



## FIA–FSP Forest Science Corner

# Long-term monitoring of in-stream wood recruitment and transportation

by Adam Wei, University of British Columbia Okanagan; Xiaoyong Chen, Governors State University; and Marwan Hassen, University of British Columbia

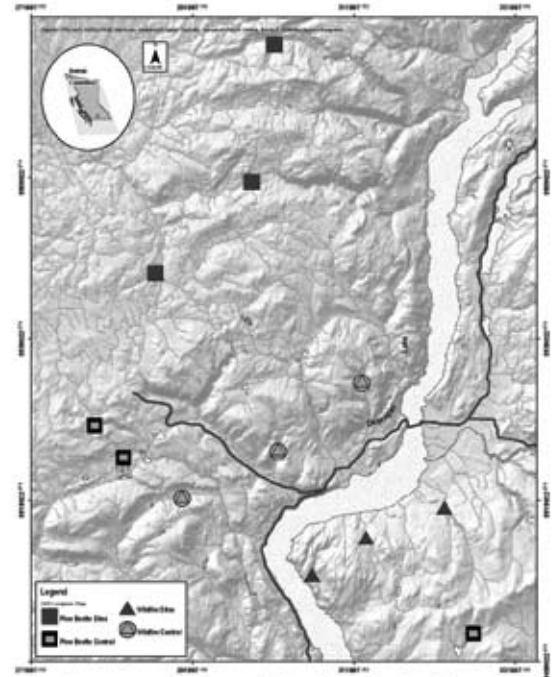
### More Information

For more information about the long-term monitoring of large woody debris (LWD) recruitment and transportation project, please contact Adam Wei ([adam.wei@ubc.ca](mailto:adam.wei@ubc.ca)). Funding is provided by the FIA-Forest Science Program, with collaboration received from **Don Dobson** (Dobson Engineering), **Rob Scherer** (Okanagan College), Tolko Industries Ltd., Gorman Bros. Lumber Ltd., BC Ministry of Forests and Range, and FORREX.

While in-stream wood has become an increasingly important issue in riparian zone management, relatively little is known about its dynamics or temporal variability. However, researchers are hoping to fill that knowledge gap with a long-term experiment that is quantifying in-stream wood and studying its dynamics in forested streams. So far, initial results demonstrate that wildfire has a great impact on the in-stream wood recruitment process.

Established in the Southern Interior of BC in 2005 with funds from the Forest Investment Account–Forest Science Program, the study’s key purpose is to monitor the impacts of wildfire disturbance and mountain pine beetle (MPB) infestation on in-stream wood recruitment and transportation processes.

In-stream wood plays an important role in the structure and function of stream ecosystems. It traps coarse particulate organic matter and sediments, and influences channel morphology, the composition of riparian vegetation, nutrient dynamics, and fish habitat.



Long-term in-stream wood monitoring sites.

Ground measurement of tagged large woody debris in a wildfire site.



Xiaoyong Chen and Adam Wei photo

The study is examining 12 sites, including three wildfire-burned sites and three unburned old-growth forest sites in Interior Douglas-fir biogeoclimatic zones, and three MPB-infestation sites and three corresponding non-MPB infestation reference sites in Montane Spruce biogeoclimatic zones. To accurately measure the movement of wood pieces in different years, all wood pieces at each of the selected 100-m stream reaches were tagged, and then referenced by total survey station.

Our initial data showed that average annual rates of in-stream wood recruitment and transport varied greatly with the site types and years. On average, the annual rate of wood recruitment was  $7.0 \pm 1.6$  pieces (number) (mean  $\pm$  standard deviation) or  $1.05 \pm 0.15$  m<sup>3</sup> (volume) per 100-m stream reach in burned sites, and the corresponding values were  $3.0 \pm 1.3$  pieces ( $0.13 \pm 0.06$  m<sup>3</sup>),  $2.6 \pm 0.8$  pieces ( $0.23 \pm 0.23$  m<sup>3</sup>), and  $2.6 \pm 1.0$  pieces ( $0.13 \pm 0.08$  m<sup>3</sup>) in unburned, MPB, and non-MPB reference sites, respectively. 🌲