FORESTRY

Climate change demands new forest-seeding regulations, study says

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Provincial governments need to examine regulations that seeds for replanting tomorrow's forests must be gathered from trees within the local environment or they risk losing those forests to climate change, according to a University of Alberta forest researcher.

In a paper published in the journal *Public Library of Science and Ecological Applications*, Laura Gray, a PhD student at the university's department of renewable resources, says assisted migration — taking seeds from regions like Montana, Wyoming and Utah, and planting them in Canada's western forests — could be an effective climate change strategy at little extra cost.

Although Gray focuses on Alberta in her study, she said the findings are also applicable to B.C.

The prime difference between the two jurisdictions, she said, is that B.C. already has pilot studies underway that involve using seed from warmer regions, like Oregon, and planting them in B.C.

The B.C. project, headed by Greg O'Neill, a scientist at the forests ministry research branch, involves planting seeds from different zones side by side in 48 different sites ranging from northern B.C. to southern Oregon. The pilot project covers 16 different species.

Further, in B.C., the chief forester has made changes in regulations that once restricted the transfer of seed from one region or elevation to another, in response to the need to adapt forests to climate change.

For example, seeds from trees growing in today's forests can now be planted at elevations 100 to 200 metres higher than the previous standard. Also, up to 10 per cent of the seeds planted in the Bulkley Valley in the province's north can be western larch, a species now most suited to the Kootenays but expected to be suitable to the Bulkley Valley by 2030.

"It's a slightly different story in B.C. than in Alberta," Gray said, citing this province's assisted migration project.

Gray said that in the B.C. Interior and Alberta's boreal forest, genotypes of species that are adapted to survive in drier climatic conditions should be the preferred planting stock.

On the B.C. coast, warmer, wetter weather is the likely trend, she said, which will bring with it new pathogens that will affect trees.

"We won't be able to spray, so the biggest thing you can do is to find populations [of trees] that are more resistant to pathogens," she said.

She said a big issue is determining which genotypes to plant for forest survival beyond 2050. Projections on the degree of habitat change in localized areas become difficult to interpret with certainty that far into the future, she said.

She said the need for research now is crucial because of the long time-frame involved in determining what genotypes are best suited to future forests.

"It's hard to speed up research because you are waiting for the trees to grow," she said.

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