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**Tree Species Selection is Key to Maximizing Ecological and Socioeconomic Values
Under Climate Change Scenarios**
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Abstract.

The need for extensive forest restoration following the mountain pine beetle epidemic in the Quesnel Forest District has created a unique opportunity to design and establish a landscape of forest types that would integrate climate change considerations with the region's sustainability and socioeconomic objectives. We developed a decision support tool that facilitates evaluation of alternate management practices, uncertainties in the MPB risk factor, climate change scenario, and climate change impacts on ecological and socioeconomic values. We conducted a case study for the Quesnel TSA, that forecasted ecological (wildlife habitat, abundance) and socioeconomic (harvested volume, merchantable standing stock) parameters over 10, 40, and 70 year horizons.

Our case study indicated that a climate change adaptation strategy that aligns tree species regeneration with projected shifts in biogeoclimatic zones can mitigate impending fall downs in ecological and socioeconomic values resulting from the beetle epidemic. An adaptation-based regeneration regime should be especially effective in mitigating long term declines in wildlife values as well as mid- and long term declines in both harvested volume and volume of standing merchantable timber. Conservation of wildlife habitat values in the middle term was best achieved by a reduction in the MPB risk factor. Because there appears to be heavy costs associated with not choosing an adaptation-based silvicultural strategy, and because an adaptation-based tree species selection regime is compatible for all ecological and socioeconomic values evaluated in this research, regardless of modeling uncertainties, we strongly recommended that forest managers integrate an adaptive tree species selection protocol in the immediate future.

Biography.

Ann Allaye Chan-McLeod is a Research Associate at the University of British Columbia who holds a B.S.F. in Forestry, M.Sc. in Wildlife Ecology (University of British Columbia), and Ph.D. in Physiological Ecology (University of Alaska Fairbanks). Her work focuses on the impacts of natural and human-induced perturbations on biodiversity, and in developing workable solutions for integrated resource management. Her expertise extends across taxa (including birds, amphibians, & mammals), spatial scales (stand to landscape), and levels of biological integration (physiological to ecological). Current projects include developing a climate change adaptation strategy and modeling the effects of the mountain pine beetle epidemic on wildlife.