



The Changing Landscape of Softwood Lumber Supply: the beetle

by Kirk Grundahl & Libby Maurer

In January we reported that component manufacturers should carefully watch softwood lumber supply and prices throughout 2010 and 2011. In this article, we'll take a closer look at an issue that has already significantly impacted our industry's supply of softwood lumber: the Mountain Pine Beetle (MPB).

This "bark beetle" infests the bark of certain pine species—the lodgepole, jack, ponderosa and western white pine. Once it burrows into a tree's bark, it cuts off its food supply and the tree is left to die. In the last five or so years, tremendous outbreaks of the beetle in British Columbia have infected thousands of acres of pine trees.

While burrowing through the bark of the pine species, the MPB leaves behind a blue fungus stain that cuts off water and nutrient flow to the rest of the tree. The BC Ministry of Forestry reports that newly attacked trees turn red about one year after infestation, and can stay in this stage for two to four years before turning grey and losing their needles.¹

High Capacity Harvest

Despite being infested by the pine beetle, much of the affected lumber meets current grading standards for structural uses, according to the U.S. Department of Agriculture. Natural Resources Canada concurs²: "Canadian scientists have carefully studied and tested the properties of beetle-killed wood. The wood is structurally sound...It is as strong as non-beetle killed wood and is used in everything from framing in residential construction to furniture-making." The catch is harvesting infested stands early to protect the remaining healthy trees.

To that end, the BC government has responded by allowing for increased harvesting of infested forests. As early as 2004, BC's Ministry of Forests and Range authorized increased cut level of up to 27 percent beyond allocations in infested forests. This allows landowners to clear out killed trees while the timber is still viable for processing into structural lumber.

Keeping up with the harvest of beetle-killed trees not only salvages the wood, but it also may be the most effective way of preventing the beetle's spread. Cutting stands of infested trees is one thing, keeping up with processing it is another. As you read this, many hectares of pine lay idle in forests all across BC. What's more, producers have curtailed production since 2007, hesitant to oversupply a weak U.S. housing market. The longer dead trees stand, the less likely they can be used for dimension lumber. Some fear that today's surplus will inevitably become tomorrow's shortage.

Quick Take:

- An outbreak of a beetle species native to North America has killed thousands of acres of Canadian pine trees. British Columbia is the biggest target.
- The beetle threatens about 16.5 million hectares (40.7 million acres) in Canada and 2.5 million hectares (6.2 million acres) in the U.S.
- Canadian foresters are racing to harvest the infected trees to minimize losses and protect healthy trees. But a slow U.S. housing market has caused producers to slow production, reducing the chance of using affected logs for dimension lumber.
- Our industry relies heavily on Canadian softwood lumber; the U.S. imports roughly one-third of its annual stock from Canada. Historically, about 50 percent is harvested in BC.
- Experts estimate that the effects of the beetle epidemic will peak around 2015 and will continue to kill trees at a very high rate until 2025.
- Keep a close eye on lumber prices as homebuilding improves, and watch for alternative products to make their way into the market.

Quality of Beetle-Killed Lumber

What happens to beetle-killed wood? The stock that isn't suitable for commercial lumber grades is sold for paper, pulp or use in engineered wood products. The stock that has not been compromised is mill processed and graded as usual.

Component manufacturers in general have reported that lumber from mills processing beetle-killed wood has changed in terms of the quality they've grown to expect from SPF producing regions. This has raised their cull rates.

The concerns of CMs based on our conversations include:

- They have increased their scrutiny of incoming lumber to ensure that the quality is consistent.
- They are more focused on managing their cull rates so that lumber costs do not go out of control.
- They are looking for other sources of supply where quality and performance are more dependable.

The big concern is that there is not enough alternative supply to go around. They are aware that a swift rebound in housing starts (to one million units for instance) will exacerbate the supply problem.

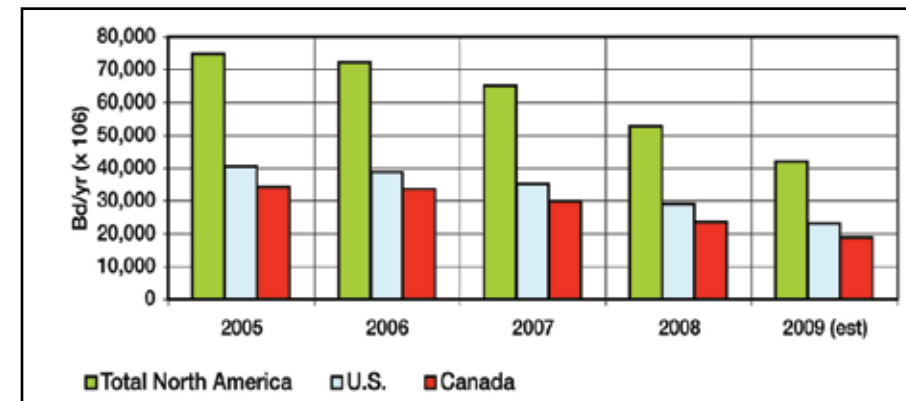


Table 1. North American Softwood Lumber Production. (Source: WWPA, Council of Forest Industries-Canada)

