northeast, easily 70 to 80 percent of the timber standing is comprised of low-quality trees. Harvesting the low-grade timber improves the remaining forest—the forest management goal for just about every forest owner. The low-grade wood comes from the top sections of trees that have a sawlog in the bottom. It also

The “dog days” of low-grade timber: Hardwood pulp—wood that is not suitable for becoming lumber or veneer—is stacked on a landing at the Forest Society’s Crider-Rumrill Forest in Stoddard. Maple the dog looks suitably mopey about the low-grade situation.





Graphic courtesy Innovative Natural Resource Solutions, LLC.
Evergreen tree illustration by www.vectorpenstock.com.

Different wood products come from different parts of a tree, and every tree is unique in its potential, depending on size and straightness of the trunk, among other factors.

comes from other trees that are low-quality from top to bottom. This low-grade timber is used for pulpwood (paper), energy wood or firewood. Because of the low price paid to the landowner for low-grade timber compared to high-grade timber, landowners harvest low-grade timber for reasons other than income, mainly to improve the quality of the remaining trees and to remove diseased and dying trees. Another reason to harvest the low-grade timber is climate change. If left in the forest, the low-grade material will eventually die, fall to the ground and rot, giving off carbon dioxide and methane, two greenhouse gases that add to the problem of climate change.

But low-grade timber markets in New England are having a tough time surviving, creating a dilemma for New Hampshire forest owners, big and small. Even if you will only harvest trees once or twice in your lifetime on your woodlot, you will want to improve the quality of the remaining timber and improve forest health. That can only be done if your forester and logger have markets to ship the low-grade logs to.

Where the Wood Goes

Our key low-grade timber markets include the few remaining pulp and paper mills (pulpwood); electricity-generating plants (wood chips and logs); wood pellet manufacturing plants (wood chips and logs) and firewood buyers (logs). Since 1999, the Northeast has lost 11 pulp mills—we have six left with four in Maine and two in New York. New Hampshire has eight biomass electricity plants. Low wholesale power prices, combined with flagging incentives for renewable biomass from states in southern New England, have left these eight plants and the others throughout the region struggling to continue operations. Just since 2014, roughly 4 million annual tons of market for low-grade wood has been lost. Most of this is from the loss in pulp and paper markets but some is from shuttered biomass plants.

As markets for low-grade wood—both pulpwood and biomass—have declined in the Northeast, remaining low-grade markets have become increasingly important.

Some Help for Biomass Energy

Recognizing the important role biomass plants play in the forest economy, states have been acting to support continued operations. Last year, Maine allocated nearly \$14 million to support continued operations at four biomass plants, attempting to close the gap between:

- the cost of fuel and operations, and
- what biomass plants get paid for their power and Renewable Energy Certificates (the “green” attribute of renewable energy that is bought and sold in electricity markets as a result of state policies—the Renewable Portfolio Standard).

This year, it was New Hampshire’s turn. Of the eight biomass plants, six are considered “legacy” biomass plants—all under 20 megawatts in capacity, built decades ago. New Hampshire also has a facility that was converted from coal a decade ago in Portsmouth, and a new plant at the site of a closed pulp mill in Berlin. The plants represent increasingly important markets for loggers and landowners in the state and region, especially given what has happened to pulp and paper markets.

Recognizing the challenging economics that biomass plants face in today’s energy market, this year the New Hampshire Legislature modified the state’s Renewable Portfolio Standard (RPS), a law that establishes required levels of renewable energy purchases by state utilities. While complex, the modified RPS is expected to raise what the state’s six legacy biomass plants get paid for their Renewable Energy Certificates—in essence the “renewable” part of renewable energy. In July, Gov. Chris Sununu allowed the legislation to become law without his signature.

The new law impacts the market for three years—2017, 2018 and 2019. It is expected that most or all of the six legacy plants (one, Indeck—in Alexandria, N.H., is currently idle) will be able to use this additional support to continue operating for a few years.

The 2020 Challenge

But what then? Wholesale electricity markets are expected to stay low, with plentiful and inexpensive natural gas the primary fuel used to generate electricity in the region. Despite all the news, solar and wind are a tiny part of regional power

Top: Consulting forester Jeremy Turner speaks with a tour group about timber harvesting at the Cockermouth Forest in Groton in 2010. The wall of chip wood behind the group was sent to Indeck Energy in Alexandria, which was shut down in the spring of 2017.

