

Amendment to Western Larch Range Expansion: Spatial Coverage¹ of Lw Climate Change - Seed Planning Zones

FREQUENTLY ASKED QUESTIONS (FAQ)

Last Updated: June 24, 2014

General Questions

1. What is the rationale for the timing of this spatial coverage¹ amendment?

While the majority of uptake is expected to begin during the next sowing request season (i.e. Fall 2014), the rationale for this timing is to allow licensees more flexibility and opportunities to consider the expanded areas of use for western larch (Lw) in their spring/summer planting program.

2. Will there be changes made to the 10% cap that limits the number of western larch seedlings planted annually by a person (i.e. silviculture obligation holder)?

This amendment does not include any changes to the 10% cap; and, there are no plans to review or adjust this percentage in the foreseeable future. This standard will be reviewed as part of the policy, impact and risks assessment phase of the Climate-Based Seed Transfer (CBST) project.

Spatial Coverage¹, Format and Data Access

3. Why is there no longer an Lw3 Climate Change, Seed Planning Zone (SPZ)?

The Lw3 SPZ was merged into the existing Lw1 SPZ to create a single spatial unit (and, map) for the western larch population (East Kootenay), and to eliminate 'areas of overlap' for ease of understanding and use.

4. When will the revised Lw1 and Lw2 shape files be made available?

The shape files are available for download from the Tree Improvement Branch FTP site: http://www.for.gov.bc.ca/ftp/HTI/external/!publish/Western_Larch_Interim_Measures/LW_Spatial_Data_2014/ The long range plan is to load the spatial data to the BC Geographic Warehouse (BCGW) so that it is available for viewing in SeedMap and available for download with all Seed Planning Zone spatial data.

¹ Includes revisions/updates to spatial geometry (i.e. western larch climate change seed planning zones shape files)

Science Foundation, Testing and Monitoring

5. What information is available to support the science foundation, testing and monitoring of planting western larch in these areas of expansion?

“Review of British Columbia’s contemporary and projected western larch seed planning zones in light of climate change” by Barry Jaquish, see link [http://www.for.gov.bc.ca/ftp/HTI/external/!publish/Western_Larch_Interim_Measures/INTERIM_Lw_Report_\(Jaquish\)_FINAL.pdf](http://www.for.gov.bc.ca/ftp/HTI/external/!publish/Western_Larch_Interim_Measures/INTERIM_Lw_Report_(Jaquish)_FINAL.pdf)

6. Are there long term research and operational trials that can be re-visited to look at performance and survival over time?

Research findings are based on operational plantations (trials), provenance and progeny tests that are close to 30 years old. Survival plots have also been established in operational plantations. For example, see the Lw and Fdi report by Phil LePage and Larry McCullough, (http://www.fgcouncil.bc.ca/Off-Site_Species_Assessment_Final_Report_Opt.pdf).

7. The current elevation range of Lw is extensive, falling between 550 m and 1750 m. What climate mechanism(s) drives this range in genetic plasticity (suitability)?

The key climate variables that describe the Lw species climate profile are: (1) an interaction of the summer dryness index and winter temperatures, (2) the ratio of summer to total precipitation, and (3) an interaction of degree-days >5° C and the mean temperature in the coldest month.

8. Given the rapid growth seen in Lw plantings to date, are there any secondary impacts anticipated due to snow loading damage?

Results from research and operational trials have been positive to date, with findings indicating that there is ‘no’ or ‘minimal’ impact due to snow damage. Western larch sheds its needles in winter which helps alleviate snow damage risk. Early results in the Nass Skeena indicate excellent growth with no apparent damage due to snow. Heavy wet snowfalls in late spring (particularly when there is an early flush) have been known to cause damage. However, this type of damage is not limited to western larch, and has been observed more broadly across other tree species.

Risk Assessment and Uncertainty

9. What factors are used to determine risk?

A detailed re-assessment of risk was not undertaken for this particular spatial coverage¹ amendment as it was determined that the assessment completed in 2010 remains valid, with one exception. The area of one-model concurrence has been downgraded from high to moderate risk as a result of further consideration and review by the lead research scientist. It is important to note that the provision to allow for the limited range expansion of Lw refers

explicitly to genetic suitability, and the associated risk and uncertainty of genetic maladaptation; and, does not include an assessment of ecological suitability (i.e. maps delineating areas of range expansion are for genetic suitability).

10. Given the uncertainty in climate models used in this type of analysis and the complexity inherent in working in the ecological and genetic adaptation interface, have you considered looking further into integrating genetic and ecological considerations?

The need to interface between ecological and genetic suitability will be addressed under the Climate Based Seed Transfer (CBST) project.

11. Are existing areas within the natural (contemporary) range of Lw seed use (covered by the Nelson, Nelson-East Kootenay and East Kootenay seed planning zones) no longer considered genetically suitable? Are there plans to address these potential areas of contraction in the short term?

At this time, there are no plans to make changes to seed planning zones delineated for areas covering the natural (contemporary) range of western larch. However, it is our intention to address these areas as part of the policy, impact and risk assessment phase of the CBST project. Recently published guidance on climate-based stocking begins to address this issue through recommendations that demote species, including western larch, from high risk and vulnerable ecosystems.

Stocking Standards

12. Are there plans to incorporate changes in this amendment (additional areas for range expansion of Lw) into stocking standards?

The Chief Forester released a memo on this topic when the amendment for Western Larch range expansion in the Standards for Seed Use was first published in June, 2010. For more information, see:

<http://www.for.gov.bc.ca/hfp/silviculture/Signed%20125986%20Guidance%20memo.pdf>

In addition, the following guidance document was released a few months ago “Suggested changes to the Reference Guide for FDP stocking standards – for species considered at high risk due to climate change”. In some BEC variants, Lw is identified as ecologically acceptable, given anticipated impacts due to climate change.

http://www.for.gov.bc.ca/hfp/silviculture/Stocking_stds/2014_FDP_SS_update.pdf