	Full Year 2008	11 months YTD		% Chg.	Nov-09	Oct-09	Nov-08	M to M %	Y to Y %	3rd Qtr-09	3rd Qtr-08	% Chg
		2009	2008									
U.S. Lumber Shipments	29,154	21,468	27,509	-22.0%	1,672	1,977	1,938	-15.4%	-13.8%	5,994	7,474	-19.8%
Plus: Imports	12,681	8,170	11,938	-31.6%	712	771	943	-7.7%	-24.6%	2,320	3,144	-26.2%
Less: Exports	(1,024)	(898)	(958)	-6.3%	(97)	(102)	(77)	-4.9%	25.3%	(252)	(276)	-8.8%
Apparent Consumption	40,810	28,740	38,488	-25.3%	2,286	2,646	2,804	-13.6%	-18.5%	8,063	10,341	-22.0%

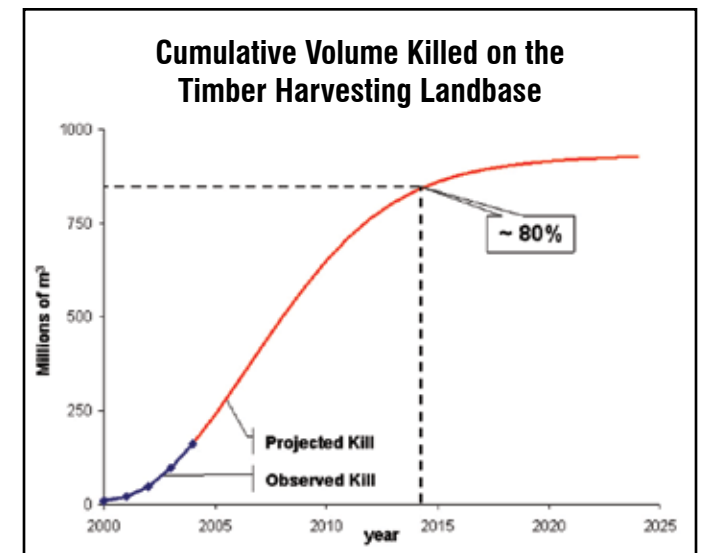
Table 2. U.S. Softwood Lumber Consumption (million board feet). (Source: WWPA Lumber Track, February 2010)

Surplus Now, Shortage Later?

According to its Mountain Pine Beetle Action Plan, the BC Ministry of Forests reports that out of a total 1.8 billion cubic meters (762 billion board feet) of inventory of merchantable lodgepole pine, the beetle epidemic has killed over 400 million cubic meters (169 billion board feet) or 22 percent.³

To put this in perspective, the U.S. market consumed about 40 billion board feet (bbf) of softwood lumber in 2008. Assuming that U.S. consumption has historically been between 40 and 60 bbf (and that all the wood killed is recovered for dimension lumber), it would supply the U.S. market for 2.8 to 4.2 years. (See Tables 1 and 2 above.)

The same report estimates that the merchantable pine supply could further be reduced by 60 percent by 2013 for a total loss of 80 percent. Under this scenario, the supply in inventory will increase to a range of 10 or 15 years. The destruction to come in the next 5 years is shown on this graph.



Source: British Columbia Ministry of Forests and Range (April 2009). www.for.gov.bc.ca/hre/bc/mpb/cumulative/Summary.htm

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¹ British Columbia Ministry of Forests and Range (May 2009). *Infestation Information*. www.for.gov.bc.ca/hfp/mountain_pine_beetle/facts.htm#responding

² Natural Resources Canada (2010). *Sea to Sky Story: Mountain Pine Beetle*. www.gsc.nrcan.gc.ca/org/vancouver/seamer/facfic/pdf/mpb-dpp_e.pdf

³ British Columbia Ministry of Forests and Range. *British Columbia's Mountain Pine Beetle Action Plan 2006-2011*. www.for.gov.bc.ca/hfp/mountain_pine_beetle/actionplan/2006/Beetle_Action_Plan.pdf

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Softwood Lumber Supply

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Any decline in the available supply from Canada will lead our industry to a net shortage of lumber, if the other lumber producing regions of North America (i.e., Eastern Canada, U.S. South and West) cannot make up the difference.

