

# Research aims to cut harvesting and road costs in MPB-impacted areas

The MPB is having many impacts on the forest industry and new research is focussing on how to harvest MPB-affected stands in a more cost-effective manner. The three projects highlighted in this section explore cost reduction by evaluating forest road construction and looking at new methods for efficiently harvesting beetle-killed timber.

After many forest companies in the British Columbia Interior identified it as a priority, **Doug Bennett** of FERIC began exploring alternative road construction strategies. Currently, road construction is comprised of many phases, which can be time consuming and expensive. Roads need to be built quickly so that MPB-affected stands can be removed in a timely manner. To help provide more efficient alternatives, Bennett is exploring three applied research questions. First, "What is the most efficient equipment complement for building the road?" Second, "How should the equipment be organized and scheduled to produce the most cost-effective operation?" Third, "What types of equipment should be assigned to the various road

construction phases?" Bennett's research aims to increase efficiency and flexibility for forest managers when building roads under time constraints.

Another FERIC project develops new techniques, systems, and equipment for harvesting post-MPB stands. FERIC's **Tony Sauder** explained that information about cycle elements, equipment utilization, and fibre recovery related to harvesting both green and MPB-killed stands must be collected to make comparisons. Differences that are determined can then be used to improve efficiencies. The project proposes four questions:

- How can we adapt the current harvesting systems and techniques to more efficiently recover post-mountain pine beetle-killed stands?
- What changes to the current equipment and attachments can improve operating efficiency and equipment utilization?

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- How will equipment productivity performance be affected when harvesting MPB-killed stands?
- What other operational factors influence harvesting operations as MPB-killed stands are harvested?

Answering these questions will help to reduce the costs associated with harvesting MPB-killed stands and provide industry with more options.

**Arthur Roberts** of Simon Fraser University is using spectral band and analytical procedures to determine reliable, early discrimination between stands recently affected by MPB and those already deeply infested. This project aims to improve harvest planning, which will affect timber yields and cost efficiency. The project began in 2001 and continues into 2007.

Research is being conducted on six MPB-affected areas to the west and southwest of Prince George. The sites are part of the Dzitlainli Nation's traditional territory; some are in protected areas and some are in Canfor's Tree Farm Licence area. The infested sites were selected for their longer term monitoring potential and are being examined using remote

sensing, mapping at the individual level, and digital multispectral aerial photography.

Four-band (B, G, R, WIR) multispectral imagery distinctly demonstrates the difference between newly attacked trees and previously attacked trees, and should be apparent with applications using combined colour and colour IR aerial photography mapping packages as well. Systematic replication with new imagery in 2006 and 2007 is helping to determine the strength of replication and the potential to separate current (new) and earlier reds (as well as older grays). In addition to continuing to acquire and digitally convert high-resolution multispectral (visible and near infrared), colour, and infrared aerial photography for the six study areas, a longer term study area that is cooler and wetter than the current ones is being sought. Every two weeks from June to October for 2006 and 2007, flights are taking place, resulting in 14–20 separate imaging flights per year. It is important for the project to continue into 2007 because it permits refinement and verification of discrimination procedures and also provides a controlled two-year, across-time imaging cycle for monitoring and mapping new and old red attack under varying site conditions. 

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