



# Take it or leave it? MPB infestation sparks more questions than answers

by Bruce Rogers, Mountain Pine Beetle Extensionist

Is the impact of the current mountain pine beetle (MPB) infestation in British Columbia the result of a natural catastrophic disturbance? If so, should we

just let nature recover on its own as it has in the past? The reality is that, considering the vast area affected and that we probably won't be able to artificially rehabilitate it all, we will need to manage some of the affected forest for future timber supply and some will have to be left alone. Now the question is: What do we leave and what do we salvage and/or rehabilitate?

This question was a major theme at two recent MPB field tours held in the Prince George and Vander-

hoof Forest Districts. On the first tour, held October 3–4, researchers from the British Columbia Ministry of Forests and Range (MOFR) Southern Interior Forest Region joined those of the Northern Interior Forest Region to compare notes on MPB issues. The second tour, on October 30 and hosted by the University of Northern British Columbia (UNBC) Mixedwood Ecology Program, was attended by forest practitioners and researchers from academia, industry, and government. The purpose of both tours was to stimulate discussion, share knowledge, and raise questions.

The MOFR tour presentations included: fire in MPB-attacked stands, post-MPB secondary stand structure, MPB deforestation and hydrology, approaches to maintaining woodland caribou habitat, climate change, loss of young age class stands, and light-touch, small-scale partial cutting techniques used to salvage dead pine while protecting other mature trees and advanced regeneration. The UNBC tour focussed on MPB attack and stand structure (both residuals and regeneration) in

immature and mature pine-leading stands and salvage partial cutting techniques southeast of Prince George.

At one site visited by both tours, an age class 3 (40–60 years old) fire-origin pure pine stand had been spaced and pruned in the early 1990s, and now has approximately 50% mortality due to MPB. An adjacent unthinned stand had less mortality in relation to number of stems, but also had a smaller average diameter at breast height. An age class 8 (140–160 years) stand showcased a few large old dominant pines with a significant understory of mostly subalpine fir with some western hemlock and black spruce. Both tours ended with a stop at a FERIC/MOFR (BC Timber Sales) light-touch, small-scale partial cutting salvage trial.

A central tenet of both tour discussions was that it may become necessary to avoid any silvicultural intervention in MPB-killed stands if it might negatively impact other management objectives. Some of the comments, questions, and discussion points echoed among tour groups were as follows:

1. Is it worth using silviculture treatments to increase yield and quality in lodgepole pine stands that may be impacted by future MPB outbreaks? Participants discussed allowing dense fire-origin lodgepole pine stands to develop naturally rather than thinning them, which might encourage some survival should future MPB epidemics occur.
2. What is considered sufficient secondary structure (density and quality) so that no silvicultural intervention is required? What densities of regeneration will be acceptable; will we need to compromise in some stands and have acceptable biological stocking as opposed to meeting current stocking guidelines (e.g., operational adjustment factor for certain stands)? Coates *et al.* (2006) have predicted that a significant amount of MPB-attacked leading pine stands have sufficient secondary structure to meet silvicultural objectives.
3. Limited information on understory regeneration in pine-leading stand types exists in the current inventory. Many participants felt that inventories of understory regeneration in leading pine stands should be considered.



Alan Wienszky photo

Dr. Chris Hawkins speaks to forest practitioners about silviculture options in an old stand with minimal dominant pine and spruce; balsam and hemlock are in the understory.

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# What do we take, what do we leave?

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## References cited

Coates, K.D., C. DeLong, P.J. Burton, and D.L. Sachs. 2006. Abundance of secondary structure in lodgepole pine stands affected by the mountain pine beetle. Report for the Chief Forester, May 2006, Bulkley Valley Centre for Natural Resources Research and Management, unpublished report, 17 pp.

Rex, J. and S. Dube. 2006. Predicting the risk of wet ground areas in the Vanderhoof Forest District: Project description and project report. BC Journal of Ecosystems and Management 7(2):57-71.

4. Although secondary structure is more abundant in certain biogeoclimatic units than others, is the species composition acceptable? Will mills adapt to using more subalpine fir or black spruce? Subalpine fir is a substantial component of understory regeneration in many pine-leading stands, but it is usually not considered a desirable species for sawmills, partly because of its moisture properties. Many field tour attendees pointed out that, although future use of this species may require technological adaptations by sawmills, 20 to 30 years ago lodgepole pine, now a primary component of our timber supply, was considered undesirable.
5. What do we do with all of the dead pine when it falls to the ground in the blocks we haven't salvaged? Is there a practical use for dead, non-merchantable trees from the young killed stands? During the field tour, participants agreed that there is research into the viability of using this fibre for bio-fuels and other non-dimensional lumber products, but the economic viability of some approaches is unclear so far.
6. How will changes in hydrology and water balance because of the loss of live canopy affect harvesting season choices and watershed run-

off? Rex and Dube (2006) investigated reports of conversions of summer-ground to winter-ground logging conditions due to increases in soil water content and have presented preliminary results that verify a wet-ground prediction model.

7. Innovative partial-cutting techniques to maintain structure may be useful under certain circumstances, but without the cost recovery seen with high-volume operations, how can major licensees be expected to use these approaches? Participants generally agreed that other partial-cut harvesting methods could be alternatives to conventional methods for salvaging dead pine while maintaining secondary structure. However, they also agreed that, without some stumpage appraisal relief, these higher cost methods would not be economical to mills and would probably only be applied when clearcut harvesting is not an option.

Forest practitioners continue to ask questions about dealing with the MPB-attacked timber supply areas. Although new research is addressing some of these questions, many, for the short term, will remain unanswered. Thus, how we address the immediate question of "What do we take and what do we leave?" needs to reflect sound landscape objectives and reflect the best available research and historical knowledge. 