

## Business Indicators ♦ September 2006

### Mountain Pine Beetle–Mania

The mountain pine beetle (MPB) epidemic currently affecting British Columbia forests has been described as a natural disaster in slow motion, but based on the destruction that the tiny insect has wrought on BC's pine forests in just a few years, perhaps that characterization is not entirely accurate. Ministry of Forests and Range (MOFR) projections of the annual destruction of lodgepole pine based on aerial overviews have changed radically in just one year as the amount of beetle-killed timber has multiplied far faster than expected. The estimated volume of timber affected in 2005 was approximately 66% higher than what had been projected based on data from 1999 to 2004. MOFR has compressed the forecast to reflect this experience and now projects an accelerated kill in the next few years, falling off more sharply as the volume of re-

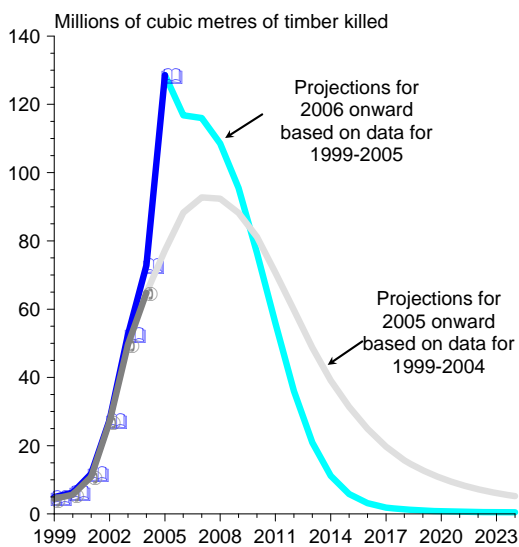
maining healthy timber diminishes.

The current outbreak in BC is the largest that Canada has ever seen. The MPB is a species of beetle that is native to North America and there have been previous outbreaks both in this province and in other areas of the continent, but the conditions that currently exist in BC have been perfect for the beetle to not only survive, but thrive.

The MPB is a tiny beetle about the size of a grain of rice. The beetles propagate by laying eggs under the bark of lodgepole pine trees. They harm the tree by cutting off the tree's supply of water and nutrients. The beetles also produce a bluestain fungus that prevents the tree from repelling and killing the attacking beetles with pitch flow.

It takes about 700 beetles to kill a lodgepole pine. Normally, the MPB will attack only highly-stressed mature trees, but when conditions are right, they will spread to healthy trees as well. Unfortunately, such conditions currently exist in British Columbia: There are large stands of mature pine, there have been several consecutive years of warm winters, and dry conditions have put additional stress on the trees. As a result, the MPB population has spread quickly and the sheer number of beetles has resulted in healthy trees becoming susceptible to the blight. In order to stop the beetle epidemic a period of extremely cold weather in the range of -20°C in the fall or -40°C in the late winter is required. However, since the beetle population has become so large, it may be necessary to have this kind of extreme weather occur in consecutive years. The range of the current epidemic makes it

The destruction of BC's lodgepole pine forests is proceeding at a far faster rate than projected even one year ago



Source: Ministry of Forests and Range

unlikely that this kind of cold snap could occur across the entire affected area, which does not bode well for BC's pine forests.

It is projected that, by 2013, 80% of the merchantable pine in BC's interior could be killed, with over half of that amount destroyed by mid-2007. The current MPB epidemic has already killed over 400 million cubic metres of merchantable timber in the province.<sup>1</sup>

The mountain pine beetle epidemic has already spread throughout much of BC's pine forests



Map source: Canadian Forest Service, based on aerial overview surveys conducted in the late summer and early fall of 2004. Darkest area is where major outbreak has occurred; lighter shaded area is where beetles have started to penetrate.

Recently, researchers at the University of Northern BC have discovered that the MPB is capable of flying up to heights of 800 metres above the ground and can travel vast distances by riding air currents. This suggests that the beetle could potentially jump the Rockies and move into Alberta. If the MPB overcomes that barrier, it could threaten pine forests across the country.

The MPB infestation has several negative impacts including increased forest-fire risk; potential harm to wildlife; decline in aes-

thetic values, which could impact tourism and property values; and the obvious economic impact on forest sector companies and their employees. According to the *BC Mountain Pine Beetle Action Plan*, several communities in the province stand to lose 25% or more of their present income level due to the effects of the MPB on nearby forests.

The following table shows the top five areas in the province in terms of the percent of the timber harvest land base that is comprised of pine and gives the percentage of those that worked in those regions in 2000 that were employed in forest sector jobs.

Timber Supply Area	% Pine Volume	% Working in Forest Industry, 2000
Vanderhoof	73	27
Quesnel	67	26
Williams Lake	54	22
Morice and Lakes	53	34
100 Mile House	52	17

Sources: MOFR, Statistics Canada (2001 Census)

It is not difficult to see that areas in which a quarter of employment is forest-based and where pine makes up over half the merchantable timber are facing significant employment impacts as a result of the MPB infestation.

One of the problems for forest companies is that the fungus that the beetles introduce to the pine trees discolours the wood, which devalues it. However, if the trees are harvested within two to three years of when they are attacked, the wood retains most of its value for sawlogs. As a consequence of this, the harvesting of these trees has been accelerated to maximize their economic value. Over the short term, this increased harvest should bring some economic benefits to the affected areas as more employees will be needed to perform the work; however, once the epidemic has run its course and most of the pine is either harvested or dead and unusable, there could be a signifi-

<sup>1</sup> Source: *British Columbia's Mountain Pine Beetle Action Plan: 2006-2011*, pg. 3.

cant employment gap that could have devastating consequences for several forest-dependent communities in the interior of the province.

There are critics of the policy of increasing the timber harvest, including environmental groups who suggest there are other methods that could be employed to control the outbreak and cattle ranchers who complain that the leftovers from logging have affected access to grazing land. According to the *British Columbia Mountain Pine Beetle Action Plan*, the MPB epidemic is killing timber faster than it can be harvested. The plan recognizes that there are other stakeholders to consider, stating, "Although it is important to recover the economic value and generate jobs by harvesting the dead timber and reforesting the sites, it is also important to recognize that impacted forests provide wildlife habitat, wilderness, and other ecological benefits that must be maintained."<sup>2</sup>

The plan calls for reforesting affected areas, but considering that it will take decades before the reforested areas will reach maturity, this still leaves a significant portion of the region's population facing unemployment. In order to mitigate the job displacement caused by the epidemic, the development of other economic activities in affected areas, such as tourism, mining and agriculture, will be encouraged. With proper planning it may be possible to limit the socio-economic impact of this natural disaster, but this will likely mean that the economic structure of BC's interior will undergo significant change over the next couple of decades.

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<sup>2</sup> Ibid, pg. 11.