Dead Wood in Forested Ecosystems: Managing, Modeling, Monitoring, and other Mysteries.

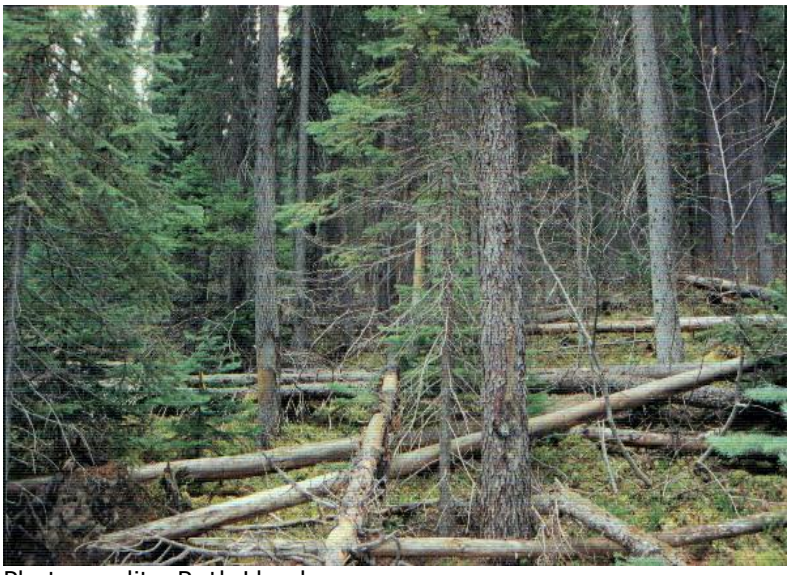
Weldwood Northern Operations (Houston Forest Products and Babine Forest Products), in partnership with the members of the Morice-Lakes Innovative Forest Practices Agreement (IFPA), the University of Northern British Columbia, the Ministry of Forests Forest Practices Branch, and private consultants began a program in 1999 to develop ecologically-based forest harvesting retention objectives and strategies for structural elements related to the persistence of downed woody material (DWM) and its associated biodiversity in forested ecosystems.

The program examines three manageable variables:

- amount of existing DWM and new coarse woody debris (CWD) retained,
- live and standing dead tree retention for downed wood recruitment through time (recruitment structure),
- rotation lengths to allow for recruitment of large piece size and advanced decay,

and assumes that landscape and stand level analyses and management objectives are both required to allow for coarse and fine scale variability of DWM. DWM functions at the scale of the stand, site or microsite, therefore dead wood conservation must incorporate spatial and aspatial management and apply to every hectare of ground. While management cannot replicate natural dead wood dynamics due to large-scale biomass removal, it can attempt to emulate natural patterns and buffer anticipated troughs in supply. DWM management strategies and targets must be regionally and biogeoclimatically specific; this work focuses on the Sub-boreal Spruce (SBS) moist cold Babine variant and dry cool subzones (SBSmc2 and SBSdk) of the west-central interior, along with Englemann-Spruce Sub-alpine Fir moist cold (ESSFmc). The program addresses the short-term development of easily implemented operational strategies while working towards the development and understanding of long-term temporal and spatial DWM supply. Monitoring the biological effectiveness of operational strategies and structural retention targets is also underway concentrating on DWM-associated invertebrate fauna. We are beginning to address modeling DWM dynamics; examining persistence and recruitment through succession while varying stand initiation conditions. To date, we have fairly robust data sets for DWM, snags and large live trees (LLT) in mature to old stands, as well as CWD and residual tree retention in clear-cut silviculture treatments. We are currently improving data for mid-successional stages by disturbance type to parameterize our structural element chronosequence for modeling. We are initiating research into the parameters necessary for stand dynamics modeling, including tree mortality, snag decay, snag and tree fall, and downed wood decay. The intent is to develop process-based growth and yield estimates for structural elements related to DWM for use in forecast modeling and the development of multi-scale retention targets.

Natural stand



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Operational Trials

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Best Management Practices

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