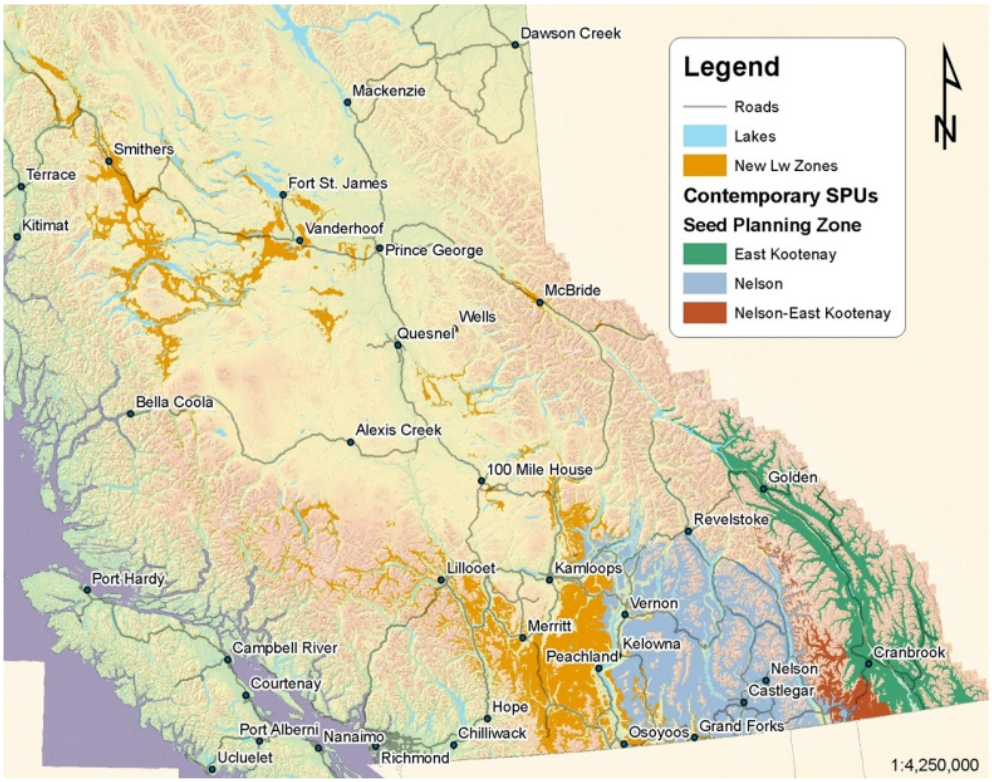
Western larch climate-based seed zones

The natural range of western larch *(Larix occidentalis)* in BC is limited to the south-eastern corner of the province. This valuable and fast-growing species has long been of interest to foresters, leading to the establishment of many small test plantings outside its natural range, including the ICH zone northwest of Smithers. The fast growth of many of these test plantations, combined with expectations that species will migrate north in response to climate change, encouraged Barry Jaquish (MFR, Research Branch) to investigate opportunities for commercial planting of western larch outside its current distribution.



Sophisticated new methods for climate modeling and spatial analysis, combined with information on the geographic patterns of genetic diversity, allowed a comprehensive analysis to better understand which seed sources of western larch might be suited to climatically similar areas outside the species' natural range. Projections of climate change provided additional information on the suitability of specific climatic areas for western larch.

This complex analysis was carried for the full species range, plus other potentially suitable areas, by Barry Jaquish and Dr. Gerald Rehfeldt (retired, USDA, Forest Service). Results were transferred to the MFR Tree Improvement Branch for an operational review and the development of seed transfer policy. Revisions to the *Chief Forester's Standards for Seed Use* were implemented early in 2010 and allow limited use of specific western larch seed sources in climatically-similar areas north of its natural range. It is anticipated that these changes will increase timber productivity and

Photo top: Western larch stand in the Kettle Valley *(J. Woods)*

Photo bottom: Developing western larch cones at the Kalamalka Seed Orchard *(C. Walsh)*

Map: Existing and new western larch seed zones *(M. Leroy, MFR TIB)*

landscape diversity in specific areas of BC. It also represents a proactive approach to mitigate the effects of climate change on BC's forests.

Business planning and funding through the FGC has supported field research, climate modeling, and the analysis that led to modifications of seed transfer policy. This work illustrates how field trials implemented through the provincial tree improvement program, sophisticated climate modeling tools, an effective policy framework, creative ideas, and well-organized collaboration can result in policy changes that are useful and will enhance long-term socio-economic benefits from BC's forests. It also demonstrates FGC and MFR commitment to respond to climate change.

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