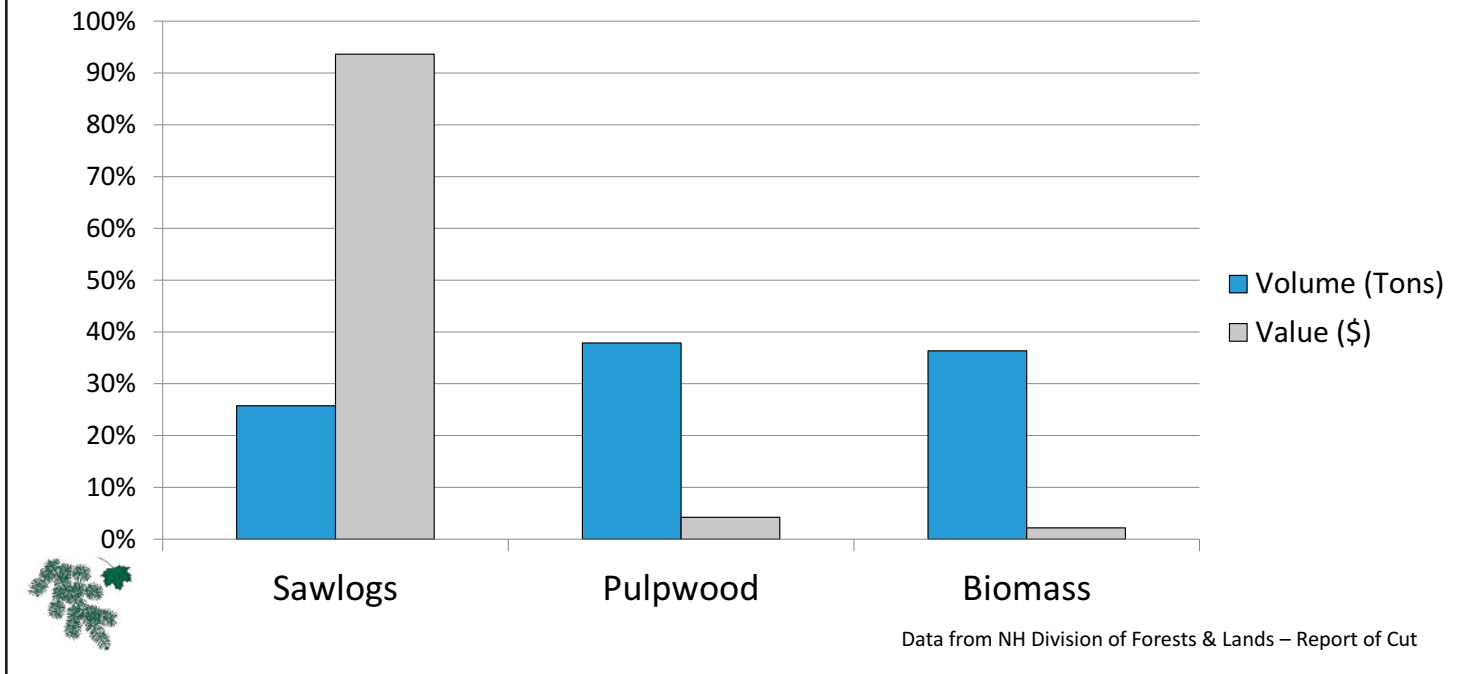
Middle: Lower quality wood is chipped directly into a truck for shipping.

Bottom: Firewood is a useful end product of some lower quality hardwood.



Photo (top) by Danny Richardson; photos (bottom and middle) courtesy Innovative Natural Resource Solutions, LLC.

Volume and Value to Landowner of Products from a Typical Timber Harvest in New Hampshire



Below: Both wood chips and pellets are made of low-grade wood. Conversions to wood—burning heating systems from fossil-fuel burning boilers represent one brighter spot for landowners looking for markets for their wood.



generation. Policy supports for biomass energy from the large markets in southern New England—notably Massachusetts and Connecticut—are gone or shrinking. State government in those states are, in essence, saying electricity from bio-

mass plants is not green enough for their tastes. And the economics of selling biomass power in New England doesn't look like it will improve over the next few years.