Though much of the beetle wood is usable for dimension lumber, a portion of infected timber is not salvageable. In these cases, the lumber may be suitable for OSB or other engineered wood production. Fiber is also being diverted for use in alternative products. (See sidebar on facing page for examples of new wood products.)

Impact of Beetle Epidemic in Canada, U.S.

	Million hectares	Million acres	Approx board feet*
British Columbia	14.5	39	117,000,000,000
Alberta	2	5	15,000,000,000
U.S. West	2.5	6	18,000,000,000
Total Affected Area	19	50	150,000,000,000

*Using 3,000 bd ft/acre as a rough estimate

The total affected area of BC is estimated at 14.5 million hectares, or 39 million acres. In a province where pine has traditionally accounted for roughly 30 percent of its annual lumber production, this is a significant area. The beetle's spread to neighboring Alberta and the U.S. which puts an additional 8 million hectares (11 million acres) of forest at risk. [Source: Natural Resources Canada (2010). *Sea to Sky Story: Mountain Pine Beetle*. www.gsc.nrcan.gc.ca/org/vancouver/seamer/facfic/pdf/mpb-dpp_e.pdf]

Beetle Epidemic Not Sole Factor in Reducing Supply

That's right; the beetle may not be the only wrench in lumber supply for the U.S. construction market. According to an article in the Vancouver Sun⁴, Canadian softwood lumber exports to China are up 135 percent year-over-year for the first nine months of 2009. Canadian producers say the downturn in the U.S. market forced them to seek trade with other countries, and China was a willing customer. Stay tuned for the next part of this series for details on what Canada's wood exports to China means for the U.S. lumber market. **SBC**

⁴ Hamilton, Gordon. "Lumber Back as B.C.'s Hot Commodity." *Vancouver Sun*, Feb 19, 2010.

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Beetle Epidemic Tied to Mild Winters over Last 50 Years

You may be surprised to learn that the MPB is native to the pine stands in North America. At one time it was seen as more of a help than a hindrance, attacking weak, older forests and encouraging young, healthy forests. Then why the outbreak?

It is attributed in part to mild winters in Canada over the last fifty years, allowing the beetle to survive the winter and go on to colonize new trees in the spring. It takes winter temperatures consistently below -35° to -40° C for several days to kill off large portions of the beetle population. Additionally, hot and dry summers leave pine drought-stressed and more susceptible to beetle attack.

A report by Environment Canada and the University of British Columbia states Canada has warmed an average of 1.3° C over the past fifty years, approximately twice the global average. On its website, the British Columbia Ministry of Environment states, "...slightly warmer winters have contributed to the devastating mountain pine beetle infestation in the B.C. interior."

The epidemic has also spread into Alberta and U.S. forests. The beetle can be found in 12 western American states, and even Mexico.

Sources: Natural Resources Canada, *From Impacts to Adaptation: Canada in a Changing Climate 2007*. www.adaptation.nrcan.gc.ca/assess/2007/ch8/2_e.php • Environment Canada and University of British Columbia, Bizikova L., T. Neale and I. Burton (2008). *Canadian Communities' Guidebook for Adaptation to Climate Change*. www.forestry.ubc.ca/LinkClick.aspx?fileticket=xsexCSatHjo%3D&tabid=2455&mid=5415&language=en-US • British Columbia Ministry of Forests and Range (Feb. 2008). *Frequently Asked Questions*. www.for.gov.bc.ca/hfp/mountain_pine_beetle/faq.htm

Bug Problem Makes Way for Innovative Products

Faced with losing more than three-quarters of its pine supply in the next five years, the BC timber industry is developing alternative uses for its wood. For example, students in a University of BC graduate program cooked up a mix of concrete and chipped wood. "Beetlecrete" looks like wood but has the strength properties of concrete. The developers hope to market the building material in earthquake-prone areas. [Source: Hopper, Tristin. "Pine Beetle Wood Spurs Innovation." *BC Business*, Feb. 3, 2010.]

The use of wood in bioenergy is also on the rise. In 2008, British Columbia launched its Bioenergy Strategy initiative to convert waste into clean energy. "There is an abundance of bioenergy opportunities, such as using biomass created out of the mountain pine beetle outbreak that can stimulate investment and economic diversification while producing clean energy," said BC Premier Gordon Campbell. Within the next decade, the Province plans to increase its use of wood waste in generating energy. If there is a higher economic value for this end use, it is certain to have an impact on the supply of lumber in the future. [Source: *New Bioenergy Strategy Advances Innovation* (Jan. 31, 2008). www.energyplan.gov.bc.ca/bioenergy/PDF/2008OTP0017-000129.pdf]

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