It's not just New Hampshire's six legacy plants—and the 1.3 million annual tons (one tractor trailer load carries 32 tons of chips) of market they represent—that face this challenge. The state's largest utility, Eversource (formerly PSNH), is in the process of selling all its power generating assets—including a 10-year old 50 MW biomass plant in Portsmouth as required by law. The terms of sale require that the plant be operated for 18 months, but after that there are no guarantees. Similarly, a new (started

operations in 2013) biomass plant in Berlin, at the site of the closed pulp mill, faces economic challenges. The facility has a Power Purchase Agreement (PPA) with Eversource that runs for 20 years, but a clause caps above-market costs at \$100 million. Given the unforeseen drop in natural gas prices, this cap could be reached as early as 2019—in effect ending a 20-year PPA after only six years.

Given these events, all of New Hampshire's biomass market—totaling nearly 3 million tons—was at risk until SB 129 passed this legislative session, and still with the new law, is in jeopardy just a few years from now. While the legislation just enacted provides a welcome and needed reprieve, the industry has just a few short years to explore new business models to remain economically viable. Achieving this—and retaining the critical markets these plants provide—will require creative thinking not only from the biomass plants, but from their suppliers and policy-makers, all of whom have a stake in maintaining this market.

One Area of Growth

For the other forms of low-grade markets available for New Hampshire woodlot owners, namely pulp and paper and the thermal uses of timber for firewood, chips and pellets, the future is also unsure. These thermal markets combined currently use only about 5 or 6 percent of what the wood electricity plants use.

And less than that as compared to the pulp and paper markets in New York and Maine.

These thermal markets, however, represent one of the few new growth areas we have seen for low-grade timber in recent years. These markets were increasing nicely—think your local hospital or school—until fossil-fuel prices dropped significantly beginning in 2014. It may be nice to fill up your car with gas for \$20 less than in early 2014, but it has hurt interest in switching from fuel oil to wood for heating buildings.

Much at Stake for Landowners

So what does all of this mean to New Hampshire woodlot owners? Our landowner in Unity can still sell low-grade pine in New Hampshire because of the passage of SB 129 this year, but in three years when that expires and if the wood-fired power plant closes in Springfield, what will he do? Yes, he could just not harvest at all, but then the trees will eventually die and contribute to the climate change problem when they fall and decompose. He could also just harvest the best quality timber and not the low-grade, but this “high-grading” only creates an unhealthy forest that is more susceptible to disease and insects and has reduced timber quality.

The goal of virtually all timber management is to grow the most valuable timber so that the landowner receives the most value when the timber is harvested. We cannot do that if we have no low-grade timber markets.

Sawmills—where that high-quality timber goes—are also caught up in the dilemma of low grade wood markets. When you saw a cylinder (the tree) into square boards, a lot of the outer round wood is waste. It is chipped and goes to pulp and paper and energy plants. If those markets shrink and sawmills, which are doing very well right now, lose those markets, they cannot operate. And some are feeling that pressure already.

We all want healthy forests and the ability to grow high quality timber on our woodlots. Strong low grade timber markets are essential for forest owners and the infrastructure of the forest products industry. Today they are available but very much at risk. ♣

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A Bright Spot

The outlook for low-grade wood markets isn't all bad. A bright spot has been growth in the number of commercial and institutional buildings converting from fossil fuels to sustainably sourced wood chips and pellets for heat. That growth has slowed in recent years to correspond with declining prices for natural gas. However, in New Hampshire 116 commercial and institutional buildings—schools, hospitals, municipal buildings, low-income housing facilities and businesses—are using modern wood heating, according to a 2015 analysis by the N.H. Wood Energy Council. The analysis revealed promising data:

- ▶ Nearly all these facilities burned imported heating oil in the past. By switching to modern wood heating they reduced oil use by the equivalent of 7.7 million gallons.
- ▶ By switching fuels, these facilities saved about \$11.8 million in heating costs.
- ▶ These facilities consumed an estimated 7,500 tons of pellets and 94,000 tons of wood chips, mostly from New Hampshire forests and wood manufacturing residues.
- ▶ Money spent on wood chips and pellets pumped \$5.8 million into the local economy. Direct spending on wood fuels, combined with retained wealth through heat cost savings and jobs and taxes associated with this sector generated a total of \$35.9 million in economic activity in New Hampshire, using conservative multipliers.
- ▶ Reducing use of high carbon fossil fuels and using low carbon wood chips and pellets from sustainable sources reduced overall carbon dioxide emissions by over 69,000 tons.



A truck gets ready to dump wood chips into the hopper at the wood-burning heating plant at the Conservation Center, the Forest Society's Concord headquarters.